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THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

Edited by

P. A. SOKOLOFF, F.R.E.S.

Vol. 102

1990

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CONTRIBUTORS

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VOL 102

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THE

ENTOMOLOGIST'S RECORD

AND

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EDITED BY

P. A. SOKOLOFF, F.R.E.S.

JANUARY/FEBRUARY 1990

ISSN 0013-3916

RAYLEIGH VILLA,
WESTCOMBE HILL,
LONDON, S.E.

April, 1890.

MY DEAR SIR (OR MADAM),

In view of the greatly increasing Scientific Study of Entomology in the British Isles, it has long been apparent that the current literature is altogether inadequate to the wants of British Entomologists.

The two London Journals devoted to the Science are doing good work in the more strictly scientific and descriptive branches of the subject, particularly in that part relating to Foreign Entomology and to the lesser known British orders.

In order to supply a Magazine devoted entirely to the wants of British Entomologists, restricted to their own fauna, and such parts of Foreign Entomology as aid them in the thorough understanding of the British species,

THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

has been started, and is now herewith commended to your favourable notice.

The subject matter will, as far as possible, be arranged under certain heads to facilitate reference thereto. *Variation* will occupy a leading position, and it is trusted that Collectors will record the varieties they capture or meet with, which, if regularly recorded, are of the utmost scientific value.

To Collectors themselves I appeal with confidence, to make that part of the Magazine under the head of "Collecting, etc." instructive and interesting. Much of the more important information I have learned from other Entomologists has been obtained in a casual way from letters, the writers of which, at the time, have thought of very little consequence.

Exchange notices are invited and are inserted free, and the Magazine being primarily intended for British Collectors, a special feature will be made of this column. As the Magazine is issued in the middle of the month, *Exchanges* can be received later than in other magazines.

The well-known Lepidopterist, Dr. T. A. Chapman, will write a series of papers "On the genus *Acronycta* and its real and supposed allies" which will be illustrated by Chromo-lithograph plates, illustrating the ovum, larva (in different stages), and pupa of each species. This series of papers will be as important and instructive to Scientific Lepidopterists as to Collectors. Other well-known Entomologists have also kindly offered their assistance not only in Lepidoptera, but also in other orders.

The Annual Subscription, including plates and double numbers, is 6s., payable in advance, post free, within the United Kingdom, and should be sent to "The Editor," c/o Mr. E. Knight, 18 and 19, Middle Street, London, E.C., where also Notices of Exchange, Communications for Publication, and Advertisements should be addressed. All Subscribers forwarding their Annual Subscription on or before April 30th will be supplied with a second copy of the first number gratis for distribution, upon application to that effect.

The Magazine will be posted so as to reach subscribers in the United Kingdom by the 15th of each month.

While thanking those numerous friends who have already subscribed, we trust you will not only give your own cordial support, but also introduce this Magazine to the favourable notice of your friends.

I am, dear Sir (or Madam),

Yours faithfully,

J. W. TUTT.

The Entomologist's Record

AND

JOURNAL OF VARIATION.

Editorial

ALTHOUGH the Royal Telegram is not officially expected until April, 1990 marks the 100th anniversary of the foundation of the *Record* by J.W. Tutt. With Volume 1, number 1, Tutt included a two-page introduction, which is reproduced in facsimile at the front of this issue. The pagination of this introduction duplicated that of the text and thus in many bound copies of the *Record* these two pages are either missing, or replaced by a "preface to volume 1" which was actually published in 1891.

For this year we are changing the design of the front cover to match that of Volume 1. The motif, which was specially drawn for the *Record* by F.W. Frohawk, is an elegant composition of flowering honeysuckle attended by an humble bee, with larva and pupa (and even an eaten leaf) of the White Admiral butterfly. Regular readers will be familiar with the design, which has appeared on the title page for the last 100 years — but it also graced the front cover from April 1890 until December 1918.

The delicacy of Frohawk's illustration has often been obscured by indifferent printing; in 1954 the bee lost a number of abdominal hairs and in 1957 a sizeable chunk of the right forewing disappeared! Both hairs and forewing were lovingly reinstated in 1987. The only omissions from today's front cover are the address of the original printer and the enigmatic phrase "price sixpence". Readers with copies of the first volumes will be relieved that we have chosen not to copy the original colour of the cover — an indifferent shade of grey.

In this issue we reproduce a selection of advertisements that appeared in Vol. 1 no.1 — readers are asked to note that the prices quoted in the Watkins and Doncaster advertisement are no longer current.

During 1990 we will publish the inevitable selection of "100 years ago" items, and a few fragments of the history of the *Record*. Readers may rest assured that the bulk of the journal will still be devoted to matters of current entomological interest.

PAUL SOKOLOFF

Purple Hairstreaks attracted to a swimming pool

Purple Hairstreaks (*Quercusia quercus* Linn.) are rare visitors to our garden. In the last 20 years I have seen only three. 1989 has however been exceptional, during the first days of August I had seen three. Then on the evening of 5th August I found two in the swimming pool, one dead and one still alive. I found another in the pool on the morning of 6th. The pool was then in use for the rest of the day and no more were seen. However I found another in the pool at 10.00 am on the morning of the 7th and two more at lunch time. I kept a periodic eye on the pool on the 8th and found another in it at 12.45. During this period the weather was warm and sunny. It then turned more windy and cloudy and no more were seen.

Those that I rescued alive were all placed some distance from the pool to dry out. Although I cannot be sure, I think the seven removed from the pool over this four day period were all different specimens, they were of both sexes and all past their prime. I never actually saw one entering the water, but from their position in the pool, they had all clearly alighted on the water surface, not fallen in from the edge. Although there are oak trees in the area, there are none near the pool.

We have had this pool for many years and although we find the odd small moth in it from time to time, only once before have I found a butterfly. Some years ago I found a very worn Meadow Brown (*Maniola jurtina* Linn.). I suspect this simply fell in in extreme old age. We have lots of other butterflies, browns, whites and vanessids in the garden and this year particularly large numbers of Holly Blues (*Celastrina argiolus* Linn.). None of these are attracted to the pool.

There are two ponds in the garden but the Purple Hairstreaks do not seem to be attracted to them. I can only assume it is the pale blue colour of the swimming pool that attracts them. While I do not know of other reports of this suicidal behaviour, there have been a number of records of Purple Hairstreaks being attracted to light traps at night. Perhaps this fatal attraction for our swimming pool is part of the same phenomenon. — M.J. PERCIVAL, Holmesdale Cottage, Mid-Holmwood, Dorking, Surrey RH5 4HF.

***Aplota palpella* Haworth (Lep.: Oecophoridae) in Kent**

Three specimens of this local moth were taken by myself and Mr Dennis O'Keeffe, in an m.v. trap in the National Trust woods adjoining Scotney Castle, Kent. The first two appeared on the night of the 2nd August 1989, and the third moth on that of the 8th August 1989. On both occasions the temperature at midnight was around the 17°C mark, and moths were attracted in considerable numbers. So far as I am aware, this is the first record of occurrence of *A. palpella* in Kent. — J.M. CHALMERS-HUNT, 1 Hardcourts Close, West Wickham, Kent BR4 9LG.

STANLEY JACOBS, 1896 - 1989.

(Photograph taken at British Museum (Natural History) xi.1983.)

OBITUARY

Stanley Norman Aflalo Jacobs

1896 - 1989

Stanley Jacobs passed away on 14th September 1989 at the age of 92. A figure on the entomological "scene" since the early 1920s, his influence was wide, ranging from his editorship of the *Record,* published illustrations of microlepidoptera to curatorial work at the British Museum (Natural History).

Born on 11th November 1896 he spent his early life in south-east London, attending St Dunstan's College, Catford which he left in 1914 to take up a post as an engineering apprentice with Vickers. At the outbreak of the First World War he tried to enlist, but was too young for a commission. He eventually joined the Public School Batallion of the 16th Middlesex Regiment and with them served two and a half years in France, transferring to the Royal Engineers in 1918 before being invalided home after exposure to mustard gas.

After the war he took up agriculture, working mainly with poultry, and including a spell working in Canada. Eventually he joined his father's shipbroking business, remaining there, except for a spell in the

Metropolitan Police Special Constabulary during the Second World War, until his retirement.

His interest in entomology began in early childhood, inspired by his grandfather's personal "museum" — a fashionable feature of the Victorian home, and his father's accounts of collecting Apollo butterflies in Germany.

His first collection began in 1906, and comprised a series of "whites" on dressmaker's pins, stored in cardboard boxes. This eventually grew to 180 drawers, the contents of which were incorporated into the National Collection some years ago.

He joined the South London Entomological and Natural History Society in 1923. He held a number of offices and was twice elected as President of the Society — in 1954 and 1964, and became an honorary life member in 1967. Perhaps the most significant aspect of joining the SLENHS in the 1920s and 30s was the opportunity to mix with and meet the (now) famous names, including H.J. Turner, Robert and Guy Adkin, L.T. Ford, E.A. Cockayne, N.D. Riley, K.G. Blair, S. Wakely, W. Fassnidge and W.H. Tams. Through these, Jacobs developed a network of international contacts, many of whom became personal friends, including L. Lhomme, J. Klimesch, A.G. Carolsfeld-Krause, A.B. Klots and D. Povolny.

Before the Second World War he began working part-time at the British Museum (Natural History), developing an interest in insects which were stored-product pests. He increased his voluntary work for the museum after his retirement in 1962, and was responsible for the curation of a number of collections, mainly the pyralidae. In 1973 he was made an Honorary Associate of the Museum.

Stanley Jacobs was also a talented artist. Amongst his more well-known works were many of the colour plates published by the SLENHS in their series on microlepidoptera, and which were published in 1978 as the collected volume *Illustrated papers on British microlepidoptera.* He also painted the colour plates for B.P. Beirne's *British pyralid and plume moths,* published by Warne in 1952 and illustrated many entomological papers with line drawings.

His association with the *Entomologist's Record* began in 1948 when Henry Turner asked him to join the editorial panel. After the resignation of E.A. Cockayne as editor in 1955, P.B.M. Allan took over as a "caretaker", and it was he who persuaded Jacobs to take over the role of editor a few months later. He edited the *Record* for 17 years during which time he restored the ailing fortunes of the journal, and laid the foundations for the current format. He retired as editor, handing over to Michael Chalmers-Hunt, in 1972.

Stanley Jacobs was a cheerful and determined character, undeterred by the problems of advancing years, and active until the end. Our sympathy goes to his daughter, Mrs Ann Newman. PAUL SOKOLOFF

ON THE GENUS *EPIRRITA*, THE NOVEMBER MOTHS (LEPIDOPTERA: GEOMETRIDAE), IN BERNWOOD FOREST ON THE OXON/BUCKS BORDER.

P.Waring

Nature Conservancy Council, Northminster House, Peterborough PE1 1UA.

THE three species of this genus which occur in southern England, namely the November moth, *Epirrita dilutata* D. & S., the Pale November moth, *E. christyi* Allen and the Autumnal moth, *E. autumnata* Borth, are difficult to separate when examining light trap catches in the field because of superficial similarities, so I collected a series of about 50 at the above site, mainly during the 1984 season, for later examination. I also reared a few of the *Epirrita* larvae that I beat from various trees and shrubs to see how the choice of host plants compared with the other work on the subject, which is summarised in Haggett (1981). Among the set specimens I was able to assign some of the more clearly marked specimens to *E. dilutata* and others to *E. autumnata* using the wing characteristics given in Skinner (1984) and Skou (1986), but I was left with a large number of undetermined specimens and no definite *E. christyi*. The apparent absence of *E. christyi* from the series was of interest as the species does not appear in the local lists for the Oxford district (Bretherton 1940; Bretherton 1941, Emmet 1948) although *E. christyi* was recognised as a distinct species three decades earlier (Allen 1906). In addition it appears that no previous workers have reported *E. christyi* in Bernwood though both *E. dilutata* and *E. autumnata* have been recorded regularly since the 1930s and '40s (Waring, in prep.).

Recently I took my full series of specimens to Adrian Riley who identifies the light trap catches for the nation-wide Rothamsted Insect Survey and who has examined and dissected a great many specimens of this genus. Using both wing characteristics and other features such as the spurs on the octavals (Heslop-Harrison, 1933), he finds that the series contains twenty two *E. dilutata,* twenty-four *E. autumnata* and two *E. christyi.* Of the specimens of *E. dilutata* seventeen were taken between 9 October and 12 November 1984 and the numbers are distributed throughout this period. Two specimens were added to the collection in 1985 and a further three were reared from larvae. Ten of the *E. autumnata* were reared from larvae, the other fourteen were caught as adults between 9 October and 12 November 1984. All but the first of these adults occurred after 29 October so the earlier specimens were predominantly *E. dilutata,* though both species were equally common over the 1984 season as a whole.

Of the two *E. christyi,* one was taken on 22 October 1984 and the other was reared from a larva beaten from hazel on 6 May 1985, so *E. christyi* is breeding in Bernwood.

Birch was the only host-plant from which I recorded *E. autumnata* and these were collected from the birch regrowth that is now common along the edges of the rides in Bernwood. Heslop-Harrison (1933) and Skinner (1984) suggest that birch and alder (both of which are members of the Betulaceae) are the main host-plants of *E. autumnata*. Heslop-Harrison observed that *E. autumnata* "prefers a much more open situation than *E. dilutata* and hence is much more likely to be encountered on trees marshalled in linear fashion along upland streams, . . . in moorland clefts . . . along mill-races and so on." He only found it in one really dense wood in his study area, which was Northumberland and Durham. The Bernwood situation, with lines of rideside birch regrowth on the margins of young conifer plantations, has similarities with some of the habitats Heslop-Harrison describes.

The three specimens of *E. dilutata* that I reared were collected from hazel. I also recorded larvae which I considered to be typically *E. dilutata* from oak and hawthorn in the same places. These particular larvae were bright velvety-green (as noted by Haggett 1981), unmarked with red and with a prominent yellow lateral stripe around the posterior segments.

I am not clear why *E. christyi* is so poorly represented in my sample. Harper (1980) found it commonly in woodland in his study area in Herefordshire, where it occurred on birch, hawthorn and hazel as well as blackthorn, beech and wych elm. Birch, hawthorn and hazel are the three most abundant understorey species in Bernwood and my study area included mature birch as well as regrowth.The blackthorn thickets are well-known, but beech is localised to one plantation and a few scattered specimens. Wych elm (*Ulmus glabra*) is un-recorded, though English elm (*Ulmus procera*) is a minor component (Woodell, unpubl.). Heslop-Harrison (1933) considered that in Northumberland and Durham *E. christyi* was dependent on the presence of wych elm. Although he found larvae on sallow, hazel and honeysuckle, they were never found on these plants in sites where wych elm was absent and wych elm provided over 85% of the larvae that were beaten. Wych elm was also a feature of the woodland site studied by Harper (1980) in Hereford though *E. christyi* occurred in smaller numbers at three other sites. Perhaps the absence of wych elm from Bernwood is a factor contributing to the apparent rarity of *E. christyi* there. I would be glad to hear of sites where *E. christyi* is common and wych elm and beech are absent, provided that voucher specimens of *E. christyi* exist which can be examined. Clearly these moths are an interesting as well as a difficult genus.

Acknowledgements

The moths were collected during a study supported by Oxford Polytechnic. I thank the Forestry Commission and the Nature Conservancy Council for permission to work in Bernwood Forest Nature Reserve and Adrian Riley of Rothamsted Insect Survey for his help in identifying the specimens.

References

Allen, J.E.R., 1906. *Oporabia christyi* Prout: a distinct species. *Entomologist's Rec. J. Var.* **18**: 85-89.

Bretherton, R.F., 1940. A list of the macro-lepidoptera of the Oxford district. *Proceedings of the Ashmolean Natural History Society* 1939: 25-70.

Bretherton, R.F., 1941. Additions to the list of macro-lepidoptera of the Oxford district. *Proceedings and report of the Ashmolean Natural History Society* 1940: 22-23.

Emmet, A.M., 1948. Second supplement to the list of macro-lepidoptera of the Oxford district. *Proceedings and report of the Ashmolean Natural History Society* 1941-1947: 47-55.

Haggett, G.M., 1981. *Larvae of the British lepidoptera not figured by Buckler.* British Entomological and Natural History Society, London.

Harper,M., 1980. Observations on *Epirrita dilutata* (Denis and Schiffermuller) and *Epirrita christyi* (Allen) (Lep: Geometridae) in Herefordshire. *Proc. trans. Br. ent. nat. Hist. Soc.* **13**: 106-116.

Heslop-Harrison, J.W. 1933. The autumnal moths of the genus *Oporinia* Hb. with an account of a new American species. Transactions of the Northern Naturalists Union **1**: 111-136.

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

Skou, P., 1986. *The geometroid moths of North Europe.* Entomonograph 6. Brill. Copenhagen.

Waring, P., in prep. Provisional annotated list of macro-moths, including all known historical records, for the Hell Coppice/Shabbington Wood complex, Bernwood Forest, Buckinghamshire, including the Bernwood Meadows.
(Note: a first draft of the above is available for comments and addenda.)

Woodell, S. unpubl. Vascular plant species list for Bernwood. Appendix 1 in Rowell, T.A., 1979. *History and management of Bernwood Forest.* Unpublished B.Sc. thesis. Oxford Polytechnic.

A note on two Tortricinae (Lep.) at Charlton, S.E. London

I have been somewhat surprised at the recent appearance here of *Argyrotaenia ljungiana* Thunb. (= *pulchellana* Haw.), an inhabitant of heathland. The first three came to my m.v. lamp on the night of 5.viii.88, and many (in some variety) on that of 22.vii.89. I had not previously met with it anywhere, nor does this area seem at all suitable to it; there is no wild heather or ling and nothing today, of a truly heathy character. However, there is a small ericetum of recent standing in Charlton Park, so I am much inclined to think that *ljungiana* must have been introduced into the locality with some of the plants. Sokoloff (*Ent. Rec.* **98**: 254-255) records breeding this species from the fruits of *Vitis vinifer* collected from a garden in Battersea, London which may provide an alternative explanation for its occurrence in Charlton. Lt. Col. Emmet kindly named the moth for me.

I should perhaps also mention that *Epiphyas postvittana* Walk. has rapidly become so numerous here as to be, on many nights, the most abundant tortricid and one of the commonest moths at the lamp — in both broods. I suppose this is now fairly general experience around London, but having seen no positive statement to that effect, I think it worth placing on record. It is also frequently to be met with by day, in casual specimens, about the gardens here — in flight,or sitting on hedges etc., the former probably resulting from disturbance. — A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Late summer movement of insects in south-east London in 1958.

I came upon an account of the above when browsing through my natural history diaries. During a Football League match at the Valley Stadium, Charlton, London SE7, between 3 pm and 5 pm BST on 23.viii.1958, I noticed a fairly strong movement of Diptera and some Lepidoptera south-south-eastwards across the field of play.

At 3 pm when the match began, slight rain was falling from an overcast sky, but by 3.30 pm it began to clear and, when the sun came out soon afterwards, a Meadow Brown butterfly (*Maniola jurtina* L.) flew SSE just above the heads of the spectators packed on the terraces. A few minutes later two Large Whites (*Pieris brassicae* L.) flew over the heads of the crowd in exactly the same manner together with considerable numbers of Diptera, mainly Bibionidae (possibly the Fever-fly *Dilophus febrilis* L.) and, to a lesser extent, Syrphidae — all going in the same direction, SSE. The wind, at the time, was light and from the SSW. It may have been sufficiently strong to have deviated the insects from flying directly south. My observations ceased when the match ended at 5 pm, but the movement was still continuing. If this SSE line of flight over Charlton is projected back over the adjacent River Thames, is passes more or less directly along the line of the Lea Valley in north-east London, a comparatively unbuilt-upon strip of land passing through some densely urbanised districts.

It was the current fashion in 1958 to wear cheap, bright yellow plastic capes, and many spectators sported them. Many of the Bibionids and the Syrphids alighted on these capes, causing considerable annoyance to their owners. Most flew too high, incidentally, to cause more than minor irritation to the footballers.

I witnessed similar movements southwards over the River Thames involving Bibionids, Syrphids and Lepidoptera in late September, 1949 (Burton, J.F., 1950, *Entom.* **83**: 203-206) and in early October 1950 (Burton, J.F. & Owen, D.F., 1951, *Entom.* **84**: 160-161). As described in the first paper, my friend Dr D.F. Owen encountered such a movement south over the Thames marshes at Cliffe, Kent, on 29.viii.1948, the same month in which I saw the movement at Charlton. — J.F. BURTON, Wasserturmstrasse 53, 6904 Eppelheim-Heidelberg, West Germany, 31.vii.1989.

NEW EXOTIC SPECIES OF CORTICARIINAE (COL.: LATRIDIIDAE)

COLIN JOHNSON

Department of Entomology, Manchester Museum, The University, Manchester M13 9PL.

THE subfamily Corticariinae currently includes about 450 described world species, and these occur in all zoogeographical regions. Corticarines are easily recognised superficially by their pubescent form, as opposed to the almost entirely glabrous Latridiinae. Their size is small, mostly within the range 1.2 - 2.5 mm. Colours are predominantly shades of yellow, brown and black, mostly unicolorous or bicolorous, although some exceptional variegated species are known. A genus such as *Corticaria* Marsham exhibits quite a range of external forms and differences which permit the ready identification of many species, even though many difficult groups rely upon aedeagal studies for identification. On the other hand, the genera *Corticarina* Reitter, *Melanophthalma* Motschulsky and *Cortinicara* Johnson are remarkably uniform in appearance. Their male genitalia fortunately provide excellent diagnostic characters and are thus essential for identification; unassociated females are frequently unidentifiable however. These three genera are commonly collected. They are especially to be found by sweeping and beating trees and vegetation, on flowers, at light, whilst others can only be collected by sieving humid and decaying plant debris.

The aim of the present paper is to describe and characterise some new *Corticarina* and *Cortinicara* which have accumulated over the last eight years. References to works dealing with allied species are given where appropriate, as the genera have not yet been monographed.

Abbreviations have been used to indicate the institutional source of studied material as follows: BMNH — British Museum (Natural History), London; MHNG — Muséum d'Histoire Naturelle, Geneva; MM — Manchester Museum; ZML — Zoological Museum, University of Lund.

Corticarina baranowskii sp.n.

Length 1.33 - 1.52 mm; head breadth 0.31 - 0.33 mm; pronotal breadth 0.42 - 0.49 mm; elytral breadth 0.64 - 0.70 mm; antennal length 0.51 - 0.56 mm. Colour dark, brownish-black, head and elytra often brownish; legs yellowish-brown; antennae with the basal segment yellowish-brown, stem paler basally, increasingly infuscated in the apical half or so. Antennal segments moderately long, slender; segment 8 quadrate to slightly longer than broad; 9 conical and markedly longer than broad; 10 about as long as broad, the club narrow and gradual. Body rather markedly convex. Pronutum moderately broad, 1.26 - 1.36 times as broad as long, broadest around middle, sides moderately rounded; post median depression distinct, lateral impressions absent; surface rather shining, alutaceous microsculpture fine and distinct; puncturation moderate, rather close, discal punctures c. half a diameter apart or less; hind angles toothed. Elytra somewhat short oval, 2.50 - 2.71 times as long as pronotum, 1.38 - 1.41 times as long as broad, broadest around middle; sides moderately curved; surface shining, not reticulate; elytral pubescence feebly curved, almost flat, the hairs c. 0.04 - 0.048 mm, barely overlapping. Winged. Male: anterior tibial tooth moderate, ventral, situated close to the apical third; aedeagus fig.1.

Holotype male. Mexico — Chiapas: 18 km E San Cristobal, 2500 m, 30.ix.1986, sifting litter under shrubs in pine-oak forest, leg. R. Baranowski (ZML).

Paratypes. Mexico — same data, 1 female (ZML); 17 km SE San Cristobal, 2400 m. 26.ix.1986, sifting litter in pine-oak forest, leg. R. Baranowski, 1 female (ZML); 23 km W San Cristobal, 2200 m, 25.ix.1986, sifting leaflitter under shrubs, leg. R. Baranowski, 1 female (ZML); 23 km W San Cristobal, 2200 m, 25.ix.1986, sifting leaflitter under shrubs, leg. R. Baranowski, 1 male (ZML); Pueblo Nuevo, 1400 m, 20.ix.1986, sifting leaflitter in mixed deciduous forest, leg. R. Baranowski, 1 female (ZML).

This species can be easily recognised by the characteristic aedeagus. On external features: dark colour, shining surface, convexity, and antennal club structure, the species seems not to have any close congeners. Other Mexican species are *hoegei* Johnson (Johnson, 1979) and *subfusca* Sharp, although males of the latter are not yet known.

Corticarina reidi sp.n.

Length 1.66 mm; head breadth 0.35 mm; pronotal breadth 0.48 mm; elytral breadth 0.68 mm; antennal length 0.56 mm. Head and pronotum black, elytra dark brownish-black; legs dark brown, tarsi with basal segment lighter, apical segment darker; antennae with basal segment dark brown, segment 2 light brown, stem segments 3 - 7 increasingly infuscated apically, club brownish-black. Antennal segments moderately long, slender; segment 8 broader than long, 9 slightly longer than broad, 10 about as long as broad, club rather narrow and gradual. Body somewhat strongly convex. Pronotum relatively narrow, 1.19 times as broad as long, broadest in front of middle, sides almost moderately curved; post median depression feeble, lateral impressions absent; surface little shining, alutaceous microsculpture fine and distinct; puncturation somewhat fine, moderately close, shallow; hind angles finely toothed. Elytra long oval, 2.6 times as long as pronotum, 1.53 times as long as broad, broadest around middle; humeri effaced, callus absent; sides moderately curved; pubescence slightly curved, a little raised, the hairs c. 0.035 mm, slightly overlapping. Brachypterous, wings narrower and distinctly shorter than an elytron. Male: anterior tibial tooth somewhat small, ventral, situated in front of the middle; aedeagus fig. 4.

Holotype male. Colombia — Laguna de Tota,72°50′W, 5°30′N, 3000 m, 21-30.vii.1982, swept from *Typha/Scirpus* on lake shore, leg. C. Reid (MM).

The body shape and convexity of this species is reminiscent of the European *Corticaria impressa* (Olivier), but with *Corticarina* characters. Amongst the neotropical members of its genus, *reidi* occupies an isolated position, differing markedly in body shape, convexity and other features from the Costa Rican *kraussi* Johnson, the only other known brachypterous species (Johnson, 1981). The aedeagi of both species are very characteristic.

Corticarina blatchleyi sp.n.

Length 1.20 - 1.36 mm; head breadth 0.29 - 0.33 mm; pronotal breadth 0.40 - 0.48 mm; elytral breadth 0.61 - 0.72 mm; antennal length 0.41 - 0.43 mm. Body entirely reddish, elytra usually somewhat infuscated and darker; legs and antennae pale, entirely reddish-yellow. Antennal segments rather short; segment 8 broader than long, 9 ± as broad as long, 10 markedly broader than long, club rather narrow, hardly abrupt. Body moderately convex. Pronotum rather broad, 1.27 - 1.38 times as broad as long, broadest around middle, sides moderately curved; post median depression distinct, lateral impressions not apparent; surface little shining, alutaceous microsculpture fine and distinct; puncturation fine, very shallow, rather spaced, discal punctures 1.5 - 2 diameters apart; hind angles moderately toother. Elytra almost short oval, 2.51 - 2.86 times as long as pronotum, 1.30 - 1.36 times as long as broad; broadest around middle, sides moderately curved; elytral pubescence very fine and short, almost flat, hairs c. 0.03 mm, not overlapping. Winged. Male: anterior tibial tooth ventral, moderate in size, situated in front of the middle; aedeagus fig. 2.

Holotype male. USA — Florida: Dunedin, leg. W.S. Blatchley (BMNH). Paratypes. USA — same data, 5 females (BMNH).

This species comes between *clayae* Johnson from Guyana and the nearctic *cavicollis* (Mannerheim) in general appearance, colour, shape and sculpture. All three species can be easily separated by their male aedeagi (Johnson, 1972b, 1981).

Corticarina fukiensis sp.n.

Length 1.40 -1.68 mm; head breadth 0.36 - 0.40 mm; pronotal breadth 0.46 - 0.53 mm; elytral breadth 0.66 - 0.78 mm; antennal length 0.46 - 9.56 mm. Colour very dark brown, head and pronotum often brownish-black; legs pale brown; first antennal segment pale brown, stem with at least segment 2 and usually most of segments 3 - 8 yellowish, club darkened. Antennal segments rather short, 8 broader than long, 9 about as long as broad, 10 very slightly broader than long, club short and little abrupt. Body moderate convex. Pronotum 1.32 - 1.41 times as broad as long, broadest somewhat in front of middle, sides somewhat moderately curved; post median depression distinct, lateral impressions absent; surface little shining, alutaceous microsculpture fine and distinct; puncturation moderate, very close; hind angles moderately toothed. Elytra long oval, rather narrow, 2.80 - 2.98 times as long as pronotum, 1.41 - 1.46 times as long as broad, sides rather weakly to almost moderately curved; elytral pubescence curved, very slightly raised, hairs c. 0.04 - 0.48 mm, slightly overlapping. Winged. Male: anterior tibial tooth moderate, ventral, situated almost at the apical third; aedeagus fig. 3.

Holotype male. China — Fukien: Kuatun, Tschung Sen, 20.x.1946, leg. J. Klapperich (MM). Paratypes. China — same data but 20.ii. - 2.iv.1946, 20 males, 36 females (MM).

In aedeagus structure and general form, this species is allied to the north Indian *biharensis* Johnson and *strandi* Johnson, although closest to the latter in aedeagal details and body size. On external features, *fukiensis* is very difficult to distinguish from *strandi*, but is immediately separable on aedeagal features — the aedeagus is larger and more twisted, differently shaped in profile (see Johnson, 1972a, 1979).

Corticarina carinifrons sp.n.

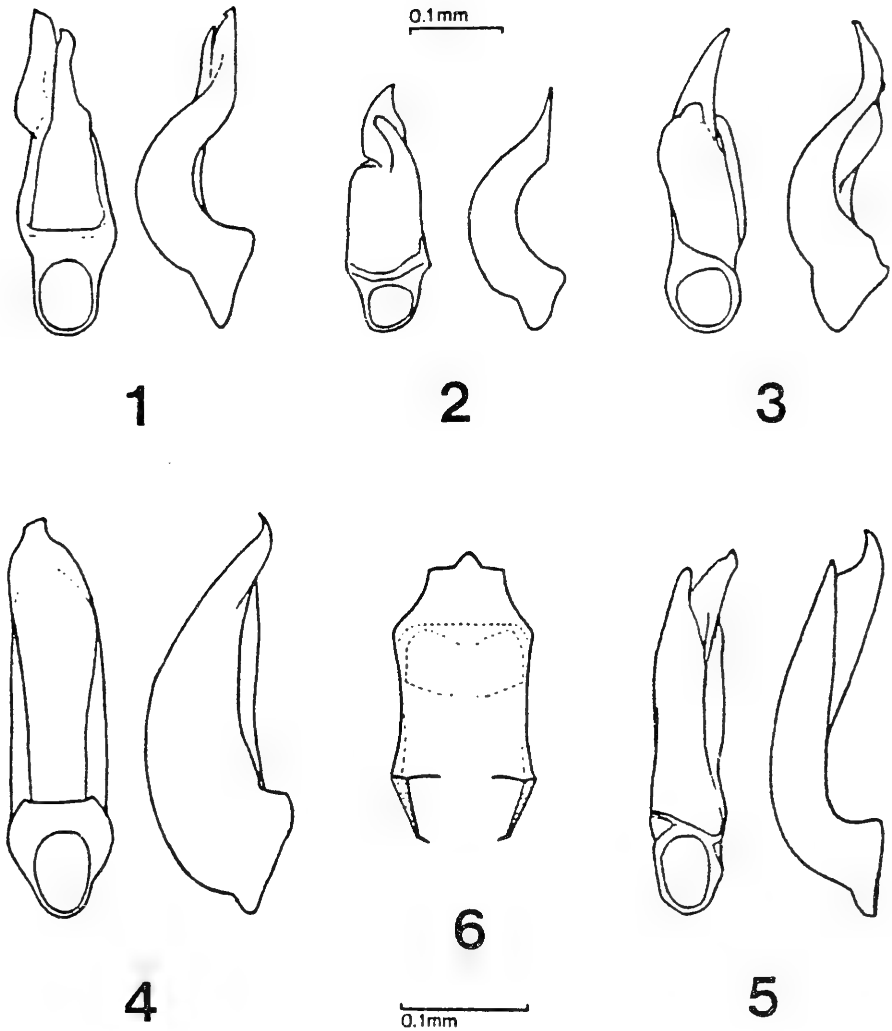
Length 1.49 - 1.66 mm; head breadth 0.33 - 0.37 mm; pronotal breadth 0.44 - 0.50 mm; elytral breadth 0.69 - 0.80 mm; antennal length 0.56 - 0.64 mm. Colour dark brown; legs pale brown; first antennal segment pale brown, stem paler, yellowish-brown; club ⅛ infuscated and darker than first segment. Antennal segments rather long, 8 as long or slightly longer than broad; 9 and 10 conical, longer than broad; club long and narrow. Body rather markedly convex, especially the somewhat humped elytra. Head with a median longitudinal carina. Pronotum rather small, 1.21 - 1.31 times as broad as long, broadest somewhat in front of middle, sides moderately curved; post median depression and lateral impressions well-developed; surface little shining, alutaceous microsculpture feeble; puncturation moderate, very close, punctures almost touching and interstices somewhat ridge-like; hind angles rather finely toothed. Elytra long oval, 2.90 - 3.02 times as long as the pronotum, 1.39 -1.47 times as long as broad, sides moderately curved; elytral pubescence curved and slightly outstanding, hairs c. 0.07 - 0.08 mm, long and conspicuously over-lapping. Winged. Legs slender; hind tarsi with basal segment long and thin. Male: anterior tibial tooth moderate, ventral, situated at the apical third; aedeagus fig. 5.

Holotype male. China — Fukien: Tschung Sen, 17.ii.1946, leg. J. Klapperich (MM). Paratypes. China — same data but 17.ii. - 2.iv.1946, 3 males, 6 females (MM).

This species is very reminiscent of the Himalayan *cognata* Johnson (Johnson, 1972a), especially on account of the long basal segment to the hind tarsi and the well-developed lateral impressions on the pronotum. However, the carinate frons and aedeagal structure are quite unique in the genus.

Cortinicara luzonica sp.n.

Length 1.22 - 1.41 mm; head breadth 0.29 - 0.32 mm; pronotal breadth 0.34 - 0.39 mm; elytral breadth 0.57 - 0.64 mm; antennal length 0.39 - 0.43 mm. Colour reddish, legs and antennae yellowish, apical tarsal segments and antennal club feebly infuscated. Head with moderately large eyes, temples minute. Antennal segments rather short; segment 8 quadrate to broader than long, 9 somewhat conical and about as broad as long, 10 about as long as broad, club rather narrow and gradual. Pronotum rather small, slightly broader than head, 1.1 - 1.2 times as broad as long, broadest somewhat around middle, sides moderately rounded; transverse impressions distinct; surface rather shining, alutaceous microsculpture ⅛ well-marked; puncturation moderate, close; hind angles feebly toothed. Elytra long oval, c. 2.8 times as long as pronotum, c. 1.5 times as long as broad, sides somewhat



Figures 1 - 5, aedeagi of new species of *Corticarina,* ventral and lateral views: 1, *baranowskii*; 2, *blatchleyi*; 3, *fukiensis*; 4, *reidi*; 5, *carinifrons.*
Figure 6, *Cortinicara luzonica* **sp.n.**, aedeagus, ventral view. (Scales: figures 1 -5, top; figure 6, bottom.)

moderately curved; surface shining, not reticulate; interstices with oblong punctures in a single row, these punctures almost as long but much narrower than the strial punctures; elytral pubescence short, c. 0.04 mm, feebly curved, nearly flat, barely overlapping. Winged. Male: anterior tibial tooth situated close to the apical fifth or so; aedeagus fig. 6.

Holotype male. Philippine Islands — Luzon: Latan Cave, nr. Sagada, 15-19.xii.1979, leg. Deharveng & Orousset (MHNG).

Paratypes. Philippine Islands — same data, 2 males (MHNG).

This is a typical member of the *Cortinicara gibbosa* (Herbst) group, species of which are best separated by their characteristic male aedeagi (see Johnson,1975, 1977a,1977b).

Acknowledgements

I am indebted to C. Reid and the late J. Klapperich for material collected in Colombia and China respectively, which is now in the Manchester Museum. Other material was kindly loaned by R.D. Pope, British Museum (Nat.Hist.); R. Baranowski and R. Danielsson, Zoological Museum, University of Lund; C. Besuchet and I. Löbl, Muséum d'Histoire Naturelle, Geneva.

References

Johnson, C. 1972a. Some members of the genera *Corticarina* Reitter and *Melanophthalma* Motschulsky (Col., Lathridiidae) from India and Nepal. *Entomologist* **105**: 97-110.

—. 1972b. Studies on the genera *Corticarina* Reitter and *Melanophthalma* Motschulsky (Col., Lathridiidae). *Nouv. Rev. Ent.* **2**: 185-199.

—. 1975. *Cortinicara,* a new genus of Corticariinae (Coleoptera: Lathridiidae). *Entomologica scand.* **6**: 283-285.

—. 1977a. Ergebnisse der Bhutan-Expedition 1972 des Naturhistorischen Museums in Basel, Coleoptera: Fam. Lathridiidae Subfam. Corticariinae. *Entomologica basil.* **2**: 329-335.

—. 1977b. Beiträge zur kenntnis der Fauna Afghanistans, Merophysiidae and Lathridiidae, Coleoptera. *Casopis Morav. Muz.* **62**: 123-132.

—. 1979. New species of *Corticarina* Reitter (Col., Lathridiidae). *Entomologist's mon. Mag.* (1978) **114**: 55-62.

—. 1981. New species of *Corticarina* Reitter (Col., Lathridiidae), Part 2. *Entomogist's mon. Mag.* **117**: 117-123.

Brachypterolus linariae **(Stephens) (Col.: Nitidulidae) in Surrey**

In the past, this species was confused with *B. pulicarius* (L.), long recognised as a British insect. In a paper establishing the identity of *B.linariae* (Stephens) and recording its presence also in Britain, my friend Mr C. Johnson (1967 *Entomologist* **100**: 142) listed a few locatities for the species but these did not include Surrey. I should like, accordingly, to record that I collected eight specimens of *Brachypterolus* from flowers of *Linaria vulgaris* Mill. from a site near Cheam, Surrey on 15.viii.89. As it turned out, all were males; four proved to be *B. linariae* and 4 were *B. pulicarius.*

The presence of equal numbers of *linariae* and *pulicarius* in this, albeit small, sample, is in marked contrast to what I have found in other districts. There, *pulicarius* has always greatly outnumbered *linariae.* It could be interesting to see, over the next few years, whether the Cheam site maintains this equality in the two species. — J.A. Owen, 8 Kingsdown Road, Epsom, Surrey KT17 3PU.

SOME COMMENTS ON *RHEUMAPTERA HASTATA* L. (LEP.: GEOMETRIDAE) IN IRELAND.

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BARRETT (1902) has provided a quite comprehensive account of the life history of this moth, describing the larger nominate and the smaller moorland form, now known as *nigrescens* Cockerell, and noting that the larva feeds upon birch and bog myrtle, but not assigning either to a particular form of the moth, and adding that according to Hofmann the larva also feeds upon sallow and *Vaccinium uliginosum,* although surely this is a reference to the insect's habits on the Continent? Nevertheless these two plants appear as normal foodplants of *hastata* in Britain in South (1939), although in the appendix it states that *Vaccinium* and *Myrica* refer only to the northern form, and that *hastata,* i.e. the larger southern form, feeds only on birch; this view is shared by Ford (1955). However, Newman and Leeds (1913) omit sallow and *Vaccinium* as larval foodplants as does Skinner (1984), and these authors assign bog myrtle to *nigrescens* and birch to the nominate form.

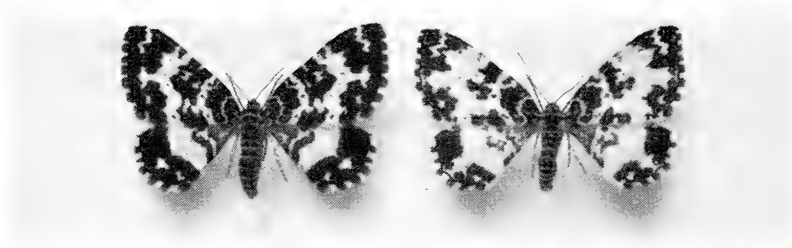
Of the insect's presence in Ireland Barrett states that it is local, and that in the west there appears to be greater diversity than in Britain, the majority of specimens being of the southern England form, while South quotes Kane's view that in Ireland only the southern form occurs, and that *subhastata* (i.e. *nigrescens*) has not been noted. Unfortunately, Baynes (1964) produces no more than a vague comment on the moth's distribution in Ireland, with no mention of the form found there or the larval foodplant! B. Skinner, contrary to Kane's view, maintains that both subspecies occur in Ireland.

In early June 1987 I came across a flourishing colony of *hastata* in a restricted boggy field containing bog myrtle, but with no birch in the vicinity, near Newport, Co. Mayo; over a score of specimens were seen in a very short time, and all those captured were of the larger nominate form. I have never seen this species as commonly as this in England,even many years ago before its decline. My only previous encounter with the insect in Ireland was the capture of a very large female which was flying over bog myrtle near Rinnamona in the Burren of Co. Clare, 27.v.1975; subsequent searches for the larvae in this locality have proved fruitless, and the area is now being drained. It is curious that despite many visits to Ireland by lepidopterists after the discovery there of *Calamia tridens* Hufn, almost nothing has appeared in print about *hastata,* although J.Bradley and E. Pelham-Clinton (1967) refer to the finding of *hastata* larvae on bog myrtle alongside the Lisdoonvarna-Ennistymon road, curiously this appearing in an account of the moths of the Burren, although at no point does this road traverse the Carboniferous Limestone of the Burren.

In late August 1987 I obtained many *hastata* larvae, mainly about full-fed, from bog myrtle near Westport, Newport and Partry, Co. Mayo, and from near Manor Hamilton, Co. Leitrim.They completed their growth on this plant and the resulting moths which emerged in May 1988 were all of the larger southern England form, except one, a slightly smaller specimen that would fit unobtrusively in a series of *nigrescens* from the southern borders of the Highlands of Scotland. I have seen a similar specimen in the collection of R. Chatelain, a moth reared from a solitary larva found on bog myrtle in western Co. Galway. Skinner gives the size of subspecies *hastata* as 34 - 38 mm and *nigrescens* as 30 - 36 mm. My short series of *hastata* from Surrey and Sussex are uniform in size measuring 35 mm, and my *nigrescens* from Inverness-shire are similarly of uniform size, measuring 29 - 30 mm; the former are all feral specimens, the latter bred from feral larvae. My Irish *hastata* vary somewhat in size, most being about 35 mm wing-span, i.e. the same size as my examples from S.E. England, the largest being 38 mm and the smallest 32 mm. The species in the National Collection is contained in two drawers, one drawer for each subspecies; all the Irish specimens are classified as being of the nominate form, and amongst the English ones are several considerably undersized. The series of *nigrescens* illustrates very clearly that individuals from the Hebrides and the far north-west of Scotland are darker than those from the southern borders of the Highlands, and are differently marked, those from the latter area appearing simply as diminutive examples of subsp. *hastata,* i.e. they are smaller, but not darker.Thus the odd undersized individuals encountered in southern Britain and Ireland should be recognised for what they are, simply small specimens of nominate *hastata.*

What I have not seen previously mentioned is that in Ireland nominate *hastata* is associated with bog myrtle; however, in Co. Kerry where the insect occurs, there are localities in which birch and bog myrtle occur in close proximity — in such localities is the moth selective, being associated with only one of these plants, or are both plants utilised indiscriminately? However, I can find no record of *hastata* larvae feeding on birch in Ireland.

The sample of this moth that I possess from Ireland differs in another respect from those from southern Britain. Barrett observes that the latter as a race is tolerably constant, only varying a little in the size of the black markings and the extent to which they are joined together; by contrast he observes that in the west of Ireland specimens show greater local diversity, in markings as well as size. My own observations confirm this, and in particular a large proportion of the moths caught, or bred from larvae, from Co. Mayo have the black markings reduced, being referable to ab. *laxata* Krul., itself quite a variable form, although none approaches the more extreme f. *demolita* Prout, nor do any show tendency towards increased black pigmentation. The proportion of f. *laxata* would appear to be as high as 35% to 40%, and therefore *hastata* in Co. Mayo might well be



Left: Rheumaptera hastata L., Partry, Co. Mayo, 23.v.1988 (bred). (x1).
Right: ab. *laxata* Krul., Newport, Co. Mayo, 18.v.1988 (bred). (x1).

designated dimorphic. A further interesting observation is that all the colonies of larvae I examined in Co. Mayo were remarkably free from parasites, in marked contrast with my experiences with *nigrescens* in Scotland.

I wish to acknowledge my gratitude to Mr D. Wilson for the excellent life-size photographs, and to Mr D. Carter of the British Museum (Natural History) for his advice and permission to study the National Collection and relevant literature.

References

Barrett, C., 1902. *Lepidoptera of the British Islands.*
Baynes, E., 1964. *A Revised Catalogue of Irish Lepidoptera.*
Bradley, J. and Pelham-Clinton, E., 1967. *Entomologist's Gaz.* **18**: 142.
Ford, E., 1955. *Moths.*
Newman, L.W. and Leeds, H., 1913. *Textbook of British Butterflies and Moths.*
Skinner, B., 1984. *Moths of the British Isles.*
South, R., 1939. *Moths of the British Isles.*

Moths and bats: the diet of Lady Ursula Eak

On a cool evening in 1989 at St Erth (West Cornwall) I was running a light for the Cornwall Trust for Nature Conservation whilst the local bat group wandered up and down the river bank with their bat detectors at full blast. Only 43 moth species were found, including three specimens of the migrant *Agrotis ipsilon,* as well as three beetles including the first *Dytiscus marginalis* that I have had to light. It is likely that many of the best moths were eaten by bats before they arrived at the light.

As the night wore on the bat people disappeared. One of their number, Ginny Little from Penzance, joined us at the edge of the white sheet, bringing with her a tiny lady companion, Lady Ursula Eak. This lady (a noctule bat) had come to feed. Ginny had become interested in moths some years ago (I suspect purely to feed her bats) and now ran a moth trap. She assured me that she only fed the common species to the sick and injured animals in the "bat hospital"she runs. An aquaintance in Penzance provided her with a steady supply of *Noctua pronuba, Agrotis exclamationis, Orthosia gothica* and similar abundant noctuids, whilst keeping such goodies as *Palpita unionalis* to himself.

As the moths came in we began to catch them to feed Ursula.The first course consisted of 7 *Ochropleura plecta* and 2 *Noctua pronuba,* as well as 1 large Tipulid. She also ate 1 *Opisthograptis luteolata,* 1 *Phragmatobia fuliginosa,* 1 *Noctua janthina,* 1 *Diarsia rubi,* 2 *Phlogophora meticulosa,* 2 *Pterostoma palpina,* 1 *Furcula furcula,* 1 *Lymantria monacha* and 1 *Pheosia tremula.* She then refused *Agrotis ipsilon* and *Pleuroptya ruralis,* but perhaps she was full after her meal of 20 large moths and one cranefly.

I was surprised that she ate *Opisthograptis luteolata* and *Phragmatobia fuliginosa* as in a previous experiment both had been refused by a long-eared bat. I have always taken the colour of both moth species to be an indication of unpalatability. *Phragmatobia fuliginosa* has a noticeable smell which is unpleasant to humans. Not unexpectedly, Lady Ursula also refused *Eilema griseola* and *Abraxas grossulariata,* as well as the beetle *Aphodius rufipes,* which has an obnoxious smell even though at this stage she was not yet full-up. We would have tried *Dytiscus marginalis* which also came to light, but we felt that this would not be fair to the bat. — ADRIAN SPALDING, Tregarne, Cusgarne, Truro, Cornwall.

Xylena exsoleta L., the Sword-grass in v.c. 22 Berkshire

I was interested to read the two notes on this species (*Ent. Rec.* **101**: 222). Stephen Nash's record from Fernham is particularly welcome as being the first in v.c. 22 for forty-five years.

Bernard Skinner's note (*loc. cit.*) to the effect that records from southern England for at least the last thirty years all relate to immigrants is also of interest and would seem to accord with what information I have been able to gather in my v.c. 22 index viz:

> Locally distributed (Holland. *Vic. Hist.*1906); Well distributed but scarce., Tubney, 28.ix.29, bred from larva on thistle., Henwood, 1895-7, 1901 (Bretherton, 1940 *Proc.Ashmol. nat. Hist. Soc.* 1939) and finally P.B.M. Allan notes in his Moth Hunter's Gossip "I used to take *exsoleta* in the Kennet Valley but he was always a rarity".

These are all the records I have been able to find other than a wartime find from 1944. In the autumn of that year our unit was encamped in Maidenhead Thicket and on the night of 23rd October I wandered off to explore some ivy growing on what is now the M4 link road. Amongst the more usual autumnal things was a moth sitting in a strange "wrapped around" attitude and whose identity at first defeated me. It is still my only *exsoleta* and until Bernard's interesting note I had not considered it as being a probable immigrant. — B.R. BAKER, Reading Museum and Art Gallery, Reading RG1 1QL.

A THIRD BRITISH CAPTURE OF *TEMNOSTETHUS TIBIALIS* REUT. (HEM.: ANTHOCORIDAE)

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THIS rare and little-known species, with a very scattered distribution across south-central Europe and eastwards, was added to our list by the late G.E. Woodroffe (1971) on two specimens taken by himself, together with one from Jersey, and identified by the Anthocorid specialist Dr J. Péricart.They were a sub-brachypterous male from Silwood Park, Sunninghill, Berks (vii,64) and a macropterous female from Pamber Forest, N. Hants (vi.70) — both from oak. The Jersey example, another sub-brachypterous male, had been found in company with both *T. pusillus* H.-S. and *T. gracilis* Horv. on lichen-covered oak by Dr W.J. LeQuesne (1955). Since, however, the Channel Islands do not form part of the Britannic faunal area, but rather of that of north-west France, there remain but two genuinely British captures previous to that recorded hereunder. Dr P. Kirby has been good enough to check all records and specimens available to him without discovering any further evidence of *T. tibialis* in this country. It thus appears safe to conclude that this bug is, up to now at least, exceedingly rare with us; especially as it is by no means hard to separate from our other two species of the genus, and so not very likely to be confounded with either.

On 9th July 1986,I detected a macropterous female *Temnostethus* crawling sluggishly on a sap-run on the trunk of an oak in Oxleas Wood SSSI, Shooters Hill, W. Kent (S.E. London). From the characters given by Woodroffe, especially the longer rostrum* (apparent even to the naked eye on comparison), it was easily recognised as *T. tibialis* — a determination lately put beyond any possible doubt by the use of Péricart's key and description (1972: 81, 89-91).

The sap-run and adjacent parts of the trunk were under frequent observation during that and the following summers (the tree being productive of interesting Diptera), but at no time was any other *Temnostethus* found there. The bug might have been living higher on the tree and its presence at the sap was doubtless only casual. *T. pusillus* occurs in these woods very rarely (twice to date) by sweeping oak foliage or the grass etc. beneath; it might be found more freely by systematic beating and trunk-searching. *T. gracilis,* regarded as more common, has eluded me hitherto. It might seem from the literature that the absence of lichens could be a factor contributing to the rarity of the genus in this district, but Dr Kirby's considerable experience of *gracilis* and *pusillus* elsewhere hardly

*Anthocorids are best set with the rostrum porrect, to facilitate comparison of its length.

bears out that idea. The Jersey occurrence, in particular, suggests that *T. tibialis* does not differ ecologically in any obvious way from the other two species with which it occurred there. In that connection,it is worth noticing that apparently neither of them accompanied *tibialis* at Sunninghill or Pamber; and also that in the former of these areas Heteroptera had been intensively collected for 15 years without yielding a *Temnostethus* (Woodroffe, 1964).

In addition to England and Jersey, *T. tibialis* is recorded by Péricart (p.91) only from southern Czechoslovakia (one ex.), Rumania (Bucarest, two on a pear tree), Turkey (Istanbul, one) and Crete (the type). Its apparent extreme rarity is problematic.

Woodroffe (1971) provides a key to the three species. I give here an alternative version which may be found of service, incorporating as it does one or two further characters, but making use only of such as are most readily appreciable (partly after Péricart).

1/2 Antennae entirely dark; rostrum and head as *gracilis*; hemelytra distinctly haired, as *tibialis*, but hairs paler. In Britain always macropterous.. *pusillus* H.-S.

2/1 Antennae with segment 2 in part or mostly pale, or, at darkest, reddish in middle.

3/4 Rostrum moderate, reaching mid coxae; head shorter in front, not or scarcely reaching beyond end of first antennal segment; hemelytra, viewed sideways, almost glabrous or with any hairs extremely small and scattered; in brachypters covering less than half of abdomen, membrane at most a narrow strip. Usually brachypterous..*gracilis* Horv.

4/3 Rostrum long, reaching hind coxae; head longer infront, reaching distinctly beyond end of first antennal segment; hemelytra, viewed sideways, with very evident short raised dark hairs; in sub-brachypters covering abdomen or very nearly so, with membrane triangular or oval. Usual condition: male sub-brachypterous, female macropterous.....................................*tibialis* Reut.

The male paramere shows undoubted differences in the three species, but also considerable variation (LeQuesne, 1955: 260-1 and figures). Moreover, Woodroffe's descriptions and Péricart's figures are in some cases a little hard to reconcile, so I have thought it best to omit this feature from the key.

Acknowledgement

I am deeply grateful to Dr Peter Kirby, of the Invertebrate Site Register, for his ready and most helpful response to my enquiry as to the present British status of *T. tibialis,* and for kindly supplying a photocopy of the relevant portion of Dr Péricart's monograph.

References

LeQuesne, W.J., 1955. An examination of the genus *Temnostethus* Fieb. (Hem., Anthocoridae) in Britain and an addition to the British list. *Entomologist's mon. Mag.,* **91**: 259-262.

Péricart, J., 1972. *Faune de l'Europe et du Bassin Méditerranéen,* 7: Hémiptères Anthocoridae, Cimicidae, Microphysidae de l'Ouest Paléarctique. Masson et Cie, Paris.

Woodroffe, G.E., 1964, An anomalous example of *Temnostethus* (Hem., Anthocoridae) from Sunninghill, Berkshire. *Entomologist's mon. Mag.* **100**: 160.

—, 1971. *Temnostethus tibialis* Reuter (Hem., Anthocoridae) in Britain. *Ibid.,* **107**: 170-1.

Death-feigning in *Exochomus quadripustulatus* L. (Col.: Coccinellidae)

Recently after cutting a spray of firethorn in full fruit and taking it indoors, I noticed what at first glance looked like a small round fragment of debris fallen from it. Closer inspection, however, showed it to be a seemingly dead example of the above fairly common ladybird, lying on its back on the table. Thinking this strange, since it appeared quite uninjured, I placed it in the palm of my hand for examination with a lens. It continued in this deathlike state (as I suspected it to be) for about a minute and a half, after which it quickly "came to life" and, taken out into the sun, flew away.

I report this possibly trivial incident because, as far as I know, death-feigning (thanatosis, letisimulation) seems little known and seldom observed in Coccinellidae. At all events,I cannot remember having seen it before, though I have come across a good many ladybirds in my time; with warning coloration as most of them have, such a reflex would, I suppose, be superfluous. It may be limited to some of the darker or obscurely-coloured species, or occur in exceptional conditions only, such as falling from a height onto a hard surface. As expected, I was unable to induce it in the common *Adalia bipunctata* L. for more than a second or so. — A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

***Claviger testaceus* Preys. (Col.: Pselaphidae) in pitfall traps near Folkestone, Kent**

As part of a terrestrial monitoring programme, contracted by Transmanche-Link, groups of pitfall traps were installed on that part of the Folkestone-Etchinghill escarpment SSSI between Sugarloaf Hill, in the east, and Peene Hill, to the west. At each of eight sites four glass jars, with a mouth diameter of 48 mm, were arranged at the corners of a one metre square at locations on the upper and lower sections of the chalk escarpment. These pitfall traps were placed in position on 23rd May and removed, four weeks later, on 20th June 1989.

One of these sampling sites is situated just west of Cheriton Water Works on the steep upper slope of the escarpment at Cherry Garden Hill (TR207380). Among the Coleoptera collected were six *Claviger testaceus* Preys. This distinctive myrmecophilous pselaphid is typically found in the nests of *Lasius flavus* (F.), which Donisthorpe (1927, *The Guests of British Ants,* pp.13-14) regarded as its primary host. However, he also lists *Lasius* alienus (Foerst.) and *Myrmica scabrinodis* Nyl. as infrequent alternative hosts. All three of these ant species were caught at this site. Their respective mean numbers per trap were 8, 1 and 38.

During 1988 pitfall traps had been installed at the same locations between 25th May and 22nd June. Indeed, many of the 1989 traps were replaced in the holes left in the turf from the previous year. The same three species of ant were collected from this site in1988, at mean numbers/trap of 3.5, 1.25 and 68.9 respectively, but no *Claviger testaceus* were caught.

I am unaware of any records of *C. testaceus* having previously been collected in pitfall traps. It is thought unlikely that these slow-moving pselaphids crawled from a *Lasius flavus* nest and fell into the pitfall traps. It would appear much more likey that they were being transported by their hosts from one nest to another. Certainly there were more than sufficient ants in each jar containing *C. testaceus* to satisfy this theory. The questions remain, why should this behaviour have occurred during 1989 but not at the same site in 1988?; and why has it not been observed at the numerous other chalk grassland sites where extensive pitfall programmes have been carried out? Was the hot dry summer of 1989 responsible for initiating some unusual behaviour on the part of the beetle and/or its ant host? Alternatively, had the *L. flavus* colonies increased, as a result of favourable climatic factors, necessitating emigration to found new colonies? — R. COLIN WELCH, Institute of Terrestrial Ecology, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, Cambs PE17 2LS.

Mordellistena nanuloides Ermisch (Col.: Mordellidae) from the Isle of Grain, Kent

On 16.viii.88, I tapped a female *M. nanuloides* from a plant of *Artemisia maritima* L. growing not far above high water mark at a site just to the south of the town of Grain, Isle of Grain. No further specimens could be found in spite of careful examination of stands of the plant growing in the area. On 21.vi.89, I was taken by my friend Mr N. Heal to the sea-wall at Hoo Marsh, Isle of Grain and there we found a number of specimens of *nanuloides* by tapping plants of the same species over our nets.They were accompanied by many examples of *Longitarsis absynthii* Kutschera, a species which Mr Heal had noted at the spot on a visit a few days previously.

This species was formerly confused with *M. parvula* (Gyllenhal) (see Allen, A.A. 1986 *Ent. Record* **98**: 47; Batten, R. 1986 *Ent. Gazette* **37**: 225). As far as I am aware, it has published records only from the Isle of Sheppey, Kent. The site at Grain is only two km (across the Medway estuary) from the nearest part of the Isle of Sheppey but whether the species has reached the Isle of Grain from the Isle of Sheppey recently or has long been present there is something that is unlikely to be clarified. — J.A. OWEN, 8 Kingsdown Road, Epsom, Surrey KT17 3PU.

THE WATSONIAN VICE-COUNTY SYSTEM

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MR. UHTHOFF-KAUFMANN makes some interesting points in his recent paper on the merits of the Watsonian vice-county system (Uhthoff-Kaufmann 1989) and the modifications made to it by Balfour-Browne (1931). However, as the adversarial title of his paper suggests, several of the suggestions made are debatable, even contentious, while there are also some additional matters relating to the use of the two systems which need to be considered.

Recent use of the vice-county system has tended to favour the "original" Watson-Praeger system rather than Balfour-Browne's modifications. The former is used by Heath & Emmet (1976, 1985, as maps with vice-county numbers), and in some of both the Royal Entomological Society's *Handbooks for the Identification of British Insects* (e.g. Peacock 1977, Mound *et. al.* 1976, both as lists of vice-county numbers) and the *Scientific Publications* of the Freshwater Biological Association (e.g. Hynes 1958,Macan 1961, both as maps without numbers). The alphabetical symbols advocated by Balfour-Browne (1931) and Uhthoff-Kaufmann (1989) were not used in any of these publications.

Balfour-Browne's modified system seems to have been used mainly by himself and certain of his contemporaries (e.g. C.E. Tottenham). However, even Balfour-Browne himself was not wholly consistent in his choice of systems. In volume 1 of his *British Water Beetles* he reproduced not only his "typomap" and alphabetical symbols (including the "additional" vice-counties of Scilly, Lundy and London) but also a strictly "Watsonian" vice-county map which does *not* include these extra vice-counties.

It is worth noting that the Subcommittee on Maps and Censuses set up by the Systematics Association in 1947, and which standardised the Watsonian vice-counties, redefining boundaries, etc, where necessary, included two eminent entomologists among its members, C.R.P. Diver (admittedly better known as a conchologist and ecologist) and O.W. Richards (Dandy 1969).

Mr Uhthoff-Kaufmann favours Balfour-Browne's double alphabetical symbols over the Watsonian numerals in designating the vice-counties. The supposed advantages of the alphabetical symbols may suit many workers, but the numerals certainly have their advocates, including myself. The most important point is surely that the Watsonian numerals are in current use by many British biologists *whatever their specialism* (Dandy 1969). Watson admittedly wrote mainly for botanists, but his system has been taken up since by zoologists in many different fields. Most of these have never met with Balfour-Browne's system. Would Mr Uhthoff-Kaufmann have entomologists use their own system which is familiar neither to botanists nor to other zoologists? An additional, if minor, convenience of the Watsonian numerals is that they are (necessarily) sequential, as the Balfour-Browne alphabetic symbols are not. Thus, even if v-c 9 is not immediately recognisable as Dorset, it is evident that it is a southern vice-county, probably a coastal one. The sequence 9-10-11 clearly indicates a southern distribution, while, if the alphabetical symbols are unfamiliar, or have been forgotten, the sequence DT-IW-SH conveys very little. I suspect some entomologists *may* prefer the alphabetical symbols, but for me their restriction to use in one field only, rather than by biologists or naturalists as a whole, is a fatal flaw.

Changes to the designated alphabetical symbols, as suggested by Mr Uhthoff-Kaufmann, hardly help the cause of uniformity. A further advantage of the numerical symbols is that they avoid any contentious political issues, such as the continuing use of the abbreviations for King's County (Offaly) and Queen's County (Leix) which date from the Protestant Ascendancy in Ireland and before establishment of the Republic. LD for Londonderry (H40, Derry) could offend Republicans, just as amendment to, say, DY might do the same for Loyalists; H40 or 152 is neutral.

It is true, as Mr Uhthoff-Kaufmann writes, that the prefixing of the Irish vice-counties by the letter H is anomalous. A minor modification of the Watsonian system is simply to use the numerals 113-152 for the Irish vice-counties South Kerry to Derry (H1 - H40). However, the prefixed numerals are used in many of the standard works and maps. There is certainly no advantage in having WC(I) and WC(E) to distinguish West Cork from West Cornwall. The letters merely add to the English designation. At least with numerals the H prefix is a consistent one.

Balfour-Browne's paper (1931) is entitled, with heavy, if unconscious, irony "A plea for *uniformity* in the method of recording insect captures" (my italics). As an example of "uniformity", Balfour-Browne gratuitously invented three new vice-counties for interpolation into the Watsonian system. Scilly and Lundy are merely irritants. There is no reason, apart from entomological popularity, for their elevation to the status of separate vice-counties. Both areas are very small and certainly much smaller than the average for other vice-counties. Indeed, Lundy is too small to feature on any of the vice-county maps in Balfour-Browne (1940). If Scilly and Lundy are to be included as vice-counties, why not St Kilda, North Rona, Fair Isle, the Monachs, Skomer, the Isle of May, the Aran Islands and a host of other more or less isolated islands or island groups in the British Isles? If uniformity is the aim, why change a well-established system? Scilly and Lundy have no place in the Watsonian vice-county system and should be included, respectively, in West Cornwall (v-c 1) and North Devon (v-c 4), as they are in Watson (1852) and Dandy (1969).

Balfour-Browne's addition of Scilly and Lundy to the Watsonian system is bad enough, but his other innovation, "London", is far worse. First, it cuts into, and takes territory from, several existing vice-counties, as is clearly evident from the maps in Dandy (1969), and, at a larger scale, in de Worms (1954) (incidentally, an entomologist!). Use of the London "vice-county" has the potential for endless confusion as to whether a record comes from any one of up to eight divisions. Secondly, the alphabetical symbol for London is in a completely different typeface (Gothic) from any other, necessitating either tedious adjustments to typewriter or word-processor to reproduce one symbol or use of a manuscript character in typed texts. Thirdly, and perhaps most importantly, the extra vice-county is inadequately defined as "the county of London", which is no longer in existence as an administrative area. Where are its boundaries clearly, unambiguously and conveniently defined? An area which is almost completely urbanised may be of limited value in a biogeographical sense, though this criticism also applies, with less force, to Middlesex (v-c 21).

Mr Uhthoff-Kaufmann's comments on Hundred House (in the vice-county of Radnorshire, 43 = RA) is puzzling. A major aim of the Watsonian system was to have a constant number of biogeographical divisions (vice-counties) with unchanging boundaries, in order to provide a stable alternative to the use of administrative areas, then mostly counties, the boundaries of which have been changed so often. In Watson's day, too, the problems posed by "enclaves" in the administrative counties were considerable (Dandy 1969). Fundamental changes to local government areas in Wales (and Scotland) were brought about in 1974, the last major reorganisation in the United Kingdom; important, though less radical, alterations were also made in England. These changes indicate that Watson's concern was well-founded.

One deals with a locality such as Hundred House by identifying it (if necessary) on a large-scale map (e.g. the OS 1:50 000 series) and relating its position to the standard 1:625 000 vice-county maps produced by the Ray Society (Dandy 1969). In cases of extreme difficulty, the authoritative half-inch to one mile manuscript maps which define the vice-county boundaries may be consulted (Dandy 1969). Gazetteers such as Anon. (1963) and OS (1987) are, or course, often very helpful in locating sites by geographical descriptions and accurate National Grid References, respectively.

Mr Uhthoff-Kaufmann refers to the "typomap" of Balfour-Browne (1931) as "ingenious".That is one description: there are others which are less flattering. Typomaps which summarise the actual recorded distributions of species are fiendishly difficult to produce accurately on a typewriter, as I know to my cost. They may be easier to make using a word-processor. But despite their ingenuity, is there any real need to use typomaps? Many entomologists may think that they are an uneasy and unnecessary compromise between a straightforward map (blank copies of which are easily obtainable, for instance from the national Biological Records Centre) and a simple, sequential listing of vice-county records. My own system, using a block of squares 19 x 8 to represent the vice-counties, has several advantages over the typomap, above all simplicity and ease of use (Morris 1973).

Vice-county 99 (DN), Dunbarton, is certainly a small area and not always easily found on a map by the inexperienced, but is the distortion inherent in the typomap, and the sheer difficulty of producing one, a fair exchange for a real map or a simple listing?

In some ways Balfour-Browne's scheme is based on a misconception, as well as being obsolete (the two factors are interrelated). Vice-counties, whether using Balfour-Browne's system or Watson's, are a clumsy and inaccurate way of "recording insect captures" (to be distinguished from the summarising of mapping of the distributions of species). The best method of recording captures in the British Isles is to use the six-, or if possible eight- figure references of the National and Irish Grids. Of course, names of localities should also be included, both as a check on the grid reference and for easy recognition (few of us can identify or keep numerical references in our heads). Use of grid references to locate places exactly came into general use only after the Second World War, and thus after publication of Balfour-Browne's paper. I understand from some of those who knew him that he never fully understood or adopted this modern method of referencing records.

Eight-, six-, or even four- figure grid references virtually pinpoint localities, and thus spatially record insect captures with accuracy. Such records can then be used to *summarise* or *map* distributions using any convenient or instructive units. The most popular are the 10-km squares of the National Grid, but it is not always appropriate to use them. There appears to be some misunderstanding amongst biologists on this score, and my own opinion is that not enough flexibility and critical thought is given to the consideration of appropriate mapping scales. Uniformity is certainly often required for comparison of distributions in diverse groups. However, uncritical mapping of a few records of a species by 10-km squares may be inferior to mapping at a coarser scale in revealing distribution patterns. A variety of mapping units has been used by different workers: vice-counties, counties (usually the pre-1974 version), other scales of the National Grid, such as 50-km squares, "tetrads" (2 x 2-km squares) and 1-km squares. The last two have most usually been used to map the distribution of popular groups, such as vascular plants or butterflies, at a county level. Flexibility in the use of mapping units is desirable and the uncritical use of the 10-km unit to be deplored.The really important point is that if records are made using accurate six-figure grid references,maps can be produced at any appropriate scale.

It so happens that for many insect groups of "medium popularity", the vice-counties give an appropriate number of units. One-km or 2 x 2-km squares may justifiably be used to map distributions of butterflies, particularly over areas smaller than the whole of the British Isles. Ten-km squares are certainly appropriate for other Macrolepidoptera. Heath & Emmet (1976, 1985) sensibly used vice-counties to map the distribution of the less popular Microlepidoptera. For many Hemiptera, Coleoptera, Hymenoptera and Diptera, vice-counties are also appropriate, though 10-km squares are often preferred. For many of the less popular or "obscure" groups, a larger unit (50-km squares or Watsonian provinces) may give a better initial picture of a distribution than the ubiquitious 10-km squares. The advantage of the Watsonian vice-counties and provinces over systems based on the National and Irish grids is that there are no small, uneven and difficult fragments of land to be accommodated.

The summarising and mapping of distributions of plants and animals in the British Isles (and elsewhere) is a developing process. As time goes by and records accumulate, mapping may appropriately be done at smaller and smaller scales. Morover, interest in smaller areas, particularly counties, has always been high and in some fields, notably butterfly studies, has been growing. Here, local mapping, using one- or 2 x 2-km squares, is popular, but the national atlas is at the 10-km scale (Heath, Pollard & Thomas 1984). In some groups of insects, the stage of mapping at the vice-county scale has been, as it were, by-passed. Yet the mapping of the British flora using 10-km squares (Perring & Walters 1972) was preceded by much activity at the county and vice-county levels, with the production of a "Comital Flora" (Druce 1932).

Successive mapping at the same scale will, of course, also be required for comparative studies and for the detection of gains and losses. This may be especially important in the future if the expected climatic changes caused by the "greenhouse effect" take place.

Many British entomologists have abandoned the insular attitudes of their predecessors and are interested in insects in Europe, or even further afield. This is not the place to elaborate upon this except to say that latitude and longitude coordinates will no doubt continue to be in use for recording captures, However, the Universal Transverse Mercator (UTM) grid is now widely available, certainly in Europe. Attention should also be drawn to the standard account of European countries in use in *Flora Europaea* (Tutin *et al.* (1964)), which entomologists might well follow.

I have no hesitation in preferring the Watson/Praeger/Dandy system against Balfour-Browne's, largely because of its universality and because it was first in the field. However, the important issue to reiterate is the distinction between *recording* (which should be as accurate as possible, using the National and Irish Grids) and the *mapping* (or *summarising*) of distributions (which can be done to any scale), using vice-county, National Grid, or other systems, as appropriate.

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References

Anon. 1963. *Survey Gazetteer of the British Isles,* 9th edition, Bartholomew & Son, Edinburgh.

Balfour-Browne, F. 1931. A plea for uniformity in the method of recording insect captures. *Entomologist's mon. Mag.* **67**: 183-193.

—, 1940. *British Water Beetles* **1**. Ray Society, London.

Dandy, J.E. 1969. *Watsonian Vice-Counties of Great Britain,* Ray Society, London.

Druce, G.C. 1932. *Comital Flora of the British Isles,* T. Buncle & Co., Arbroath.

Heath, J. & Emmet, A.M. 1976. *The Moths and Butterflies of Great Britain and Ireland* **1**, Blackwell Scientific Publications and Curwen Press, Oxford and Edinburgh.

—, 1985. *The Moths and Butterflies of Great Britain and Ireland* **2**, Harley Books, Colchester.

Heath, J., Pollard, E. & Thomas, J.A. 1984. *Atlas of Butterflies in Britain and Ireland,* Viking, Harmondsworth.

Hynes, H.B.N. 1958. A key to the adults and nymphs of British stoneflies (Plecoptera). *Scient. Publs Freshwat. biol. Ass.* **17**, 87pp.

Macan, T.T. 1961. A key to the nymphs of the British species of Ephemeroptera. *Scient. Publs Freshwat. biol. Ass.* **20**, 64pp.

Morris, M.G. 1973. A method of keeping records of the vice-county distribution of insects and other organisms. *Entomologist's mon. Mag.* **108** (1972): 248-256.

Mound, L.A., Morison, G.D., Pitkin, B.R. & Palmer, J.M. 1976. Thysanoptera. *Handbk. Ident. Brit. Insects* **1**(11): 79pp.

Ordnance Survey, 1987. *The Ordnance Survey Gazetteer of Great Britain* 808pp, Ordnance Survey, Southampton, and Macmillan, London.

Peacock, E.R. 1977. Coleoptera Rhizophagidae. *Handbk. Ident. Brit. Insects* **5**(5a): 19pp.

Perring, F.H. & Walters, S.M. 1972. *Atlas of the British Flora* (2nd edition), E.P. Publishing, Wakefield.

Tutin, T.G., Heywood, V.H., Burges, N.A., Valentine, D.H., Walters, S.M. & Webb, D.A. 1964. *Flora Europaea* **1**, Cambridge University Press, Cambridge.

Uhthoff-Kaufmann, R.R. 1989. Browne *versus* Watson: round two. *Entomologist's Rec. J. Var.* **101**: 61-63.

Watson, H.C. 1852. *Cybele Britannica* **3**, Edited by F.E. Edgerton, Ayer Co. Publications, London.

Worms, C.G.M. de, 1954. The moths of London and its surroundings (pt.1). *London Nat.* 1953: 101-146.

THE *VALESINA* MORPH OF THE BUTTERFLY *ARGYNNIS PAPHIA* (L.) IN CORSICA, 1988

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Introduction

IN SOME populations of the Silver-washed Fritillary butterfly, *Argynnis paphia* (L.), the females are dimorphic. In Britain and continental Europe most females are of the fulvous colour characteristic of many large fritillary species, although duller than the males. There may, however, be a second female morph, *valesina* Esper, which has a dull greenish-grey ground colour on the upper surface of the wings, but with the same pattern of dark spots as the normal female. In southern England some populations have the *valesina* form at a high enough frequency to be regarded as polymorphic, in others it is a rare variation, and in others again it is absent.

The genetics of the *valesina* polymorphism was investigated in breeding experiments by Goldschmidt and Fischer (1922). There is a *valesina* gene which acts as a sex-controlled dominant. Females homozygous or heterozygous for *valesina* both show the characteristic coloration, but male *valesina* specimens are indistinguishable in appearance from normal males. Fischer (1929-30) reports the occurrence of very rare *valesina* males, but Ford (1975) suggests that these might be intersexes, or alternatively, that their appearance might be due to a gene other than the *valesina* allele. Goldschmidt and Fischer did a number of experimental crosses using males known to be of normal, heterozygote or *valesina* genotype, with a similar range of females. When normal males (*v* *v*) were crossed with heterozygous *valesina* females (*V* *v*), the ratio of offspring was as expected: 50% males, 25% normal females, 25% *valesina* females. A series of reciprocal crosses, however, with *V* *v* males and *v* *v* females, gave a significant deficiency of *valesina* females amongst the offspring. There was also a slight deficiency of *valesina* females in the offspring when both parents were heterozygotes (*V* *v*). Ford (1975) suggests two possible explanations. Sperms carrying the *V* gene may be at some disadvantage compared to those carrying *v* ("meiotic drive") and/or sperm carrying *V* may be at a disadvantage in fertilising *v* eggs, but not *V* eggs. Thus the low frequency or absence of *valesina* females in European populations might in part be explained, but the *valesina* morph must have some compensating advantage to be retained in a stable polymorphism in any population at all. Furthermore, *A. paphia* has a Palaearctic distribution and towards the far East *valesina* becomes much commoner. It is reported that in southern China all the females are *valesina* (Ford 1975).

In northern West Germany *valesina* is relatively common, but it is rarer in the south-west. Magnus (1958) investigated the reaction of males to the colour and pattern of females in the south-west and in laboratory stocks derived from these southern populations. He concluded that the colour of the normal female elicited the first phase of male courtship behaviour at a distance, and that the fulvous colour rather than the overall pattern was the critical feature. He was also able to show that "supernormal releasers", larger than life model females or bands of rotating colour, elicited an even stronger response. The *valesina* colour, on the other hand, did not stimulate the approach of the male, although females of either morph could stimulate the next phase of courtship if the males were near enough to detect the female pheromones. Magnus expressed surprise at the rarity of the *valesina* form when it was a genetic dominant, suggesting some misunderstanding of evolutionary genetics. Nevertheless *valesina* females must have some compensating advantage to be retained as a distinct morph in a population at all. The aim of our field work was to detect any behavioural advantage in wild populations. We chose Corsica where *valesina* is known to occur at relatively high frequency in some populations (Bretherton & de Worms 1963, Panchen & Panchen 1973).

Argynnis paphia in Corsica

In Corsica the Silver-washed Fritillary occurs as what is usually considered to be a distinct sub-species *A. paphia immaculata* Bellier, which is also the only form on the neighbouring islands of Sardinia, Elba and Giglio. Apparently transitional forms are found in Sicily and elsewhere near the Mediterranean coast (Higgins & Riley 1983). The sub-specific name refers to the reduction or absence of the characteristic "silver washings" of *A. paphia paphia* (Bretherton & De Worms 1963) but there is considerable variation in the degree of this reduction (Panchen & Panchen 1973). Bretherton and De Worms estimated the frequency of *valesina* in populations in the forest of Vizzavona, central Corsica (altitude ca. 1000m) at between five and eight per cent of all females. In 1972 the impression was that *valesina* females were at a higher frequency in the Restonica valley some 20 km away (500 - 600 m) but an accurate estimate was not possible (Panchen & Panchen 1973).

Bretherton and De Worms also noted a difference in behaviour between normal and *valesina* females in Corsica. Their estimate of the frequency of *valesina* "was complicated by the fact that their habits seemed to differ from those of typical females: they fed more warily, settled more on mossy stones, and paid more frequent visits to the branches of beech trees which served both sexes as dormitories at night and in cloudy weather". Panchen and Panchen corroborated these observations from specimens in the Gorge de la Restonica: the *valesina* females often settled on mossy stones, against which they were cryptic, but were not seen feeding, whereas males and normal females, apart from feeding on brambles, were particularly attracted to the low yellow-flowered thistles, *Carlina corymbosa,* which are attractive to many butterfly species.

The observations reported below were made during the summer of 1988, when we visited Corsica as the University of Newcastle upon Tyne Expedition, working principally on the variation and distribution of *Coenonympha corinna,* the Corsican Heath butterfly (Brunton *et al.* in prep.). Although we saw several *A. paphia* populations, only one was satisfactory for our purposes, in that *valesina* was present and the whole group, at least when feeding, were together in a small defined area. The locality was at about 1 km inland of the village of Olmeta-di-Capocorso, which is itself about 3 km inland from the west coast of Cap Corse, the long northward pointing peninsula at the eastern end of the island. The *paphia* locality was on the south bank of the small mountain River Pierrago at an altitude of about 400 m. It consisted of an area of about 6 m (along the river) by 3.6 m, bounded at the east and west by riverside trees and at the south by derelict garden land which dropped down to the site about 1.5 m below at a low wall. We were thus able to look down on the site, making observations particularly easy. The whole site area was dominated by a dense growth of the Corsican hemp agrimony, *Eupatorium cannabinum* L., subsp. *corsicum,* the plants themselves being about 1.5 m high with pale pinkish purple flowers, on which the butterflies were feeding avidly. Other species visiting the site were *Limenitis reducta* Staudinger, *Pandoriana pandora* (Schiff.) and a small, blue lycaenid, but *A. p. immaculata* were in the overwhelming majority.

Observations

We first discovered the Olmeta population in the late afternoon of 5th August 1988 and were able to visit it on four subsequent days, the 6th, 9th, 11th and 13th August. On this last day we were able to see the first arrival of the butterflies on the patch while on the previous Saturday, 6th August, we arrived at about 10.00 am to find one or two already there. On two occasions (9th and 11th August) we did not leave the site until sundown, after the butterflies had left to roost in the surrounding trees. We can therefore reconstruct, with reasonable certainty, a whole day's activity of the butterflies on the feeding site. We also recorded shade temperature throughout. The weather was clear during the whole period of our observations and the mid-day temperature reached a shade temperature of between 26°C and a little above 30°C. Sunrise was approximately 7.00 am but because of the surrounding hills and trees the patch remained in the shade until approximately 9.30 am when the shade temperature was about 20°C. By 10.00 am the whole patch was in full sun and the temperature rising towards its maximum. Maximum temperature was reached soon after 11.00 am and persisted with little change until about 4.00 pm. The sun had left the patch somewhat after 6.00 pm.

The first butterfly to arrive at the site, between 9.30 and 10.00 am was a male, to be followed at first only by males. Females arrived as the patch moved into full sunlight. On both occasions when we were there, *valesina* females were the first to arrive followed by normal females. At 10.15 am we recorded 13 butterflies including four *valesina.* We never saw more than four together, however, and a rather subjective estimate, with butterflies continually leaving and re-appearing at the site, was that they represented about 30% of all females. Towards mid-day, as the temperature approached 30°C, the females left the patch and flew off into the shade of the trees, presumably to their night-time roosts. It was noticeable that the *valesina* females seemed to have slightly greater tolerance of the high temperature than normal females and tended to stay on the patch a little longer. The males stayed throughout the day, sitting conspicuously on the tops of the flowers, even in the mid-day heat, and fluttering from flower to flower. The females did not return to the patch until the temperature started to drop at about 4.00 pm. Any courtship activity was thus restricted to 10 - 11 am and 4 - 6 pm. Magnus (1958) notes that it has been shown by Vielmetter (1954 and personal communication) that *A. paphia* is capable of behavioural temperature control with an optimal temperature when active of about 34°C. Presumably males (and perhaps *valesina* to a lesser degree) either heat up less under the same conditions of sun and ambient temperature, or have a higher optimum.

We were able to see a number of episodes of courtship behaviour but no actual mating. Courtship was usually initiated by the male pursuing the female and in some cases the females adopted a "calling" attitude. In the case of the *valesina* females, however, we saw a number of occasions when the female approached the male, something that normal females never did. One other feature of *valesina* is of note. They are undoubtedly cryptic against a background of grey-green foliage and the specimens at Olmeta often fed at flowers on shorter plants than did normal females or the very conspicuous males. When not apparently feeding the *valesina* females were sometimes seen to settle low in the foliage where they were quite difficult to spot.

Discussion

The *valesina* morph of *A. paphia* appears to be at a disadvantage to the normal female morph,firstly,because when a male carries the *valesina* gene there is abnormal genetic segregation of its offspring with a deficiency in female *valesina,* and, secondly, because of the apparent behavioural disadvantage to the *valesina* morph in courtship, as reported by Magnus. Previous reports of the behaviour of *valesina* females in *A. paphia paphia* (Ford 1975) suggest another behavioural difference. Males and normal females are to be seen in sunny woodland clearings and pathways, while *valesina* females are restricted to the shade of trees. These observations are to some extent repeated by the previous accounts of behaviour of *valesina* in *A. paphia immaculata* on Corsica. Bretherton and De Worms (1963) and Panchen and Panchen (1973) both emphasised the separation by preferred habitat and behaviour of *valesina,* together with its cryptic coloration. The Olmeta population was, however, a coherent whole, although we were again struck by the cryptic appearance and sometimes behaviour of *valesina.* There were, however, two new features, the apparently greater temperature tolerance of *valesina,* compared to normal females, and the active part played by *valesina* females in initiating courtship. If repeated in other populations,these factors, together with the evident crypsis, might give *valesina* females the compensating advantage necessary to maintain the *valesina* gene in a population at a significant frequency.

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References

Bretherton, R.F. & De Worms, C.G. (1976) Butterflies in Corsica 1962. *Entomologist's Rec. J. Var.,* **75**, 93-104.

Fischer, E., (1929-30) Valesina-Mannschen. *Entom.Z.,* **43**: 151, 159, 184, 194.

Ford, E.B. (1975) *Ecological genetics.* (4th Edn.) London: Chapman & Hall.

Goldschmidt, R. & Fischer, E. (1922) *Argynnis paphia-valesina,* ein fall geschlechts-kontrollierter Verebung bei Schmetterlingen. *Genetica,* **4**, 247-278.

Higgins, I.G. & Riley, N.D. (1983) *A field guide to the butterflies of Britain and Europe.* (5th Edn.) London: Collins.

Magnus, D.B.E. (1958) Experimental analysis of some "overoptimal" sign-stimuli in the mating-behaviour of the fritillary butterfly *Argynnis paphia* L. (Lepidoptera: Nymphalidae). *Proc. 10th Internat. Congr. Entom. 1956.* **2**: 405-418.

Panchen, A.L. & Panchen, M.N. (1973) Notes on the butterflies of Corsica 1972. *Entomologist's Rec. J. Var.* **85**, 149-153, 198-202.

Vielmetter, W. (1954) Die Temperaturregulation des Kaisermantels in der Sonnens-trahlung. *Naturwiss.* **41**, 535-536.

Two old records of Lepidoptera in Jersey

G.B. Coney was an amateur entomologist resident, at least during his later years, in Dorset, but with connections in Jersey, Channel Islands. He published an important early list of Lepidoptera taken in Jersey in 1903 (*Entomologist* **37**: 127-131). His collection is in the City of Bristol Museum and Art Gallery where, in March this year, I found two moths of note. The first is a fine specimen of *Catocala elocata* (Esp.) labelled "Taken on the wall of a house in St Saviour's, Jersey, 20.x.1903". *C. elocata* has several features which distinguish it from *C. nupta* and it is considerably larger. Coney probably misidentified it at first as *nupta* as his list for 1903 has, for that species, "August 22nd to October 20th", although the words "*C. elocata*" appear to be in Coney's hand.

According to Culot in *Noctuelles et Géomètres d'Europe* (volume II, page 191, plate 75, 6) its distribution is central and southern Europe and Asia Minor, and this appears to be the only record of its occurring in the British Isles.

Also in the Bristol collection is a perfect specimen of *Leucodonta bicoloria* (D. & S.) the White Prominent, labelled "Jersey, June, 1905". This, the only record for the Channel Islands, post-dates this species' last-known occurrence in Britain in 1880, but it was still being recorded in Ireland up to 1938 (Heath and Emmet, *Moths and Butterflies of Great Britain and Ireland,* **9**, page 57).

This moth was noted by N.W. Lear (*Ent. Rec.* **98**: 138) where he reports that it was taken in "vii.05", but my notes show that the label is as given above. His note also illustrates current confusion over the position of the Channel Islands and their fauna. The Channel Islands are not in Great Britain but are, *pace* Mr Lear, part of the British Isles. The grounds for including species recorded in the islands as part of the British fauna are shaky, as the islands are unquestionably part of the French zoogeographical region. However, this increasing practice is generally welcomed, if only so that a measure of consistent treatment is employed across the animal and vegetable kingdoms. The Channel Islands' flora has been considered British for a long time and many groups of animals are similarly treated.

I acknowledge with thanks the generous help I received from the Bristol Museum, and particularly from Mrs Anne Hollowell of the Natural History Department, in investigating these records. — R. Long, Société Jersiaise, 9 Pier Road, St Helier, Jersey, Channel Islands.

Migrant moths in south Devon

Following my success in 1988, I returned to Bigbury for the first week of October 1989. Migrant moths taken comprised two *Nomophila noctuella* D. & S. (1.10 and 4.10.89), one *Heliothis armigera* Hb. (3.10.89), one *Mythimna unipuncta* Haw. I took at least one specimen of *unipuncta* each night with a maximum of three specimens on 4.10.89. Having taken *unipuncta* at Bigbury ,in October 1988, I suggest that this species most probably survived the mild 88/89 winter *in situ* at this favoured southern locality. — M.D. Bryan, Keeper of Natural History, Birmingham Museum.

IN QUEST OF *ANARTA MELANOPA* THUNB. (LEP.: NOCTUIDAE), THE BROAD-BORDERED WHITE UNDERWING

Brig. E.C.L. Simson

Crosbythwaite, Plowden Park, Aston Rowant, Oxon.

I WENT with Tony Pickles to Scotland on a short trip from 28th May to 1st June 1989. We based ourselves in an excellent "Bed and Breakfast" at Carrbridge in Inverness-shire, called "Ard na Coille", the meaning of which escapes me for the moment. "En passant" northwards we searched some posts for *Anarta cordigera* Thunb. and were lucky enough to find a pair *in cop.* on 28th May — a species new to us.

That night we sugared on Grainish Moor, hoping for *Acronicta euphorbiae* D. & S. We also ran a light. Quite a few moths of no distinction were seen and this was the only night of our trip when any moths flew; conditions being arctic for the rest of our stay. The next morning we beat juniper near Carrbridge and got many *Thera cognata* Thunb, and *Eupithecia pusillata* D. & S. larvae. The wood-ants were so plentiful and so voracious that one's beating tray resembled the Coliseum in ancient Rome on a good afternoon. We had to fight to save the Christians!

After lunch to Loch Morlich, where we swept the bilberry for *Semiothisa brunneata* Thunb, larvae. We got quite a few, which have since produced fine imagos. In an interval in the operations two interesting events occurred: we met Peter and Margaret Forder, of the BENHS, and spotted some "twitchers" glued to their 'scopes. They were viewing the Morlich Ospreys. I boldly introduced myself as a "twitcher anonymous" and begged a viewing. Kindness itself,they allowed me to look through two telescopes — each one trained on a different bird. These telescopes were very powerful and far more effective than the Zeis 8 x 30 that I carry. There sat the two great birds, on dead trees, far out on the blasted heath; their deserted nest between them.

Now to the second event. The Forders introduced themselves and, on being told that on the morrow we planned to go up the hills to 2300 feet in search of *melanopa,* asked if they might join us. So we made an R.V. with them for 10.00 hours at Grant's Garage, Aviemore, from whom I had arranged to hire a jeep. Through the great kindness of the Laird of Kinrara I had permission to motor up to his grouse moor and so was able to obtain the key from his head keeper.

At 10.00 hours on 30th May we all duly met in Aviemore in cold and threatening weather. The hills were hidden in cloud and the wind blew keenly down the road through the town. But we had come a long way and so climbed aboard our vehicle and set off upward. The last trees vanished and then the heather ceased as we reached the plateau of rocks, lichen and patches of crowberry, whose pink flowers bravely faced the stormy weather. The lonely piping of a pair of Golden Plovers did little to cheer things up.

Almost as soon as we arrived at the summit a snow storm engulfed us. Visibility was zero, but I do not think any snow fell — it was passing us horizontally! As soon as it stopped, Tony went off over the plateau, whilst the rest of us huddled in the jeep. Just before another snow flurry arrived he rejoined us with two *melanopa*! He had got down on his hands and knees and searched the rocks and the crowberry and had spotted the two moths sheltering in the herbage. So heartened were we that, as soon as the clouds lifted, we strode the plateau, nets at the ready. In the few sunny spells that followed each snow flurry, between us we caught another ten *melanopa*. They did not fly anywhere near as fast as I had noted in a previous year in continuous, hot sunshine.

Margaret Forder performed what may well be an unique feat. She carried a net in one hand and a bunch of bearberry, which she had picked the evening before, in the other. As she walked, a *melanopa* landed on the bunch of flowers. I asked her what she did. She said "No problem; I just popped the bunch, with the moth, into my net and so caught my first, and probably my last, *melanopa*". To anyone who has hunted *melanopa* in continuous, hot sunshine, and seen the speed of its flight, this account may seem remarkable. Of further interest regarding the flight of *melanopa*; a communication by B.K. West (*Ent. Rec.* **101**: 172) describes the flight pattern in strong wind. But the capture of two *melanopa* sheltering from the wind by Tony Pickles is another matter, and says much for both his eyesight and his optimism; and, of course, for the plenitude of the moth.

Delayed emergence in *Chloroclystis v-ata* Haworth (V-pug) (Lep.: Geometeridae).

In southern Britain *Chloroclystis v-ata* usually flies between May and August in two broods, though this species has been caught in the Rothamsted Insect Survey light traps from April to September. In northern Britain the species is univoltine, flying in June and July. The larvae are polyphagous on the flowers of a wide variety of plants and overwintering takes place in the pupal stage (Skinner, B. (1984) *Colour Identification Guide to the Moths of the British Isles.* Viking, Harmondsworth).

In late August 1988 six larvae of this species were collected by the author from goldenrod flowers at Aberporth, Dyfed. By the end of September all had pupated. By the end of October the adult wing markings could be seen through the pupal cases of four of the pupae, and the emergence of a partial third brood seemed imminent. However, all six overwintered and hatched during May of the following year. The wing markings of the two pupae which were not fully developed the previous autumn were evident a few days before emergence, as is usually the case.

The reasons for the apparently fully-developed adults overwintering inside the pupal skin are not known and their ability to do so seems remarkable. I have not heard of this behaviour in any other species and would welcome comments. Thanks are extended to Gwynn Williams of the Royal Aircraft Establishment at Aberporth for permission to collect larvae at the site. — ADRIAN M. RILEY, Dept. of Entomology and Nematology, AFRC Institute Arable Crops Research, Rothamsted Experimental Station, Harpenden, Herts AL5 2JQ.

Notes on Orthoptera from Jersey, Channel Islands

Although all these species are well known from the dunes around St Ouen's Bay, Jersey (Marshall & Haes, 1988 *Grasshoppers and allied insects of Great Britain and Ireland*), I nevertheless feel it is worth placing on record (somewhat belatedly!) that the late Roderick Dobson sent me a collection of live Orthoptera from this area which he collected on 31st August 1964. The species included were the Grey Bush-cricket *Platycleis albopunctata jerseyana* Zeuner, Jersey Grasshopper *Euchorthippus pulvinatus elegantulus,* Zeuner, Heath Grasshopper *Chorthippus vagans* (Eversmann), Field Grasshopper *C. brunneus* (Thunberg) and Blue-winged Grasshopper *Oedipoda caerulescens* (L.). All were described by Mr Dobson as being numerous on the dunes.

I kept them alive in cages at Broadcasting House in Bristol for observation and, with the exception of *D. caerulescens,* to make tape recordings of their stridulations. — J.F. BURTON, Wasserturmstr. 53, D-6904 Eppelheim, Heidelberg, West Germany.

Hazards of butterfly collecting, Tsavo — May 1988

May 1988 saw me in the Tsavo National Park of Kenya as part of my preparations for writing a book on the Butterflies of Kenya. Getting good colour slides of at least a quarter of all the Kenyan species was high on my list of priorities. In savannah areas, butterfly photography is almost impossible except in the early morning or in the afternoon as butterflies begin to bed down. During the day, they are much too lively and even when feeding often spend but a second or two at each nectar source. There in an additional advantage to early morning and late afternoon photography in that many specimens will be sunning themselves with the wings open, and it may be possible to capture the range of beautiful colours in the African orange tips of the genus *Colotis*.

Towards four o'clock I found an ideal spot, a valley with tall acacia trees and profuse, yet accessible undergrowth with lots of flowers. Butterflies were obviously beginning to assemble for a very dense night roost. Communal roosting among butterflies is not unusual, sometimes simply because a given place is very suited, sometimes because of a genuine mutual attraction, the reasons for which have not been fully puzzled out. There were almost thirty species preparing to bed down for the night. Four or five

Belenois, a dozen *Colotis,* a bouquet of pansies (*Junonia*), *Byblia ilithyia,* as well as some lycaenids and skippers. Ideal for photography!

After having stalked a few butterflies with my camera I looked up to assess the situation. It turned out that I was being assessed myself, and that by a large bull elephant only ten metres away. Very gingerly I tiptoed back to the car. African elephants are much less vicious than their Indian cousins, but still . . . . ten metres is much too close for comfort, not least for someone who has had occasion to see how swiftly and decisively an elephant can move. Observations from the car revealed that I was at the edge of a herd of more than fifty peacefully grazing elephants, just the thing for which Tsavo is famous.

For the rest of the afternoon I must have made a weird sight trying to reconcile photography and elephants. I left the car with engine running, sank on my knees, took a photograph, retreated to the car, surveyed the scene for elephants, before starting the cycle again if no elephant was closer that 25 metres. They did not seem to mind much, and by the time when it became too dark for photography both elephants and car made their way towards their respective homes along the same trail.

Friends and relatives often assume that butterfly collecting in the tropics is a series of close calls with wild animals. That, of course, is very rarely so. Most wild animals avoid the butterfly collector, who usually makes a racket that can be heard well in advance. "But aren't you afraid of tigers?", is a common question. Would that I were lucky enough to see one while on foot, but that is hopelessly improbable. Lions you might meet, but except for one or two places where they are known to be dangerous (e.g. the Aberdares Plateau in Kenya), they are quite inoffensive. Only two animals present a real danger, attacking without warning, namely the African buffalo (climb a tree — if you have time) and the Indian elephant (run downhill — if you have the option). I very much hope that I shall never have the need to test either bit of advice in practice.

But when all is said and done by far the greatest danger in the tropics lies in the traffic. Getting to any bit of rainforest on any continent is many times more dangerous in real terms than wandering about in the wildest and most remote forest. — T.B. Larsen, 358 Coldharbour Lane, London SW9 8PL.

1989 — A Year for the Holly Blue, *Celastrina argiolus* L.

This butterfly is well-known for having a year or two of comparative abundance followed by a period of scarcity — but 1989 has undoubtedly been a Holly Blue year.

My wife saw our first specimen of the year in the garden on 2nd May, followed by two on the next day and several on each of the following days until the 10th. After this time they were less frequent but I did not keep exact notes.

By 23rd July, when the summer brood was well out, a female was seen egg-laying on our small ivy patch, an interesting garden feature upon which I have managed to place a domestic preservation order. Searching this patch on 29th July revealed larvae of varying sizes as well as many unhatched eggs. When breeding this butterfly from eggs collected on 7th August 1970, a third brood emerged between the 8th and 11th September and I therefore thought it worthwhile to see if another third brood would occur in 1989.

This butterfly is highly parasitised by the host specific *Listrodromus nycthemerus* (Gravenhorst) (ten parasites from fourteen larvae beaten from holly on 21st June, 1970) and in retrospect it would have been wiser to have collected eggs in 1989 rather than larvae. However, I had not anticipated that the rate of parasitisation would be as high as events proved. From ten larvae collected from the garden ivy on 14th August, ten parasites resulted between the 6th and 15th September. That put paid to seeing bred third brood butterflies, but compensation came on 19th September when three blues were seen flying in Lower Caversham, on the following day a female was flying in our own garden and the final specimen seen there on 29th September.

These may not be particularly late dates, for others have recorded Holly Blues in October, but the question does arise upon which foodplant would the late eggs be laid and would the larvae have time to complete development before the foodplant became unavailable?

In other years I have seen Holly Blues of the spring brood egg laying in the garden on a cultivated *Cornus* and on a species of *Cotoneaster,* but by late September the *Cornus* has only withered leaves available and the *Cotoneaster* is covered with rather tough berries. Ivy may be the answer, but this flowered very early in 1989 and by now the berries are well developed and fairly hard.

It will be interesting to see how the butterfly fares in 1990. — B.R. BAKER, Reading Museum and Art Gallery, Reading RG1 1QL.

Pyracantha as a possible foodplant of Holly Blue butterflies _Celastrina argiolus_ (Linnaeus) (Lep.: Lycaenidae) in the London Area.

Lepidopterists resident in the south-east of England can not have failed to notice that 1989 was an exceptionally good year for Holly Blue butterflies *Celastrina argiolus* (Linnaeus) and I have heard that this situation was repeated elsewhere in the country. In the London area (defined by the London Natural History Society as being a circle of radius twenty miles based upon St Paul's Cathedral), butterflies were in great number, with several of this normally near-solitary species being seen flying together on many occasions. Adults, usually males, were seen in a great many areas from which they were apparently absent during the intensive searching from 1980 to 1986 which culminated in the publication of *The Butterflies of the London Area* (London Natural History Society, 1987).

In a normal year in the London Area, adults appear around mid-April (earliest 2nd April in 1983) and typically lay eggs on either holly *Ilex aquifolium* or snowberry *Symphoricarpos* sp. I was rather surprised to discover that volume 7 (1) of *The moths and butterflies of Great Britain and Ireland* (Harley Books, 1989) lists only dogwood *Swida sanguinea* and gorse *Ulex europaeus* as alternatives to the more usual larval foodplant. In the London Area snowberry is used regularly and enables the butterfly to flourish in areas where holly is absent. This is particularly true in the Central London area. The progeny of this spring brood form the second generation of adults in late July, lasting through until the end of August or, rarely, September (latest recorded was 9th September in 1983). These adults lay eggs on ivy and in a normal year the pupae of this generation will overwinter.

In 1989, however, it became apparent that within the generally increased numbers of adult butterflies on the wing, there was a definite pattern of rise and fall, of the type which usually matches the voltinism of the species involved. Thus, there was a peak of adults in April and May 1989, tailing-off into June so that by the middle of June only a very few late emergers were still in evidence. By July the first brood had finished and there was a clear gap between the end of the first brood and the start of the second at the end of July/early August. However, the summer brood, on the wing from late July to at least 23rd September, transpires to conceal not one, but two peaks of population; the first within the first two weeks of August and the second, rather smaller, around the second and third weeks of September. The question that this poses is whether the double peak represents a split emergence of the second brood or whether in fact a third brood is indicated.

The evidence against a third brood is fairly strong. There is unlikely to have been adequate time for a second brood adult to produce progeny by the second week of September, whilst pupae from the second brood of adults usually overwinter and so it seems unlikely that they would have emerged in the continuing warm weather. One must, therefore, consider the possible causes of a split emergence. The most obvious choice, for 1989, would be the unusually prolonged hot, dry weather, of the kind we have not seen since 1976. Whilst this may be either partially or totally responsible, I prefer to consider the possibility of another alternative foodplant and, that the development rate on the two differing pabula is likely to vary sufficiently to produce a double peak.

The evidence for an alternative foodplant for the progeny of spring generation *argiolus* all heralds from East London. A telephone caller at the Museum wondered why the Holly Blues in the Ilford, Essex area were taking such great interest in the *Pyracantha* growing locally. This was rather fortuitous, since I had intended to examine the local *Pyracantha* for the early generation of *Phyllonorycter leucographella* which is abundant locally. Armed with this double excuse to leave the paper-work behind I first visited Central Park in East Ham. *Leucographella* was almost instantly located but the greater interest lay in the five Holly Blue butterflies which were all sitting on the *Pyracantha* bushes having the appearance of being freshly emerged. There was no ivy, holly, snowberry or any other known foodplant nearby. Intrigued, I determined to visit a few other *Pyracantha* patches in East Ham and to my surprise, of seven patches visited (including Central Park) five had *argiolus* either flying in very obvious association with them or else had the adult insects, again all apparently freshly emerged and nowhere near recorded foodplants, sitting in the bushes. The visits were all made from 13th to 15th September 1989.

Though this evidence is purely circumstantial, it does seem to indicate that *Pyracantha* may be implicated as a foodplant of the larvae of the first brood *argiolus* and, given the dates of my visits, that insects bred on *Pyracantha* are slower to develop and will emerge slightly later than insects bred on the more conventional holly.

It would be most interesting indeed to see if my East London findings are repeated elsewhere. — COLIN W. PLANT, Passmore Edwards Museum, Romford Road, Stratford, London E15 4LZ.

Late records of summer moths, and an appeal for information

A female Lilac Beauty, *Apeira syringaria* (L.) at Long Wittenham, Oxfordshire, on 21st September 1989, and a male Swallow-tailed, *Ourapteryx sambucaria* (L.), at Headington, Oxford, on 5th October 1989 are remarkably late records of species that normally appear in June and July. Both specimens came to m.v. light and both are fresh-looking.

The warm, dry summer may have produced numerous records of species "out of season". It is tempting to think of them as being a partial second generation, but the possibility of delayed emergence in response to summer drought must also be entertained. In collaboration with Paul Waring of the Nature Conservancy Council, Peterborough, I would like to assemble and analyse all out of season records of macro-moths for 1989. This should enable us to determine which of the above possibilities is likely to be correct. Please send records to me. — DENNIS F. OWEN, 2 Shelford Place, Headington, Oxford OX3 7NW.

Is the population of *Mythimna pallens* (Linnaeus) (Lep.: Noctuidae) sometimes reinforced by immigration?

None of the standard text-books suggests that this species is ever a migrant. It was, as in certain years, common from mid-August to mid-September, 1989 in Saffron Walden, nightly numbers in the light-trap ranging from two or three to about 50. However, on the one night 6/7th September the number certainly exceeded 1,000. I have 15 egg-trays in the trap and the count on a typical tray was between 70 and 80 (the moths were too lively to be more precise); added to these were scored on the sides of the trap, the wall of the house and adjacent vegetation. This is an arable district and other grass-feeding species such as *M. impura* (Hübner) are relatively uncommon. If recorders in other parts of the country encountered a similar influx of *M. pallens* on the same night, immigration will have been the most likely cause. — A.M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex CB11 3AF.

Wing function in the brachypterous female of *Diurnea fagella* (D. & S.) (Lep.: Oecophoridae)

The males of both British species of *Diurnea* i.e. *D. fagella* (D. & S.) and *D. phryganella* (Hübn) are fully alate and fly vigorously especially at night. The females of both species are brachypterous, the foreshortened wings are held over the abdomen and are just about body length. Neither is known to fly and examination of wing surface area to body mass confirms my belief that neither could fly. However, I have observed on four separate occasions, the effects of disturbance on females of *D. fagella* at rest on trunks of trees. On each occasion the dislodged moth went into a controlled slow drop similar to a parachute drop with one important difference; this being that the slow descent was not vertical, sometimes achieving 75 degrees in dead calm air conditions. Closer observations demonstrated that the wings are outstretched on each occasion. The moth sometimes managed to grab onto a basal buttress projecting from the tree, thereby saving a longer walk back up. It would not however be strictly accurate to describe this as true gliding. — Dr M.W. HARPER, Bullen, Cherry Orchard, Ledbury, Hereford.

***Maruca testulalis* Geyer (Lep.: Pyralidae) in Kent**

A specimen of this moth was attracted to my garden m.v. light 6.viii.1989; perhaps this the fourth feral imago to have been noted for the British Isles, and the first for Kent. Bretherton and Chalmers-Hunt (*Ent. Rec.* **96**: 149) observe that the capture of two specimens in 1983, one in Cornwall and the other in Surrey, coincided with an immigration of rare species suggesting that *testulalis* might occur as as immigrant, and not only as an artificial introduction as was previously supposed. The date of the Dartford specimen coincided with a similar period of immigration; the same light attracted a fine pale grey male *Eurois occulta* L. on July 27th for example, suggesting that this *testulalis* was not merely an escape which had developed in some imported plant material, but had arrived by flight from overseas. — B.K. WEST, 36 Briar Road, Dartford, Kent DA5 2HN.

A note on the differences between *Perizoma affinitata* Stephens and *Perizoma alchemillata* L. (Lep.: Geometridae)

In his book (1984), *Colour identification guide to moths of the British Isles,* Bernard Skinner gives the main difference between *P. affinitata* and *P.*

alchemillata as the former having a single indentation on the inner margin of the white band of the forewing, whereas in *P. alchemillata* the indentation is double. In 1985, in an attempt to sort out the differences between these two species, I dissected several Cornish specimens. Unexpectedly, I found two of the moths which had double indentations to be *affinitata*. In addition, one moth had one large indentation next to a small indentation; this specimen too was *affinitata*. I found no *alchemillata* with a single indentation. The double indentation rule seeks to be a good general (but not infallible) guide. In addition, I find that *alchemillata* is usually smaller and has more white on the basal area of the forewing than *affinitata*. — ADRIAN SPALDING, Tregarne, Cusgarne, Truro, Cornwall.

Larvae of the Brown Argus, *Aricia agestis* D. & S. (Lep.: Lycaenidae) feeding on the seeds of *Geranium molle*

On 14th June 1983 at Perranporth, Cornwall I found ova of *Aricia agestis* on the upper and under sides of the leaves of smooth cranesbill, *Geranium molle*.

On 5th July 1984 I found two final instar larvae of *A. agestis* at the same site. They were at the top of the *G. molle* plants. Although the larvae were inconspicuous in themselves, their presence was given away by black ants in attendance. One of the larvae had five ants on it. The sand dune environment was very dry and the leaves of the plants were dead. The larvae had eaten neat holes in the fruits and were eating out the contents. The holes were similar in appearance to those made by the larvae of *Celastrina argiolus* in the fruits of holly. — Dr B.P. HENWOOD, 4 The Paddocks, Abbotskerswell, Newton Abbot, Devon.

Interesting behaviour of *Vanessa atalanta* L. under drought conditions

I was surprised to observe single specimens of the Red Admiral butterfly, *Vanessa atalanta*, drinking sea water from wet shingle at the edge of the sea, at the north end of Slapton Sands, South Devon, during the period 16th August to 6th September 1989. — H.L. O'HEFFERNAN, 24 Green Park Way, Chillington, Kingsbridge, Devon TQ7 2HY.

***Apion ervi* Kirby (Col.: Apionidae) feeding on apple**

The larvae of *Apion (Eutrichapion) ervi* Kirby are known to develop in the seeds of *Lathyrus pratensis* L., species of *Vicia*, and various other members of the Papilionaceae. Hoffman (1958, *Fauna de France, Coléoptères, Curculionides*, 3rd part, pp. 1651-2) lists six species of *Vicia*, with *Lotus corniculatus* L., *Pisum sativum* L., and *Coronilla varia* L. as additional host plants.

On 3rd September 1989 several specimens of *Apion ervi* attracted my attention when I was picking apples from a small "James Grieves" tree in my garden at Hemington, near Oundle, Northants (TL061853). Upon closer examination these weevils were seen to be coming from cavities in the fruits hollowed out by wasps. One such well-eaten apple contained eleven *Apion ervi,* all of which appeared to be feeding on the moist internal tissues of the fruit. I have never previously observed such behaviour in this, or any other, species of *Apion* and wonder whether it had resulted from the premature desiccation of its host plant following the hot summer on 1989. — R. COLIN WELCH, Institute of Terrestrial Ecology, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, Cambs PE17 2LS.

Eucosmomorpha albersana (Hübner), (Lep.: Tortricidae) in v.c.60 (West Lancaster)

I took a male specimen of *E. albersana* at Gait Barrows N.N.R. on 27th May 1987. The species is distinct as an imago but to confirm the identification a genitalia mount was made (Gen No. 6/89 in my collection).

Mr E.F. Hancock of Ulverston who is currently preparing the forthcoming volume on the Tortricidae for MBGBI (Vol. 5) and is compiling the records of the group, tells me that my specimen constitutes a new record for v.c.60. The species is scarce and sporadic in northern England with records, mainly of single specimens, from v.c.68, v.c.62 and v.c.63.

I am grateful to Mr Hancock for information on distribution and to the Nature Conservation Council for granting me permission to visit and collect voucher specimens on the Reserve. — Dr NEVILLE L. BIRKETT, Beardwood, Carter Road, Grange-over-Sands, Cumbria LL11 7AG.

Atheta puncticollis Benick (Col.: Staphylinidae): a postscript

When writing my recent note on this species (*antea*: 104) I had regrettably forgotten a paper by P.M. Hammond and M.E. Bacchus (1971, *Ent. mon.Mag.* **107**: 153-7) relevant to the matter in hand. On p.156 they record the capture of *A. puncticollis* in some numbers in Inverness-shire by C.Johnson, and also its discovery in England at Sandscale Haws, N. Lancs, by M.E. Bacchus, again in some numbers, in cow dung. — A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

A supplement to the Hymenopterist's handbook (second edition-1986) by **Dr Clive Betts**. 24 pp. Paper. Amateur Entomologist's Society. (1988). £1.75.

The first edition of the *Hymenopterist's handbook*, published in 1945 contained a comprehensive table of the flight times of Hymenoptera. This table appeared in the revised edition, but was inadequately updated. This omission is rectified with this supplement, essentially a taxonomic list of Hymenoptera appending, in synoptic form, the flight periods and ecological data such as nest site, biology (e.g. if a cleptoparasite, social parasite, or nature of prey) and other data. A very informative supplement, which also contains an errata and addendum for the 1986 edition.

Insect-fungus interactions edited by **N. Wilding, N.M. Collins, P.M. Hammond and J.F. Webber**. 344 pp. Numerous illustrations and figs. Academic Press, 1988. £33.00.

This publication is derived from the 14th Symposium of the Royal Entomological Society of London in collaboration with the British Mycological Society held in September 1987. The symposium volume attempts to review the current state of knowledge in four principal areas: mycophagy, mutualism, insect spread of plant fungal disease and insect mycopathology.

Ten major papers are presented, but a significant feature of the book is an appendix giving a complete statement of known mycophagous interactions. This appendix is presented as annotated outline classifications of fungi and hexapod arthropods. In these classifications, insects and fungi are allocated code numbers which are used throughout the book as a guide for readers unfamiliar with particular taxa. Jan Hendy.

The natural history of larval mosquito habitats by **Marshall Laird**. 555 pp many illustrations and figs. Boards. Academic Press, 1988. £65.00.

This monographic work is intended for all concerned with the ecology and control of mosquitos, making substantial contribution to the neglected field of microlimnology, and will surely better inform all culicidologists on the generally under-appreciated complexity of most of the aquatic life webs of which immature mosquitoes form a part.

The text is divided into four parts, the first dealing with the classification of larval mosquito habitats. After reviewing the history of classification, the author proposes a new standard system for habitat classification. The second part presents nine very detailed case studies of above-ground aquatic habitats, with the third part dealing with subterranean waters. The concluding part presents the discussion and draws conclusions. A detailed bibliography and index complete the book.

This is a work of considerable authority drawing on more that four decades of the author's experience. The author is no respecter of existing systems of habitat classification or mosquito systematics, proposing, with full justification, a revision of the former and declining to follow current practice with the latter.

Although a work of considerable interest and value to those concerned with the ecology of mosquito larvae, the detailed treatment of the ecology of such a variety of aquatic habitats is likely to considerably broaden its appeal. Elizabeth Abdulla.

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THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION
(Founded by J.W. TUTT on 15th April 1890)

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A REVIEW OF THE PHENOLOGY OF *EUPITHECIA TRIPUNCTARIA* HERRICH-SCHÄFFER, THE WHITE-SPOTTED PUG (LEP.: GEOMETRIDAE)

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Introduction

IN A recent article in this journal West (1989) discussed the evidence for bivoltinism in *Eupithecia tripunctaria* H.-S. Two distinct emergences were evident from analysis of the catches made at mercury vapour light at Dartford, Kent, in 1983, 1985 and 1988 and these observations were stated to be confirmed by Peet (1965) and Agassiz (1977) in Co. Cork; Bradley & Pelham-Clinton (1967) in Co. Clare; Evans & Evans (1973) in Surrey and Chalmers-Hunt (1981) in Kent. In the intervening years of 1984, 1986 and 1987 an apparent second emergence was represented in the catches, though the usual first emergence was absent. It is also stated that in Kent the second brood appears to be generally stronger than the first and records cited by Emmet (1989) suggest that this is also the case in Essex. West (1989) still doubts the significance of this evidence and suggests that positive proof of bivoltinism in this species would be found in adults which emerged as a second generation from larvae collected in early summer.

Against this background of uncertainty concerning the phenology of this species, the present authors are able to supply evidence of partial bivoltinism in *E. tripunctaria* in the form of first-hand experience and documented cases of captive second brood emergence and the regular capture of both broods in Rothamsted Insect Survey light traps throughout Great Britain. Before presenting these data it is considered desirable to give a full account of historical opinion on this matter as West (1989) omitted several important references.

Review of suspected bivoltinism

West (1989) states that much of what is written in the 20th century British literature concerning Lepidoptera can be traced back to Barrett (1907). However, in the case of the *Eupitheciini* this is not the case. Most of the important studies on the biology of this group in Britain were done between 1859 and 1874 by Rev. H. Harpur-Crewe. Newman (1869) accredited much of his text concerning the early stages of the pugs to Harpur-Crewe and doubtless these observations were repeated by many subsequent authors without due acknowledgement.

The larva of *E. tripunctaria* was first described in Britain by Harpur-Crewe (1861). It was stated that they are found in damp woods during September feeding on angelica (*Angelica sylvestris*) and hogweed (*Heracleum sphondylium*). The adult was believed to fly in May and June.

The first suspicions of bivoltinism were raised by Harpur-Crewe (1862b and c) who records the capture of a single female on 19.viii.1862 in a locality where autumnal larvae were known to occur. He suggested that this individual represents a second emergence which produces the autumnal larvae and that the spring-flying adults lay their eggs on ". . . some other plant . . ." (i.e. not angelica or hogweed). However, Newman (1869) follows Harpur-Crewe's earlier notes (1861 and 1862a) and states that *E. tripunctaria* is univoltine, flying in May and June.

Tutt (1906) states that larvae are found at the end of May and June and from the end of August to October feeding on umbellifer flowers. He lists angelica, hogweed, cow parsley (*Anthriscus sylvestris*), *Peucedanum* sp., cowbane (*Cicuta virosa*) and *Laserpitium* sp. Further, he states that three broods can be obtained in captivity if fed on elder (*Sambucus nigra*). Adults are recorded in May and June with a second brood in August.

Prout (1907) also states that *E. tripunctaria* is bivoltine and refers to Barrett (1907) and Nickerl (1907) who reared larvae on elder and obtained adults in July of the same year. Barrett (1907) also cites D'Orville (1864) who observed a July emergence from captive larvae fed on cow parsley flowers.

The standard works of Newman & Leeds (1913) and Meyrick (1928) omitted mention of Tutt's (1906), Prout's (1907) and Barrett's (1907) observations and state that *E. tripunctaria* is univoltine. However, South (1939 and subsequent editions) states that unusually early spring emergences can produce a second brood in captivity. He also cites elder and ". . . other Umbelliferae . . ." as foodplants.

Allan (1949) added wild parsnip (*Pastinaca sativa*) and garden chervil to the list of foodplants but does not comment on voltinism.

Prior's (1978) note was merely a request for information regarding larvae resulting from the first brood as none had been found in the wild in Britain at that time.

Simson (1980) states that adults fly in July (i.e. as a second emergence). Although he could not find the first brood larvae they were later stated to feed in July on elder flowers (BENHS, 1981). This was subsequently confirmed by Corley (1984) who found them on elder in June. However, both authors noted that no adults emerged in captivity the same year. All the pupae overwintered and hatched the following May. This led Corley (1984) to believe that some of the spring generation adults laid eggs on yet another plant and that it was these larvae which resulted in the second emergence. He suggested cow parsley as this blooms at the right time of year to support *E. tripunctaria* larvae. McDunnough (1949) cites flowers and seeds of *Viburnum* in North America as larval food sources. Although he does not state which species, both British representatives of this genus, guelder rose (*V. opulus*) and the wayfaring tree (*V. lantana*), also flower at the appropriate time of year for first generation larvae of *E. tripunctaria* (Fitter, Fitter & Blamey, 1974).

As a resumé of the known facts, Skinner (1984) states that adults have been recorded every month between May and September and that larvae feed on elder in July and umbellifers in August and September. He also says that larvae from elder produce adults the following year. However, Corley (1985) found that, of ten larvae collected from elder in late June 1984, three produced second generation adults in late July of the same year.

In his short review, Haggett (1989) erroneously states that D'Orville's (1864) reference to a second generation in captivity remains the only recorded instance (see Corley, 1985). He also states that, in his experience, larvae reared in captivity on cow parsley and elder do not produce a second generation. Further, he suggests that an alternative spring foodplant should be sought (possibly foliage rather than flowers) as searches for larvae on elder flowers in some known *E. tripunctaria* localities, were unsuccessful.

Therefore, our understanding from the literature at this time was that adults emerge in May and June and oviposit on elder and possibly some other plant. The larvae pupate and some of those which had fed on elder emerge in July, August and September, whilst others overwinter and emerge the following May. Those which emerge as a second brood oviposit on various umbellifers and goldenrod (*Soligado virgaurea*) (BENHS, 1981). The resulting larvae pupate and likewise overwinter and produce adults the following May.

Further to these observations the present authors have recorded larvae on hogweed in June and ragwort (*Senicio jacobaea*) in August. The former is interesting as hogweed is a known autumnal foodplant (Harpur-Crewe, 1861). This suggests that it is possible for both broods of *E. tripunctaria* to feed on one plant whereas it has previously been supposed that two are necessary. One of the present authors (G.P.) has also successfully reared captive first generation larvae on flowers of bramble (*Rubus fruticosus*).

Catches of adults in Rothamsted Insect Survey light traps

In order to clarify the known flight periods of this species, data collected from the Rothamsted Insect Survey light traps for the period 1980 to 1987 (during which time all pugs were identified by Riley) were examined.

A total of 457 *E. tripunctaria* individuals were caught over 162 site years at 71 sites throughout Great Britain. Adult moths were caught each month between May and October inclusive. The second brood alone was recorded during 64 site years; the first brood alone during 41 and both broods during 57.

Two separate broods have been recorded at sites throughout England and Wales but in Scotland they have only been caught at Elgin, Morayshire and St Abb's, Berwickshire. However, assumed second brood individuals have been caught during August at many Scottish sites as far north as Fort Augustus, Inverness. At these sites the first generation was absent from the catches.

	May	June	July	August	Sept.	October
Total Number	35	125	32	233	25	7

Table 1. Total numbers of *E. tripunctaria* adults caught in R.I.S. light traps at sites throughout Great Britain from 1980 to 1987.

Two obvious peaks are evident in June (125 individuals) and August (233), from the figures in Table One. This suggests there are two main periods of emergence during the year and the numbers caught support West's (1989) view that the second brood is larger than the first. The two broods can be seen more clearly in Table Two which shows the results from some of the individual sites. They represent 13 years' trapping at four sites and each year at each site shows a definite gap (last column) between the last capture of first brood individuals and the first capture of the second, thus proving the existence of two separate flight periods. This gap is sufficient to allow larvae from the first brood to pupate and produce second generation adults. The figures also show that the second emergence is usually larger than the first.

Conclusions

West (1989) considered that the required proof of bivoltinism in *E. tripunctaria* was captive rearing of second generation adults from larvae collected in spring or early summer. The author may have been unaware of the examples already cited (D'Orville, 1864; Nickerl, 1907; Corley, 1985) as these are documented accounts of this occurrence. Further, both the present authors have reared a great many larvae from elder flowers from several localities in southern England and found that a small percentage produce adults in July and August of the same year. As a criterion for proof of bivoltinism these results must be regarded with caution as captive breeding (as breeders of Lepidoptera know) sometimes produces extra broods when they would not naturally occur. However, in our opinion, alongside the cited results of light trapping, they clearly demonstrate partial bivoltinism in this species.

A major remaining question is how the second emergence (which is only partial) can be larger than the first (which is complete). There are several possible explanations for this including high overwintering pupal mortality and high survival rate of larvae from the first generation due to favourable climatic conditions. Further detailed study would be required to clarify this point.

Acknowledgements

Thanks are extended to P. Page and D. Rogers (Nature Conservancy Council) and to N. Greatorex-Davies (Institute of Terrestrial Ecology) for operating the Rothamsted Insect Survey light traps at Yarner Wood and Monks Wood respectively. Their continued support is much appreciated.

			First Brood			Second Brood			
Site no.	*Site name*	*Year*	*Date of first capture*	*Date of last capture*	*Total number caught*	*Date of first capture*	*Date of last capture*	*Total number caught*	*Gap (weeks)*
22	Geescroft I	1984	12.vi	22.vi	3	14.viii	25.viii	5	6½
		1985	4.vi	29.vi	5	17.viii	1.ix	6	7
		1986	9.vi	21.vi	5	11.viii	2.ix	5	7
		1987	29.v	29.v	1	14.viii	17.viii	5	6½
99	Geescroft II	1986	6.vi	16.vi	6	16.viii	1.ix	6	8½
		1987	13.vi	13.vi	1	16.viii	21.viii	4	9
266	Yarner Wood I	1985	12.v	10.vi	2	13.viii	19.ix	3	9
277	Ewingswode	1981	1.vi	4.vi	2	13.viii	27.viii	7	10
		1982	26.v	26.v	1	30.vii	3.viii	3	5
		1983	7.vi	3.vii	3	12.viii	23.viii	9	6
		1984	6.vi	26.vi	4	17.viii	29.viii	4	7
		1986	6.vi	25.vi	5	13.viii	1.ix	3	7
		1987	26.v	21.vi	10	14.viii	6.ix	6	7½

Table 2. Results from four Rothamsted Insect Survey light trap sites operating between 1984 and 1987:
Geescroft I and II, Harpenden, Herts. (Site Nos. 22 and 99 resp., O.S. Grid Ref. TL132 128 and TL131 127 resp,);
Yarner Wood National Nature Reserve, Devon (Site No. 266, O.S. Grid Ref. SX786 788) and
Ewingswode, Monks Wood National Nature Reserve, Cambs (Site No. 277,O.S. Grid Ref. TL200 797).

References

Allan, P.B.M. (1949). *Larval Foodplants.* Watkins & Doncaster, London.

Agassiz, D. (1977). Lepidoptera in the south of Ireland. *Entomologist's Rec. J. Var.* **99**: 73-74.

Barrett, C.G. (1907). *The Lepidoptera of the British Isles,* Vol. 9. Reeve & Co., London.

Bradley, J.D. & Pelham-Clinton, E.C. (1967). The Lepidoptera of the Burren, Co. Clare, W. Ireland. *Entomologists' Gaz.* **18**: 115-153.

Chalmers-Hunt, J.M. (1981). *The Butterflies and Moths of Kent.* Vol. 3.

Corley, M.F.V. (1984). One generation or two? *Entomologists' Gaz.* **35**: 76-77.

— , (1985). The second brood of *Eupithecia tripunctaria* H.-S. (Lep.: Geometridae). *Entomologists' Gaz.* **36**: 104.

D'Orville, H. (1864). *Eupithecia tripunctata. Entomologist's mon. Mag.* **1**: 73.

Emmet, A.M. (1989). Evidence of bivoltinism in *E. tripunctaria* H.-S. (Lep.: Geom.) in north-west Essex. *Entomologist's Rec. J. Var.* **101**: 185-186.

Evans, L.K. & Evans, K.G.W. (1973). A survey of the macrolepidoptera of Croydon and N.E. Surrey. *Proc. Croydon Nat. Hist. Sci. Soc.* **14**: 273-408.

Fitter R., Fitter, A. & Blamey, M. (1974). *The Wild Flowers of Britain and Northern Europe.* Collins, London.

Haggett, G.M. (1989). Double-brooded *Eupithecia tripunctaria* H.-S. (Lep.: Geom.) *Entomologist's Rec. J. Var.* **101**: 184-185.

Harpur-Crewe, H. (1861). Description of the larva of *Eupithecia tripunctata. Zoologist* **19**: 7567-7568.

— , (1862a). Notes on *Eupithecia* larvae. *Ent. Annual:* 38-44.

— , (1862b). Is *Eupithecia tripunctata* double-brooded? *Zoologist* **20**: 8209-8210.

— , (1862c). Is *Eupithecia tripunctata* double-brooded? *Weekly Entomologist* **1**: 19-20.

McDunnough, J.H. (1949). Revision of the North American species of the genus *Eupithecia. Bulletin of the American Museum of Natural History* **93**, article 8: 533-728.

Meyrick, E. (1928). *Revised Handbook of British Lepidoptera.* Watkins & Doncaster, London.

Newman, E. (1869). *The Natural History of British Moths.* Tweedie, London.

Newman, L.W. & Leeds, H.A. (1913). *Text Book of British Butterflies and Moths.* Gibbs & Bamforth, St Albans.

Nickerl, O. (1907). Spanner des Königreisches Böhmen. *Beitrag Insect Fauna Böhmens* **5**: 1-71.

Peet, T.D.N. (1965). Lepidoptera in Ireland, 1965. *Entomologist's Rec. J. Var.* **77**: 293.

Prior, G. (1978). A note on three species of "pug" supposedly double-brooded. *Entomologist's Rec. J. Var.* **90**: 251-252.

Prout, L.B. (1907). Notes on the genus *Eupithecia. Entomologist* **40**: 220-222.

Simson, E.C.L. (1980). British Pugs. *Entomologist's Rec. J. Var.* **92**: 261-266.

Skinner, B. (1984). *Colour Identification Guide to Moths of the British Isles.* Viking, Harmondsworth.

South, R. (1939). *The Moths of the British Isles,* Series Two. Warne, London.

Tutt, J.W. (1906). Practical hints relating to the *Eupitheciids. Entomologist's Rec. J. Var.* **18**: 201-204.

West, B.K. (1989). The evidence for bivoltinism in *Eupithecia tripunctaria* H.-S. (Lep.: Geometridae) in S.E. England. *Entomologist's Rec. J. Var.* **101**: 57-59.

THE OCCURRENCE OF THE SUB-FAMILY *ASEMINAE* (COL.: CERAMBYCIDAE) IN THE BRITISH ISLES

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INTRODUCTION

IT IS little short of amazing, as Allen (1981) has reminded collectors, that the presence of our two species of *Arhopalus* and that of *Tetropium gabrieli* should have escaped the attention of British Coleopterists until the early 1900s; this is particularly bizarre considering that those three species attack and are found in the same host trees as *Asemum* in so many parts of Britain.

Whatever the reasons for these failures in detection, they were rectified within a few years by the publication of valuable papers on the group — Dr Sharp on *Criocephalus (Arhopalus),* Smith on the latter and *Asemum striatum* in 1905-06, and an exhaustive, definitive account of the life-history of *Tetropium* by Crawshay two years later.

Counties and vice-counties are represented by Brownean alphabetical symbols (Kaufmann, 1989): italicised ones denote a common distribution; bracketed letters indicate doubtful or unconfirmed records; the asterisk (*) stands for specimens imported from elsewhere.

Arhopalus rusticus L.

Found in coniferous forest land, this beetle is far from being exclusively Scottish, as was formerly the opinion: that was predicted over 40 years ago by Kaufmann (1948); if anything, there is a paucity of new county records from Scotland. The species has since spread beyond the Border and is becoming more common, especially in the south, south-east, the east and the Home Counties, than *A. tristis,* for which it has been mistaken on occasion (Mendel, 1978).

ENGLAND: BK CH DT EK EN ES EX HT MM ND NE (SC: the only Longicorn recorded from the Islands and certainly adventive) SH SL SR (WC*) WS.

WALES*: There is an unclassified record of an imported specimen from a coal mine (Sharp, 1905-06; Fowler & Donisthorpe, 1913; Kaufmann, 1946a and 1948; Horton, 1980).

SCOTLAND: EI EL PM.

The larva, which is both aggressive and destructive, is found in standing and fallen trees and the stumps of Aleppo, Corsican and Maritime pines, larch, Norway spruce, Scots pine and firs. It attacks the larvae of *Asemum striatum* if encountered in the same tree; it is also recorded from boles already occupied by *Leptura rubra* L. (Klausnitzer & Sander, 1981).

Larval parasites include the following Hymenoptera:—

Chasmias motatorius F., *Coelobracon neesi* Marsh, *Odontomeus appendiculatus* Grav., *O. pinetorum* Thoms., *Poemia notata* Holmgr., *Pyracmon xoridiformis* Hgr., *Radinopimpla atra* Grav. and *Xorides fuliginator* Thunb.

The life cycle may be anything up to two years, eclosion usually occurring from May onwards. Thereafter the beetle is about until September, well-nourished examples reaching a sizeable 30mm in length.

Of our two species of *Arhopalus, rusticus* is the more injurious, causing material damage to wood used for commercial and industrial purposes — pit props, planking, scaffolding, structural timber and the like.

There is an illuminating account (Houlbert, 1912) of the beetle's formidably strong mandibles. On this occasion having bored through the woodwork, it gnawed through a protective layer of thin zinc plating (presumably what is known here as galvanized iron sheeting); this was noticed, so the holes in the metal were plugged with solder. Far from deterring the beetle, it also demolished the plugs! A series of photographs, taken at intervals and corroborating this incident, accompanies Houlbert's observations. Such determined behaviour is paralleled by the efforts made to escape into the open of *Hylotrupes bajulus* L., known to have bitten its way through a 1/6th inch lead pipe, admittedly a softer metal (Kaufmann, 1947, who quotes earlier authorities for this story).

Although *rusticus* is nocturnal, normally hiding under the bark during the day, it is attracted to light; in hot weather it will emerge, becoming very active, rapid in its movements and taking easily to flight. According to Demelt (1966) copulation does not take place before dusk; under controlled conditions it has been seen to happen readily during daylight hours.

The first authentic native specimen was captured by Col. Yerbury near a pine stump in a remote part of the Highlands some ninety years ago (Sharp, 1905-06). In one of the earliest British catalogues to be published (Stephens, 1829), the name, *Callidium rusticum* (= *Arhopalus rusticus),* had already appeared. Ten years later, Stephens expressed in his Manual the view that *rusticus* was not truly indigenous. The species was eventually listed as British by Hudson Beare (1930). There is, incidentally, an old specimen of *rusticus,* perhaps of British provenance, collected by Revd F.W. Hope, in the Dale Collection at Oxford.

Its relation, *A. tristis* under the specific name of *polonicus* Mots., had at last been catalogued as an indigene 26 years earlier (Beare & Donisthorpe, 1904).

A. tristis F.

A beetle occurring mainly in pine plantations and woods, more particularly those found in southern counties. There are also records from the West Country and the Midlands, but no farther north than Lancashire. Recent indications are that the beetle is now becoming scarcer, more localised, and less commonly encountered than *rusticus.*

ENGLAND: *BK* CH *DT* EN* ES* EX HF HT GW MX NH NM OX (SC — an erroneous determination and record) SD *SH* SL *SR* SY* WK WX.

WALES: GM.

IRELAND: WI*.

Discovered by Smith (1905) in the New Forest in 1902, the first account of the species by Willowby Ellis appeared in this periodical a year later.

The principal host trees are larch, Norway spruce, Maritime and Scots pine; it is associated, too, with Sour Cherry (Capt. Xambeu *in* Duffy (1953). Exposed roots and boles are preferred, but dying trees and plantations damaged by forest fires are also attacked.

The larval stage may extend to as long as four years, depending very much upon the condition and quality of the pabulum, which in turn has a considerable bearing upon the size of the insect; this may vary from 8 to 30 mm, some of the larger specimens being many times heavier than examples from elsewhere in the vicinity.

Pupation usually takes place from June onwards, the adult emerging in mid-summer and not unusually to as late as October and November.

The pupa is parasitised by the Dipteron, *Megaselia rufipes* Mg.; where stumps inhabited by *tristis* also house colonies of the ant, *Lasius niger* L., Duffy (1953) has described how, once the roots were split open, the exposed larvae and pupae of *tristis* were subjected to swarms of ants which would seize them tightly in their mandibles; no exaplanation for this curious behaviour is offered.

Imagines are largely nocturnal, sometimes attracted to light, and not averse to sampling the juice of ripe fruit, including peaches. They may, however, be found during the day, sunning themselves on logs and stumps. A very wary beetle, swift on its legs, it is not easily caught by hand. A common method of capture is the use of bark traps in which the insect will hide.

There are no published records of its ever having been found in the same locality as *A. rusticus*; the reasons for such an apparent incompatibility are as yet unresolved: all that can be said at present is that as *rusticus* continues to spread across the country, so the population of *A. tristis* is evidently in decline.

Asemum striatum L.

A beetle that is unlikely to be found other than in forests and woodlands of a coniferous nature. It has been recorded from this country for at least the last 160 years but was at first considered to be exclusively a Highland species — it is indeed well-represented in Scotland and was figured by Curtis as long ago as 1830. Since those early times, however, it has been captured in wide areas around the Thames and Hampshire basins, and there are many county records from the Midlands, the north and East Anglia, besides others from the southern and south-western regions of

England. Distribution is still a little patchy; many specimens have no doubt been introduced southwards from Scotland and in infested timber imported from abroad. It has recently been found in Ireland (Speight, 1988) and there are modern records now from the Principality.

ENGLAND: BD *BK* CH CU DT EX EY GE GW HF HT IW LR NH NM* NN SD *SH* SL SN *SR* WK WN WO WS WW WX

WALES: FT MN PB RA

SCOTLAND: AM AN AS AY BF CT DF ED EI EL FF KB LA PC PE PM PN RE RF RW RX S SG SS

IRELAND: QC (Laois)

The larva of this species is found in Corsican pine, Douglas and other firs, larch, Mountain and Scots pines. There is an unusual record from oak. It attacks more particularly the stumps and exposed roots of freshly cut trees, branches, standing timber that has suffered outwardly from forest fires, and storm damaged and unstripped logs awaiting removal to timber yards: this accounts for its presence sometimes in sawmills and later in construction wood. Duffy (1953) has recorded telegraph poles severely damaged by *A. striatum* in contrast to Blair (1947) who expressed the view that its chances of reaching maturity in treated poles were slim.

The life cycle varies from two to three years, depending upon the continued freshness of the host tree; the condition of the pabulum also affects growth, adult beetles varying in size from very small examples to others three times as large. Larval parasites include the Ichneumonid, *Poemia notata* Holmgr. and the Braconid, *Coelobracon initiator* Nees.

Stumps and trees already inhabited by *A. striatum* are attacked by *Arhopalus rusticus* and *Rhagium bifasciatum* F.; should their respective larvae meet, which during tunnelling they do, such encounters are distinctly unfriendly, certainly so in the case of the latter, whose larva will retreat towards the roots of a stump, although after eclosion, that beetle will use any convenient *Asemum* burrow to emerge besides gnawing its own exit hole.

A. striatum usually eclodes during April and May and is about until September. Regarded as crepuscular rather than diurnal, it is sometimes attracted to artificial light. During the early part of the day it may be seen just concealed within the mouth of its bolt hole; the slightest disturbance, however, brings about a very rapid retreat down the burrow. Extracting it is quite a problem! (Smith, 1905; Kaufmann, 1946b, 1948). Nevertheless, in warm sunshine, post midday, the beetle emerges, becomes more active and will indulge in flight. At rest on trees and stumps, it characteristically holds its head against the bark with its body extended at an angle of 30 - 45 degrees to the surface.

a. *agreste* F.

This aberration with reddish-brown elytra is found not infrequently with the type although not sufficient notice has been taken of its occurrence;

consequently published records are on the sparse side.
ENGLAND: BK CH DT EX GE IW *SH* WK WN WS
WALES: FT
SCOTLAND: PM

It is almost certain that this form is more widespread in Wales and Scotland than the records above indicate.

For some inexplicable reason the aberration is not listed in our most recent British catalogue (Kloet & Hincks, 1977).

Tetropium castaneum L.

On the evidence so far published this species now appears to be a firm addition to the list of British Cerambycidae. Its presence may well be viewed with mixed feelings: Coleopterists will welcome its establishment here; the Forestry Commission and other interested parties, on the other hand, may be rather less enthusiastic over the quite recent colonisation (still limited and vulnerable) of a beetle which is the most damaging European member of the genus. It had been imported mainly from northern Europe in softwoods used by the building industry, predominantly so during the post-war years of reconstruction. It is from these sources, it is supposed, that *T. castaneum* has escaped to find new settlements so far restricted to Scotland.
ENGLAND: BK* SL*
SCOTLAND: AM (AN) AS ED

Although *T. castaneum* has been found in the Lowlands, it is more typically a montane species with a metamorphosis comparable to that of *T. gabrieli.*

The larva is commonly associated with Norway spruce, but it also attacks firs, larch and Scots pine: abroad, it has been taken from chestnut, oak and walnut trees. Very destructive, successive broods can reduce to uselessness standing live and dying trees within three years. Fortunately (or otherwise) it is parasitised by a host of Ichneumonidae and Braconidae, among which are enumerated *Baeacis dissimilis* Nees, *Coelobracon denigrator* L., *Coelocentrus caligatus* Grav., *Coeloides initiator* Nees, *Deuteroxorides collaris* Grav., *Doryctes leucogaster* Nees, *D. mutillator* Thunb., *D. obliteratus* Nees, *Helcon aequator* Nees, *H. dentator* F., *H. tardator* Nees, *Mesoleptus teredo* Htg., *Neoxorides nitens* Grav., *Pyracmon austriacus* Tsch., *Radinopimpla atra* Gr., *R. brachylabris* Krb., *Xorides niger* Pf. and *X. praecatorius* F.

The very active adult beetle emerges in April and may be found until August. A strong flier, it is attracted to unstripped logs and billets lying in sawmills and timber yards.

If spruce, larch and other coniferous trees continue to be imported into this country there is the possibility that *castaneum*, if present in the logs, will escape and seek 'naturalisation' elsewhere in Britain.

v. *fulcratum* F.

This is the black variety which has been taken with the type form.

SCOTLAND: AS ED

T. gabrieli Weise

A woodland species particularly attracted to afforested areas where there is a preponderance of larch – undoubtedly the favourite larval pabulum. Fairly widespread in England (though Welsh and Scottish records are still too few) and largely occurring in the Midlands, the north, East Anglia and the southern and south-western counties, including the Thames and Hampshire basins.

ENGLAND: BD *BK* BX CB CH CU DM (DY) EK EN ES EX EY GE GW HT IW LN LR MX MY NM OX SD SE *SH* SL SN SP *SR* ST SW WC WK WL WN WO WS WX WY*

WALES: MG MN

SCOTLAND: AM PC

Besides its well-known association with the European larch, the larva is also found in Norway spruce, Scots pine and fir trees. It causes considerable albeit largely superficial damage to felled timber. The discoloured needles and wilting branches of dying standing trees are sometimes an indication of its presence (Klausnitzer & Sander, 1981).

The larva is parasitised by a long list of Hymenoptera: – *Atanycolus initiator* Nees, *A. sculpturatus* Thoms., *Clistopyga sauberi* Brauns, *Coelobracon denigrator* L., *C. neesi* Marsh, *Deuteroxorides collaris* Grav., *Doryctes mutillator* Thunb., *D. obliteratus* Nees, *Ephialtes aciculatus* Héllen, *E. mesocentrus* Grav., *Helcon aequator* Nees, *H. dentator* F. *Pyracmon austriacus* Tsch., *P. lucidus* Clément, *Radinopimpla atra* Grav., *Rhyssa persuasoria* L., *Xorides brachylabris* Kriechb. and *X. irrigator* F.

As well as the above, larval predators include the Neuropteron, *Rhaphidia notata* F., the Coleoptera, *Malachius bipustulatus* L. and *Thanasimus formicarius* L., and the earwig, *Forficula auricularia* L. It is a tempting prey, too, to the Green Woodpecker.

The normal life cycle takes a year to complete, but in exceptionally warm seasons, this is known to have been reduced to as little as three months, eclosion occurring in April.

A widespread if localised beetle, *gabrieli* may be found throughout the summer; it is at its commonest in August, and where there is infestation it may be present by the hundreds. It runs swiftly, taking to flight in sunny weather. It settles on logs, posts, railings, and less frequently on broom flowers and *Heracleum*. The beetle in its various stages is found directly under the bark of the trees it attacks and is present regularly in timber yards and sawmills.

It has also been recorded as gnawing its way into lead piping in its efforts to gain freedom (Laing, 1919).

The genus *Tetropium* appears over the name *T. fuscum* F. in the Beare and Donisthorpe British catalogue of 1904; this is, however, an imported species not native to this country. *T. gabrieli* proper first finds its place in our lists, together with the so-called variety *crawshayi* Sharp, in Hudson Beare's catalogue of 1930.

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References

Allen, A.A., 1981. *Arhopalus rusticus* L. (Col.: Cerambycidae) in Kent and Essex, *Entomologist's Rec. J. Var.*, **93**: 166.

Allenspach, V., 1973. *Insecta Helvetica. Catalogus* 3 Coleoptera Cerambycidae: 31-32. Zurich.

Atty, D.B., 1983. *Coleoptera of Gloucestershire.* Cheltenham.

Aurivillius, C., 1912. Cerambycidae *in* Junk, W. & Schenkling, S., *Coleopterorum Catalogus,* **39**: 15-21. Berlin.

Beare, T. Hudson, 1930. *A catalogue of the recorded Coleoptera of the British Isles*: 35. London.

Birkett, N.L., 1962. Two records of Cerambycidae (Col.) from North Lancashire, *Entomologist's mon. Mag.,* **98**: 13.

Blair, K.G., 1947. *Hylotrupes bajulus* L. damaging and *Asemum striatum* L. (Col., Cerambycidae) at rest on telegraph poles, *Ibid.,* **83**: 224.

Browne, F. Balfour-, 1931. A plea for uniformity in the method of recording insect captures, *Ibid.,* **67**: 183-193.

Buck, F.D., 1955. A provisional list of the Coleoptera of Epping Forest, *Ibid.,* **91**: 188.

Champion, G.C., 1912. Note on the variation in size of *Criocephalus ferus* Muls., *Ibid.,* **48**: 237.

— & Lloyd, R.W., 1910. Some interesting British insects (II), *Ibid.,* **46**: 1-3. 1 plate.

Collart, A., 1940. A propos des *Tetropium* de Belgique (Coleoptera: Cerambycidae), *Bull. Ann. Soc. Belg.,* **80**: 153-156.

Collett, H.R.P., 1930. Notes on the emergence of *Criocephalus rusticus* L. from the pupa, *Northw. Nat., Dec.*: 226-228.

Cooter, J. & Cribb, P.W., 1975. *A Coleopterist's Handbook.* 2nd ed. Feltham.

Crawshay, G.A. 1907. The life history of *Tetropium gabrieli* Ws. = *T. fuscum* Sharp = *T. crawshayi* Sharp, etc., *Trans. Ent. Soc. Lond.,* 1907, 183-212. 6 plates.

Crowson, R.A. 1988. Another record of *Tetropium castaneum* (L.) (Col., Cerambycidae) breeding in Scotland, *Entomologist's mon. Mag.,* **126**: 36.

Curtis, J., 1830. *British Entomology, Coleoptera,* **7**, plate 295. London.

— , 1837. *A guide to the arrangement of British Insects*: **71**. 2nd ed. London.

Demelt, C. von, 1966. Die Tierwelt Deutschlands, 52:2. *Bockkäfer oder Cerambycidae,* **1**. Jena.

Dibb, J.R., 1948. *Field book of Beetles*. Hull.

Duffy, E.A.J., 1946. Records of Coleopterous larvae from Surrey, with a note on host plants, *Entomologist's mon. Mag.*, **82**: 270-273.

— , 1953. *A monograph of the immature stages of British and imported Timber Beetles (Cerambycidae)*. London.

Ellis, H.W., 1903. *Criocephalus polonicus* Motsch. — a genus and species of Longicorn Coleoptera new to Britain, *Entomologist's Rec. J. Var.*, **15**: 259-260.

Fowler, W.W., 1890. *The Coleoptera of the British Islands*, **4**, London.

— , & Donisthorpe, H. StJ. K., 1913. *Ibid.*, **6** (Supplement). London.

Fraser, M.G., 1948. *Tetropium castaneum* L. (Col., Cerambycidae) in Lancashire, *Entomologist's mon. Mag.*, **84**: 192.

Freude, H., Harde, K.W. & Lohse, G.A., 1966. *Die Käfer Mitteleuropas*, **9**. Krefeld.

Hall, C.A., 1914. *Common British Beetles*. London.

Hansen, V. *et. al.*, 1960. *Catalogus Coleopterorum Fennoscandiae et Daniae* (ed. Lindroth, C.H.): 358-359. Lund.

Harde, K.W., 1984. *A field guide in colour to Beetles*. English edn., Hammond, P.M. London.

Harris, E.C., 1952. A note on *Criocephalus ferus* Muls. (Col., Cerambycidae, Aseminae) in French Maritime Pine, *Pinus pinaster* Aiton, *Entomologist's mon. Mag.*, 145-147. 2 figs.

Hickin, N., 1987. *Longhorn Beetles of the British Isles*. Princes Risborough.

Horton, G.A.N., 1980. *Pyrrhidium sanguineum* L. and *Criocephalus rusticus* L. (Col.: Longicornia) in Monmouthshire, *Entomologist's Rec. J. Var.*, **92**: 52.

Houlbert, C., 1912. Dégâts produits par le *Criocephalus rusticus* dans les bois de construction. *Insecta* 2 (24): 302-310. 1 plate, 6 figs.

Hunter, F.A., 1958. *Tetropium gabrieli* Weise (Col., Cerambycidae) in the Scottish Highlands, *Entomologist's mon. Mag.*, **94**: 130.

Hyman, P.S., 1986. *Invertebrate Site Register*, 64, 1a (Cerambycidae): 56. Peterborough.

Janson, E.W., 1863. *British Beetles*. London.

Joy, N.H., 1976. *A practical handbook of British Beetles*. 2 vols.2nd ed. Faringdon.

Kaufmann, R.R. Uhthoff-, 1946a. The Longicorn Coleoptera of Wales, *Entomologist's Rec. J. Var.*, **58**: 105-108.

— , 1946b. *Asemum striatum* L. (Col., Cerambycidae) in Cheshire, *Entomologist's mon. Mag.*, **82**: 198.

— , 1947. Notes on the occurrence of *Hylotrupes bajulus* L. (Col., Cerambycidae) in the British Isles, *Ibid.*, **83**: 37-40.

— , 1948. Notes on the distribution of the British Longicorn Coleoptera, *Ibid.*, **84**: 66-85.

— , 1948. An annotated list of the Scottish Longicorn Coleoptera, *Proc. R. Phys. Soc. Edin.*, **23**(2): 83-94.

— , 1989. Browne *versus* Watson, Round 2. *Entomologist's Rec. J. Var.* **101**: 61-63.

Kevan, D.K., 1949. *Tetropium castaneum* L. (Col., Cerambycidae) in Scotland, *Entomologist's mon. Mag.*, **85**: 28.

— , 1964. *Tetropium castaneum* (Linnaeus, 1758) (Col., Cerambycidae): is this species now definitely established in Scotland?, *Ibid.*, **100**: 111-112.

Klausnitzer, B. & Sander, F., 1981. *Die Bockkäfer Mitteleuropas*. Wittenberg Lutherstadt.

Kloet, G.S. & Hincks, W.D., 1945. *A check list of British Insects*: 200. Stockport.

— , 1977. *Idem*, 11(3), Coleoptera and Strepsiptera: 70. 2nd ed. London.

Laing, F., 1919. Insects damaging lead, *Entomologist's mon. Mag.*, **55**: 278-279.
—, 1920. *Idem*: supplementary note, *Ibid.*, **56**: 12.
Linssen, E.F., 1959. *Beetles of the British Isles*, **2**. London.
Lyneborg, L., 1977. *Beetles in colour*. English edn. Vevers, G., Poole.
Mandl, K., 1973. Uber die europäischen Arten des Gattung *Arhopalus Serville (Criocephalus* Mulsant) und Beschreibung einer neuen Subspecies des *Arhopalus ferus* Muls. (Col. Cerambycidae), *Mitt. Münch. Ent. Ges.*, 1972, **62**: 154-162.
Mendel, H., 1978. Suffolk Coleoptera: Corrigenda, *Trans. Suffolk Nat. Soc.*, **17**(4): 388-390.
O'Connor, J.P. & Nash, R., 1983. Insects imported into Ireland 5. Records of Orthoptera, Hemiptera, Hymenoptera and Coleoptera, *Ir. Nat. J.*, **21**(3): 114-117.
Owen, J.A., 1986. *Tetropium castaneum* (L.) (Col., Cerambycidae) breeding in Scotland, *Entomologist's mon. Mag.*, **124**: 144.
Pic, M., 1891. *Matériaux pour servir à l'étude des Longicornes* **1**: 18-19. Lyons.
Price, A., 1962. *Tetropium castaneum* L. and *Tetropium velutinum* Lec. (Col., Cerambycidae) imported into Britain, *Entomologist's mon. Mag.*, **98**: 74.
Sharp, D., 1905-06. The genus *Criocephalus, Trans. Ent. Soc. Lond.*, 1905, 145-164. 1 plate.
Smith, F.G., 1905. The habits of *Asemum striatum* and *Criocephalus ferus, Ibid.*, 165-176.
Speight, M.C.D., 1988. The Irish Cerambycid fauna (Coleoptera: Cerambycidae), *Bull. Ir. biogeog. Soc.*, **11**: 41-76.
Stephens, J.F., 1829. *A systematic catalogue of British Insects*: 200. London.
—, 1831. Illustrations of British Entomology, *Mandibulata*, **4**. London.
—, 1839. *A manual of British Coleoptera*. London.
Villiers, A., 1978. *Faune des Coléoptères de France*, **1**. Cerambycidae. Paris.
Walker, J.J., 1922. *Asemum striatum*, etc., in the New Forest, *Entomologist's mon. Mag.* **58**: 189-190.
—, 1932. The Dale Collection of British Coleoptera, *Ibid.*, **68**: 105.
Winkler, A., 1929. *Catalogus Coleopterorum regionis palaearcticae*, **10**: 1139. Vienna.

The 5 spot ladybird in Warwickshire

I wish to put on record the capture of a rare ladybird in Warwickshire. On the afternoon of 22nd July 1989 a male 5 spot ladybird (*Coccinella 5-punctata* L.) was netted in flight, in the north-western corner of Sutton Park (OS ref. SP089984), which lies just north of Birmingham between Streetly and Sutton Coldfield. The ladybird was of an orange red colour. For most species of this genus such a coloration is characteristic of young adults which have only recently emerged from pupae, and have yet to pass through a winter.

Both the geographical location, and the habitat where this ladybird was taken are unusual for the species. Majerus and Fowles (in press) give the distribution of this species as a disjunct one including five principal regions, southern Devon and Cornwall, south Dorset, west Wales, Cumbria and Northumbria, and the Spey Valley in Scotland. However, it should be noted that there have been no records for Dorset, Devon or

Cornwall since 1941 (Muggleton pers. comm.).

As regards habitat, Majerus and Fowles state that the species is found on, or close to, unstable river shingles, where it is occasionally locally common in Wales. The site where the Sutton Park ladybird was netted was on the edge of a small area of deciduous woodland, close to the route of the Roman Road, Ryknild Street. There was no river shingle, or indeed river, in the immediate vicinity, the only water being a series of small pools on the common (the nearest being Bracebridge pool) which are connected by streams that then drain into Plants Brook. The only shingle nearby was imported shingle in a railway cutting.

Intensive searches of the park following the initial capture on 22nd July, and on two subsequent days in August failed to reveal any more individuals of this species. I therefore suggest tentatively that this ladybird, the first Warwickshire record for the species, was a vagrant, possibly having flown with the assistance of a westerly tail wind, from Wales. Reference: Majerus, M.E.N. and Fowles, A.P. (in press). The rediscovery of the 5 spot ladybird (*Coccinella 5-punctata*) L. in Britain. *Entomologist's mon. Mag.*— M.E.N. MAJERUS, Department of Genetics, Downing Street, Cambridge CB2 3EH.

Record of *Gyrinus minutus* Fabricius (Col.: Gyrinidae) from Cumbria.

While searching for corixids in High Nook Tarn, Cumbria (NGR NY124.199) on 21st February,1988 I netted five specimens of this beetle which were actively swimming in and out of some partly submerged plants of Bogbean in a small area of shallow water. The tarn lies at an altitude of nearly 725 feet and is situated in a depression at the foot of Carling Knott Fell to the south of Holme Wood, Loweswater. *G. minutus* is regarded as being of rare occurrence in Britain and is now classified by the Nature Conservancy Council as a notable "B" species. It is mainly confined to northern and western districts in this country, but it is also known from a few southern counties as well. The beetle is associated with various aquatic habitats which include lakes, ponds, drains but more especially upland peat pools. *G. minutus* has previously been recorded from Cumbria which includes v.c.70, and F.H. Day in his list of Coleoptera from Cumberland (1909, *Trans. Carlisle nat. Hist. Soc.*, vols. 1-4) records it from Newton Reigny Moss (NGR NY47.30) and Styhead Tarn, Scafell (NGR NY21.07). It has also been found at Tarn Dubs (NGR NY11.47) by David Bilton (1984, *Entomologist's mon. Mag.* **120**: 251).

I wish to thank Andrew Foster for very kindly identifying the specimens of *G. minutus* for me and to Dr Roger Key (Nature Conservancy Council, Peterborough) for additional information regarding the status of the beetle in this country.— R.W.J. READ, 43 Holly Terrace, Hensingham, Whitehaven, Cumbria CA28 8RF.

THE STATUS OF *YPONOMEUTA EVONYMELLA* (LINNAEUS, 1758) AND *Y. RORRELLA* (HÜBNER, 1813) (LEP., YPONOMEUTIDAE) IN SOUTHERN ENGLAND

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Yponomeuta evonymella

THIS species, the larva of which is recorded only on bird-cherry (*Prunus padus*), is a common resident in Wales, the north of England and parts of Scotland. The larvae feed in communal webs which festoon the foodplant and numbers are often so great as to cause serious defoliation. Bird-cherry occurs only sparingly in the south of England (*e.g.* Jermyn, 1974) and usually where the bushes have been planted by man (McClintock & Fitter, 1956).

Prior to the invention of the mercury-vapour light-trap, the moth was but rarely recorded in the south; for example, Harwood (1903) cited only a single record from Essex. In his manuscript diary, C.R.N. Burrows reported larvae of *'Yponomeuta evonymella'* on 10th June, 1889 in the Brentwood area, without naming the foodplant. When Burrows supplied his records through E.A. Fitch to Harwood for inclusion in the Victoria County History of Essex, he did not include this species. I have drawn attention to inaccuracies in the diary, which was written solely as a personal aide-memoire (Emmet, 1981: 16), and it is at least possible that Burrows, who was not a microlepidopterist, was simply recording yponomeutid larvae on *Euonymus,* which would, of course, not have been *Y. evonymella.* I know of no other report of larvae being found in the south of England, although their massive communal webs could hardly escape notice.

Since the introduction of the Robinson mv trap, there has been a dramatic increase in the number of recordings. Whereas Emmet (1981) gives only two modern records from Essex, my card index now carries 21 localities from 15 10x10km squares supplied by eight recorders, not all of them microlepidopterists. The actual total is even higher, since I do not duplicate records of common species, as this one now is. There is no reason to suppose that Essex differs much from neighbouring counties. I emphasise that all the entries are of adults, none of the early stages. Most are of single specimens, or of very low numbers.

However, on the night of 7/8 July, 1989 I recorded an estimated total of 500 in and around my trap in Saffron Walden. I made no exact count at the time, but four hours after I had emptied the trap there were still between 70 and 80 resting on the wall of the house although this was in full sunshine. I noted the weather conditions as warm, dry but humid, with an east wind of 10-15 mph.

On the same night Brian Goodey was running an mv light at Fingringhoe Wick Nature Reserve on the Colne estuary and also recorded an estimated 500 moths of this species. A.J. Dewick of Bradwell-on-Sea is not a microlepidopterist, but that night he had so many that he boxed one to show me and to inquire its identity. However, David Agassiz recorded only about a dozen at Grays on the Thames estuary, his highest total to date but small compared with the numbers in the north and east of the county.

The moths persisted at Saffron Walden, at first numbering about 50 at night, but gradually diminishing until the 24th July, when a sharp increase suggested a further influx; however, throughout the period the moths were nearly all in mint condition, perhaps indicating a steady inflow. They went on until the 31st July, when a sharp fall in temperature resulted in there being only 14 species in the trap, the average for the month, including the 31st, having been 89. There were one or two stragglers in early August. Brian Goodey continued to record *Y. evonymella* at various sites in north-east Essex, but his numbers were lower than mine in the north-west.

I made inquiries from friends in the south of England and found that the invasion had been widespread, but the Essex numbers had not been matched anywhere else. The records I received are summarised below. Localities are assigned to counties according to the Watsonian boundaries. Many of the traps were run at the site mentioned only on the one night.

Cornwall (vc1) - The Lizard, 6/7 July (B. Baker). (vc2) - St Austell, 6-10 July, several at car-park lights, "the first time I have ever had this species in Cornwall" (J. Gregory).

Wiltshire (vc7) - Savernake Forest, 8/9 July (M.F.V. Corley).

Dorset (vc9) - Holt Forest, 8/9 July, at least double figures (N. Hall); Lyme Regis, 5 August (M.F.V. Corley).

Hampshire (vc11) - Southsea, 6/7 July, *c.* 50 (J.R. Langmaid).

Surrey (vc17) - Box Hill, 21 July; Virginia Water, 22 July, a new record (P. Baker).

Essex (vcs 18, 19) - see above.

Hertfordshire (vc20) - Bishops Stortford, 6-25 July, several, with a peak of 14 on the 23rd (no trap 6/7, 7/8 July) (C.W. Plant).

Middlesex (vc21) - Hampstead, 4-26 July, 100 in all with peaks on the 8th (11), and the 11th (14) and the 17th (31). Previous records in 1982 (2) and 1983 (3) only (R.A. Softly).

Berkshire (vc22) - Ambarrow Court, 6/7 July, at least double figures (N. Hall); Faringdon, 7 July - 4 August, *c.* 25 in all, no peak; Cumnor Hurst, 19 July; Bagley Wood, 21 July (M.F.V. Corley).

Oxfordshire (vc23) - Goring, 9 July (M.F.V. Corley); Bix, 21 July, a few (M. Albertini).

Buckinghamshire (vc24) - Ashridge, 7 July; Grangelands, 8 July; Burnham, 15 July, a few at each site (M. Albertini).

Herefordshire (vc36) - Ledbury, 11 July - 10 August, a total of 35 on the seven nights when the trap was run, with a peak of 24 on 11/12 July. Previous records only in 1988 (*c.* six) (M.W. Harper).

Contemporary opinion (e.g. Agassiz, 1987; Emmet, 1981, 1988) suggests the possibility of an alternative foodplant, possibly another *Prunus* species, in southern England. I now regard this as unlikely. As stated above, the larval feeding is very conspicuous but has never, as far as I know, been observed in the south. The following anecdote reinforces my hypothesis. In 1970 I brought a nest of young larvae to Essex from Derbyshire. When their supply of *Prunus padus* began to run out, I put some plum leaves in the container and they were accepted. I therefore sleeved most of the larvae on the plum-tree, but they ceased feeding and all died. Those that I had kept in the container, which still held the remains of the highly aromatic bird-cherry, fed on and produced adults, though much undersized. The inference is that it was the smell of the bird-cherry that induced the larvae to take a foodplant that was in fact unsuitable.

My opinion now is that the *Y. evonymella* that occur in southern England are migrants, arriving in most years in small nunbers, but in many thousands in 1989. If this is true, what is their place of origin? One possibility is the north of England and I tried to ascertain whether the species had been unusually plentiful there in 1989. No one seemed to have noticed abnormal abundance and one observer (Michael Harper) voiced the opinion that there had been fewer larval nests than usual in southern Scotland. The fact that the moths reached the south coast a day earlier than Essex suggests an influx from France, but the higher numbers in Essex and the east wind on the night in question point to northern Europe as the source. The moths did not necessarily all come from one place or at one time. It would be interesting to compare the dates on which this species was recorded with those of known migrants. Brian Goodey recorded *Ethmia terminella* Fletcher, a species new to Essex, as well as the 500 *Yponomeuta evonymella* at Fingringhoe on the night 7/8 July. Its foodplant, viper's bugloss (*Echium vulgare*) is "scattered and in small quantity, diminishing" in Essex (Jermyn, 1974) and does not grow at Fingringhoe. In Britain *E. terminella* is resident only at Dungeness and on the Sussex coast nearby. The Essex specimen could have flown up from Kent but in the prevailing east wind we think it more likely that it came from the Continent. Colin Plant reported that at Bishops Stortford, Hertfordshire (12 miles from Saffron Walden) there was an immigration of up to 50 lacewings, mostly *Chrysopa canea* (Stephens) and, in smaller numbers, *C. flava* (Linnaeus), on the night 6/7 July and again on 22/23 July, an unusual event.

Yponomeuta rorrella

This is another species that is erratic in its appearance. There are, however, several differences from *Y. evonymella.* It is recorded only from the counties south-east of a line from the Humber to the Severn estuary and thence to the Solent. It does not occur in small numbers annually but enjoys local plenty for several years and then disappears as suddenly as it came. It seems to persist at some favoured spot such as Dungeness but for the most part it is only a temporary resident. These habits were described to me many years ago by the late S. Wakely who, with L.T. Ford, led the revival of British interest in the Microlepidoptera. Consequently, when in 1988 I heard from Brian Goodey that he had taken five adults at light at Fingringhoe, from Barry Dickerson that he had had it in Huntingdonshire and from A.J. Boot that he had recorded it in Northamptonshire, all new county records, I predicted that we would hear more of it in 1989.

The larva feeds on white willow (*Salix alba*) and I had a brief and unsuccessful search for it with the aid of field-glasses in the Fingringhoe area in June. It was, however, no surprise when an adult came to my trap in Saffron Walden on the 25th July, to be followed by 12 more on the next three nights and by a laggard on the 10th August. Elsewhere in Essex, Brian Goodey took several in the Colchester area and David Agassiz one at Grays. In other counties, Raymond Softly recorded six at Hampstead between the 18th and 25th July and John Langmaid three at Southsea on the 24th and 25th July, the second record for Hampshire. The largest numbers were at Faringdon, Berkshire (now Oxfordshire) where Martin Corley had 30-40 in and around his trap on the night 23/24 July. He had previously recorded individuals in 1982 and 1983, but none in the years 1984-1988. He reports that there were other captures in his district, by Stephen Nash at Fernham and Philip Sterling at Oxford. These inland records are interesting, since it has been reported more frequently near the coast, there being records from all the coastal vice-counties from Hampshire to Norfolk.

I see no reason to disagree with the views of Stan Wakely, expressed 25 years ago, that *Y. rorrella* comes to southern Britain as an immigrant from the Continent. Herein it resembles *Y. evonymella,* but whereas that species fails to establish itself because of the rarity of its foodplant, there is no shortage of the cricket-bat willows favoured by *Y. rorrella.* The latter is a scarce resident whose numbers are augmented by immigration; our climate, however, is unsuitable for high numbers to be sustained.

Acknowledgements

I wish to express my thanks to the entomologists mentioned above who have given me their records and allowed me to incorporate them in this paper.

References

Agassiz, D.J.L., 1987. The British Yponomeutinae. *Proc. Trans. Br. ent. nat. Hist. Soc.* **20**: 13-26, 2 col. pls.

Emmet, A.M., 1981. *The smaller moths of Essex,* 158 pp., maps, figs. London.

— , (Ed.), 1988. *A field guide to the smaller British Lepidoptera* (Edn 2),288pp. London.

Harwood, W.H., 1903. Lepidoptera in *The Victoria County History of Essex* **1**: 136-177.

Jermyn, S.T., 1974. *Flora of Essex,* 302 pp., maps, figs, 6 col. pls. Fingringhoe, Essex.

McClintock, D. & Fitter, R.S.R., 1956. *The pocket guide to wild flowers,* xii, 340 pp., 140 pls (64 col.), text figs. London.

Ethmia terminella Fletch. (Lep.: Oecophoridae. Ethmiinae) in Essex

On 7-8th July 1989 at Fingringhoe Wick Nature Reserve (four miles south of Colchester) I was inundated by a blizzard of small white moths which I identified as being *Yponomeuta evonymella* L. A.M. Emmet discusses the broader aspects of this invasion elsewhere in this issue, so it is only necessary here to say that during the peak period of activity, approximately an hour either side of midnight, I counted 500 on one groundsheet alone. There were many more examples still in the air, at rest away from the groundsheet, and at the other traps and lamps I had set up. The night was ideal for recording with a good number of unusual species (for Essex) present, such as *Cnaemidophorus rhododactyla* D. & S. and *Oligia versicolor* Borkh. However, my eyes alighted on an *evonymella* that looked obviously different. This in fact turned out to be *Ethmia terminella* Fletch., a new county record. The current British distribution for this species is restricted to the Dungeness area, Kent, with an extension of range into East Sussex. In Europe its range includes southern Scandinavia and the Low Countries. The larval foodplant, *Echium vulgare,* is no longer found in north-east Essex, and it is possible that the *evonymella* and *terminella* shared a common origin — perhaps north-west Europe. It seems clear that a large scale movement of some kind occurred around this period. My thanks to A.M. Emmet and D.J.L. Agassiz.— BRIAN GOODEY, 298 Ipswich Road, Colchester, Essex CO4 4ET.

A second brood of the Dotted Footman, _Pelosia muscerda_ Hufn. (Lep.: Arctiidae) in 1989

Whilst staying in Norfolk on 1st August 1989, among a small number of moths which came to an actinic tube on a sheet, was a female Dotted Footman, which laid about 30 eggs over a period of several hours. These soon hatched and most fed up and owing, perhaps, to the hot summer produced over 20 moths in September. I gave them lichens and algae, but they fed mainly on dead sycamore leaves.— S.M. JACKSON, 31 Hillfield, Selby, North Yorkshire YO8 0ND.

Some notable migrants taken in the Dungeness area, Kent, during 1989

During another year of much immigrant activity in the Dungeness and Greatstone area of S.E. Kent, the following species were the most noteworthy recorded from the three permanent mv traps in the area: *Scopula rubiginata* Hufn. male, Greatstone 17.8.89; *Mythimna l-album* L. male, Greatstone 23.10.89; *Mythimna loreyi* Dup. female, Dungeness, 30.10.89; *Heliothis armigera* Hb. Dungeness, 23.10.89,Greatstone 25 and 26.9.89 and 22.10.89; *Deltote bankiana* Fab. male, Greatstone, 7.7.89.

The record of *M. l-album* is of interest as it is one of four individuals that I have heard of being taken in the Dungeness area during 1989. As far as I am aware, there were only two Kent records prior to this year (Dungeness 1934 and Dymchurch 1988); the spate of records in 1989 possibly suggests an easterly spread of range from the species' south coast breeding sites. This theory has some support from the number of recent records from coastal areas in East Sussex.— S.P. CLANCY, Delhi Cottage, Dungeness, Romney Marsh, Kent TN29 9NE.

Presumed occurrence of late broods in Lepidoptera in 1989

I read with interest the recent notes by E.G. Smith (*antea* **101**: 36) and David Young (*antea* **101**: 197) on the possibility of a second brood in the pyralid *Cynaeda dentalis* D. & S., as this species certainly produced a second brood at Dungeness, Kent, in 1989 with specimens, a majority of them fresh but smaller in size than normal first-brood specimens, occurring on most nights between 4th and 24th September after a period of nearly two months without an adult being seen in the Dungeness area.

Several other species of lepidoptera, of which no reference could be found to a second brood in the literature or mentioned only as being of very irregular or occasional occurrence, also produced specimens of an apparently late brood in S.E. Kent. They invariably involved fresh specimens being taken after the last worn specimens of first brood had long since expired. It should also be noted that many of the first broods were earlier than usual in the exceptionally mild conditions of spring/early summer 1989.

Late species included *Pedasia contaminella* Hübn. (13.9 - 26.9); *Oncocera semirubella* Scop. (3.9); *Pyralis farinalis* L. (23.9); *Euproctis similis* Fues. (23.9 - 11.10); *Tyria jacobaeae* L. (31.10); *Agrotis exclamationis* L. (19.8 - 13.10); *Ourapteryx sambucaria* L. (18.10 - 30.10); *Ceramica pisi* L. (19.8 - 21.8); *Mythimna comma* L. (30.9); and *Mythimna favicolor* Barr. (17.8). (Note: *favicolor* is not known to breed at Dungeness, but this and other salt-marsh species turn up from time to time.)

Whilst it may be argued that the odd retarded individual may occur after the usual emergence time, these records mostly refer to a number of individuals, often small specimens, occurring in the main two to three months after the earlier brood. It would be interesting to learn how frequent and widespread additional broods were. I understand, for example, that late specimens of *dentalis, semirubella* and *sambucaria* occurred in Sussex and Dorset (M. Parsons), and *similis* produced a second brood in Somerset (J.C. Lidgate).— S.P. CLANCY, Delhi Cottage, Dungeness, Romney Marsh, Kent TN29 9NE.

ESSEX EMERALD MOTH, *THETIDIA SMARAGDARIA MARITIMA* PROUT (LEP.: GEOMETRIDAE) — AN UPDATE

P. WARING

Nature Conservancy Council, Northminster House, Peterborough.

FURTHER to my note in *Ent. Rec.* **101**: 231-232 concerning the captive rearing of the Essex Emerald moth, *T. smaragdaria,* in preparation for attempts to establish new colonies in the wild from 1990 onwards, I can report that the Nature Conservancy Council now has approximately 500 larvae (as at November 1989) which are currently overwintering out of doors on the haulms of their captive foodplants.

The developments since the previous communication are as follows. From 135 young larvae bred in July 1988, 86 adults emerged from pupae (48 males and 38 females). Emergences took place between 14th June and 21st July 1989 though on 14th June many larvae were still spinning and some were still feeding. The total mortality rate from eggs hatching to adult stage was therefore 36%. Over the same period in the wild 56 larvae were counted between 26th and 28th September 1988, 13 were found after the winter on 18th April 1989 and seven cocoons were discovered on 24th June 1989. A female was struggling to emerge from one of the cocoons but had evidently become trapped for her wings were already dried in a crumpled condition though she had not escaped the pupal case. All the other cocoons contained only empty pupal cases and appeared to have produced adults successfully. One female in perfect condition was seen at rest amongst sea wormwood *Artemisia maritima* nearby but no other adults were seen. No larvae or adults were removed from the wild this year. This is our only opportunity to study the moth in its native habitat and we are observing without interference. Sexing of the pupal cases showed that three had given rise to males and three to females. One pupal case was fragmented and the sex could not be determined. The known mortality rates were 77% between September 1988 and April 1989 and between 46 and 54% between April and June 1989 depending on whether the crippled female is included. The total mortality recorded between September 1988 and June 1989 of 88% is more than twice as high as in captivity at Peterborough and this figure does not include any mortality sustained in the early instars from July to September in the wild. The present generation in the wild numbered at least 27 larvae on 17th August 1989, which is only half the number counted the previous year, so the colony size has declined.

The captive-bred adults produced over 800 eggs. The egg-load of a female is approximately 80. This is based on the dissection of a freshly emerged female that was killed by a spider (*Enoplognatha ovata* det P. Kirby), only hours after emergence. Seventy-seven eggs were counted in her abdomen. The total egg outputs of five laying females kept in isolation from other females from mating to death were 62, 75 and 86 in 1988 and 71 and 82 in 1989 giving a mean of 75. On this basis many of the 37 females that emerged in June and July 1989 did not lay all their eggs. Ensuring that matings and eggs were obtained was extremely time-consuming on top of my other duties and arrangements are being made for assistance in 1990.

Just over 600 of the eggs hatched. Most of these were obtained by bringing the adults into unheated rooms where mating and egg-laying were more successful than when males and females were left together out of doors. The moths and eggs experienced a similar daylength but lower maximum daytime temperatures in these rooms than were recorded outside and every effort was made to put the larvae outdoors on netted potted plants in the first and second instars and all before the end of July. Nevertheless, by late July it was evident that some larvae had "bolted". They were already too large for overwintering. In all, three per cent of the brood produced a second generation of adults in 1989. These pupated from 10th August onwards and the adults emerged between 24th August and 15th September 1989.

This partial second generation resulted almost entirely from among the first larvae to hatch. Most of these bolted individuals were spotted and kept indoors in the hope that they would emerge in time to get their progeny to overwintering stage before the end of the growing season of the foodplant. However, one male emerged from 75 larvae that had been out of doors since 20th July and eight adults including at least four females emerged from 74 larvae that had been outdoors since 24th July.

The autumn emergence, of 21 adults, was spread over three weeks with individual life spans ranging from 1 - 7 days. Most of these moths were fed into a single mating cage containing a large potted *Artemisia abrotanum* as they emerged so that the freshest males and females were constantly able to encounter each other and older females also had access to males, but only about 40 eggs were laid in total and none hatched. In a second cage which I established in the last week of the emergence, the last four females to emerge were placed with three males, including one that had emerged that day. No eggs were laid at all so the partial second generation left no progeny.

My visit to the wild colony on 17th August 1989 was to find out if there was any evidence of a partial second generation taking place there too. From the size of the 27 larvae found, they had reached the third instar but none were large enough to indicate "bolting" and by this stage they should have been in the final instar if this was the case.

In southern Europe *T. smaragdaria* is bi-voltine and the occurrence of a partial second generation in Britain was recorded long ago both in captivity (eg Burrows, 1900, 1901) and in the wild (Turner 1895 a + b). The latter found "several dozen" larvae at a site on the Essex marshes on 31st August 1895, one of which was full grown and which pupated on 4th September, producing an adult on 26th September, 1895.

This year I have received an unusual number of reports of late specimens of other species with overwintering larvae that are normally univoltine, which may indicate that partial second generations occurred in the wild. These include the Small Emerald, *Hemistola chrysoprasaria,* 24th September, in Wiltshire, Lilac Beauty, *Apeira syringaria* 27th August and 5th September also in Wiltshire and Goldtail, *Euproctis similis* — several specimens, one as late as 26th October, in North Hampshire. Equally unusual was a report of a *full*-grown Garden Tiger moth caterpillar, *Arctia caja* in Essex on 1st October (J. Young. pers. comm.)

The five hundred Essex Emerald larvae now in captivity are being kept in similar conditions to those in the winters of 1987/88 and 1988/89 but some are now in Essex rather than Peterborough.

Acknowledgements

I would like to thank my colleague Roger Key for looking after the livestock for the fortnight of my annual leave.

References

Turner, H.J., 1895. *Phorodesma smaragdaria* emerging in autumn. *Entomologist,* **28**: 307.

— , 1895. An unusually late emergence of *Phorodesma smaragdaria. Entomologist's Rec. J. Var.,* **7**: 82-83.

Burrows, C.R.N., 1900. *Phorodesma smaragdaria,* Fabricius. *Entomologist's Rec. J. Var.* **12**: 113-115, 152-154, 168-172.

—, 1901. The foodplants of *Phorodesma smaragdaria,* Fab. *Entomologist's Rec. J. Var.* **13**: 197-198.

***Epiphyas postvittana* (Walk.) (Lep.: Tortricidae) in Leicestershire**

I read with interest Ted Hancock's account of *Epiphyas postvittana* in Wales (*Ent. Rec.* **101**: 277). A single specimen of this moth was caught at mv light in a garden in Kirby Muxloe, Leicestershire (OS ref. SK 521 037) in September 1989. The moth was positively identified by Mr R. Barnett, Assistant Curator at the City Museum Bristol.

As far as I can determine, this is the northernmost record for *postvittana* in Great Britain. The moth was a very well marked male, apparently newly emerged. I would like to know of any further records of *postvittana* in Leicestershire so it may be established whether or not the species is breeding in the county.— JANE MCPHAIL, 7 Station Close, Kirby Muxloe, Leics LE9 9ES.

Oak Eggar moth — Highflyer or upwardly mobile climber?

Whilst high-pruning branches from a Norway maple in my garden here on 1st November I found a first-year larva of the Oak Eggar lying along a branch well out into the tree crown at at height of sixteen feet from the ground (or as our Eurolepidopterists might have it 4.87 metres). It is not uncommon to find overwintered larvae of the moth on ivy foliage well up on hedgerow trees and bushes but this maple was a young tree with a totally clean trunk and free of adjoining foliage.

So was its egg laid there or did the larva ascend? The implications could be profound for those amongst us who research into the fundamental behaviour of our Lepidoptera. Perish the thought that *L. quercus* is emulating *H. sapiens* in the belief that, next to being high-born, success in life is gained through travelling ever upwards.— G.M. HAGGETT, Meadows End, Northacre, Caston, Norfolk NR17 1DG.

Unusual abundance of the Holly Blue, *Celastrina argiolus* L. (Lep.: Lycaenidae) in 1989 in parts of Sussex

Kenneth Smith in North London was not alone in noting the unusual flight period and large numbers of Holly Blues in the summer of 1989 (*Ent. Rec.* **101**: 278).

For several years I have been trying to get good close-up slides of these lively little butterflies. This has usually involved hanging about near the post box close to my home where there is a mass of holly and ivy in an overgrown garden; in April - early May and August, one or two butterflies may, with luck, be seen dashing about at breakneck speed. However, in 1989 I did not see any here until 20th May.

So when I went to woods below the downs near West Dean, Chichester, on 12th and 14th July 1989 to photograph other species, I was most surprised to see Holly Blues in almost every thicket and on most wet patches in the road. On 21st July, I went to Willingdon Point, Eastbourne, to photograph Chalkhill and Common Blues, but again Holly Blues were more numerous than either, albeit in the thickets rather than in the open. My last sighting here in Selsey was on 4th October 1989.

These unusually high populations are interesting in view of the very low numbers of sightings countrywide between 1986 and 1988 (Pollard E. & Hall M.L. Butterfly monitoring in 1988. *Entomologist* **108**: 229-242).— R.C. DENING, 20 Vincent Road, Selsey PO20 9DQ.

Return of the White-letter Hairstreak

At approximately 17.00 hours on 16th July, I noticed a single male specimen of *Satyrium w-album* Knoch, the White-letter Hairstreak, feeding on Buddleia in my back garden. There are still a relatively small number of elm trees in the neighbourhood but it is the first time for over 20 years that I have noticed this particular butterfly in the locality. In the late 1950s and early 1960s it used to be quite common in a locality in Banstead, Surrey, approximately three miles from where I live, but the habitat in question was totally destroyed following redevelopment of what was originally Ministry of Defence surplus land.— M.S. HARVEY, Highfields House, Highfields, Ashstead, Surrey.

COLLECTING NOTES 1989

M.D. Bryan

Department of Natural History, City Museum, Birmingham

ON 21st MAY we arrived *en famille* on the Isle of Mull. Primarily, the visit was to see Boyd Barr and drink all his whisky — an impossible task as any fellow collector who has shared Boyd's hospitality will readily confirm! Sunny, clear weather prevailed for the week, but clear skies and cold northerly winds badly affected moth trapping. Interesting species in the trap included *Cyclophora albipuncta* Hufn., *Nebula salicata latentaria* Curt., *Odontosia carmelita* Esp., and *Papestra biren* Goeze. From a female *biren* I later reared a number of pupae. Against my better judgement, I allowed Boyd to persuade me to ascend the cliffs at Calgary Bay to search for larvae of *Zygaena purpuralis caledonensis* Reiss. This death-defying madness resulted in just two larvae! Most had already pupated.

We left Mull for Perth on 27th May, arriving at Almond Bank in the late afternoon. Cool nights again depressed the number of moths taken but I was pleased to find *Peridea anceps* Goeze. Many specimens of *Spilosoma lubricipeda* L. came to light and most of these had some degree of ochreous background coloration on the forewings. I retained a female in the hope that a little inbreeding would produce some interesting forms. How I regret that decision. As I write (mid November) I am desperately trying to keep pace with the greed of F3 larvae. About 10% of the F2 pupae decided to hatch (and pair) despite being kept in an unheated and unlit cellar. My garden has never been so devoid of dandelions, docks and sow thistles! Needless to say, only very typical *lubricipeda* have appeared so far.

On 22nd June we drove to Flamborough on the Yorkshire coast. On the cliffs below the lighthouse I noticed a number of Zygaenid cocoons and a few freshly-emerged specimens of *Zygaena filipendulae stephensi* Dup. Oddly enough, all the cocoons I collected produced only *Z. lonicerae latomarginata* Tutt. On the basis of large size, these north-eastern *lonicerae* were at one time distinguished as a subspecies. The cocoons I collected did produce a few large specimens but on average the moths were a little smaller than those hatched from wild collected Staffordshire cocoons.

I will not bore readers with an account of the butterflies noted in France during the first two weeks of July. However, I will bore you with a few notes about the moths! The tiny hamlet of Le Rousell, near le Buisson in Perigord is probably the only settlement of its kind in France to have introduced mercury vapour street lighting. Despite this unhelpful background, my tiny actinic tube attracted a steady stream of moths with names to delight the British collector. Perhaps *Thalera fimbrialis* Scop., *Cyclophora puppillaria* Hb., *Hecatera dysodea* D. & S., *Acronicta auricoma* D. & S., and *Emmelia trabealis* Scop. will serve to illustrate my point. Other visitors to the actinic included the "Rhino beetle" *Oryctes* *nasicornis* F. and Mantis Fly (*Mantispa* sp.) which looks like a small mantis but is actually a type of lacewing.

I was very pleased to take a fresh female specimen of *Harpyia milhauseri* F. known in Britain as the Tawny Prominent from a single specimen taken in Sussex in 1966. Fortunately, I resisted the killing jar and I now have a number of *milhauseri* cocoons overwintering in my shed. The fully grown larva displays the typical prominent shape and is a fine sight in green and beige which exactly match the colours of the summer flush of oak leaves. The larval "prominence" is bright blue. The larvae have an unfortunate habit of biting large holes in nylon netting. The reason for this eludes me for they make no attempt to escape via the holes. Indeed the larvae are very loath to leave the oak twigs until pupation time arrives. The cocoon is hard and resembles a miniature version of that of *Cerura vinula* L. when firmly anchored to a twig or the wooden elements of the cage. Two small males emerged prematurely in early October.

Following a successful trip to South Wales in mid September to look for larvae of *Eurodryas aurinia* Rott. I returned to Bigbury in south Devon for the first week of October. Migrant moths taken included *Heliothis armigera* Hb., *Mythimna vitellina* Hb. and *M. unipuncta* Haw. Resident species included *M. l-album* L., *Lithophane leautieri hesperica* Bours. and *Eumichtis lichenea* Hb. 1989 saw only two species added to my garden list for Blackwell in north Worcestershire. These were *Euphyia unangulata* Haw. and *Nonagria typhae* Thunb. A pleasant development in early October was the appearance in the garden of five specimens of *L. leautieri*. I had only recorded one previous specimen in 1985 and hopefully the moth is now firmly established.

Abundance of *Aporophyla nigra* (Haworth) (Lep.: Noctuidae) in Oxfordshire

Every year in September and October small numbers (up to four a night) of the black rustic, *Aporophyla nigra,* appear in the mv or black light trap in my garden at the address below. However, in 1989 an opportunity arose of operating an mv trap in farmland at Long Wittenham, Oxfordshire. The first *A. nigra* appeared on 31st August and thereafter numbers increased reaching 85 on 23rd September, 137 on 24th September and a peak of 200 on 25th September. There was then a steady decline, although 27 were counted on 23rd October with the last on 25th October when there were six. During 19 nights of trapping at this site in September and October 1989 a total of 740 was counted, making it one of the commonest autumn moths.

The species is undoubtedly on the increase in many areas, but whether the high numbers found at Long Wittenham represent recent successful adjustment to modern farming or whether 1989 was simply a good year cannot yet be stated.— DENIS F. OWEN, 2 Shelford Place, Headington, Oxford.

AROUND GREECE IN FOURTEEN DAYS - 1988

DR C.J. LUCKENS

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HOW DID the Athenians know we were not Greek? Our hired car had Greek number plates and the rental company's label was very small, but as we drove through the busy streets of Athens early on our first morning, cyclists and lorry drivers leant over smiling and asked us if we were British! A few cars and especially taxis were less charitable towards our uncertain sense of direction, but finally we cleared the bleak industrial suburbs around Eleusis and sped along the dual carriageway to the Pelopennese.

Just after mid-day we turned off onto the winding road which climbs up from the gulf of Corinth towards Kalavryta and soon a broad lay-by with a gurgling spring appeared on our right. We stopped to fill our water carrier and a large but ragged female *Charaxes jasius* L. swooped down and landed on the damp ground — and was instantly netted. There were no *Arbutus* bushes anywhere in the vicinity to explain her presence and though we fed her on fermented melon juice (in the hope of sleeving her for eggs after our return), she died unfortunately, on our last day in Greece.

After driving through the impressive Vouvraitis gorge we turned off to explore the steep rocky banks beside the river. *Melanargia larissa* Geyer were common here, along with the three *Gonepteryx*: *G. rhamni* L., *G. farinosa* Zeller (the males distinguished even in flight by their paler hind wings) and *G. cleopatra* L. The last was represented by a fine large race, the females sulphur-yellow, tinged with a faint orange on the hind wings. CJL, with a somewhat superior air, pointed out a fresh example of one of these female *cleopatra* and suggested that Michael Chalmers-Hunt should take it. This he did, and found in his net a superb inter-sex aberration, yellow, with splashes of male colour on the forewing! An interesting form of *Plebicula escheri* Hübn., was taken here; large, with gleaming turquoise wings, ssp. *dalmatica* Speyer. We also spent a considerable time trying to flush out the male *Kirinia roxelana* Cramer from their hiding places among the trees beside a small cliff.

After moderate success with this large Satyrid we drove on through Kalavryta and took the fine new road leading up to Mount Chelmos. The metalled surface now runs right up to the famous Xerocampos plateau, rough dirt roads leading off from there. We camped a few hundred feet lower down among the pines and whilst scouting around for a suitable place CJL captured a female *Cyaniris helena* Staud. flitting around in the early evening sun.

The following day, 19th June, we were up early and at the plateau well before 9 am. The magnificent *Colias aurorina* H.-S. was common even at this hour, the males flying vigorously in the cool windy sunshine. A little later on the females put in an appearance, both the typical yellow form and the less common white *f. fountainei*. *Colias croceus* Geoffroy, also flying in some numbers, looked positively diminuitive beside its larger relative. *Plebejus pylaon* Fisch. was plentiful, particularly around *Astragulus* bushes alongside the stream beds; and here and there a few ragged *Parnassius mnemosyne* f. *athene* Stich were noted, usually favouring the damper areas. The commonest butterfly was undoubtedly *Vanessa cardui* L. with *Issoria lathonia* L. a close second. Other fritillaries such as *A. aglaia* L. and *A. niobe* L. were also present and the skippers were represented by *Spialia orbifer* Hübn. and *Carcharodus orientalis* Rev. Two or three *Pieris ergane* Geyer were taken but it was difficult to find undamaged specimens. Around mid-day we explored one of the rough stony roads leading off the plateau, and wandered along the precipitous bed of a stream encountering *Nymphalis polychloros* L., *N. antiopa* L. and myriads of blues imbibing at the damp sand. The commonest species was *P. pylaon*, but a few *Lysandra bellargus* Rott. and *Plebicula amanda* Schneider were flying and, to our delight one or two *Agrodiaetus coelestinus* Eversm. mostly in excellent condition. A good male *C. helena* was also captured here.

Around 3.30 pm. the sky clouded over Chelmos and we zig-zagged our way back down the winding road to Kalavryta, swerving from time to time to avoid jay-walking tortoises and finally meeting the sun again a few hundred feet above the village. We drove back towards our collecting site of the previous day, but sampled the rocky riparian slopes nearer Kalavryta this time.

As well as the species already mentioned from this lower level we encountered three of the confusing brown *Agrodiaetus* species; *admetus* Esp., *pelopi* Brown and *aroaniensis* Brown. They were by no means common (it being early in their flight period) and we found it almost impossible to distinguish between *admetus* and *aroaniensis* in net or pill-box, though *pelopi* in general was recognisable by its white streaked underside. A large female *Papilio alexanor* Esp, condition rather *passe* at this date, was netted in full flight as we were returning to our car. We had had a most eventful time and it was hard to believe that was only our first full collecting day in Greece.

While we were sampling the hordes of *P. argus* L. flying around our tent the next morning, JMC-H spotted a dark Satyrid flitting amongst some rocks beside the road above us. This turned out to be a *Pseudochazara anthelea* Hübn., the males common along a limited area beside the road. We explored further along the rough track leading off the plateau, striking the same stream bed higher up, and this, though mostly dry, still held an assortment of butterflies. Numerous *Spialia orbifer* and *C. orientalis* and two examples of a fine large *Pyrgus* species were taken, the latter the Greek form of *P. serratulae* Ramb. *C. aurorina* was one of the commonest butterflies. The males, many past their best were flying everywhere along the hillside and the dimorphic females fluttering in numbers around the *Astragalus* in the side gulleys. CJL took a male *aurorina* with dark purplish scales replacing the usual dusky orange colour. It was a curious-looking insect and although scale defect has been suggested this is probably not the case as the silky body hairs are also tinged with indigo. JMC-H took further *C. helena* in fair order and also found a side gulley where female *coelestinus* flew around some low bushes. Several worn males accompanied them, but there was no sign of *Agrodiaetus iphigenia* H.-S. for which we were probably a little early.

We left this delectable spot around 3.30 pm. to start our journey northward. Crossing the Gulf of Corinth by the ferry at Rio we reached the mainland around 6 pm. in a light shower and we decided to pitch camp straight away at a well-appointed site near the shore.

It was dull the next morning as we drove toward the Pindos Mountains through a spectacular gorge where griffon vultures soared in the thermals. The clouds soon dispersed and it became excessively hot and beyond Konitsa in the late afternoon we started to collect near an unusually extensive low plateau — an ancient dried-up river bed. The familiar *Astragalus thracicus* grew here and also Dr T.W. Tolman has found *C. aurorina* — much further west than previously recorded. The butterfly emerges at least a month earlier at this low level however, and we saw no sign of it — only vast numbers of *Vanessa cardui* L. on the flat rocky terrain. Once again the clouds rolled up and there were a few claps of thunder, but in between light showers we found good numbers of *Leptidea duponcheli* Stdgr., on some flowery banks nearby. *P. ergane* was also fairly common, and the blues were represented by *Pseudophilotes vicrama* and *Plebicula thersites* Chapman. A few *roxelana* flitted about among the trees.

There were still occasional showers the following morning as we approached our next collecting site in the northern Pindos. This was a magnificent area of sunny clearings and slopes surrounded by natural pine forests.The first new species was *Coenonympha leander* Esp., ssp. *orientalis* in this area with broad white bands in the underside hind-wing — very difficult, in fact, to distinguish from the numerous *C. arcania* L. that flew with it. The butterfly that we particularly sought soon made its appearance on the edge of the pine forest, *Kirinia climene* Esp. This fine Satyrid was known from Europe only as single examples, until discovered in this area by the Bretherton/Cribb expedition in 1982. We found only males but on one slope they were very common and all in beautifully fresh condition. Other interesting species were *Erebia medusa* D. & S. and finally two further species completely new to us both — *Thersamonia thersamon* Esp. (a very ragged female) and *Pyrgus sidae* Esp. with brilliant orange hind-wing markings.

Heading north for Florina that afternoon we struck the twisting unmetalled road beyond Kastoria which winds between the western Vernon mountains and the Albanian border. The heat was intense, but it was interesting to see clouds of *Aporia crataegi* L. imbibing at Vipers Bugloss beside the road, sometimes a single spike carrying as many as 15 to 20 examples. Strangely enough they had this nectar source almost entirely to themselves. We reached our destination near Florina in the late afternoon and pitched our tent among the mountain beech forest.

Birdsong awoke us in the morning, as if it were May in an English oak-wood. Cuckoos, usually silent in Britain by mid-June, called incessantly and warblers and thrushes sang with all the vigour of spring in their voices. We lost no time in exploring our surroundings and almost immediately encountered a much-desired butterfly *Melitaea arduinna* Esp. Males of this species were locally quite common but it was difficult to find them in perfect condition. Females were very much harder to come by and when we did they were even more ragged. A few good examples were taken however and CJL sleeved three females over a selection plantain and *Centaureae,* but no ova were forthcoming. The local race of *Mellicta athalia* Rott. was abundant and in fine order. There was the usual minor variation, but most were large and dark, with much plainer undersides than is usual in *athalia* — rather like an enormous *M. parthenoides* Kef.

JMC-H took the first *Colias balcanica* Rebel — a male imbibing from purple vetch in the early morning sun. On reaching a rough clearing in the beech forest however, we soon encountered this splendid butterfly in numbers. They frequented rough slopes with young juniper growth, interspersed with a prostrate *Cytisus* species and clumps of red clover. The latter provided nectar for the brilliant orange males which floated around in the sun like autumn leaves. The larger females were less common but we found numbers of ova on the low-growing broom bushes. Some of these eggs were collected, but the young larvae failed to thrive on any of the *Cytisus* species offered to them on our return. During the morning we saw two of the rare white female *f. rebeli.* One sighting involved CJL in a desperate pursuit over the rough and steep ground. This chase provided his companion with much amusement and himself with the reassurance that his coronary arteries were in good order — but no butterfly! A marshy field in this same area was rich in many species — particularly the Coppers, *Palaeochrysophanus (hippothoe) candens* H.-S., and *Heodes virgaureae* L. *M. trivia* D. & S., in a distinctive variegated form, floated over the Scabious heads and *M. phoebe* and *M. cinxia* were also abundant. An enormous female *M. arduinna* in excellent condition was also taken, seemingly quite isolated from others of this species.

On returning to our car we encountered a German collector, Herr T. Arheilger, who was there with his wife. We stopped to talk for a few minutes but we desperately needed water and provisions and had to take our leave in order to get to Florina in time. A roadside spring provided us with the water and also one or two *P. amanda, M. arduinna* and a strange grey form of *Carcharodus lavatherae* Esp. which appears to replace the type in this area. Nearby, the flowering hillsides were seething with butterflies in the afternoon sun. We recorded 13 species of fritillary alone, including freshly emerged *Pandoriana pandora* L. of which we had seen a few earlier on at the *balcanica* ground. We also found several *H. alciphron* Rott., a few *P. sidae* and two examples of the dark "*obscura*" form of *Maculinea arion* L.

June 24th saw us driving up a rough road through the beech forests into the mountains north-west of Florina. At intervals the road deteriorated alarmingly, but it was so narrow that we could only go on up. We stopped as soon as the beeches thinned and on a small marshy plateau, overlooking a rocky precipice, we took our first *Boloria graeca* Stdgr. Several worn *P. mnemosyne* L. were floating around and a few *Euphydryas aurinia* Rott. — a rare and local butterfly in Greece. Higher up we came out onto open hillsides with occasional lush marshes alongside streams descending the mountain. *Coenonympha rhodopensis* Elwes (a mountain species allied to *C. tullia* Mull), was common, along with many more *B. graeca*. *Coenonympha leander* (of the nominate form) were mostly very ragged, but the few specimens we took looked very different from the *f. orientalis* we had found in the northern Pindos a few days earlier. A little silvery blue flying along the road was *Aricia anteros* Frey., and at one spot we found half a dozen of this local butterfly. *E. medusa* was everywhere and one newly emerged *E. ottomana* H.-S. was taken. In the early afternoon it became overcast and we failed to reach the summit where an interesting race of *E. epiphron* Knoch. flies.

When exploring the *balcanica* locality the following morning we found this fine Clouded Yellow in even better numbers but already some of the males were going over. One or two *Lycaeides idas magnagraeca* Ver. were found and a single female *anteros, P. pandora* becoming more frequent on the patches of red clover.

We spent the evening at a taverna beside Lake Prespa where we had arranged to meet Dirk van der Poorten who had turned up the previous day. This huge lake straddles the borders of three countries — Greece, Yugoslavia and Albania. It holds excellent populations of water birds such as brown pelicans and various species of heron. It was a rare pleasure to sit and watch the skeins of pelicans coming off the lake against the sunset and flighting over our heads to their night resting places in the marshes nearby. *Lycaena dispar rutilus* Werne. flies in the lakeside marshes, and Dirk kindly directed us to a locality which we surveyed the following morning. Though mist swirled around our camp site in the mountains above Florina it was warm and sunny when we descended to the lake. *Lycaena dispar* flew in small numbers and in mostly worn condition, but we found ova and young larvae on the *Rumex hydrolapathum* growing among the reeds. These resulted in imagines later in the summer; larger second-brood specimens than any others I have seen before — including those that ssp. *batavus* Obth. occasionally produces in captivity.

That same day in the early afternoon we started the trek across Macedonia to Drama in the east of the region. Beyond Florina the road wound over barren hillsides and scattered townships, but there was little point in stopping anywhere as the weather was generally dull in the western hills and only improved as we approached the second city of Greece, Thessalonica. Forewarned about the difficulties of getting through the city we were fortunate in quickly finding the main road leading east to Serres and Kavala. This road leads past two large lakes and in the surrounding fields we frequently saw white storks. On the telegraph wires, large unfamiliar birds, the size of jackdaws but beautifully plumaged in turquoise and rust, were a species new to both of us — Rollers. We eventually found a camp site beside a river where frogs croaked loudly all night but we were far too tired to notice very much.

The following day, 27th June, we reached Drama in the late morning and beyond the town took one of the roads towards the north. At the overspill from a stone water trough by the road clustered dozens of blues and a few skippers. Dominant were *P. escheri dalmaetica, L. bellargus* and *P. argus* but there were also a few large brilliant males of *Plebicula dorylas* D. & S. The skippers were nearly all *S. orbifer* but in a nearby dry gully *C. lavatherae* (typical coloration) and *S. orientalis* flitted over the baking hot rocks with some dashing males of *M. daphnis*. Here also *Zerynthia cerisyi* Godt. flew in abundance, the females egg-laying on shaded plants of *Aristolochia clematitis* which grew everywhere along the gully. As well as ova we found half-grown larvae of this species. The gully was also rich in other butterflies such as *Chazara briseis* L., *Hipparchia aristaeus* ssp. *senthes* Frhst, *P. mannii* Mayer, *P. napi* L., *L. duponcheli, G. farinosa, A. aroaniensis, A. admetus*; and one or two wary *Libythea celtis* Laich. Four *Polygonia egea* Cram. were taken flying around a short cliff. The intense afternoon heat eventually defeated CJL who took himself off to recover in what minimal shade there was.

On the 28th we explored further along the roads penetrating the mountains. In one flowery strip of ground *Brenthis hecate* D. & S. flew in worn condition, as well as a rare butterfly in Greece — *Aphantopus hyperantus* L. The scenery changed to sparsely vegetated hillsides shimmering in the heat. We had been directed to a specific area and after a short climb found ourselves on a rugged outcrop. Almost immediately one of the rarer butterflies we sought made an appearance: a little yellow Pierid, *Elphinstonia charlonia* Donzel, fluttering over the steep pavements of rock, and very awkward to net in such difficult terrain. They were not uncommon, but we probably missed as many as we netted. The other species was the fine *Pseudochazara orestes* de Prins and van der Poorten (discovered in 1980 by Jos Dils and Dirk van der Poorten and only known from this area). The butterfly was just emerging — males beautifully fresh and quite frequent, and JMC-H managed to find one female. We left our hotel in Drama the following morning but before heading south again, sampled another area higher up in the mountains. As we drove up through the pine woods we passed large numbers of butterflies imbibing at damp spots on the banks. These were mainly the Whites *P. mannii* and *P. napi* but also *H. aristaeus* and several magnificent *N. antiopa*. In one clearing we found four of these fine cream-bordered creatures flying amongst the timber. Higher up among the grassy pastures we found *C. rhodopensis* in numbers, rather larger than those we had taken near Florina. At the point at which we stopped our car there was a continuous flight of male *L. celtis*. They slanted down the hillside in a north-easterly direction, crossing the road, and dropped down into the valley below. This apparent local migration continued intermittently all the time we were there. After sampling the *orestes* ground in the early afternoon (where we failed to find more females) we started our southward trek, stopping that night at our frog-haunted camp site near Kavala.

We continued our journey towards Athens the following day driving virtually without a break until the late afternoon. We had been told where to look for the little Blue *Tarucus balkanicus* Frey. near the town of Almiros, but as time was short we were reluctant to make the required detour and decided that only if the scrub covered hillsides approached the main road would we stop to look for it. Eventually a track appeared leading off the main road onto some rough ground and as we were tired and needed refreshment we turned into it. We bumped our way along this for twenty yards, stopped the car, and immediately saw the tiny tailed blues sitting on the mud beside the track. *T. balkanicus* was abundant and in less than half-an-hour we had a small series of fine specimens. The females were more difficult to come by as they flew almost exclusively around, and settled on, the low bushes of *Paliurus spina-christa*. The twigs of this bush which bristle with vicious spines were reputedly used to make Christ's crown of thorns.

That night we stayed in Amphissa and the following morning visited Delphi. The early morning was spent surveying the archeological sites, among which flew *polychloros* and *egea,* but just before mid-day we drove east to Arachova and on up the steep road to Mount Parnassus. Among the pine trees of the plateau below Parnassus *P. pandora* was found settling on the tall road-side thistles alongside numbers of *larissa* and *anthelea*. *P. daplidice* L. was also fairly common and we took the last new species of our trip — *Hyponephele lupinus* Costa, a freshly-emerged male lurking among the trees. In the early hours of the following morning we arrived back at the International Airport (after a horrendous journey through night-time Athens) and were promptly informed of the inevitable flight delay. We thus had plenty of time to review our holiday, which in fourteen days had taken us on a complete circuit of mainland Greece. We had encountered 119 different butterfly species, and, thanks to Dr T.W. Tolman who provided us with detailed information on localities and emergence times, this list included nearly all those we had particularly hoped to see. We were both completely exhausted but unanimously agreed that it had been our most successful foray yet.

Recent records of three Lepidoptera in Jersey

Dr Julian Clarke, in *Ent. Rec.* **101**: 130, reported the most recent capture of *Thera cupressata* Gey. (Cypress Carpet) in Britain. He also brought together all the published records of this species on the mainland and in the Channel Islands of Guernsey and Alderney, which has prompted me to complete the record with two observations from Jersey. R. Burrow, operating a light in his garden on the outskirts of St Helier, took one on 11.vi.1988, and a second one at the same place on 25.v.1989.

A. Riley speculates (*Ent. Rec.* **99**: 225) on the possibility that *Thaumetopoea processionea* (L.) (Oak Processionary moth) is established in Jersey, on the strength of three specimens including a female, taken at the one site in 1984 and '85. Although not searched for exhaustively, no more were seen until a fourth one was taken at light, also by R. Burrow, a few miles away at Gorey on 22.vii.1989.

On the following day, 23.vii.1989, R. Burrow took a fine specimen of *Polyphaenis sericata* (Esp.) also at light at Gorey. This is the first Jersey record of this European moth, although there were possible sightings of it at the same place in 1985 and '86. This species was known to be established in Guernsey around the 1880s, and R.A. Austin (*Ent. Rec.* **99**: 85) records its rediscovery in Guernsey in 1986. In view of its long-established place in the fauna of Guernsey I should like to support the suggestion of my colleagues in that island that the name Guernsey Underwing is an appropriate one for this species. — R. LONG, Société Jersiaise, 9 Pier Road, St Helier, Jersey, Channel Islands.

Usual second brood emergences in Cornwall 1989

Every year I keep a record of flight times of moths in Cornwall. I illustrate this by a method suggested to me by A.E.C. Aston. Each month is divided into four sections which are shaded in when a particular species is recorded in this period. This provides a quick visual reference. Thus in 1983 I found *Perizoma alchemillata* in late August (23.8.83) as well as in June and July, indicating that in Cornwall at least this species may be occasionally double-brooded. Of course, it can be difficult to differentiate between a prolonged emergence and bivoltinism. In the recording method used, over a long period the gap between the broods of bivoltine species is gradually filled by early or late emergences in particular years or by errant individuals found well outside their usual flight-time. On the Continent, many species have extended flight-times compared with flight-times in Britain and in hot summers in this country emergences may be similarly prolonged.

One of the best ways to tell if a species is bivoltine is whether there is a gap between records. Thus *Idaea dimidiata* found in Downderry by A.E.C. Aston on 26th August 1989 was probably a late specimen of a single brood, as this moth regularly occurs from June onwards and I have caught this species as late as 11th September before (in 1984). Similarly, a very fresh *Philudoria potatoria* caught on 29th August was certainly a late specimen in a period of extended emergence, as was a fresh *Scopula imitaria* caught on 5th September.

Agrotis exclamationis was still flying in large numbers in early September, including some very fresh moths. I have found this moth in Cornwall from early May through to late October without a noticeable gap in the flight period. In some years it may well have two overlapping broods. It is likely that *Perizoma affinitata* was partially double-brooded in 1989. This species usually flies from early May to late July but I saw it near Truro on 24th and 28th August after a gap of exactly one month since the previous sighting. A single fresh *Spilosoma luteum* caught on 28th August was flying some five weeks later than I have previously found it in Cornwall. With a gap of eight weeks between sightings in 1989, this was almost certainly a second brood specimen. One species that was almost certainly double-brooded in Cornwall in 1989 was *Scopula immutata*. This species, which can be bivoltine in captivity, is usually to be found in June and July. I found fresh specimens at mv light near Rame Head on 27th August and near Truro on 28th August. These sightings were not unexpected considering the very hot summer of 1989. — ADRIAN SPALDING, Tregarne, Cusgarne, Truro, Cornwall.

A wasp and a praying mantis

In September 1985, on the Greek island of Poros in the western Aegean, I witnessed a titanic battle between a large wasp (*Scolia* sp.?) and the praying mantis *Iris oratoria*. My attention was drawn to the wasp buzzing around a low bush in an erratic manner, as it soon transpired, trying to avoid the clutches of the mantis.

The sparring continued for several minutes until the mantis caught the wasp between its front legs. Both insects tried for about a minute to immobilise the other, until the wasp was able to sting the mantis between its eyes and thus pull free. The wasp then proceeded to bite through the elongated thorax of the mantis and carry off the head, presumably to the nest.

The mantis continued to move actively, esepecially raising and lowering its wings, revealing the distinctive under-pattern. After several minutes a wasp, presumably the same individual, returned and eventually managed to bite through the abdomen, carrying away the front portion and returning after a few minutes for the rear section of the abdomen.

In total, the encounter I observed lasted some twelve minutes:

presumably the rewards were sufficient to justify the considerable energy expenditure and risk to life. — C. GIBSON, Nature Conservancy Council, All Saints House, Colchester, Essex CO1 1UG.

Hazards of butterfly collecting — Ecuador, 1987

In 1987 I decided to take a personal look at the butterflies of the Neotropical Region for the first time. I had a month available so the choice had to be a single country that was relatively accessible, not too complicated or dangerous, and representative of the main tropical fauna as well as containing elements of the montane zone with its clear Holarctic affinities. Ecuador was the choice, and a very good one it turned out to be. Two or three words of Spanish went a long way — two or three dollars went even further. Kindness and helpfulness were everywhere, and in most places near good butterfly spots in the Amazon catchment area you could not live more expensively than for three dollars a day even if you wanted to.

Before descending from Quito, the charming colonial centre of which is on the list of World Heritage Sites, I wanted to see the montane fauna of the Cotopaxi volcano (5,900 m with eternal snow and breathtakingly beautiful). It should be possible for me to get the car as high as 4,600 m. The butterfly fauna at levels above 3,500 m is far from rich, but it is very interesting. Black Satyrids fly about looking for all the world like Alpine *Erebia,* and like their cousins species have individual niches in the varied grassland types. The *Colias* are just like those of the high Himalaya in both habitus and habits. Trying to collect a good series in the rarified air of 4,000 m is no joke. What was that Pierid? Ah, yes, a *Tatochila,* very close in all respects to the Alpine *Ponchia callidice,* and just as difficult to catch.

I decided to see how high up the mountain I could see a butterfly and spurred on my brand new Chevrolet pick-up as far is it would. It finally stalled, even in first gear. I let it roll back till it stood still across the mountain road. The altitude was 4,500 m. To collect any butterflies on a steep mountain side at this height proved impossible. I decided to try lower down in more clement terrain.

The car restarted willingly enough. I put it in first, and suddenly had a wholly detached gearstick in my hand. This was no joke — the nearest ranger post was 20 km away, there were no other people, and the clouds would doubtless close in soon, bringing temperatures down below freezing. I stuck the stick back in its hole and fiddled about, but there was no support. Somehow I managed to get the car into reverse. This was no great help, but if I could get it in reverse, finding second gear should almost certainly be possible. This proved to be the case, once some lateral thinking had determined that you had physically to push the thing in the gearbox the opposite way of the normal stick movement.

Gingerly I reached the rangers: Ought there to be oil in the part of the gearbox that was visible? Probably not? Eventually the several hundred kilometres to Quito were accomplished in second gear, descending from 4,500 m to 1,200 m and back up to 3000. I was reissued with a clapped out VW Beetle that had 80,000 km on the clock — it had been thoroughly tested in action (and worked well for the rest of my trip). I was ready to face the more pleasant hazards of the Amazonia.

How high are butterflies found in the mountains of the tropics? Certainly quite a lot higher than I saw them on Cotopaxi. The Bolivian *Piercolias huanaco* is reputed to have been collected at 5,800 metres, and in the Himalayas *Parnassius acco* has a few permanent colonies at the same level. Species of Neotropical *Phulia,* tiny Pierids, are regularly collected at 5,000 m and in the Himalayas the very similar *Baltia butleri* occurs to at least 5,300 m. I wish anyone wanting to collect them the very best of luck, but I am sure that some day we shall have a record of the Painted Lady (*Vanessa cardui*) hilltopping on Mt. Everest.— TORBEN B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

Eupithecia tripunctaria H.-S. (Lep.: Geometridae) — a partial second brood

In August 1986 I obtained a few ova from a female *tripunctaria* and found wild larvae on the flowers of wild angelica (*Angelica sylvestris*). The larvae pupated in the autumn and the moths emerged in May 1987.

In May 1989 I obtained a few ova from a female *tripunctaria* and fed the resulting larva on the flowers of hogweed (*Heracleum sphondylium*) and elder (*Sambucus nigra*). They pupated a few weeks later but I had only three pupae. One hatched on 31.7.89 and the remaining two pupae showed no signs of development of the moth. One of them died in the autumn and I now have the one remaining pupa which is alive. I anticipate that it will hatch in May 1990. Therefore, *tripunctaria* has a partial second brood. It seems to me that this explains the current difficulties over voltinism which have been discussed in recent articles. All the above moths and larvae were from Abbotskerswell, Devon.— Dr B.P. HENWOOD, 4 The Paddocks, Abbotskerswell, Newton Abbot, Devon.

Double-brooded *Eupithecia tripunctaria* Herrich-Schaeffer (Lep.: Geometridae)

The authors of several recent notes on *Eupithecia tripunctaria* Herrich-Schaeffer (B.K. West *antea* **101**: 57; G.M. Haggett *antea* **101**: 184; A.M. Emmet *antea* **101**: 185 and E.C.L. Simson *antea* **101**: 278) appear to have overlooked my two notes in the *Entomologist's Gazette* (*Ent. Gaz.* **35**: 76 and *ibid.* **36**: 104). In the first I stated that I had reared *E. tripunctaria* from larvae on elder flowers several times, but that adults had always emerged the following spring. I speculated that the earliest hatching May females might lay their eggs on *Anthriscus,* the only umbellifer commonly available to flower and seed feeding larvae at that time, whereas those laying later might prefer elder, *Heracleum* or *Angelica*.

In my second paper I noted that out of ten larvae obtained from elderflowers in late June 1984, I obtained eight pupae from which three moths emerged at the end of July, while the rest lay over until 1985.

This of course renders my earlier hypothesis invalid; however Haggett *did* rear larvae on *Anthriscus,* but has anyone ever found larvae on *Anthriscus* in the wild?

Thus it is clear that at least a proportion of May-June females lay eggs on elder which produce pupae which may hatch in July-August or lie over until the following spring. There are still two perplexing questions: whereas I find larvae on elder annually in modest numbers, Haggett only did so in 1978. I shall not attempt to answer this.

The second question concerns the failure of both Haggett and myself (before 1984) to rear second brood adults from early summer larvae. While I cannot answer this entirely satisfactorily, I can provide a few ideas which may merit further investigation. When making elderflower wine (this being the circumstance under which I find my larvae), I wait until the flower heads are beginning to go over, at which time the flowers strip most readily from their stalks. By this time some of the larvae are full-grown and pupate very soon afterwards. It is quite possible that many larvae may have reached this stage and left the plants before I pick my flowers, and such early larvae would be more likely to produce adults in the same season. My pre-1984 larva samples were of very small numbers, and may not have been looked after very well (which would retard them). In order to produce equal numbers of July and May adults, it would be necessary, in the wild, for the number of pupae lying over to be several times greater than those producing the second brood. This is due to the greater length of time spent in the pupal stage, and the difference could be further increased by the intervention of winter. On this basis any random sample of larvae is likely to contain a high proportion of potential overwinterers. Finally, the proportion of moths emerging in the same season is doubtless greatly influenced by the mid-summer temperatures; this is reflected in the varying numbers appearing in summer in different years.— M.F.V. CORLEY, Pucketty Farm Cottage, Faringdon, Oxon SN7 8JP.

***Scydmaenus rufus* Müll. & Kunze (Col.: Scydmaenidae) apparently new to Kent.**

It is somewhat remarkable that no Kent record appears to exist for this scarce south-eastern species; at least, I have been unable to trace one. I was interested, therefore, to come upon a specimen under bark of a fallen oak branch in the woods at Chislehurst, W. Kent, on the southern fringe of Greater London (12.x.89). Other beetles present under the bark were *Carpophilus sexpustulatus* F. in plenty and a few *Orthoperus mundus* Matth.

S. rufus is principally a Surrey insect, known to me from no less than eight localities in the county: Richmond Park, Mickleham, Shirley, Croydon, Guildford, Leatherhead, Epsom and Wisley Common. Elsewhere it is recorded from Hurst Green, E. Sussex; Enfield and Hendon, Middx.; Watford, Herts.; and Windsor, Berks. For its two distinct types of habitat see Owen, 1986, *Ent. Rec.* **98**: 78-9; Allen, *ibid.* 211-2— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Rheumaptera hastata ssp. _hastata_ Linn. (Lep.: Geometridae): A welcome return in Herefordshire.

On the 6th September 1986, I found a spinning in birch leaves in Haugh Wood, Woolhope. Constructed into a neat pyramid by three leaves, the leaves were fenestrated from within by a dark grey geometrid larva. I was almost certain that this could only be *Rheumaptera hastata* Linn., a species long since disappeared from the county. The attractive Argent and Sable duly emerged the following spring on 22.5.1987. The species is recorded from this site up to 1968, after which it has mysteriously disappeared for eighteen years.

I visited Queens Wood, Kempley on 28.5.1987 and was delighted to see two moths flying along the woodland rides in morning sunshine, a new site to me for this species. Several spinnings in birch containing larvae were spotted later the same year in August and September. On 7.6.1987 a single moth was seen flying erratically over mixed coppice with birch at Eastnor, while the final irony was to see one sitting on my own front door on 5.6.1987.

Curiously I have failed to see moths or larvae in 1988 in any of the localities mentioned. I have no data for the present status for ssp. *hastata* in England except a feeling that it has drastically declined or disappeared from many of its old sites. The preferred larval feeding place in the Herefordshire sites have been smaller regenerative or younger coppice birch rather than taller trees. It is to be hoped that the new resurgent interest in coppice management may see an improvement in the status of this attractive moth.— Dr M.W. HARPER, Cherry Orchard, Bullen, Ledbury, Hereford.

The Red Admiral (_Vanessa atalanta_ L. — Lep.: Nymphalidae) attracted to a lighted window.

The evening of 26th July 1989 was warm and sticky, with a high level of entomological activity. At around midnight I was observing moths attracted to my lighted kitchen window, when an insect struck the window quite hard — three times. On opening the door to investigate, a Red Admiral flew in, across the kitchen and into the lounge, where it rested on a door, wings open.

This species has been noted at light before, but the usual explanation offered is that the butterfly was disturbed by the presence of an mv light being set up — the usual circumstances when *atalanta* is recorded at night. No such explanation seems appropriate here, and it seems the butterfly was flying vigorously at night.— JAN KORYSZKO, 3 Dudley Place, Meir, Stoke-on-Trent, Staffordshire.

Late appearance of *Pieris brassicae* L. — the Large White butterfly.

Around midday on 30th October, in bright sunshine, I saw in the garden of my home a single specimen of *Pieris brassicae* flying along a stretch of Rhododendron hedge. It was an exceptionally warm day for late October following the long hot dry summer and the butterfly could have been an example of a partial third brood.— A.C.R. REDGRAVE, 5 Holmewood Ridge, Langton Green, Tunbridge Wells, Kent.

***Eupithecia abietaria* Goeze, the Cloaked Pug (Lep.: Geometridae), in N.W. Hants.**

A fresh specimen of a species unfamiliar to me entered my Robinson mv trap, situated in my garden at Burghclere (v.c.12), on the night of 29/30th May 1989. Mr B.R. Baker, lately of the Reading Museum kindly determined the species as male *Eupithecia abietaria.*

The relatively early date of appearance of this species on the wing is presumably due to the unusually advanced seasons in the first half of 1989.

There is no clear clue as to the origin of the specimen. There are isolated, mature spruce trees in the neighbourhood. There is also a plantation some 300 yards away with alternate rows of Scots pine and Norway spruce. Most of the latter trees are dead or dying, but there are scattered specimens of spruce that have developed sufficiently to bear a fair crop of cones. The specimen has been retained for the Reading Museum.— G.G. EASTWICK-FIELD, Little Earlstone, Burghclere, Newbury, Berks.

The greenhouse effect? Occurrence of *Cosmia pyralina* D. & S. (Lep.: Noctuidae) in Yorkshire.

A male *Cosmia pyralina* (Lunar-spotted Pinion) was taken at mv by Ms Denise Hewitt at Bond Ing, Shadwell, N.E. Leeds on the night of 2/3rd August 1989. This is the second record for Yorkshire and the first for v.c.64. It was previously taken near Scarborough in 1983 (Sutton & Beaumont, 1989 *Butterflies and Moths of Yorkshire: Distribution and Conservation*. Yorkshire Naturalists' Union. 367pp.), *Pyralina* is not noted as a migrant and appears to be another of the growing band of residents of more southern counties (these are listed among other newcomers in Sutton & Beaumont, 1989) which seem to be moving north. This list of newcomers is matched by another list of species which are spreading steadily north *within* Yorkshire, of which *Mimas tiliae* (the Lime Hawk-moth) is a prominent example. When Yorkshire becomes a Home County, what will happen further south?

I am grateful to Mr Bernard Skinner for determining the somewhat worn specimen.— Dr S.L. SUTTON, Dept. of Pure and Applied Biology, Leeds University, Leeds LS2 9 JT.

The Small Wainscot, *Photedes pygmina* Haworth (Lep.: Noctuidae) — In what stage does it overwinter?

According to the account of the life history of *Photedes pygmina* in *The moths and butterflies of Great Britain and Ireland* **10**, it overwinters as a larva. The reference given is Forster, W. and Wohlfahrt, T.A. 1963-1971 *Die Schmetterlinge Mitteleuropas,* **4**: 329pp; 32 pls. Stuttgart.

On 23rd September 1982 a female *P. pygmina* which I had taken at Colyton, Devon, laid nine white ova. They did not hatch in the autumn and so I kept checking them from time to time through the winter. The first ovum hatched sometime between 30th January and 12th February 1983 and the larva was still alive when I found it on the latter date. On 22nd February two more hatched, followed by a fourth within the next few days. Two of the larvae buried into a *Carex* leaf which I had provided but they died a few days later.

It would seem to me that in this country *P. pygmina* overwinters as an ovum. I wonder whether anyone else has made the same or a different observation.— Dr. B.P. HENWOOD, 4 The Paddocks, Abbotskerswell, Newton Abbot, Devon.

Nordeuropas Prydvinger by **Eivind Palm**, Danmarks Dyreliv Bind 4. — 248 pp., 8 col. plates. Fauna Boger, 1989. DKr.420 (c. £37).

This is the latest book in a series about the Danish fauna which covers the Oecophoridae (Lepidoptera). Is also boasts being the sixth book written by Eivind Palm in recent years. Most of the text is in Danish.

It begins with some introductory chapters covering the morphology, biology, distribution, species of economic importance, classification etc.

There is then a key to the subfamilies. Each subfamily's treatment begins with a key to genera, these are well-illustrated with line drawings of head and antenna. There is no key to species, but in the large genera *Agonopterix* and *Depressaria* there is a key to species groups. Within each genus or species group there are illustrations of genitalia or adult and other features.

Each species is accompanied by a distribution map covering Scandinavia, sometimes with a more detailed map of Denmark. At the end of each species' description is a very brief summary in English, which describes the distribution, habitat and habits.

Towards the end of the book are eight colour plates depicting all the species twice natural size. These plates have been produced from photographs taken by David Wilson. All known British species are shown, including those which are not found in Scandinavia.

The systematic order follows Karsten Schnack's *Catalogue of the Lepidoptera of Denmark* which is more or less in the reverse order of the latest British checklists. It also includes Ethmiinae and *Stathmopoda*. The names agree with those in use in the British checklist, except that *albipunctella* (D. & S.) is still used for *aegopodiella* (Hb.), also *lipsiella* (D. & S.), which Bradley cites as a *nomen dubium* is used for *phryganella* (Hb.).

There has been a considerable advance in the knowledge of this group in recent years, with several additions to the British list. It is helpful to find all these described together, albeit in Danish, with illustrations of their genitalia as well as adults. Some of the genitalia illustrations are of poor quality because they are photographs — in some cases of overstained preparations. In almost no case are the socii or uncus lobes of the males neatly arranged. The name "clasper" is used for "cuiller" but the diagrams in the morphology section leave no cause for confusion. Black and white photographs of the adults which are included seem rather superfluous in view of the provision of full colour ones in the plates.

There are some typographical errors which suggest undue haste in the production, e.g. *Parocystola* and *oliviella* are consistently mis-spelt *Paracystola* and *olivella,* and *Carcina* appears as *Carsina* in the key. I am unable to say whether or not errors abound in the Danish text. The line drawings of specimens in their natural posture are of poor quality, in contrast with the morphological drawings. The legend to the colour plates gives the data for each specimen illustrated, which is helpful, but it is a pity it does not refer to the page number of the species' description. A few of the specimens chosen for illustration are in poor condition for photographing and the colour of some of the plates is just a little cold.

Despite these shortcomings a book with full colour illustrations of a group of microlepidoptera is always welcome. It includes nine species on the British list which were not illustrated in the papers by S.N.A. Jacobs in the Proceedings of the South London Entomological & Natural History Society, subsequently republished in *Illustrated Papers on British Microlepidoptera*. The Danish text will put off a number of would-be users, but it will still be found a valuable reference book on the group.

David Agassiz

Die Raupen der Schmetterlinge Europas by **Arnold Spuler**. 38pp. 60 coloured plates. Reprint by Apollo Books (Lundbyvej 36, DK.5700 Svendborg, Denmark) 1989. Price DKr 780 (about £70).

Books depicting realistic illustrations of the larvae of the macrolepidoptera have always been in great demand — witness the extraordinary price commanded by Buckler's *Larvae of the British butterflies and moths.* Whilst the number of books devoted to the British fauna is rather limited, there are several more European volumes on larvae, which include most of the British species. It is a sad fact that many of the published works on larvae sport unrecognisable insects, often resting on "artistic" foodplants.

One of the best works on the larva of European butterflies and moths was Ernst Hofmann's *Die Raupen der Gross-Schmetterlinge Europas,* published in 1893. The text was extensive, and the plates first class. When Arnold Spuler produced his volume on the larvae of European Lepidoptera, he drew extensively on Hofmann's work. Although Spuler's text omitted the detailed descriptions of each species and was confined to a general treatment of early stages and breeding techniques (using many of the original line drawings), all 50 of Hofmann's plates were reproduced — 49 of larvae and one of eggs. He also added a further ten plates of larvae not figured in Hofmann, so in all there were more than 2,000 drawings, depicting 1,535 species. It is the reprint of this work that is considered here.

Reviewing a reprint is a rather difficult task — one can comment only on the usefulness of the original work, and the fidelity of the reproduction. Of its usefulness there can be no doubt — the larvae are recognisable, and the coverage extensive. As to the fidelity of reproduction, the reviewer, not possessing a copy of Spuler, compared the plates with those in his copy of Hofmann and was marginally irritated to find that the Apollo reprint had slightly better plates than his original!

The quality of reproduction can only be described as excellent, a worthy follow-up to Apollo's first-class reprint of Culot's *Noctuelles et Géométres d'Europe.*

Paul Sokoloff

OBITUARY

Richard Edward Montague Pilcher MA, MB, BCh, FRCS, MRCS, LRCP, FRES.

Rick Pilcher died on 30th December 1989, aged 86 years. Born of a well-known Boston family, he won a classics scholarship to St John's Cambridge but chose also to read medicine there before studying medicine further at St Thomas' London. After a spell at Nottingham hospital he joined his father's practice in South Lincs but soon went on to study surgery at Edinburgh, then to return to Boston (Lincolnshire) as surgeon and finally Consultant Surgeon Emeritus at Pilgrim Hospital which he had influenced so greatly in its inception. His long period in post at Boston spanned four decades of ministration in a large rural area of close-knit communities. So for that long era there were few cases of surgery that did not come under his care, and it is easy to appreciate that such was his popularity with all sectors of society that dockers and labourers might stop him in the street and demonstrate their thanks to his skills.

His early days were spent in boats, Boston trawlers, harbour smacks or punts on fen or waterway. He became expert at sea-fishing as well as fresh-water and fly; he was a keen shot over coastal waters, marshes and flats, experiencing the long wait, the freezing cold and waist-deep mud necessary before intercepting geese. His intimate knowledge of the Lincs coast, its tides, flats and wildlife derived from a company of last-century wildfowlers and marshmen. Years later he was to combine that experience with his other talents to conduct original research into the causes of death of sea-birds; to do this he walked the extent of the Lincs foreshore from Boston Haven to Wainfleet, collecting bird corpses, and then humped them to pre-arranged collecting points, finally carrying out autopsies at his home.

His great contribution to the conservation of ducks and geese was dramatically triggered by the urgent need to personally rescue the stock of world endangered species established not far from him by Sir Peter Scott, already a friend of long standing. These birds he bred in specially constructed ponds in his Boston garden, and they remained a principal interest until retirement. He was for many years a member of the Council of the Wildfowl Trust and latterly its Trustee, and his activities took him to lands across the North Sea where similar interests in wildfowl protection were practised. He was the joint author of a charming publication *The History of Borough Fen Decoy* 1982 which captures the freshness and mystery of fenland wildlife and gives a penetrating history of Fens drainage. Again his versatility was in demand as one of few who could work a dog to move ducks along that decoy when the film history was made. His love of birds was not of course confined to waterfowl, and one of his garden delights was the acrobatics of Spotted flycatchers who reared their young in his own nestboxes. And his sharp ear for bird songs accounted for a good many local records. Mammals also took his interest, his work on skull identification of the shrews and voles earning him much respect.

Conservation of birds led to protection of the broader environment and active management on committees of the Lincs and S. Humberside Trust for Nature Conservation. His own part in conserving the beautiful meadows and valleys of South Thoresby is still too little known to local residents. The rampant destruction in the name of Agriculture of so much of Lincolnshire greatly saddened him although farmers remained amongst his closest friends.

Throughout a long life he collected Lepidoptera but extensively only from the end of the second World War when he began visits to Scotland that were to kindle his affection for the Western Isles and for Islay in particular. It was now that he took up his association with men of the day like Demuth and Quibell, but his lowland activities were mostly within motoring distance of Boston, so he was often at Monks Wood, Warboys, Wicken, Castor Hanglands and the Brecks. All the while he worked his own county fauna, and was concentrating on it when I joined him to rediscover species long lost sight of there, and add quite new ones such as *Photedes extrema*. The South Lincs area lies on a migration route that produces records rather different from the better-known southern ones, with Convolvulus Hawk, Bedstraw Hawk and Camberwell Beauty the most spectacular. It was Rick who first put into practice the idea of growing large beds of *Nicotiana* — not the fancy coloured plants he would say, only the fragrant white — of which he would set a border the length of a cricket pitch, and so produce *convolvuli* annually; he once when dressed for dinner had the spectacle of *convolvuli* probing at his starched white dickey front!

The 1973 invasion there of *galii* gave him enormous pleasure in locating larvae on willow-herb hard by the shore along his beloved coastline. All who have sought larvae of *Eupithecia extensaria* will have savoured the rare beauty of sunlit coast, cries of sea-birds and haunting odour of sea wormwood, and I treasure the occasion I shared at Gibraltar Point with Rick and his wife Moira on just such a day.

But Rick became nationally known for his discovery in Lincs of the Marsh moth *Athetis pallustris.* First he trapped it in his garden, then in the adjoining meadows followed by systematic sampling of the coastal marshes until he found it most plentifully on the sand-dunes. This was at a time when the moth had become difficult to find in its fen stations, so twitchers focussed on the Lincs coast and their batteries of mv traps revealed scores where once a single fen moth had been a prize. *Spaelotis ravida* was another local speciality that drew collectors from all over Britain and Austin Richardson took his specimens from curtains and between books in his host's home when rain prevented outdoor work. Recent years saw Rick trapping the year round in a local wood that was to produce one Cloaked Pug and much Latin commentary between him and his classicist colleague farmer Bill Haugh.

His card-indexed boxes of county records have been left to the Lincs Trust and his insects to the National Collections at South Kensington where the extensive Lincs material will be especially valuable, containing butterflies now absent from the county such as *palaemon, coridon* and the fritillaries.

Moira Pilcher died ten years before Rick when he was in the first stages of the cancers that troubled him for the rest of his life. They leave two daughters and a son, whom we were privileged to join to pay tribute tosurgeon, wildfowler, conservationist and lepidopterist at South Thorseby church on 8th January 1990. G.M. HAGGETT

100 YEARS AGO

SPECIES DOUBLE-BROODED IN 1889.— The fine weather in May and June brought out the spring moths earlier than usual, and as a consequence of continued fine weather for several weeks, many early species produced a second brood remarkably early in the season, and ordinarily single-brooded species have had a partial second brood. The second brood (I presume this was so) of *Cidaria silaceata* was getting worn near Yarmouth (I. of W.) at the end of July and beginning of August, as also was that of *Ephyra porata.* On the 31st of August, I found near Strood in Kent, fine specimens of *Metrocampa margaritata* quite recently emerged. The second brood of *Platyptilia gonodactyla* was out in the middle of August, and continued to emerge up to the end of September. Of *Melanippe galiata* I took the second brood during the last two days of July at Freshwater, and *Aspilates citraria* began to appear about the same time. A second brood of *Eubolia lineolata** was out at Deal on the 6th of July.—J.W. TUTT, Westcombe Hill, S.E.

(* = *Phibalapteryx virgata*)

On Tuesday and Wednesday, April 22nd and 23rd, Mr Howard Vaughan's collection of British Macro-lepidoptera was sold. The varieties fetched high prices, three *C. edusa* vars. being bought one after the other for £10 each, and a fourth for £10.10s.; the latter price was also paid for a var. of *A. aglaia* (damaged); £4 for a var. of *A. paphia;* £9.10s. for two vars. of *V. io;* the same for a var. of *V. atalanta,* and £10 for a var. of *cardui;* £6.10s. was paid for a var. of *C. dispar* ♀, whilst the *Lycaenidae* produced from 2 to 4 guineas per lot; a series of *P. piniperda* vars. produced £2.10s.; a series of *T. gothica* £2.15s.; a series of *E. lutulenta* and *E. viminalis* combined, £2.5s., a series of *E. lutulenta,* £2; whilst a var. of *C. nupta* brought £4. Many others were worthy of notice, but the sale was remarkable for the fact that almost all the high prices were for varieties; nor it this to be wondered at, when one considers that it is one of the scientific branches of our subject which is yet untouched, unknown, and not understood even by the most intelligent of our workers.

THE PROFESSOR HERING MEMORIAL RESEARCH FUND

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

(a) Leaf-miners
(b) Diptera, particularly Tephritidae and Agromyzidae
(c) Lepidoptera, particularly Microlepidoptera
(d) General entomology

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

Awards may be made to assist travelling and other expenses necessary to fieldwork, for the study of collections, for attendance at conferences, or, exceptionally, for the costs of publication of finished work. In total they are unlikely to exceed £600 in 1990/91.

Applicants should send a statement, if possible in sextuple, of their qualifications, of their plan of work and of the precise objects and amount for which an award is sought, to Dr M.J. Scoble, Department of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD, as soon as possible and not later than 30th September 1990.

Continued from back cover

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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

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SOME OBSERVATIONS ON THE FORAGING BEHAVIOUR OF *FORMICA FUSCA* LINNÉ, AND SUCCESSFUL DEFENCE AGAINST *FORMICA SANGUINEA* LATREILLE (HYM.)

N. BLACKER

Chemistry Dept., University of Warwick, Coventry.

THESE notes are based on observations of two colonies of *Formica fusca* in the author's garden from 1979 - 1988. Both colonies are quite large, each with at least several hundred workers. They are of local origin and, therefore, have no previous experience of *Formica sanguinea,* which does not occur in East Anglia.

Formica sanguinea was introduced in 1984. Other species present include several *Myrmica* spp, *Leptothorax acervorum, L. interruptus, Tetramorium caespitum, Tapinoma erraticum,* and *Lasius niger.*

General foraging behaviour of *Formica fusca*

Formica fusca is a widespread and often abundant species, and this, combined with its fairly large size, has long made it a convenient ant for study. It is alert and fast-moving, with considerable individual initiative. It usually forages singly, taking a wide variety of prey and carrion. It will sometimes tend aphids, but also milks less strongly guarded herds belonging to other species, such as *Lasius niger,* using its agility to avoid capture.

Territorial knowledge

In addition to being an alert forager, this species appears to have a detailed knowledge of even sporadic food sources within its foraging range. This has been noticed because of its conspicuous ability quickly to find food put down for the other species mentioned above. In fact, most movable prey items are taken by this species even when they have been placed very near the nest entrances of the other species.

It is quite likely that individual *fusca* workers have favoured foraging areas, but the author lacks the marking system necessary to prove this.

Stealing food

F. fusca is not an aggressive ant, but it will steal food that has been found by another species if it can surprise them. With small species (even *Tapinoma*) it will cautiously approach and reach over the other ants with its antennae to examine the prey. If not too large it will retreat slightly, then dart forward and snatch the prey and run off, usually scattering the smaller ants in the process. However, it is less likely to try to steal prey that is being moved by another ant. It rarely, if ever, steals brood from workers of a colony that is moving to a new nest site — not even small *Leptothorax* species.

It is often very persistent and, if disturbed while trying to move or steal prey, it will circle and return repeatedly, the radius of the circle usually increasing slightly each time.

This cautious approach is in clear contrast to the aggressive behaviour of *F. sanguinea*. When *Lasius niger* pupae and workers were placed about one foot from the *sanguinea* nest the ever-present *fusca* rapidly started stealing the pupae, skilfully evading the *niger* workers. The *sanguinea,* however, gathered by the nest, and carefully advanced on the *niger*. They took few brood until the *niger* workers had been driven off or killed, showing their need to dominate the area. This took about ten minutes, by which time *fusca* had stolen at least twenty pupae.

Selectivity towards prey

During July and August 1988 the author conducted some observations to see if *F. fusca* workers are selective when given a choice of prey. This involved closely watching the behaviour of workers finding *Lasius niger* male, female and worker pupae placed by a *Tetramorium* colony, about five feet from the *fusca* nest, across rough terrain.

It was hoped that the *fusca* would show some preference for a particular size. This selectivity might be affected by the increasing presence of *Tetramorium* workers, either hurrying the *fusca* into taking the nearest or smaller pupae, or possibly even increasing the tendency to take larger pupae before they lose the opportunity.

Unfortunately, the results were not completely conclusive. The first workers to find the pile of pupae would usually walk over it for a while (evaluating it?) before taking one, quite often a male or female pupa. Sometimes they would pick up a worker pupa, then put it down again. Not surprisingly, large workers tended to take larger pupae. Smaller workers often gave up trying to move female pupae. However, individuals varied considerably. The presence of *Tetramorium* workers did seem to have some effect in reducing the size of pupae taken.

Transport of prey

Small prey items are usually carried to the nest without stopping, as would be expected. Larger pieces are usually dragged, although they may be carried in front when going downhill. Often, workers proceeded by dragging the prey briefly, swinging it round in front then dragging it again and so on.

Most species behave similarly. When dealing with very large, awkwardly shaped loads, ants often stop to change their grip. Interestingly, *fusca* sometimes leaves such prey and explores a short distance ahead, giving the distinct impression of trying to find the easiest way ahead. *F. sanguinea* may behave similarly.

Both species also stop and circle their load briefly. As a result they sometimes lose it, and may take several minutes to find it again. Apart from giving a rest, this circling may have a defensive function. On several occasions the author has seen spiders of the genus *Xysticus* slowly following *fusca* workers carrying female *Lasius* pupae. No spider has yet been observed to catch up, but the spider is likely to steal the pupa. These spiders are undoubtedly capable of taking worker ants by ambushing them in vegetation, but on two or three occasions the author has also seen *Tetramorium* and *Leptothorax interruptus* workers attempting to catch smaller specimens of the same spider. The spiders are probably reluctant to attack an ant in the open, so, by briefly circling its load, the ant may well reduce the risk of being surprised by predators.

Recruitment

The second aim of the experiment described above was to see if the *fusca* recruited other workers to help collect the *Lasius* pupae.

Possible methods of recruitment are:—

(a) Chemical attractants.
(b) Chemical trails which also stimulate workers to follow them.
(c) Chemical trails which do not stimulate workers to follow them.
(d) "Language".
(e) No recruitment, relying on workers to find the prey independently.

The pupae were often found by two foragers independently within five minutes or so of each other. These would continuously shuttle back and forth to the nest, but spent very little time there. A third ant did not usually join in for some time, often 30 minutes or more, but from then on others usually joined in about every five to ten minutes, to a maximum of five to eight workers. Ants finding the pupae independently usually used different routes to the nest, and rarely changed route. It was not clear how precisely ants followed the same route on each occasion, which would help decide if a trail was laid.

According to Möglich and Hölldobler (1975) *F. fusca* does, in fact, lay trails to food sources, but they act only as an aid to orientation, and do not stimulate nest mates (possibility (c)). Stimulation is apparently achieved by a rocking behaviour (d) of the forager and passing of food from its crop on arrival at the nest.

The above observations did not contradict this but, if they are correct, the method is rather inefficient. Possibilities (c) and (d) would both be very difficult to verify in the field; (b) can almost certainly be ruled out, and (a) appears to make little or no contribution in these circumstances; (e) is significant at first, accounting for up to two or three workers.

Colony moving

This is really a special case of recruitment. Interestingly, workers commonly carry each other to a new nest but apparently not to food.

The author has only once witnessed this species move to a new site. The initial scouting and recruitment was done by a single worker, recognisable by a dent in its abdominal armour. The fact that a fairly small number of workers move a colony is also true for *F. sanguinea*. Presumably some workers may learn the route as they are carried, as has been shown for *Rossomyrmex proformicarum,* which recruits for slave raids in this way (Marikovsky, 1974).

Marriage flights

It is well known that *Formica* species usually do not have the massive marriage flights of *Lasius*. Instead, the alates wander about and the females, in particular, often do not fly, probably attracting the males with pheromones. *F. fusca* is no exception, and alates typically appear on fine mornings in July and August, although the author has seen them as early as the beginning of April, and as late as mid-October. These are certainly overwintered, especially in windy coastal areas. As the alates often stay fairly near the nests (less than ten feet) they can return if they do not find mates. This is less wasteful than the *Lasius* method, but dispersal may not be so effective. *L. alienus* is known to kill alates that have not flown (Jensen and Nielsen, 1975).

Raiding tactics of *Formica sanguinea*

Over the last hundred and fifty years or so much has been written about the slave-making raids of *F. sanguinea* and *Polyergus* species. This account will mainly be concerned with the factors influencing the success of a raid. The account by Huber, quoted in Donisthorpe (1927) most agrees with the author's observations.

When foraging, *F. sanguinea* will chase other ants in a similar manner to other aggressive species, such as *F. rufa*. However, while the latter uses identical tactics in large scale attacks, *sanguinea* does not. It is well-known for avoiding "in-fighting", especially in the early stages of an attack. This becomes increasingly evident when fighting large species. It aims to dominate an area, driving off the opposition, preferably without physical combat. Raids usually take place on warm days in July.

The main stages of a typical raid are:—

(1) Preliminary activity by the *sanguinea* nest, and scouts dispatched.
(2) Advance of more workers, more cautiously near the *fusca* nest.
(3) Build up in numbers of *sanguinea* near the *fusca* nest, while advancing slowly. A trail may be laid back to the *sanguinea* nest, as has been shown for *Polyergus lucidus* (Marlin, 1969).
(4) Final assault — not witnessed by the author. Other accounts state that the *fusca* nest is often blockaded at the same time.

Stage (3) seems to be the key to success. The *sanguinea* workers do not charge forward as they get close to the *fusca* nest, but move carefully in a roughly circular manner, advancing a few inches, then turning, often stopping to greet the workers following. These meetings are probably of vital importance to the advance, as they appear to lead to an awareness of support which, if removed, leads to a retreat. The leading ants change constantly. At this stage reinforcements should be arriving frequently. It is vital that the *sanguinea* numbers build up quite quickly. Most fights are started by *fusca* and, although *sanguinea* workers are stronger than those of *fusca,* they can safely cope with only one undamaged *fusca* at a time. Therefore it is essential that there remains a *local excess* of *sanguinea* so the forward momentum can be maintained. This gives those workers temporarily immobilised by *fusca* time to kill their opponent without risk of being attacked by a second one. *F. sanguinea* relies much more on mandible contact than does *F. rufa* because poisons are too slow-acting. As a result it carries less acid, so slightly improving mobility. The importance of continually moving forward probably also explains why, when raiding, *sanguinea* tends not to help comrades that have been attacked, in contrast to when they are foraging. (The whole episode is, in effect, more like a rugby match than a medieval battle.)

Defensive response of *F. fusca*

F. fusca has often been described as a cowardly species, but cautious would be more accurate. It certainly prefers to avoid trouble and, except for *fusca* from a hostile colony, it very rarely attacks other ants. However, it will often fight fiercely in defence of its nest, if its chances of success are reasonable. This has been emphasised by the repulsion of several *sanguinea* attacks by the two colonies in the author's garden, including one in July 1988 involving 150-200 *sanguinea* workers. It shows that, while *fusca* is instinctively hostile to *sanguinea,* the reported tendency to flee from an attack is learned, as rapid flight is probably a sensible tactic to persistent attacks from large *sanguinea* colonies. Small *sanguinea* colonies probably rely on finding nervous, weakened *fusca* nests to attack.

The key to a successful defence is the alert nature of this species, and the very rapid response to an impending attack. Until 1988 *sanguinea* had always attacked the nearer of the two *fusca* colonies, and *fusca* foraging near the *sanguinea* nest would often wander around it, stopping occasionally, giving a definite impression of watching it.

Experiments are needed to ascertain whether *fusca* does, in fact, anticipate *sanguinea* raids. This might occur by two methods:—

(i) Detection of external changes or behaviour of the *sanguinea* (most likely chemical) as the raiding season approaches.

(ii) Knowledge by experience that raids occur at a particular time. This would be very significant, as it implies a long-term memory.

These *fusca* will not tolerate *sanguinea* workers within three or four feet of their nest. When a scout (stage one) is located, the *fusca* worker attacks it. If it misses it runs rapidly in circles. Alarm pheromones are undoubtedly released. Nearby workers start to search, and almost immediately others will be attracted from the nest, until, if several *sanguinea* are caught, several hundred *fusca* may be involved.

The whole body advances in a similar fashion to *sanguinea,* but faster. Solitary *sanguinea* are attacked immediately and are overwhelmed by up to about six *fusca* that are attracted to the spot. Groups of *sanguinea,* particularly if further from the *fusca* nest, *may* not be attacked immediately. *Fusca* tend not to stop and greet each other — being rather wary, they usually run from any fast approaching object — but either by an awareness of movement, or by chemical means, they appear to realise if they will have support.

Fusca workers attack *sanguinea* by racing in and seizing a leg or antenna. They are strong enough to restrain most *sanguinea* for at least five or ten minutes. If they manage to grip the base of a leg, the *sanguinea* will still be hindered even after the *fusca* has been killed.

The *fusca* have the advantage of being near their nest, so re-inforcements arrive quickly. In the raids the author has observed, *fusca* numbers built up rapidly enough to completely overrun the advancing *sanguinea,* forcing them to flee, either towards their nest, or up into vegetation where they are less likely to be found. The *fusca* pursued them all the way back to the nest and seized several workers just outside it, but never attempted to enter it.

For several days afterwards the *fusca* constantly maintained a stronger than usual presence on and around the *sanguinea* nest, and attacked any that ventured out. Later this was reduced, the *sanguinea* site being within the foraging range of the other *fusca* colony. Aggressive *fusca* workers occasionally attack *sanguinea* foragers but usually they soon let go, or are killed, and other *fusca* rarely go to their aid if the colony is not threatened, particularly if the fight is near the *sanguinea* nest.

References

Donisthorpe, H. St.J.K., 1927. *British Ants: their life history and classification.* 436pp. Routledge & Sons Ltd, London.

Jensen, T.F. and Nielsen, M.G., 1975. *Ent. Meddr.* **43**: 5-16.

Marikovsky, P.I., 1974. *Ins. Soc.* **21**: 301-308.

Marlin. J.C., 1969. *J. Kans. Entomol. Soc.* **42**: 108-115.

Möglich, M. and Hölldobler, B., 1975. *J. Comp. Physiol.* **101**: 275-288.

An early Hummingbird Hawkmoth in Kent.

About midday on 4th March 1990 I was surprised to see a Hummingbird Hawkmoth, *Macroglossum stellatarum* L. flying along the top of the cliffs at Foreness Point near Margate in Kent. It was under observation for some five minutes during which time it made a series of quick dashes followed by periods of hovering as though it was searching for flowers which were rather sparse at this early date.— ERIC G. PHILP, 6 Vicarage Close, Aylesford, Kent ME20 7BB.

THE BURNISHED BRASS MOTH, *DIACHRYSIA CHRYSITIS*, (LEP: NOCTUIDAE) — A NETTLE SPECIALIST?

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ACCORDING to Skinner (1984) the larvae of *D. chrysitis* feed on "common nettle and probably other low plants". Davis (1983) divides the insects that feed on stinging nettles into three categories. The first of these is the insects that are restricted to stinging nettle or at least to the genus *Urtica.* Secondly there are the species such as the Comma butterfly *Polygonia c. album* that are limited to the order Urticales which contains the families Urticaceae (nettles), Cannabaceae (hops), Ulmaceae (elms) and Moraceae (figs) (Clapham, Tutin and Moore, 1987). Davis' third category contains species that "feed on nettles and unrelated plants such as grasses or thistles or dead-nettles," ie. polyphagous species. Davis considered *D. chrysitis* to be "more or less restricted" to nettles and other Urticales.

In July 1987 I found a first instar larva of *D. chrysitis* feeding on marjoram, *Origanum vulgare,* on a roadside embankment at Wansford, Cambs. The nearest nettles were five metres away. I reared the larva exclusively on *Origanum,* and the adult emerged in September 1987. *Origanum* therefore meets the criteria given by Ward (1988) for acceptance as a valid host plant record.

A brief search through the literature provided a number of other host plant records for *D. chrysitis* and these are summarised in Table 1. It is likely that some of the later works are repeating information contained in earlier ones. It is clear that *D. chrysitis* has been recorded from various members of two families of plants within the order Solanales in addition to members of the Urticales. Perhaps we can expect future records from other common members of the Solanales such as *Thymus* (thyme), *Prunella* (selfheal), *Ajuga* (bugle) and *Stachys* (woundwort). The records from *Arctium* (burdock) *Achillea* spp and *Cirsium* (thistle) suggest that *D. chrysitis* can feed even more widely, on members of the Compositae. I would be interested to hear of any larvae of *D. chrysitis* found on plants other than stinging nettles.

References

Allan, P.B.M., 1949. *Larval foodplants.* Watkins and Doncaster, Kent.

Barrett, C.G., 1900. *The Lepidoptera of the British Islands.* **6**. Reeve, London.

Buckler, W., 1893. *The larvae of the British butterflies and moths.* **6**. Ray Society, London.

Carter, D.J., 1979. *The observer's book of caterpillars.* Warne, London.

Carter, D.J. and Hargreaves, B., 1986. *A field guide to caterpillars of butterflies and moths in Britain and Europe.* Collins, London.

Clapham, A.R., Tutin, T.G., and Moore, D.M., 1987. *Flora of the British Isles.* Third edition. Cambridge University Press, Cambridge.

TABLE 1

Host plant records for the larvae of the Burnished Brass moth *Diachrysia chrysitis*

	Order	Family	Genera	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P
(1)	Urticales	Urticaceae	*Urtica* (nettle)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
(2)	Solanales	Boraginaceae	*Symphytum* (comfrey)	O	O	+	O	O	O	O	O	O	O	O	O	O	O	O
			Echium (viper's bugloss)	O	O	O	O	+	*	O	O	O	O	O	O	O	O	O
		Labiatae	*Mentha* (mint)	O	O	O	O	O	O	O	O	O	O	O	O	+	O	O
			Origanum (marjoram)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	+
			Salvia (meadow clary)	O	O	O	O	+	*	O	O	O	O	O	O	O	O	O
			Lamium (dead nettle)	O	+	+	O	O	+	O	+	O	+	O	O	+	O	O
			Galeopsis (hemp nettle)	O	O	+	O	O	O	O	+	O	O	O	O	+	O	O
			Marrubium (horehound)	O	O	O	O	O	*	O	O	O	O	O	O	O	O	O
(3)	Asterales	Compositae	*Arctium* (burdock)	O	+	+	O	+	+	+	O	+	O	O	O	+	O	O
			Cirsium (thistle)	+	O	+	O	O	§	+	O	O	O	O	O	+	O	O
			Achillea (sneezeworts)	O	O	O	O	O	O	O	O	O	O	O	O	+	O	O

K E Y
+ A host plant mentioned by the author shown
* Barrett specifies record from "abroad"
§ Barrett quoting Stainton
O Not mentioned.

A Stainton 1859
B Newman 1869
C Wilson 1880
D Buckler 1893
E Kirby 1890
F Barrett 1900
G Newman & Leeds 1913
H Allan 1949
I South 1961
J Carter 1979
K Davies 1983
L Skinner 1984
M Heath & Emmet 1983
N Carter & Hargreaves 1986
P Waring (pers. obs.)

Davies, B.N.K., 1983. *Insects on nettles.*Cambridge University Press, Cambridge.
Heath, J. and Emmet, A.M., 1983. *The moths and butterflies of Great Britain and Ireland.* **10**. Harley, Essex.
Kirby, W.E., 1890. *Butterflies and moths of the United Kingdom.* Routledge, London.
Newman, E., 1869. *An illustrated history of the British butterflies and moths.* Tweedie, London.
Newman, L.W. and Leeds, H.A., 1913. *Text book of British butterflies and moths.* Gibbs and Bamforth, St Albans.
Skinner, B., 1984. *Colour identification guide to the moths of the British Isles.* Viking, Middx.
South, R., 1961. *The moths of the British Isles.* Series I. Warne, London.
Stainton, H,T., 1859. *Manual of British butterflies and moths.* **2**. Jan van Voorst, London.
Ward, L.K., 1988. The validity and interpretation of insect foodplant records. *Br. J. ent. nat. Hist.* **1**: 153-162.
Wilson, O.S., 1880. *The larvae of the British Lepidoptera and their food plants.* Reeve, London.

Some interesting second and third brood records of Lepidoptera seen in Yorkshire in 1989

A number of readers have recorded unusual second or third brood specimens during 1989, and below are a selection from Yorkshire, mainly the Selby district. I have incorporated records from Dr Heron (AH); Mr Winter (PW); Mr Spencer (BS); Dr Barnham (MB); Mr Beaumont (HB) and Mr Crowther (PC).

Butterflies

Pararge aegeria L. (Speckled Wood) — a few, presumably third brood seen at Owston Wood, South Yorks. 15.10.
Lasiommata megera L. (Wall) — one specimen of third brood seen at Bishop's Wood 26.10; also Harrogate 28.9 and 19.10 (MB).
Lycaena phlaeas L. (Small Copper) — a third brood usually occurs here. In 1989 several seen near Barlow, 10.10; also Harrogate 28.9 and 26.10 (MB).

Geometridae

Timandra griseata Peters (Blood-vein) — First brood in good numbers, July. Second brood 13.8; 19.8, 13.9.
Scopula imitaria Hb. (Small Blood-vein) — Several first brood in July; second brood, unusual in the north, 26.9 and 1.10.
Idaea biselata Hufn. (Small Fan-footed Wave) — One second-brood specimen taken by J. Whiteside at Grass Wood, Grassington, 17.10.

Lymantriidae

Euproctis similis Fuess. (Yellow Tail) — Second brood captures W. Melton 17.10 (HB); Wass, 16.10 (AH); Spurn, 27.10 (BS).

Arctiidae

Spilosoma lubricipeda L. (White Ermine) — First brood common from 17th May; a few second brood Selby 5.9; Wass, 24.8 (AH).

Noctuidae

Agrotis segetum D. & S. (Turnip moth) — Wass. 10.9 (AH); Muston, 27.8 and 21.10 (PW); Cottingham, 25.9 — 1.10 (PC) and Selby (SMJ).
A. exclamationis L. (Heart and Dart) — Muston, near Filey, 5.9 and 25.9 (PW) and Selby (SMJ).
Lacanobia oleracea L. (Bright-line Brown-eye) — Muston, 18.8 and 22.9 (PW).
Mythimna pallens L. (Common Wainscot) — second brood specimens seen most years at Selby, as was the case in 1989. Also at Muston, 10.9 and 18.10 (PW); Cottingham 10.9 (PC).
M. litoralis Curt. (Shore Wainscot) — Spurn, second brood seen from 27.9 (BS).
Diachrysia chrysitis L. (Burnished Brass) — not common in first brood at Selby in 1989, but partial second brood seen 17.9; Muston 29.9 and 23.8 (PW); Wass 19.7 (AH).
Hypena proboscidalis L. (Snout) — a few second brood seen at Selby in September; Muston 12.9 (PW); Cottingham 7.9 (PC); Wass 11.10 (AH).
S.M. Jackson, 31 Hillfield, Selby, North Yorks YO8 6ND.

***Cyclophora pendularia* Cl. (Lep.: Geometridae) near Sandbanks, Dorset**

I reported the trapping of a specimen of *Cyclophora pendularia* Cl. (Dingy Mocha) in July 1989 in the Luscombe Valley local nature reserve, near Sandbanks, Dorset in *Ent. Rec.* **101**: 277. I claimed it as a new location for this species in Dorset. Subsequently I purchased a copy of *Local Lists of Lepidoptera* by J.M. Chalmers-Hunt. This very useful publication put me in touch with the work of the late Rev F.M.B. Carr, who resided only some 250 yards from Luscombe Valley from 1947 to 1951. He caught a single specimen of *C. pendularia* at a non-mv light trap in his garden in both 1948 and 1951. I think it likely that his specimens were wanderers from the nearby wetland area of Luscombe Valley and that there may well have been a resident colony in the valley for many years. However, the possibility that both his and my specimens originated from the other side of Poole Harbour (e.g. the Little Sea area of Studland), or even from the islands in the harbour, cannot be wholly discounted.

References: Carr, F.M.B. 1951 An account of some of the macrolepidoptera of Sandbanks, Dorset. *Rep. Proc. Lancs. Chesh. Ent. Soc. 1949-50: 27; Carr F.M.B. 1952 Notes on Dorset and Hampshire lepidoptera in 1951. Ent. Rec.* **64**: 113.—
G.G. Eastwick-Field, Little Earlstone, Burghclere, Newbury, Berks.

LEPIDOPTERA IN VICE-COUNTY 74 (WIGTOWN), JUNE 1989

E.F. HANCOCK

Abbotsford, Belmont, Ulverston, Cumbria

FROM 17th - 30th June 1989 my wife and I stayed in Wigtownshire (Dumfries and Galloway) near an area of mixed woodland marked on the 1:50,000 map as The Forest. It is situated south of Kirkinner within 10 km square ref. NX 44 and forms part of the Kilsture Forest complex owned by the Forestry Commission.

For several years I have been accumulating records of Tortricidae for preparing the distribution maps for Volume 5 of *Moths and Butterflies of Great Britain and Ireland* (MBGBI) and for this purpose I have received many unpublished records from other lepidopterists but only four tortricid species were known to me from v.c.74. The area is an attractive one so we had no hesitation in selecting it for a holiday and since I was able to add a further fifteen tortricids to the list there is no shortage of insects there.

Of particular interest was *Cydia fagiglandana* (Zell.), a single specimen which came to a light trap on 19th June being the most northerly British record. In England it is of mainly southern distribution but has been noted as far north as Nottinghamshire and Lincolnshire with an old, unconfirmed record from Yorkshire. Bradley *et al.* in *British Tortricoid Moths* (1979) suggest that the species has possibly been overlooked elsewhere in Britain because its northerly range on the Continent extends to Sweden. Among the other species *Swammerdamia compunctella* Herr.-Schaff. is stated by Agassiz (*Proc. Trans. Br. ent. nat. Hist. Soc.* **20**: 20) to be local and little known, but apparently commoner in the north, and he gives Scottish records from West Lothian, Perthshire, Aberdeenshire and West Ross.

Many of the species recorded represent additions to the distributions shown in those volumes of MBGBI already published. The area would certainly repay visits at other times of the year and since records for the vice-county are sparse or not readily accessible it is considered worth listing all the species recorded during our two-week stay. The great majority were noted in The Forest and adjoining area (Grid ref. NX 44) but a few records from other 10 km squares, all within the vice-county of Wigtown, are included. The species numbers and nomenclature are based on Bradley & Fletcher's *Indexed list of British butterflies and moths* (1986).

Grid ref. NX44 (The Forest and nearby area):

16 Hepialus hecta (Linn.)
18 H. fusconebulosa (DeGeer)
123 Tischeria ekebladella (Bjerk.)
136 Lampronia rubiella (Bjerk.)
286 Caloptilia alchimiella (Scop.)
354 Phyllonorycter emberizaepenella (Bouch.)
385 Anthophila fabriciana (Linn.)
391 Glyphipterix simpliciella (Steph.)
410 Argyresthia brockeella (Hübn.)
415 A. retinella Zell.
439 Swammerdamia compunctella Herr.-Schaff.
449 Prays fraxinella (Bjerk.)
544 Coleophora albicosta (Haw.)
584 C. alticolella Zell.

597 Elachista atricomella Staint.
610 E. argentella (Clerck)
647 Hofmannophila pseudospretella (Staint.)
648 Endrosis sarcitrella (Linn.)
905 Blastodacna hellerella (Dup.)
945 Aethes cnicana (Westw.)
954 Eupoecilia angustana (Hübn.)
1000 Ptycholoma lecheana (Linn.)
1007 Capua vulgana (Fröl.)
1011 Pseudargyrotoza conwagana (Fabr.)
1033 Tortrix viridana (Linn.)
1076 Olethreutes lacunana ([D. & S.])
1082 Hedya pruniana (Hübn.)
1083 H. dimidioalba (Retz.)
1087 Orthotaenia undulana ([D. & S.])
1132 Epinotia subocellana (Don.)
1142 E. tedella (Clerck)
1176 Epiblema trimaculana (Haw.)
1200 Eucosma hohenwartiana ([D. & S.])
1201 E. cana (Haw.)
1212 Rhyacionia pinivorana (L. & Z.)
1259 Cydia fagiglandana (Zell.)
1293 Chrysoteuchia culmella (Linn.)
1301 Crambus lathoniellus (Zinck.)
1334 Scoparia ambigualis (Treits.)
1345 Elophila nymphaeata (Linn.)
1386 Opsibotys fuscalis ([D. & S.])
1395 Udea ferrugalis (Hübn.)
1524 Emmelina monodactyla (Linn.)
1531 Ochlodes venata (Brem. & Grey)
1532 Erynnis tages (Linn.)
1549 Pieris brassicae (Linn.)
1550 P. rapae (Linn.)
1551 P. napi (Linn.)
1574 Polyommatus icarus (Rott.)
1590 Vanessa atalanta (Linn.)
1600 Boloria selene ([D. & S.])
1626 Maniola jurtina (Linn.)
1629 Aphantopus hyperantus (Linn.)
1674 Jodis lactearia (Linn.)
1693 Scopula floslactata (Haw.)
1722 Xanthoroe designata (Hufn.)
1727 X. montanata ([D. & S.])
1728 X. fluctuata (Linn.)
1738 Epirrhoe alternata (Müll.)
1769 Thera britannica (Turn.)
1776 Colostygia pectinataria (Knoch)
1802 Perizoma affinitata (Steph.)
1803 P. alchemillata (Linn.)
1817 Eupithecia pulchellata Steph.
1837 E. subfuscata (Haw.)
1870 Odezia atrata (Linn.)
1885 Abraxus sylvata (Scop.)
1887 Lomaspilis marginata (Linn.)
1906 Opisthograptis luteolata (Linn.)
1937 Peribatodes rhomboidaria ([D. & S.])
1941 Alcis repandata (Linn.)
1948 Ectropis crepuscularia ([D. & S.])
1954 Bupalus piniaria (Linn.)
1961 Campaea margaritata (Linn.)
1962 Hylaea fasciaria (Linn.)
1981 Laothoe populi (Linn.)
2014 Drymonia dodonaea ([D. & S.])
2057 Arctia caja (Linn.)
2060 Spilosoma lubricipeda (Linn.)
2061 S. lutea (Esp.)
2089 Agrotis exclamationis (Linn.)
2098 Axylia putris (Linn.)
2102 Ochropleura plecta (Linn.)
2107 Noctua pronuba (Linn.)
2110 N. fimbriata (Schreb.)
2120 Diarsia mendica (Fabr.)
2158 Lacanobia thalassina (Hufn.)
2163 Ceramica pisi (Linn.)
2205 Mythimna comma (Linn.)
2284 Acronicta psi (Linn.)
2289 A. rumicis (Linn.)
2305 Euplexia lucipara (Linn.)
2306 Phlogophora meticulosa (Linn.)
2321 Apamea monoglypha (Hufn.)
2326 A. crenata (Hufn.)
2330 A. remissa (Hübn.)
2334 A. sordens (Hufn.)
2337 Oligia strigilis (Linn.)
2340 O. fasciuncula (Haw.)
2345 Photedes minima (Haw.)
2381 Hoplodrina alsines (Brahm)
2389 Caradrina clavipalpis (Scop.)
2425 Colocasia coryli (Linn.)
2434 Diachrysia chrysitis (Linn.)
2441 Autographa gamma (Linn.)
2442 A. pulchrina (Haw.)
2443 A. jota (Linn.)
2474 Rivula sericealis (Scop.)
2477 Hypena proboscidalis (Linn.)

Grid ref. NX 36 (Newton Stewart area):

1574 Polyommatus icarus (Rott.)
1600 Boloria selene ([D. & S.])
1627 Coenonympha pamphilus (Linn.)

Grid ref. NX 26 (near Tarf Bridge):

1643 Pavonia pavonia (Linn.) [larva]

Grid ref. NX 25 (Glen Luce area):
169 Zygaena filipendulae (Linn.)
1531 Ochlodes venata (Brem. & Grey)
1574 Polyommatus icarus (Rott.)
1629 Aphantopus hyperantus (Linn.)
1909 Pseudopanthera macularia (Linn.)

Grid ref. NX 16 (New Luce area):
1040 Acleris caledoniana (Steph.) (larvae on *Myrica;* em. end July)
1142 Epinotia tedella (Clerck)
1627 Coenonympha pamphilus (Linn.)
1628 C. tullia (Müll.)

Acknowledgement

I thank the Forestry Commission, Newton Stewart Office, for permission to collect Lepidoptera in the woodlands of the Kilsture Forest area.

Scopula imitaria **Hübn. (Lep.: Geometridae) — a note on voltinism.**

Although modern textbooks state that this insect is univoltine in Britain, C. Barrett (*Lepidoptera of the British Islands,* 1902) states that there is a partial second brood in hot seasons in September, or even late August, in very mild and sheltered districts. The first appearance is sometimes earlier and the second generation more complete. I can find only three references to probable second brood specimens in recent years — C. de Worms, Woking, Surrey, 12.ix.1976 (*Ent. Rec.* **89**: 144) and 14.ix.1961 (*Entomologist* **95**: 115), and A. Wheeler, Ashstead, Surrey, 11.ix.1969 (L. & K. Evans, *A survey of the macro-lepidoptera of Croydon and N.E. Surrey,* 1973). Chalmers-Hunt (*Butterflies and moths of Kent,* **3**, 1981) has surprisingly no record of a second brood specimen for that county.

Imitaria puts in an appearance at my garden mv light most years, usually in July, occasionally in June or August, the earliest date being 13.vi.1989. The following occasions undoubtedly refer to examples of a second generation — 6.ix.1975 and 18.ix.1975, a year in which I encountered only one specimen of the first brood, and that on the early date of 24th June; 28.viii.1976 and 15.ix.1976, first brood specimens appearing from 10th July until 25th July; and 13.ix.1989 and 21.ix.1989.

Barrett's assessment of the time appearance of *imitaria* would appear to be the correct one as far as this area is concerned. However, is not one forced to conclude that this moth must have been much commoner in its second generation in the nineteenth century than today, for Barrett's observation was made before the coming of the mv light, and the few recent sightings of September *imitaria* listed refer to attraction by this source?

Of the second generation specimens of *imitaria* attracted to my mv light only one was retained, that noted for 15.ix.1982, and this is an example of ab. *aequilineata* Schwingenschuss, which as its name suggests has the characteristic well-defined oblique line replaced by a thin line no more prominent than the other cross lines. Chalmers-Hunt (*loc. cit.*) has only one reference to this form for Kent — a specimen in the National Collection which was taken at Barham (date not given); however, it is doubtless the one labelled "June 1921" in a meagre series of three, indicating that this form must be distinctly rare, and may appear in either generation.— B.K. West, 36 Briar Road, Dartford, Kent DA5 2HN.

ENTOMOLOGICAL PATTER

(With apologies to W.S. Gilbert)

From my youth to old age, I have sought to engage
In collecting all insects with scales.
It's a singular hobby, just ask any Bobby,
When you're caught up a lamp-post in "tails".

I've a mercury light, which is terribly bright,
As it shines above sheets on a tripod:
And the insects buzz round, with a soft whirring sound,
Like Arch-deacons attending a Synod.

I splash treacle on trees, and lots fall on my knees,
To attract hungry moths there to feed on;
And plump females I catch, which lay eggs by the batch,
From which many fine vars I shall breed on.

There are Micros so small, which I can't see at all,
With names that are sesquipedalian,
But with winds South-South-West I may hope for the best
Of rare migrants ex Mediterranean.

There are wasps in my hair, and a very fine pair
Of *pseudospretella in copula.*
Nothing wrong with this moth, though its larvae eat cloth
And with housewives they aren't very popular.

When you're up in the Breck, and you race neck and neck
With a friend after *grisea* for a gamble.
It may look a fair bet as you swipe with your net,
But it all gets caught up in a bramble.

NOW

I've broken my net and I can't see to set
And it isn't much fun when you simply can't run
In pursuit of a coal-black *lathonia.*
And that cursed *dermestes,* a terrible pest is —
But I'll finish my song as the Genny's gone wrong . . .
And I've just spilt a pint of Ammonia!
E.H.W. Oct. 1989

THE GENERA *CLYTUS* LAICH. AND *ANAGLYPTUS* MULS. (COL.: CERAMBYCIDAE) IN THE BRITISH ISLES

RAYMOND R. UHTHOFF-KAUFMANN

13 Old Road, Old Harlow, Essex CM17 0HB.

Clytus arietis L.

THIS IS still a common species encountered almost everywhere but becoming rarer in Scotland. There are hardly any Irish records, about which Dr Speight (1988) expresses some reservations.

ENGLAND: *BD BK* BX *CB CH* CU DM *DT* (DY) EC *EK* EN *ES EX EY GE* GW *HF HT HU* IW L *LN LR* LS MM *MX MY* ND NE NH *NM* NN *NO NS* NW NY *OX SD SE SH* SL *SN* SP SR SS ST SW SY WC *WK* WL WN *WO* WS *WW WX WY*.

WALES: BR CD CR DB FT GM MN PB.

SCOTLAND: AM BW ED EL KB IA SG.

IRELAND: AN SK.

An injurious pest with liberal tastes, the larva of this beetle perforates with its tunnellings the following trees and shrubs:- apple, bay, beech (greatly favoured), birch, broom, cherry, chestnut, crab-apple, dogrose, elm, false acacia, fig, hawthorn, hazel, hornbeam, juniper, laurel, lime, maple, oak, of which it is also very fond, pear, plum, *Pyrus malus,* raspberry canes, sallow, sour cherry, spindle, spruce (occasionally), willow, *Wistaria,* wych elm. It is doubtfully associated with aspen.

The larva is parasitised by the Hymenopterons, *Aspidogonus diversicornis* Wesm., *Helcon annulicornis* Nees, *Neoxorides nitens* Grav., *Pyracmon austriacus* Tschek. and *P. xoridoides* Strobl.

It also falls prey to the beetle, *Lygistopterus sanguineus* F. and has been devoured by these spiders:- *Aranea sexpunctata* L., *Ciflio similis* Bl. and *Segestria florentina* Ross.

Metamorphosis usually lasts two years but may extend to three; pupation occurs either in August and September, the pupa overwintering, or during spring in March and April. The adult beetle emerges then and from May onwards and is about until July.

Popularly known as the Wasp Beetle, which insect it mimics in coloration and movements, it runs rapidly and readily takes to wing in sunshine. The beetle is found by sweeping grasses and aquatic vegetation. It is not often taken off flowers, settling only momentarily on *Angelica, Anthriscus,* brambles, currant bushes, dogrose, dogwood, ferns, hawthorn, hogweed, *Lonicera,* nettles, *Spiraea, Viburnum* and in flowering pea and bean fields, and seems to prefer dead hedgerows, old logs and branches, posts and railings.

C. arietis has long been known to our early entomologists, and was illustrated by both Martyn and Donovan in 1792.

A dozen colour varieties of this beetle are found in Europe, one of which, the var. *cloueti* Thery, closely resembles Allen's (1959) medianly black form below and distinguished from the latter by having the sub-humeral elytral band broken into two maculations.

v. *medioniger* Allen.

ENGLAND: L SH.

Extremely rare on brambles, only two examples have so far been recorded. Listed by Kloet & Hincks (1977).

Anaglyptus mysticus L.

A widely distributed beetle in England as far north as mid-west Yorkshire. There are hardly any records from the Principality and it is unknown in either Scotland or Ireland.

ENGLAND: BD *BK* BX *CB* CH DT DY *EK* EN ES EY *GE* GW HF HT HU *L* LN *LR* LS MM MX MY ND NH *NM NO* NS NW *OX* SD *SE SH* (SL) *SR* SS ST *SY WK WO* WS *WW* WX WY.

WALES: DB (MG).

An equally injurious beetle whose larva is more eclectic than that of *C. arietis*. It attacks the boles and branches of dry or fresh hardwoods, especially those that have been fire scorched, including alder, almond, aspen, beech, birch, dogwood, elder, false acacia, hawthorn, hazel, holly, hornbeam, lime, maple, oak, pear, persimmon, plum, rowan, snowbell, spindle tree, sycamore and wych elm.

Its only parasite is the Braconid, *Aspidogonus diversicornis* Wesm.

The life cycle lasts two years, with the pupa forming in autumn and over-wintering. Imagines emerge in April and are found until July. As ovipositing takes place in the host tree, recurring infestations eventually riddle it completely.

A local, sometimes fairly common beetle which settles on dogwood, hawthorn, hogweed, nettles, *Spiraea, Viburnum* and old posts and faggots. It is figured by Donovan (1794). Villiers (1978) illustrates seven varieties, only one of which has been recorded with us. It is very rarely found on hawthorn blossom with the type.

v. *albofasciatus* Deg. (a. *hieroglyphicus* Hbst.).

ENGLAND: BK CH HU LR NO OX SH SR WK WO WS.

First catalogued as *hieroglyphicus* by Beare & Donisthorpe (1904) and again by Beare in 1930, this variety is omitted by Kloet & Hincks in their two Check Lists (1945, 1977).

Brownean symbols are used (Kaufmann, 1989), those italicised indicating a commonly recorded species and bracketed letters standing for those still requiring confirmation.

Acknowledgements

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References

Allen, A.A., 1959. A remarkable new variety of *Clytus arietis* L. (Col.: Cerambycidae), *Entomologist's mon. Mag.,* **95:** 116.

Aurivillius, C., 1912. Cerambycidae *in* Junk, W. and Schenkling, S., *Coleopterorum Catalogus,* **39**: 368-369; 412-415. Berlin.

Beare, T.H., 1930. *A catalogue of the recorded Coleoptera of the British Isles:* 35. London.

— & Donisthorpe, H.StJ.K., 1904. *Catalogue of British Coleoptera:* 31. London.

Chinery, M., 1986. *Insects.* London and Glasgow.

—, 1986. *Insects of Britain and western Europe.* London.

Cooter, J. & Cribb, P.W., 1975. *A Coleopterist's handbook.* 2nd ed. Feltham.

Cox, H.E., 1874. *A handbook of the Coleoptera,* **2**. London.

Curtis, J., 1837. *A guide to the arrangement of British Insects:* 71. 2nd ed. London.

Demelt, C. von, 1966. *Die Tierwelt Deutschlands,* **52**: 2, Bockkäfer oder Cerambycidae **1**. Jena.

Dibb, J.R., 1948. *Field book of Beetles.* Hull.

Donovan, E., 1792. *The natural history of British Insects,* **1**, plate 27. London.

—, 1794. *Idem,* **3**, plate 34, fig. 2. London.

Duffy, E.A.J., 1953. *A monograph of the immature stages of British and imported Timber Beetles (Cerambycidae).* London.

Fowler, W.W., 1890. *The Coleoptera of the British Islands,* **4**. London.

— & Donisthorpe, H.StJ.K., 1913. *Idem,* **6** (Supplement). London.

Freude, H., Harde, K.W. & Lohse, G.A., 1966. *Die Käfer Mitteleuropas,* **9**. Krefeld.

Harde, K.W., 1984. *A field guide in colour to Beetles,* English edn., Hammond, P.M. London.

Joy, N.H., 1976. *A practical handbook of British Beetles.* 2 vols. 2nd ed. Faringdon.

Kaufmann, R.R. Uhthoff-, 1948. Notes on the distribution of the British Longicorn Coleoptera, *Entomologist's mon. Mag.,* **84**: 66-85.

—, 1948. An annotated list of the Scottish Longicorn Coleoptera, *Proc. R..Phys. Soc. Edin.,* **23**(2): 83-94.

—, 1989. Brown *versus* Watson: Round two, *Entomologist's Rec. J. Var.,* **101**: 61-63.

Klausnitzer, B. & Sander, F., 1981. *Die Bockkäfer Mitteleuropas.* Wittenberg Lutherstadt.

Kloet, G.S. & Hincks, W.D., 1945. *A check list of British Insects:* Coleoptera: 201. Stockport.

—, 1977. *Idem*, Coleoptera and Strepsiptera, **11** (3): 71. 2nd ed. London.

Linssen, E.F., 1959. *Beetles of the British Isles,* **2**. London.

—, 1987. *Insects of the British Isles.* 3rd ed. Harmondsworth.

Lyneborg, L., 1977. *Beetles in colour,* English edn., Vevers, G. Poole.

Marsham, T., 1802. *Entomologia Britannica,* **1**, Coleoptera. London.

Martyn, T., 1792. *The English Entomologist,* pl. 27, f.4. London.

Pic, M., 1891. *Catalogue des Coléoptères-Longicornes:* 55. Lyons.

Samouelle, G., 1819. *The Entomologist's Compendium.* London.

Shaw, G., 1806. General Zoology, **6**, *Insects.* London.

Speight, M.C.D., 1988. The Irish Cerambycid fauna (Coleoptera: Cerambycidae), *Bull. Ir. biogeog. Soc.,* 41-76.

Spry, W. & Shuckard, W.E., 1861. *The British Coleoptera delineated.* 2nd ed. London.

Stephens, J.F., 1829. *A systematic catalogue of British Insects:* 201. London.

— , 1831. Illustrations of British Entomology, *Mandibulata,* **4**. London.

— , 1839. *A manual of British Coleoptera.* London.

Villiers, A., 1978. *Faune des Coléoptères de France,* **1**, Cerambycidae. Paris.

Winkler, A., 1929. *Catalogus Coleopterorum regionis palaearcticae,* **10**: 1177; 1181. Vienna.

Wood, J.G., 1883. *Common British Insects.* London.

A satyrid butterfly in a light trap

On 3rd September 1989 I switched on my m.v. trap (Skinner) at 21.40 hours local time (= 19.40 GMT). It was completely dark, mainly overcast. The afternoon temperature had been 28°C, while the night minimum was 11°C. The trap is situated on my small balcony about 30 metres above street level, overlooking a main road. The altitude is 920 metres above sea level.

In the morning, I found the trap to contain its normal number of 20 - 30 "macro" moths and also a fresh looking male *Brintesia circe* (Fab.). This is the largest European satyrid, with a wing span of up to about 65 mm, and looks rather like a gigantic White Admiral. It is a common species in this southern part of Andorra, but September is a late date — June/July is its usual flight period. And what was it doing flying about in the dark — not merely dusk?

I have had personal experience of penumbral Satyridae in Nigeria, North Borneo and the Seychelles; I did not know that it is a habit of European species; and this was not merely penumbral, but completely nocturnal.— PATRICK ROCHE, Av. Verge de Canolich, 97, Sant Julià de Lòria, Andorra.

Migrant butterflies in 1989

1989 appears to have been a good year for only one species of immigrant butterfly, *Vanessa atalanta.* My first sightings for the year came whilst on holiday in Scotland, when on 17th June two were seen at Kyle of Lochalsh, Wester Ross. Three days later, another was seen at Bettyhill, West Sutherland, on the north coast. Returning home, two more were seen at Princes Risborough, Bucks, on 27th June and after this they were to be seen from time to time throughout the rest of the season, becoming more common as autumn approached. On 30th September a dozen or so were seen at Dale, Pembs, mostly on ivy blossom; in the same locality two *Colias croceus* Fourc, were also noted, one male and one female (another was seen shortly afterwards but could have been one of the original two) and in glorious warm sunshine there were large numbers of presumably third brood *Lycaena phlaeas* and *Lasiommata megera* and two *Polyommatus icarus.*— A.J. SHOWLER, 12 Wedgwood Drive, Hughenden Valley, High Wycombe, Bucks HP14 4PA.

LEPTOCERUS TINEIFORMIS CURTIS: A CADDISFLY NEW TO IRELAND FROM POLLARDSTOWN FEN, CO. KILDARE

J.P. O'CONNOR[1], J.A. GOOD[2] and K.G.M. BOND[3]

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IN 1989, the Irish Biogeographical Society set up an "Area of Scientific Interest Committee" in co-operation with the Irish Wildlife Federation. One of the aims of this Committee was to produce a publication by the Society on a Site of International Importance *viz.* Pollardstown Fen (Newbridge Fen), Co. Kildare. This would include a review of published records and the results of IBS surveys in 1989. JPO'C undertook to identify any collected Trichoptera.

The fen, consisting of 150ha, is the best developed one in Ireland and is reputed to have the largest area of saw sedge, *Cladium,* in western Europe. It is relatively recent in origin and its present ecological interest is maintained by alkaline drainage water percolating from the Curragh gravels (Anon, 1981). The area has produced many insect rarities including a hoverfly new to Europe (Speight and Vockeroth,1988).

On the night of 22nd July 1989, JAG and KGMB operated an m.v. light trap at the fen (grid reference N773155). The trap was placed near *Phragmites,* limestone springs, canal drains and *Schoenus* fen. The catch of caddisflies included a single female of *Leptocerus tineiformis* Curtis. It was identified using Malicky (1983). No species of *Leptocerus* has been taken previously in Ireland (O'Connor, 1987). The Irish list now stands at 146 species.

In Britain, *L. tineiformis* occurs in lakes, large weedy ponds and occasionally canals. It is mainly found in midland and southern England and southern Wales (Wallace, *pers. comm.*). Many adult leptocerids swarm during the day and their activity usually diminishes with darkness. Crichton *et. al.* (1978) have shown that adult leptocerids are rarely caught by light traps far from water. Typically, *L. tineiformis* was poorly represented in the Rothamsted Insect Survey. However, when a light trap was run close to suitable water, as at Millbarn Pond, there were large catches of *L. tineiformis* (Crichton, 1960). It is probable therefore that the Irish specimen originated from one of the canal drains or other suitable habitats near where the trap was situated.

The specimen has been deposited in the National Museum of Ireland.

Acknowledgements

We are very grateful to Dr I.D. Wallace for providing information on *L. tineiformis* in Britain and for his helpful comments on this paper.

References

Anon, 1981. *Areas of scientific interest in Ireland*. An Foras Forbartha, Dublin.

Crichton, M.I., 1960. A study of captures of Trichoptera in a light trap near Reading, Berkshire. *Trans. R. ent. Soc. Lond.* **112**: 319-344.

Crichton, M.I., Fisher, D. and Woiwood, I.P., 1978. Life histories and distribution of British Trichoptera, excluding Limnephilidae and Hydroptilidae, based on the Rothamsted Insect Survey. *Hol. Ecol.* **1**: 31-45.

Malicky, H., 1983. *Atlas of European Trichoptera*. Junk, The Hague.

O'Connor, J.P., 1987. A review of the Irish Trichoptera *in* Bournaud, M. and Tachet, H. (eds). *Proc. of the 5th Int. Symp. on Trichoptera*: 73-77.

Speight, M.C.D. and Vockeroth, J.R., 1988. *Platycheirus amplus*: an insect new to Ireland not previously recorded from Europe (Diptera: Syrphidae). *Ir. Nat. J.* **22**: 518-521.

***Scaphisoma assimile* Erichson (Col.: Scaphidiidae) in Kent.**

On 27th March 1974, I took two specimens of *Scaphisoma* by sieving some fungus-infected plant litter on Hothfield Common (TQ/9645), Kent. N.H. Joy in his *A Practical Handbook of British Beetles,* 1932, gives only *S. agaricinum* (Linn.) and *boleti* (Panzer), but the Hothfield specimens would not satisfactorily fit either species. Recourse was then made to Freude H., Harde K.W. and Lohse G.A., *Die Kafer Mitteleuropas,* Band 3, 1971, where the specimen ran down to *Scaphisoma assimile* Erichson, identification being confirmed by the male genitalia which matched the illustration therein perfectly.

W.W. Fowler in his *The Coleoptera of the British Isles,* Vol. 3, 1889 under *S. assimile* he gives "Introduced by Mr Rye (*Ent. mon Mag.* ii, 140) on a single specimen taken at Coombe Wood; he says of it, "My insect exhibits all the characters, except the narrowness, as compared with *S. boleti,* but I think it can hardly fail to be the true *assimile*" (*Ent. Ann.* 1866, 77). Apart from being listed in both the 1945 and 1977 editions of Kloet & Hincks, *A Check List of British Insects* I have been unable to find any other published records of this species as a British insect.

I must thank Mr A.A. Allen for prompting me to publish this belated record.— ERIC G. PHILP, Natural History Section, Maidstone Museum, St Faith's Street, Maidstone, Kent ME14 1LH.

A note on the life history of *Semiothisa brunneata* Thunb. (Lep.: Geometridae) Rannoch Looper.

In Skinner (*Moths of the British Isles,* Viking, 1984) it is incorrectly stated that *S. brunneata* overwinters as a small larva. Had the author taken the trouble to consult Buckler (*Larvae of the British Butterflies and Moths,* Vol. VII, Ray Soc., 1896) this crass error could have been avoided. In fact the eggs of *S. brunneata* do not hatch until the early spring as Mr R.G. Chatelain observed when recently rearing this species.— BERNARD SKINNER, 5 Rawlins Close, South Croydon, Surrey CR2 8JS.

DEFOLIATION OF WILLOW TREES IN NORTHAMPTONSHIRE BY WILLOW ERMINE MOTH, *YPONOMEUTA RORRELLA* HÜBN. (LEP.: YPONOMEUTIDAE)

SAM CHESSER

End House, Riverside Close, Oundle, Peterborough.

DURING 1988 and 1989 a plantation of willows (*Salix alba serotina*), grown to provide wood for cricket bats, has been extensively defoliated by the larvae of willow ermine moth. Over 95% of the leaves of many of the trees was destroyed, and the trunks of the trees had a ghostly white appearance because they were encased in silk. This silk extended over the nettles and grass at the base of the trees enclosing swarms each of several hundred larvae.

The plantation is about nine hectares in area and is beside the River Nene between Oundle and Barnwell in the East Midlands (map reference TL 048868). A thousand willows have been planted there since 1968 and are now being harvested for making cricket bats. In the years since 1968 a few have been felled and replaced with small trees.

Willow ermine moths lay their eggs in late July and early August in clusters covered by silk on the branches of the tree. The eggs are said to hatch in September but I did not find larvae until they emerged from the silk covering in April. They then climb up the twigs in groups and spin a dense network of silk within the bud. They eat the leaves from the centre outwards, and as they eat they secrete silk so that as they move to a new food source the "tent" moves with them. One small twig from a three year old tree, containing about a fiftieth of the total leaf area of the tree, contained 526 larvae. In the quest for food the larvae move down the trunk and the silk comes to envelope the whole tree. In the last ten days of June the larvae stop feeding and mass beneath the main branches in tents containing several hundred larvae — so many that sometimes the silk breaks and the larvae fall to the ground. Pupation takes place inside the tent and adults begin to emerge in the third week of July. Though completely defoliated the trees soon come into leaf again once the larvae have pupated.

The infestation was first noticed in July 1988 and was even more severe in 1989 when over 90% of the trees were affected and many were totally defoliated. I am grateful to Mr T.G. Winter of the Forestry Commission Research Station at Alice Holt for the comment that he has found very little in the British literature on this insect, and for references of its occurrence in the Ukraine and in Iran. Mr Nicholas Wright of Great Leighs in Essex, who supplies and harvests the trees, has told me that he knows of one previous outbreak in Britain, in Bedfordshire about thirty-five years ago.

There appear to be few natural controlling agents. The larvae are eaten by blackbirds and by long-tailed tits, but these make no impact on the numbers of larvae present. A parasitic ichneumon was found, but less than one per cent of pupae were parasitised. Karasev, V.S. (1968) has recorded severe infestations by willow ermine moth in the Southern Ukraine, and he established that in 1966-67 a sum of effective temperatures of 235 day-degrees C was necessary for larval development in spring. In another paper (Karasev, V.S. 1968) he describes high mortality of larvae in the field when sprayed in May with spores of *Bacillus thuringiensis* var *galleriae*. Tereshchenko, V.E. (1968) considers that the parasite *Ageniaspis fuscicollis* (Dalm.) may be a good means of control.

The source of the infestation remains a mystery, although Emmet (1990) suggests it is a scarce resident whose numbers are re-enforced by immigration. The warm winters of 1988 and 1989 have probably contributed to the severity of the outbreak. It is disturbing in 1989 to find the moths on other species of willow outside the plantation and at least a kilometre from it.

Acknowledgements

I am grateful to Mr V. Vinson for permission to work on the Barnwell Estate, and to Mr I.F. Thomas for help with the preparation of these notes. Mr Winter's kind assistance with the references has already been recorded.

References

Emmet, A.M., 1990. The status of *Yponomeuta evonymella* L. and *Y. rorrella* Hübn. (Lep.: Yponomeutidae) in Southern England. *Entomologist's Rec. J. Var.* **102**: 65-69.

Karasev, V.S., 1968 (On the biology and distribution of *Hyponomeuta rorrella* in the south of the Ukraine). *Zoologicheskii Zhurnal* **47** (12): 1862-1864.

— , 1968. (Biological control of the Willow Ermine Moth). *Zashchita Rasenii.* **13** (11): 44.

Tereshchenko, V.E., 1968. (Biological control of the Willow Ermine Moth.) *Ibid.* 44-45.

Lepidoptera new to Buckingham Palace Garden in 1989

Monitoring of the butterfly and moth fauna of Buckingham Palace Garden, which began in 1960 by gracious permission of H.M. the Queen, was continued in 1989 from May until November. Mr David Carter of the Natural History Museum, South Kensington, was granted permission to join me and we were privileged to visit the garden by day. A mercury vapour light trap was set at the western side of the lake and, by arrangement with Mr T.Deighton, head gardener, was switched on when nights seemed promising for moths.

The prolonged periods of sunshine and hot dry weather, for which the 1989 season was remarkable, favoured butterflies and provided seemingly optimal night conditions for moths. The Holly Blue (*Celastrina argiolus*) was more numerous than at any time during the past 30 years, and in May several could sometimes be seen flying together. The moth trap yielded a good diversity of species but the numbers of individuals was generally low. Catches of usually common or abundant soil-pupating noctuids such as *Noctua pronuba* L. (Yellow Underwing) and *Xestia xanthographa* D. & S. (Square-spot Rustic) were exceptionally small, possibly because emergence was affected by the hard ground.

The following eleven species, listed by families, had not previously been taken in the Palace garden:

Glyphipterigidae:
Glyphipterix simpliciella Stephens, 11 May; 1 spn. Signs of emergence holes believed to belong to this species had been found in previous years in stems of Cock's-foot grass (*Dactylis glomerata*) growing in shady uncut areas round the lake and on the mound.

Tortricidae:
Epiphyas postvittana Walker (Light Brown Apple Moth), 18 May; 1 spn. An Australian species, discovered in Britain in the mid-1930s breeding in Devon and Cornwall, and after 30 years reported spreading through the south coast counties into Kent and Essex and recently into the London area and South Wales. *Acleris cristana* D. & S., 20 July; 1 spn. Typically a rural species found in woodland thickets, and not normally on the wing in July. *Lobesia littoralis* Humph. & Westw., 17 July; 1 spn. Typically a coastal species but often found inland in gardens where Thrift (*Armeria maritima*) is grown.

Pyralidae:
Scoparia subfusca Haworth, 18 May; 1 male. *Achroia grisella* Fabricius (Lesser Wax moth), 17 July; 1 spn.

Geometridae:
Apeira syringaria Linnaeus (Lilac Beauty), 29 June, 1 spn.

Noctuidae:
Protodeltote pygarga Hufnagel (Marbled White Spot), 15 June; 1 spn. *Acronicta leporina* Linnaeus (The Miller), 22 June; 1 spn. *Lithophane ornitopus* Hufnagel (Grey Shoulder-knot), 19 October; 1 spn. *Lithophane leautieri* Boisduval (Blair's Shoulder-knot), 19 October; 1 spn. This species has become widespread in southern England since its discovery on the Isle of Wight in 1951. Its appearance in London may be linked with the extensive planting of Monterey Cypress (*Cupressus macrocarpa*) and other conifers as ornamentals and screens, which became practicable with the diminished smoke pollution that followed the Clean Air Acts of 1956 and 1968.

The total number of species of Lepidoptera from the Palace garden is about 600, including 22 butterflies.— J.D. BRADLEY, 53 Osterley Road, Isleworth, Middx TW7 4PW.

The *Celastrina* Year

What a year for the Holly Blue! After a few years of comparative scarcity this species returned with a vengeance during 1989.

Butterflies were seen in this part of Essex from the end of April till well into May. In fact it was very pleasing to see numbers back to normal for the spring months, but little did I expect to see such a profusion of this species build up as they did from July onwards with a peak around the 17th onwards throughout August.

One interesting feature about this butterfly was the number that I noticed drinking together with *Pieris rapae,* Small White, from damp patches on my bowling greens after overnight watering.

Larvae of the Holly Blue were plentiful amongst ivy flowers in my garden during August 1989. I gathered sixteen, in all stages of growth, in ten minutes searching on 16th August. All seemed reasonably healthy.

Butterflies were still flying in the same garden on 28th August. By 23rd September all larvae had pupated and were put away for the winter in cool quarters. However, on 29th September a parasitic wasp (*Listrodromus nycthemerus*) emerged, followed by several more during the next few days. A period of three weeks passed and once again a small emergence occurred, resulting in three more parasites and two butterflies, one of each sex, the last emergence taking place on 21st October. The rest of the pupae seem alright but I have a feeling that the remaining ones will be heavily parasitised. It will be interesting to see how the populations fare in 1990.

Two queries: where do the late butterflies deposit their eggs? and would it be possible for them to reach maturity because I feel that the larvae only eat buds and flowers and not mature seed and berries?

I have watched females this past summer investigating amongst various types of flower buds including snowberry (*Symphoricarpus* sp.) herbaceous phlox and the flower buds of *Hebe* sp. and have so far failed to find any ova although the butterflies were seen to be probing with their ovipositors. Even beating the plants later in the year failed to produce larvae. Although an alternative foodplant for the second brood seems probable, I have failed to find any evidence for it; ivy seems to be the most likely. It is very widespread in my own area and the flower buds can be found from July to late September, and these could support a continuous population of larvae for many weeks hence the large numbers in all stages of growth found this year, and what seems to be a high density of the parasitic wasp.

I have found larvae on Dogwood, Holly, *Cotoneaster horizontalis*, and Alder Buckthorn in early summer. I have suspected *Pyracantha* buds, as an alternative foodplant but as yet cannot prove it, but in late summer I have only found larvae in and on flower buds of ivy species. A point of interest, my friend Bob Dewick from Bradwell watched butterflies during 1989 laying eggs on *Lucerne* and bred the odd specimens through to prove it.— D.G. Down, "Aegeria", 16 Wood End CLose, Thundersley, Benfleet, Essex.

NOTES ON, AND A KEY TO, THE OFTEN-CONFUSED BRITISH SPECIES OF *AMPEDUS* GERM. (COL.: ELATERIDAE), WITH CORRECTIONS OF SOME ERRONEOUS RECORDS

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THE MAIN purpose of these notes is to rectify some of the rather numerous errors in identification of the above click-beetles (up to fairly recently always under the generic name of *Elater*) in our literature; either where I have been able to see the specimen(s) in question, or where there is overwhelming reason to suspect an error.

The group of species concerned is that in which the elytra are wholly bright red, and which so nearly resemble one another that mistakes are very liable to occur. (The very rare species known here up to lately as *A. praeustus,* from Ireland only, is not included.) Fortunately, our excellent modern guide to the distribution of the Elateridae in Britain, the ''Provisional Atlas'' by Howard Mendel (1988), is virtually untouched by these errors, of which Mr Mendel was already aware in contacts with the writer prior to publication. Most of the few additional records given below are incorporated there in the county distribution; here I merely add such details as are known to me, together with any points of interest which present themselves, and a rough-and-ready key to the species considered.

First, however, a word of explanation is due. Before these notes appear in print, an important paper by Mr Mendel introducing two name-changes that have been found necessary — cases of mistaken identity — will almost certainly have been published (see the *Coleopterist's Newsletter,* Nov. 1989, p.10). Only one of them is of concern here: the familiar *A. pomonae* of British authors becomes *A. quercicola* (du Buysson). However, since I shall have occasion to refer rather frequently to records published under the established name *pomonae,* that name is retained here to avoid complications and possible confusion.

Ampedus cardinalis (Schiödte) (= *Elater coccinatus* Rye, *E. praeustus* sensu Joy *partim*). — In 1983, fragments referable to this species, together with young larvae which were probably all or mostly *A. balteatus,* were dug out of an old standing rotten oak at Scadbury Park, Chislehurst (near Bromley) by my friend Mr S.A. Williams. They fortunately included part of a pronotum, which securely identified the species; but it is not known whether it still survives there, no larva being reared to maturity. This is the first record of the species in West Kent.

In or about 1981 *A. cardinalis* was discovered by Mr P.M. Hammond and by Mr Mendel about the same time, in some of the old oaks in Richmond Park, Surrey, where it has since been found somewhat freely and very widely — another new county record. The want of earlier records for this locality, so similar to Windsor Great Park where the species also occurs, and well worked last century, is noteworthy; it confirms a suspicion

I have long entertained, that even primary-forest relicts may wax and wane very markedly over much extended periods of time.

These two new localities just south and west of London, with the much older records for Kensington Gardens (Rye), Highgate (in coll. Power), and Waltham Abbey (Pool), make quite a cluster centred on the metropolis.

On 15th May, 1950, I found two examples of this species in a dead and decayed oak trunk in Moccas Park, Hereford — incorrectly given in Hallett (1952: 291) as *praeustus* F., following Beare (1930: 31). Since then it has probably occurred to other collectors, but there was no previous record; it appears to be much rarer in the Park than *A. rufipennis.* The Sussex record (Joy, 1932) is for Parham Park in the western vice-county: E.C. Bedwell, 1939, and as lately as 1983 by Mr Mendel.

A. cinnabarinus (Esch.). — Recorded (as *Elater lythropterus* Germ.) from near Ashford, East Kent (Chitty) in Fowler & Donisthorpe (1913). I have seen the single specimen in the A.J. Chitty collection on which this record is based, from Eastwell Park near the above town, 5.vi.1906. It is, however, an evident *A. rufipennis,* thus tying in with other finds of that species in the same district of East Kent — see under *A. pomonae.* An interesting, because somewhat isolated, new record of *cinnabarinus* is for North Devon; in 1957 I detected an example in Mr B.L.J. Byerley's collection which he informed me he had taken at Bratton Fleming, near Ilfracombe, 1.ix.54; and that there was plenty of dead wood about at that time and place, chiefly oak. Notable new county records published in recent years include West Sussex and Monmouthshire. An additional one for Gloucestershire is a specimen from Lower Lydbrook, vi.61 (Frank Clark, *per* A.W. Gould).

Fowler & Donisthorpe, under *E. lythropterus,* have a record "Suffolk (Morley)". Mr D.R. Nash informed me some years ago that there are no Suffolk *cinnabarinus* in Claude Morley's collection, and Mr Mendel has good reason to believe that the record should refer to Tuddenham Fen, W. Suffolk — a matter he is dealing with in a forthcoming paper on the genus in that county. Considering, however, that the species is not certainly known from East Anglia, but that there is a cluster of records of *A. pomonae* from the fen districts (Cambs and Hunts: Mendel, pp. 18, 21), we think it far likelier that the latter is really the Suffolk species.

I have seen specimens almost exactly intermediate between *cinnabarinus* and *pomonae* from the New Forest (where both are known from early times) which on external examination it is hardly possible to refer definitely to either; if such specimens are *cinnabarinus,* they are undersized, with the pronotum less punctured than normally and the pubescence varying or indeterminate in colour; but they appear to grade into the typical state. It may be significant that both species are well established where such individuals occur. Occasional hybridization thus seems possible; the aedeagi are sufficiently alike to be useless for discrimination. Jones (1931) mentions that the two species were much confused in the W.W. Fowler collection at Nottingham. It need hardly be added that the beetles are perfectly distinct when normally developed; further, the larvae differ more widely and constantly than the adults (van Emden, 1956: 187).

A. pomonae (auct. nec Steph.: Mendel. 1990) — The *Ampedus* known here up to now by this name has, like the last, been recorded in error from East Kent, the actual species being, again, *rufipennis*: Little Chart, near Ashford, in elm and beech (Hitchings, 1956). A year or two after the late Dr A.M. Massee, who had named this as *pomonae,* evidently had second thoughts about its identity and submitted a specimen to me, when the mistake became apparent. Only a year earlier the late K.C. Side (Parmenter, 1955) had exhibited as *pomonae* a specimen from a beech log at Godmersham (22.iv.54). This I have not seen, but in view of the other two finds — all three within the Ashford district — it is scarcely possible to doubt that all alike relate to one and the same species, and that *pomonae* most probably has not occurred in East Kent.

The present species was recorded from Moccas Park by Tomlin (1950: 43), but once more the species turned out to be *A. rufipennis* — I have examined the specimen, taken in 1933 — and there is so far no genuine record of *pomonae* for the West Midlands. Those for West Wales and South Scotland cannot be accepted until confirmed. On several occasions during the last two decades Mr D.R. Nash has found *A. pomonae,* mostly in rotten birch, in the Hamptworth area of South Wiltshire (a county from which it was previously unknown), and kindly sent me an example.

In certain East Midland localities there occurs what seems to be a strikingly large race of *A. pomonae,* which has given rise to much confusion and has been more than once mistaken for *A. sanguineus* (q.v.); at Sherwood it appears to coexist with the typical race of normal size. Elsewhere I know of it from Northants, where the late B.A. Cooper discovered it at Collyweston in beech trunks or logs in the spring of 1947, in small numbers unaccompanied by typical specimens. It will be found in his collection in Nottingham Museum (Wollaton Hall), and certainly merits investigation.

Van Emden (1956: 187) remarks that "the imagines of *pomonae* and *cinnabarinus* . . . are usually found together". They do indeed have the same habitat, but in Britain the statement is true only of the New Forest — the sole locality where both occur, as far as we yet know.

A. rufipennis (Steph.). — Like the last two species, this has often been involved in error; but with the difference, that whilst it has frequently passed as other species, any records under the name *rufipennis* are almost sure to be correct. Not until 1925 was it recognised here as a good species, and even up to now the most important character separating it from its allies has not been noticed in British works. Ancient specimens without locality can be found in the older museum collections. It appears doubtful whether *A. rufipennis* has ever occurred in the New Forest — similarly with *A. cardinalis*. The records are still few and scattered (Mendel, p. 23), with only five county divisions represented; to which one more can now be added. Most of our specimens are from Windsor Forest and Moccas Park, in both of which it has occurred quite freely at times (as it seems may be true also of the East Kent centre). At Windsor its preference for beech is very marked; at Moccas I have found adults in a fallen beech, and larvae in an elm log.

The new record — for which I am indebted to Mr P.F. Whitehead, who was so good as to send me an example — is for Worcestershire, where he has met with it in at least three sites in the Pershore district from 1972 onwards, in old pollard ash trees and an elm log.

Small individuals of *rufipennis* can closely resemble *pomonae* in general shape, sculpture and form of thorax, and all-black pubescence; but if the antennal character (see key) be attended to, no doubt should arise except in very abnormal cases.

A. sanguineus (L.). — Our rarest species (if it was ever really indigenous) and probably long extinct; but, as suggested below, it may recur. The sole apparently authentic British specimens at present known, with at least some indication of locality, belong to the first half of last century: one in the BMNH labelled "Salisbury"; another in the Manchester Museum collection marked "New Forest" and "J.R.H." (J. Ray Hardy), *teste* C. Johnson; and a third in the Dale collection at Oxford. I have examined the first and last of these. The Dale specimen is one of three individually unlabelled but indicated collectively in J.C. Dale's catalogue as from "rotten Oak stumps, New Forest, Hants." The other two, however, are only *cinnabarinus*. Dale gives three dates, of which "Apr. 8, 1830" seems to apply to the *sanguineus* specimen. It is not clear whether Fowler's "New Forest" for this species was copied from Stephens, whose "*sanguineus*" was *cinnabarinus*; in fact the wording rather implies that it was not. My specimen was given me by the late H. Dinnage, who had it from Dr Joy without data; presumably from some old collection (it had been pinned), but it seems strange that Joy had not indicated how he came by it.

Records of this species crop up now and then, all apparently false and based on misdeterminations — as Jones (1931) concluded for "*sanguineus*" specimens from Sherwood Forest in the Nottingham Museum collection. Another is entered in the late E.C. Bedwell's diaries (21.vi - 4.vii.1912) as taken by himself at Sherwood and vouched for as *sanguineus* by Dr D. Sharp, but queried by Newbery as *pomonae*. I have little doubt that such records have their source in the large race of *A. pomonae* already adverted to under that species. The latest record of *sanguineus* is of one from Silwood Park (near Windsor) in 1967 (Cooper, 1974). The locality, with the fact that the captor gave no hint of how he had arrived at this unlikely determination, convinced me that the species must be *rufipennis* — a belief proved correct when, much later, his brother kindly sent me the beetle for checking.

A. sanguineus poses something of an enigma in zoogeography: it ranges widely throughout Europe and is regarded as the most generally common of this group in the countries nearest to us. No convincing reason for its virtual absence from Britain suggests itself. Its rediscovery here cannot be ruled out, especially in view of our extensive afforestation with conifers — these being its normal hosts.

There follows a short key to more or less typical specimens of the species noticed here. It would be impractical to try to provide for the many possible deviations, and largely self-defeating to enter into great detail where there are so few really fixed points. Most of the characters are necessarily comparative. Though the bright red colour of the elytra is usually well retained, it tends to become duller and browner in very old specimens. Pubescence-colour is often helpful, but exceptions are met with in all the species, *pomonae* being especially prone to variation in this respect. In general, small specimens have the pronotum less thickly punctured than larger ones. Antennal characters need to be viewed perpendicularly to the flattened surfaces of the segments.

1/2 More parallel-sided; pronotum longer in proportion, less strongly contracted in front, dull, entirely thickly to densely punctate, even near base scarcely or very little less so; elytra as a rule distinctly less bright in colour, rosy-pinkish red, at least when fresh. (Pubescence dark on fore-body, often pale on elytra. In Britain always in red-rotten oak) .... *cardinalis.*

2/1 More evidently contracted in front and behind; pronutum shorter in proportion except in *sanguineus,* more shining, especially in the basal third where it is obviously more diffusely punctate than at sides or in front; elytra more distinctly blood-red to scarlet.

3/4 Antennal segment 3 broad, triangular, similar in shape to (though smaller than) 4, quite unlike 2; male with antennae longer and more serrate than in female, in both sexes distinctly more robust. (Pubescence dark; most like rather large *pomonae.* Mainly in beech, but also elm, ash, and birch) .... *rufipennis*

4/3 Antennal segment 3 sublinear like 2, and so quite unlike 4; antennae similar in the sexes and more slender, feebly and bluntly serrate (but see under *cinnabarinus*).

5/6 Central channel of pronotum reaching shallowly almost to front margin (best seen with light coming from side); pronotum more elongate (about as *cardinalis*), the sides less curved. (Pubescence dark; on average the largest species. Abroad mainly in pine or fir) .... *sanguineus.*

6/5 Pronotum with central channel in basal half or third only, somewhat shorter with sides more curved.

7/8 Basal third of pronotum not so diffusely or finely punctate; pubescence pale. (Usually larger than the next and rather broader; certain males have the antennae distinctly more serrate than usual. Mainly in oak, beech, and birch).. *cinnabarinus.*

8/7 Basal third of pronotum quite or very diffusely and finely punctate; pubescence normally dark, but not rarely pale on fore parts, where it is often noticeably long and bristly at sides. (Typically the smallest of the group, apart from the large East Midlands race, and rather narrower. Host trees the same).. *pomonae.*

(*A. nigrinus* (Herbst).) — In my 1966 paper I touched incidentally on the implausible record of this species (which in the west just reaches as far south as Gloucestershire) from Tooting Common, S.W. London, by S. Stevens (Fowler, p.92). Up to a few decades ago some very old oaks survived in this locality, a fact strongly suggesting that the *Ampedus* taken there by Stevens is far more likely to have been *A. nigerrimus* Lac. — only definitely known here from Windsor Forest. (The rare chafer *Gnorimus variabilis* L., now only found at Windsor, used to occur in the Tooting oaks — a further link between the two localities.) The discovery of Stevens' material, now unlikely, would alone settle the question.

Fowler's record "Cobham" (*l.c.*) is also problematic. The Cobham in Surrey (likelier than that in Kent, to judge by Fowler's customary usage) is on the edge of pine country and so not an impossible area for *A. nigrinus* to have inhabited in the past. There is no mistaking its attachment to pine in its Highland headquarters (query: was Fowler's datum "occasionally in oaks" based on British experience, notably that of Stevens?), so it is remarkable that for the Continent, Lohse (1979: 109) does not include conifers among its host trees (". . . alder stumps, more seldom oaks and other deciduous trees"). This *could*, conceivably, put a different complexion on the old Tooting, Cobham, and Windsor records of *nigrinus*.)

Acknowledgements

I thank those friends and colleagues who (formerly or latterly) were kind enough to furnish information, send material, and especially Mr H. Mendel for reading through the manuscript and offering valuable comments. Also the authorities at the British Museum (Natural History), the Hope Department of Entomology, Oxford, and the National Museum of Wales, Cardiff, for their willing assistance.

References

Allen, A.A., 1966. The rarer *Sternoxia* (Col.) of Windsor Forest. *Entomologist's Rec. J. Var.* **78**: 14-23.

Beare, T.H., 1930. *A catalogue of the recorded Coleoptera of the British Isles.* London.

Cooper, S.H., 1974. New records of Diptera and Coleoptera from Surrey, Berkshire and Herefordshire. *Entomologist's mon. Mag.* **110**: 84.

van Emden, H.F., 1956. Morphology and identification of the British larvae of the genus *Elater* (Col.: Elateridae). *Ibid.* **92**: 167-188.

Fowler, W.W., 1890. *The Coleoptera of the British Islands,* **4**: 88-92. London.

Fowler, W.W. & Donisthorpe, H.StJ.K., 1913. *Ibid.* **6**: 274.

Hallett, H.M., 1952. *The Coleoptera of Herefordshire,* first supplement. Hereford.

Hitchings, G.J., 1956. Re-occurrence of *Elater pomonae* Stephens (Col.: Elateridae) in Kent. *Entomologist's mon. Mag.* **92**: 30.

Jones, H.P., 1931. On some specimens of *Elater sanguineus* L. and allied species in the Nottingham Natural History collection of Coleoptera. *Ibid.* **67**: 16-7.

Joy, N.H., 1932. *A practical handbook of the British beetles*, **1**. London.
Lohse, G.A. In Freude, H., Harde, K.W. & Lohse, G.A., 1979. *Die Käfer Mitteleuropas*, **6**: Krefeld.
Mendel, H., 1988. *Provisional Atlas of the Click Beetles (Coleoptera: Elateridae) of the British Isles*. Institute of Terrestrial Ecology, Grange-over-Sands.
Mendel, H., 1990. The status of *Ampedus pomonae* (Stephens), *A. praeustus* (F.) and *A. quercicola* (du Buysson) (Col., Elateridae) in the British Isles. *Entomologist's Gazette*, in press.
Parmenter, L., 1955. [London Nat. Hist. Soc. Notice of Exhibits, 2.xi.54.] *Entomologist's mon. Mag*. **91**: vii.
Tomlin, J.R. le B., 1950. *The Coleoptera of Herefordshire*. Hereford.

Homoneura hospes Allen (Dipt.: Lauxaniidae): a postscript.

In connection with my recent paper (*antea:* **101**: 199-201) describing this species, Mr Steven J. Falk has very justly pointed out that, because of its possession of a pair of normally well-developed *presutural* dorsocentral bristles, the new species does not (or only doubtfully) run out to the genus *Homoneura* using the generic key to the British species of the family by Collin (1948) referred to in my paper. This is indeed the case and ought to have been noted in the latter, but was somehow overlooked by all three of us who originally examined the fly. In actual fact the above fault is inherent in the key as it stands, even without reference to *H. hospes*; for if one uses it to key out *H. limnea* Becker, which like *hospes* possesses a presutural DC bristle (see couplet 8, p.235), the same difficulty, or uncertainty, is encountered. The problem hinges on the character given under couplet 10 (p.226) intended to cover both *Sapromyza* and *Homoneura*, but which in fact applies clearly to the former of them alone.

I shall not attempt to juggle with the key in order to remove the fault; preferring, if it is to be done, to leave the task to someone more qualified and with a better knowledge of our Lauxaniidae. Meanwhile, any known British *Homoneura* can readily be recognised as such by the three characters given on p.227, couplet 12, in combination (but see under *Homoneura* on p.235). Indeed it is more than likely that the very clear and definite character relating to the row of small black costal spines (p.227) will itself suffice for generic diagnosis. Should this prove to be so, correction of the key will be much simplified.

I am grateful to Mr Falk for bringing the above discrepancy to my notice.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Hazel as an important larval foodplant of the Barred Umber, _Plagodis pulveraria_ L. (Lep.: Geometridae)

Further to my note on the above (*Ent. Rec.* **100**: 135-136) comparing the frequency of *P. pulveraria* on birch, hazel and hawthorn, Gerry Haggett (pers. comm.) informs me that in his experience also *P. pulveraria* is most numerous and almost entirely found on hazel. In Haggett (1951) he reports of Arundel, Sussex that "hazel appears to be the first choice hereabouts of *Anagoga pulveraria*; we could mamage only one from sallow, whereas it was plentiful on hazel."

Steve Church (pers. comm.) reported to me a single larva of *P. pulveraria* which he found on ash *Fraxinus excelsior* at Kings Park Wood in Surrey and he has subsequently reared the species from egg to adult on ash.

A computerised literature search using the NCC Entscape data base which covers the national entomological journals and some local ones back to 1930, produced no papers referring specifically to *P. pulveraria* or synonyms so I would be interested to receive any additional information on the larval biology of this species. Several correspondents have observed that *P. pulveraria* is mainly found on ancient woodland sites and I would be interested in any views on this subject and any contradictory data. Ancient woodland sites have been defined as sites known to have had continuous cover since at least 1700 with no periods of grubbing up or ploughing in the intervening centuries (Rackham 1980).

References: Haggett, G. 1951. Autumnal moth larvae at Arundel, 1951. *Entomologist* **84**: 276-277. Rackham, O. 1980. *Ancient woodland, its history, vegetation and uses in England.* Arnold, London.— PAUL WARING, Nature Conservancy Council, Northumberland House, Peterborough, PE1 1UA.

The non-feeding final instar of *Lycophotia porphyrea* (D. & S.) (Lep.: Noctuidae)

Dr Henwood's comments (*Ent. Rec.* **101**: 253) on this larva are most interesting. I have no first-hand knowledge of this species, so the suggestion that follows is pure speculation. The larvae of the Phyllocnistinae (Lep.: Gracillariidae) have a non-feeding final instar in which the mouth-parts are degenerate and a spinneret is developed for the first time (*Moths and butterflies of Great Britain and Ireland* **2**: 364). The purpose of the instar is solely to enable them to spin their cocoons prior to pupation. It is possible that *L. porphyrea* likewise undergoes a structural change of greater importance than the modification to pattern and colour.

If Dr Henwood has another opportunity to rear this species, I suggest that he compares the organs of the head-capsule before and after the final ecdysis.— A.M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex CB11 3AF.

An early Garden Carpet.

On the morning of 7th February 1990 I was surprised to find a fresh specimen of the Garden Carpet, *Xanthorhoe fluctuata* L., flying in my kitchen in Chelmsford, Essex. Although it is tempting to suggest that the mild winter had brought this moth out in advance of its usual appearance in April, the possibility of an undiscovered pupa in the kitchen itself cannot be ignored.— C. PENNEY, 109 Waveney Drive, Chelmsford, Essex CM1 5QA.

MICROLEPIDOPTERA — A REVIEW OF THE YEAR 1988

Compiled by David Agassiz

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THE SEQUENCE of poor summers was not broken by 1988, and consequently there was a paucity of Lepidoptera recorded. Similar reviews to this are published for Denmark and Sweden and for the first time in 1988 Ingvar Svensson was unable to report a new species for Sweden. Happily that situation has not yet arisen here and there are no less than five additions to the British list, as well as other discoveries of interest.

Elachista eskoi Kyrki & Karnoven was taken by the late E.C. Pelham-Clinton as long ago as 1956. He had long recognised it as an undescribed species, but only with the publication of its occurrence in Scandinavia has it obtained a name. First recognised in 1985, the discovery of *Batia internella* Jäckh has now been made public by Dr Michael Harper after the capture of a second specimen. Since it was recognised in Europe several micro-lepidopterists have been on the look-out for this species, and it is surprising that only in Herefordshire should it have been found. A published account is awaited.

Gelechia senticetella Staud. which appeared in the compiler's garden in Grays is one of the increasing number of species whose advent may be linked to the activities of Garden Centres! It is just possible, though perhaps unlikely that it may be able to retain a foothold in Britain. *Cydia medicaginis* Kuzn. is added thanks to the sharp eyes and experience of the Danish entomologist Ole Karsholt, but it has been resident in this country for many years. It remains to be seen whether it is at all widespread. *Sclerocoma acutellus* (Eversm.) was taken in Hampshire by D.H. Sterling where it seems conceivable that this secretive species could reside, even though those writing up reports of migrants in this journal lay claim to it!

Since the discovery of *Scotia adelphella* (F.v.R.) last year further specimens have been recognised in collections, which seems to suggest that it is established from Kent to Suffolk, and possibly further west to give rise to the original Wiltshire specimen. The appearance of *Argyresthia abdominalis* Zell. in north-west Scotland is almost as remarkable as a species new to Britain. It shares the same disjunct distribution as *Phalonia rutilana* (Hübn.), but it is hard to imagine what the mountains of Wester Ross have in common with chalk downs of the south-east. In a quite different category is the discovery of the life history of *Mompha subdivisella* Bradley. This shows that this secretive and hitherto little known species may be quite widespread and even common.

I try to draw attention to publications which are a useful source of records and other information. The revised edition of the *Field Guide to the Smaller British Lepidoptera* edited by A.M. Emmet provides an even more up-to-date account of the known life histories of our microlepidoptera. This is such a treasury of information that it must do much to further the study of these insects. Two county lists of micros were published in 1988 marking a very encouraging trend: *The Smaller Moths of Staffordshire* by R.G. Warren and published by the Staffs Biological Recording Scheme is a useful little booklet giving a reliable list of records. Part 3 of the *Butterflies and Moths of Derbyshire* by F. Harrison & M.J. Sterling is published by the Derbyshire Entomological Society. This too brings together much information that might previously have been difficult to dig out. A list of species recorded on Barra appeared in *Ent. Rec.* **101**: 95 and Migratory species are included in the annual Review of migration in *Ent. Rec.* **101**: 107f and 131-135.

Acknowledgements

The full systematic list below includes most of the records submitted by recorders and those gleaned from journals. A slightly longer duplicated list is available on request from the compiler.

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SYSTEMATIC LIST

MICROPTERIGIDAE

4 *Micropterix aruncella* (Scop.) — Monawilkin (H33) 23.vi.88, Straduff Bog (H36) 23.vi.88 — KGMB

ERIOCRANIIDAE

7 *Eriocrania chrysolepidella* (Zell.) — Unhill Wood (22) larvae mining *Corylus* 13.v.88 — BRB; Pelyn Wood, near Lostwithiel (2) mines 23.v.88 — FHNS; Buttler's Hangings NR (24) larvae v.88 — PHS; Glendine Bridge (H6) 8.iv.88 — KGMB

9 *E. sparrmannella* (Bosc) — Magus Muir (85) larva 31.vii.88 — KGMB

10 *E. salopiella* (Stt.) — Tourig River (85) larva 31.vii.88 — KGMB

11 *E. haworthii* Bradley — Budby (56) iv.88 — MJS; Curraghbinny (H4)

12 *E. sangii* (Wood) — Budby (56) iv.88 — MJS

NEPTICULIDAE

40 *Bohemannia pulverosella* (Stt.) — Curraghbinny (H4) mines on *Malus sylvestris* 28.vi.88 — KGMB

23 *Ectoedemia argyropeza* (Zell.) — Cloghereen Wood (H2) mines on *Populus tremula* 24.ix.88; Glenveagh (H35) mines 5.xii.88 — KGMB

28 *E. angulifasciella* (Stt.) — Chilmark (8) mine on *Rosa* xi.88 — SMP
42 *Fomoria septembrella* (Stt.) — Ross Island (H2) mines on *Hypericus perforatum* 16.ix.88 — KGMB
58 *Stigmella ulmariae* (Wocke) — Deerfold Wood (37) mines on *Filipendula ulmaria* ix.88 — ANBS
59 *S. poterii* (Stt.) — Ivinghoe (24) xi.88 empty mines on *Poterium sanguisorba* — MJS; Lambourn (22) mines x.88 — MFVC
61 *S. serrella* (Stt.) — Glen Strathfarrar NNR (96), mines ix.88 — MRY
64 *S. continuella* (Stt.) — Glen Strathfarrar NNR (96) and Ariundle NNR (97) mines ix.88 — MRY
72 *S. myrtillella* (Marion) — Berrie Dale, Hoy (111) mines 23.ix.88 — R.I. Lorimer
87 *S. svenssoni* (Johan.) — Bagley Wood (22) 21.vi.88 — MFVC
88 *S. samiatella* (Zell.) — Maidstone (15) mine ix.86, Petts Wood (16) mines 21.ix.88 — JMC-H, *Ent. Rec.* **101**:39f

INCURVARIIDAE

128 *Phylloporia bistrigella* (Haw.) — Curraghbinny (H4) 26.iv.88; Blackhill Bog (H33) 19.vi.88 — KGMB; Groveley Wood (8) 26.v.88 — SMP
137 *Lampronia morosa* Zell. — Denaby Ings (63) 11.vi.88 — HEB
138 *L. fuscatella* (Tengst.) — Bramshott Chase (12) 4 galls 31.iii.88, 1 emerged — JRL
143 *Nematopogon metaxella* (Hübn.) — Gearagh (H3) 2.vi.88 — KGMB
145 *Nemophora minimella* (® D. & S.⅜) — Burgess Hill (14) 1.viii.88 — OK
147 *N. metallica* (Poda) — Wellow (6) 16.vii.88 — DJLA

HELIOZELIDAE

156 *Heliozela resplendella* (Stt.) — Thrunton Woods (68), viii.88 — MRY; Straduff Bog (H36) 23.vi.88 — KGMB

PSYCHIDAE

180 *Diplodoma herminata* (Geoff.) — Colwick (56) Two first year cases vii. & viii.88 — MJS & A.S. Boot

TINEIDAE

196 *Morophaga choragella* ([D. & S.]) — Sherwood Forest (56) several at light 24.vi.88 — HEB; Edwinstone (56) 25.vi.88 (4) — MJS; Milton Keynes (24); Gussetts Wood (24) 17.viii.74; Yardley Chase (32) 6.viii.88 — G.E. Higgs, *Ent. Rec.* **101**: 90
215 *Nemapogon granella* (Linn.) — Cork City (H5) dead adult 20.ix.88 — KGMB; Grays (18) 2.vii.88 — OK
218 *N. variatella* (Clem.) — Perth (88) 1868, coll. Buchanan White — KPB, *Ent. Rec.* **101**: 202

231 *Monopis imella* (Hübn.) — Foulney Island (69) 13.vi.88 - T. Dean per EFH

237 *Niditinea fuscella* (Linn.) — Perth (88) 1869, coll. Buchanan White — KPB, *Ent. Rec.* **101**: 202

238 *N. piercella* (Bentinck) — Whitstable (15) 12.vii.88 — ESB

LYONETIIDAE

260 *Leucoptera malifoliella* (Costa) — Dinton (8) vacated mine on *Crataegus* 15.ix.85 — SMP

HIEROXESTIDAE

279 *Opogona antistacta* Meyr. — Borehamwood (20) bred from larva among bananas 1963 — ESB

BUCCULATRICIDAE

272 *Bucculatrix cidarella* Zell. — Correl Glen (H33) 20.vi.88 — KGMB

GRACILLARIIDAE

281 *Caloptilia populetorum* (Zell.) — Petts Wood (16) 27.xi.87, 20 & 23.viii.88 — D. O'Keeffe, *Ent. Rec.* **101**: 64

282 *C. elongella* (Linn.) — Larvae on *Alnus incana* — A.S. Boot, *Ent. Rec.* **101**: 166f

284 *C. rufipennella* (Hübn.) — Braemore (105) spinnings common 24.vi.88 — JRL & ECP-C

287 *C. robustella* Jäckh — Rhandirmwyn, near Llandovery (44) vi.87 — D. Davies & R.M. Palmer, *Ent. Rec.* **101**: 21

289 *C. falconipennella* (Hübn.) — Petts Wood (16) bred 19.ix.88 — D. O'Keeffe, *Ent. Rec.* **101**: 64

292 *C. leucapennella* (Steph.) — Dinton (8) 5.xii.88 — SMP

297 *Calybites auroguttella* (Steph.) — Sullane Beg River (H3) 7.v.88 — KGMB

308 *Parornix finitimella* (Zell.) — Somerford Common (7) mine 23.x.88 — MFVC et al.

321 *Phyllonorycter messaniella* (Zell.) — Mines in *Quercus borealis* — A.S. Boot, *Ent. Rec.* **101**: 116

331 *P. lanatanella* (Schrank) — Chilmark Common (8) mines '88 — SMP

338 *P. cavella* (Zell.) — near Canonteign Barton (3) mines on *Betula* 23.ix.87, em. 8-18.v.88 — RJH

340 *P. scopariella* (Zell.) — Impstone Plantation (22) 23.vi.88 — BRB

348 *P. quinqueguttella* (Stt.) — Holy Island (68) viii.88 — MRY

354 *P. emberizaepennella* (Bouch.) — Kilmelford (98) mines vii.87, moths bred v.88 — MFVC

CHOREUTIDAE

387 *Prochoreutis sehestediana* (Fabr.) — Hurcott Pools (37) 24.viii.88 — ANBS

GLYPHIPTERIGIDAE

394 *Glyphipterix forsterella* (Fabr.) — Brockhurst Wood, Beaconsfield (24) 12.vi.88 — MFVC

DOUGLASIIDAE

399 *Tinagma balteolella* (F.v.R.) — East Sussex coast (14) 1985 — R. Fairclough, *Ent. Rec.* **101**: 34

YPONOPEUTIDAE

401 *Argyresthia laevigatella* (Zell.) — Churchill (6) 28.vi.88 — DJLA; Dinton (8) 20.vi.88 — SMP

403 *A. glabratella* Zell. — Morecombe Plantation (4) larvae 25.iv.88 em. 25.v.88 — RJH

406 *A. abdominalis Zell.* — Beinn Eighe (105) one bred from juniper collected 21.vi.88 — ECP-C. **New to Scotland**.

412 *A. pygmaeella* (Hübn.) — Drumclure (H30) 25.vi.88 — KGMB

413 *A. sorbiella* (Treits.) — Letterbarrow (69) 24.vi.88 — EFH

416 *A. glaucinella* Zell. — Uphams Plantation, near Yettington (3) ex 1. in bark of *Castanea sativa* 25.v.88 — RJH; Glen Strathfarrar NNR (96) vi.88 — MRY

430 *Yponomeuta plumbella* ([D. & S.]) — Groveley Wood (8) 1.viii.88 — SMP.

435 *Zelleria hepariella* Stt. — Latterbarrow (69) 7.viii.88 — EFH; Roudsea Wood (69) bred from pupa on *Euonymus,* on which the larva appeared to have fed, new foodplant, em. 28.vii.88 — EFH.

439 *Swammerdamia compunctella* H.-S. — Mochrum (74) one at mv light 29.vi.88 — JRL & ECP-C; Inverlael (105) 5.viii.88 — S. Nash Savernake Forest (7) 17.vi.88 — MFVC etc.

442 *Cedestis gysseleniella* Zell. — Roudsea Wood NNR (69) 26.viii.88 — EFH

443 *C. subfasciella* (Steph.) — Beinn Eighe (105) 11.vii.88 — S. Nash

447 *Roeslerstammia erxlebella* (Fabr.) — Rannoch (88) em. 15.v.88 — KPB

452 *Ypsolopha nemorella* (Linn.) — Inverlussa, Jura (102) 23.viii.86 — MFVC

468 *Rhigognostis incarnatella* (Steud.) Dhoon Glen (71) 26.vii.88 — KGMB

472 *Digitivalva pulicariae* (Klim.) — Curraghbinny (H4) 26.iv.88 — KGMB

474 *Acrolepiopsis betulella* (Curt.) — Glasdrum NNR (98) ix.88 — MRY; Distribution in v-cs 105, 83, 98 — MRY, *Ent. Gaz.* **40**: 101-2

EPERMENIIDAE

479 *Cataplectica farreni* Wals. — Swyncombe Downs (23) larvae abundant in seeds of *Pastinaca sativa*, viii.88 — PHS

COLEOPHORIDAE

487 *Metriotes lutarea* (Haw.) — West Wycombe (24) v.88 — PHS
491 *Coleophora gryphipennella* (Hübn.) — Lein of Garmouth (95) bred ex cases vi.88 — MRY; Malahide Point (H21) 18.vi.88 — KGMG
493 *C. serratella* (Linn.) — Faringdon (22) case on cultivated apple — MFVC
496 *C. milvipennis* Zell. — Ariundle NNR (97) cases ix.88 — MRY
498 *C. alnifoliae* Bar. — Padworth (22) 4.v.88 old case from *Alnus* — BRB
503 *C. fuscocuprella* H.-S. — Carran (H9) 15.vi.88 — KGMB
509 *C. violacea* (Ström) — near Kingsmoor Cross (4) case on *Betula* 23.ix.87, em. 24.5.88 — RJH
511 *C. orbitella* Zell. — Whixhall Moss (40) 2 cases on *Betula* 1.vii.88 — JRL & ECP-C
513 *C. potentillae* Elisha — Somerford Common (7) cases 23.x.88 — MFVC et al.
517 *C. frischella* (Linn.) — Wykeham Forest (62) v.82 — HEB
524 *C. lithargyrinella* Zell. — Drummondreach Wood, Black Isle (106), vi.88 — MRY & KPB
541 *C. pyrrhulipennella* Zell. — Sutton Park (38) larvae 26.iv.88 & 17.v.88 — RJB
546 *C. genistae* Stt. — Burghfield Common (22) cases 4.vi.88 — BRB
552 *C. lassella* Stdgr — Wisley (17) viii.88 — R.M. Palmer, *Ent. Rec.* **101**: 186
553 *C. striatipennella* Nyl. — Monawilkin (H33) 20.vi.88 — KGMB
565 *C. saxicolella* (Dup.) — Salisbury Plain (8) 16.vii.88 — SMP
567 *C. adspersella* Bernander — Whitstable (15) bred *Chenopodium* 7.viii.85 — ESB; Faringdon (22) 20.vii.88 — MFVC

ELACHISTIDAE

590 *Perittia obscurepunctella* (Stt.) — Tourig River (H5) 8.iv.88 — KGMB
592 *Stephensia brunnichiella* (Linn.) — North Unhill Bank (22) 4.vi.88 — BRB; Walton Down (6) 26.vii.88 — DJLA
598a *Elachista eskoi* Kyrki & Karn. — Gordon Moss (81) 11.vi.56, Auchencorth Moss, near Penicuik (83) 27.vi.56 — ECP-C, **New to Britain**, *Ent. Gaz.* **39**: 265-268
600 *E. luticomella* Zell. — Rossweer Bog (H33) 23.vi.88 — KGMB
602 *E. apicipunctella* Stt. — Earls Colne (19) pupae in old stems of *Heracleum* 22.iii.88 — JRL & AME; Monawilkin (H33) 23.vi.88 — KGMB
603 *E. subnigrella* Dougl. — Bredon Hill NNR (37) 6.vi.88 — ANBS
606 *E. humilis* Zell. — Magus Muir (85) 30.vii.88 — KGMB
614 *E. triseriatella* Stt. — Salisbury Plain (8) 5.vii.87 — SMP & JRL; St Abbs, Berwicks (81) 2.vii.88 KPB, **New to Scotland**

623 *E. bisulcella* (Dup.) — Sexton, Bere (3) larvae on *Festuca arundinacea* 24.ii.88 — JRL & ECP-C; Howth (21) 26.vi.88; Magus Muir (85) 31.vii.88 — KGMB

625 *Biselachista cinereopunctella* (Haw.) — Gragan Fort (H9) 15.vi.88 — KGMB

629 *B. utonella* (Frey) — Penhale (1) mines common in *Carex paniculata* 23.viii.88, emerged 7-10.ix.88 suggesting possibly bivoltine in Cornwall — RJH & P.N. Siddons per FHNS

OECOPHORIDAE

639 *Bisigna procerella* ([D. & S.]) — Whitstable (15) 9.viii.88 — ESB

640a *Batia internella* Jäckh — Aymestry (36) viii.85 and viii.88 — M.W. Harper, **New to Britain**, *Ent. Gaz.* in press

641 *B. lambdella* (Don.) — Eastbourne (14), larvae 8.vi.88 —MP

644 *Borkhausenia fuscescens* (Haw.) — Colwick (56) 23.viii.88 — MJS

647 *Hofmannophila pseudospretella* (Stt.) — Larvae feeding on slug pellets — PAS, *Ent. Rec.* **101**: 90

660 *Pseudatemelia josephinae* Toll — Rhandirmwyn, near Llandovery (44) vii.82-87 — D. Davies & R.M. Palmer, *Ent. Rec.* **101**: 22

671 *D. ultimella* Stt. — Douglas River (H4) 16.v.88 — KGMB

674 *D. badiella* Hübn.) — Pendover (2) 28.viii.88 — FHNS

694 *Agonopterix nanatella* (Stt.) — Ashbury (22) larvae v.88 — MFVC

702 *A. assimilella* (Treits.) — Laurieston Forest (73) 6.vi.88 from larvae in *Sarothamnus* stem — EFH

706 *A. nervosa* (Haw.) — Rodel, Harris (110) 24.viii.88 — MFVC

708 *A. carduella* (Hübn.) — Folkestone Warren (15) 25.x.88, a late date — JMC-H, *Ent. Rec.* **101**: 39

709 *A. liturosa* (Haw.) — Orley Common (3) 1. on *Hypericum hirsutum* 8.vi.88 em. 30.vii.88 — RJH

714 *A. yeatiana* (Fabr.) — Culmstock (3) 13.vi.88 — EFH

ETHMIINAE

717 *Ethmia terminella* Fletch. — Eastbourne (14) 16.vi.88, Camber Sands (14) 28.vi.88 — MP

718 *E. dodecea* (Haw.) — Foulden Common (28) larvae common — APF

720 *E. bipunctella* (Fabr.) — Camber Sands (14) 29.vi.88 — MP

GELECHIIDAE

731a *Eulamprotes phaeella* Heck. & Lang. — Described as **new to Science**, *Ent. Gaz.* **39**: 1-11 — RJH & JRL; Glen Urquhart (96) 1 at mv 24.vi.88 — JRL & ECP-C; Gower (41) v.1983 — ANBS

732 *E. unicolorella* (Dup.) — Carran (H9) 13.vi.88; Monawilkin (H33) 20.vi.88 — KGMB; Groveley Wood (8) 24.vi.88 — SMP

733 *E. wilkella* (Linn.) — Berrow (6) 27.vi.88 — DJLA

735 *Monochroa tenebrella* (Hübn.) — Pollawaddy (H33) 22.vi.88 — KGMB
747 *Chrysoesthia sexguttella* (Thunb.) — Ballymona (H5) 23.vii.88 — KGMB
758 *Recurvaria leucatella* (Clerck) — Wychwood Forest (23) 13.viii.88 — MFVC
773 *Teleiodes paripunctella* (Thunb.) — Wishmoor Bottom 17.vi.88 — BRB
778 *Bryotropha umbrosella* (Zell.) Ulverston (69) 3.viii.88 — EFH; Par beach (2) two 31.v.88 — FHNS
780 *B. similis* (Stt.) — Dinton (8) 25.vi.88 — SMP
781 *B. mundella* (Doug.) — Ballyteigue (H12) 5.vi.88 — KGMB
782 *B. senectella* (Zell.) — Tregirls, near Padstow (1) 7.viii.88 — FHNS, (confirming a 1985 record by P.N. Siddons); Tentsmuir Sands (85) 30.vii.88 — KGMB
786 *B. desertella* (Doug.) — Ballyteigue (H12) malaise trap, 5.vi.88 — KGMB
792 *Mirificarma mulinella* (Zell.) — Donaghmore (H11) 15.viii.88 — KGMB
798 *Neofriseria peliella* (Treits.) — Eastbourne (14), larvae 8.vi.88 — MP
802b *Gelechia senticetella* (Stdgr) — Grays (18) 6.viii.88 — DJLA, **New to Britain**, *Ent. Gaz.* **40**: 189-192
803 *G. muscosella* Zell. — Whitstable (15) tapped from *Salix* 5.vi.87 — ESB
811 *Scrobipalpa samadensis* Pfaff. — Robert's Cove (H4) 8.vii.88 — KGMB
814 *S. ocellatella* (Boyd) — Gannel, Newquay emerged 30.v.88 from larvae on *Beta* — PNS per FHNS
814a *S. pauperella* (Hein.) — New synonym for *S. klimeschi* Povolny — KS, *Ent. Gaz.* **40**: 7-12
815 *S. nitentella* (Fuchs) — Gannel, Newquay (1) 30.v.88 ex larva on *Atriplex* — PNS per FHNS
817 *S. clintoni* Povolný — Cairnryan (74) larvae 28.vi.88 — JRL & ECP-C; Borgue (73) larvae 29.vi.88 — JRL & ECP-C
823a *Scrobipalpula tussilaginis* (Frey) — Published account of its occurrence in Britain with a description of the life history etc. and distribution in v-cs 3, 9, 11 — ECP-C & M.R. Shaw *Ent. Gaz.* **240**: 103-108; Milford-on-Sea (11) larvae 7.xi.87, moths bred — JRL; Wear Cliffs, Seatown (9) 1. mining *Tussilago* leaves 30.x.87 em. 11-17.v.88; 1. 17.vii.88 em. 9-11.viii.88; Eype Mouth (9) 1. 30.x.87 em. 18-26.v.88 — RJH
839 *Nothris congressariella* Bruand — Gannel, Newquay (1) larvae in *Scrophularia scorodonia* 28.iv.88, moths bred vi.88 — FHNS
843 *Aproaerema anthyllidella* (Hübn.) — Robert's Cove (H4) 8.viii.88 — KGMB

846 *Syncopacma vinella* (Bankes) — Burgess Hill (14) 1 pupa, 1 adult 31.vii.-2.viii.88 — OK
858 *Hypatima rhomboidella* (Linn.) — Altamont (H13) 15.viii.88 — KGMB
864 *Dichomeris ustalella* (Fabr.) — Shrewley Wood (37) 6.vi.87, larvae 2.ix.87 — ANBS, *Ent. Rec.* **101**: 17f
871 *Oegoconia deauratella* (H.-S.) — Leigh (37) 12.viii.88 — ANBS

BLASTOBASIDAE
874 *Blastobasis decolorella* (Woll.) — Chapelton (77) 6.vii.87 — EFH; Cumnor (22) 11.viii.88 — MFVC

MOMPHIDAE
880 *Mompha langiella* (Hübn.) — near Ashurst (11) larvae in mines in *Circaea lutetiana* 12.viii.88 — DHS & JRL
881 *M. terminella* (H. & W.) — Pendover (2) mines in *Circaea lutetiana* 28.viii & 6.ix.88 — FHNS
887 *M. lacteella* (Steph.) — Life history described — DHS; *Brit. Journal ent. nat. Hist.* **1**: 126 (1988)
890 *M. subdivisella* Bradley — Discovery of life history in stems of *Epilobium hirsutum* in v-cs 19, 20, 23, 24 — PHS & JRL, *Ent. Gaz.* **40**: 199-201; Iffley, Oxford (23) 1 adult 19.vii.87 — PHS
891 *M. nodicolella* Fuchs — Dinton (8) 18.ix.88 — SMP

COSMOPTERIGIDAE
894 *Cosmopterix ziegleriella* (Hübn.) — Dry Sandford Pits (22) old mines x.88 — PHS
897 *C. lienigiella* L. & Z. — Leckford (12) larvae in *Phragmites communis* 30.x.88 — JRL & PHS
899 *Pancalia leuwenhoekella* (Linn.) — North Unhill Bank (22) 4.vi.88 — BRB
903 *Glyphipteryx linneella* (Clerck) — Colwick (56) 24.vi., 4.viii & 5.viii.88 — on Lime tree bark — MJS & A.S. Boot; Carlton (56) 24.vi.88 — A.S. Boot, *Ent. Rec.* **101**: 202
906 *Blastodacna atra* (Haw.) — Grays (18) 21.v.88, an early date — DJLA
909 *Sorhagenia lophyrella* (Dougl.) — Churchill (6) 21.vii.88 — DJLA

SCYTHRIDIDAE
915 *Scythris picaepennis* (Haw.) — Ballyteigue (H12) 4.vi.88 — KGMB

TORTRICIDAE: COCHYLINAE
927 *Piercea minimana* (Caradja) — Mochrum (74) two, 29.vi.88 — JRL & ECP-C
929 *Phalonidia vectisana* (H. & W.) — Tregirls, near Padstow (1)

swarming over a small isolated clump of *Triglochin* at back of dunes, 7.viii.88 — FHNS

933 *P. gilvicomana* (Zell.) — Swyncombe Downs (23) larvae in *Mycelis muralis* viii.88 — PHS & JRL

942 *Aethes piercei* Obraztsov — Carreens (H17) 14.vi.88 — KGMB

951 *A. beatricella* (Wals.) — Spurn (61) vi. & vii.88 — HEB

960 *Falseuncaria ruficiliana* (Haw.) — Moulsford Downs 6.v.88 — BRB

965 *Cochylis hybridella* (Hübn.) — Kineton (38) 22.vii.88 & 8.viii.88 — RJB

TORTRICINAE

971 *Pandemis cinnamomeana* (Treits.) — Ulverston (69) 23.vi.88 — EFH

973 *P. dumetana* (Treits.) — Rothley Lakes (67) 1.viii.81 — M.D. Eyre per T.C. Dunn, *Ent. Rec.* **101**: 174

982 *Choristoneura diversana* (Hübn.) — Monks Wood (31) 17.vii.88 from spinning on *Acer campestre* — EFH

985 *Cacoecimorpha pronubana* (Hübn.) — Newcastle upon Tyne (67) 9.vi.81 — T.C. Dunn, *Ent. Rec.* **101**: 52

991 *Clepsis senecionana* (Hübn.) — Broadmoor Bottom (22) 23.v.88 — BRB

1021 *Cnephasia asseclana* ([D. & S.]) — Feeding on *Cynoglossum germanicum* — K.R. Tuck, *Ent. Gaz.* **40**: 182

1034 *Spatalistis bifasciana* (Hübn.) — Rhandirmwyn, near Llandovery (44) vii.87 — D.Davies & R.M. Palmer, *Ent. Rec.* **101**: 22

1037 *Acleris comariana* (L. & Z.) — Faringdon (22) 19.x.88 — MFVC

1046 *A. shepherdana* (Steph.) — Strumpshaw RSPB reserve (27) ca. 15.viii.88 — APF

1047 *A. schalleriana* (Linn.) — Fairmile (22) bred from *Viburnum lantana* 16.vi.88 — BRB

1058 *A. lorquiniana* (Dup.) — Woodbastwick NNR (27) 16.vii.88 — APF & MP

1059 *A. abietana* (Hübn.) — Discussion of possible foodplants — MRY, *Ent. Rec.* **101**: 37f; also M.C. Townsend, *Ent. Rec.* **101**: 208

OLETHREUTINAE

1064 *Celypha rosaceana* (Schläg.) — Malahide Point (H21) 18.vi.88 — KGMB

1067a *C. rurestrana* (Dup.) — Merthyr Tydfil (41) 2.vii.1926 — coll. G. Fleming per RJH, *Ent. Gaz.* **39**: 260

1074 *Olethreutes palustrana* (L. & Z.) — Tentsmuir Point (85) 30.vii.88 — KGMB

1075 *O. olivana* (Treits.) — Straduff Bog (H36) 23.vi.88 — KGMB

1086 *Hedya salicella* (Linn.) — near Canonteign Barton (3) larvae on *Salix* 15.v.88 em. 7, 16.vi.88 —RJH

1101 *Endothenia ustulana* (Haw.) — Grandsen Wood (31) 18.vi.88 — B. Dickerson per EFH

1103 *E. ericetana* (H. & W.) — Wishmoor Bottom (22) 17.vi.88 — BRB
1108 *Lobesia abscisana* (Doubl.) — Berrow (6) 7.viii.88, B. Slade per DJLA; Rhandirmwyn, near Llandovery (45) vi.86 — D. Davies & R.M. Palmer, *Ent. Rec.* **101**: 22
1110 *Bactra furfurana* (Haw.) — Kineton (38) 22.vii.88 — RJB
1119 *Ancylis geminana* (Don.) — Doomore (H9) 14.vi.88 — KGMB
1122 *A. obtusana* (Fabr.) — Brampton Woood (31) 24.vi.88 — B. Dickerson per EFH
1135 *Epinotia demarniana* (F.v.R.) — Sherwood Forest (56) 24.vi.88 — HEB
1143 *E. fraternana* (Haw.) — Muir of Ord (106) several 17.vi.88 — JRL & ECP-C; Tarradale House, Black Isle (106) vi.88 — MRY
1146 *E. rubiginosana* (H.-S.) — Edwinstone (56) 25.vi.88 — MJS
1162 *Rhopobata myrtillana* (H. & W.) — Impstone Plantation (22) adults on leaves of *Vaccinium myrtillus* 20.v.88 — BRB
1190 *Eucosma aspidiscana* (Hübn.) — Snelsmore Common (22) 21.v.88 — S. Nash per MFVC
1202 *E. obumdratana* (L. & Z.) — Niddrie Mill, Edinburgh (83) 1 & 2.viii.80 — K.I. Ransome, *Ent. Rec.* **101**: 177
1208 *Blastesthia posticana* (Zett.) — Beeley Moor (57) 13.vi.88 — MJS
1212 *Rhyacionia pinivorana* (L. & Z.) — Perry West Wood (31) 21.vi.88 — B. Dickerson per EFH; Crom Castle (H33) 21.vi.88 — KGMB
1220 *Collicularia microgrammana* (Guen.) — Ballyteigue (H12) 4.vi.88 — KGMB
1225 *Pammene obscurana* (Steph.) — Otley (64) 10.vi.67 — C.C. Smith collection per EFH; Combrook (38) 16.v.88 — RJB
1233 *P. aurantiana* (Stdgr) — Gransden Wood (31) 6.viii.88 — B. Dickerson per EFH
1242 *Cydia internana* (Guen.) — Lein of Garmouth (95) vi.88; Monadh Moor, Black Isle (106) vi.88 — MRY
1255a *C. medicaginis* (Kuzn.) — Grays Chalk Quarry (18) vii.88 — O. Karsholt & DJLA, **New to Britain**, *Ent. Gaz.* **40**: 193-196
1273 *Dichrorampha petiverella* (Linn.) — Rathbaun (H13) 15.viii.88 — KGMB
1274 *D. alpinana* (Treits.) — Drummee Quarry (H33) 19.vi.88 — KGMB
1275 *D. flavidorsana* Knaggs — Parkside (38) 7.viii.88 — RJB
1281 *D. simpliciana* (Haw.) — Portmarnock (H21) 21.viii.88 — KGMB
1282 *D. sylvicolana* Hein. — Burgess Hill (14) 1.viii.88 — OK

PYRALIDAE

1289 *Euchromius ocellea* (Haw.) — Freshwater (10) 2.x.88 — S.A. Knill-Jones, *Ent. Gaz.* **40**: 93
1290 *Chilo phragmitellus* (Hübn.) — Douglas River (H4) 19.vii.88 — KGMB

1314 *Catoptria margaritella* ([D. & S.]) — Chilmark (8) dead xi.87 — SMP
1325 *Platytes alpinella* (Hübn.) — Camber Sands (14) 29.vi.88 — MP
1341 *Eudonia lineola* (Curt.) — Berrow (6) 18 & 19.viii.88 — B. Slade per DJLA
1353a *Oligostigma polydectalis* (Walk.) — Escot (3) 1 dead specimen indoors — RJH, *Ent. Gaz.* **39**: 275
1358 *Evergestis pallidata* (Hübn.) — Middle Hurling Fen (28) 31.vii.88 — APF
1359 *Cynaeda dentalis* ([D. & S.]) — Portland (9) 9.ix.88, a late record — E.G. Smith, *Ent. Rec.* **101**: 36; also 8.ix.88 — R. Darlow, *Ent. Rec.* **101**: 85
1360 *Hellula undalis* (Fabr.) — Cusgarne (1) 21.x.88 — A. Spalding
1364 *Pyrausta sanguinalis* (Linn.) — Carran (H9) 14.vi.88 — KGMB
1369 *Uresiphita polygonalis* ([D. & S.]) — Wallasey, Cheshire (58) 16.ix.88 — MFVC, *Ent. Gaz.* **40**: 94
1371 *Sitochroa verticalis* (Linn.) — Ham Island (22) 24.vi.88 — BRB
1375a *Sclerocoma acutellus* (Eversm.) — Leckford (12) 8.viii.88 — DHS, **New to Britain**, *Ent. Gaz.* **40**: 1-3
1380 *Phlyctaenia perlucidalis* (Hübn.) — Leckford (12) 28.vi.88 — DHS, *Brit. Journ. ent. nat. Hist.* **1**: 189; Whitstable (15) 20.vi.88 — ESB; Woodbastwick NNR (27) 2.vii.88, Boughton Fen (28) 8.vii.88 — APF
1391 *Udea decrepitalis* (Herr.-Schäff.) — Glen Strathfarrar NNR (96) larvae ix.88 — MRY
1396 *Mecyna flavalis* ([D. & S.]) — Leckford (12) 8.viii.88, first post-war record from mainland Hampshire — DHS
1403 *Diasemiopsis ramburialis* (Dup.) — Cusgarne (1) 17 & 27.x.88 — A. Spalding
1421 *Aglossa pinguinalis* (Linn.) — Nagden (15) bred from straw refuse 15.vii.88 ESB
1424a *Endotricha consobrinalis* Zell. — Reference for species included in 1987 Review, *Ent. Rec.* **101**: 107f
1425 *Galleria mellonella* (Linn.) — Broadheath (37) ex. old honeycomb, v.88 — ANBS
1444 *Pempelia obductella* (Zell.) — Mount Caburn NNR (14) swept 29.vii.88 — P. Kirby per MP; Folkestone Warren (15) 4.viii.88 — JMC-H
1447a *Sciota adelphella* (F.v.R.) — near Sittingbourne (15) 6.vii.76 & 4.vii.85 — P.H. Jewess; *Ent. Gaz.* **39**:271-274; Orlestone Woods (15) vi.48 & 15.vi.51, Dymchurch (15) '75, Stonelees (15) 21.vii.84, Stodmarsh (15) 26.vi.84, Thorpeness (25) 18.vii.64 — JMC-H
1449 *Microthrix similella* (Zinck.) — Wasing Wood (22) 9.vii.88 — BRB
1454 *Dioryctria abietella* ([D. & S.]) — Tubney Wood (22) bred from cones of *Larix* collected 6.viii.88; Dinton (8) 4.viii.88 — SMP
1454a *D. schuetzeella* Fuchs — Olney (32) 15.vii.88 — G.E. Higgs, *Ent.*

Rec. **100**: 276; Chippenham Fen (29) 18.vii.88 — JMC-H, *Ent. Rec.* **100**: 276

1456*Epischnia bankesiella* Rich. — Boscastle (2) larvae 13.v.88 em. 5.vii.88; Dinas Head, Trevose Head (2) larvae 13.v.88 em. 20, 30.vi.88 — RJH; Cligga Head, Perranporth (1) larvae in *Inula crithmoides* 6.v.88 — FHNS; Cornwall (1) & (2) — RJH, *Ent. Gaz.* **40**: 244

1457*Hypochalcia ahenella* ([D. & S.]) —, Burley-in-Wharfedale (64) '88 — HEB; Ham Island (22) 24.vi.88 — BRB

1463*Pempeliella ornatella* ([D. & S.]) — Capel-la-Ferene (15) 19.vii.88 — JMC-H

1469*Euzophera cinerosella* (Zell.) — Nottingham (56) fairly common at mv vi.88 — MJS

1483*Phycitodes binaevella* (Hübn.) — Spurn (61) 23.vi.88 — HEB

1484*P. saxicola* Vaughan — Portland (9) bred from flowerheads of *Inula crithmoides,* larvae 26-28.vii.88 — OK

PTEROPHORIDAE

1491*Crombrugghia distans* (Zell.) — Camber Sands (14) 29.vi.88 — MP

1512*Pterophorus baliodactylus* Zell. — Groveley Wood (8) 2.vii.88 — SMP

1518*Leioptilus lienigianus* (Zell.) — Burton Joyce (56) vii.88 — A.S. Boot, det MJS

Hazards of butterfly collecting — Yemen, Ibb, 1980

The old walled city of Ibb in Yemen has hardly changed since it was first described to the outside world by Carsten Niebuhr more than two hundred years ago. The streets are too narrow for cars, modern sewage systems cannot be installed, and the only evident change is a veritable spaghetti of tangled phone and electricity wires. The garish and ghoulish posters advertising dental services and glasses are, perhaps, also innovations. In recent years, unfortunately, sprawling concrete suburbs begin to engulf the old battlements.

Ibb is a splendid base for butterfly collecting. An hour's walk will bring you to lush montane meadows where the rare Saharan Swallowtail (*Papilio saharae*) flies and from where I described a new species of Blue, named *Cacyreus niebuhri* after the famous explorer. An hour's drive down one of the world's more frightening roads will get you to Wadi Dur and Wadi Annah with permanent water, lush riverine and a plethora of tropical butterflies. Here, too, I found a species new to science and half a dozen new to Arabia. At a distance of nearly fifty metres I was able to recognise the characteristic wing beat of the first *Neptis* recorded from Arabia (*Neptis serena annah*).

The evening meal all over Yemen, but for the few luxury hotels in Sana'a and Taizz, is the same. There are three or four choices, mostly not choice, served on battered tin plates, with a mug of coffee to follow. One of the restaurants, though, had a very special service — individual place mats made from old newspapers, a luxury in a country where a newspaper is hardly seen. For a Dane it was rather surprising to find that they were Danish newspapers, and the following evenings I read old newspapers that had not yet been turned into place mats while waiting for my meal.

Images of eager boy scouts combing the leafy suburbs of Copenhagen sprang to mind; sadly they will never know where the fruits of their labours ended up. The Danish equivalent of the *Sun* and its ilk, with naked ladies gracing page nine, were missing. It was hard to believe that Yemeni censorship could have eliminated them all. So where were they?

The next day I happened to hitch a ride with a truck that was full of newspapers. Danish newspapers. The gentlemen on the truck obviously could not read, and certainly not Danish, but when I showed them the girls on page nine they soon learnt to recognise the logo of the racier papers. I left three contented men ploughing their way through two tons of newspaper in search of, by Yemeni standards, truly amazing pictures. Doubtless some resourceful soul had spotted this before the last bunch of papers was delivered to the restaurant.

So somewhere in the back streets of Mocha, Ibb or Hodeida, far from the eyes of the religious police, I suspect there are now small shops where page nine girls change hands at several times the original price of the newspapers in question. People have traditionally been unkind to yesterday's newspapers. Not in Yemen they are!— TORSEN B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

Migrant Lepidoptera from the Sussex coast in October 1989

During the weekend of 28th-29th October strong south-westerly winds, originating in southern Europe, swept across southern England. This, coupled with a weather forecast for the 30th predicting a light southerly airstream and overcast conditions, prompted me to make a trip to the south coast in pursuit of migrant moths.

I joined my friend Mark Parsons on the cliffs near Eastbourne at dusk on the 30th, when we set up four mv lights and one actinic tube. Within minutes four noteworthy immigrant species were noted; *Palpita unionalis* (Hübn.), *Mythimna loreyi* (Dup.), *M. unipuncta* (Haw.), and *Heliothis armigera* (Hübn.). A steady stream of migrants, dominated by *Udea ferrugalis* (Hübn.), *Nomophila noctuella* (D. & S.), *Agrotis ipsilon* Hufn. and *Autographa gamma* L., together with a few individuals of scarcer species, continued until approximately 21.00 hours. Then there was a lull until about 23.15, when a marked influx of moths was noted at all the lights, with the prevailing species being *A. ipsilon, Phlogophora meticulosa* L. and *A. gamma*. This later period of activity continued for an hour or so, during which a few *Peridromia saucia* (Hübn.), more *P. unionalis* and a single *M. loreyi* were also noted. Rain arrived not long after midnight and became increasingly heavy, forcing us to pack up about two hours later.

The numbers of scarcer migrant species noted during the night were as follows, with most being recorded before 21.00 hours; twelve *P. unionalis,* one *Mythimna albipuncta* (D. & S.), five *M. loreyi,* two *M. unipuncta* and two *Heliothis armigera.* It is also worth reporting the almost certain sighting of a single *Diachrysia orichalcea* (F.). This moth was seen by us both to settle, momentarily, on one of the traps before disappearing off into the darkness, not to return

I stayed in Sussex until the following evening, when Mark and I returned to the same locality for the dusk flight, and were accompanied by Colin Pratt. The sky was fairly clear, and a stronger wind made conditions cooler than the previous night; not surprisingly fewer moths were on the wing. Nonetheless, one *P. unionalis* and a further two *M. loreyi* were recorded, all before 19.15, at which time I had set off for the return trip to Norfolk. En route back we stopped for just a few minutes, on the Pevensey Levels, to search ivy blossom, and here one of only three moths seen was a worn male *M. unipuncta.*

Incidentally, I had visited the cliffs near Eastbourne earlier in the month, on the 5th October. On this occasion singletons of the following species were noted at mv light; *Agrius convolvuli* (L.), *Macroglossum stellatarum* (L.), *Mythimna l-album* (L.) and *M. unipuncta.*— A.P. FOSTER, 58 St Laurence Avenue, Brundall, Norwich NR13 5QN.

Further notes on *Phyllonorycter leucographella* (Zeller), (Lep.: Gracillariidae)

In my paper on this species (*Entomologist's Record* **101**: 189-194), I stated that according to Continental authors it was univoltine, though Hering thought a second generation to be likely. I can now report that it has three adult emergences, April-May, late July-August and October, the first, at any rate in Essex in 1989, being the largest.

I felt it appropriate to continue my research in Mrs Sargent's garden, since it was she who had brought attention to the presence of the species in Britain. I paid my first visit on the 21st June. All the leaves with winter mines had now fallen and Mrs Sargent reported that her pyracantha blossom had been the best she had ever witnessed. Larval feeding of *P. leucographella* was already present but wholly epidermal and not at all conspicuous.

My next visit was on the 19th July. The mines on the bushes facing east had made little progress, but those facing west, which were receiving extensive sunshine, were much further advanced. Many larvae had reached the parenchyma-feeding stage with the leaves folding upwards into the characteristic pods. I collected about 70 mines from which 14 imagines emerged between the 23rd July and the 8th August; there were only six parasites of two species, now with Dr M.R. Shaw. The small number of emergences may have been due to my having collected the leaves too early.

My third visit was on the 30th September. The pyracantha berries were making a wonderful display and the heavy infestation had clearly done no lasting damage. The mines on the shadier side of the garden included relatively few that were fully formed and many contained dead larvae. On the sunnier side the situation was again different, with plenty of fully developed mines, though fewer than in March. I took 25 from which 12 adults and one parasite emerged between 13th and 28th October. Emergence was also taking place in the wild; R.J. Heckford captured an adult at Grays, Essex on 28th October (D.J.L. Agassiz, pers. comm.).

Although I have said that there are three broods, possibly there is only a single generation in shady situations. Against a sun-baked fence development is more rapid to produce the smaller second and third emergences. There may, however, be no clear demarcation between them.— A.M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex CB11 3AF.

Dates of emergence of *Abraxas grossulariata* (Linnaeus) (Lep.: Geometridae) in South Cumbria

I was much interested in the recent note by Mr A.A. Allen (Allen, 1989) concerning the seasonal cycle of the Magpie moth (*Abraxas grossulariata*). His note stimulated me to review the records of this species covering a period of 68 years — 1918 - 1987 inclusive — which exist for this district of Cumbria (v.c. 69).

The late Dr R.C. Lowther, who was for many years in medical practice in Grange-over-Sands, kept very detailed records of all his captures and observations on the moths of Grange and its neighbourhood. In the three large volumes of records, which were given to me by Mrs Lowther after her husband's death, there is a page for each species of macrolepidopteron giving details of first annual dates of occurrence in Grange, Arnside, Kendal and other local areas. These records form the basis for the earlier years here considered and cover the period from 1918 to 1949 inclusive.

In 1969 Mr Jerry Briggs moved from Yorkshire and came to live in the very favoured locality of Beetham, near Milnthorpe, Cumbria. Here he operated a mv trap from 1969 until the present time. Records of his captures and observations were kept in very great detail. Unfortunately health problems put a stop to full recording in 1985. Recently his collection and note books have been donated to the Cliffe Castle Museum, Keighley where they are in the charge of Miss Margaret M. Hartley who kindly abstracted relevant records for inclusion in this paper. Between 1950 and 1969 full records of first dates are not available. A few records for this period are included in the data, these provided by the late Rev J. Vine-Hall (Vine-Hall, 1954) and the author.

The following is a summary of 56 observations of first dates for the Magpie moth over a period of 68 years (the number of records is given in brackets):

May (1 only, 29 May 1942; R.C. Lowther); June 1-7 (1); June 8-15 (5); June 16-23 (4); June 24-30 (3); July 1-7 (18) July 8-15 (4) July 16-23 (5); July 24-31 (8); August 1-7 (5); August 8-15 (2).

(I'm afraid our "first date" record does not beat Mr Allen's of 24th May 1989!)

Thus for *this* district, it is clear that the major time of appearance of the Magpie is about the first week of July. It is perhaps of interest to compare by month the records of Dr Lowther (RCL) and Mr Briggs (JB):

	RCL (1918-49)	JB (1969-85)
May	1	0
June	13	0
July	18	10
August	0	6

From these data it would appear that in recent years the date of first appearance is in fact *later* than in earlier times. It is possible that climatic conditions may be an influence as Grange-over-Sands has a reputation for enjoying a mild climate, and for this reason the species may occur earlier than at Beetham which is situated on similar carboniferous limestone and only six miles in a direct line from Grange.

The evidence here presented does not support Mr Allen's interesting hypothesis that the Magpie is emerging at an earlier date than formerly — at least so far as north-west England is concerned. It would be interesting to learn if data similar to those here presented are in existence for south-east England. Only if they are, perhaps, can a true assessment of the situation be made.

I am very grateful to Mr Briggs for giving me permission to use his records and to Miss Margaret M. Hartley B.Sc., F.M.A., Keeper of Natural Sciences at Cliffe Castle Museum, Keighley, Yorkshire for abstracting his records lodged in the Museum.

References

Allen, A.A. (1989) Has *Abraxas grossulariata* L. (Lep.: Geometridae) been shifting its seasonal cycle? *Entomologist's Rec. J. Var.* **101**: 238.

Vine-Hall, J. (1954) *Entomologist's Gaz.* **5**: 125-134.

Dr N.L. Birkett, Beardwood, Carter Road, Grange-over-Sands LA11 7AG.

Pyracantha and the Holly Blue.

I can add a little to Mr Plant's observations of *Pyracantha* as a possible foodplant for the larvae of this butterfly (*Ent. Rec.* **102**: 41). Holly Blues were everywhere in this neighbourhood last summer and I often saw them "investigating" *Pyracantha* bushes in our garden. On two occasions, last

June, I watched a female lay a single egg, each on the stem of a floret on one of the bushes. Later, on return from holiday, I found the remains of the eggs but could not find any larvae. Some time later still, however, I noticed that some of the green berries near where I had seen the eggs had small erosions as if larvae had been attempting to eat into them but they had not managed to get inside.— JOHN OWEN, 8 Kingsdown Road, Epsom, Surrey KT17 3PU.

The Holly Blue, *Celastrina argiolus* L., ovipositing on *Pyracantha*.

In view of the note by Mr C.W. Plant strongly pointing to the latter as one of the foodplants of *C. argiolus* (*antea*. 41-3), it may be worth reporting that my friend Dudley Collins definitely saw a first-brood female ovipositing on a flower-bud of the firethorn in his garden at Carshalton Beeches, Surrey, three of four years ago. As soon as she had departed, he was able to locate a single egg. Like myself, he was rather surprised to learn that *Pyracantha* was not yet recognised as a foodplant of the butterfly. Admittedly, one egg does not amount to positive proof that larvae would have fed up on this host, but, taken in conjunction with the experience of other observers, it comes near to doing so.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

***Hellula undalis* Fabr. (Lep.: Pyralidae) in 1989.**

I was pleased to take, despite it being a micro, the third British specimen of this rare immigrant species at Eastbourne, East Sussex, on 23rd October and two more at Littlehampton, West Sussex, on 30th October. Previously *H. undalis* had been recorded from South Devon in 1967 and Cornwall in 1988, and this year single specimens have also been reported from Studland, Dorset, on 24th October by D.C.G. Brown and from Freshwater, Isle of Wight, on 26th October by S.A. Knill-Jones.

Returning to the nights of my captures: at Eastbourne the *H. undalis* appeared well after midnight and was accompanied by *Palpita unionalis* Hb., *Plutella xylostella* L., *Rhodometera sacraria* L. and other immigrant species. A number of these moths were clearly seen approaching from a southerly direction and both Mark Parsons, who was present, and I felt we were witnessing their actual arrival from the Continent.

In complete contrast the two *H. undalis* at Littlehampton appeared in the two hours following dusk as did a host of other migrant species which included six *Spodoptera exigua* Hb., five *Mythimna loreyi* Dup., two *M. unipuncta* Haw. and single examples of *Palpita unionalis* Hb., *Mythimna albipuncta* D. & S., *M. vitellina* Hb., *Heliothis armigera* Hb., *Trichoplusia ni* Hb. and *Chrysodeixis acuta* Walk. Resident species continued to appear after this time, but no further migrants suggesting that the above had arrived at the earliest the previous night, if not before.— BERNARD SKINNER, 5 Rawlings Close, South Croydon, Surrey CR2 8JS.

Immigrant Lepidoptera in mid-Kent, September 1989.

Whilst walking through a field of grass at East Malling, Kent, on 21st September 1989, I was pleasantly surprised to disturb an example of the brown form of the Vestal moth, *Rhodometra sacraria* L. Encouraged by this find, an mv trap was operated at East Malling on subsequent nights. After the night of 26th September, a fine specimen of the pyralid moth *Euchromius ocellea* Haw. was noted, at the last moment — its coloration having rendered excellent camouflage against the background of an egg-tray. —D.A. CHAMBERS, 15 Briar Close, Larkfield, Maidstone, Kent ME20 6NA.

***Perizoma blandiata* Schiff. (Lep.: Geometridae) in West Sussex.**

On the night of 2nd August 1989 I was surprised to capture a single specimen of the Pretty Pinion moth, *Perizoma blandiata,* in fresh condition at an mv light operated in a woodland ride near Midhurst in West Sussex. So far as I am aware this is the first time this species has been taken in southern England, though there are several unauthenticated 19th century records, including one for Sussex (Pratt, C., 1981 *A history of the butterflies and moths of Sussex.*)

A visit to the locality on the night of the 8th August failed to produce any further moths and a daytime search of the area failed to locate any *Euphrasia officinalis* (eyebright), the larval foodplant of this species.— J.T. RADFORD, Bramblings, West Walberton Lane, Walberton, Arundel, Sussex BN18 0QS.

***Lozotaeniodes formosanus* Geyer (Lep.: Tortricidae) in Somerset.**

On 2.vii.1989, at Berrow, Somerset (vc6) I was pleased to take a specimen of *L. formosanus* in a Heath trap in the garden.

Bradley, Tremewan and Smith (1973, *British Tortricoid moths* vol. 1) do not include Somerset, although Turner (1955, *Lepidoptera of Somerset*) says ". . . a recently introduced species, which has established itself in some pine woods. Taunton, m.v. 1955".

Since the publication of *British Tortricoid moths,* this species has extended its range considerably from its original south-eastern distribution, occurring as far north as Nottinghamshire and Derbyshire, and west to south Devon, Glamorgan (vc41) and Denbigh (vc50), although it has not yet reached the westernmost counties. I am most grateful to Mr E.F. Hancock for his helpful comments on this moth.— B.E. SLADE, 40 Church House Road, Berrow, Somerset TA8 2NQ.

***Plusia putnami gracilis* Lempke and *Agrotis ripae* Hb. (Lep.: Noctuidae) in Ireland.**

On 15th July 1989 I took a specimen of *P. putnami gracilis,* Lempke's Gold Spot, which appears to be the first record for Ireland. The locality was an area of marshy ground on the shores of Lough Inchiquin, near Kenmare, Co. Kerry.

Later in the year I visited numerous coastal sites in search of *A. ripae* (Sand Dart) and as well as in the known localities found larvae on the Dungarvan sandhills, Co. Waterford and at Castle Gregory, on the Dingle Peninsula, Co. Kerry. The first record would appear to be new to the County and the second makes the site the most northerly known locality on the west coast.— BERNARD SKINNER, 5 Rawlins Close, South Croydon, Surrey CR2 8JS.

A directory for entomologists by **Duncan Reavey** and **Mark Colvin.** Amateur Entomologists' Society. Pamphlet no. 14. 43 pp. Card cover. 1989. £2.30.

This useful little publication, printed entirely on recycled paper, was produced in response to the numerous requests for information received by officers of the AES. In many respects it is complementary to the volume *Entomology: a guide to information sources* by Pamela Gilbert and Chris Hamilton, aimed particularly at the non-professional and hobby entomologist.

It is very much an address and contact list broken down into some 16 sub-headings including conservation organisations, national and local societies and recording schemes, periodicals, museums, libraries, exhibitions, butterfly houses and farms, education and training, trade fairs, traders and other directories.

Inevitably some of the information will become rapidly dated, but much is likely to stand the test of time. For a beginner this is a treasure trove of information, and for the more experienced there is plenty of interest — for example a list of museums with entomological collections. It is pleasing to note that the Trade section is dominated by suppliers of literature and equipment, with very few peddlers of dead insects. The Society is to be congratulated on producing such a useul and inexpensive booklet.

Paul Sokoloff

Hadley Great Wood: the wildlife and history of Belfairs Nature Reserve edited by **B.M. Spooner** and **J.P. Bowdrey**. 278 pp., Several maps and figs. Paperback. South Essex Natural History Society. 1988. £6.75 (available from 75 St Mary's Road, Benfleet, Essex).

This comprehensive work on the flora and fauna of a local nature reserve is the product of many years' work by members of the South Essex Natural History Society and others. Introductory chapters deal with the general aspects of the reserve, from geology to conservation and pre-history to educational uses.

The bulk of the book is a list of the animals and plants of the reserve. Each group has a brief introduction, followed by an annotated list of the species known to occur within the reserve's boundaries. The text is enhanced by numerous sketches to give the general reader a "feel" for the group under discussion. Most records are treated with care, and those that are dubious or doubtful are identified. Unlike many similar publications, the coverage of various taxa is good, and there are extensive lists of insects, including the lepidoptera, coleoptera and diptera.

There are many interesting snippets ranging from an unsolved murder in the reserve to the effects of the great storm of 1987. The reserve appears to be under some pressure from recreational use, and such a comprehensive database can only be of value in assessing the changes that will inevitably occur over the years. Considering the size and scope of the work, the price represents excellent value.

Ecology and natural history of tropical bees by **David W. Roubik.** 514 pp. Numerous figs. Boards. Cambridge University Press. 1989. $69.50.
Bees as a group display a wide spectrum of behaviours and ecological roles that have provided biologists with a vast amount of material for study. There are social and solitary bees, those that pollinate and those that destroy flowers, those that can survive under water, nocturnal bees, those that nest underground and those that nest in the tallest rainforest trees.

This volume draws together the vast amount of available information into a readable and informative monograph.The author emphasises the function of bees within the tropical biotopes and their interactions with human populations. The linking themes are ecology, natural history and evolution.

The book is divided into five main sections, dealing with introductory material, foraging and pollination, nesting and reproductive biology, community ecology and appendices. There is an extensive bibliography. The treatment is both scholarly and readable.

Butterflies of the British Isles: The Pieridae by **Michael Easterbrook.** 24pp. 32 figs (25 in colour). Shire Publications Ltd. 1989. £1.95.
We have reviewed a number of publications in the Shire Natural History series in these pages, and have found them to be an excellent series — covering a far wider range than just insects — sold at what might be suggested is a ridiculously low price, considering all the volumes are illustrated in colour.

In this book, the author considers the general biology of the Pierids, including techniques for observing and breeding, and comments on each of the species in turn. A surprising amount of information is packed into this small volume. There is a useful series of line drawings showing sex and brood differences between imagines of the Small White and Large White. There are numerous colour illustrations of butterflies, eggs and larvae. The reproduction of the colour slides is not up to the standard of some of the previous volumes.

Paul Sokoloff

100 YEARS AGO

"SYNONYMIC NOTES ON THE MOTHS OF THE EARLY GENERA OF NOCTUITES."—I have to thank Mr. Tutt for calling my attention (*Record*, pp. 9-10) to what he considers to be three serious errors in my recent paper on "the earlier genera of NOCTUITES."

One of these I am willing to admit may be a stupid blunder; though on the other hand it may be the result of a careful study of the original description of *Agrotis ypsilon*. I do not remember, and therefore I can do no less than agree with Dr. Staudinger and others that *A. suffusa* shall be called *A. ypsilon* and not *Peridroma saucia*. Curiously enough I arranged them in our collection under these names.[1]

With regard to *A. segetis* it is the older name for the species and must stand in preference to *A. segetum*.

Agrotis subgothica is admitted as a distinct species in Grote's check-list. It is a common North American species, and if it was ever taken in England (as Stephens says) it was imported. It is quite distinct from *A. tritici*.—A. G. BUTLER, British Museum (Natural History), South Kensington, S.W.

[If Mr. Grote considers *A. subgothica* a species it is hardly possible to get from the fact that the species should be called *A. subgothica*, Grote, and not *subgothica*, Haw. There is no doubt that *subgothica*, Haw. is a variety of *tritici*, and if Grote has described an American species under this name it should be on his authority not Haworth's.—ED.]

[1] I think this is good *primâ facie* evidence that an error was committed rather than that a probable change of names should take place.—ED.

EARLY SPRING MOTHS.—On Friday, January 31st (1890), I went out to take some *Hybernia progemmaria*, a very variable species here, and when I had just *filled my boxes*, I came upon *Phigalia pilosaria* on the wing in scores, all flying round a dwarf holly bush in a hedge. I had a man with a lamp with me, and fortunately we had a net each. I had to resort to my pocket killing bottle, and my man caught them until my bottle was full, and we then had to give up. They swarmed round the holly bush, but we could not beat any out. They ceased for about five minutes, and then came again as thick as ever. I concluded there were females about, but the most vigorous search failed to find any trace. When I reached the inn and turned out my killing bottle, there were 16 *P. pilosaria*, all freshly emerged specimens, which were very variable. The result of my outing was 16 *P. pilosaria*, 13 *H. progemmaria*, 27 *H. rupicapraria*, 2 *Cheimatobia brumata*, and 2 *Depressariæ* (*sp?*). I do not consider this bad for the 31st of January! The night was still, warm, and bright moonlight.—B. BLAYDES THOMPSON, Harrogate.

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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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

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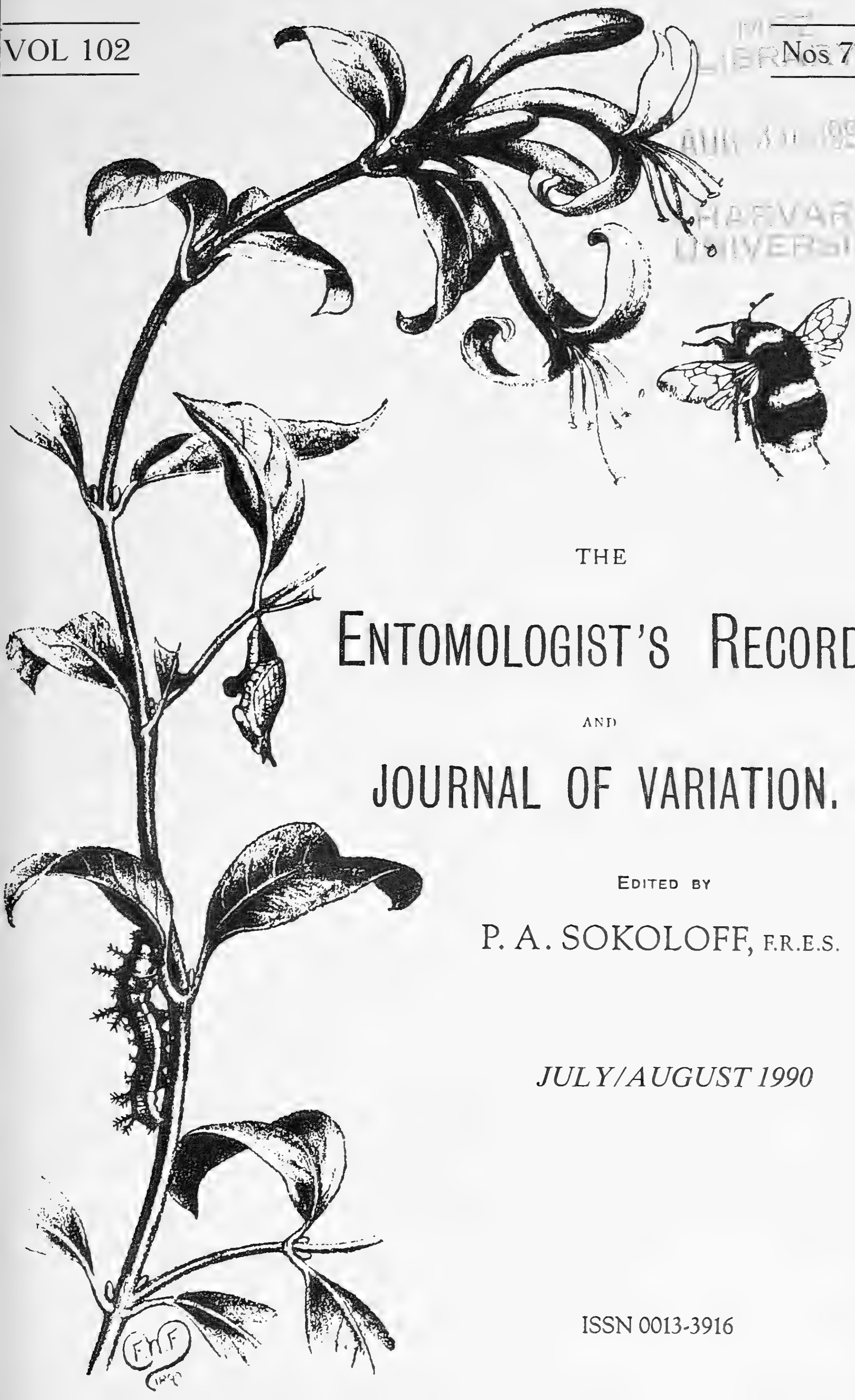

THE

ENTOMOLOGIST'S RECORD

AND

JOURNAL OF VARIATION.

EDITED BY

P. A. SOKOLOFF, F.R.E.S.

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AND JOURNAL OF VARIATION

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THE QUEEN OF SPAIN FRITILLARY (*ISSORIA LATHONIA* (L.)) (LEP.: NYMPHALIDAE) ON MADEIRA — RESIDENT OR MIGRANT?

T.G. SHREEVE & A.G. SMITH

School of Biological and Molecular Sciences, Oxford Polytechnic, Headington, Oxford OX3 0BP

THE QUEEN of Spain fritillary (*Issoria lathonia*) is widespread throughout the Palaearctic and resident in the Mediterranean region, but described as migratory in the western part of its range (Emmet & Heath, 1989: p. 224). It is also described as being resident in the Canaries (Higgins & Riley,1973) and present on the island of Madeira. When Wollaston visited the Atlantic islands in the early to mid 19th century he described it as abundant throughout Madeira. More recently it has been infrequently recorded. The last known published date of its recording was December 1957, when it was found at Choupana (near Monte) in the south of the island, by Gardner & Classey (1960). Despite the number of visits that have been made to the island by entomologists of various nationalities there are no published records since, though G. Maul of the Municipal Museum of Funchal is aware of occasional sightings since 1957.

We therefore think it worth recording that on a recent visit to Madeira by ourselves two specimens were recorded at different locations. The first was a fresh male on a south-west facing slope approximately one km due north of Achada do Poiso on the ER208 road to Paul de Serra. This site was approximately 600 m. in elevation and the butterfly was flying in a small clearing in a eucalyptus grove between agricultural terracing and laurel and heather forest. The second, of unknown sex, was feeding at roadside flowers near Fonte da Pedra in an area of degraded laurel forest at a height of approximately 1000 m. on the north-western slopes of Paul de Serra south of Porto de Moniz. Both specimens were recorded on 10th September 1989. In both sites there were scattered clumps of violets (species unidentified) which we assume are the host plant of the species. Despite visiting much of the accessible parts of the island during the period 7 - 21st September whilst engaged in other work we found no other specimens of this butterfly.

Whilst we cannot definitely distinguish between this butterfly having maintained its presence on the island or whether the specimens we found were immigrants from the Canaries, North Africa or Iberia, we tentatively suggest that the former may be the case for two reasons. Firstly, the two specimens were in two locations on southern and north-western slopes some 12 km apart. If these two specimens represent part of a migration it is surprising that no other specimens were found on the island. Secondly, the sites where we recorded our specimens are those which appear to be less frequently visited by entomologists, particularly in the north -west which has only recently been made more easily accessible by a new road from Paul de Serra to the north-west tip of the island. This site was part of a very extensive area of laurel forest where steep slopes make observations difficult. The butterfly may have maintained itself in this region.

We therefore hope that this part of the island will be visited by others and the presence of this butterfly reported.

References

Baker, G.T., 1891. Notes on the Lepidoptera collected in Madeira by the late T. Vernon Wollaston. *Transactions of the Entomological Society of London,* 1891: 197-221.

Gardner, A.E. & Classey, F.W., 1960. Report on the insects collected by E.W. Classey and A.E. Gardner expedition to Madeira in December 1957. *Proceedings and Transactions of the South London entomological and natural history society,* 1959: 184-206.

Emmet, A.M. & Heath, J., 1989. *The moths and butterflies of Great Britain and Ireland*), Vol. 7, Part 1: Hesperiidae-Nymphalidae. Harley Books: Colchester.

Higgin, L. & Riley, N.D., 1973. *A field guide to the butterflies of Britain and Europe.* 2nd edition. Collins: London.

Hydraecia petasitis Doubl. (Lep.: Noctuidae) The Butterbur in Angus.

I took a female *H. petasitis* at light on the sandhills of Lunan Bay, Angus, on 23rd August 1988. Apart from being new to the County this species does not appear to have been previously reported north of the counties of Midlothian and Stirlingshire. The foodplant, *Petasites hybridus* flourishes in the nearby Lunan Water and further investigation is needed to ascertain whether or not this normally sedentary species is resident.— BERNARD SKINNER, 5 Rawlins Close, South Croydon, Surrey CR2 8JS.

Purple Hairstreak in swimming pools.

I was interested in Mr Percival's note (*Ent. Rec.* **102**: 4). I have also rescued Purple Hairstreaks from our pool here, although only two and those a few years ago. I have never seen the butterfly in the garden although they do occur locally. It may be that the pale blue colour is attractive to this butterfly but in our case, after 30 years, the blue colour of our pool is more of a memory.

Here, butterfly victims of the pool are in the minority, and usually Meadow Browns or Whites. Moths are more frequent after muggy nights, mainly the frailer geometrids (although two specimens of the Waved Black, *Parascotia fuliginosa* L. last year were a bit of a surprise). Noctuids seem to be able to get up enough steam, like a hydrofoil, to escape.

This reminds me of a different form of "suicidal" behaviour witnessed last spring, when burning up tarred timbers from a storm-blown barn. I was horrified to see a Speckled Wood ignore the smoke, and fly, about six feet from the ground above the hottest spot, where it perished.— H. MACKWORTH-PRAED, Tunbar, Headley, Epsom, Surrey.

THE IMMIGRATION OF LEPIDOPTERA TO THE BRITISH ISLES IN 1989

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NINETEEN EIGHTY-NINE proved eventually to be a very good year for immigrants. Numbers of most species were small until mid-July but then rose progressively through August and September and reached very high levels in late October, with some overlap into November. The very sunny summer helped both the observation and the local breeding by early arrivals, though the prevalence of clear nights kept down numbers of moths which attended light traps. It is not clear how far local breeding contributed to numbers in the autumn, but it was sufficient to make it difficult to define the precise timing of immigrations of many species, which certainly continued on a very large scale. An outstanding feature was the abundance of the Wainscot moths, with White-speck (*Mythimna unipuncta* Haw.) and the White-point (*Mythimna albipuncta* D. & S.) especially prominent.

Another feature of the year was the appearance suddenly in great numbers in Essex, Norfolk and elsewhere of species which have not previously been regarded as immigrants. These included the Common Wainscot (*Mythimna pallens* L.), the Tineids *Yponomeuta evonymella* L. and *Y. rorrella* Hb, *Ethmia terminella* Fletcher, and the Noctuid Beautiful Golden Y (*Autographa pulchrina* Haw.), of which 72 appeared on a single night in Orkney. The question whether some or all of these were due to local population explosions or to immigration is still under discussion, and they have not been listed in Annexe II of this paper. But it can be noted here that a species new to the British list, *Etiella zinckenella* Treitschke, was trapped at Bradwell-on-Sea, South Essex on 23rd October by A.J. Dewick, along with several certainly immigrant species. Other species, well spread in their dates but in outstanding total numbers, were the Red Admiral (*Vanessa atalanta* L.) and the Vestal (*Rhodometra sacraria* L.).

The rarities included the Pyrales *Antigastra catalaunalis* Dup., *Uresipita polygonalis* D. & S., *Maruea testulalis* Geyer and *Hellula undalis* Fab. 1989 was the best year ever for *undalis* (only two previous records). Also notable were the butterflies Berger's Clouded Yellow (*Colias alfacariensis* Berger) and Long-tailed Blue (*Lampides boeticus* L.); macro moths Tawny Wave (*Scopula rubiginata* Hufn.), Striped Hawk-moth (*Hyles livornica* Fabr.), Silver-striped Hawk-moth (*Hippotion celerio* L.), Great Dart (*Agrotis crassa* Hb.), Tunbridge Wells Gem (*Chrysodeixis acuta* Walk.), Flame Brocade (*Trigonophora flammea* Esp.), Orache Moth (*Trachea atriplicis* L.) and Bloxworth Snout (*Hypena obsitalis* Hb.). From the Channel Islands were Pine-tree Lappet (*Dendrolimus pini* L.), Oak Processionary (*Thaumetopoea processionea* L.) and Guernsey Underwing (*Polyphaenis sericata* Esp.). Most of these were only in single examples.

Table I. COMMONER IMMIGRANTS 1989
Dateable records only; approximate. Britain only.

	C. cardui	*V. atalanta*	*C. croceus*	*M. stellatarum*	*A. ipsilon*	*P. saucia*	*A. gamma*	*U. ferrugalis*	*N. noctuella*	*P. xylostella*
January	3	3	-	-	1	1	6	-	-	-
February	-	-	-	-	-	-	-	-	-	-
March	2	16	-	2	24	2	8	-	2	-
April	10	27	-	2	33	1	4	-	1	1
May	28	28	4	4	22	9	89	1	1	6
June	27	73	2	14	26	5	104	17	5	1
July	50	214	21	54	819	10	672	46	67	61
August	148	545	90	89	714	56	1461	174	204	23
September	42	645	35	48	1147	191	1855	69	155	7
October	10	86	19	34	551	105	332	95	128	10
November	11	18	13	1	145	12	51	48	1	-
December	-	1	-	-	1	-	-	-	-	-
Totals 1989	**331**	**1656**	**184**	**248**	**3483**	**392**	**4582**	**450**	**564**	**109**
Totals 1988	1383	674	17	22	521	28	5640	251	1830	343

NOTE. The numbers of dateable records are considerably smaller than estimates of the total records received.

Of the butterflies the Clouded Yellow reversed its scarcity in 1988 to show 1989 as probably the best year since 1983. Two were seen on 5th May in the Cuckmere Valley, Sussex and a few widely scattered singles in June and July. Major influxes began on 2nd August and continued as new arrivals or survivors through that month and much of September mainly to the south coast of Devon, where over 60 were scored in daily watching at Slapton Sands with the last on 6th October. It was well spread elsewhere along the coast and inland to Dartmoor, but we have only one record on the north coast, at Combe Martin on 2nd September. They were also common in both east and west Cornwall. Five were seen together at Land's End on 25th October and the last at Par on 12th November may have been late immigrants. Eastwards it was fairly numerous in Dorset, where 24 were counted at Portland Bird Observatory and as many elsewhere. But there were only two each in Hampshire and West Sussex and none in Kent or Essex, though two at Felixstowe, east Suffolk on 15th October.

Inland it was seen in very small numbers only in Wiltshire, Warwickshire, Worcestershire and north to South Yorkshire and Lancashire. There is no clear indication of local breeding. A few were seen in Guernsey. In Northern Ireland less than ten were seen, and in the Republic we know of only about a dozen. The main influx appears to have been wholly from the south-west, with little if any association with other immigrant species.

The Red Admiral was first reported at Ventnor, Isle of Wight in early January and at Swithian, West Cornwall on 21st January. These may have been winter survivors, but there was a small but clear cut influx to the south- west late in March, from which a female was watched as it laid eggs at Pershore, Worcestershire on 30th March, and another, more general, in the third week of May which gave its first record to Canna in the Inner Hebrides. The usual invasion beginning on 16th June was large and very widespread through many English counties to Aberdeen, Caithness, Orkney and again the Isle of Canna in Scotland. Survivors from it probably accounted for scattered records in much of July, but arrivals began again in force in its last ten days and continued well into August, when it reached its highest numbers. It remained very numerous through much of September and into October. That month contained most of the reported "last dates", but a few stragglers, some still fresh, were about even in Scotland during the first half of November.

Well grown larvae were first noted at Muston, South-east Yorkshire on 27th July and in several other places in early August. These probably resulted from the June invasion, and the regularity of regular records of adults without marked peaks of numbers in August and later suggests that many were locally bred. An interesting exception was the observation at Spurn Head, South-east Yorkshire of *southward* flights on August 18th (107), 19th (117), 21st (146) and again on 23rd September (120), which must surely imply very heavy successful breeding somewhere to the north. It was probably the combination of large immigrations from abroad with extensive internal movement by their native bred offspring which accounts for its appearance in so many inland counties, including many for which we have no dated records. A habit of the species probably previously unnoticed is its drinking during the drought from seawater in August and September (O'Heffernan, *Ent. Rec.* **102**: 45).

In Northern Ireland a total of at least 900 Red Admirals was observed from 23rd April to 23rd November (S. Rippey) and in the Republic from him and from other sources we have about 40, to which can be added an estimate of 1,000 seen flying or at rest on walls near the lighthouse at Galley Head, Co. Cork in the afternoon of 29th September, with a single Clouded Yellow. This is the only account of a mass arrival in 1989 which we know of.

The Painted Lady with only about 300 reported sightings made a poor showing after its abundance in 1988. The first were seen singly at East Prawle, South Devon, on 22nd and 24th January, and at Ballaugh, Isle of Man on 21st January. A few came sporadically off the sea to South Devon in April and May, and at the end of that month and in early June there were records curiously spread from Cornwall and Sussex to Yorkshire, Aberdeen and Canna in the Inner Hebrides, with others later which were still mostly of singles and also widely spread, on the western side through Somerset and some of the Midland counties to North Lancashire and again on Canna. But the first numerous influx came only in late July and provided many of the mounting number of records in July and August. There were others which cannot be clearly dated then and in September and again with other immigrants in late October and into November. The last was seen at Plymouth, South Devon on 24th November. Larvae were found on the island of Colonsay and traces of them on Canna, and one on Wormwood in Warwickshire in late August, but there are also accounts of unsuccessful search for them in several places where adults had been seen. About 70 were reported in Northern Ireland from 25th May to 30th October, mostly in Co. Down, and a few further south. In Guernsey the report is of a fairly good year, with sightings from 18th July to August.

The Hummingbird Hawkmoth clearly benefited from the summer sun, which gave it good mobility and wide distribution after arrival, the first in April and May in Cornwall. It was mostly seen singly at any one time and place, and the more than 240 records which have reached us came from very many observers, spread over some 30 counties north to Cumberland in England and Aberdeen in Scotland. That in Cumberland was seen high on the Pennines at 1,150 feet. It was first seen at St Columb, 27th March and Marazion, 1st April, in West Cornwall. There were several others in April and May and in June the numbers rose to 20. July and August was its time of abundance. Numbers dropped away after mid September and through October, and the only record in November was at St Germans, East Cornwall, 11th November. In Guernsey nine were recorded at seven sites from 11th July to 21st September.

Larvae were found in Kent at Dungeness on 25th July and Greatstone Dunes on 2nd August; in Sussex on White Bedstraw in Friston Forest, 25th July; South-east Yorkshire at Flamborough and Filey, 28th and 29th August; and in Somerset at Berrow, eggs from a female on 1st August hatched 5th August, gave a pupa on 28th August and imago emerged 26th September. If this was typical of development in the wild it seems likely that some of the later moths were locally bred.

In Northern Ireland Hummingbird Hawks were seen in Co. Antrim, Co. Down, Co. Tyrone, Co. Armagh and Co. Fermanagh from June to mid September; in the south regularly in late July in Co. Cork and in Co. Kerry.

The Dark Sword-grass (*Agrotis ipsilon* Hufn.) had an outstanding year, with c. 3,500 covered by our records. The big numbers were registered in light traps which were regularly operated throughout the season, of which the two at Bradwell-on-Sea, Essex scored 1,065 and those in Dorset at Portland Bill 657, and at Durlston Country Park 932. Two which were seen at Monmouth and in the Isle of Wight on 4th and 10th January may have been autumn remnants. Averages of about 30 in March, April and May were not exciting, but the second half of July gave sudden abundance. This continued in August and reached its highest in September. Numbers dropped to about 500 in October, and there were still many in November, with the last at Bradwell-on-Sea on 7th December. The dating of records suggests that there was a considerable influx with other immigrants in late October. There were no reports of the larva, which feeds cryptically at or below ground level. But past rearing in captivity from eggs laid on 9th July gave moths from 25th to 30th September. In the warmth of 1989 there should have been time for early immigrants to produce moths in the wild before the winter; but there is no evidence that they did so.

Despite its high total numbers, recorded distribution was only to about 20 counties, only six of which were inland. The large numbers were essentially south and east coastal. In Northern Ireland we have only four records, from Co. Down and Co. Armagh.

The Pearly Underwing (*Peridroma saucia* Hb.), which often comes with *Agrotis ipsilon,* had a total of nearly 400 with much the same pattern of timing and reverse of the scarcity of the previous year. One was seen on 1st January (S.A. Knill-Jones, *Ent. Gaz.* **40**: 186). There were two at Ronague, Isle of Man on 23rd March, but nowhere many until the end of June, and it shared only weakly in the general immigration of late July. Numbers rose sharply in August and reached about 200 in September with good continuance in October and November, with the last in South Wiltshire on 21st November. Distribution was broadly similar to that of *Agrotis ipsilon,* but only to 17 counties with none north of South-east Yorkshire and inland only in Berkshire, Nottinghamshire, Warwickshire and South Wiltshire. In the Isle of Man it appeared at one site on six nights from 7th to 28th September, and in Ireland twenty specimens were recorded in Co. Cork on 9th and 10th August.

The Silver Y (*Autographa gamma* L.) was as usual the commonest nocturnal immigrant, but the dateable records suggest that it was considerably less numerous in most months than in 1988, and this is supported by comments on its scarcity in several places both coastal and inland. In 1989, a few widely scattered, were reported in the first week of January which may have been survivors from the autumn. A few noted at the end of March were part of a small immigration with other species, and between 20th and 27th May there were over 80, some of them as far north as South-east Yorkshire and the Isle of Man. Thereafter numbers were less than in 1988 until a high peak of about 1,850 in September, and about 50 reported in November, with the last at Wash Common, near Newbury, Berkshire and Penzance, Cornwall on 20th November. One was seen with a *M. unipuncta,* on Skye in the Hebrides on 10th October. It was reported abundantly in Berkshire but only in small numbers inland in Nottinghamshire, Northants, Surrey, Warwickshire and Wiltshire, accounting in all for less than 6% of the total dated records. In Guernsey it was seen at eleven sites on about 20 nights; in Northern Ireland in Co. Antrim, Co. Armagh, Co. Down, Co. Fermanagh and in the south at Fountainstown, Co. Cork, but apparently nowhere in large numbers.

The Rush Veneer (*Nomophila noctuella* D. & S.) was very unusually scarce, with some 560 dated records, less than one-third of those in 1988. As then, there were few in the early months, but though numbers began to rise in July they never approached those of 1988, the total of about 50 in October was conspicuously lower than the high peak of the previous year. It was noted in only 17 counties, including Guernsey. We have no information about it in Ireland.

The Rusty Pearl (*Udea ferrugalis* Hb.) on the other hand, did very well with a total of about 420 dateable records in a curious pattern. It is usually regarded as essentially an autumn immigrant commonest in October and November. But in 1989 the records began with one at Penzance, Cornwall on 25th May, several in June, over 40 in July, and a peak of at least 170 in August. Numbers dropped sharply in September but rose again through October to a lesser peak of over 60 in November. More than half the records came from Cornwall and many from Dorset, otherwise in declining numbers along the south coast to Kent; on the east coast, at Bradwell-on-Sea, in a total of 38, 13 came in a sudden peak on 28th October, but only four were in November. Two in South-east Yorkshire were the most northerly. Inland it was only reported in Berkshire, Warwickshire and Wiltshire. In the Isle of Man it was seen from 6th June to 3rd September, and in Guernsey in good numbers from 20th May to 31st October. In Ireland we have heard only of a few at Fountainstown, Co. Cork, 4th to 8th August, and one at Curracloe, Co. Wexford, 11th September.

The Diamond-backed moth (*Plutella xylostella* L.), which is probably more often ignored than counted, had fewer records than in 1988. The first was at Sparsholt, Hampshire, 1st April and the last at Burghclere, also Hampshire, 31st October, with most in July. It was widely spread, reaching Yorkshire and Aberdeen and Colonsay in Scotland, and in Guernsey it was numerous at ten sites from 25th May to 9th September.

Approximate monthly numbers of dateable records of the commoner immigrants in Britain are given in Table I. All records of the scarcer species are detailed by locality and county in Annexe II and are summarised monthly in Table II. These include some from Ireland but are not a full account for it. It brings out very clearly the importance of the great influx of the scarcer Wainscot (*Mythimna*) species, already referred to. The White Speck (*M. unipuncta*) with over 500 was far more plentiful than ever known before. The White Point (*M. albipuncta*) and the Cosmopolitan (*M. loreyi*) were similar cases. The Vestal (*R. sacraria*), about 280, also shared in these influxes, but was not more numerous than frequently in the past. So did some other scarce species, making a total with the ten commoner species of 29 immigrants in all for this autumn period. Apart from this it was a year of frequent immigrations usually in small numbers. Those in late July and early August provided most of the rarities. Origins must be speculative, but France or Spain are the most probable. It is significant that none of the sub-tropical species which sometimes reach us from north

Africa were reported, and there is no clear indication of arrivals across the North Sea from Scandinavia.

The number of our recorders has now risen again to about 180, with records sent directly or indirectly to us or drawn from other publications. We are very grateful for these, and we thank especially those who provided the results of detailed daily observations or moth trapping over much of the season. We have again, as usual, adopted the Watsonian system of counties and their vice-counties as our basis, and we ask recorders to do so where this differs from their postal addresses. The history and advantages of this system have recently been discussed by M.G. Morris (*Ent. Rec.* **102**: 25-30).

(to be concluded)

***Lomographa* species (Lep.: Geometridae) and *Eriogaster lanestris* Linn. (Lep.: Lasiocampidae) overwinter fully developed in the pupa.**

I read with interest Adrian Riley's note on overwintering pupae of *Chloroclystis v-ata,* some of which had fully developed moths inside (*Ent. Rec.* **102**: 38). I have experience of breeding *Lomographa temerata* D. & S. and *L. bimaculata* Fabr. In both species the wing markings of the moths become clearly visible through the pupal skin in the autumn. They overwinter at this stage with the moth apparently fully formed and hatch the following summer. I have only bred very small numbers of these species but they have all developed as described. I suspect that these *Lomographa* species always overwinter in this way.

An entry in my notebook on 12th December 1977 states that I had four *Eriogaster lanestris* pupae. Two male and one female pupae had fully formed moths inside and one female did not but was still alive. Two males hatched on 26th March 1978 but the female pupae died. South (*The moths of the British Isles*) states that this species may overwinter for two or three years and has been known to emerge after seven years. He states that the moth is said to be fully developed within the chrysalis all the time.— Dr B.P. HENWOOD, 4 The Paddocks, Abbotskerwell, Newton Abbot, Devon.

***Hippotion celerio* L. (Lep.: Sphingidae) Silver-striped Hawk-moth in Dorset.**

On the night of 26th/27th September 1989, Dick Chatelain and I operated several mv lights on the cliff tops overlooking Swanage Bay, Dorset. Favourable weather conditions and reports of migrant activity in the area boded well, but around midnight, after five hours of trapping, with a single *Mythimna albipuncta* D. & S. being the only possible immigrant our optimism had distinctly started to wane. Two hours later when even the resident species had ceased to appear we decided to call it a night.

At about 2.30 am, within seconds of extinguishing my last lamp, a male *H. celerio* audibly landed on the sheet and it was almost sacrilege to box such quivering splendour. With renewed enthusiam we resumed full operations and within fifteen minutes Dick was rewarded with a gravid female *Heliothis armigera* Hb. from which we both reared a fine series.

In the past *H. celerio* had the occasional "good" year, but more recently, reported visits to Britain have been much declined; and I can find but eight records for the 1970s and only four others for the 1980s.— BERNARD SKINNER, 5 Rawlings Close, South Croydon, Surrey CR2 8JS.

A melanic form of *Paradarsia extersaria* Hübn. (Lep.: Geometridae) in N.W. Kent.

Melanic forms of this moth would seem to have been distinctly rare in Britain, there being but two specimens, both ab. *variegata* Raebel, in the National Collection, one undated from S. Devon and the other from the New Forest, 13.vi.1899; a third specimen is noted by Chalmers-Hunt (*Butterflies and Moths of Kent* **3**, 1981) from Bickley, June 1912. Ford (*Moths,* 1953) however, states that there are several melanic forms of *extersaria,* two of which, including *variegata,* occur in a few Kentish woods and that their genetics do not appear to be known. Melanic *extersaria* seems not to be mentioned elsewhere in the standard textbooks, including Barrett (*Lepidoptera of the British Islands,* 1901) and curiously Kettlewell (*The Evolution of Melanism,* 1973).

At the Annual Exhibition of the British Entomological and Natural History Society in 1987 D. O'Keeffe exhibited a specimen of *variegata* from Petts Wood, Kent, 27.v.87, and the following year B. Skinner exhibited several obtained at mv light in the woodland near my residence, taken 8.vi.1988. That year two specimens were noted at my garden mv light, on June 12th and 26th. In 1989 I understand further specimens were encountered at mv light in these woodlands at Dartford by B. Skinner and R. Chatelain, while on 14th June I found a specimen settled upon the trunk of a sweet chestnut tree at the edge of the woodland; another visited my garden mv light on 9th June.

These, and other woodlands, in N.W. Kent have been well worked entomologically for over a hundred years, so this sudden appearance of melanic *extersaria* in some numbers, especially during a period when atmospheric pollution has dramatically decreased, is surely remarkable, although it may be accompanying a local population increase in the species over the past few years. My garden mv light has been in operation since 1969, but *extersaria* was not observed at it until 1976 (1), and after that not until 1984 (1), and then annually from 1986 (3), 1987 (1), 1988 (11) to 1989 (10). A further intriguing question is which are the Kentish woodlands referred to by E.B. Ford, are there specimens from them in existence, and if so, where are they located?— B.K. WEST, 36 Briar Road, Dartford, Kent DA5 2HN.

THE OCCURRENCE OF THE CALLIDINI TRIBE (COL.: CERAMBYCIDAE) IN THE BRITISH ISLES

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Introduction

THIS little group of British Longhorn Coleoptera includes some of our smaller but most beautiful beetles. All four are to a major or minor extent destructive to external woodwork, although present-day methods of treating unstripped timber has reduced the considerable damage that can be caused by these insects.

Alphabetical symbols used are those advocated by Balfour-Browne (Kaufmann, 1989): italicised letters mean that the distribution is widespread and those in parentheses indicate doubtful or unconfirmed records; a dagger (†) signifies an importation.

Callidium violaceum L.

The range of this beetle stretches from Cornwall and then along the coastal counties of the Channel, East Anglia, and the central Midlands to as far north as Cumberland. There is as Welsh record and a few from Ireland, but the beetle has not been reported from Scotland.

ENGLAND: BD *BK* (BX) CB CH CU DM† DT DY EC EK EN *ES EX EY*† *GE* GW HT L LN *LR* LS MX NH *NM* NO NS NW OX SD *SE SH SL*† *SR* ST WK WN WO WS WW WX.
WALES: GM.
IRELAND: AN† DU SK.

The larva of this species is a pest; it is found in the dried bark of dead beech, birch, juniper, larch, oak, maple, Scots pine, silver fir, spruce and fruit trees on which it feeds beneath the bark, and more particularly where the growths are used with their bark intact in the manufacture of "rustic" outdoor fittings, such as summer houses, garden seats, pergolas, palisades, etc. Duffy (1953) questions its presence in the bark of alder and willow. The damage is superficial but it causes the bark to loosen and fall off, completely spoiling the appearance of the products the larvae infest; standing timber does not seem to be attacked. The larva is sometimes present in great numbers in stacked, unstripped poles and logs in timber mills and completed outdoor furniture makers' stocks. It is very occasionally found in stripped finished woodwork.

The larva is parasitised by the Ichneumons, *Coleocentrus caligatus* Grav, and *Ephialtes manifestor* L., and by the Braconids, *Doryctus striatellus* Nees, *Helcon aequator* Nees, *H. carinator* Nees, *H. dentator* F., *H. rusparator* Nees. A possible parasite is the fly *Stevenia umbratica* Fln.

The life cycle is variable and may last from two to three years, pupation taking place in the brood wood, with the adults emerging from April until July — there is a very early record for February — when they are about until August. The beetle visits hawthorn blossom but is more usually taken off old posts and railings, and, of course, the finished goods it spoils.

C. violaceum is a local, sometimes very common beetle which varies in colour from a typical shining blue-violet to green (v. *virescens* Stierlin) or purple (v. *salessei* Pic).

Pyrrhidium sanguineum L.

Forty-five years ago, based on records that had been published over the previous years, an attempt was made to show that this species was not a beetle indigenous to this country (Kaufmann, 1944). He was wrong: a few years later (Lloyd, 1950; Allen & Lloyd, 1951) this scarce, beautiful scarlet insect, clothed in iridescent red pubescence, and illustrated by Donovan in the early 1800s, was rediscovered in a very ancient forest area in Moccas Park, thus corroborating the comments on pabulum made by Curtis (1830) and Stephens (1831). Since the late Mr Lloyd's observations, there is solid evidence that the beetle now occurs in a few isolated localities in similar habitats, where if undisturbed it may continue to extend its range. Its distribution was formerly largely confined to the south-west, some of the western counties and Wales. Of course, some of the older records are certainly of importations, but *Pyrrhidium* is now very vulnerable and on the list of endangered Cerambycids (Shirt, 1987). If it is to survive it should be left to complete its life cycle, protected from the attentions of over-enthusiastic collectors.

ENGLAND: DT HF L MM SD SE† SP SL† (SR) SY†.

WALES: A BR RA.

SCOTLAND: ED†.

The most favoured pabulum of the larva is the oak, whose thicker branches, crown, felled trunks and stumps it attacks; it is also known to affect other deciduous hardwoods, including beech, chestnut, elm, hornbeam and fruit trees. It has been found in pine (Fraser, 1948). It does less damage than the following species but is known to infest unstripped stacked wood.

It is host to a number of parasites, namely:—
Bracon truncorum Gour., *Chaeropachys colon* L., *Dibrachys cavus* Wlk., *Doryctes gallicus* Reich., *Ipobracon obscuripennis* Ths., *Neoxorides nitens* Grav., *Pyracmon xoridiformis* Hlgr., *P. xoridoides* Str., *Spathius rubidus* Rossi, *Xorides filiformis* Grav. and *X. praecatorius* F. Apart from those Hymenoptera, the larvae is also parasitised by the Diptera, *Billaea triangulifera* Zett. and possibly *Phryne vulgaris* Fall.

Metamorphosis varies between one and two years. Pupation usually occurs in March and April, eclosion taking place from then until June; but should it be deferred until the late summer, then the beetle overwinters until the following year. During its transitory adult life the imago sometimes visits flowers, but it evidently prefers to stay basking in the sunshine near its host tree. No adults have been found in the open beyond June.

Like some other Cerambycids with strong mandibles, *sanguineum* has been known to bite its way through metal sheeting (Houlbert, 1912) and, in a laboratory, through a lead crucible (Laing, 1920); there is also a curious instance (Léveillé, 1897) of its eating through a pile of gelatine photographic plates.

The uncertainty about the status of *P. sanguineum* in Great Britain as to whether or not it was a native or an imported species is reflected in the British catalogues published over the last 150 years; ten such list it as indigenous, seven as an importation and two omit its name altogether. Unfortunately our latest catalogue (Kloet & Hincks, 1977) erroneously includes it as adventitious.

Phymatodes testaceus L.

A beetle that ranges from the base of the south-west peninsula, the south-east, the Home Counties, East Anglia, some western areas and the central Midlands but not beyond Cheshire and south Yorkshire and Lancashire.

ENGLAND: BD BK BX CB CH DM† DT DY *EK* EN ES EX GE GW HF HT IW *L* LN *LR* MX MY†NE NM NO NS NW *OX SE SH* SL *SR* ST SY *WK* WN WO WS WW *WX*.

WALES: GM.

SCOTLAND: ED†.

The larva usually attacks the branches, dead boles and unstripped logs of deciduous trees, but it also infests coniferous growths including apple, ash, beech, birch, blackthorn, elm, hazel, hemlock, *Hicoria,* hornbeam, horse chestnut, larch, maple, oak — its favourite host plant — pine, poplar, sour cherry and willow. On the Continent it damages hop poles and vine props. The larvae of *Trinophylum cribratum* Bates, an Indian Coleopteron which has established itself in English oak in a few localities, has been found to be also present in that tree where it is already heavily infested with *P. testaceus.*

The larva of the latter is host to nearly a score of Hymenopterous Ichneumonids and Braconids which include:—
Cheiropachys colon L., *Coelocentrus caligatus* Grav., *Doryctes gallicus* Reinh., *D. leucogaster* Nees, *Echthrus reluctator* L., *Ephialtes mesocentrus* Grav., *E. manifestator* L., *E. tenuiventris* Holmg., *E. tuberculatus* Fourcr., *Helcon carinator* Nees, *H. tardator* Nees, *Iphiaulax flavator* F., *Ischnocerus filicornis* Kriechb., *Neoxorides nitens* Grav., *Pteromalus bimaculatus* Rtz., *Spathius exarator* F., *S. ferrugatus* Gour., *Xorides filiformis* Grav., and *X. praecatorius* F.

Metamorphosis is variable; in suitable conditions it can be as short as one year; when they are adverse, it may extend to three winters. Pupation takes place from March until May, the perfect insect emerging, sometimes by the hundred, where the damage it causes is extensive, throughout the early summer until August. *P. testaceus* is at its commonest in the southern counties. It may be beaten off hawthorn but more frequently it settles on old posts and wood piles. Crepuscular by nature, the beetle usually shelters under the bark in daytime. It is attracted to light and entomologists' "sugar".

The insect is often imported into this country in unstripped logs and is of economic importance in the tan bark industry, where, although the damage it does may be superficial, it is nevertheless costly. *P. testaceus* has also bored through finished products such as oak planking and finished carpenters' stocks. A record from abroad relates how it gnawed its way through a bale of silk (Duffy, 1953).

The imago, which is drawn by Martyn (1792), is subject to considerable variation, colour forms which have been divided into three sections, *viz.*, unicolourous testaceous, bicoloured yellow-brown and blue, and its blue, green and violet forms (Klausnitzer & Sander, 1981). Villiers (1978) categorises the varieties differently, describing 27 of them and illustrating a dozen. Many of them will occur in this country and in our collections: very few records have been published.

v. *melanocephalus* Ponza ENGLAND: BK IW LR.
v. *analis* Redt. ENGLAND: BK IW.
v. *praeustus* F.* ENGLAND: IW.
v. *fennicus* L.* ENGLAND: IW LR.

* Listed only in Crotch's 1863 British catalogue.

P. (Poecilium) alni L.

The distribution of this beetle is still rather patchy, ranging along the Channel coast, some of the Home Counties, Fenland, parts of the West Midlands and the north, but not farther than Cumberland; unrecorded from either Scotland or Ireland.

ENGLAND: *BK* CH CU DM DT DY *EK* ES EX GW HF HT HU IW L LR MM MX NH NW OX SD SE *SH SR WK* WN WO WS WX WW (WY).
WALES: DB.

The larval stage is spent in recently dead or decaying twigs, slender branches and freshly cut unstripped palings of alder, ash, aspen, chestnut, elm, fir, hazel, maple, oak (its preferred pabulum) and rose. Its only parasite is the Hymenopteron, *Spathius rubidus* Rossi.

Metamorphosis is usually completed within a year, but the life cycle sometimes extends to a two year period. Pupation takes place during the spring, the imagines emerging in April and May; thereafter, the beetle, which runs very swiftly, may be taken until August by sweeping or beating bundles of faggots, hop and vine poles, hurdles, posts and railings, woodstacks, brambles, hawthorn, old oak scrub, in whose withered tops it will shelter, and rhododendrons.

A fairly common, pretty little beetle, causing the occasional infestation but not regarded as a serious pest, as many as 24 beetles have been found in a 25 cm. length of branch (Demelt, 1966).

The elytral fasciae vary considerably, ten forms of which are drawn by Villiers (1978). It is also depicted by Martyn (1792).

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References

Allen, A.A. & Lloyd, R.W., 1951. *Pyrrhidium sanguineum* L. (Col.: Cerambycidae) as a British species, *Entomologist's mon. Mag.,* **87**: 157-158.

Aurivillius, C., 1912. Cerambycidae *in* Junk, W. & Schenkling, S., *Coleopterorum Catalogus,* **39**: 343-353. Berlin.

Chinery, M., 1986. *Insects of Britain and Western Europe.* London.

Cooter, J. & Cribb, P.W., 1975. *A Coleopterist's Handbook.* 2nd ed. Feltham.

Curtis, J., 1830. *British Entomology,* **7**, pl. 295. London.

Demelt, C. von, 1966. Die Tierwelt Deutschlands, 52:2. *Bockkäfer oder Cerambycidae,* **1**. Jena.

Dibb, J.R., 1948. *Field book of Beetles.* Hull.

Donovan, E., 1793. *The natural history of British Insects,* **2**, pl. 61, fig. 1. London.

— , 1813. *Idem,* 16, pl. 553, fig. 1. London.

Duffy, E.A.J., 1953. *A monograph of the immature stages of British and imported Timber Beetles (Cerambycidae).* London.

Fowler, W.W., 1890. *The Coleoptera of the British Islands,* **4**. London.

— & Donisthorpe, H.StJ.K., 1913. *Idem,* 6 (Supplement). London.

Fraser, M.G., 1948. *Pyrrhidium sanguineuum* L. (Col.: Cerambycidae) in Lancashire, *Entomologiust'a mon. Mag.,* **84**: 161.

Freude, H., Harde, K.W. & Lohse, G.A., 1966. *Die Käfer Mitteleuropas,* **9**. Krefeld.

Hall, C.A., 1914. *Common British Beetles.* London.

Harde, K.W., 1984. *A field guide in colour to Beetles.* London.

Hickin, N., 1987. *Longhorn Beetles of the British Isles.* Princes Risborough.

Houlbert, C., 1912. Dégâts produits par le *Criocephalus rusticus* dans les bois de construction, *Insecta:* **2**(24): 310, footnote 7.

Joy, N.H., 1972. *A practical handbook of British Beetles.* 2 vols. 2nd ed. Faringdon.

Kaufmann, R.R. Uhthoff-, 1944. Is *Pyrrhidium sanguineum* L. (Col.: Cerambycidae) a British Insect?, *Entomologist's mon. Mag.* **80**: 261-262.

— , 1946. On some doubtful or rare Longicornia (Col.) included in the new Check List of British Insects, *Ibid.,* **82**: 181-185.

— , 1948. Notes on the distribution of the British Longicorn Coleoptera, *Ibid.,* **84**: 66-85.

— , 1989. Browne *versus* Watson: Round two, *Entomologist's Rec. J. Var.*, **101**: 61-63.
Klausnitzer, B. & Sander, F., 1981. *Die Bockäfer Mitteleuropas.* Wittenberg Lutherstadt.
Kloet, G.S. & Hincks, W.D., 1977. *A check list of British Insects,* **11** (3), Coleoptera and Strepsiptera: 71. 2nd ed. London.
Laing, F., 1920. Insects damaging lead: supplementary note, *Entomologist's mon. Mag.,* **65**: 12.
Léveillé, A., 1897. Sur la destruction de clichés photographiques par un Coléoptère, *Ann. Soc. ent. Fr.,* **66**, Bull.: 122.
Linssen, E.F., 1959. *Beetles of the British Isles,* **2**. London.
Lloyd, R.W., 1950. *Pyrrhidium sanguineum* L. (Col.: Cerambycidae) in Herefordshire, *Entomologist's mon. Mag.,* **86**: 36.
Lyneborg, L., 1977. *Beetles in colour,* English edn., Vevers, G. Poole.
Marsham, T., 1802. *Entomologia Britannica,* **1**, Coleoptera. London.
Martyn, T., 1792. *The English Entomologist,* plate 25, fig. 15; plate 26, fig. 23; plate 28, fig. 14. London.
Pic, M., 1900. *Catalogue bibliographique et synonymique des Longicornes d'Europe et des régions avoisinantes:* 49-51. Lyons.
Shirt, D.B. (ed.), 1987. *British red data books:* 2. Insects. Peterborough.
Spry, W. & Shuckard, W.E., 1840. *The British Coleoptera delineated.* London.
Stephens, J.F., 1829. *A systematic catalogue of British Insects:* 200-201. London.
— , 1831. Illustrations of British Entomology, *Mandibulata,* **4**. London.
— , 1839. *A manual of British Coleoptera.* London.
Villiers, A., 1978. *Faune de France,* **1**. Coleoptera: Cerambycidae. Paris.
Westwood, J.O., 1839. *An introduction to the modern classification of Insects.* London.
Winkler, A., 1929. *Catalogus Coleopterorum regionis palaearcticae* **10**: 1173-1174. Vienna.

Variation in *Adalia bipunctata* L. (Col.: Coccinellidae)

Each year some three to five per cent of the *Adalia bipunctata* L. coming out of hibernation turn out to be varieties, but at Kew during March 1990, the proportion of such varieties was much higher at 17% (six out of 36 specimens noted). These were three *quadrimaculata,* two *bar-annulata* and one *duodecempustulata.* — A.J. BALDWIN, 33 Defoe Avenue, Kew Gardens, Surrey TW9 4DS.

Eudonia mercurella (L.) (Lep.: Pyralidae) reared from Kidney Vetch

On 16th July 1988 the late Dr K.C. Greenwood found a larva in the seed-heads of Kidney Vetch, *Anthyllis vulneraria* L., at Harbury, Warwicks. He reared an imago therefrom, which emerged on 10th August and was later identified as *E. mercurella* by R.J. Barnett, then of the Herbert Art Gallery and Museum, Coventry, where the specimen now rests. This is a most extraordinary record, as the larva normally feeds on mosses (*vide* Emmet, 1988, *A Field Guide to the Smaller British Lepidoptera* 2nd ed.).— JOHN ROBBINS, 123b Parkgate Road, Coventry CV6 4GF.

THE WEST COUNTRY REVISITED

B.R. Baker

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I FIRST went to Cornwall some forty years ago and when, from time to time, I visit familiar places it is always with a sense of great anticipation. Speaking entomologically there have been many blanks during those forty years, but perhaps this isn't a bad thing. It makes one even more appreciative of the occasional "good night" such as 18th September 1975, given mention in *Entomologist's Rec. J. Var.*, **88**: 83-86.

On 30th September 1989, we again went back to Cornwall, always in hope, but in reality not expecting very much. From Reading down to The Lizard is not far short of 300 miles so almost anywhere west of the Tamar Bridge is welcomed as a short break in the journey. We chose a familiar back-lane near Herodsfoot and sat on a sunny bank which seemed alive with *Lycaena phlaeas* (L.) and even the occasional *Lasiommata megera* (L.). High overhead a buzzard mewed, a pair of raven indulged in leisured acrobatics and it was good to be back in the West Country.

That night I set up the trap in the small garden of the thatched cottage which was to be our home for the next week, then took the Tilley to the ivy on the nearby cliffs. *Agrotis ipsilon* (Hufn.) was there along with *Peridroma saucia* (Hb.) and *Mythimna l-album* (L.) — the night was mild and promised well for the following morning. A promise fulfilled, for there, as if inviting comment by its conspicuous position, sat an *Agrius convolvuli* (L.) on the white wall of the cottage. Outside and inside the trap were many *Epiphyas postvittana* (Walk.) (to prove the commonest moth of the week), several markedly ochreous *Eumichtis lichenea* (Hb.) (so different from the Portland form), some very fresh *Polymixis flavicincta* (D. & S.), two late *P. xanthomista* (Hb.) and two fresh *Mythimna unipuncta* (Haw.). This wainscot revived memories of 1975 when, thanks to a co-operative female, I was able to raise a large November/December brood. Nothing quite equals one's first glimpse of a new moth, especially if it is a migrant, but to see *unipuncta* again after a long absence was still breath-catching. We recorded a total of eighteen during the week, the moth appearing every night except one. Yet on that particular night when *unipuncta* stayed away, a very welcome female *Mythimna albipuncta* (D. & S.) awaited in the trap. Apart from *E. postvittana* micros were few at light during the week — two *Mecyna asinalis* (Hb.) on 4th October, two *Nomophila noctuella* (D. & S.) and a single *Udea ferrugalis* (Hb.) on the 6th.

It was a surprise to see a single *Habrosyne pyritoides* (Hufn.) on 3rd October, but other lepidopterists will also probably record unusual second broods arising from the warm summer weather of 1989. Butterflies also produced some additional broods — as well as the previously mentioned *phlaeas* and *megera,* a single male *Polyommatus icarus* (Rott.) was flying on the 4th October in Kynance Cove. This famous beauty spot had few holidaymakers on that sunny October afternoon, and such as there were had all succumbed to the spell of the sands. I headed up the back valley and in no time had the place entirely to myself. Ever mindful that a friend had seen a *Danaus plexippus* (L.) here in 1981, I climbed the steep slope, found a convenient, sun-warmed ledge and watched and waited until the shadows lengthened. From time to time small groups of swallows swept down towards the sea, numerous *Vanessa atalanta* (L.) fluttered over the ivy blooms, a solitary (and very ragged) *Cynthia cardui* (L.) warmed itself on the path — but of *plexippus* there was no sign. Another year perhaps we can try again, but the time spent in that sun-lit valley was not wasted. Had I not waited there the two peregrine falcons, poised high in a blue sky, would have been disporting themselves without a single human to admire their display.

A late *Xestia agathina* (Dup.) on 7th October was a newcomer and, as we packed the car on that last morning, a single *Macroglossum stellatarum* (L.) was busily inspecting the red valerian in the cottage garden. It was dull and sun-less but the weather in no way deterred the hawkmoth from its early morning feed. At 8.30 am the previous morning another specimen (or perhaps the same one) had been similarly engaged, though then on valerian the other side of the cottage.

Every visit to Cornwall ends too soon, but this year we were to linger awhile in the West Country by staying briefly with friend John Robbins on Exmoor.

On the drive northwards we had the rising wind at our backs and the car fairly hummed over Davidstow Moor. We sidetracked briefly to see if the years had changed Crackington Haven — our last visit was in 1950 when *Maculinea arion* (L.) still flourished not far distant. On this October day, the gaunt headland was as impressive as ever, perhaps more so with no sunlight to relieve its black mass and an angry sea pounding down below. As for the hamlet it seems not to have suffered the passage of time, the air of remoteness is still there though the hotel is not as we remembered.

The winds increased throughout the day and as we topped the climb up over Countisbury the radio programme was interrupted to announce "storm force ten imminent in sea area Lundy". It was soon upon us — the moors were misted out, visibility was negligible and we descended Porlock with more than usual care.

That night seemed an impossible one for mothing, but seventy-five posts were sugared and the trap lit in a sheltered corner of John's large garden. As expected, no moths came to those windswept posts, but *Agrochola helvola* (L.) and *Lithophane leautieri* (Boisd.) managed to reach the trap as had an impressive *Vespa crabro* (L.).

The storms gave way to a day of autumn sunshine and we were taken to a secluded Exmoor combe which seemed alive with *Pieris brassicae* (L.). They were everywhere, floating over the heathery slopes, whilst *phlaeas* was common as in Cornwall. Sweeping produced some useful *Coleophorid* records, Col. Emmet having asked John to try for *C. juncicolella* Stt. and *C. pyrrhulipennella* Zell., both apparently unrecorded for v.c.5.

Our Exmoor visit however will probably best be remembered for insects other than lepidoptera. Hornets, a scarce insect back home, had been noted consistently at house lights ever since our visit here last June — twelve were in the trap on 9th October. The nest must have been close by for a busy flight path towards the garden shed was in operation, but difficulty of access made us give up the search.

I was informed that "hornets are very docile at this time of year" — but the many neatly severed moth wings seemed at variance with such a statement. Even so, ones friends must be trusted so several worker hornets were gingerly fingered out of the egg trays and released. Yet "best admired from a distance" remains a conviction hard to dispel.

After six days the *albipuncta* eventually obliged with eggs, but the comment in the literature "takes rather longer to feed up than do others of the migrant *Mythimnas* is proving only too true!

Effects of the mild 1988 - 1989 winter on beetles in Worcestershire

No British winter for 330 years has been as mild as that of 1988-89. Despite snow cover on 20th November 1988, the whole of the ensuing period was exceptionally mild; in the second half of December some southern English counties were the warmest places in Europe. At this time temperatures in south Worcestershire regularly reached 14°C, some 9°C above the normal mean.

This note describes the effect of that winter on terrestrial beetles (and one or two others of climatically non-buffered niches) largely in OS grid square SP/03, Worcestershire. Many terricolous beetles that overwinter as adults move to local refugia, presumably in response to climate. Rank, low-lying grassland is a favoured biotope for many.

In 1988, this dispersal took place right up to the snow of 20th November, involving in the third week of the month such species as *Anotylus complanatus* (Er.), *Oxytelus laqueatus* (Msh.), *Stenus fuscicornis* Er., *Philonthus longicornis* Ste., *Quedius schatzmayri* Grid., *Atheta excellens* (Kr.), *Aphodius sphacelatus* (Pz.), *A. obliteratus* Pz. and *Chaetocnema hortensis* Ste.

Bembidion properans (Ste.) was active in late November, and fresh adults were observed in late December; *Omalium oxyacanthae* Gr. was in flight in late November, *Atheta fungivora* (Th.) active in early December. In many cases a high level of activity was maintained through the whole winter period (*Atenus bimaculatus* Gyll., *S. brunnipes* Ste., and *Aphodius sphacelatus* (Pz.) this last through November, rarely in December, throughout January, or for a part of it, viz *Onthophilus striatus* (Forst.), *Nossidium pilosellum* (Msh.) late December; *Catops fuliginosus* Er. and *C. grandicollis* Er., early to mid-December, the latter *in cop.*; *C. nigricans* (Spence) late December and first half January; *O. laqueatus* mid-December; *Rugilus orbiculatus* (Pk.) end December; *Quedius fumatus* (Ste.) early December; *Aloconota gregaria* (Er.) mid-November to early December; *Atheta nigra* (Kr.) late December and all January; *Aphodius obliteratus* and *Leiosoma deflexum* Pz., late December.

Carabidae active during mid-December included *Notiophilus biguttatus* F., *Agonum marginatum* (L.) and *Trechus obtusus* Er.; during late December *Bembidion femoratum* Stm., *B. quadrimaculatum* (L.), *Acupalpus meridianus* (L.) and *Badister bipustulatus* (F.). A particularly interesting record at this time and a true measure of the climate was the finding of the widespread adventitious species *Cercyon unipunctatus* (L.). *Anotylus inustus* (Gr.) was active throughout January, and *Leistus spinibarbis* (F.), *Staphylinus melanarius* Heer, and *Atomaria lewisi* Reit. early in the month.

Abraeus globosus (Hoff.) remained active through December and January; later in January *Cercyon terminatus* (Msh.) and *Phyllotreta nigripes* (F.) were observed more frequently. An *Encephalus complicans* Ste. was obseved in mid-January.

It would be a mistake to draw too many conclusions about these manifestations of climate; they need not ultimately act in favour of the species mentioned, which may for instance need to face competition from new colonists. The advanced appearance of species of *Bembidion, Aphodius* and *Leiosoma* early in 1989 led to no evidence of an increase in their numbers in the area in question.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcs WR10 3EP.

(As an immediate footnote to this communication, I record the following Coleoptera as a part of a much larger assemblage active in a pile of straw stable-bedding at Broadway, Worcs on 4.i.1990: *Cercyon haemorrhoidalis* (F.) several hundred; *C. melanocephalus* (L.), *C. terminatus* (Msh.); *C. unipunctatus* (L.); *Cryptopleurum minutum* (F.); *Onthophilus striatus* (Forst.); *Peranus bimaculatus* (L.); *Ptenidium pusillum* (Gyll.); *Lithocharis ochracea* (Gr.); *Philonthus discoideus* (Gr.); *P. longicornis* Ste.; *Quedius cruentus* (Ol.) 90% ab. *virens* Rott.; *Q. mesomelinus* (Msh.); *Q. molochinus* (Gr.); *Q. nemoralis* Baud.; *Crataraea suturalis* (Man.); *Clambus pubescens* Redt.; *Ahasverus advena* (Walt.); *Ephistemus globulus* (Pk.); *Mycetaea hirta* (Msh.); *Anthicus floralis* (L.). Co-incident has been the very strongly marked decrease of *Cercyon* spp. in many of their normal rank-grassland winter quarters in the local area. Is this an expression of climatic warming?)

MOTHMANSHIP
(HOW TO BE ONE-UP AMONGST LEPIDOPTERISTS)
PART III: MIGRANTS

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IT MUST be admitted that, in the case of scarce migrants and major varieties, luck plays a major role for the collector, no matter how wise he is in field craft. Some of us do have amazing good fortune, time and again while others never strike lucky. There is no merit in this, but it happens. Consider. I once found a fully grown larva of *Lasiocampa quercus* and remembering that I needed one replacement, took it home where it spun up at once. What emerged was the unique female with male coloration. Others might have reared hundreds without a trace of variation. Or, again, I decide to take a different way home and *Cosmolyce boeticus* settles on a hedge in front of me and allows herself to be caught in the only plastic tube I have in my pocket for emergencies. I can think of a dozen others who seem to have this sort of luck, but I also remember so many hard working others who never experience the thrill of the early post-trap phone call to the grape vine. Their collections are beautifully set and arranged, but never a rare migrant or super var. in sight, never a specimen to be photographed at The Exhibition. Most stumble across one or two jewels in a lifetime but what of those who never do? Is there a ploy by which they can keep their end up?

As far as vars. go the only hope is to plug away on an extended course of inbreeding, double the number of traps and seek pastures new and they must expect things to turn up — they must not give way to despair. Optimism breeds luck. But where migrants are concerned there are a few ploys which have been exploited, among others, by the late P.B.M. Allan. You must make a virtue of necessity.

P.B.M. was a delightful character and his books are most entertaining, but he was the first to admit that he had never turned up anything unusual in his life. To be fair, he collected in pre-m.v. days but if he had had luck . . . I have found both *auricoma* and *fraxini* at rest on tree trunks at Ham Street, took my first *sacraria* on a gas-lamp in Croydon, and even netted *ononaria* dusking with a torch on the bridge in Tilgate Forest! Now the Old Moth-hunter does not despise rarities. His books are full of them. He devotes many pages to casting doubts on many species which time has shown to be regular visitors, some of which, like *lunula* and *compta* have since become well established. His other ploy is to denigrate the importance of such chance visitors, on the grounds that they do not differ on the two sides of the Channel, as if dispersal, migration, and colonisation were not quite as interesting as which part of a leaf his prominent larvae eat.

There are others like him around. The gentlemen who only collect "Our indigenous species''. Let them find *nerii* in their trap one morning! Will they cast him forth? And should they retire to the south coast they can scarcely avoid those nights when migrants make up half the catch. No, there is no real gambit for the unlucky ones except the rueful smile and the shrug of the shoulders. Do you remember a past treasurer of this Journal, Peter Renshaw? His young daughter pestered him for a chance to catch a butterfly. He gave her a net. Her first capture was a halved gynandromorph *Pieris rapae*. So start training the family at once!

A word of warning. It does not pay to take chances with your luck.

One night in Worth Forest, where I was sharing my sheet with B.M., who had provided transport, I rashly wandered off to speak to Richardson who was below in the swamp. On my return, B.M. showed me a moth which had just come in and which he did not recognise. So, alas, the *deceptoria* intended for me went to another. The same mistake cost me dear on Portland. I had offered my pet spot to T.P. who needed a species which usually was taken there. Within a short time he had an *ostrina*! Still, to be honest, T.P. is pretty lucky himself.

Finally, for those who do not know the tale, there was the great Watkinson Ploy. After a meeting in Maidstone of The Entomologists of Kent, we had all taken over the snug on the Local. It was a mild night and the window was open to let out the fug. Suddenly a moth buzzed round the lamp to attract all eyes. It settled for a moment and someone shouted ''*ni*!'' There was a furious uproar as empty beer mugs and matchboxes came into play and in the scuffle it was realised that there two of them. Then Watkinson was spotted releasing a third. He had been doing work on them as pest species for his firm. We rapidly lost interest but it was an exciting few moments and the emptied glasses were soon refilled.

One solution for unlucky Northerners, if they want to keep up with the Joneses, is to move to Freshwater.

References

Wild, E.H., 1989. Mothmanship (How to be one-up amongst lepidopterists) Part I: Namesmanship, *Entomologist's Rec. J. Var.* **101**: 175-176.

— , 1989. Mothmanship (How to be one-up amongst lepidopterists) Part II: ploys with light. *Ibid*. 239-240.

***Eilema pygmaeola pygmaeola* Doubl. (Lep.: Arctiidae) in Lincolnshire.** Four examples of this species were caught on the nights of 7th and 8th July 1989 in a Rothamsted Insect Survey light trap at Saltfleetby (Site no. 471). This appears to be a new county record for the Pigmy Footman. The specimens were most probably immigrants — several other immigrant species being seen along the coast at about the same time.— C. PENNEY, 109 Waveney Drive, Chelmsford, Essex CM1 5QA.

GARDEN TIGER MOTH, *ARCTIA CAJA* L. (LEP.: ARCTIIDAE) — A CLUE TO THE IDEAL HABITAT FOR THE SPECIES?

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I READ with interest the notes on *A. caja* in this Journal (West, 1989). As in previous papers Mr West again draws attention to the apparent gaps in the literature concerning the habits of even the more common British moths and their larvae and to the need for more quantitative information. I would therefore like to record some observations on the comparative abundance of *A. caja* at Woodwalton Fen National Reserve, Cambs.

On the night on 13th/14th August 1987 I operated six actinic Heath traps (Heath, 1965) all night on Woodwalton Fen and recorded a total of 49 *A. caja* including at least two females which laid eggs on the egg boxes lining the traps. The highest numbers of adults were recorded on the edges of two sites which consisted of tall fen vegetation heavily dominated by several years' growth of standing reed, *Phragmites australis,* but with herbs and forbs present, particularly stinging nettle, *Urtica dioica* (NCC compartments 29 and 56). Each of these two traps contained 12 *A. caja,* an impressive sight. On a site where the fen vegetation was growing back after having been cut and removed the previous year, a trap captured nine adults (compt. 46). A trap on the edge of sallow carr (compt. 51) captured six adults and a trap on the edge of the "copper-fields" (compt. 37) which are now also dominated by reed, captured three adults. Only the sallow carr and copper-field sites had trees and shrubs nearby on which eggs might have been laid as proposed by Shaw (1985).

The larvae of *A. caja* are also seen regularly by visitors to the fen. On 5th May 1987 I saw over twenty part-grown, post-hibernation larvae. These were in several groups feeding on young stinging nettle plants amongst dry reed litter on the edges of paths through the fen vegetation. The larvae were not concealed and were easy to spot as they sat in the weak sun.They were not under trees or shrubs. On 3rd June 1989 I photographed a final instar larvae feeding on a taller nettle plant on the edge of a bank of reeds on the margin of the fen. The larvae have also been reported on several occasions feeding on the great water dock, *Rumex hydrolapathum,* that grows on the fen (R. Harold, reserve warden, pers. comm.).

I have encountered *A. caja* in many places in Britain, both as adults and larvae but no-where have I had so many adults in a Heath trap or seen so many larvae in a day as at Woodwalton Fen. Chippenham Fen, Cambs also has a large population of *A. caja.* I have not trapped there at the peak of the flight period for this species but on a visit on 18th/19th August 1987 a total of 13 were captured in six Heath traps (including five in one) and the species had already been on the wing there a month earlier, for on the night of 20th/21st July 1987 I recorded four using six Heath traps.

My experience from a variety of sites indicates two results which may prove to be general. Firstly the larvae of *A. caja* do not conceal themselves when feeding and are often found in full sun. Probably their black colour assists them to warm up at the beginning and end of the year to facilitate activity and digestion, as has been shown by Porter (1982) for the black larvae of the Marsh Fritillary butterfly *Eurodryas aurinia*. Secondly the sites in which I have trapped most adults have been in open habitat where rank herbs and forbs are present in quantity.The moth is present in woodlands but less numerous. For example between 1984 and 1986 in Bernwood Forest on the Oxon/Bucks border adult *A. caja* turned up at the rate of one or two per night per Robinson trap (Robinson and Robinson 1950) in late July and August if the trap was situated on a ride. At Heath traps only three *A. caja* were recorded in two years of weekly trapping at six sites within the wood. Two of these moths were on rides, one was trapped in a recently-coppiced plot and none were recorded under the canopy of broadleaved trees, so the moth could hardly be described as common in Bernwood. It was more frequently seen at my family home eight miles away at Kidlington, Oxon, where I operated a Robinson trap most weeks of most years from 1976 to 1986 in a large garden surrounded by other gardens and also fields grazed by cattle and horses. Here I sometimes caught three *A. caja* per night in the Robinson trap, seldom more, and in 1985 when I also operated a Heath trap on a weekly basis I caught none in the latter. At Park Farm larvae were occasionally found feeding on broad-leaved dock, *Rumex obtusifolius* and dandelion, *Taraxacum* spp. but at this and other sites they were usually encountered when full-grown, running across roads, tracks or open ground, and so provided no host-plant information.

Clearly *A. caja* is more common in some habitats than in others. The apparent variation in numbers of moths on different parts of Woodwalton is of interest and would be worth further investigation. The sites on the fen where most *A. caja* were trapped and where the larvae were seen all have a plentiful supply of dry stubble and litter. This was less well developed at the other sites on the fen though it was present within 50 m of each, over which distance *A. caja* presumably has no difficulty flying.

Another site where I trapped rather more *A. caja* in a night than elsewhere (ten in a Robinson trap on 29th/30th July 1979) was a sunny open bank at Sydlings Copse nature reserve, Oxon. A prominent feature of this bank was dry bracken and gorse litter. This year R. Louch (pers. comm.) trapped 22 *A. caja* in two Heath traps on 8th/9th July 1989, on the edge of Otmoor, Oxon. This is another area which is wet, open, has much rank vegetation and also much tussock grass, *Deschampsia cespitosa*, and other litter for winter refuges. However, these numbers are completely dwarfed by the colossal totals of over a hundred specimens in a Heath trap in a night reported by Dunn and Parrack (1986) "among the more mature coastal dune systems" in Northumberland and Durham. Elsewhere in these counties they report that *A. caja* is fairly common in lowland "areas of rough grassland with mixed vegetation".

I am not aware of any reports of overwintering *A. caja* larvae burrowing below the soil surface. This is unlikely considering their pelage of long hairs and such places on the fens are likely to be water-logged. In captivity the larvae are best overwintered outdoors, among absorbant tissues (R. Fry pers. comm.) or on corrugated card, in shelter. If conditions are too airy the larvae dry out but heavy losses occur in damp conditions (R. Fry pers. comm.). The presence of plants which die down to produce dry litter which does not completely collapse and lose its structure over the winter may be of value in providing suitable overwintering sites for the young larvae.This could be as important in supporting large populations of *A. caja* as the availability of suitable host-plants growing in sunny situations. If so, then the species will be vulnerable to over-tidiness in gardens, hedgerows, ditches, field margins and elsewhere during both summer and winter.

Acknowledgements

I would like to thank the Berkshire, Buckinghamshire and Oxfordshire Naturalists' Trust for permission to trap in Sydlings Copse and the Forestry Commission for permission to trap in Bernwood Forest. Oxford Polytechnic financed the work at Bernwood and the work at Woodwalton Fen and Chippenham Fen was done during a contract with the Nature Conservancy Council.

References

Dunn, T.C. and Parrack, T.D., 1986. *The moths and butterflies of Northumberland and Durham* Part 1. Northern Naturalists' Union.

Heath, J., 1965. A genuinely portable m.v. light trap. *Entomologist's Rec. J. Var.* **77**: 236-238.

Porter, K., 1982. Basking behaviour in larvae of the butterfly *Euphydryas aurinia. Oikos* **38**: 308-312.

Robinson, H.S. and Robinson, P.J.M., 1950. Some notes on the observed behaviour of Lepidoptera in the vicinity of light sources together with a description of a light trap designed to take entomological samples. *Entomologist's Gaz.* **1**: 3-20.

Shaw, M.R., 1985. Semi-arboreal habits of *Spilosoma* and *Arctia* species. *Entomologist's Rec. J. Var.* **97**: 31-32.

West, B.K., 1989. Some comments on the life history of the Garden Tiger moth, *Arctia caja* L. (Lep.: Arctiidae). *Entomologist's Rec.J. Var.* **101**: 255-259.

Melanism in *Biston betularia* L. (Lep.: Geometridae) in Kent.

In *Ent. Rec.* **100**: 39 I noted apparent changes in the relative proportions of the three forms of *B. betularia* attracted to mv light at Dartford from 1970 until 1985. Based upon four year periods the statistics indicate a distinct decline in form *carbonaria* Jdn. The period 1986 to 1989 shows a continued decline in form *carbonaria* Jdn. The period 1986 to 1989 shows a continued decline, although as with the previous four year periods, only when the four years are considered as a whole. Below is the table showing the percentages of the three forms from 1970, inclusive of the period 1986 to 1989.

	% *typica*	% *insularia*	% *carbonaria*	Yearly sample average
1970-1973	14.5	7.5	78	119
1974-1977	10.5	13	76.5	107
1978-1981	17	11	72	99
1982-1985	19	16.5	64.5	102
1986-1989	25	21	54	164

These figures show several interesting trends, and perhaps the most significant is not the continued relative decline of *carbonaria,* but the remarkable percentage increase in this decline between these four year periods respectively — 1.5%, 4.5%, 7.5% and 11.5%. Form *insularia* Th.-Mieg. has however not similarly declined relative to normal *betularia,* indeed it has increased from 7.5% for period 1970-1973 to 21% for the current four year period. However, it must be remembered that lightly marked *insularia* merge imperceptibly into typical *betularia* in appearance, and so figures used in comparison contain a considerable subjective element.

When the four year periods are broken down into individual constituent years the relative increases and decreases of the various forms are seen to be by no means regular; for example in the period 1986-1989 inclusive, *carbonaria* fell from 61% in 1986 to almost 51% in1987, with normal *betularia* rising to over 32%, about double that for *insularia* at 16.5%. In 1989 *carbonaria* reached its lowest figure for the twenty years at 45.5%, the other two forms being about equal close to 27%. Such differences from year to year have been a constant feature.

The *carbonaria* recorded have been the form with the blackish wings, but with the white spot at the base of the forewing, and white on the head and legs; I have not encountered the completely black form. The exceptions have been a few specimens similar to those representing *carbonaria* in its early days in the last century, having some vestige of a postdiscal white line on all wings. *Insularia* range from specimens difficult to differentiate from type specimens to those closely resembling *carbonaria*, but all having speckling to some extent on thorax and abdomen, with the exeption of a small number possessing a totally black abdomen and thorax. Type specimens are invariably well speckled and contrast with the paler forms from western Ireland and the Highlands of Scotland.— B.K. WEST, 36 Briars Road, Dartford, Kent DA5 2HN.

NOTES ON THE SPECIES-PAIR *CIS FESTIVUS* PANZ. AND *C. VESTITUS* MELL. (COL.: CISIDAE)

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MANY of us have probably found that this pair of closely-allied species can be puzzling to discriminate with certainty. From a recent thorough overhaul of my material, points arise with respect to both recognition and relative incidence, which appear worthy of notice.

Diagnosis

In an examination of synonymic problems among the British species of *Cis*, the late D.K. Kevan (1967) published a key to these two species and *C. pygmaeus* Marsh. (pp. 140-2) with further notes and some helpful figures. Based (presumably) on ample material in the Royal Scottish Museum collection, it could fairly have been expected to be the last word on the subject. However, I find some of the characters given for the separation of the present pair less than satisfactory as stated — valuable as the paper undoubtedly is overall.

Looking over the very full and detailed key to the two species and the figures of pronota etc., one receives a confident impression that the separation should be straightforward, even easy; yet with the actual insects before one it can be a different matter, and such confidence may rather soon evaporate! It is almost as though the author had not fully grasped the wide range of variation shown by *C. vestitus*, not only in colour but also in size, degree of dullness of pronotum, etc, compared with the relatively stable *C. festivus*. This would be understandable if he had been working with a small number only of the former species, but nothing is said regarding the extent of the material on which the key was based.

In all this I of course refer to externals alone; the male characters, both primary and secondary (abdominal), differ a little in the two species, but — apart from their limitation to one sex — their use is hardly practical for set specimens of such small fragile beetles. They are well figured by Kevan (p. 141).

Perhaps the best single criterion I have been able to find is one included by Kevan (alone of British authors) in his key, but with qualification; whereas both Lohse (1967: 293) and Hansen (1951: 150, 158) give it prominence as a leading character, which it appears to deserve. It concerns the fringe of raised and somewhat reflexed scales on the front margin of the pronotum. In *C. festivus* this fringe is well-developed, plainly longer than that on the side-borders; in *C. vestitus* on the other hand it is shorter than the lateral fringes, often indistinct or virtually absent. This feature is best examined from the side and a little from behind, and is a most useful means of distinction in doubtful cases. It should be considered in conjunction with others as far as possible, but is probably alone almost determinative.

Well-developed and typical specimens of *festivus* (males in particular) have a distinctive facies, appearing rather stouter and a trifle less elongate, the pronotal side-borders more expanded and rounded basally where they are slightly or evidently wider than in *vestitus*; the width across them, in the male, almost exceeding that of the elytra — a point well made by Fowler (1890: 210).

The diagnostic value of pronotal microsculpture appears limited, though used by Joy (1932: 557) and stressed by Kevan. It is said to be nearly absent in *festivus,* but is quite visible throughout (even if weak) in my few examples of that species. Consequently, while strong reticulation indicates *vestitus,* weak reticulation is ambiguous. Also, body-colour varies more in the last-named than Kevan seems to allow for, as does that of the antennal club to some extent. However, a dark (even slightly darkened) club points strongly to *vestitus,* and so does a dark upperside and small size; in *festivus* the club is always pale and the dorsal surface always brown, never blackish.

Relative incidence

Here a surprising fact emerges: the consensus among authors is that *festivus* is decidedly the less rare of the two, yet I can in no way reconcile this view with my own experience spread over some 60 years — as will appear below. Kevan expresses no opinion; Fowler (1890) notes *festivus* as "not common" and gives it a range from southern England to the Scottish Highlands, and *vestitus* as rare with much fewer scattered localities up to Teesdale (pp. 210, 211). Lohse (1967: 293), under *vestitus**, states that it is (in mid-Europe) much rarer than *festivus* (which latter he associates with fungi of the genus *Stereum*). Joy (1932: 557) marks both species as rare, giving a similar distribution to Fowler with the addition of two Irish provinces for *festivus.* Local lists tend to lack both species. Of modern county lists I shall take but one as representative, namely that for Gloucestershire (Atty, 1983: 82). This lists *festivus* only, from fungi on willows: three records, two of single specimens and one of six, the latest 1921.

For contrast with the foregoing, it will be instructive to list concisely, in chronological order, my finds of each species, together with a few others in my collection (placed last):—

C. festivus: Brockenhurst, New Forest, SH, off aspen, 22.v.35; Ruislip Woods, MX, under bark of stump, 8.v.48; Epping Forest, SE, off birch, 11.vi.50; New Forest, 9.vi.14 (probably *ex* D. Sharp). All single specimens.

C. vestitus: Chilham, EK, polypori on elm, 17.viii.31; Ridge Way near

*I take the opportunity to correct an error of attribution here: Lohse writes that *vestitus* is regularly beaten from oak branches in summer in England, but the species in question is really *pygmaeus.*

Eastnor, HF, two by beating, viii.36; Aviemore, EI, polypori on spruce and pine, vi, vii.38; Ham Street Woods, EK, old oak boughs, 7.v.50; Blean Woods, EK, ditto, 13.ix.50; Savernake Forest, NW, bracket fungi on beech, a colony, 10.vi.60; Greenwich Park, WK, small polypori on elm, c.1964; Blackheath, WK, ditto on beech, a colony, 26.vi.71; Shooters Hill, WK, two swept under oaks, 2.vii.83; ditto, small fungi on pine log, 17.vi.85; Hartlebury, WO, beech, 27.ii.28, G.H. Ashe; ditto, fungus, xi.28; Nethy Bridge, EI, 15.v.46, *id.*; Colyton, SD, flood refuse, 4.xii.52, *id.*; Lower Beeding, WX, xi.30, H. Dinnage; Haywards Heath, EX, xi.33, *id.*

Conclusion

The above records speak for themselves; the problem is to account for the huge disparity they show, in the light of what has been said. Subject to the experience of other collectors being not too different, I can only regard *C.festivus* as very rare for a long time past, and *C. vestitus* as (now at all events) widespread and far from uncommon. Errors of identification may have been frequent in earlier times, and many specimens formerly passing as *festivus* may perhaps have been *vestitus*; some of the collectors who supplied records to Fowler could well have misunderstood the two species. This alone, however, can hardly be the whole story. Rather, what seems to have happened is that the status of the two species in Britain (but not in mid-Europe, *teste* Lohse) has undergone a radical shift during the past half-century or more, *festivus* becoming very much rarer as *vestitus* increased correspondingly. No reason can be offered for such a pronounced reversal, but several parallel cases could be adduced — our two species of the longicorn genus *Molorchus,* for instance. The descriptive term "see-saw effect" might be an apt one to apply to this phenomenon.

References

Atty, D., 1983. *Coleoptera of Gloucestershire*. Cheltenham.

Fowler, W.W., 1890. *The Coleoptera of the British Islands,* **4**. London.

Hansen, V., 1951. *Danmarks Fauna: Biller XIV* (Clavicornia, 2). Kobenhaven.

Kevan, D.K., 1967. On the apparent conspecificity of *Cis pygmaeus* (Marsh.) and *C. rhododactylus* (Marsh.) and on other closely allied species (Col.: Ciidae). *Entomologist's mon. Mag.* **102**: 138-144.

Lohse, G.A., in Freude, H., Harde, K.W. & Lohse, G.A., 1967. *Die Käfer Mitteleuropas,* **7**. Krefeld.

The earliest British capture of *Cis dentatus* Mell. (Col.: Cisidae); with diagnostic notes.

Having lately had occasion to re-examine a specimen of *Cis* from the duplicate boxes of G.H. Ashe, which I (and doubtless he too) had failed to recognise, I was reminded by its data (Loch Garten, Inv., 3.vii.1946) that my friend Prof. J.A. Owen had a male of the very rare *C. dentatus* Mell. from the latter locality.

Armed with this possible clue I "read up" *C. dentatus* (not known as British until 1970, and in very few of our collections) and was far more pleased than surprised to find that the aforementioned *Cis* must indeed be a female of that species — clearly showing all its specific features, and readily keying out to it in Hansen (1951) and Lohse (1967).

Whilst it is true that (as Mr E.W. Aubrook says in bringing forward *dentatus* as British) the species is unlikely to be confused with any other known here, this chiefly applies to the male with its bidentate front of both pronotum and clypeus. The female, lacking those ornaments, is less easily recognised if one happens to be unacquainted with the species — though actually quite distinctive. It may therefore not be out of place to draw attention to its special combination of characters. These are: the stout and not very elongate form, thick puncturation and unusually short scales, pronotal side-borders wholly visible from above and *without a fringe of scales*; and finally (a point not mentioned by either Hansen or Lohse) front tibiae ending outwardly in a sharp tooth, as in *punctulatus* Gyll. and the *boleti*-group, but smaller. The immediate affinities of *dentatus* appear, in fact, to point in various directions, and it has no very close ally in mid-Europe.

The Ashe specimen was taken just twenty years before Mr Aubrook's dozen; whilst all the remaining British examples recorded, amounting to only five, were captured in 1980, again in Speyside localities — see Carter and Owen, 1988, *Ent. Recd.* **100**: 188. It might be mentioned in passing that the *Cis dentatus* Mell. said to have occurred in the Isle of Wight in 1907 (Fowler & Donisthorpe, 1913, *Col. Brit. Isl.* **6**: 150) subsequently proved to be an abnormal example of *C. alni* Gyll., later named ab. *mitfordi* by Pool. — A.A. Allen, 49 Montcalm Road, Charlton, London SE7 8QG.

Hazards of butterfly collecting — Ecuadorian Amazonia 1987

As elsewhere in Latin America the rainforests in Ecuador are looked at with a mixture of contempt and suspicion.They are something to be cut down and converted to agricultural lands. They are the home of known and unknown dangers. The fact that whole-scale deforestation in the tropics has proved a disaster everywhere, never seems to lead to a learning process. In the province of Amazonia poor landless people are allocated land, invest several years of family labour in clearfelling. A few years later the land is worthless and is bought up by cattle ranchers. Finally it is almost worthless as grazing land as well. Meanwhile the poor move on, repeating the cycle and pushing the frontier ever further inland.

One result of these processes is that the villages which your recent guide book extol as being in the "forest" are now forty and fifty kilometres of almost impassable logging roads away. In fact, finding good collecting spots without sympathetic local assistance is almost impossible. When, at last, you find a good stand of forest, on a river and preferably with some well developed paths, you face an unexpected hazard, unique to the rainforests of the Neotropics.

That hazard is the sheer abundance of butterflies. Tiny Ecuador has some 4,500 species, four times as many as Malaysia and more than all of Africa, though not all in the same spot. It becomes impossible to keep track. Each bend in the river produces a new clutch of species, a few hundred metres change in altitude can wholly revise your initial idea of the local fauna. You can either just settle down to enjoy the spectacle and collect some of the more memorable species, or you can grimly collect any butterfly you see since you can never be sure whether of not it is the same you saw before. The confusion is aided by the many mimicry-rings, where vastly different butteflies look the same. The Riodinidae, with but one species in Europe, is especially rich and confusing. Though mostly small, they come in all forms and colours, and with a great diversity of habit and habitat.

The superabundance and the overwhelming impressions apart, any entomologist will return from Ecuador with indelible memories, too many to be shared in a small article. Though it may be almost a cliché, the sight of the large, blue, iridescent *Morpho* is among the finest any naturalist can have. At a distance of fully 300 metres, the off-on off-on blue flash of a patrolling male is visible. The blue flashes of the fight that ensues when two males meet constitute a set of daylight fireworks paralleled only by *Papilio ulysses* in the Australasian Region.

A special component of the fauna is constituted by the many clearwing butterflies, almost devoid of the normal scales on the butterfly wing. They thrive in the darkest, densest and dankest parts of the forest. Most are members of the Ithomiinae, but my own favourite is the Satyrid *Cithaerias pyritosa*. This is quite large with fully transparent wings and hardly any markings, except that the male has a translucent patch of almost fluorescent cyclamen on each hindwing. When weaving in and out amongst the tangle of the forest floor, nothing is seen except for eerie flashes of cyclamen. It took me more than an hour's hard work to net my first specimen.

So I have my memories from the Amazon basin and I am very glad I went now. In twenty-five years most of the Neotropical rainforests will have gone and visitors will be limited to carefully controlled package tours to a few reserves that have been preserved by governments, or more likely by private enterprise. Without tourism it is doubtful that the wild animals of the African plains would survive for long. Eco-tourism to the rainforests may be beginning to play the same role.— TORBEN B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

Dwarfism in Heterocera — physiological response to climatic change in mid-Wales 1989.

The climate in 1989 in the United Kingdom was the warmest for 330 years but subject to considerable fluctuations, not least in west Wales. Observations in north Cardiganshire at Cnwch Coch, near Aberystwyth confirmed the average difference between night and day temperatures were of the order of −0.6°C. (31°F.) the greatest difference recorded was −0.6°C. (31°F.) from overnight on 27th and midday on 28th May, when it was 25°C. (37°F.). At Cnwch Coch, the average maximum day temperature in May, for the last three years has progressively increased 14.4°C. (58°F.) in 1987; 17.8°C. (64°F.) in 1988; 9.5°C. (67.7°F.) in 1989 and in London on 23rd, 29°C. (84°F.) was the hottest for thirty-six years. This warmer than average climate continued and still prevails.

On 21st June 1989 some County Councils banned the use of hosepipes in Wales as water levels in reservoirs continued to fall, in many parts of England. July 1988 was the wettest for twenty years. July 1989 was quite the opposite, only six days of measurable rainfall at Cnwch Coch, with a trace on a further three days resulting in 38mm (average 87mm 1941-70). In August and September there was little difference in the number of days when rain fell but again, amounts were well below average 92.2mm (average 104mm). Soil moisture continued to fall as the ground cracked and herbage wilted.

Hours of sunshine for August were the highest ever recorded. June, 186 hours (average 185 hours); July, 219.8 hours (average 160.4 hours); August, 193.8 hours (average 155.2 hours). Average temperatures remained very high at Cnwch Coch, June 20°C. (68.5°F.); July, 26°C., (86.7°F.), August, 21°C. (70°F.); September, 18.5°C. (65.5°F.).

Table 1. 1989 Monthly temperatures‡

	MAY	JUNE	JULY	AUGUST	SEPTEMBER
Soil temp. at 30 cm.	13.55	15.73	18.39	17.32	15.58
averages 1951-1980	10.9	13.8	15.4	15.6	14.4
Maximum temp.	17.42	18.65	21.82	19.29	17.77
averages 1951-1980	15.3	17.9	19.0	19.1	17.3

‡Data supplied by Agromet Dept. MAFF, ADAS, for nearby Trawscoed Experimental Husbandry Farm.

In spite of high temperatures there was no indication of forwardness in the time of appearance of moths but the number of species trapped in September was more than in some previous years — 1981 (11); 1982 (6);

1989 (24) — but the number of specimens trapped was less than usual for the month 1981 (50); 1989 (40). More interestingly, some moths were noticeably smaller than usual. Measuring the distance from the centre of the thorax to the apex of the forewing × 2 new minima in the size of the following species of moths were established.

Table 2

NEW MINIMAL WING EXPANSE IN SOME HETEROCERA

Species	Date	Min. Wing expanse mm.	Min. Wing expanse mm. (Skinner 1984)*
Flame Carpet *Xanthorhoe designata* Hufn.	4.ix.	22	25
Purple Bar *Cosmorhoe ocellata* L.	27.viii.	26	28
Small Phoenix *Acliptopera silaceata* D & S	29.vii.	28	29
Grey Pine Carpet *Thera obeliscata* Hb.	27.ix.	26	28
Brimstone Moth *Opisthograptis luteolata* L.	25.ix.	32	33
Early Thorn *Selenia dentaria* F.	23.ix.	36	40
Light Emerald *Campaea margaritata* L.	29.vi.	38	42
Centre-barred Sallow *Atethmia centrago* Haw.	31.viii.	30	32

Some species of Heterocera not emerging until the following spring were similarly affected by dwarfism.

Table 3

Species	Date	Min. Wing expanse mm.	Min. Wing expanse mm. (Skinner 1984)*
Shoulder Stripe *Anticlea badiata* D. & S.	22.iv.90	28	31
Small Quaker *Orthosia cruda* D. & S.	26.iii.90	26	28
Clouded Drab *Orthosia incerta* (Hufn.)	13.iv.90	32	34
Sword-grass *Xylena exoleta* L.	13.iv.90	52	55

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

High temperatures, above average hours of sunshine, a soil moisture deficit caused a severe check in plant growth in some shallow rooted herbs and dessication would have adversely affected feeding and development of some moth larvae, resulting in dwarfism.— PHILIP M. MILES, Werndeg, Cnwch Coch, Aberystwyth, Dyfed, Wales.

Two birds with one stone

As articles discussing the voltinism of *Eupithecia tripunctaria* H.-S. and also the unusually late appearance of some species in 1989 are in vogue, perhaps I may contribute to both topics by recording a single specimen of *E. tripunctaria* in East Sussex, on 23rd October. It was a male and in good condition, but whether it was a third or delayed second generation specimen is anyone's guess.— BERNARD SKINNER, 5 Rawlins Close, South Croydon, Surrey CR2 8JS.

***Crocidosema plebejana* Zeller (Lep.: Tortricidae) in Sussex.**

On the night of 25th/26th October 1989, a male of this species was taken in a Robinson mv trap in my garden at Walberton, West Sussex. A second moth, this time a female, was captured at light on the night of 30th/31st October. These appear to be the first records for West Sussex.

According to Bradley, Tremewan and Smith (1979, *British tortricoid moths* vol. 2) this is an introduced species which has become established in a few localities in south-west England. No mention is made of any migratory tendencies although many of the localities are well-known migration stations.

It is interesting to note that both my specimens occurred during a period of great immigrant activity. The first moth was accompanied by *Chrysodeixis acuta* Walk. (the Tunbridge Wells Gem), *Rhodometra sacraria* L. (the Vestal) and *Palpita unionalis* Hübn. The second was also taken in company with *C. acuta, P. unionalis* and, in addition, *Mythimna vitellina* Hübn (the Delicate) and *Heliothis armigera* Hübn. (Scarce Bordered Straw) were present. This strongly suggests that this species is migratory, and perhaps a more suitable explanation for its establishment than as an accidental introduction.— J.T. RADFORD, Bramblings, West Walberton Lane, Walberton, Arundel, Sussex BN18 0QS.

Towards a safe and practical pest-repellent for insect collections.

It is more than a little disturbing to hear that naphthalene, that once cheap and supposedly harmless chemical used by generations of entomologists to protect their collections, was about ten years ago officially declared dangerous to health. Nor can we feel much greater confidence in the safety, healthwise, of such substitutes as paradichlorbenzine or "Vapona". In principle we are, it seems, faced with a most unpalatable choice: that of having our collections ultimately reduced to dust, or our health to a possibly fatal level of impairment; in either case a dismal prospect. Is there no way round or through the dilemma? I think there may be.

If one forgets about insecticides and concentrates on trying to deter *Anthrenus* larvae, mites, etc, from entering the drawers or boxes in the first place, possibilities begin to emerge. Though synthetic cyclic hydrocarbons and their derivatives are all likely to be toxic, to us as to the pests, might not some among another group of substances — the volatile aromatic or "essential" oils — effectively keep out marauders without harming us? These, or certain of them, possess undoubted insectifugal properties, notably the stronger-smelling ones such as citronella and verbena oils, and possibly orange oil (hateful to flies, I have read — but what of other insects?). Many occur naturally in herbs, fruits etc, while some are used in confectionery; and so, besides being pleasant to the human nose, should have at most very low toxicity. One or another of this class, or a mixture, might serve our purpose. A few drops soaked into a bit of a sponge or the like should suffice for as long as a pronounced perfume remains. I have found that a tablet of strongly-scented soap, shut up in a storebox for some months, seems to thoroughly impregnate and proof it against pests for very many years; though small pieces, or chips off a tablet, are ineffective. Camphor (non-toxic, much used formerly) has to be replaced so often as to be hardly practical.

Of course, any candidate oil or oil-mixture would have to meet certain conditions: it must be readily obtainable and not too expensive; the vapour must not exert any untoward effect on the specimens, such as to relax or discolour them; nor on card-mounts or paper lining drawers and boxes; nor favour the growth of moulds. Experiment would appear to be in order.

I wonder whether some reader of the *Record*, whose work, perhaps, enables him to speak from a basis of knowledge (rather than mere speculation which is all I can offer), might be willing to tackle the problem? Any sound advice here would be extremely helpful, and I am sure that the entomological fraternity would feel profoundly indebted to him.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Winter record of Hummingbird Hawkmoth in Kent.

On 23rd February 1990 we found a Hummingbird Hawkmoth, *Macroglossum stellatarum,* feeding on the flowers in Winter Jasmine, *Jasminum nudiflorum,* in our garden at New Barn, Kent (TQ66E7). The moth was seen clearly for approximately one minute at 5pm, in bright sunshine and at close range, and again at 5.10 pm in our garage (sunset London 5.30 pm). It then flew into the next garden and was lost from sight. It seemed unconcerned with our close presence.

Although the Hummingbird Hawkmoth normally is recorded as a migrant to Britain in July and August, we understand there was a small immigration of several species early in 1990. It may be, however, that the mild weather had allowed it to overwinter successfully.

On 23rd February, high temperatures were recorded in Britain (18°C in London) and it was 13°C in our garden at 5.05 pm. The temperature range of the previous four days (London) was: 6 am - 6 pm, 12 - 16°C, 6 pm - 6 am, 7 - 10°C (*The Times*).— PETER & PAULINE HEATHCOTE, 9 Greenfinches, New Barn, Longfield, Kent DA3 7ND.

***Trinodes hirtus* (F.) (Col.: Dermestidae) rediscovered in Suffolk.**

The very rare dermestid *Trinodes hirtus* was recorded by Fowler (1889) from only Windsor, Exeter and Richmond Park. It was later also found by Fred Fox "sparingly, on *Pinus sylvestris*" at Coddenham (Morley, 1899). Mr C. Johnson (pers. comm.) informs me that there is an old example from Dunham Park near Manchester in the J.R. Hardy collection at Manchester Museum and that the beetle is also known from Thame Park near Oxford. Donisthorpe (1938) reported it as not uncommon at Windsor and described how he reared specimens*. I am not aware of any recent published records.

Whilst examining an old, live Spanish Chestnut at Shrubland Park, Coddenham near Ipswich (TM 15) on 18th April 1980, I discovered a thriving colony of the distinctive mature larvae of the dermestid beetle *Ctesias serra* (F.) among cobwebs beneath large strips of the loose flaky bark. Mixed with these larvae were about half a dozen much smaller pale greyish larvae (evidently dermestid) with which I was unfamiliar. A larva identical to these was sieved with a single female *Aderus populneus* Pz. from the dry, red-rotten cobwebbed interior of an old oak in nearby woodland. These larvae were reared upon a pabulum of cobwebs and their desiccated contents, and in July, five examples of *Trinodes hirtus* emerged, thus providing valuable confirmation of Fox's nineteenth-century record. I thank Lord de Saumarez for allowing me to study on the Shrubland Estate, and my friend Colin Johnson for helpful information.

References: Donisthorpe, H.St.J.K. (1938). A preliminary list of the Coleoptera of Windsor Forest. *Entomologist's. mon. Mag.* **74**: 25.

Fowler, W.W. (1889). The Coleoptera of the British Islands, **3**: 364.

Morley, C. (1899). *The Coleoptera of Suffolk*. J.H. Keys. Plymouth.— DAVID NASH, 266 Colchester Road, Lawford, Essex CO11 2BU.

* It has continued ever since to be not uncommon on old oaks at Windsor, and was rediscovered in Richmond Park in 1983 by Mr P.M. Hammond.— A.A.A.

***Haploglossa picipennis* (Gyllenhal) (Col.: Staphylinidae) in the nests of Red Kites.**

H. picipennis was initially reported as a British species from specimens taken from buzzard nests collected in Devon and Wales (Joy 1930). For many years it was thought to be a great rarity and was accordingly awarded Red Data Book status (Shirt 1987), although the difficulties involved in examining the nests of birds of prey undoubtedly contributed to this belief. Recent studies of nest material from Scottish ospreys, however, have shown that it can be extremely abundant in its specialised habitat (Owen & Taylor 1989). It was also found to be widely-distributed, occurring in eleven of the fourteen osprey nests sampled. A record from a sparrowhawk's nest in Inverness-shire (Welch 1979) illustrates that it is quite catholic in its choice of hosts, although it does appear to be confined to the nests of raptorial birds.

There have been no records of *H. picipennis* in Wales since its discovery in 1929 (Joy *loc. cit.*) and an attempt was made, therefore, to re-locate the species when an opportunity arose to examine nest-samples from red kites. Young kites are wing-tagged each year, prior to fledging, to enable researchers to investigate aspects of their ecology and population dynamics. During visits to tag the birds, a small sample (approximately 2500ml) of the nest-lining was collected from a total of eighteen nests. *H. picipennis* was found in eleven of these and was recorded from six vice-counties — Carmarthen, Brecon, Radnor, Montgomery, Cardigan and Merioneth. The number of beetles occurring in the samples was low compared to the osprey study — nine of the samples contained less than five specimens of *H. picipennis* and the other two nests contained 16 and 22 individuals respectively. It is thought that this may have been related to the long period of hot, dry weather that preceded the collection of the material in June and July 1989. Beetles living in the nest may have retreated to moister depths to avoid the drought and hence may not have been representatively sampled by partial removal of the nest-lining. *H.picipennis* was the most abundant species present in the samples with a total of fifty-three individuals in the eighteen nests. Twenty-three other beetles were taken, represented by fifteen specimens of *Atheta harwoodi* Williams, five *Atheta nigricornis* (Thomson) and single specimens of *Gnathoncus buyssoni* Auzat, *Sciodrepoides fumata* (Spence) and *Carcinops pumilio* (Erichson).

Although *H. picipennis* has now been found most frequently in the nests of two of our rarest birds of prey, this is merely a reflection of the relative ease of obtaining nest-lining samples of these two species. It is most likely that the other tree-nesting raptors will also prove to be commonly acting as hosts, at least in areas such as mid-Wales and the Scottish Highlands, that have traditionally held good populations of birds of prey. A collaboration between licensed bird-ringers and coleopterists in suitable parts of Britain could demonstrate that *H. picipennis* is indeed a widespread species and also provide valuable information on the composition of raptor nest-faunas.

We are extremely grateful to P.E. Davis and A.V. Cross for collecting the kite-nest material, a noisome but much-appreciated task! Assistance with the identification of specimens was kindly given by D.C. Boyce.

References: Joy, N.H. (1930) Coleoptera in birds' nests, including a species of *Microglossa* new to Britain. *Entomologist's mon. Mag.* **66**: 412-42.

Owen, J.A. & Taylor, S. (1989) *Haploglossa picipennis* (Gyllenhal) (Col.: Staphylinidae) in ospreys' nests. *Entomologist's Rec. J. Var.* **101**: 53-55.

Shirt, D.B. (ed.) (1987) *British Red Data Books: 2. Insects.* pp.167-168. Nature Conservancy Council, Peterborough.

Welch, R.C. (1979). *Haploglossa picipennis* (Gyll.) (Col.: Staphylinidae), *Cryptophagus badius* Sturm and *C. lapponicus* Gyll. (Col.: Cryptophagidae) from a sparrowhawk's nest near Aviemore, Inverness. *Entomologist's mon. Mag.* **114**: 240.— A.P. FOWLES, c/o Nature Conservancy Council, Plas Gogerddan, Aberystwyth, Dyfed SY23 3EE.

J.A. OWEN, 8 Kingsdown Road, Epsom, Surrey KT17 8PU.

Cynaeda dentalis D. & S. (Lep.: Pyralidae) in Lincolnshire.

A single male of this species was taken in a Rothamsted Insect Survey light trap at Saltfleetby (Site no. 471) on the night of 27th/28th July 1989. This appears to be a new county record for this species which, according to Goater (1986, *British pyralid moths*) is a moth restricted to southern coastal regions. The most northerly record so far appears to be from Suffolk.— C. PENNEY, 109 Waveney Drive, Chelmsford, Essex CM1 5QA.

Argyrotaenia ljungiana Thunb. (Lep.: Tortricidae) in the London Area.

I was inspired by A.A. Allen's note (*antea* 9 -10), to examine the records of *Argyrotaenia ljungiana* (= *pulchellana* Haw.), received by me as recorder for the London region. In addition to Allen's 1989 records from Charlton and Sokoloff's records from Battersea, I can add several others.

As far as I can tell the first record was that of two adults which I took at light on 25th July 1984 at Bully Fen, Stratford. Emmet, 1985 (Additions to the smaller moths of Essex, in *The Larger Moths and Butterflies of Essex*: Essex Naturalist **8** (new series)), remarks that this was also the first record for south-west Essex. I subsequently found the moth in the light trap at my former address in East Ham with half a dozen specimens in 1985, which year also produced the adult moth from Hampstead (R. Softly), Fulham (J. Burge) and Kings Cross (R. Softly). I have no records for 1986, but in 1987 it appeared at Holloway (N. Bowman) and came again to light in Fulham. The following year saw a tremendous increase in records with repeat appearances at Fulham, Kings Cross, Stratford and East Ham, and new localities at Tottenham (Plant), Clapton (Plant) and in the garden of Buckingham Palace on 18th August (J.D. Bradley), as well as a little further out at Grays (D.J.L. Agassiz). During 1989 it was amongst the commonest moths to be found from office light fittings at a number of localities in north London and also appeared at the Elephant and Castle (R. McCormick), whilst repeat performances were made at Stratford, East Ham, Hampstead and elsewhere.

The results clearly indicate an increase in both population and range of this species, which is now established and widespread over central, northern and eastern London and, apparently, at least in the Charlton area of the south-east. I find it hard to accept that it could thrive in such a manner on garden and window box varieties of its natural foodplants of *Calluna* and *Erica*, though both are quite popular as cultivated plants in London, even in the very centre. I suspect that an alternative foodplant is involved.

To assist the putting of these records into perspective it may be worth noting that since moving to Bishop's Stortford, Hertfordshire in 1987, I have not recorded *ljungiana* there, in spite of running the garden trap almost every night and running additional traps in the surrounding countryside. This in spite of being a mere stone's-throw from the former residence of the late OMH himself!—. COLIN W. PLANT, Passmore Edwards Museum, Romford Road, Stratford, London E15 4LZ.

Larvae of the Marsh moth, *Athetis pallustris* Hb. (Lep.: Noctuidae) in Lincolnshire

Many specimens of *Athetis pallustris* have been taken in a Lincolnshire reserve over a period of years. During late September 1989, in the company of R.F. McCormick, B. Skinner and D. Wilson, a search for larvae was made using the historical method of litter-pile and sieving used in Woodwalton Fen during the 1930s. Briefly this involves making piles of grass or other cut vegetation, leaving them for a couple of weeks and then sieving the heaps to find the larvae.

The chosen site was a flat meadow supporting a wide variety of low plants where in previous years light had attracted good numbers of male *pallustris,* although night searching, sweeping and pitfall traps had failed to locate the traditionally elusive female.

The reserve warden, Graham Weaver, kindly prepared grass heaps in the area around the suspected colony in advance of our visit. After a short time spent sieving the grass we were successful in finding a significant number of larvae in a number of the heaps. One of the grass piles which was seven to nine inches high was carefully dismantled and two larvae were found about two inches from the top.

Of the growing vegetation under the piles, the only plant which consistently showed signs of being eaten was *Plantago lanceolata,* and this plant was readily eaten by the larvae in captivity.— C. PENNEY, 109 Waveney Drive, Chelmsford, Essex CM1 5QA.

The larval case and natural pabulum of *Coleophora therinella* Tengström

Mr Hugo van der Wolf of Nuenen, Holland, has written me with information on *Coleophora therinella* Tengström. In September 1984 he received a number of *Coleophora* cases, the larvae of which were feeding on the seeds of Black Bindweed (*Bilderdykia convolvulus*).

In appearance these cases were dark reddish-brown, about 10mm in length and covered with grains of sand. In June 1985, they produced some adults which, after genitalic dissection, turned out to be *C. therinella* Tengström. The cases were found by the roadside near the village of Sirjansland, on the island of Schouwen-Duiveland, Province of Zeeland, in the south-west corner of the Netherlands. The site is purely agricultural, situated in what is called a "polder", that is, reclaimed and below sea-level. Ruderal sites are apparently the places where to look for the cases.

Being suspicious of Toll's (1952) and Patzak's (1974) statements of *Carduus* and *Cirsium* being the foodplants of *therinella,* van der Wolf started to check all the so-called *therinella* in the national collections in

Amsterdam and Leiden, as well as in some private collections, and all turned out to be *C. peribenanderi* Toll.

In Britain, *therinella* has occurred on only a few occasions to my knowledge, and only as an imago. However, with this new information, one hopes to find the cases in Britain on the seeds of *B. convolvulus,* and possibly on the seeds of other Polygonaceae. In conclusion, I do thank Mr van der Wolf for his interesting correspondence, and for his kind permission to quote from it.— J.M. CHALMERS-HUNT, 1 Hardcourts Close, West Wickham, Kent.

Morophaga choragella D. & S. (Lep.: Tineidae) and *Ditomyia fasciata* (Meigen) (Dipt.: Mycetophagidae) new to Gloucestershire

On 3rd December 1989 I retained a section of the bracket fungus *Inonotus dryadeus* in order to rear to adult the insect larvae it contained. The bracket was growing at the base of a mature oak standard in Hailey Wood, near Coates in Gloucestershire (SO 960012). First to emerge were in excess of 80 *Ditomyia fasciata* plus a few *Sciophila lutea* Macquart fungus gnats, during January. More recently a single *Morophaga choragella* moth was found beneath the fungus. Both *D. fasciata* and *M. choragella* are new county records.

Hailey Wood straddles the boundary of the two Gloucestershire Vice-Counties, although the tree in question lies within VC 34, W. Glos. The wood forms part of the entomologically very interesting Cirencester Park Woodlands which have a rich ancient woodland fauna.

My thanks to J.M. Chalmers-Hunt, P.J. Chandler and E.E. Green for identifying the moth, fungus gnats and fungus, respectively.— K.N.A. ALEXANDER, 22 Cecily Hill, Cirencester, Glos GL7 2EF.

An early spring migration

Although wetter and windier, the first three months of 1990 have been even milder than they were in 1989. January was the sixth warmest since records began 330 years ago and south-westerly winds blew almost without a break. February was the wettest month in living memory in the South and it was also the warmest since 1960 with above average temperatures towards the end of the month. There were also severe gales, generally from a south-westerly direction which caused much structural damage. In contrast March was the driest since 1961, and March 17th was the warmest March day since 1944 in the Isle of Wight. There was no air frost recorded and there were southerly winds blowing at the end of the month.

These exceptional mild weather conditions gave rise to rather a large migration of butterflies and moths in February and March along the south coast. Some species have never been recorded so early before and I now give a record in chronological order giving the date, species and locality.

Recorders are S. Clancy (SC); C. Plant (CP). R.H. Charlewood (RHC); S.A. Knill-Jones (SAK-J); J.W. Knill-Jones (JWK-J); S. Dewick (SD); J. Radford (JR); R. Craske (RC) and M. Parsons (MP).

February 23rd: *Trichoplusia ni* Hübn. Dungeness, Kent (SC); *Macroglossum stellatarum* L. Duxford, Cambs (CP) and Beachy Head, Sussex (RHC).

February 24th: *Heliothis peltigera* D. & S., Bradwell-on-Sea, Essex, on sallow blossom (SD); *Agrotis ipsilon* Hübn., Freshwater, IOW (SAK-J).

March 7th: *Nomophila noctuella* D. & S., Walberton, Sussex (JR).

March 9th: *Mythimna loreyi* Dup., Freshwater, IOW (SAK-J).

March 19th: *N. noctuella,* Peacehaven, Sussex (CP).

March 21st: *N. noctuella,* Walberton, Sussex (JR); *Orthonama obstipata* Fab., Walberton, Sussex (JR).

March 22nd: *M. stellatarum,* Freshwater, IOW (JWK-J).

March 29th: *M. stellatarum,* Freshwater, IOW (SAK-J).

March 30th: *M. stellatarum,* Hove, Sussex (RC).

March 31st: *N. noctuella,* Ninfield, Sussex (MP) and Walberton, Sussex (JR).

April 1st: *Spodoptera exigua* Hübn., Peacehaven, Sussex (CP).

April 13th: *Udea ferrugalis* Hübn., Freshwater IOW (SAK-J).

Agrotis ipsilon Hufn. was recorded at Walberton and Ninfield, Sussex and at Freshwater IOW, in late March and up to three a night were taken.

It seems that the records of *Macroglossum stellatarum* L. were in fact migrants. However, there is evidence that it hibernates in this country as Dr J. Waring found an adult in his garage on 5th April 1984 at Totland Bay, Isle of Wight (*Ent. Gaz.* **35**: 224).

It seems that the general opinion of scientists favours the "greenhouse effect" leading to global warming and that this out-of-season migration may be the first of many in the years to come. I should like to thank Mr B.F. Skinner and Mr C. Pratt for their invaluable records.— S.A. KNILL-JONES, Roundstone, 2 School Road, Freshwater, Isle of Wight PO40 9AL.

Nacia cilialis Hübn. (Lep.: Pyralidae) in Hampshire

Two specimens of this very local pyraiid were caught in a m.v. trap at the Titchfield Haven reserve, Hampshire, on 5th July 1987. Further specimens were trapped in 1988 (June 14th, 17th and 24th) and again in 1989 (two on 23rd May and one on 10th June). This would suggest the species is established on the site.

This is a new county location for the species which has only previously been recorded at Browndown, four miles to the east. The latter colony, if it still exists, was the only known colony away from the Fens of Cambridgeshire.— P.M. POTTS, 21 Christchurch Gardens, Widley, Portsmouth, Hants PO7 5BT.

Elachista eskoi Kyrki & Karvonen (Lep.: Elachistidae) — a further record

In the latter part of June and the early part of July 1977 Dr H.C.J. Godfray and I spent some time making records for the Cairngorm National Nature Reserve, Inverness-shire (VC 96). On most evenings, we ran a six watt actinic light on moorland near Loch an Eilein. In the early part of July (the exact date if unrecorded) we took an Elachistid moth at light which was recorded, after examination of its genitalia, as a male *Elachista poae* Staint. On mature reflection this was an extremely unlikely record. Following the late Teddy Pelham-Clinton's paper (*Ent. Gaz.* **39**: 265 (1988)) it is clear that, although the male genitalia of *E. poae* and *E. eskoi* are somewhat similar, this specimen is a male *Elachista eskoi* Kyrki & Karvonen. I am indebted to Col. D.H. Sterling and Dr J.R. Langmaid for confirming the identification.— M.J. STERLING, 9 Upper Heath Road, St Albans, Herts AL1 4DN.

Death-feigning in ladybirds (Col.)

In a recent note (*Ent. Rec.* **102**: 23), A.A. Allen notes an example of death-feigning in *Exochomus quadripustulatus* L. (Col.: Coccinellidae). I have found that such behaviour is usually related to temperature and whether the specimen is in sun or shade.

Generally, when the temperature is less than 13°C the beetles when disturbed will either walk comparatively slowly or fall and remain motionless. Should the temeprature be higher they move quicker, or fly away. This pattern of behaviour occurs in several species of ladybird and has been observed in the 2, 7, 10, 14 and 22 spot ladybirds.

Occasionally the behaviour varies — for example when checking wing polymorphism in *Subcoccinella 24-punctata* L. the specimens are placed upside down on a polished surface about 10 cm under a vertically-mounted 60 watt shaded lamp. The temperature at the surface is about 38°C. The majority of specimens immediately move their legs and open the elytra within one minute. A small proportion, however, remain motionless for several minutes refusing to move either antennae, legs or elytra.— A.J. BALDWIN, 33 Defoe Avenue, Kew Gardens, Surrey TW9 4DS.

The Striped Hawkmoth in Cornwall

A male *Hyles lineata livornica* Esp., in worn condition, was brought to me on 4th April 1990 by Mrs A.M. Kenward. She found it amongst leaves she was sweeping by her house in this coombe.

Ever optimistic, and before being sure of the sex, I kept the moth in the hope of eggs. All it produced was meconium suggesting it was fairly freshly emerged. However, although the only frost here during the winter was a short spell towards the end of November, I imagine this is part of an early immigration as in 1985.— F.H.N. SMITH, Turnstones, Perrancoombe, Perranporth, Cornwall TR6 0HX.

A possible second brood Orange-tip butterfly

My twelve year old daughter, Jolene, is confident that on 22nd July 1989 she saw a male Orange-tip (*Anthocharis cardamines* L.) near Aylesford railway station, Kent. In view of the high temperatures in 1989 it does seem possible that a few individuals emerged from the pupa on the year they were formed.— M. EASTERBROOK, 26 Orchard Grove, Ditton, Maidstone, Kent.

***Epirrita filigrammaria* H.-S. (Lep.: Geometridae) in Worcestershire**

On 6th September 1989 a specimen of the Small Autumnal moth, *Epirrita filigrammaria* was taken from a normal tungsten light bulb by our front door in West Malvern.

The moth, which is a new county record for v.c. 37, was in excellent condition and may have bred nearby as there are some patches of bilberry close by. If we are able to confirm breeding next year this may prove to be the most southerly site in Britain. I am grateful to Dr M. Harper for confirming my identification.— P. GARNER, 233 West Malvern Road, Worcestershire WR14 4BE.

An early record of *Vanessa atalanta* Linn. (Lep.: Nymphalidae)

Whilst walking through the gardens at Borde Hill near Haywards Heath, Sussex (Map reference TQ 322266) on Sunday 18th March 1990, I was pleased to see the unmistakable sight of a Red Admiral feeding on the rhododendron flowers. Because of the very mild winter we have just experienced I immediately thought that this could be an individual which had successfully hibernated as an adult rather than being a primary migrant. This past winter has been quite exceptional here in the south-east. Apart from a period of hard frosts in November there have been only two or three nights when the temperature has fallen below freezing.— COLIN HART, Fourpenny Cottage, Dungates Lane, Buckland, Surrey RH3 7BD.

What has happened to the *Apocheimas?*

The remarkable weather we have experienced is bound to have an effect on our Lepidoptera. During 1989, for example, I noted a number of dwarf examples of several species, such as *Acleris laterana* (Fabr.), *Hydriomena furcata* (Thunb.) and *Cryphia domestica* (Hufn.) — probably due to drought conditions. But what effect have a dry summer and two mild winters had on *Apocheima hispidaria* (D. & S.) (Small Brindled Beauty) and *A. pilosaria* (D. & S.) (Pale Brindled Beauty)? Usually these two species, particularly the latter, are to be regarded as veritable sparrows of the moth world — often occurring in droves at light traps during February and March. The two mild winters allowed trapping to continue throughout the cooler months, and if an extended emergence took place it was not unreasonable to have expected the odd specimen any time from November. However, in north-east Essex at least, not a single specimen has been recorded after the spring of 1988. Is this a purely local phenomenon, or have other recorders noticed a similar drop in numbers elsewhere?— BRIAN GOODEY, 298 Ipswich Road, Colchester, Essex CO4 4ET.

A partial second generation or delayed emergence in the White Spot (*Hadena albimacula* Borkh.) (Lep.: Noctuidae)

During 1988, as part of a two-man entomological survey of Dungeness undertaken by the Nature Conservancy Council and funded by the Central Electricity Board, I was fortunate enough to operate a 125 watt mercury vapour lamp at a fixed location from the Dungeness Bird Observatory on suitable nights throughout the survey period. This enabled me to record many nationally rare and local species throughout a season as opposed to the odd evening's visit — the way most lepidopterists encounter Dungeness. The survey was funded for a further year by the NCC and during 1989 Mr D. Walker of the DBO, was provided with a similar trap to operate at the same site.

In 1988 *Hadena albimaculata* first appeared on the 23rd May and continued to be recorded in the trap until the 5th July, with peak numbers being noted on the 21st and 27th June (46 and 41 respectively). These dates correspond to what would be expected as the normal flight period of the moth, Skinner (1984) listing June and July, whereas South (1961) states May and June. Therefore, it was with some surprise that four apparently fresh, moths were noted on 15th August nearly six weeks after the last capture and some 12 weeks after being first noted. These were followed by singletons on the 17th and 22nd August.

The moth first appeared on 22nd May in 1989. However, there were to be no August examples of *H. albimacula* with the last moth being reported on 10th July. The highest count of *H. albimacula* in 1989 was on 14th June when 43 individuals were seen.

Twelve weeks would be ample time in which to complete a generation, although these August moths could represent a delayed emergence. Weather records from Dungeness indicate that the months from May to August were generally both cooler and wetter in 1988 than in 1989, though there do not appear to be any extreme weather conditions in 1988 that might explain a delayed emergence. Whether a partial second generation or a delayed emergence, it is difficult to see how this strategy could benefit a species whose larva feeds on the seeds of Nottingham catchfly (*Silene nutans*), the seeds being past what would be considered optimum for the larva around this date, unless the larva can utilise some other part of the plant.

I would like to take this opportunity to thank my colleague R. Morris, S. Clancy and the staff of the Dungeness Bird Observatory for ensuring that

the trap was operated on suitable nights during 1988 and for assisting with the counting of the catch. The records for 1989 were kindly supplied by D. Walker. I would also like to thank D. Wedd for passing on records from his visits. I am grateful to B. Lawrence of Nuclear Electric for furnishing me with rainfall and temperature measurements for 1988 and 1989.

References

Skinner, B., 1984. *Colour Identification Guide to Moths of the British Isles,* Viking, Middlesex.

South, R., 1961. *The Moths of the British Isles,* Warne, London.

MARK PARSONS, The Forge, Russells Green, Ninfield, nr Battle, East Sussex.

The larva of *Chrysodeixis chalcites* Esp. (Lep.: Noctuidae), Golden Twin-spot in Essex

In early September 1984 I found a green "Plusia" larva feeding on the leaves of a home-grown tomato plant at Great Horkesley, Essex. It duly pupated and a female *Chrysodeixis chalcites* emerged on 21st September.

This record would appear to be the fourth for Essex and the first occasion that the feral larva has been found in the British Isles.

My thanks to Bernard Skinner for confirming my identification of the adult moth.— PETER SMYTHEMAN, 25 Sussex Avenue, Ashford, Kent.

***Ectropis consonaria* Hübn. (the Square Spot), ab. *waiensis* Richardson (Lep.: Geometridae) in North Wales**

I spent four nights in the Corris district just inside the old Montgomeryshire border (now Powys), North Wales, between 21st - 24th May 1989. Weather conditions had been very hot in the area and many species turned up that one would not expect until several weeks later.

On the night of the 23rd, amongst many normal *consonaria,* I was very surprised to find two specimens of the form *waiensis,* a male and a female. This appears to be well outside the usual known area for this variety, namely the Monmouth - Gloucestershire border district.

Any information regarding the occurrence of ab. *waiensis* beyond the Wye Valley would be of interest, particularly northwards, to ascertain whether it has extended its range recently or somehow been overlooked.— J. PLATTS, 11 Maydowns Road, Chestfield, Whitstable, Kent.

An unusual foodplant for the plume moth *Oidaematophorus lithodactyla* (Treitschke) (Lep.: Pterophoridae)

We have been able to record insects at the Liverpool University Botanic Gardens, Ness (grid ref. SJ30-75-, Vice-County 58) through the kindness of the Director. Insect damage to the plants, particularly the exotic species, is not widespread. On 18.6.1989 conspicuous holes were noticed in the leaves of the non-native, but widely grown and sometimes naturalising, Large Yellow Ox-eye, *Telekia speciosa* (Schreber) Baumg.

The holes had been made by larvae of a plume moth which reared out as *O. lithodactyla.* This plant, until recently in the genus *Bupthalmum,* is in the same tribe (Inuleae) of the family Compositae as the usual native foodplant, Fleabane, *Pulicaria dysenterica* (L.) Bernh.

Adults of another plume moth *Amblyptilia acanthadactyla* (Hübner) can be seen at times during summer, flitting over the very fine heather garden at Ness.

Records suggest that neither of these plume moths is particularly common in the wild in Cheshire or adjacent parts of Clwyd. They may have been originally introduced into the garden on plants.— B. & I.D. WALLACE, Liverpool Museum.

A second brood of the Broad-bordered Bee-hawk in 1989

After my departure in September for my annual stay in Cape Town, Mr Eric Wood continued our observations of Lepidoptera at the north end of Slapton Sands, South Devon.

Mr Wood observed at least six specimens of *Hemaris fuciformis* L. (Lep.: Sphingidae) on 30th October 1989, two more on 1st November and a final four on 4th November, all feeding on valerian and confined to a small area under the cliffs.

One moth rested on a plant and so the transparent central area of the wings together with the broad banded edges could be clearly seen. Although superficially similar on the wing to *Macroglossum stellatarum* L., the Humming-bird Hawk, they feed much closer to the flowers. The moth is normally on the wing in May and June, although a partial second brood has been recorded elsewhere in the hot summer of 1976.— H.L. O'HEFFERNAN, 24 Green Park Way, Chillington, Kingsbridge, Devon TQ7 2HY.

***Stigmella samiatella* (Zell.) (Lep.: Nepticulidae) — a new record for Wiltshire**

On 26th October 1989 at Redlynch in Wiltshire my brother and I came across a mine on a leaf of sweet chestnut, *Castanea sativa.* Suspecting that it might be *Stigmella samiatella* I sent the mine to Col. A.M. Emmet who kindly confirmed that it was that species.

The appearance of *S. samiatella* at Redlynch is a new County record for Wiltshire.— E.G. SMITH, Bullen Hill Farm, Ashton Common, Trowbridge, Wiltshire.

Early sightings of butterflies in the Isle of Wight in 1990

With above average temperatures at the end of February and during March, this spring has been even warmer than 1989, resulting in early sightings of butterflies from around the Island. I have collected records of nine species, one more than in 1989 which were seen before the end of March.

Amongst the hibernating butterflies *Inachis io* L. was seen as early as 8th January, flying in the sunshine at Newtown; *Polygonia c-album* L. on 2nd February at Luccombe and Freshwater; *Aglais urticae* L. on 22nd February at Luccombe and over forty *Gonepteryx rhamni* L. were observed flying in the sunshine at Firestone Copse, Wooton, on 23rd February. Amongst those butterflies which emerge in the spring *Pararge aegeria* L. was reported from Queen's Bower on 15th March; *Celastrina argiolus* L. from Cowes on 18th March, and *Pieris rapae* L. was reported from Freshwater on 22nd March.

Two migrant butterflies were recorded and these were *Vanessa atalanta* L. on 18th January at Newtown and three on 22nd February at Luccombe, and *Cynthia cardui* L. on 12th and 19th March at St Lawrence and on 22nd March at Freshwater.

Compared with 1989 *Pararge aegeria* L. was seen 13 days earlier, *Celastrina argiolus* L. ten days earlier and *Pieris rapae* L. four days earlier. During early April the first *Anthocharis cardamines* L. was seen at Gurnard on the 1st, and on the 11th April *Pieris brassicae* L. at Freshwater and *Lycaena phlaeas* L. at Mottistone.

It seems that this year is on the average about ten days earlier than the year previous. The *Inachis io* L. sighting on 8th January breaks the record for the earliest sighting in England in the last hundred years.— S.A. KNILL-JONES, Roundstone, 2 School Green Road, Freshwater, Isle of Wight.

The ecological distinctness of *Asaphidion flavipes* (Linnaeus) and *Asaphidion curtum* (Heyden) (Col.: Carabidae)

My experience with *Asaphidion flavipes* (L.) suggests that it is a species exclusively of the margins of water bodies. Along the River Severn I have observed it from Tewkesbury, Gloucestershire well to the south, but never in anything other than riparian habitats, on silty mud subject to regular inundation. This experience was confirmed in 1989 by observations at Izvir Save in the foothills of the Julian Alps, Slovenia.

Asaphidion curtum (Heyden) is not a species dependent on the riparian environment. In Worcestershire, during the last decade it has been found in summer in open, ancient, wet woodland at a number of sites, and, in winter, under the bark of elder (*Sambucus nigra* L.) on Bredon Hill (SO 9741, 30.xi.1987) and under a haypile in an orchard at Broadway (SP 03, 7.xii.1988). It has also been found in shaded gardens in Liverpool (SJ 3986, 30.v.1984) and Pershore (SO 9445, 13.v.1986) on mineral soils. Winter records of *A. curtum* in the Worcestershire Avon valley are of specimens flushed from hibernacula by rising water.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcestershire WR10 3EP.

Cercyon tristis (Illiger) (Col.: Hydrophilidae) new to Cheshire

By searching the highest spring tide drift strand at Burton Marsh, Cheshire Dee estuary (SJ/2975) on 29.iv.1989 I was able to observe an assemblage of beetles of which 745 individuals were identified. Dominant amongst them were *Stenus juno* (Pk.) (32%), *Coccidula rufa* (Hbst.) (16%) and *Ptenidium fuscicorne* Er. (11%).

Lesteva heeri (Fauv.) (4%), often encountered singly, was here in some numbers, but of more particular interest was the discovery of 17 specimens (2%) of *Cercyon tristis* (Ill.), evidently new to Cheshire and more usually in areas inundated by fresh water. On the west coast this helps to fill a distributional gap between Anglesey and the Solway, and no doubt more such discoveries will ensue. The more or less halobiontic nature of the fauna is confirmed by the presence of such species as *Atheta vestita* (Gr.) (7%) and *Ochthebius auriculatus* Rey (1%). Other interesting observations included *Agathidium laevigatum* Er. (0.1%) and *Atheta aterrima* (Gr.) (0.1%). This last on dissection revealed an insect pupa in the lower abdominal cavity, which has been seen by Mssrs A.A. Allen, R. Belshaw and N.P. Wyatt, but which remains an unknown entity.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcestershire.

A small Tortoiseshell "courting" a Peacock butterfly?

Whilst working for hoverflies along a row of blackthorn bushes in full flower at the edge of a grass field at Shooters Hill near here on the very warm afternoon of 30th March, 1990, I witnessed the following curious episode. Two butterflies (species as above) appeared flying closely together and settled on the thick blossom, apparently more for the purpose of basking than of feeding (which they were never seen to do). Now and then they would take a short flight, again almost in contact, only to return to the same spot or another quite near. I could not be sure of their sexes by inspection, but their behaviour seemed to point decidedly to a male *urticae* and a female *io* — an assumption I shall make for convenience.

In the various stations they took up, their relative positions were always the same: *io* above, and *urticae* just below but never quite touching, except that when first seen settled the spread wings of the latter partly covered the former's hindwings. *Io* (somewhat worn) appeared unconcerned throughout, and might almost have been unaware of the other's presence; it was always she who took the initiative in any positional shift or movement, such as a brief flight. Invariably her devoted acolyte (suitor?) followed in constant attendance almost literally at her heels, indulging at least once in a little wing-trembling in the fully-spread pose. (Whether this last is a known courtship phenomenon in *Aglais urticae* I cannot say.)

It might, perhaps, be supposed that this *urticae* was a sentinel or guardian of territory, keeping very strict watch on an interloper — the usual reason for two butterflies of different species flying closely together or taking a strong interest one in the other. This is doubtless possible; however, not only was no hint of aggression ever seen, but also the entire behaviour of *urticae* was irresistibly suggestive of a male paying court to a female — under the influence of a sex-pheromone, yet in this case not of his own species. One thinks of the occasional inter-specific matings reported from time to time; was this, I wonder, the prelude to such a union? Passing the spot on my way back, the butterflies had gone. Probably a lepidopterist of long experience could cite similar observations.— A.A. ALLEN, 49 Montcalm Road,Charlton, London SE7 8QG.

Parascotia fuliginaria L. (Lep.: Noctuidae), Waved Black, in Shropshire

A single diminutive male of this species was caught in the Rothamsted Insect Survey light trap at Ludlow, Shropshire (Site No. 488, O.S. grid ref. SO 514 743) on 17.ix.1989. This is the first record of *P. fuliginaria* in the county and, due to the late date of capture, may represent a partial second emergence following the long hot summer of 1989. The species is usually univoltine, flying in June and July.

It is probable that *P. fuliginaria* has merely been overlooked in Shropshire as it is known to occur in the neighbouring Worcestershire portion of the Wyre Forest (C. Plant, pers. comm.).— ADRIAN M. RILEY, Dept. Entomology and Nematology, AFRC Inst. Arable Crops Research, Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

Wallace's line?

Whilst entomologising recently in Sarawak, I happened across an old copy of Joseph Conrad's *Lord Jim*; a book which I had not seen before but always intended to read "one day". It turned out to be an appropriate book to read under the circumstances and I was struck by Conrad's description of the trader/entomologist Stein, obviously based on the English entomologist/explorer Russell Wallace. Having compared passages with passages in Wallace's *The Malay Archipelago*, it was also pretty obvious that Conrad had "pinched" some of Wallace's well known passages — particularly relating to the capture of *Ornithoptera croseus*; perhaps not verbatim but certainly altered in such a manner as to leave no doubt as to the original author.

In his description of the capture of *croceus* Wallace says, "The beauty and brilliancy of this insect are indescribable, and none but a naturalist can understand the intense excitement I experienced when at length I captured it". Stein remarks, on the capture of a large butterfly whose description fits *croseus* very well ". . . and I had a very big emotion. You don't know what it is like to capture such a rare specimen. You can't know".

Wallace continues, "On taking it out of my net and opening the glorious wings, my heart began to beat violently, the blood rushed to my head, and I felt much mre like fainting than I have done when in apprehension of immediate death. I had a headache the rest of the day, so great was the excitement . . .". In Lord Jim, Stein heroically deals with an attempt on his life, calmly kills three of his attackers and then catches "*croseus*" by throwing his hat over the butterfly as it sat on a heap of dirt; his revolver in his other hand! Then he says, "When I got up I shook like a leaf with excitement, and when I opened these beautiful wings and made sure what a rare . . . specimen I had, my head went round and my legs became so weak with emoteion that I had to sit on the ground."

The Malay Archipelago was first published in 1869. *Lord Jim* was written in 1900. Interesting!— W.J. TENNENT, 1 Middlewood Close, Fylingthorpe, N. Yorkshire.

The Rothamsted farmland light trap network

As part of a three-year study in the Joint Agriculture and Environment Programme on farmland ecology a network of 26 standard Rothamsted Insect Survey light traps has been set up on the Rothamsted estate in Hertfordshire. The project involve an investigation into the movement and local distribution of Lepidoptera, particularly in relation to semi-natural farmland habitats. In addition to statistical analysis of trap catches, colleagues Dr Hugh Loxdale, Cliff Brookes and Ian Wynne will be using molecular techniques to study the genetic variability of certain Lepidoptera species from the samples.

An intensive local sampling programme of this type is unique and compliments the established national light trap network of the Rothamsted Insect Survey; indeed four of the 26 farm traps are long-established sites in the national scheme. In addition to the more detailed scientific analyses the project is already providing results of more immediate and general interest. This is particularly true with the current interest in climatic change allied to some very unusual seasonal weather patterns. Martin Townsend, an experienced macrolepidopterist, is identifying thr samples daily and we hope to extract and publish interesting observations on a regular basis.

Interesting Lepidoptera records for April 1990

The most unusual aspect of the catches for April was the advanced emergence of many species, undoubtedly due to the mild winter of 1989/90, followed by a generally warm spring. Records of the first individuals trapped are summarised below. The months in brackets represnt the usual emergence according to Skinner, B. (1984), *Colour Identification Guide to Moths of the British Isles*. Viking, Harmondsworth.

Xanthorhoe spadicearia D. & S. 29.iv (mid-May); *X. ferurugata* Cl. 26.iv (mid-May); *Eupithecia pulchellata* Steph. 11.iv (May); *Lomaspilis marginata* L. 29.iv (June); *Aethalura punctulata* D. & S. 23.iv (May); *Pheosia gnoma* Fabr. 9.iv; 23;iv (May); *P. tremula* Cl. 23.iv (May);

Diaphora mendica Cl. 1.iv and regularly from 16.iv (May); *Hadena rivularis* Fabr. 29.iv (one) (late May).

IAN P. WOIWOD, ADRIAN M. RILEY and MARTIN C. TOWNSEND, Dept Entomology and Nematology, AFRC Inst Arable Cropd Res, Rothamsted Exp. Stn, Harpenden, Herts AL5 2JQ.

Caloptilia rufipennella (Hübn.) (Lep.: Gracillariidae) in Hampshire

A male of this species turned up in my garden trap in Portsmouth, Hampshire, in the summer of 1989. This species has a very peculiar distribution being found in the far north of England and Scotland, Eastern England and North Wales. Its appearance in the southern counties can only be welcomed. My thanks to John Langmaid for checking the genitalia of this specimen.— R. DICKSON, The Vicarage, Playfair Road, Portsmouth, Hants PO5 1EQ.

A chance find

Everybody has a bit of luck at some time or other and my modest chance came on the morning of 15th May 1990.

I was walking my dog early in the morning through local fields. The edge of one cornfield originally had a wire fence held on wooden posts, although today only the posts remain standing. Lepidopterists seem to have an urge to look at posts and as I was drawn towards them I noticed a large mass of chamomile growing behind. My first thought was of the Chamomile Shark, *Cucullia chamomillae* D. & S., a moth I had never encountered before. This was immediately followed by a sighting of a fine *chamomillae* resting at the bottom of the next post, six inches from the ground.

Not an earth-shattering find, but I couldn't believe my luck. My dog was not impressed, but for me it was one of the many pleasures of entomology.— D. DEY, 26 Manor Avenue, Hassocks, West Sussex.

Two interesting Oestridae (Dipt.) from the Scottish Highlands

For the two notable and uncommon flies here recorded I am indebted to my friend Prof. J.A. Owen, who most kindly passed them to me together with their data. Both species are deer parasites.

Cephenemyia trompe Modeer, female, was caught on the slopes of Cairn Gorm, on the Inverness - Banff border, in the latter part of May 1982; I provisionally determined it as this species from van Emden (1954, *Handbk. Ident. Br. Insects* **10** (4): 119), chiefly on account of its lacking the contrasted *Bombus*-like coloration of the better-known *C. auribarbis* Mg. However, Mr A.C. Pont (then of the Natural History Museum), who kindly confirmed it as the former species, tells me that the coloration varies in these flies more than has been recognised in the past. *C. trompe* is attached to the reindeer, of which introduced mammal a herd was in the vicinity of Prof. Owen's capture, the fly being taken on the wing or settled on the ground. Mr Pont knew of no definite British record of this species; but van Emden (*l.c.*) states that it has been introduced with reindeer and may establish itself in the Scottish mountains — which the present capture suggests has almost certainly happened.

Hypoderma diana Brauer: this is the warble fly affecting both red and roe deer, for which van Emden (*op. cit.*: 25) gives a range from Perth to Sutherland. With the increase of the red deer in recent times it may well have become more frequent, but all the mammalian parasite flies are normally elusive and hard to obtain. This specimen, again a female, was taken on Ben Macdhui in the Cairngorms, in S.W. Aberdeenshire, on 2nd June, 1988. *H. diana* is much less *Bombus*-like than its two British congeners, having a facies of its own reminiscent of a dark *Eristalis* with long slender legs. — A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

CURRENT LITERATURE

The butterflies of Egypt by **Torben B. Larsen.** 112 pp, 7 text figs, 1 map and 8 colour plates. Boards. Apollo Books. 1990 DKr 240.

The butterfly fauna of Egypt is not rich, with only 58 recorded species. Despite this, and as with so many other areas, Egypt scores a first by producing one of the earliest recognisable illustrations of a butterfly, a painting of *Danaus chrysippus* by an artist in Thebes (now Luxor) some 3,500 years ago. The painting is on view at the British Museum, London.

This book briefly reviews the ecological sub-divisions of Egypt and the history of butterfly research there. All the species are covered with notes on distribution, status and other points of interest, and illustrated in colour. The book concludes with detailed notes on biogeography, distribution, migration and the pest status of some of the species. There is also a bibliography and index.

The author is an acknowledged authority of the butterflies of the Middle East and Arabia, and will be known to readers of the *Record* for his regular contributions on the *Hazards of butterfly collecting*. This book is well produced and written in a readable style devoid of much of the technical jargon that makes similar works so turgid. Paul Sokoloff

Butterflies and moths of Yorkshire — distribution and conservation edited by **S.L. Sutton** and **H.E. Beaumont.** 380 pp, 50 figs, 5 maps. Limp. Yorkshire Naturalists' Union. 1989. £15.00.

This current "local list" ranks amongst the best of its kind produced in recent years. It sets a thorough and detailed treatment of all the lepidoptera against a background of the county and its history.

Five chapters precede the main listings — these cover a history of the study of butterflies and moths in Yorkshire, the shaping influences, for example geology, on the lepidoptera, an essay on distribution and diversity, conservation and notes on the systematic list.

The bulk of the work comprises a systematic list of both micro and macrolepidoptera arranged in accordance with Bradley and Fletcher (1986) *An indexed list of the British butterflies and moths.* In contrast with a number of recently produced lists, this example comments on nearly all the species recorded and details dates and names of recorders for all the more interesting species. The inevitable monotony of many pages of printed text is broked by line illustrations of selected species. Although in no way essential to the book, they are well executed and attractive. The work concludes with a variety of appendices covering both detailed bibliography and list of key published works, identity of recorders, gazeteer, codes for collecting and conservation, a list of the more notable insects, locations of significant collections of Yorkshire lepidoptera and a detailed index.

Whilst it is always possible to find fault or errors in any work (including a wish that a hardback edition was available) this excellent publication must be seen as a model for local lists. C. Penney

100 YEARS AGO

PRACTICAL HINTS.

By W. H. TUGWELL, M.P.S., etc.

(*a*) When sugar fails, as it often does in hot and dry weather, instead of going home empty-handed and grumbling, search, by means of a light, flower heads, grass stems, rushes, or honey-dewed leaves, when frequently you will realize a rich harvest. My best captures have been so obtained.

(*b*) At end of August and early September split down from top to bottom the stems of thistles and burdock, when pupæ of *Gortyna flavago* will tumble out. *June*, as mentioned in No. 1 of the *Record*, is much too early!

(*c*) Middle to end of July. At night not earlier than 10.30 p.m. to early dawn, search with a light, in grassy places on the S.E. coast, especially if dwarf bushes of sea-buckthorn occur, and you will probably find *Nola centonalis* sitting quietly on the grass or leaves of the buckthorn. They do not fly freely, and require a close search, or are readily overlooked.

(*d*) *Eulepia cribrum* may be obtained all through July on the lichen-covered heather, two or three miles out of Ringwood, on the Bournemouth road. Gently sweep or brush your net over the heather as you walk along, and *cribrum* will start up and fly rapidly a short distance. Mark it down and stalk it. They may be disturbed all through the day, but early evening is the best time.

(*e*) *Acosmetia caliginosa* flies in the grassy rides of Stubby Copse, Brockenhurst, through July. It is best obtained by gently sweeping a net over the herbage as you walk along by day, and it comes freely to light at night. *Hyria auroraria* occurs at the same place, but flies in the sunshine.

OBITUARY

J.E. GREEN

Jack Green died on the 29th April 1990 after a brave fight against cancer. He was born in Stourbridge, and served with the Royal Artillery during the war, commanding an AA battery. Later he went to the Military College of Science and was involved in bomb disposal in Northern Ireland. After the war he worked as a research scientist for RSRE at Malvern until his retirement in 1981.

The seed of his interest in natural history, and butterflies in particular, seems to have been sown when at the age of four he was taken by an uncle to the Wyre Forest. From the 1950s onwards he became increasingly interested in British butterflies, although he was never a collector, but became a superb photographer. He specialised in taking pictures in the wild of free flying insects at close range. After his retirement, he and his wife Ann gave a large number of illustrated lectures on butterflies throughout the West Midlands. Every year since 1981 he had visited France to photograph continental butterflies.

He was Lepidoptera recorder for Worcestershire for the Biological Record Scheme, and in 1982 in conjunction with the Worcester Nature Conservation Trust he published his book *A practical guide to the butterflies of Worcestershire.* He was responsible for discovering a colony of *Thecla betulae* (Linnaeus) in East Worcestershire, and of its subsequent conservation with the assistance of the NCC. Up until very shortly before his death he was hard at work completing a paper on his twenty years of observations of the butterfly at this site, which it is hoped will be published shortly in the *Record.* He was also responsible for involving the Malvern Hills Conservators in maintaining what is now believed to the best site for *Argynnis adippe* (D. & S.) in the UK. He was involved in the re-discovery of *Eurodryas aurinia* (Rottenburg) at what is the only Worcestershire site, now a WNCT reserve.

He published a number of records and short notes in the *Entomologist's Record,* and in 1985 a paper on "Factors leading to a local abundance of *Eurodryas aurinia* in Worcestershire in 1984".

He was a great enthusiast and a very good friend, and all who knew him will extend their deepest sympathy to his wife and family.

A.N.B. Simpson

Continued from Back Cover.

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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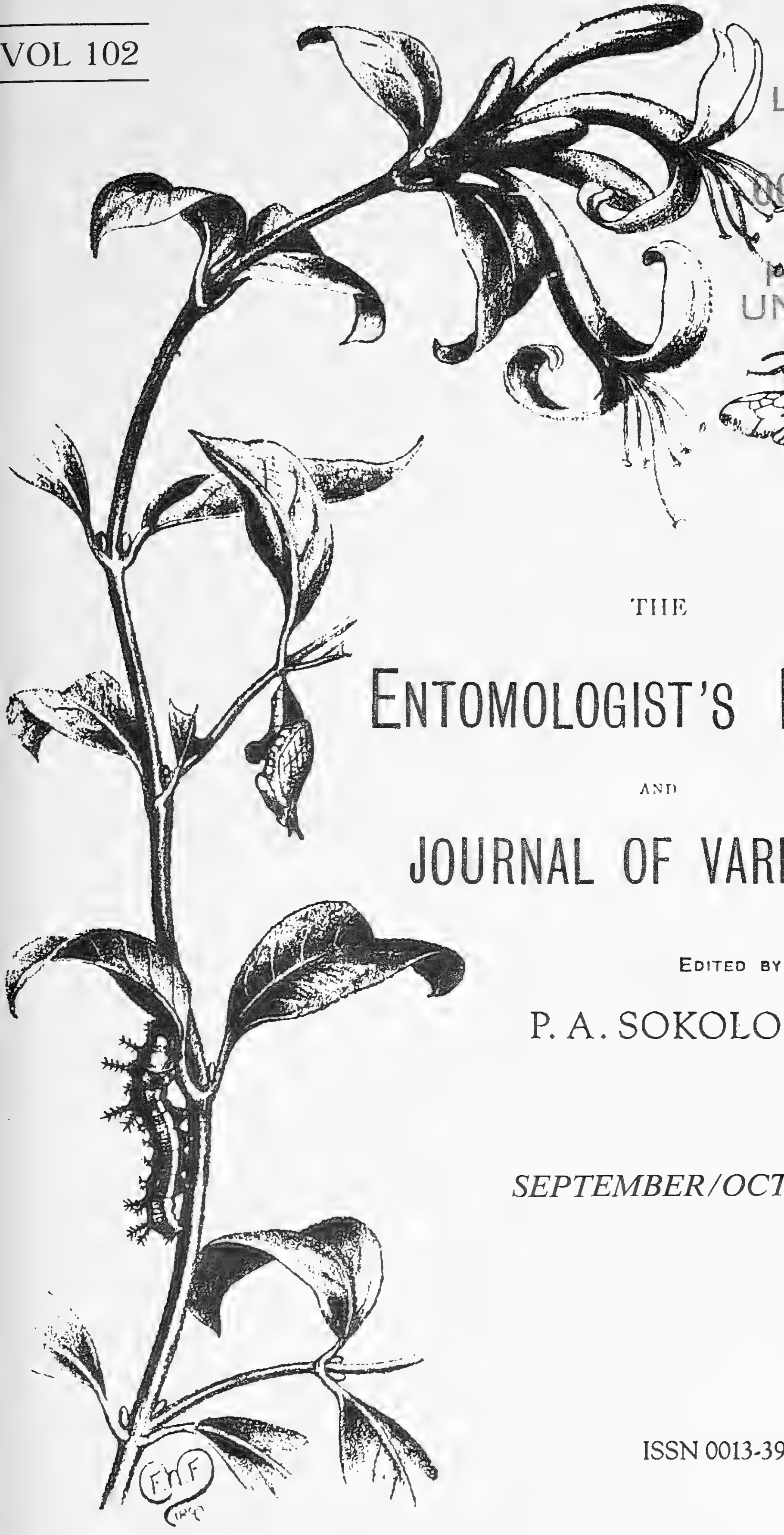

THE

ENTOMOLOGIST'S RECORD

AND

JOURNAL OF VARIATION.

EDITED BY

P. A. SOKOLOFF, F.R.E.S.

SEPTEMBER/OCTOBER 1990

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THE ENTOMOLOGIST' RECORD AND JOURNAL OF VARIATION

WHERE TO WRITE

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REGISTRAR: Changes of address and non-arrival of the Journal
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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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COURTSHIP AND MATING OF BUTTERFLIES

STEPHEN F. HENNING

1 Harry Lawrence Street, Florida Park, Florida 1709, South Africa.

THE MOST important function of an adult butterfly is the continuation of the species. All their behaviour is geared towards this end. Each species has a particular type of behaviour so that males and females can locate or find each other. Having located each other a specific courtship ritual now takes place to ensure that the prospective mate that has been found belongs to the same species and is receptive to mating. Only at the completion of courtship will mating finally take place.

Although various aspects of sexual behaviour of a number of butterflies have been studied (Scott, 1968, 1967, 1974; Shields, 1967; Shields & Emmel, 1973), only a surprisingly small number of species have had their entire courship patterns observed and described. The females of many species tend to remain in the general vicinity of the larval foodplant, and males presumably seek out these areas for courtship. On the other hand, males of the Lycaenidae in particular, but other families too, often gather on nearby rises of hill-tops where they "stake out" a little territory which they protect, and the females come up to these hill-tops to find a mate.

Visual recognition of the female by the male is of great importance in bringing the sexes together, but no one knows much about just how important the visual, tactile, chemical and acoustic stimuli are, relative to each other, in bringing the sexes of one species together. Entire courtships ending in mating are rarely seen at close quarters in nature, and there has been little experimentation in the field or in large cages.

Mate-locating

Mate-locating behaviour is defined as behaviour which brings the sexes together for mating. It includes the methods used to find mates, the location of mating, and the time of day of initiation of mating (Scott, 1974).

Chemoreception is known to be very important in the long-distance location of females by males in moths, and in the courtship of moths and butterflies. It may possibly prove to be important in location of females by males in the Acraeidae as well. For most butterflies, however, the maximum distance of attraction is limited by sight, while chemoreception is important only within a few metres of the females by the release of pheromones from hair pencils, androconial scales and so on.

There are two main types of mate-locating behaviour in butterflies. The first is perching behaviour which is defined as a mate-locating method in which males sit at characteristic sites and dart out at passing objects in search of females. The females generally fly to these sites to mate, then they depart. The second is patrolling behaviour, a mate-locating method in which males fly almost constantly in search of females.

Movement, size, wing colour, wing pattern, and odour are stimuli which can be transmitted during sexual communication in the approach of a male to a female. Perching males are highly attracted to moving objects, whereas patrolling males often are attracted to motionless objects resembling females in some way. Perching species usually mate in limited areas of habitat, often during only part of the day, whereas patrolling species usually mate throughout the habitat at any time of day.

Territoriality is usually exhibited by males which perch or patrol in a particular beat or area. They will investigate and challenge not only other males of the same species that enter the territory but other appropriately sized flying insects as well. The resident male most frequently succeeds in his challenge. Virgin females entering a territory are at once pursued and courtship commenced. In the case of many Hesperiidae and Lycaenidae a particular male will have a favoured perch or perches in its territory on which it will settle, often returning after an encounter to the exact spot from which it launched itself. If that individual is caught it may be replaced within minutes or hours by another individual of the same or a different species. Surprisingly, the new individual may rest on or near the same twig as its predecessor. Evidently there are certain particularly favoured spots in any small area of habitat and these are occupied in preference to others. On the other hand, in some species (eg *Papilio demodocus* Esper) the males patrol for long periods and perch only briefly. The males seldom engage in feeding activities while they are perching or patrolling. Since they appear only as the day warms up, they probably go nectar-gathering before starting their territorial behaviour.

Both perching and patrolling species also exhibit other types of behaviour which help the sexes to locate each other. The most noticeable is hill-topping behaviour in which males of low-density species fly to the summits of hills and there show perching or patrolling behaviour. In these species the males ascend to the hill-tops to be in a conspicuous spot so that the newly hatched females might fly kilometres without finding a mate if they tend to be sparsely scattered. So the female goes up to the top of the hill, very soon gets fertilised and goes away again and almost never returns (Scott, 1968).

Hill-topping low density species have many behavioural traits in common. They do not congregate about the foodplant but instead tend to be large, strong-flying, solitary species. When a specimen of these low density species emerges from the pupa it will be unlikely to find a member of the opposite sex in the near vicinity. If unable to find a mate it will ascend to the highest topographic point where it will find other members of the same species which will also have ascended to the peaks to mate. The males which will mate more than once tend to congregate around these high points waiting for females. A high proportion of females only mate once or twice in their lives, therefore many will only ascend to the summit shortly

Papilio euphranor Trimens, a montane forest species shown patrolling, gliding back and forth at considerable height in clearings above valleys and waterfalls.

after emerging and once mated will never return. This is why females are seldom observed on the summits as they are only there long enough to mate. Courtship usually only lasts two to three minutes and once *in cop* they are usually out of sight in the grass or in a tree often downhill from the summit. So chances are very slight that you will see a female. This gives rise to the impression that only the males are hill-topping. *Charaxes jasius saturnus* Butler is a good example of a low density species that shows hill-topping behaviour. It is an extremely common butterfly in the bushveld of South Africa but is regarded as a low density species as its foodplants are scattered throughout the bush and the females range widely laying their eggs wherever they find a suitable tree (Henning, 1989).

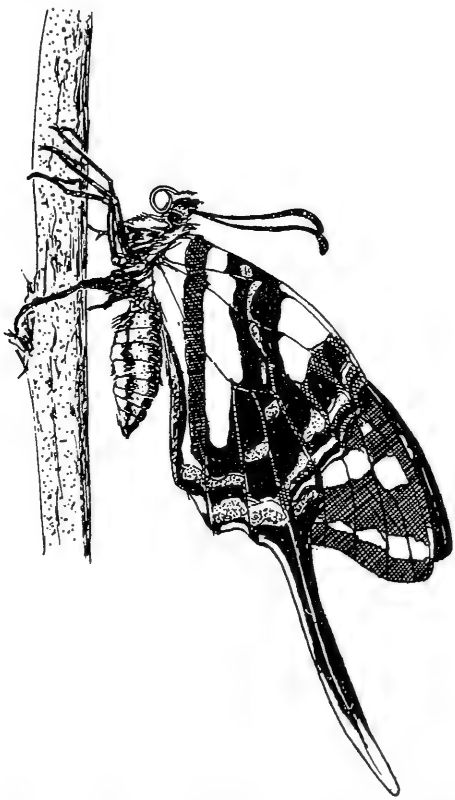
During hill-topping the males may either perch on a shrub, tree or patch of ground (eg *Iolaus trimeni* Wallengren) or patrol back and forth on the summit (as in *Papilio demodocus* Esper). The behaviour of hill-topping species is not fundamentally different from other species; hill topping behaviour occurs when these activities are transferred to a hill-top. Perching males may well remain on a hill-top for several days.

The males, which usually emerge earlier than females, visually orientate and fly to the hill-tops where each will stake out a little territory which he will defend against challengers of his own species (or even other species if they look similar). The females, when they emerge, also fly to the hill-tops, mating occurs, and then the females leave to lay their eggs and almost never return. Nearly all females found flying on the hill-tops will be virgins searching for mates. Usually there is no foodplant to lay their eggs on up on the hill-tops, nor is there much nectar to eat. This means that the males must feed further down in the valleys before coming up to the hill-tops. Species differ in their time of arrival on a hill-top and may stay until quite late in the afternoon. Certain hill-tops are consistently favoured over others nearby but no one knows yet why some seem more preferable than others.

It appears that hill-topping behaviour can be effective only for low density species, because at high densities on hill-tops interference between males prevents mating with females and the number of hill-tops is limited. If a species is common, only a small proportion of the males can occupy a hill-top, so that most males will be forced into non hill-top situations. As population density rises, the probability that a female will meet a male before reaching a hill-top therefore increases, so that hill-topping is less important for commoner species. The few males on hill-tops could not possibly inseminate all the females in a common species, so that most matings will occur with males which remain at the breeding site or which are between the breeding site and the hill-top. Because hill-topping is less useful for common species, selection should eliminate the hill-topping response since males which remain at the breeding sites will contribute more genes to the next generation.

Hill-topping species are then in general large, fast-flying, solitary species with more widely scattered and less abundant foodplants than non hill-topping species, which tend to be small, weak-flying, colonial species with common or clumped foodplants.

Of the non hill-topping species most of them, especially the weak fliers, spend their entire lives, except for brief forays in search of mud or flowers



Graphium junodi (Trimen) patrols for long periods and perches only briefly.

for nourishment, around stands of the foodplant, and therefore have a built-in mechanism for bringing the sexes together. Often the sexes are limited both to foodplant and to certain areas of the environment such as marshes, rockslides, or forests, which may or may not be the only locations of the foodplant. The behaviour of these species usually limits them to these areas so that mating is possible with "random" flights by both sexes or by patrolling of the area by males.

In myrmecophilous species they will be confined to the foodplants in a particular area because it is only here that the host ant occurs. This will include all the myrmecophilous species such as the *Lepidochrysops*. In these species when an individual emerges from the pupa it is very likely to encounter a member of the opposite sex since they will also emerge from the same or nearby ant nests. Therefore in these species you will generally find that most mating will occur in the vicinity of the foodplants. These species will benefit from hill-topping only when their populations fall to low levels. Hill-topping may be selected for at low population levels, and remaining near the foodplant may be selected for at high levels, so that the advantage of hill-topping for a particular species could depend on its average density and the fluctuation from this average. In swarm years which often occur in some species such as *Lepidochrysops robertsoni* Cottrell excess males displaced from territories around the foodplants and ants' nests may ascend to nearby hills in the hope of the appearance of a mate, but the vast majority of mating will occur near the foodplants.

In some species the males occupy small areas along the bottom of a gully or gorge, presumably for mating purposes. Males may occupy an area for some time, but this behaviour may not be territorial since the males may wander to another gully and show the same behaviour. A group of butterflies which show this behaviour are the *Poecilmitis*.

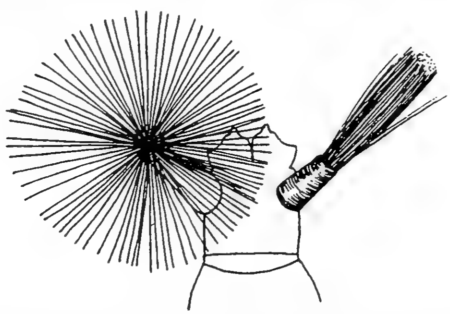
The males of rainforest species usually show perching and patrolling behaviour in forest clearings, roads or along the outskirts of the woods.

Courtship

There is a tremendous diversity of courtship behaviour. In patrolling species, the two sexes may meet during flight or the flying male may meet a female at rest. In perching species, the female flies near the male, who then pursues her. Subsequent events can be divided into aerial events and ground events although in some species identical activities may occur in the air and on the ground or plant. In the aerial phase, which is omitted altogether in some species, the two sexes often merely flutter about each other, or fly in stereotyped patterns, or one or both sexes may perform specialised acts for transferring pheromones. The aerial flight usually results in the female alighting, whereupon the receptive females of some species usually become inactive until copulation occurs. Unreceptive females of some species may flap their wings or fly a special pattern (rejection dances), or adopt a special rejection posture. After the female alights, the male may continue to fly about the female, or may land, whereupon one or both sexes may still flutter their wings, and the male may perform complicated manoeuvres with his wings, antennae, or legs. Copulation may then occur, or various courtship events may then be repeated.

Pheromones of one or both sexes are important in the courtship of most species although only in the Danaidae have pheromones been chemically identified. Pheromones are substances, produced by one individual, that influences the behaviour of other members of the same species. It is well known, for example, that the virgin females of many moth species produce a powerful and specific sex pheromone that is capable of attracting her specific mate from distances of hundreds if not thousands of metres. In some species of moth, when the male gets close to the female he releases an aphrodisiac pheromone which brings about mating. Amongst butterflies it is usually the male, instead of the female that possesses scent organs. These may be highly modified scales or pouches on either the fore or hind wings, or special little structures on the abdomen. Sex brands, which are formed of these specially modified scales and which also produce scents, occur in many butterfly species.

The most highly developed male scent organs are found in the Danaidae. These organs are the paired hair-pencils (they look like pencils made up of lots of little hairs in a cylinder). These pencils can be pushed out from the tip of the abdomen and release a pheromone during courship. In some species the hair-pencils are covered with fine dust-like particles which shower forth as a rain of scented particles when the hair-pencils shoot out. There are also conspicuous wing glands which, with the hair-pencils, produce pheromones that are a characteristic for each species so that the butterflies can tell their own species from all the others. Some of these pheromones can even be detected by the human nose.



Tip of abdomen of Danaus chrysippus (Linnaeus) showing scent brushes (hair-pencils), with one open and one closed.

Stride (1958) watched *Danaus chrysippus* (Linnaeus) courtship and he noticed that, while the female normally flies in a leisurely, unhurried manner, during courtship she adopts a rapid, rather jerky flight. On overtaking the female the male flies above, hair-pencilling the front part of the female every time an opportunity presents itself. Within a short time, the female settles with the male beside her facing in the same direction.

Then the male bends his abdomen sideways to reach the female and join with her. If, during mating, flight becomes necessary, the male flies carrying the female with him, not as in some other butterflies where the female is the active partner.

In most other species, the pheromone is only used when the butterfly is one or two metres from its partner, but not further away. Female pheromone evokes the male pursuing response and causes continued courtship, while the male pheromone may cause the female to land and accept the male.

Mating

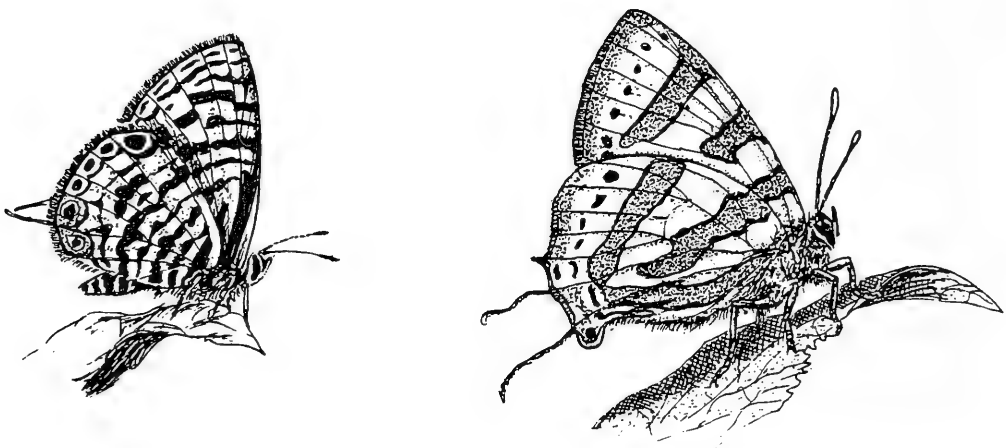
To initiate copulation the males of almost all butterflies grasp the female from a position slightly behind her while facing the same direction as the female and bending his abdomen right or left 180° to grasp her abdomen. Then the male moves sideways until the partners face opposite directions.

The pair remain at the mating site, where they may separately or both bask in the sun by opening their wings, or may fly if disturbed. If disturbed, the sex which carries the other is usually fixed within the species and it will fly, carrying the other behind. In species in which only one sex carries the other, the active sex usually positions itself above the other, with its wings outside of those of the other, and is more likely to walk during copulation. The inactive sex remains in a state of immobility known as catelepsis. At the end of copulation in *Precis* the female kicks and turns until the male is broken off; then the male flies away. In other species the male initiates uncoupling. Apparently only in the Danaidae is there a postnuptial flight (the male always carries the female a short distance).

Copulation lasts about half to three hours depending on the species, and occasionally overnight. Copulation is longer at lower temperature and if the male has recently mated. Males can mate five times or more, whereas the number of matings per female varies between species from only once to an average of three.

In some species a large structure known as the sphragis is deposited by the male in the copulatory opening of the female preventing further mating. A sphragis is known in Acraeidae and Danaidae (*Amaurus*). In all the species with a large sphragis, many similarities exist, including the absence of courtship, powerful odour (pheromones) of adults of both sexes, and strong attraction of males to virgins. The male captures the female without any courtship in the Acraeidae and it appears that the females produce an attracting pheromone. It appears that the large sphragis serves to inhibit the emission of the female pheromone. The male of these species can easily detect whether the female is virgin or mated by physically detecting the sphragis (or because of pheromones) and he can therefore mate immediately without wasting time courting. In other butterflies, determining the receptivity of the female may not be so easy, and one function of courtship is to increase the female's receptivity so that mating can occur.

Females can mate the first day of adult life in almost all species, although they may mate more readily after a day or two. In contrast, males usually mate only after several days. Males often develop distinctive odours (male pheromones) only after a few days. Females of perching species often must fly to the mating site, so may be older than patrolling species at first mating. The difference between the sexes in minimum age of mating is due to three reasons. Males almost always take the active role in mate-locating, so must be capable of stronger flight, so must wait a few days before actively perching or patrolling. Second, it is advantageous to fertilise the females as soon as possible in the usual preoviposition period so that the time for oviposition is not reduced. Finally males almost always emerge a few days before females.



Cyclyrius babaulti (Stempffer) perching on a leaf (left) and *Iolaus (Epamera) diametra natalica* Vári which perches along forest roads, clearings or along the outskirts of the woods (right).

References

Common, I.F.B. & Waterhouse, D.F., 1972. *Butterflies of Australia.* Angus Robert son, Australia.

Henning, S.F., 1984. *Southern African Butterflies,* with illustrations by Clare Abbott. Macmillan South Africa. 24 colour plates.

— , 1989. *The Charaxinae Butterflies of Africa.* Aloe Frandsen Publishers, Johannesburg. 472 pages.

Scott, J.A., 1968 (1970). Hill-topping as a Mating Mechanism to Aid the Survival of Low Density Species. *J. Res. Lepid.* **7** (4): 191-204.

— , 1972 (1973). Mating of Butterflies. *J. Res. Lepid.* **11** (2): 99-127.
— , 1974. Mate-locating behaviour of butterflies. *Amer. Midl. Nat.* **91**: 103-117.
Shields, O., 1967. Hilltopping. *J. Res. Lepid.* **6** (2): 69-178.
Shields, O. & Emmel, J., 1973. Carrying-pair behaviour of butterflies. *J. Res. Lepid.* **12**: 25-64.
Stride, G.O., 1958. Further studies on the courtship behaviour of African mimetic butterflies. *Anim. Behav.* **6**: 224-230.

Protracted emergence of *Eupithecia pusillata* D. & S. (Lep. Geometridae), Juniper Pug.

On the 10th May 1989 while walking the ridge of Whitbarrow Scar, Westmorland, I came across an isolated clump of Juniper bushes which was, for the lack of a better word, infested with larvae of *E. pusillata*; as many as 40 - 50 larvae falling onto the tray at a single beat. Suspecting the possibility of a high rate of parasitism in such a dense population I selected between 50 - 60 last instar larvae.

The first of these began to spin up a few days later and by the 17th May all had pupated. Between 30th May and 10th June 23 moths emerged at the approximate rate of two each day. On 3rd July I went away for a few days and as over three weeks had elapsed since the last emergence I presumed that the pupae were going to "lay over" until the following year; a not uncommon habit in some northern species, especially those occurring at high altitudes. I was therefore surprised and somewhat annoyed to find twelve mostly rubbed specimens on my return on the 6th. For the next week there were no further emergences despite the very hot weather; but not wishing to be caught out a second time I decided to take the remaining pupae with me to Ireland on 13th July. This proved to be a correct move as four came out on the 17th followed by one more on the 18th.

These were the last to emerge and in October seven pupae were put outside in a garden shed having first discarded four dead ones. An examination at the time of writing (February 1990) revealed another fatality with the remainder appearing still healthy. As yet there has been no sign of parasitism.

In summary it would be unscientific to infer that the above interesting sequence of events obtained in captivity bears any similarity to feral behaviour, however experience shows that rearing in captivity, if it is going to have any effect, usually accelerates development and not retards it. So perhaps it is not too unreasonable to presume this species has an extended period of emergence in the wild and also should the same irregular pattern experienced in captivity occur in nature at a site being monitored by a light trap who could argue with a recorder who suggested that the freshly emerged specimens appearing in the latter half of July were probably the offspring of those noted in late May and early June? So endeth a cautionary tale.— BERNARD SKINNER, 5 Rawlins Close, South Croydon, Surrey CR2 8JS.

A melanic form of *Carabus clathratus* L. (Col.: Carabidae)

A variety of this fine ground-beetle has lately come to my notice which I do not find mentioned in the works available to me, and which, therefore, must be rare to say the least. It is to all intents and purposes melanic, retaining only some slight trace of metallic lustre, but practically none in the inter-costal pits on the elytra. The beetle thus has a very sombre aspect compared with ordinary specimens, where ground colour is shining dark greenish-brass and the elytral pits strikingly coppery or golden.

I possess an example of the above variety from the collection of my late friend Arthur W. Gould, with the data "Loch Lurgainn, Sutherland, 15.6.60, C. McD.". It measures only 23 mm as compared with an average of 27 mm for the type form. Another, virtually identical except in being distinctly larger, is in my friend Prof. J.A. Owen's collection, and was taken in Glen Dessarry, West Inverness-shire, in July 1978.

Melanism is probably occasional in all species of *Carabus* not normally black in ground colour. In Britain it is definitely recorded for at least *nemoralis* Müll., *nitens* L., and *granulatus* L., and no doubt occurs also in *monilis* F. and *arvensis* Hbst.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Rothamsted farmland light trap network: interesting Lepidoptera records for May 1990

Twenty-five of the proposed 26 sites described in a recent article (*antea* 200-201) were in continuous operation during May and, once again, the early emergence of many species was the most interesting aspect of the catches. The more noteworthy records are summarised below giving the date of first capture and, in brackets, the usual time of emergence.

Timandra griseata Peters 6/7.v. (late May); *Scopula imitaria* Hb. 31.v. (July); *Idaea seriata* Schr. Frequent since 4/5.v. (late June); *I. dimidiata* Hufn. 23.v. (late June); *I. aversata* Linn. 29.v. (mid-June); *Mythimna impura* Hb. 31.v. (late June); *M. pallens* Linn. Frequent since 25.v. (late June); *Acronicta leporina* Linn. 17.v. (early June); *Pseudoips fagana* Fabr. 3.v. and frequent since 14.v. (June).

Other records of note are several individuals of *Autographa gamma* (Linn.), in "mint" condition, during early May. These records, along with a locally-discovered fully-grown larva in February, suggest likely over-wintering in this species. A single *Udea ferrugalis* Hb. (Pyralidae) was recorded on 23rd May but no other suspected immigrants were caught during the month. Finally, a single *Panolis flammea* D. & S. was caught on 2nd May and, despite Rothamsted Insect Survey light traps operating on the estate periodically since 1933 and continuously since 1960, this species has never before been recorded.— MARTIN C. TOWNSEND and ADRIAN M. RILEY, Dept. Entomology and Nematology, AFRC Inst. Arable Crops Res., Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

THE IMMIGRATION OF LEPIDOPTERA INTO THE BRITISH ISLES IN 1989

R.F. BRETHERTON[1] and J.M. CHALMERS-HUNT[2]

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[2] *1 Hardcourts Close, West Wickham, Kent.*

(concluded from p. 159)

ANNEXE I

Names of recorders

This contains the names of those who have sent their own records to us and, as far as possible, those of others which they have transmitted; also a few already published elsewhere. Names of recorders from Ireland have not been fully included.

Adams, Mrs C., Adams, E., Allen, D. (Ireland), Agassiz, D.J.L., Austin, R. (Guernsey), Baker, B.R., Baker, Mrs M.A., Baldock, D.W., Banner, M., Bell, R.A., Belringer, S.M., Botwright, G., Booth, C.J., Bourgoise, J. (Guernsey), Bowerman, Mrs E., Boyd, T. (Ireland), Branson, B., Bretherton, M.F., Bretherton, R.F., Brooks, Miss M., Brown, D.C.G., Brown, E.P., Brown, M.R., Brower, Mrs W. de, Bryan, M.D., Burton, J.F., Butcher, S., Cade, M., Catt, M. & A., Campbell, J.L., Chalmers-Hunt, J.M., Chainey, J., Champkin, W., Chambers, D.A., Chatelain, R.G., Clancy, S.P., Clarke, Dr J., Clarke, K.R., Cleere, D., Cobbing, P., Collins, C.B., Cooper, K., Corley, M.H.V., Costen, Dr P.M., Cox, B., Craine, D.G., Cribb, P.W., Creasey, G., Crump, F.D., Curzon, S., Davey, P., Dempsey, Mrs S., Derbyshire Ent. Soc., Dewick, A.J., Dewick, S., Dey, D., Dobson, A.H., Dowling, D. (Ireland), Durlston Country Park, Eastwick-Field, G.G., Else, G.R., Emmet, A.M., Evans, M., Ezard, A.S., Farwell, P., Fenn, J., Firmin, J., Foster, A.P., Fradgley, J., Freeborn, G. (Ireland), Goater, B., Goodey, B., Gowlett, W., Graveley, B., Gray, M., Green, J.E., Greenwood, J.A.C., Grove, R.W., Hall, N.M., Halsey, J. & M., Halpen, Mrs S., Harlen, S., Harmer, A.S., Hardman, R., Harrison, B., Harwood, N.W., Haynes, R.F. (Ireland & Man), Heckford, R., Henwood, B.P., Higgs, G.E. (Guernsey), Hobbs, R., Hodge, R.J., Hopsen, Mr & Mrs, Inch, D., Jacobs, S.N.A., Jenkins, A.J., Jewess, P.J., Johnstone, D.L., Kittle, W.G., Kneen, Mr & Mrs, Knill-Jones, S.A., Lane, R.E. & C.G., Langmaid, Dr J.R., Lempke, B.J., Lidgate, J.C., Long, R., Lorimer, R.I., McCormick, R.F., McKee, C. (Ireland), MacNamara, D., MacNulty, B.J., Macworth-Praed, H., Madge, S.C., Marples, F., Mitchell, B.R., Moore, B.W., Morgan, I.K., Morris, R.K.A., Musselle, R., Myers, Dr A,. (Ireland), Nash, S., O'Heffernan, H., O'Keeffe, D., Owen, John, Owen, Prof D.F., Palmer, Mr & Mrs S.M., Parsons, M., Payne, J.H., Peet, T.N.D. (Guernsey), Penney, C.C., Penhallurick, R., Pittis, S.C., Phillips, J., Plant, C.W., Potts, P.M., Pratt, C.R., Radford, A.P., Radford, J.T., Ratley, D., Reid, J., Rich, Mrs E., Rippey, I. (Ireland), Robinson, R., Rogers, M., Rollin, C.C.M., Rouse, T., Rutherford, C.I., Salmon, Dr M.A., Scott, I. & K., Semmens, M.P., Skinner, B., Slade, D.J. & A.M., Softly, R.A., Spalding, A., Spence, B., Sterling, Col. D.H., Sterling, P.H., Stokes, Mrs S., Summers, G., Sutcliffe, S.J., Swanson, S., Symons, W. (Guernsey), Tremewan, M.A., Tubbs, R.S., Tucker, V.R., Walker, D., Wallace, Mrs C., Walters, J., Waring, P., West, B.K., Weston, B., Wild, E.H., Williams, E.H., Williams, K., Williams, M., Wincot, P.R., Winter, P.Q., Wright, Dr S., Young, D., Young, Dr M.

	Palpita unionalis	*Rhodometra sacraria*	*Orthonama obstipata*	*Agrius convolvuli*	*Mythimna albipuncta*	*Mythimna vitellina*	*Mythimna unipuncta*	*Mythimna loreyi*	*Spodoptera exigua*	*Heliothis armigera*
January	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	0
March	0	0	0	0	0	1	3	0	0	0
April	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	1	0	0	0	0	0
June	0	0	1	0	3	1	0	0	1	0
July	0	37	2	0	2	1	0	0	16	0
August	1	26	2	13	11	4	0	0	5	0
September	3	160	0	19	14	4	153	0	3	13
October	51	59	2	5	116	7	344	21	12	9
November	2	5	0	0	1	0	15	0	1	0
December	0	0	0	0	0	0	1	0	0	0
Totals 1989	**57**	**287**	**7**	**37**	**c.149**	**18**	**c.520**	**21**	**38**	**22**
(Totals 1988)	*40*	*94*	*63*	*17*	*6*	*24*	*12*	*9*	*182*	*81*

TABLE II. Scarcer immigrants in 1989 (All records, British Isles).

ANNEXE II

Records of scarcer immigrant species in 1989: adults only.

Suspected immigrants of resident species are marked *. Records of nocturnal species are of those found in traps or otherwise at light unless otherwise stated, with dates as far as possible for the beginning of each night. Initials are used for some recorders in long lists, but others are given in full.

PYRALOIDEA

Euchromius ocellea Guen. (2) KENT W. East Malling, 26.9 (D.A. Chambers). YORKS v.c. 61 Spurn Bird Observatory, 21.9 (B. Spence).

***Evergestis extimalis** Hb. DORSET Portland Bird Observatory, 20.8 (M. Rogers per N.M. Hall).

Hellula undalis Fabr. (5). DORSET Studland, 24.10 (DCGB) HANTS ISLE OF WIGHT Freshwater 26.10 (SAK-J). SUSSEX W. Littlehampton, 30.10, two (B.S.) Sussex E. Eastbourne, 23.10 (BS).

***Margaritia sticticalis** L. (2) ESSEX S. Bradwell-on-Sea, 11.7 (S. Dewick). YORKS v.c. 61 Spurn B.O., 9.7 (B. Spence).

Udea polygonalis D. & S. ESSEX S. Bradwell-on-Sea, 21.9 (A.J. Dewick).

***Sitochroa palealis** D. & S. (14 plus larvae). CORNWALL W. Scilly, St Mary's, 24 & 29.8, larvae on *Daucus,* presumably from immigrant parent (R.J. Heckford). SUSSEX W. Thorney Island, 4/14.7, fourteen in all. Possible resident there (C.B. Collins).

***Ostrinia nubilalis** Hb. (15) HANTS S. Widley, Portsdown, 14.6 (P. Potts). 11.6, 14.6, 17.6, 19.6, 6.7, 20.8, 18.9, two, 24.9 (J.T. Radford per CRP). SUSSEX E. 18.9, 21.9, two, 23.9, 24.9 (M. Parsons). GUERNSEY Petit Bot, 8.9, first island record (R. Austin).

***Phlyctaenia perlucidalis** Hb. (3), HANTS N. Leckford, 13.6, 2.7 (D.H. & P.H. Sterling). YORKS v.c. 61 Spurn B.O., 7.7 (B. Spence).

Antigastra catalaunalis Dup. SUSSEX W. Walberton, 26.10 (JTR per BS).

Maruca testulalis Geyer KENT W. Dartford, 6.8. Probably only fourth known wild example, probably immigrant (B.K. West, *Ent. Rec.* **102**: 44).

Diasemiopsis ramburialis Dup. DORSET Studland, 25.10 (D.C.G. Brown).

Palpita unionalis Hb. (57). CORNWALL W. Cusgarne, 30.10, two (A. Spalding); Penzance, 17.11 (M.P. Semmens). DORSET Durlston Country Park, 23.10; Portland B.O., 18.10 (M. Rogers); Durlston Head, 21.10, two, 25.10, 27.10, three (P. Davey), 22.10, two, 23.10, six, 24.10, 25.10, four (DCGB); Durlston, 27.10 (A. Gardner). HANTS ISLE OF WIGHT Freshwater, 19.10 (SAK-J). KENT E. Dungeness 25.10 (S.P. Clancy). NORFOLK W. Hockwold, 16.9 (J. Fenn). SUSSEX W. Walberton, 25.10, 30.10 (J.T. Radford); Littlehampton, 26.10, 30.10 (BS); Rogate, 30.10 (J.A.C. Greenwood). SUSSEX E. Eastbourne, 23.10, four (B.S. & M. Parsons), 26.10 (M. Parsons), 30.10, twelve males, 31.10, one male (A.P. Foster & M. Parsons); Pevensey Levels 24.10 (A.P. Foster); Ninfield, 24.10, 11.11 (M. Parsons). GUERNSEY Old Marais, Vale, 9.8 (R. Austen); Forest, 12.9, two (T.N.D. Peet).

***Dioryctria abietella** D. & S. ESSEX S. Bradwell-on-Sea, 8.7, four (A.J. Dewick), KENT E. Greatstone, 8.7, one large (SPC). YORKS v.c. 61 Spurn B.O., 25.9, "a giant" (B. Spence). Immigrants are usually larger than the native form.

RHOPALOCERA

Papilio machaon bigeneratus Vty. SUSSEX E. Beachy Head, 17.8, noted flying off the sea (P. Farwell per C.W. Plant). GUERNSEY St Peter, 8.11, one seen (per R. Austin).

Colias alfacariensis Berger. BUCKS Dancer's End, 17.9, male (Dr P.A. Salmon, at BENHS exhibition, identity *teste* JMC-H). The first confirmed British specimen for many years.

Pontia daplidice L. CORNWALL E. Mount Edgecumbe, near Torpoint, 29.7 (E. Adams per S.C. Madge, who believed it to be correctly identified).

Lampides boeticus L. SURREY Alford, 3.7, one caught in a field and set (R. Hardman per P.W. Cribb). [One seen at Prawle, south Devon is believed to have come from a nature breeding site.]

Nymphalis antiopa L. (3) MIDDLESEX Sunbury, 25.7, feeding on fallen plums in garden (P.W. Cribb). SURREY Esher Common, watched flying round a pear tree and feeding on rotting fruit, 22.7 (Steven Brown per I. Rippey). Dates agree with the general immigration of late July. CORNWALL E. Maker, 12.7, seen and described (P. Cobbing per SCM).

Dryas julia Fabr. ESSEX N. Colchester, one found, caught and photographed between mid July and August; a shop selling bananas was 1½ miles away (per B. Goodey). It was probably imported like its British predecessor at Rotherhithe in 1936.

Danaus plexippus L. (3) DORSET Abbotsbury, watched by R.W. Grove (per Martin Cade), 22.9. SUSSEX E. Jevington, Eastbourne, 15.8, closely seen on buddleia, then flew off (by Mr Witten, per D. Rushen of "Living World", reported by D. Dey and CRP). HANTS S. Havant, uncertain date, watched at rest and flying by Mrs M.A. Collins (C.B. Collins).

BOMBYCOIDEA

***Euproctis chrysorrhoea** L. (5). YORKS v.c. 61 Spurn B.O., 7.7, four, 9.9 (B. Spence); Flamborough, 8.7, Muston 10.7 (P.Q. Winter). Probably migrants.

LASIOCAMPIDAE

Dendrolimus pini L. GUERNSEY Le Chene, Forest, 9.7, at light. Possibly from imported conifers, as no other immigrants were seen that night. Only second British record (T.N.D. Peet, pers. comm. and *Ent. Rec.* **101**: 248).

GEOMETROIDEA

Cyclophora pupillaria Hb. GUERNSEY Forest, 26.9 (T.N.D. Peet).

***Scopula rubiginata** Hufn. KENT E. Greatstone, 17.8 male (B. Branson per S.P. Clancy).

Rhodometra sacraria L. (223) BERKS Fernham, 22.7, two, 24.7, 6.9, 16.9, 20.9, 24.9, three, 25.10, two, 27.10, 30.10; Long Wittenham, 23.9 (D. Owan); Wash Common, Newbury, 29.10 (N. Cleere per G.G. Eastwick-Field). CHESHIRE Combermere, 27.10 (R. Robinson per C.I. Rutherford). CORNWALL W. Scilly, Tresco, end September (C.I. Rutherford). Cusgarne (two places) 4.9, red stripe, 5.9, red stripe, 6.9, two red stripe, 8.9, red stripe, 10.9, red stripe, 11.9, two red stripe, 21.9, red stripe, 22.9, two red, one brown stripe, 23.9, 1 red, 1 brown stripe, 26.9, red stripe, 29.9, red stripe, 30.10, red stripe, 2.11, red stripe (A. Spalding); Penzance, 22.7, 30.7, 8.9, 9.9, 18.9,, 21.9, 25.9, 26.9, two, 28.9, 1.10, 5.10, 17.10, 22.10; Drift Reservoir, 3.9 (M.P. Semmens); Rosewarne, 12.9 (A.H. Dobson); Housel Bay, 26.9 (C.L. Rutherford; Coverack, Lizard, 25.8, 27.8 (DCGB); Cury, Lizard, 22.7, two, 26.7, 2.8 (A. Gardner). CORNWALL E. Sheviock, 1.8; East Looe 19.9 (S.C. Madge). DEVON S. East Prawle, 8.7, 4.8, both by day (M. & A. Catt); Abbotskerswell, 5.9, 7.10 (D.P. Henwood); Chardstock, 7.9 (A. Jenkins). DORSET Portland B.O., 21.7, 22.7, 23.7, three, 3.9, 4.9, 6.9, two, 8.9,11.9, two, 12.9, two, 9.10; Durlston Head, 22.10, two, 25.10, three (DCGB), 27.10 (A. Gardner); Durlston C.P. 22.7, 4.9, 23.10; Swanage, 20.9, 21.9 (P.R. Wincot); 9.10 (BS); Durlston Head, 18.10, 22.10, 24.10, 25.10 (P. Davey); Studland, 21.7 (P. Davey), 24.10, 25.10, (DCGB), 27.10 (A. Gardner); Poole, 21.7, two females (GGE-F); Gaunt's Common, Wimborne, 6.9, five, 19.9, four, 21.9, two, 23.9, three (P. Davey). Wimborne, 25.8, 2.9, 9.9, 24.9, three, 23.10 (J. Fradgley). ESSEX S. Bradwell-on-Sea, 24.7, 21.9, 22.9, 24.9, 25.9, 29.9, 24.10, 25.10, 6.10, 28.10, two, 1.11 (S. Dewick). ESSEX N. Friday Wood, Colchester, July (B. Goodey). HANTS ISLE OF WIGHT Freshwater, 19.10 (SAK-J). HANTS S. Lymington, 31.8, 6.9, 13.9, two, 23.9, 26.9, 23.10, 24.10, 26.10, two, 27.10 (A.S. Harmer); Widley, Portsdown, 21.7, brown stripe, 4.9, red stripe (P.Potts); Ringwood, 23.7, three (J. Clarke); Sparsholt, 28.7, 11.9, 27.9 (A.H. Dobson). HANTS N. Burghclere, 30.10 (GGE-F); Crawley, 31.10 (R.A. Bell). KENT E. Hamstreet 29.8 (S. Butcher per SPC), 18.9 (SPC), 30.10 (N. Davies per SPC); Newington, near Sittingbourne, 24.9, 26.9 (P.J. Jewess); Greatstone, 25.10, 1.11, female (SPC); Dungeness, 31.10, two, 3.11, two (D. Walker per SPC). MIDDLESEX Friern Barnet, 27.10, male (APF). NORTHANTS Deanhanger, 12.9 (DCGB). NOTTS Wollaton Park, Nottingham, 21.9 (Dr Sheila Wright). SURREY Bramley,14.9 faded male, 27.10, female (RFB). SUSSEX W. Rogate, 25.7, three, 26.7, 31.7, 6.8, 7.8, 12.8, 14.8, seven, 15.7, five, 25.8, 31.8, 2.9, six, 4.9, two, 5.9, 6.9, 8.9, three, 9.9, two, 12.9, two, 15.9, two, 16.9, 17.9, 18.9, 19.9, 20.9, 23.9, 24.9, 25.9, four, 30.9, 31.9, two (JACG); Church Norton, 23.8 (JTR per CRP); Walberton, 29.8, 30.8, two, 1.9, 2.9, 5.9, 6.9, 7.9, 8.9, two, 10.9, 14.9, red stripe, 16.9, two, 18.9, 19.9, 21.9, two, 23.9, 22.10, two, 25.10, 26.10, 29.10 (JTR); Littlehampton, 3.9, 24.9 (Mrs R. Pratt); Hassocks, at post office light (D. Dey). SUSSEX E. Peacehaven, 23.7, 25.7, 4.9, 5.9, (CRP); Brighton, 3.9, 20.9 (S. Curzon), 31.10 (R. Leverton per CRP). Ninfield, 6.9, 22.9, two, 24.10 (M. Parsons per CRP); Ashdown Forest, 24.9 (CRP & G. Botwright); Eastbourne, 23.10 (BS); Newhaven, 31.10 (G. Botwright per CRP). WARWICK Charlecote, 12.9, 25.9 (A. Gardner), 15.9 (DCGB). WILTS S. Dinton, 21.8, 2.9, 11.9 (S.M. Palmer). CO DOWN Helen's Bay, 27.10 (T. Boyd per I. Rippey). CO KERRY Killarney, 28.9 (R.F. Haynes). GUERNSEY Old Marais, Vale, 18.8, 4.9, 8.9; Forest, 4.9, 8.9, 9.9, 12.9, 11.10 (TNDP); Pleinmont, 13.9 (per R. Austin).

Orthonama obstipata Fabr. (7) BERKS Fernham, 16.6 (S. Nash). DORSET Studland Heath, 30.10 (P. Davey). SUSSEX W. Church Norton 23.7 (JTR per CRP). KENT E. Greatstone, 22.8, male (B. Branson per SPC), Dungeness, 18.10 (SPC). CO FERMANAGH Castle Caldwell, 28.7 (D. Allen). GUERNSEY Old Marais, Vale, 16.8 (R. Austin).

***Thera cupressata** Geyer. Now clearly well established in parts of the Channel Islands and a number of specimens reported in October from one locality in Dorset strongly indicates the possibility of a mainland resident colony. Elsewhere single examples were recorded from CORNWALL E. Sheviock, 1.10 (SCM); SUSSEX W. Walberton, 22.10 (JTR per CRP).

SPHINGOIDEA

Agrius convolvuli L. (37 plus larvae). CORNWALL W. Scilly, 27.9, by day (per Adrian Spalding); St Columb Minor, 24.9, in a garden (per A. Spalding); Coverack 17.8 (DCGB); Lizard, 30.9 (B.R. Baker); CORNWALL E. St Austell, 4.9, male (W.G. Kittle, *Ent. Rec.* **101**: 281); Sheviock, 3.10, full grown larva (SCM). DORSET Portland B.O., 20.8, 21.8, 22.8, 9.9 (M. Rogers); Durlston C.P., 28.8, two, 31.8, 6.9, 21.9, 22.9, 25.9, two, 1.10, 8.10; Swanage 21.9, battered male (PQW); Studland, 10.10, on a road (BS). HANTS ISLE OF WIGHT Bonchurch, 26.8 (J. Halsey). ESSEX S. Bradwell-on-Sea, 2.8, 29.8, 2.9, 4.9; Althorne, c.20.9, dead in a greenhouse (A.J. Dewick), 28.8, 2.9 (S. Dewick). KENT E. Hamstreet, 15.9, female; Wye, 22.9, male; Lenham 6.10, male (T. Rouse per SPC). SOMERSET N. Ashcott, 21.8 (J.C. Lidgate per SPC). SUSSEX E. Brighton, 18.9 (R. Leverton per CRP); Eastbourne, 5.10, male (M. Parsons & APF). ORKNEY Stromness, 13.9 (A. Gray per R.I. Lorimer). CO DOWN John's Island, Copelands, one August, photographed (N. McKee per I. Rippey). GUERNSEY Forest, 12.10, one full grown larva (TNDP).

Acherontia atropos L. (2 plus larvae). CORNWALL W. Lizard lighthouse, end July (keeper per A. Gardner). KENT E. Appledore, 8.9, c.50 larvae and pupae in potato fields (T. Rouse per SPC); Romney Marsh, end 8 and early 9, many larvae and three pupae (M.R. Brown). SUSSEX E. Brighton, 4.8, flying at 5.45 p.m. (J.V. Banner per CRP).

Hyles gallii Rott. (5 plus many larvae). DERBYSHIRE Butterley reservoir, 18.8 & 25.8, several larvae, which pupated (K.R. Clarke per BS). DORSET Portland B.O., 11.7 (M. Rogers per NMH). ESSEX S. Bradwell-on-Sea, 30.7, female (A.J. Dewick). ESSEX N. West Mersea Island, 25.8, full grown larva on fuchsia (per J. Firmin). KENT E. Dungeness, one larva (D. O'Keeffe); Greatstone Dunes 2.8 (W. Champkin per SPC). WARWICKS Ryton Wood, 5.7 (per DCGB); Moseley Bog, 18.7, full grown larva (D. Harrison per DCGB). YORKS v.c. 61. Muston, 7.7, in trap (PQW). YORKS v.c. 62 Eston Hills, Cleveland, 20.8, three full grown larvae (N.W. Harwood).

Hyles lineata livornica Esp. HANTS S. Hayling Island, late September or early October, one caught by J. Walters (J. Chainey per G. Else).

Hippotion celerio L. DORSET Swanage, 26.9 (BS).

NOTODONTOIDEA

Thaumetopoea processionea L. JERSEY Gorey, 22.7 (R. Burrow per R. Long, *Ent. Rec.* **102**: 84).

NOCTUOIDEA

***Meganola albula** D. & S. ESSEX S. Fingringhoe N.N.R., 7.7 (B. Goodey). Possible immigrant, or spread from East Kent, where it is fairly frequent but of uncertain status. GUERNSEY St Saviour, 7.7 (R. Austin).

NOCTUIDAE

Agrotis crassa Hb. DORSET Portland B.O., 6.8 (M. Rogers per N.M. Hall). Probably only the third British mainland specimen, but frequent and apparently established in Guernsey,

Eurois occulta L. (2). KENT W. Hawkhurst, 23.7 (G. Creasey per SPC); Dartford, 27.7 (B.K. West).

Mythimna albipuncta D. & S. (c.150). CORNWALL W. Lizard, 5.10, female (B.R. Baker). DORSET Portland B.O., 12.6, 13.6, 19.6, 22.7, 25.8, 8.10, two, 9.10, 10.10, 13.10 (R. Rogers per N.M. Hall). Durlston Head, 30.8, two, 5.10, 7.10, two, 22.10, four, 23.10. three, 24.10, six, 25.10, five, 27.10 (DCGB); Durlston Head, 16.10, 18.10, 27.10 (P. Davey); Swanage, 26.9, 9.10, two, 10.10, 16.10, two, 17.10, two (R. Chatelain & BS); Poole, 9.10, female (GCE-F); Studland, 24.10, 25.10, five, 26.10 (DCGB); 20.9, 21.9, fertile female (P.Q. Winter); Wimborne, 27.10 (J. Fradgley). ESSEX S. Bradwell-on-Sea, 22.9, 23.10, one male, one female, 24.10, female, 27.10, male, 28.10, two females, 30.10, female (A.J. & S. Dewick). HANTS S. Lymington, 22.9, 29.9, 26.10 (A.S. Harmer); Highcliffe, 25.10 (EHW). HANTS N. Crawley, 31.10 (R.A. Bell). KENT E. Dungeness, 19.8, three (BS); 25.8 (D. Walker per SPC), 23.10 (SPC); Greatstone, 23.8, 22.10, two, 23.10, 25.10 (B. Branson per SPC). HANTS ISLE OF WIGHT Freshwater, 4.9, 23.9, three (SAK-J), SUSSEX W. Walberton, 21.10, 22.10, five, 23.10, three, 26.10, 1.11 (JTR per CRP); Hassocks, 23.10, 24.10 (D. Dey); Littlehampton, 30.10 (BS). SUSSEX E. Eastbourne, Holywell Cliffs, 26.9 (D. Dey), 30.10 (APF), 23.10, four (CRP), ten (BS & M. Parsons); Ninfield, 24.10 (M. Parsons per CRP). CO. CORK MID. Fountainstown, 3.8 (A.A. Myers); Kinsale, 20.7 (BS). GUERNSEY La Carriere, 29.5, 8/13.10, max. 6 on 10.10; Old Marais, Vale, 12.8, 13.8; Petit Bot, 21.9, 8.10, c. fifteen, 12.10; St John, 10.10, 11.10 (R. Austin).

Mythimna vitellina Hb. (18). CORNWALL W. Scilly, c.1.10 (C.I. Rutherford). DEVON S. Brixham, 29.7 (R.Heckford); Bigbury, 3.10 (M.D. Bryan); East Prawle, 9.10 (P. Davey). DORSET Portland, 28.3 (N.M. Hall); Portland B.O., 29.6, 1.8, 3.8, 7.8, 21.9, 27.9 (M. Rogers per N.M. Hall); Durlston C.P., 22.8, 25.9, 30.10; Swanage, 20.9, fertile female (PQW); Durlston Head, 24.10, 25.10 (DCGB), 28.10 (A. Gardner).

***Mythimna l-album** L. (c. 22). CORNWALL W. Cusgarne, 26.9, 3.10 (A. Spalding). CORNWALL E. Sheviock, 24.9, 27.9 (SCM); Portwrinkle, 4.10, eight (A. Spalding). HANTS N. Crawley, 22.9 (R. Bell). KENT E. Dungeness, 23.9 (D. Young), 24.9 (Julian Clarke); Greatstone, 23.10 (B. Branson, per SPC); Folkestone Warren, 24.9 (D. O'Keeffe per BS). SUSSEX E. Eastbourne, 5.10 (APF). GUERNSEY Noted at five sites from 31.5 to 16.10, mostly singly (R. Austin, TNDP).

Mythimna unipuncta Haw. (520). CORNWALL W. Scilly, Tresco, 28.9/3.10, two (C.I. Rutherford). Penzance, 12.9/30.9, forty, 1.10/31.10, sixty-four, 1.11/19.11, three (M.P. Semmens); Cusgarne, 21.9/30.9, twenty-five, 1.10/31.10, fifty-two, 5.11/22.11, five (A. Spalding); Kynance, 24.9, seventeen, 25.9, two; Lizard, 30.9/6.10, eighteen (J. Baker); Lizard, Housel Bay, 26 & 27.9, five (C.I. Rutherford); Rosewarne, 4.10, 11.10 (A.H. Dobson); Lizard, 14.10, five, 15.10, two females (Julian Clarke). CORNWALL E. Sheviock, Torpoint, 24.9, 25.9, 27.9, two, 29.9, 30.9, two, 1.10, 2.10, two, 5.10, two; Portwrinkle, 4.10, two (A. Spalding). DEVON S. Bigbury, 1.10/7.10, eleven (M.N. Bryan); East Prawle, 7.10/11.10, twenty (P. Davey); Plymouth, 14.10, five, 15.10, two (J. Clarke). ESSEX S. Bradwell-on-Sea, 25.9, 24.10, 26.10, 2.12 (A.J. Dewick). DORSET Portland B.O., 28.3 (N.M. Hall), 20.9/29.9, twenty-eight, 1.10/18.10, twenty; Portland, 22.7, 23.7 (R.A. Bell); 21.9, two (J. & M. Halsey); Durlston, 7.10, two, 22.10, six, 23.10, eight, 24.10, two, 25.10, two, 26.10, four (DCGB), 16.10, 18.10, five, 21.10, four, 25.10, three, 26.10 (P. Davey), 30.9, 27.10, two, 28.10 (A. Gardner); Durlston C.P., 23.9, 24.9, three, 25.9, four, 26.9, three, 30.9, two, 9.10/23.10, twenty, 19.11; Studland, 11.9 (D. Young), 27.10 (A. Gardner); Swanage, 9.10, two, 17.10, six, 18.10 (BS & R. Chatelain); Gaunt's Green, Wimborne, 26.10 (P. Davey). HANTS ISLE OF WIGHT Freshwater, 25.9, two, 27.9, 29.9, 6.10, 11.10, two, 12.10, two, 13.10, two (SAK-J). HANTS S. Highcliffe, 28.9, 4.10 (EHW). HANTS N. Crawley, 11.11, male (R.A.

Bell). KENT E. Dungeness, 25.9, 18.10, 23.10, 24.10, 7.11 (SPC), 11.10 (Julian Clarke), 13.10, two, 17.10, two, 30.10 (D. Walker per SPC); Greatstone, 18.10, 30.10 (SPC), 22.10, 25.10 (B. Branson per SPC). NORFOLK W. Hockwold, 23.10 (J. Fenn). SUSSEX W. Walberton, 26.9, 10.10, 11.10, 18.10, 23.10, 24.10, 29.10, 1.11 (JTR per CRP), Littlehampton, 24.10, 26.10 (BS), 2.11, two (Mrs R. Pratt). Total SUSSEX W. 13. SUSSEX E. Eastbourne, 5.10 (APF & M. Parsons), 23.10 (CRP), four (BS & M. Parsons), 30.10, two (APF & M. Parsons); Findon, 9.10 (S. Odell); Peacehaven, 21.10, 1.11 (CRP); Ninfield, 26.10, 31.10 (M. Parsons); Pevensey Levels, two at ivy (APF & M. Parsons). WARWICKS Bidford-on-Avon, 14.10 (R. Cox per DCGB). WILTS S. Dinton, 10.10 (S.M. Palmer). YORKS v.c.61. Muston, 21.9 (PQW). CO CORK MID Fountainstown, 2.10, twelve (A.A. Myers). GUERNSEY Forest, 12.9, 25.9, 24.10, 25.10 (TNDP); La Carriere, 9.10, 12.10, two, 13.10 (R. Austin). ISLE OF SKYE, 10.10 (Simon Dix per DCGB).

Mythimna loreyi Dup (21). DEVON S. Brixham, no date (R. Heckford). DORSET Swanage, 10.10 (BS & R. Chatelain); Durlston Head, 25.10, two (DCGB), 27.10 (A. Gardner), 25.10 (P. Davey); Durlston C.P., 30.10, KENT E. Dungeness, 30.10, female (D. Walker per SPC); SUSSEX W. Walberton, 26.10 (JTR per CRP), Littlehampton, 30.10, five (BS). SUSSEX E. Eastbourne, 30.10, five, 31.10, two (APF & M. Parsons).

***Senta flammea** Curtis. DORSET Gaunt's Common, Wimborne, 24.5 (P. Davey). Probably immigrant or now establishing itself locally.

***Xylena exsoleta** L. (2). BERKS Fernham 29.3 (S. Nash). Probably immigrant, agreeing in date with *M. vitellina* and *M. unipuncta*; DORSET Durlston Head, 21.10 (P. Davey).

Trigonophora flammea Esp. (3). DORSET Studland, 25.10, male (DCGB), 27.10 (A. Gardner); SUSSEX W. Walberton, 20.10 (JTR per CRP).

Polyphaenis sericata Esp. (2). GUERNSEY: Forest, 24.7 (TNDP). JERSEY Gorey, 23.7 (R. Long, *Ent. Rec.* **102**: 84).

Spodoptera exigua Hb. (86). BERKS Fernham, 25.7 (S. Nash). CORNWALL W. Penzance, 22.7, two, 23.7, two (MPS); Cusgarne, 26.7, 18.9, 30.10, two, 31.10, 2.11 (A. Spalding); Rosewarne, 30.7, 14.8 (A.H. Dobson). DORSET Studland Heath, 21.7, 30.10 (P. Davey); Portland B.O., 21.7 (M. Rogers per N.M. Hall), Portland, 21.9 (J.& M. Halsey), Durlston, 23.10 (DCGB). ESSEX S. Bradwell-on-Sea, 27.7, 28.7 (A.J. Dewick), 22.9 (S. Dewick). KENT E. Dungeness, 19.8, two (D. O'Keeffe); 30.10, male (SPC). HANTS N. Crawley, 26.8, two (R.A. Bell). SUSSEX W. Thorney Island, 16.6 (C.B. Collins); Walberton, 21.7, 23.7, two (JTR per CRP); Littlehampton, 30.10, six (BS). SUSSEX E. Peacehaven, 25.7 (CRP). CO CORK MID Kinsale, 20.7 (BS).

Enargia paleacea Esp. HERTS Broxbourne Woods, 24.7, female (B.S. & R. Chatelain).

Heliothis armigera Hb. (21 & larva). DEVON S. Bigbury, 3.10 (M.D. Bryan, *Ent. Rec.* **102**: 36). DORSET Gaunt's Common, Wimborne, 20.9 (P. Davey); Durlston C.P., 24.9, 27.9, 28.9; Durlston Head, 5.10, 24.10, two (DCGB), 26.9, fertile female (B.S. & R. Chatelain); Portland, 26.9 (A. Jenkins). ESSEX S. Bradwell-on-Sea, 23.9 (A.J. Dewick); HANTS ISLE OF WIGHT. Freshwater, 25.9 (SAK-J); HANTS S. Sparsholt, 21.9 (AHD per BS), HANTS N. Crawley 29.9 (R.A. Bell); KENT E. Greatstone, 25.9, 26.9 (SPC), Dungeness, 23.10, male (SPC). SUSSEX W. Littlehampton, 26.10, one of extreme ab. *ochracea* Cockerell, 30.10 (BS), Walberton, 29.10, 30.10 (JTR per CRP). SUSSEX E. Ninfield, 23.9 (M. Parsons per CRP); Horsham, one larva found in pea-pods imported from Guatemala (M. Roberts), pupated 16.6, emerged 7.7 (CRP).

Heliothis peltigera D. & S. (9). CORNWALL W. Coverack, Lizard, 16.8, 27.8 (DCGB); Penzance, 4.8 (MPS). DORSET Portland B.O. 2.8 (M. Rogers per N.M. Hall); Studland, 27.10 (A. Gardner). KENT E. Dungeness, 20.8 (D.O'Keeffe); Greatstone 31.8 (B. Branson per SPC). SUSSEX E. Peacehaven, 21.9 (CRP). ISLE OF MAN Castletown, 14.6 (M. Kneen per D.G. Craine).

Eublemma parva Hb. DORSET (2). Portland B.O., 7.9 (M. Rogers per N.M. Hall). HANTS S. Widley, Portsdown, 24.7 (P.M. Potts).

***Deltote bankiana** Fabr. (5). KENT E. Folkestone Warren, 16.6 (A. Butcher per SPC): Greatstone, 7.7, male (B. Branson per SPC). ESSEX S. Bradwell-on-Sea, 8.7 (S. Dewick), 15.7 (A.J. Dewick), 18.7 (S. Dewick). Probably immigrants.

Chrysodeixis acuta Walker (6). SUSSEX W. Littlehampton, 21.10, 23.10, 24.10 (Mrs R. Pratt), 30.10, male (BS); Walberton, 25.10, 30.10 (JTR per CRP).

Trichoplusia ni Hb. SUSSEX W. Littlehampton, 30.10, male (BS).

Diachrysia orichalcea Fabr. (2). SUSSEX W. Walbertron, 29.10 (JTR per CRP). SUSSEX E. Eastbourne. 30.10, one almost certainly seen (APF & M. Parsons).

Hypena obsitalis Hb. DEVON S. Brixham, 29.7, shown at BENHS exhibition, identity *teste* JMC-H (B. Henwood).

Early butterflies in 1990

Whilst walking through the Chiddingfold Wood complex, in West Sussex, on 17th June 1990, in the company of Dr J. Clarke and Mr J. Phillips, we were surprised to see several examples of the Silver-washed Fritillary, *Argynnis paphia* L. together with the White Admiral, *Lagoda camilla* L., an early date for both these species.— R.R. Cook, 11 Greensome Drive, Ferndown, Dorset.

ALEOCHARA BINOTATA KR., NOT *A. VERNA* SAY (COL.: STAPHYLINIDAE), A BRITISH INSECT

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IN JULY 1963 I collected a small *Aleochara* from dry dung on sand dunes at Spurn Head, Yorkshire. The specimen, a female, although obviously a member of the subgenus *Coprochara,* had paler elytra and significant differences in puncturation to the common *A. bipustulata* L. Dissection revealed a distinctly shaped spermatheca which did not appear to fit any of the known Northern European species. However, following Likovsky's (1965) description of a new Mongolian subspecies of *A. verna* Say, four specimens were examined standing over that name in the M. Cameron Collection in the Natural History Museum, London. Three proved to be males, but the one female had a spermatheca very similar to the Spurn specimen. Dr A. Strand also kindly loaned me specimens, of what he considered to be *A. verna,* collected at Kirkenstuen, Norway, in 1934 and 1935. These compared favourably with the Spurn specimen.

Enquiries of a number of North American museums revealed that Say's type material had been destroyed, mostly by dermestids, but a number of specimens were obtained, on loan, from the Smithsonian Institution's Casey bequest, for comparison. In none of the American *A. verna* females did the spermathecal duct form such a pronounced spherical mass. Most possessed speremathecae which, at the time, I considered to be within the range of variation of the common *A. bipustulata* (Welch, 1964). Clearly the Spurn specimen was what European coleopterists referred to as *A. verna,* but there was some doubt as to whether this name was valid. As it was definitely a species new to Britain, it was added to the British List under that name (Welch, 1969).

In the course of the next two decades I have collected and examined large numbers of *A. bipustulata* without coming across a single specimen remotely similar to the Spurn female. Recently Klimaszewski (1984) reviewed the North American species of *Aleochara* and discovered two consistent types masquerading under the name *A. verna;* the true Nearctic species of Say, and an unidentified European species. He comments that "The European concept of this species is erroneous" but "refrained from making any formal changes in European nomenclature". His call for European coleopterists to solve this problem was taken up shorly afterwards when Dr G.A. Lohse visited North America to examine Staphylinidae in museum collections. He concluded that the species previously regarded as *A. verna* in Europe was in fact *A. binotata* Kr. His published key to the red-spotted species of *Coprochara,* and his figure of the spermatheca, fit my description of the Spurn specimen (Lohse, 1986, fig. 1c).

Clearly, on the above evidence, *A. verna* Say should be deleted from the British List of Coleoptera and replaced by *A. binotata* Kr. However, the story may not end there. When I originally compared the Spurn female with *A. bipustulata,* I figured the spermatheca of a specimen which possessed what I considered to be the "maximum development of coiling found in this species". I further commented that the "sclerotized part of the spermathecal duct most commonly had two or three coils". This spermatheca bears a remarkable likeness to both Klimaszewski's (1984, fig. 37) and Lohse's (1986, fig, 4c) drawings of what they regard as the true *A. verna.* Perhaps among those specimens which I had hitherto regarded as but one extreme in the range of variation in the spermathecal structure of *A. bipustulata* are to be found British examples of *A. verna.* Only time, and a more detailed study of a large number of specimens, will provide the answer.

References

Klimaszewski, J. 1984. A revision of the genus *Aleochara* Gravenhorst of America north of Mexico (Coleoptera: Staphylinidae, Aleocharinae). *Mem. ent. Soc. Canada,* No. 129.

Likovsky, Z. 1965. 32. *Aleochara*-Arten Ergebnisse der Zoologischen Forschungen von Dr Z. Kassab in der Mongolei (Coleoptera, Staphylinidae). *Reichenbachia,* **7** (4): 47-55.

Lohse, G.A. 1986. Aleochara-Studien 11. Die rotgeflecken Arten der Untergattung *Coprochara* Mulsant, Rey. *Verh. Ver. naturw. Heimatforsch, Hamburg,* **39**: 95-98.

Welch, R.C. 1964. The biology of the genus *Aleochara* Grav. (Coleoptera, Staphylinidae). PhD Thesis, University of London 1969. *Aleochara verna* Say (Col., Staphylinidae) New to Britain. *Entomologist,* **102**: 207-209.

Bledius germanicus Wagner (Col.: Staphylinidae) new to Nottinghamshire

I operate a Robinson trap on the half-roof of Wollaton Hall, Nottingham (OS grid ref. SK 533 393), and on the night of 23rd-24th May 1989 the catch included two small female Staphylinids which I tentatively identified as *Bledius germanicus* Wagner.

Since this is a coastal species associated fairly strictly with mud that has a salt content, I sent one of the specimens to Peter Hammond of the Natural History Museum, who was able to confirm my determination.

Dr Hammond informs me that although flying individuals are sometimes intercepted at some distance from salt water, there is only one previous record (that of Walker, 1932, *Ent. mon. Mag.,* for *B. spectabilis,* but probably referable in reality to *B. germanicus*) for a locality (Oxford) at a great distance from the sea.— Dr Sheila Wright, Nottingham Natural History Museum, Wollaton Hall, Nottingham.

NOTES ON THREE SPECIES OF *ALEOCHARA* (s.g. *COPROCHARA* MULSANT & REY) (COL.: STAPHYLINIDAE), INCLUDING TWO NEW TO BRITAIN

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COPROCHARA is a sub-genus of *Aleochara* containing species with an unpunctured corridor on the dorsum of the pronotum, defined on either side by a row of punctures. Most members of the sub-genus also have a conspicuous red area in the rear half of the elytra. *A. bilineata* (Gyllenhal) and *bipustulata* (L.) have long been recognised as British members of the sub-genus. Another species, *verna* (Say), has more recently been reported to occur in Britain (Welch, 1969) but there is now evidence, which indicates that the specimen was, in fact, an example of *binotata* Kraatz (see also Welch, 1990).

Lohse (1989) has presented a revised interpretation of the central European members of the sub-genus with red areas on the elytra. I have examined carefully my relevant British material in the light of this revision and conclude that it comprises three species. The evidence for this and a discussion of the identity of the species form the substance of these notes.

Evidence for three species

Apart from varying in size, the 44 specimens are externally fairly uniform in their appearance which takes the form of a small shiny black *Aleochara* with (except in one) an obvious red area on the hinder half of each elytron and with appendages black or dark brown except for the tarsi which are lighter.

The data on which the specimens have been separated into three groups (species A, B and C) are summarised in Table 1. Length was taken as the distance between the insertion of the antennae and the rear end of the abdomen. Measurements of length were made on dried specimens mounted on card and no doubt were affected by variable mounting and variable contraction of the abdomen in the dried material but at least all the specimens were measured in the same state.

All specimens had the aedeaegus or spermatheca extracted and displayed. All the aedeaegi had the same general form (fig. 1). The length of the central lobe was taken as the distance from the end of the bulb to the point of the apex and the height of the "arch" was taken as the distance from the top of the arch to an imaginary tangent to the base passing through the point of the apex. A higher arch/length ratio thus indicated a more strongly arched shape. The degree of narrowing of the central lobe towards the apex, viewed ventrally, was expressed as the ratio of the width (a) at a point two-thirds of the distance between the bulb and the apex to the width (b) of the bulb (fig. 1) — the lower this ratio (a/b), the more the

Table 1. Data relating to author's material.

Measurements were made on all specimens except where noted and these and ratios are expressed as means with range in parentheses. Where necessary, see text and figures for explanations.

Comparative descriptions relate to species A.

	SPECIES A	SPECIES B	SPECIES C
No. of specimens	20 males, 9 females	3 males, 3 females	7 males, 2 females
Length (mm)	3.9 (3.1 - 4.6)	3.8 (3.6 - 4.2)	3.0 (2.7 - 4.0)
Antennal joints 8 - 10	—	less transverse	more transverse
Pronotum			
serial punctures	not sunk in impression	not sunk in impression	sunk, deeply in some
micropunctures	scarcely detectable	distinct but very fine	scarcely detectable
head/pronotum breadth ratio	0.66 (0.63 - 0.69)	0.67 (0.66 - 0.71)	0.72 (0.69 - 0.74)
Elytra			
punctures	weakly crescent-shaped with arms in direction of outer angles of elytra	deeper but round	more diffused but round
red area	—	relatively smaller	relatively smaller
Aedeaegus — central lobe			
length (mm)	0.49 (0.44 - 0.55)	0.52 (0.50 - 0.53)	0.42 (0.40 - 0.43)
arch (mm)	0.11 (0.10 - 0.13)	0.15 (0.14 - 0.15)	0.12 (0.11 - 0.13)
arch/length ratio	0.22 (0.19 - 0.25)	0.29 (0.28 - 0.30)	0.29 (0.26 - 0.31)
narrowing factor	0.44 (0.4 - 0.5), n=6	0.53 (0.5 - 0.6), n=3	0.59 (0.5 - 0.6), n=3
Spermatheca			
shape of coil	cylindrical	truncate fusiform	truncate fusiform
turns in coil	2.5 (2 - 3)	9.5 (8 - 11)	9 (8 - 10)

narrowing towards the apex. The spermathecae likewise were all of the same general form, differing basically only in the shape and number of turns of the coil in the duct (fig. 2).

The data presented in Table 1 indicate that each of the three species had one or more external features not found in either of the other two species. Thus, in species A, the elytral punctures are weakly crescent-shaped whereas, in species B and C, they are round. In species B, the dorsum of the pronotum shows obvious fine but distinct micropunctures which are scarcely detectable in the other two species. In species C, the row of punctures on the dorsum of the pronotum is depressed whereas, in the other two species, the surface around the punctures is level with the rest of the nearby surface.

Measurements behaved similarly. For example, in all 20 males of species A, the central lobe arch/length ratio was lower than in any of the males in species B or C, i.e. the central lobe was consistently more weakly arched; further, none of the nine females of species A had more than three turns in the spermathecal coil whereas the other females all had eight turns of more. In species B, the absolute height of the central lobe arch was higher than in any of the males of species A or C. In species C, the length of the central lobe showed no overlap with the corresponding measurement in species A or B.

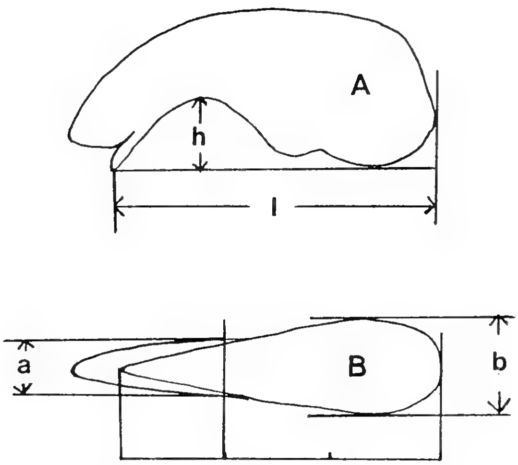

Fig. 1. General form of the central lobe of a *Coprochara* aedeaegus in lateral (A) and ventral (B) view. The measurements indicated are: l = length, h = height of arch, a = width of neck; b = width of bulb: narrowing factor = a/b (see text).

Identity of species

In arriving at identities for the species, I have relied on the key provided by Lohse (1989) but I have also, through the kindness of Mr P.M. Hammond, British Museum, Natural History, had the benefit of his knowledge in this area and the opportunity to examine material in the British Museum.

SPECIES A. Using the key provided by Lohse (1989), examples of species A ran to *A. pustulata* (L.) which I take to be their identity. As far as external features go, the terminal joints of the antennae are more transverse than in *brundini* Bernhauer and the elytral punctures are not rugose. The absence, in species A, of impressions on the dorsum of the pronotum containing the rows of punctures and the presence of sharply defined elytral spots, obliquely arranged yellow hairs at the sutural angle of the elytra and a weakly angled rear edge of the last sternite in the males do not fit with the characters given in the key for *binotata* Kraatz. The absence of impressions on the pronotum and the ratio of head breadth to pronotal breadth of less than 0.7 indicates that species A is not *pauxilla* (Mulsant & Rey).

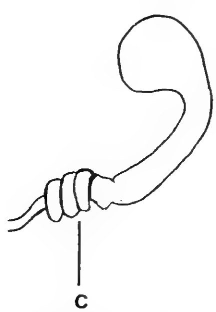

Fig. 2. General form of a *Coprochara* spermatheca: c = coil in duct (in this instance with three turns).

The central lobe of the aedeaegus in species A is relatively long and weakly arched (see table) and matches well the central lobes figured for *bipustulata* by Strand & Vik (1968), Welch (1969) and Lohse (1989) as well as those of specimens in the British Museum standing above that name. In addition, the spermathecae in all nine females have coils with few turns, in keeping with coils figured by Strand & Vik (1968) and Lohse (1989) whereas *binotata, pauxilla* and *verna* have çoils with many turns. It should be noted that the figure for the spermatheca of *bipustulata* given by Likovsky (1974) shows a coil with about 15 turns but I have assumed that this is a very exceptional case. Welch (1969) also depicts for *bipustulata* a spermatheca with a coil of many turns though he states that it is more usual in this species for the spermatheca to have a coil with two or three turns.

My specimens of *bipustulata* are from various habitats, mostly dung, and are from vice-counties West Cornwall, South Devon, North Devon, Dorset, Surrey, Haddington, Elgin and Easterness, taken over the years 1975 to 1983.

SPECIES B. In Lohse's key, these specimens run down to *verna* Say which I take to be their identity. They do not display appropriate external characters for any of the species in the key above *bipustulata* and *verna* and, as far as concerns external features mentioned in the key, the smaller red spot on the elytra indicates the latter. The presence of distinct micropunturation on the pronotum, virtually absent in *bipustulata,* and the round punctures on the elytra compared with the weakly crescent-shaped puncture on *bipustulata,* are additional distinguishing features.

As far as genitalia go, the central lobe of species B in lateral view would fit either of the figures given by Lohse for *binotata* and *verna* respectively, being more highly arched, i.e. with a higher arch/length ratio than in *bipustulata.* On ventral view, however, the central lobe towards the apex is quite wide whereas in binotata it is much narrower than across the bulb. The weakly fusiform coil with many turns in the spermathecal duct of species B agrees with that depicted by Lohse (1989). Additionally, species B agrees very well with North American examples of *verna* in the British Museum and with the description of this species and of its genitalia provided by Klimaszewski (1984).

Five of my examples of *verna* were taken under rotting sea-weed lying above high tide mark on the shore line near Tarbet, Outer Hebrides, in July 1976. The sixth (a female) came from a similar habitat on the Isle of Coll, Inner Hebrides, in July 1975.

SPECIES C. In all respects but size, these specimens have external characters agreeing with those cited by Lohse (1989) for *pauxilla.* The impresssions holding the rows of punctures on the dorsum of the pronotum are particularly noticeable in most specimens and have the effect of making the unpunctured central area appear elevated, especially towards the base. These impressions and the relatively broad heads exclude (if this is required) *bipustulata* and *verna*. The form of the antennae and the sculpture of the elytra exclude *brundini*.

In species C, the apex of the central lobe of the aedeaegus is relatively wide and the spermathecal coil is weakly fusiform; these two features effectively exclude *binotata*. There are no other species of *Coprochara* with red elytral spots recognised from Central Europe (Lohse 1989) or from Scandinavia or Denmark (Silfverberg 1979) and the characters of species C do not fit any of the six species of *Coprochara* found in North America (Klimaszewski 1984).

Seven of the specimens (five males and two females) of this species were taken in deer dung in Richmond Park, Surrey in August 1980 (1) and in August 1983 (6), and two males were extracted from flood debris at Haysden, Kent in February 1990. One of the males from Haysden lacks a clear red spot on the elytra but is otherwise indistinguishable from the other six males.

Discussion

It is perhaps not surprising that the commonest species in my material should be the species which has long been regarded as occurring here — *A. pustulata*. In general, authors are agreed on the characters of this species though one question still to be settled is how often the spermatheca in this species has a coil with many turns as depicted by Welch (1969) and by Likovsky (1974).

Though *verna* was described originally from Missouri, USA (Say 1939), it has been regarded as a species occurring in Europe by a number of workers including Horion (1967), Strand & Vik (1968) and Likovsky (1974). It seems likely however, that many European records for *verna* refer to *binotata* Kraatz. The confusion is illustrated by the way in which various workers have depicted genitalia. In *verna,* the central lobe of the aedeaegus on ventral view is relatively wide towards the apex whereas that in *binotata* is markedly narrowed; the spermatheca in *verna* has a relatively narrow, fusiform coil whereas in *binotata* the coil is wide, approaching a spherical shape (Klimaszewski 1984, Lohse 1989). As they stand, the shapes of the central lobe and spermatheca figured for *"verna"* by Strand & Vik, suggests that these authors had not appreciated the existence of *binotata* in northern Europe and had unknowingly provided figures for *binotata*. Welch (1968) likewise figured for *"verna"* a spermathecal coil with multiple turns forming "a more or less spherical mass", which indicates that he was, in fact, dealing with *binotata* (Welch 1969). I have examined what appear to be the four specimens from the Cameron collection in the British Museum to which Welch referred and find that these too are *binotata*.

While many European records for *verna* are thus likely to refer to *binotata,* it should be noted that Klimaszewski (1984) detected examples of the true *verna* in European material which he examined and concluded that *verna* was, in fact, a holarctic species rather than a nearctic species introduced into Europe and elsewhere. Lohse (1989) records the presence of the true *verna* from Hamburg and Lubeck.

Since that the specimen reported by Welch (1969) has turned out to be *binotata,* the latter species must be added to the British list. At the same time my findings re-introduce *verna* as British.

The identity of the third species as *pauxilla* (Mulsant & Rey) can, at this stage, only be taken as provisional. Likovsky (1974) gives a length range for *pauxilla* of 1.5 to 2 mm while Lohse (1989) gives a slightly larger size — 1.8 to 2.5 mm. My specimens are clearly much longer than either of these ranges but whether they comprise exceptionally large examples of *pauxilla,* perhaps because their host in Britain is different from elsewhere, or another species requires the acquisition and examination of further material. Whatever the situation, the species does not appear to have been noted as British hitherto.

Acknowledgements

I thank Mr P.M. Hammond, British Museum for his customary kindness in helping me in this investigation and for providing facilities for examining specimens in the British Museum, Mr M.B. Brown, Superintendent, Richmond Park for permitting me to study beetles in the park and Mr N. Heal for taking me to the spot at Haysden, Kent where I obtained the flood debris.

References

Horion, A.D., 1967. *Faunistik der mitteleuropäischen Käfer* band XI Staphylinidae **3** Teil Uberlingen-Bodensee.

Klimaszewski, J., 1984. A revision of the genus *Aleochara* Gravenhorst of America north of Mexico (Coleoptera: Staphylinidae, Aleocharinae) *Mem. ent. Soc. Canada* No. 129.

Likovsky, Z., 1974 in *Die Käfer Mitteleuropas* 5 ed. Freude, H., Harde, K.W. and Lohse, G.A. Krefeld.

Lohse, G.A., 1989 in *Die Käfer Mitteleuropas* 12 ed. Lohse, G.A. and Lucht, W.H. Krefeld.

Say, T., 1839. Description of new North American insects, and observations on some already described. *Trans. Amer. Phil. Soc.* **6**: 156 — cited by Welch (1969).

Silfverberg, H., 1979. *Enumeratio Coleopterorum Fennoscandiae et Daniae,* Helsinki.

Strand, A. & Vik, A., 1968. Die Genitalorgane der nordischen Arten der Gattung *Aleochara* Grav. (Col., Staphylinidae) *Norsk. ent. Tidsskr.* **15**: 105-110.

Welch, R.C., 1969. *Aleochara verna* Say (Col., Staphylinidae) new to Britain. *Entomologist* **102**: 207-209.

Welch, R.C., 1990. *Aleochara binotata* Kraatz not *Aleochara verna* Say (Col. Staphylinidae) — a British Beetle. *Entomologists' Rec. J. Var.* **102**: 225-226.

THE STATUS IN BERNWOOD FOREST OF MOTH SPECIES WHICH ARE RECOGNISED AS NATIONALLY UNCOMMON

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I AM currently working to establish how the present moth fauna of Bernwood Forest, on the Oxon/Bucks border, compares with that at various times earlier in this century. I present the following information by way of a thank you to the entomologists who have sent me moth records already. At the same time I hope that readers who have any moth records for Bernwood which they have never submitted to a recording centre, might send them to me for inclusion in the annotated historical list, a first draft of which is now available (Waring 1988a).

Bernwood Forest, on the Oxon/Bucks border is composed of Hell Coppice, Shabbington Wood, Yorks Wood, Oakley Wood and Waterperry Wood. During the 1930s and 1940s Hell Coppice, in particular, developed a reputation amongst lepidopterists as an excellent collecting ground. However, during the 1940s timber merchants felled most of the trees and in the 1950s and 1960s the Forestry Commission planted conifers and mixed plantations of conifers and hardwoods over most of these woods, which are now effectively managed as a single unit. The Forestry Commission also improved the networks of roads, rides and ditches within the woods and used herbicides to control the regrowth of native plants while the crop-trees were becoming established (Stoakley 1963). Thomas (1988) reviews in detail the ways in which Bernwood has been managed this century. Entomologists such as Symes (1956), Dunk (1956) and Cribb (1962) were particularly concerned that the felling of the oaks, the planting of conifers and the use of chemicals would damage or destroy the entomological interest of the site. Furthermore exactly the same changes were taking place in many other woods up and down the country.

Since 1955, at Bernwood, there have been a series of conservation agreements between the Forestry Commission, the Nature Conservancy Council and the Berkshire, Buckinghamshire and Oxfordshire Naturalists Trust (Thomas 1988), with the aim of enabling wildlife to co-exist alongside the continuing commercial forestry operations. Special conservation measures have been undertaken in an attempt to conserve the butterflies and moths in particular. These measures have included the retention of some areas of native trees, the preservation of blackthorn thickets within the wood, creation of glades, widening of rides to prevent the conifers over-shading larval foodplants and developing shrubby fringes of native species on the edges of the plantations, a measure proposed by Heron (1953).

Peachey (1980) has studied the butterfly fauna of Bernwood in relation to management. I have previously compared the moth fauna of the conifer plantations with an unplanted part of the wood consisting of native broadleaves (Waring 1988b, 1989). I am now interested in establishing the extent to which the moth fauna of Bernwood as a whole has survived in view of the management operations described above.

The accompanying Table shows all the species recorded from Bernwood which are considered to be nationally uncommon by Hadley (1984). The Table includes four species listed in the Red Data Book (Shirt 1987), none of which have been recorded in the 1980s. Hadley (1982) found that nine of the ten species of Red Data Book moths at Abbots Wood, East Sussex, disappeared between 1930 and 1980, during which time most of Abbots Wood was cleared and planted with conifers.

The Table indicates which of the rarer species seem to have disappeared from Bernwood and the periods in which the species were recorded. It is most important that our records are as complete as possible before attempting to explain why particular species have disappeared. For example we know that the Light Crimson Underwing, *Catocala promissa,* was still being recorded in numbers in 1947 in Hell Coppice (Emmet 1948). The last stand of mature oaks was felled in 1952 and none of our records of *C. promissa* post-date this. The larvae of *C. promissa* feed on oak and at other sites this moth is strongly associated with mature oak woodland rather than scrubby regrowth. Consequently felling of the last of the oak woodland in Hell Coppice is a probable cause of the disappearance of this moth. However, any evidence of good numbers of *C. promissa* after 1952 would require us to look for another explanation. I am particularly interested in records of the oak-dependent Heart Moth, *Dicycla oo* from the 1940s and 1950s for the same reasons.

Check-lists of presence or absence of records of species at particular times are a limited way of assessing changes in the moth fauna and if entomologists can supply the numbers of individuals or the number of visits on

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KEY TO TABLES

* Key to national status symbols:

Nb = Nationally notable grade b, – a species recorded from between 31 -100 of the 10km grid squares in the British Isles according to information held at the Biological Records Centre, ITE Monks Wood.

Na = Nationally notable grade a, – a species recorded from 30 or fewer of the 10km grid squares in the British Isles according to the Biological Records Centre, ITE Monks Wood.

RDB3 = Red Data Book category 3, rare species with small populations that are at risk.

RDB2 = Red Data Book category 2, vulnerable species, with declining populations that are under threat throughout their range in Britain.

+ Species recorded in wood.

? Dubious records.

TABLE: THE STATUS IN BERNWOOD FOREST OF THE SPECIES OF MOTH WHICH ARE RECOGNISED AS NATIONALLY UNCOMMON BY THE INSECT RED DATA BOOK (SHIRT, 1987) AND THE NATIONAL REVIEW (HADLEY 1984)

(a) Species recorded in 1980s		National status* (Hadley 1984)	Periods for which records are known 1920-39	1940-59	1960-79	1980-89	Present status in Bernwood Forest. Further details in Waring 1988a.
Forester	Adscita statices	Nb	+	+	+	+	Rare within the wood
Sallow Clearwing	Synanthedon flaviventris	Na	+			+	Records refer to old burrows only
Poplar Luterstring	Tethea or	Nb	+		+	+	Frequent by aspen and poplar
Light Orange Underwing	Archiearis notha	Nb	+	+	+	+	Local and rare, in aspen stands
Argent and Sable	Rheumaptera hastata	Nb	+	+	+	+	Frequently seen in rides with birch
Oaktree Pug	Eupithecia dodoneata	Nb	+			+	Frequent near the older oaks
Brindled White-spot	Paradarisa extersaria	Nb	+	+	+	+	Occasional, larvae mainly in unplanted areas
Square-spot	Ectropis consonaria	Nb	+			+	Rare, a singleton in 1982
Broad-bordered Bee Hawk-moth	Hemaris fuciformis	Na	+	+	+	+	Rare, last recorded 1981
Small Black Arches	Meganola strigula	Na	+		+	+	Rare, a singleton in 1984
Lead-coloured Drab	Orthosia populeti	Nb	+			+	Frequent near aspen
Reddish Light Arches	Apamea sublustris	Nb	+			+	Rare, a singleton in 1984
Mere Wainscot	Photedes fluxa	Na	+	+		+	Common in damper rides and open places
Common Fanfoot	Pechipogo strigilata	Nb	+	+	+	+	Occasional in over-grown coppice
Beautiful Brocade	Lacanobia contigua	Nb		+	+	+	Rare and localised, on birch
Brown Scallop	Philereme vetulata	Nb			+	+	Rare but regular, near alder buckthorn
Marbled Pug	Eupithecia irriguata	Na			+	+	Rare, near older oaks
Dotted Rustic	Rhyacia simulans	Nb			+	+	Occasional
Silvery Arches	Polia hepatica	Nb			+	+	Rare, a singleton in 1982
Silver Hook	Eustrotia uncula	Nb			+	+	Rare, a singleton in 1984
Sloe Pug	Chloroclystis chloerata	Na				+	In blackthorn bloom, probably widespread in wood
Satin Beauty	Deileptenia ribeata	Nb				+	Occasional among conifers
White-marked	Cerastis leucographa	Nb				+	Rare, a singleton in 1984
Pale Pinion	Lithophane socia	Nb				+	Rare, a singleton in 1985
Twin-spotted Wainscot	Archanara geminipuncta	Nb				+	Rare, a singleton in 1984
Silky Wainscot	Chilodes maritimus	Nb				+	Rare, a singleton in 1988

(b) Species not recorded in 1980s

		National status* (Hadley 1984)	Periods for which records are known 1920-39	1940-59	1960-79	1980-89	Comments
Orange Upperwing	Jodia croceago	RDB3	+			-	One in Waterperry Wood, 1925
Ruddy carpet	Catarhoe rubidata	Nb	+			-	Last seen in 1930s
Great Oak Beauty	Boarmia roboraria	Nb	+		?	-	Last seen in 1935
Small Chocolate Tip	Clostera pigra	Nb	+		?	-	Larva in 1930s reported by Symes (1956)
Heart Moth	Dicycla oo	Nb	+	+		-	Last seen in 1940
Drab Looper	Minoa murinata	Nb	+	+		-	Last seen in 1947
Barred Tooth-striped	Trichopteryx polycommata	Na	+	+		-	Last seen in 1940s
Narrow-bordered Bee Hawk-moth	Hemaris tityus	Na	+	+		-	Last seen, as larvae, in 1952
Orange Footman	Eilema sororcula	Nb	+	+		-	Last seen in 1958
Light Crimson Underwing	Catocala promissa	RDB3	+	+		-	Last seen in 1947
Small Eggar	Eriogaster lanestris	RDB2	+	+	+	-	Last seen in 1961
Triple-spotted Pug	Eupithecia trisignaria	Na	+		+	-	Last seen 1974, probably overlooked
Double Kidney	Ipimorpha retusa	Nb	+		+	-	Last seen in 1960s
White-spotted Pinion	Cosmia diffinis	Nb	+	+	+	-	Last seen in area in 1968
(Dingy Mocha	Cyclophora pendularia	RDB3	(?)	(?)	?	-)	Record in Emmet (1948) retracted (Emmet pers comm) and Waters 1927 record of a larva is on birch and probably refers to C. albipunctata
Large Red-belted Clearwing	Synanthedon culiciformis	Na		+	+	-	Last seen 1963, probably overlooked
Lead-coloured Pug	Eupithecia plumbeolata	Nb		+	+	-	Last seen 1964, probably overlooked
Buttoned Snout	Hypena rostralis	Nb		+	+	-	Last recorded in area in 1964
Lunar Hornet Clearwing	Sesia bembeciformis	Na			+	-	A single specimen in 1960, greatly under recorded
Maple Pug	Eupithecia inturbata	Nb			+	-	Last records 1963, but probably still present on maple
(Pimpernel Pug	Eupithecia pimpinellata	Nb			?	-)	These five species recorded only by
(Crescent Dart	Agrotis trux	Nb			?	-)	Clarke and probably only at his home
(Lunar Yellow Underwing	Noctua orbona	Nb			?	-)	trap at nearby Studley Village by
(Bordered Gothic	Heliophobus reticulata	Nb			?	-)	rough ground. However the species
(Brighton Wainscot	Oria musculosa	Nb			?	-)	appear on his list for Bernwood

which particular species were recorded this will be a great help. For example, the Small Black Arches, *Meganola strigula* is still present in Bernwood, But it has undoubtedly been affected by the clearance of oak nevertheless. This oak-dependent moth is now a rarity in the wood. Only one individual has been recorded since the 1960s (Waring 1988a). Claude Rippon (1939) described it as numerous in the 1930s and Symes (1956) found it sparingly on oak trunks in July, in the 1920s and 1930s. The species remains common in nearby Stanton Great Wood and Holly Wood where mature oak woodland still survives (Waring 1988a). This change in status at Bernwood would be completely masked if we had no indication of the numbers of *M. strigula* that used to be recorded.

I look forward to receiving any additional records of moths from Bernwood, so that I may proceed with the analysis. I am interested in the common species as well as the rarities. For example it appears that no one recorded the presence of the March moth, *Alsophila aescularia,* or the Grey Pine Carpet, *Thera obeliscata,* in Bernwood until the 1960s.

Permits for recording moths in Bernwood can be obtained from the Nature Conservancy Council (South Region), Foxhold House, Crookham Common, Newbury, Berks RG15 8EL.

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References

Cribb, P.W., 1962. Dis-afforestation? *Entomologist's Gaz.* **13**: 153-154.

Dunk, H.C., 1956. Hell Coppice. *Entomologist's Rec. J. Var.* **68**: 158-159.

Emmet, A.M., 1948. Second supplement to the list of macrolepidoptera of the Oxford district. *Proceedings and report of the Ashmolean Natural History Society* 1941-1947: 47-55.

Hadley, M., 1982. The decline of the indigenous macrolepidoptera of Abbots Wood, East Sussex. *Entomologist's Rec. J. Var.* **94**: 92-96.

Hadley, M., 1984. *A national review of British macrolepidoptera.* Unpublished Invertebrate Site Register report. Nature Conservancy Council, London.

Heron, A.M.R., 1953. Reforesting with conifers. *Entomologist's Rec. J. Var.* **65**: 25-26.

Peachey, C.A., 1980. *The conservation of butterflies in Bernwood Forest.* Unpublished report. Nature Conservancy Council. Newbury.

Rippon, C., 1939, in Salzman, L.ed. 1939. *Victoria history of the county of Oxford* Vol. 1. 2nd edn. 1970. Dawsons, London.

Shirt, D. ed. 1987. *British Red Data Books*. **2.** Insects. Nature Conservancy Council, Peterborough.

Stoakley, J.T., 1963. Re-afforestation at Bernwood. *Entomologist's Gaz.* **14**: 122-123.

Symes, H., 1956. Hell Coppice in the 1930s. *Entomologist's Rec. J. Var.* **68**: 98-102, 250.

Thomas, R.C., 1988. Historical ecology of Bernwood Forest Nature Reserve 1900-1981. In Kirby, K.J. and Wright, F.J. eds. 1988. *Woodland conservation and research in the clay vale of Oxfordshire and Buckinghamshire*. Research and survey 15. Nature Conservancy Council, Peterborough.

Waring, P., 1988b. Responses of moth populations to coppicing and the planting of conifers. *Ibid.*

— , 1988a. *Hell Coppice/Shabbington Wood complex, Bernwood Forest, Buckinghamshire, including the Bernwood Meadows:* A provisional annotated list of macro-moths including historical records. Unpublished report. Nature Conservancy Council, Peterborough.

— , 1989. Comparison of light trap catches in deciduous and coniferous woodland habitats. *Entomologist's Rec. J. Var.* **101**: 1-10.

Recent records of *Eupithecia abietaria* Goeze (Lep.: Geometridae), the Cloaked Pug, from Rothamsted Insect Survey light traps.

Eupithecia abietaria has a localised distribution and continues to be recorded in the RIS trap at Kielder Forest, Northumberland (Site No. 296, O.S. Grid Ref. NY 632 936). Further captures of single females were made at Rowardennan, Stirling (Site No, 97, O.S. Grid Ref. NS 378 958) on 5.viii.1989 and Yarner Wood, Devon (Site No. 266, O.S. Grid Ref. SX 786 788) on 19.vii.1989. Further investigation is required to determine whether resident populations exist at these sites.

Thanks are extended to P. Gough, R. McMath and P. Page who operate the RIS light traps at Kielder, Rowardennan and Yarner Wood respectively.— ADRIAN M. RILEY, Dept. of Entomology and Nematology, AFRC Inst. Arable Crops Research, Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

Another spring Humming-bird Hawkmoth

I observed a specimen of *Macroglossum stellatarum* L. feeding at the flowers of ornamental currant in my garden at Longworth at mid-day on 1st April 1990.— A. KENNARD, Martens End, Longworth, Abingdon, Oxon OX13 5EP.

An early Holly Blue

Despite the "early" season of 1990 I was somewhat surprised to see a male Holly Blue (*Celastrina argiolus* L.) in a garden at Abingdon, Oxford on 18th March 1990. A second (possibly the same one?) was seen later in the day a short distance away.— P. MILES, 29 Highfield Avenue, Cambridge CB4 2AJ.

THE GENERA *NATHRIUS* BRÈTHES AND *MOLORCHUS* F. (COL.: CERAMBICIDAE) IN GREAT BRITAIN

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Introduction

THESE three species, unlike other British Longhorn beetles, are characterised by having abbreviated or truncated elytra; one of them, *Nathrius,* causes great depredations in a variety of manufactured articles, wattle fencing and wicker furniture. The two *Molorchus* species with their exposed wings, long antennae apart, resemble superficially a sawfly in overall appearance.

Symbols in use are the Brownean "typomap" (Kaufmann, 1989); italicised letters represent widespread localities; those in brackets are of doubtful or unconfirmed records; a dagger (†) stands for an importation.

Nathrius brevipennis Muls.

Distributed meagrely over unconnected regions, often in counties with easy access to ports. Many records are of specimens infesting shipped-in finished goods from the Continent.

ENGLAND: BK CB CH DT EK ES GE L† LR MX MY SD† SH SL† SR WO WW† WY†.

SCOTLAND: LA†.

IRELAND: (NK†).

For many years this tiny very destructive beetle was regarded as an importation. It was first catalogued as a native species under its old generic name of *Leptidea* by Beare & Donisthorpe (1904); the latest list (Kloet & Hincks, 1977), however, mistakenly marks it as non-indigenous, an error repeated by Harde (1984).

In Europe, *Nathrius* is reported as present in a variety of deciduous and coniferous trees, the majority of which grow here. Many papers about this mischievous little insect have been published.

In this country, the late T.E. Doeg found it last century in numbers in a Gloucestershire orchard (Atty, 1983), but it is not indicated if the beetles came from fruit baskets stacked there or from the damaged trees themselves. It was discovered breeding freely (and in the company of *Gracilia minuta* F. which is not infrequently the case) at Lulworth Cove in osier beds cultivated by the local lobster fishermen.

Nathrius is certainly established in Britain. It has been found in dead dogrose stems from which it was successfully raised to maturity (Duffy, 1953) and in hazel frames and withies (Cooter & Cribb, 1975; Hickin, 1987).

The larva particularly attacks thin growths used in the making of every kind of basketry and wickerwork, skips, hampers, garden chairs, carboys and the like, besides packing cases, barrel hoops and hurdles — with damaging results. In warehouses where such items are stored its depredations can reduce them to powder.

Metamorphosis lasts two years, pupation taking place in April and May. The very swift-legged adult emerges during mid-summer and may be found either in the open or indoors until August. There is a curious record of its association with the ant, *Formica sanguinea* (Barnes, 1904).

Molorchus minor L.

Generally distributed from the West Country to the south-east, the Home Counties, East Anglia, the central Midlands, Cheshire (only in the north-west) and the north-east as far as Durham. It has not been found in the south-west peninsula nor in Scotland and Ireland.

ENGLAND: BD *BK* BX CB CH DM DT DY EK EN ES EX EY GE GW HF HT L LN *LR* MX NE *NH* NM NO NW OX *SH SR ST* SW SY WK WN WO WS WW WX.

WALES: MN.

The life cycle lasts two years, the larval pabulum being divided between conifers and deciduous trees, namely, dogrose, holly, larch, Norway spruce, osiers, rowan, sallow, Scots pine, silver birch, silver fir and yew, whose exposed roots and dead or cut branches are attacked. The larva is parasitised by these Hymenoptera:— *Cleonymus depressus* F., *Helcostizus albator* Thunb., *Vipio nominator* F., *Xorides niger* Pf. v. *bicolor* Grav. and *Xylonominus gracilicornis* Grav.

The pupae form in late summer during August and September; they overwinter, the beetle ecloding in April. It is found in the open until August (there is a very late October record) when it frequents brushwood, sawmill chippings, brambles, dogwood, hawthorn blossom, hogweed and other umbels, *Spiraea,* the branches of firs, pines and the Service tree.

***M. umbellatarum* Schreber**

The much rarer and smaller of the two species, with a less disseminated distribution that is confined to the Thames and Hampshire basins, the Severn area, and parts of East Anglia and the Midlands. Still unknown in the Principality and north of Yorkshire.

ENGLAND: BK BX CB DT EK ES GE GW HF HU L LR MM MX MY NE NH NM SH *SR* WK WO WS WX.

The larva is found in the trunks, slender or broken off branches and dead twigs of brambles, crabapple, dogrose stems, guelder rose, Scots pine, Snowy Mespil, spruce and fruit trees. Its Hymenopterous parasites are:— *Ephialtes messor* Grav., *Perithous divinator* Rossi and *P. septemcinctorus* Thunb.

Metamorphosis also lasts two years; the pupa overwinters and the perfect insect eclodes during the spring. It is a localised beetle which frequents crabapple, dead hedgerows, dogwood, hawthorn, hogweed and various *Umbelliferae,* privet, *Spiraea* and wild rose from May until July.

Both *Molorchi* are figured in our earlier English entomological publications (Martyn, 1792; Curtis, 1824).

References

Atty, D.B., 1983. *Coleoptera of Gloucestershire.* Cheltenham.

Aurivillius, C., 1912. Cerambycidae *in* Junk, W. & Schenkling, S., *Coleopterorum Catalogus,* **39**: 262; 266-269. Berlin.

Barnes, W., 1904. *Leptidea brevipennis* in company with *Formica sanguineum, Entomologist's mon. Mag.,* **40**: 14.

Beare, T.H. & Donisthorpe, H.StJ.K., 1904, *Catalogue of British Coleoptera*: 39. London.

Cooter, J. & Cribb, P.W., 1975. *A Coleopterist's Handbook.* 2nd ed. Feltham.

Cox, H.E., 1874. *A handbook of the Coleoptera,* **2**. London.

Curtis, J., 1924. *British Entomology,* Coleoptera, **1**, Pl. 11. London.

Demelt, C. von, 1966. *Die Tierwelt Deutschlands,* **52**: 2. Bockkäfer oder Cerambycidae, 1. Jena.

Dibb, J.R., 1948. *Field book of Beetles.* Hull.

Duffy, E.A.J., 1946. Records of Coleopterous larvae from Surrey, with a note on hostplants, *Entomologist's mon. Mag.,* **82**: 270-273.

— , 1953. *A monograph of the immature stages of British and imported Timber Beetles (Cerambycidae).* London.

Ellis, H.W., 1907. *Leptidea brevipennis* Muls. and *Gracilia minuta* F. at Lulworth, *Entomologist's Rec. J. Var.,* **19**: 72-73.

Fowler, W.W., 1882-83. *Leptidea brevipennis* Muls., found in England, *Entomologist's mon. Mag.,* **19**: 89.

— , 1890. *The Coleoptera of the British Islands,* **4**. London.

— & Donisthorpe, H. StJ.K., 1913. *Idem,* 6 (Supplement). London.

Freude, H., Harde, K.W. & Lohse, G.A., 1966. *Die Käfer Mitteleuropas,* **9**. Krefeld.

Harde, K.W., 1984. *A field guide in colour to Beetles,* English edn., Hammond, P.M. London.

Hickin, N., 1987. *Longhorn Beetles of the British Isles.* Princes Risborough.

Holland, W., 1904. Is *Leptidea brevipennis* a British insect? *Entomologist's mon. Mag.,* **40**: 38.

Joy, N.H., 1976. *A practical handbook of British Beetles,* 2nd ed. 2 vols. Faringdon.

Kaufmann, R.R. Uhthoff-, 1946. On some doubtful or rare Longicornia (Col.) included in the new Check List of British Insects, *Entomologist's mon. Mag.,* **82**: 181-185.

— , 1948. Notes on the distribution of the British Longicorn Coleoptera, *Ibid.,* **84**: 66-85.

— , 1989. Browne *versus* Watson: round two, *Entomologist's Rec. J. Var.* **101**: 61-63.

Klausnitzer, B. & Sander, F., 1981. *Die Bockkäfer Mitteleuropas.* Wittenberg Lutherstadt.

Kloet, G.S. & Hincks, W.D., 1977. *A check list of British Insects,* **11** (3), Coleoptera and Strepsiptera: 71. London.

Lyneborg, L., 1977. *Beetles in colour,* English edn., Vevers, G. Poole.
Marsham, T., 1802. *Entomologia Britannica,* **1**, Coleoptera. London.
Martyn, T., 1792. *The English Entomologist,* plate 23, figs. 1 & 2. London.
Rye, E.C., 1866. *British Beetles.* London.
— & Fowler, W.W., 1890. *Idem,* 2nd ed. London.
Samouelle, G., 1833. *The Entomological Cabinet,* 1, plate 73. London.
Shaw, G., 1806. *General Zoology,* 6: 76. London.
Speight, M.C.D., 1988. The Irish Cerambycid fauna (Coleoptera: Cerambycidae), *Bull. Ir. biogeog. Soc.,* 41-76.
Spry, W. & Shuckard, W.E., 1840. *The British Coleoptera delineated.* London.
Stephens, J.F., 1829. *A systematic catalogue of British Insects*: 202. London.
—, 1831. Illustrations of British Entomology, *Mandibulata,* 4. London.
—, 1839. *A manual of British Coleoptera.* London.
Villiers, A., 1978. *Faune des Coléoptères de France,* **1**. Cerambycidae. Paris.
Wood, T., 1904. Is *Leptidea brevipennis* a British insect? *Entomologist's mon. Mag.,* **40**: 60.

Philonthus atratus (Gravenhorst) (Col.: Staphylinidae) new to both Worcestershire (v.c. 37) and Gloucestershire (v.c. 33)

Philonthus atratus (Grav.) is a rare, striking, hygrophilus beetle. On 1.viii.1987 I made my first acquaintance with it at Beckford, Worcestershire (SO 93) at the margin of a shallow pool on glutinous, entirely unvegetated clay. Disturbed from beneath a stone, it ran rapidly, with its body well elevated on scarcely flexed legs. At about the same time *P. atratus* turned up at another site near Broadway, Worcestershire (SP 03) on organic mud at the edge of reedswamp.

On 15.vi.1989 *P. atratus* was again observed at the Beckford site, where incidentally, on 24.vi.1989, an inland *Bembidion minimum* (Fabricius) was encountered. Finally *P. atratus* was observed in Gloucestershire on 4.vii.1989 on minerogenic mud by shallow pools at Bishop's Cleeve (SO 92). It is noted that all of these records relate to basic water bodies flanking the Jurassic scarp of midland England. *P. atratus* demands further study due to its specialised ecology and preference for a habitat that can be lost with dramatic speed. Its sporadic occurrences hardly constitute populations, and it may be that it is dispersing from more major foci elsewhere.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcestershire WR10 3EP.

[I have heard that *P. atratus* occurred freely over a number of years on the muddy edges of a pond at the Welsh Harp, Hendon, Middlesex, up to about 1940 when the habitat became unsuitable or more likely was destroyed. Only sporadic later finds are known to me, from Compton Bishop (N. Somerset), and the New Forest.— A.A.ALLEN.]

LEPIDOPTERA RECORDS IN WALES AND SCOTLAND

DR M.W. HARPER

Cherry Orchard, Bullen, Ledbury, Herefordshire

THIS article is an attempt to update a few of the more interesting records from Wales and Scotland that have followed several fieldtrips during the 1980s, together with some corroborative observations by Dr Mark Young and Col A.M. Emmet.

WALES

Stigmella acetosae (Staint.). The attractive tenanted reddish mines were found on *Rumex acetosa* in one small area of coastal clifftop grassland between Aberystwyth and Borth (v.c. 46) on 15.10.1982. I have found the mines in the same location on a number of occasions since without finding the species anywhere else. The area is unusual in being almost entirely ungrazed by either sheep or even rabbits. This is new for this vice-county, although recorded from neighbouring v.c. 48.

Pyralidae on Borth bog. On 19.7.1981 at dusk a number of *Eudonia pallida* (Curtis) were observed flying close to the ground together with *Endotricha flammealis* (D. & S.), both uncommon species in the west. An unusual form of *Chrysoteuchia culmella* (L.), a normally widespread and abundant species, was represented on Borth bog by a diminuitive form and quite unlike the typical form flying only half a mile away off the bog. A single *Crambus silvella* (Hübn.) was seen flying in the daytime on the hottest day in 1988 (7.8.1988); this is a very local species associated with *Carex* spp., growing on acid wet moorland.

Perizoma taeniatum (Steph.). A single male moth was disturbed from wet moss covered rocks in a shaded valley near the village of Furnace (v.c. 46). Recorded from North Wales and Gwent, this may be the first record for mid Wales.

SCOTLAND

Stigmella serella (Staint.). A single tenanted mine was found on Tormentil (*Potentilla erecta*) growing in shade within oak woodland near Salen, Ardnamurchan on 14.10.1986. No other tenanted or vacated mines were seen but on 26.5.1987 a moth was reared from this one mine. Dr Mark Young tells me he has also found the mines near Strontian, Argyll in the autumn of 1988. Both these records are new for v.c. 97.

Stigmella continuella (Staint.). A vacated mine of this species was found in a leaf of *Betula pubescens* ssp. *odorata* near Acharacle, Ardnarmurchan in v.c. 97 on 15.10.1986. Apparently new to Scotland, I later discovered that Col A.M. Emmet found a mine at Lackar moss, near Dumfries on

17.9.1976 in v.c. 72. Dr Young also informed me that he has recorded the species from Glen Strath Farrar in v.c. 96 on 25.9.1988.

Coleophora lixella (Zell.). During a visit to the picturesque Talisker bay on Skye on 22nd and 24th June 1983, several imagines were seen flying over well-grazed grassland containing *Thymus drucei.* This uncommon species recorded from only a few Scottish sites mainly on the east coast is a new record for v.c. 104.

Exaeretia ciniflonella (L. & Z.). While investigating the ancient birch and juniper woodland at Crathie, Deeside in the late autumn of 1986 (15.10.1986), I was surprised to disturb a male moth at rest on a large birch trunk. This was a new record for v.c. 92 and also the only record in the country for over thirty years when single records were observed in v.c. 96 in Glen Affric (1955; E.C. Pelham-Clinton) and Newtonmore (1952; M.W. Harper). Prior to this most of the records emanate from Rannoch from 1850-1920, when a large number of records appeared but I do not know of any recent sightings.

Aphelia unitana (Hübn.). I have known of a very small colony of this species at Beattock (v.c. 72) since 1979 well within the known distribution in northern England, the borders, and the Scottish lowlands. Recently the species has been noticed further afield but I was surprised to find a flourishing colony in two adjacent *Molinia* dominated bogs much further north near Dalmally, Argyll (v.c. 98), near the head of Loch Awe at a moderately elevated altitude of 800-1000 ft.

Acknowledgements

I am very grateful to Dr M. Young and Col A.M. Emmet for allowing me to publish some of their records, and to NCC for permission to visit Borth bog NNR. My thanks also to Dr M. Shaw from Edinburgh for researching records fo *Exaeretia* from the Scottish Insect Records Index at RSM.

***Euonymus japonicus* — yet another foodplant of the Holly Blue butterfly *Celastrina argiolus* (Linnaeus) (Lep.: Lycaenidae) in the London Area.**

Further to my note on *Pyracantha* as a possible foodplant for the larvae of spring brood *C. argiolus* (*antea* 41-43) and the subsequent notes by Owen and Allen confirming this (*antea* 145-146) it may be of further interest to record that on 3rd May 1990 at this museum's nature reserve at St Mary Magdalene Churchyard, East Ham, London (O.S. ref TQ 429823) I witnessed a number of the butterflies laying eggs on *Euonymus japonicus.*

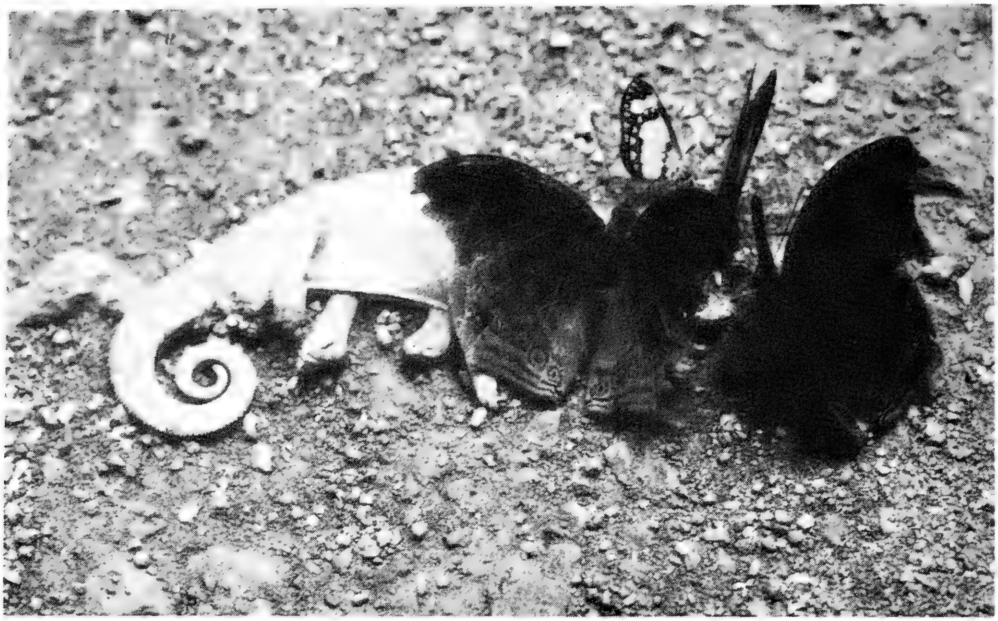
In all, some twenty butterflies were under observation for around 30 minutes in the area immediately in front of the window of the Interpretative Centre — itself a remarkable event as most years we seldom see more than two at once.This area of the nature reserve is mown and apart from some dense patches of ivy, *Hedera helix,* on some of the graves the only shrubs present are *Euonymus japonicus*. Butterflies were in attendance at all of the *Euonymus* bushes, and were observed frequently to settle on the old, dead flowers. Subsequent examination confirmed that eggs had been laid at the base of the green, newly formed seed capsules, in the angle made between these and the sepals. Only one egg per seed capsule was noted. Shortly after this confirmation had been obtained, a female *argiolus* landed about two feet away from me and promptly deposited an egg as I watched!

It is perhaps worth considering whether *Pyracantha* and *Euonymus* have always been alternative foodplants of this butterfly and, indeed, if others remain to be discovered. The Aquifoliacea (holly) and the Celastraceae (*Euonymus*) are closely related families of plants and are listed consecutively in *Flora of the British Isles* (Clapham, Tutin and Warburg, Cambridge University Press, 1962). Both flower at roughly the same time and so both are available to the first brood adults. *Symphoricarpos,* another recorded foodplant for the progeny of the spring brood is, on the other hand, in an unrelated family, the Caprifoliaceae. *Pyracantha* belongs to the Rosaceae, and so is quite unrelated to ivy (Araliaceae), though both flower at a later time of year, and roughly at the same time as each other. Dogwood, another recorded foodplant, is in the Cornaceae, which immediately precedes the Araliaceae in *Flora of the British Isles.*

At its more usual low density, the Holly Blue attracted little attention other than from a few enthusiastic researchers. It is quite possible that it has simply not been looked for on plants other than those which the text books tell us it is allowed to be found on. Added to this is the fact that there are certainly a great many observations made by a great many, exceedingly good, field naturalists which never end up in print because the observer "didn't think it was all that important". On the other hand, in times of abundance — such as the present — one may expect foodplant availability to decline through increased competition (itself a well-known population controlling factor). In such a situation the butterflies may be expected to exploit alternatives though these may perhaps be expected to be closely related species of plant (?). It would be interesting to "pool" observations and I would be pleased to receive unpublished information on this subject area to collate into a more comprehensive account.— COLIN W. PLANT, Passmore Edwards Museum, Romford Road, Stratford, London E15 4LZ.

Hazards of butterfly collecting — Kakamega, Kenya, 1988.

In the tropics many butterflies forsake the usual nectar in favour of less savoury foods. On my first visit to the Kakamega Forest in Kenya, the most eastern true rainforest in East Africa, the first sight that greeted me was a horde of butterflies sitting on the road. They turned out to be feeding on the exposed, squishy viscera of a civet which had been squashed by a truck



Enjoying a dead chameleon.

earlier in the day. It would have been possible to spend the entire day intercepting ever more butterflies, although the smell was not yet powerful although enough to bring in the large and beautiful *Charaxes,* which are attracted to rotting meat, shellfish, and excrement. As it is, I now have a portfolio of gory pictures depicting more than a dozen species feeding on the hapless civet.

Older butterfly books from Africa and Asia take this penchant for malodorous feeding most seriously. "The *Charaxes* are especially attracted to the droppings of the big cats", intones one author, adding "but always take great care to ensure that the great cats are no longer in the vicinity". And it is true; fresh leopard droppings can attract hordes of butterflies from miles around. Another author finds that the exposed viscera of rats are useful collecting tools: "I always carry a dead rat or two wherever I go".

Carnivore excrement can be a strong attractant to butterflies, even that of quite small animals like mongooses (mongeese?), civets, genets and monkeys. Herbivore excrement is usually less favoured, though I have sometimes seen hordes of swallowtail butterflies on still steaming piles of elephant dung. One paper on Cameroun butterflies comments in some detail on the fact that butterflies were attracted to the faeces of the European entomologist, but not to that of his African camp staff (which to my mind implies that he allowed them poor rations without sufficient meat).

Urine can be good too, sometimes exceptionally so, but success is somewhat intermittent for reasons I cannot understand. I have sometimes had spectacular success, not least in Papua New Guinea and Ecuador, while at other times it holds little excitement. Rotting fruit is another stand-by for many butterflies, some of which rarely or ever visit flowers. Just as the Red Admirals (*Vanessa atalanta*) of Europe, they often get so intoxicated that they cannot fly straight, or indeed not fly at all.

One benefit to the entomologist of these feeding habits is that some butterflies, which are otherwise almost impossible to find, can be trapped. The traps are simple, consisting of a tube of mosquito netting with a narrow gap at the bottom. They are baited with rotting crabs or fermenting bananas, and suddenly butterflies appear as if by magic. The first time I used traps, I had more specimens of *Charaxes* in one trap than I had caught during three weeks of conventional collecting. For some reason the traps never seem to get stolen, even where many people are about, possibly because they are considered some sort of *juju* (magic).

The need to carry foul substances sometimes leads to awkward situations. I had a suitcase which for several years in damp weather still smelled of a mixture of palm wine and fermenting banana, a bottle of which had literally exploded due to my carelessness in not relieving the pressure before setting out on a trip. I would have liked, though, seeing the face of the unknown miscreant in Kenya, who made off with two Johnny Walker bottles full of urine from my car, when he took the first tot on arriving home!— TORBEN B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

Cercyon bifenestratus Küster (Col.: Hydrophilidae) new to Gloucestershire (v.c. 33) with notes on _Cercyon marinus_ Thomson.

In 1989 (*Entomologist's mon. Mag.* **125**: 150) I referred to the presence of *Cercyon marinus* Th. at Bishop's Cleeve, Gloucestershire. The evidence for breeding at the site was the result of finding teneral imagines with a single mature individual. I now recognise that the teneral specimens of June 1987 represent *Cercyon bifenestratus* Küst., which is a major extension of the range of the species from the more southern counties of England (Allen 1970, *Entomologist's mon. Mag.* **106**: 5; Collier, 1987, *Entomologist's mon. Mag.* **123**: 249.).

Since two superficially similar species can co-habit I am examining my limited evidence for their ecological preference.

Of the two, *C. marinus* is somewhat more aquatic and less tolerant of exposure. However, I know this species from only one site in Worcestershire, the Milestone Ground Pit at Broadway (Whitehead, in press). Here it was taken in March 1989 under a mat of dried algae 60cms up a shaded willow stump; in the April and May it was taken on floating logs with other beetles of similar persuasion. At Bishop's Cleeve, *C. marinus* has been taken under the foliage of a poolside grass, *Agrostis stolonifera* L., and under floating timber.

In Britain, I have not yet managed to locate *C. marinus* in riparian contexts, but have done so on riverside sand in Yakutia, USSR. I have taken both species at the faeces of wildfowl, *C. marinus* at that of Mallard, and *C. bifenestratus* in cop. at Bishop's Cleeve, July 1989 at that of Canada Goose, and this may not be purely due to chance. *C. bifenestratus* is typical, it would appear, of soft, silty, sandy or clayey, minerogenic sediments.

I wish to thank Mr A.A. Allen for his profound influence on this note.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcs WR10 3EP.

Reappearance of *Triplax aenea* (Schaller) (Col.: Erotylidae) in Surrey.

Apparently the only published record of this species in Surrey is that of Stephens (1839, *Man. Brit. Col.*: 133) who lists Coombe Wood — a once important locality which is now a residential estate. There then appears to have been a gap of over 140 years in which none was recorded from the county, although unlike *Triplax russica* (L.) which genuinely seems to have disappeared from the county, *T. aenea* may have been present all the time in low numbers.

I have encountered *aenea* at three different locations in Surrey in recent years, these being Leith Hill in 1983 (TQ 1342), White Downs in 1985 and 1986 (TQ 1149) and White Hill in 1989 (TQ 1853). The latest find was during an organised trip to Box Hill.— D.A. PRANCE, 209 Peregrine Road, Sunbury, Middlesex TW16 6JJ.

***Apion urticarium* Hbst. (Col.: Apionidae) in a suburban garden**

On 12th May last I swept two specimens of this pretty and very local little *Apion* from nettles in my garden — an agreeable surprise since I had never before found the species in this area, but (in Kent) only considerably farther east: between Dartford and Darenth and near Higham very sparingly, and one in the Erith - Crayford area (1984). That *A. urticarium* is a newcomer to the garden is a virtual certainty, as I have often over the years swept those particular nettles and could hardly have overlooked it. This may be a new record for the immediate environs of London, and the rather shady situation is scarcely typical for the species which prefers open places as a rule. As it lives upon an ubiquitious plant, yet its colonies tend to be very scattered and mostly small, it would seem to have special requirements so far unrecognised.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Second brood records of *Lacanobia thalassina* Hufn. (Lep.: Noctuidae), the Pale-shouldered Brocade, from Rothamsted Insect Survey light traps.

Heath and Emmet (*The Moths and Butterflies of Great Britain and Ireland,* **9**, 1979. Curwen, London) state that this species is usually univoltine, flying in late May and June, with a small second brood in southern England. However, the frequency of bivoltinism and the distribution of second brood records appears to be poorly documented.

Single males of this species were caught in the RIS light traps at Preston Montford, Shropshire (Site No. 382, O.S. Grid Ref. SJ 433 143) on 10.ix.1989 and Empingham, Leicestershire (Site No, 280, O.S. Grid Ref. SK 953 087) on 15.ix.1989. The usual first brood was represented in the catches at both sites during May and June of that year. Examination of the Insect Survey database, which contains 4,402 records of *L. thalassina,* reveals further captures of second brood individuals and these are summarised below.

Site	Site No.	Grid Ref.	Date	Total
Yarner Wood, Devon	266	SX 786 788	Aug. 1976	10
Starcross, Devon	149	SX 972 821	Aug. 1974	2
Writtle, Essex	87	TL 677 071	Sep. 1969	1
			Aug. 1971	14
			Sep. 1971	1
Broom's Barn, Suffolk	88	TL 752 656	Aug. 1972	2
			Aug. 1974	4
Aberystwyth, Dyfed	340	SN 629 837	Sep. 1982	2
Malham Tarn, Yorkshire	45	SD 894 672	Aug. 1982	1
Chester-le-Street, Co. Durham	39	NZ 275 515	Aug. 1987	1

These records confirm that, under favourable conditions, *L. thalassina* is partially bivoltine as far north as Yorkshire and Co. Durham. With the recent increased discussions on climatic change and its effect on the British fauna, it will be interesting to monitor the occurrence of second brood individuals in this and other partially bivoltine species of Lepidoptera. Our thanks are extended to the trap operators at the sites mentioned for their continued support.— ADRIAN M. RILEY, Dept. of Entomology and Nematology, AFRC Inst. Arable Crops Research, Rothamsted Exp. Stn, Harpenden, Herts AL5 2JQ.

An early Meadow Brown, *Maniola jurtina* L.

Whilst collecting weevils (Coleoptera) on the undercliff at Eype's Mouth, Dorset, on 25th May 1990, I was surprised to see what appeared to be a male Meadow Brown flying in the early evening sunshine. After careful stalking, the identity of the butterfly was confirmed. It was quite fresh, and the spotting of the underside hindwing was conspicuously faint. I do not remember seeing Meadow Browns before the second week of June in southern England in other years. The phenomenally mild winter of 1989/90 and the very sheltered nature of the site may be significant. Other butterflies, notably Holly Blues, *Celastrina argiolus* L., have been remarkably early in 1990.— M.G. MORRIS, 7 Clarence Road, Dorchester, Dorset DT1 2HF.

The occurrence of a *Cacyneus* species (Lep.: Lycaenidae) in Majorca

In April 1990 I was in a friend's garden in Majorca watching for butterflies when I noticed a small, dark butterfly flying around geraniums and pelargoniums. The upperside was chocolate brown with black and white chequered fringe and a small tail with very small lunule at its base. The underside was patterned grey and brown.

A number of photographs were taken and from these the insect was identified as a *Cacyneus* species, possibly *ethiopicus,* but it is impossible from a photograph to determine the species of this notoriously difficult genus. *Cacyneus* is a predominantly southern and central African genus which extends northwards to the southern fringes of the Sahara. As far as I am aware, this genus has not been recorded from Europe or North Africa.

Interestingly we observed further specimens in the nearby town of Magaluf, suggesting that the butterfly may be breeding on Majorca. Several members of this genus feed on geranium and pelargonium and they may have been introduced with plants, or possibly as windborne immigrants in one of the Sahara "dust storms". I am grateful to Dr C.J. Luckens for his helpful comments of this genus.— E.M. RAYNOR, 15 Nash Meadow, South Warnborough, Hants RG25 1RJ.

Hazards of butterfly collecting in tropical places

Torben Larsen's account of collecting in the Tsavo National Park (*Entomologist's Rec. J. Var.* **102**: 39) recalls many enjoyable times spent studying insects in unusual places. Like him, I have not often found wildlife to be a hazard.

Wild creatures normally try to avoid trouble, and the deranged individual which sees Man as a meal is pretty rare. However, one must avoid surprising an animal, or moving inside its personal "space". In some places, this can mean keeping a sharp eye open for elephants or buffaloes, or in the old days, rhino. But mostly it involves moving without too much disturbance, though not necessarily entirely in silence. Snakes in particular find it convenient to be forewarned of one's approach, although in thirty years in Africa I cannot recall having been alarmed by a snake while collecting.

Only twice did I have an encounter with the big cats. On one occasion, on the Nyika Plateau on the Zambia/Malawi border, I had put a trap for *Charaxes* butterflies inside the forest edge. When I went to collect it, a leopard in the bushes coughed discreetly, to advise that I was getting too close. This put me in a quandary, as I had no intention of abandoning my trap. So I advanced slowly, chatting to the animal as though to my wife's Siamese cat (equally dangerous at times!). The ploy worked and I recovered my *Charaxes*.

The second incident was more dramatic. I had driven from Sumbu to Nkamba, around the south end of Lake Tanganyika in northern Zambia, and had set up a number of traps along the road in thick scrub. On my return I was accompanied by the local Game Warden and his wife. It happened to be a boom year for *Charaxes pythodorus* (normally a relatively uncommon species), and the traps were packed with dozens of them, to the point of nuisance. At one trap, we had all spent several minutes sorting the wheat from the chaff, and talking loudly, when a lion which was evidently sleeping peacefully about twenty yards away in the scrub, decided it had had enough, and let out an almighty roar. No landrover was ever more rapidly re-occupied, though again we did manage to take the trap with us!— —R.C. DENING, 20 Vincent Road, Selsey, Chichester PO20 9DQ.

An early or late larva of *Pieris brassicae* L. (Lep.: Pieridae)

On 3rd January 1990, I picked up a fully grown larva of the Large White butterfly in a road in Plymouth, Devon. This pupated on 6th January, out of doors, where it remained until a normal male emerged on 8th June, a lengthy period considering the long hot spring.— A. ARCHER-LOCK, 4 Glenwood Road, Mannamead, Plymouth, Devon.

The return of *Eilema sororcula* Hufn. (Lep.: Lithosiinae) to N.W. Kent

Chalmers-Hunt (*Butterflies and Moths of Kent,* **2**, 1961) states that this moth is apparently extinct in N.W. Kent. This has probably been so for a considerable period, the last definite occurrences having been for Swanscombe Wood (twenty-four) in 1848, and singletons for West Wickham 1859, Greenhithe 1859 and Darenth Wood 1863.

In 1989 I was therefore surprised to find that two specimens had been attracted to my garden m.v. light on 23rd May, and I assumed that they were vagrants from far afield. The following evening I made my only visit of the year to the Orlestone Woods, the main stronghold of *sororcula* in Kent, but none was seen. On 5th May 1990 a further specimen arrived at my garden light, suggesting that perhaps this species has again become established in N.W. Kent.

Chalmers-Hunt in his latest supplement to his county work notes that *sororcula* appeared to have become scarcer, and he lists only three records for the county for the two decades, two specimens from the Weald of mid-Kent, and a specimen I saw in the Orlestone Woods in 1962, and these were two decades of considerable m.v. light activity in the Orlestone Woods.

I believe several other specimens were seen in N.W. Kent in 1989, although my efforts to obtain detailed confirmation have proved unsuccessful. Dartford comes within the Clean Air Zone (Clean Air Act, 1964) and atmospheric pollution has decreased considerably resulting in a return of lichens to the oak trees of local woodlands. Thus for central Dartford the six monthly average winter totals of solid deposits has fallen from about 28 tons per acre in 1962 to about seven tons in 1989, including the cement dust which is now almost negligible, and there is now only about

12% of both the smoke and sulphur dioxide in the air compared with 1964 (figures kindly supplied by the Dartford Borough Council).

It is interesting to note that although *E. sororcula* appears not to have been recorded from the woodlands of N.W. Kent since 1863 until recently, it was still to be found at Chattenden some ten miles to the east, where the degree of atmospheric pollution was probably considerably less, not uncommon in the 1880s and even in the first decade of this century (Chalmers-Hunt, 1961).—B.K. WEST, 36 Briar Road, Dartford, Kent DA5 2HN.

A somatic mosaic of *Cosmia trapezina* Linnaeus (Lep.: Noctuidae), the Dun Bar

The aberration in Fig. 1 was caught in the Rothamsted Insect Survey light trap at Empingham, Leicestershire (Site No. 280, O.S. Grid Ref. SK 953 087) on 26.viii.1986. The left half conforms approximately to ab *pallida* Tutt and the right appears most similar to the type form *trapezina* L. (Tutt, J.W. (1982) *The British Noctuae and their Varieties,* **3**: 22-23. Swan, Sonnenschein, London), though with such a variable species it is difficult to be precise.

No similar specimen is present in the national Lepidoptera collection at the Natural History Museum and there is no somatic mosaic listed under *C. trapezina* in A.L. Goodson's list of aberrational forms (unpubl.) which is held at the same institute.

The name *pallida-trapezina* nov. is proposed for this aberration and the type specimen will be held at Rothamsted Experimental Station.

Thanks are extended to M. Tyler for operating the trap at Empingham and to D. Carter for allowing access to the collections and literature at the Natural History Museum, London.— A.M. RILEY, Dept. Entomology and Nematology, AFRC Inst. Arable Crops Res., Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

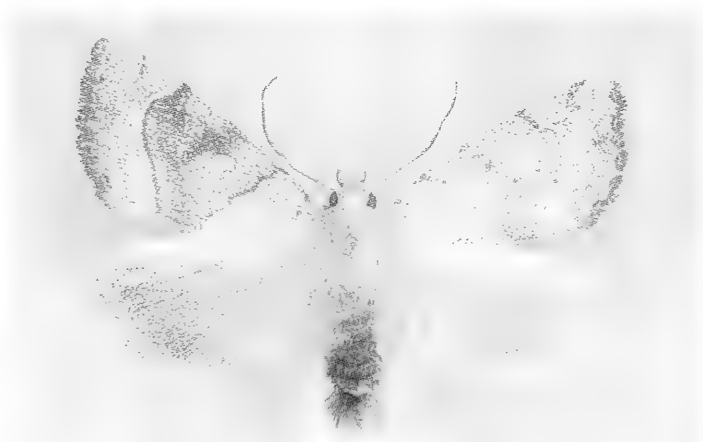


Fig. 1. *Cosmia trapezina* L. ab. *pallida-trapezina* nov. Type male. Empingham, Leics. 26.viii.1986.

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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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

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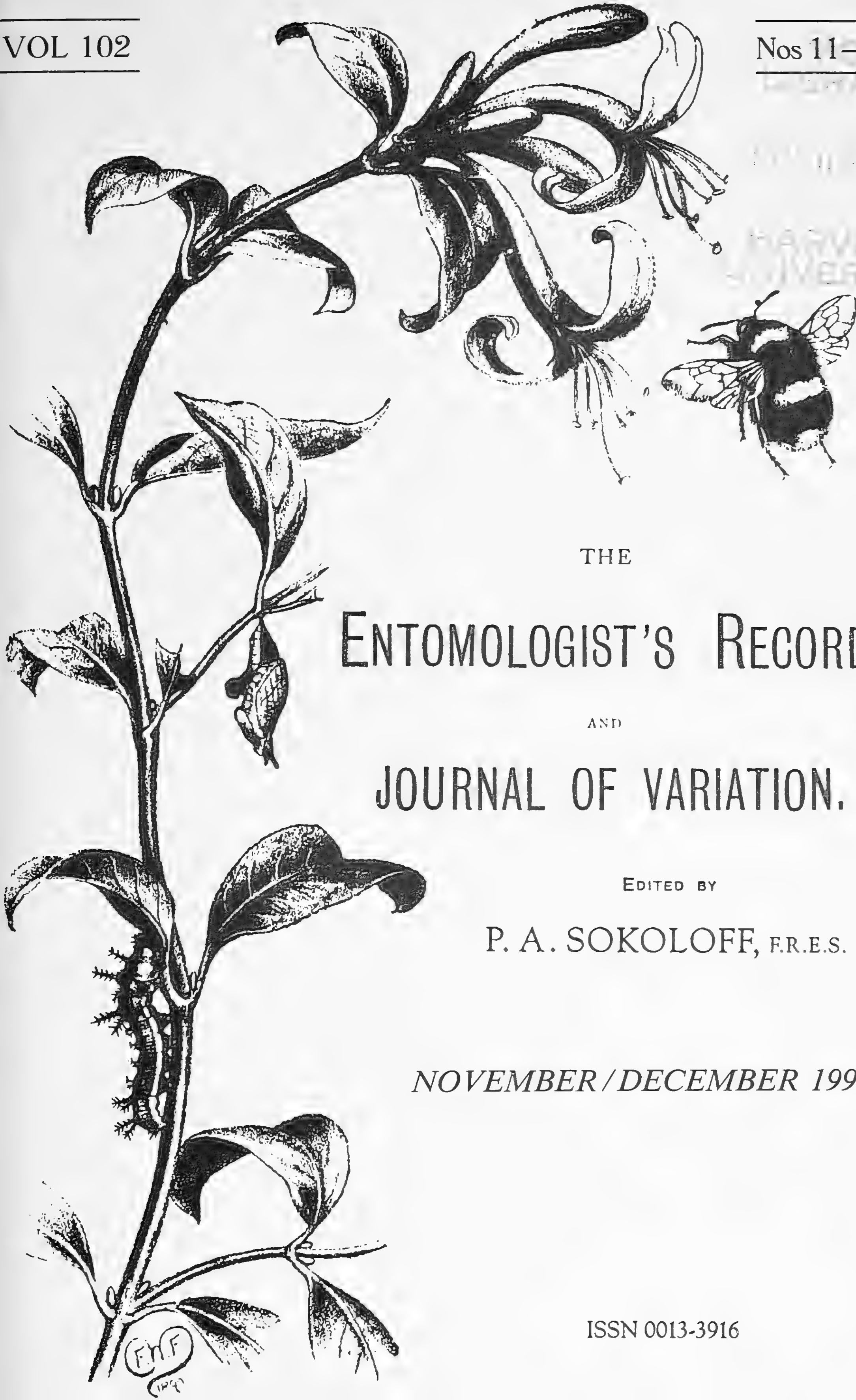

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AND

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THE HISTORY, ECOLOGY AND HABITS OF *THECLA BETULAE* L. (LEP.: LYCAENIDAE) IN WORCESTERSHIRE

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ALMOST all accounts of *Thecla betulae* L., the Brown Hairstreak, note the elusive nature of the species, and many entomologists have limited experience of its ecology and habits. This article presents the results of 20 years study of a colony of the species in a local area of Worcestershire which appears to have been isolated for many years, and as this is one of the most northerly remaining in the United Kingdom it probably exhibits more clearly the conditions of importance for viability. Related to the environmental conditions of the area, other now rare or UK-extinct species have occurred, and for general interest references to them have been included.

The principal area is the low lying country bounded approximately by a line joining Worcester — Droitwich — Redditch — Evesham — Pershore — Worcester. This contains a number of old mainly deciduous woods, and many of these have been little disturbed for many years, indeed some of them were managed by slow coppicing up to the 1950s, and several are still only used for shooting. The countryside is very rural with a low population and with the exception of the southern part, much of the land is poor agriculturally.

Thecla betulae L. has always been regarded as a rare species in Worcestershire. As far back as 1834, Dr Charles Hastings (Hastings, 1834) listed it under the heading *Rarer Lepidopterous Insects*, but only one location was mentioned in his book; that was Trench Woods, and an interesting footnote reads *"These woods, situated on an eminence near the junction of the red marl and the lias, about five miles on the east side of Worcester, are much resorted to by entomologists for the rare insects that are met with there"*. These rarities also included (sic) *"P. Asis,* Mazarine Blue; *P. Argus,* Silver Studded Blue; *P. Alsus,* Small Blue; *Nemerobius lucina,* Duke of Burgundy Fritillary; *Sesia Fuciformis,* Narrow-bordered Bee Hawk and *Melitaea Artemis,* Greasy Fritillary." Alas of these only the latter, now known as the Marsh Fritillary of course, probably still survives (Green, 1985). As for *betulae,* personally I have never found the adult or ova in those woods, although on two occasions I did find a few ova in nearby woods. Other notable species in those early days listed under "Woods near Worcester", were "*V. polychloros,* Large Tortoiseshell and *Pieris Crataegi,* Black-veined White". It is interesting that Dr Hastings listed all the hairstreaks as butterflies of Worcestershire, including "*T. Pruni,* Dark Hairstreak. Rare", and "*T. W-Album,* Black Hairstreak", but in view of the uncertainty about nomenclature at that time (Thomas,

*Jack Green completed this paper just before his untimely death in April 1990.

1989) there must be some doubt as to whether *Strymonidia pruni* L. as known today was really present. Rev Horton (Horton , 1890) referred to "*T. pruni,* Black Hairstreak" in the Malvern district in 1870, and the 1901 Victoria History merely said "Very rare", without locations. I can now reveal that an old local collection was discovered by Mr Richard Parsons in the Greater Wyre Forest area in 1985. It had been amassed by a Mr H. Whitelegg, and contained a single *Strymonidia pruni* L. labelled "June 1946, Ribbesford, Bewdley". No reason has been found for doubting that it was a genuine local specimen and some activity is proceeding in the remote hope that this species might conceivably survive in Worcestershire today.

From the 19th century there were specimens of *betulae* in Worcester Museum labelled "Trench Wood 1856", and the Rothschild collection in the British Museum contains specimens labelled "Pershore 1891". In 1857 Stainton referred to "hedgerows near Worcester", and Tutt said "near Worcester" quoting Edmunds. Earlier Dr Hastings had referred to the superior cabinet of Mr A. Edmunds which contained all the species referred to in his list and, "indeed nearly all the Worcestershire Lepidoptera". This cabinet has never been found, but it was said to contain even one *L. dispar,* Large Copper! In 1870, the Rev Horton (Horton, *loc. sit.*) late Chaplain to the Powick Lunatic Asylum had described *betulae* as scarce but only mentioned Trench Wood. Then in 1899 Edwards and Towndrow (Edwards, 1899) listed Eastnor, Birchwood and Cowleigh in the Malvern area. Finally, the Victoria History of the County of Worcester, 1901 gave Cowleigh and Wyre Forest.

I remained mystified by the lack of any evidence of *betulae* in the county after 1904. Neither the excellent cabinets at Malvern College, nor the 1934 Walter Saunders collection contained any specimens from Worcestershire. So I began to make enquiries with local lepidopterists; Mr Fred Fincher, the doyen of Worcestershire naturalists, Mr A. Harthan of Sheriffs Lench who had the last sightings of *A. crataegi* at Craycombe Hill in 1923 and probably the last *Carterocephalus palaemon* Pallas at the same place in 1952 (Green, 1982); Mr L. Bawden of Evesham who was extremely knowledgeable and for example knew where *N. polychrolos* bred until 1959 in woods to the south of Evesham.

Further afield there was Dr R.H. Clarke who had lived in the county for a number of years before moving to Stanton St John to commence his work on *Apatura iris* L.; and members of the Birmingham Natural History Society. Surprisingly no one had any new knowledge of *betulae* in Worcestershire, although Leslie Evans of the Birmingham NHS knew of one location for it at that time in Warwickshire at Austy Wood. Then Dr Michael Harper of Ledbury suggested that it might be worth contacting Mr Geoffrey A. Cole who had been chief administrator for Worcester hospitals in the 1940s, and by then retired to Slapton Ley in Devon. This enquiry provided the vital clue, because it transpired that he had found *betulae* to the east of Worcester in 1945/6. He was able to recall a particular wood where he had beaten larvae in 1946 to breed a series. Mr Cole also wrote of *Endromis versicolora* L. at Button Oak in Wyre Forest (now believed extinct there), of outings to the Cotswolds for *Maculinea arion* L., and of finding *Photedes fluxa* Hb. abundant at Trench Wood. Those were the days!

The search now began in earnest for *betulae,* but a further three years were to elapse before the first ovum was found in April 1970. The wood identified by Mr Cole was very thoroughly searched, also Trench Wood, but without success. A friend from Pershore, Mr Lionel Eden, became interested and joined in some of the searches, and his detailed local knowledge was most helpful, indeed he spotted the first egg. We had progressively extended the search area from the wood identified by Mr Cole, obtaining permission to search privately owned woods. One event I shall always remember was a challenge by an irate gamekeeper with shotgun pointed menacingly. My explanation that I was looking for butterfly eggs in February must have sounded ludicrous! It turned out that the owner had not advised him about my agreed visit. A pint in the local pub and a belated message from the owner made him a valued contact, moreover information from him led to the later discovery of another location for *betulae.* Gamekeepers can be very useful!

Through the 1970s the distribution of the species was slowly established by finding the ova. Searches elsewhere in the county, such as in the Malvern area and in Wyre Forest proved negative. I was given some useful advice by Dr Jeremy Thomas and Dr T.W.C. Tolman. The latter was studying the UK distribution, regional variations and the relationships with climatic conditions, and in particular he emphasised the requirements for a large wood to serve the function of a last retreat in adverse years. He also suggested more searches along streams having nearby blackthorn, especially if near to deciduous woods. From 1978, because of insufficient time to complete ova counts over the increasing known range of the colony, I decided to concentrate on exploring further afield. First I made surveys to identify possible places, then I carried out thorough searches in small sample areas. Although a few new places were discovered, the overall success rate was low, and it became clear that the females were extremely selective about where they flew and where they laid. No ova have been found above an altitude of 250 ft ASL. All the time though I was developing a sixth sense of understanding this elusive and fascinating species.

Eggs have only been found in three basic types of habitat. First on bushes in the age band 3 - 9 years which are growing in very sheltered locations a short distance out from the edge of a deciduous wood in which oak is the predominant tree. Such bushes are nearly always sucker growths from blackthorn thickets, and they are especially favoured it they are stunted because of nibbling by sheep, in which case they will also have strands of wool. Secondly, in hedgerows extending from such woods, and again any outlying young sucker blackthorns are preferred; however, importantly in this type of habitat, when the hedges are cut low, eggs are also laid in the forks of new spines on old wood. Thirdly, on waste ground not far from a wood where there are plenty of spaced bushes, usually a mixture of hawthorn and blackthorn, e.g. a perimeter dispersal point on a disused airfield.

Situations which have provided acceptable sheltered conditions are:

(1) slopes down to the edge of a wood
(2) small fields with tall hedges
(3) southerly-facing hedges fronted with ditches in which blackthorn suckers are growing and
(4) bridle tracks on or near to the perimeter of a wood which are oriented to have afternoon sunshine.

The eggs are laid mostly in forks at the base of short spines where the diameter is typically 2 - 3 mm. However, they are occasionally found on thicker main stems, and not always in a fork. The median height of eggs above ground level is about 24 inches; the distribution is skew, the lowest I have found was only two inches above the ground, the highest about 6ft. The majority are typically in the range 9 - 40 inches. Eggs are usually laid singly, occasionally a pair together, and sometimes even more. If one egg is found, it is well worth a thorough local search because a female is likely to have spent some time crawling in the vicinity. The search should extend below the height of summer grass because the butterflies may have crawled to low levels where they presumably find extra shelter, and with sunshine might have been induced to lay. The influence of wind on the height at which the ova are laid has not been studied, but it may be significant that in a low count in April 1990, Mr Endacott and Mr John Denning observed that more were at a higher level of 4 - 5 ft, and on lower bushes they tended to be in local clusters. Indeed, ova are only laid in very local areas and these will tend to change over the years as previously favoured blackthorn becomes too old. Once bushes begin to bear sloes, or if any noticeable amount of lichen develops on them, it is extremely unlikely that they will be used. In managed areas, most of these blackthorns will be removed in order to generate new growth, some will be left to grow on and produce thickets and shelter.The essential requirement for sunny but sheltered habitats cannot be over-emphasised. If new growths are vigorous and develop into tall single main stems with widely spaced long spines having a greyish appearance they are seldom used, it is better to prune them back and develop stockier bushes. Presumably the tall stems are more exposed to wind and are less attractive.

Searching for ova required considerable patience and perseverance. The weather needs to be calm, dry and not too cold, and without frost during the previous night. It helps if there have been a few days without rain, so that conditions underfoot are tolerable, especially on impervious clay. Eye fatigue can be a problem, and I have found that 20 minute searches with five minutes rests is a practical schedule. A 2½ inch reading glass is a valuable aid for scanning the bushes, a small mirror mounted on a rod for inspecting under branches, and a watchmaker's glass for confirming identification. The latter is very necessary because bird droppings can be misleading. Another regular occurrence in typical fork locations is a pair of elongated white ova which are not *betulae* ova. It is normally mid November before leaf fall is sufficiently complete to permit a thorough search, and after 20th April leaf break causes difficulties. The date for commencement of hatching depends on the severity of the winter, the temperatures in April and the start of leaf break; in an average year I consider that date is about 20th April and the majority hatch during the period 24th April to 5th May. The winters and early springs of 1986, '87, '88 and '90 contrasted markedly and permitted observation of the variations in hatching on account of the climatic factor. The winter of 1986 was very cold, and in Worcestershire the mean temperature in February was 5°C below normal, the coldest since 1947, March continued cold and April was the coldest since 1922; I found that only a few per cent of eggs had hatched by 26th April. In marked contrast the winter of 1988 was exceptionally mild and sunny, March and April continued mild and by 19th April approximately 30% of the eggs had already hatched. The winter and spring of 1990 were even more exceptionally warm and sunny and approximately 40% of the observed ova had hatched or were hatching by 13th April. 1987 was very cold in January and March, but April was the warmest since 1911 with a remarkable hot dry sunny spell commencing on the 13th; a search on 22nd April showed that about 10% of the eggs had hatched, and those were mainly on bushes in particularly warm sunny positions.

Occasionally in late April one finds an ovum where the larva has started to nibble the small hole in the crown through which it will emerge. The shiny black head shows up well as it moves round slowly enlarging the hole, and it is interesting to observe progress with a watchmaker's glass. Eventually it emerges quite quickly and moves directly to the nearest bud, typically not more than an inch away. The body is then almost colourless, hairy and with a slight greyish tint. The larva crawls up the side of the bud and then disappears between a slightly opened outer leaf and the unopened centre; there it commences to eat and bore into the bud, turning to a green colour as it does so.

Having located the favoured areas for ovipositing, these offer the best prospects of seeing the adults and over 20 years enough observations have been made from which tentative conclusions about their habits can be drawn. Typically, given a good day, it is not worth starting searches until 11 am BST and I consider that a minimum shade temperature of 18°C with sunshine and little or no wind are required before there is any sign of adult activity. The best prospects are during the next 2½ hours, and around 4 pm is the time to be on the look-out for females on leisurely return flights to the wood, sometimes 10 - 30 ft above the ground. Unless it is an exceptionally warm sunny day, 4.30 pm marks the end of the day's activities. Typical wingspans of Worcestershire adults are male 37mm and female 41mm.

I am not sure when they first begin to emerge. Dr Thomas (Thomas, 1989) considered that this was "from late July to mid-August depending on May to July temperatures" and added that ". . . the butterflies are seldom seen for the first two weeks . . ." The earliest date I know of was 5th August, when by chance a crippled female was spotted near the ground. In a year of typical average climatic conditions, 20th August appears to be the first practical date to possibly see an adult flying and 25th August for a good chance. The best prospects are during the first ten days of September, and the last worn adults may be encountered in the first week of October. (Even as late as 12th in 1980.) Figure 1 shows daily maximum and minimum temperatures from 1st August to early October in 1987 when overall weather conditions were near to long term averages during the flight season. Bearing in mind that maximum daily temperatures are only reached for a short time, there is a marked limitation on account of the temperature and sunshine factors when flying might take place, and on any day there is a limited period when the threshold temperature is exceeded, this tending to decrease as the days shorten.

Males are rarely seen low down, where the overwhelming majority are females. There is a better prospect of seeing a male by using high power binoculars to search amongst the upper branches of oak and ash trees which are in an especially sheltered location with a plentiful supply of aphid honeydew. Dr Thomas has contended that adults congregate on "master trees", and that three examples he knows of in the UK are large ashes towering above the surrounding canopy (Thomas, *loc. cit.*). I have located a few trees which give support to the master tree concept, but they are oaks, and the congregations are not necessarily on the highest branches. A typical location can be defined by a high stand of old blackthorn on the south facing edge of a wood with taller oak trees behind, and the particular branch will be positioned in a kind of natural recess amongst surrounding branches. It is the type of location where *Quercasia quercus* L. will congregate, and the occasional *Ladoga camilla* L. might be seen earlier in July, and in Buckinghamshire one might find *S. pruni* L. I now use 16 x 50mm binoculars preferably with a steadying support, which are necessary in order to be sure about identification, because *quercus* is common in the area and may be encountered well into September — I once saw one as late as 23rd in 1972. A telescope could be used to give higher magnification at the expense of a reduced field of view.

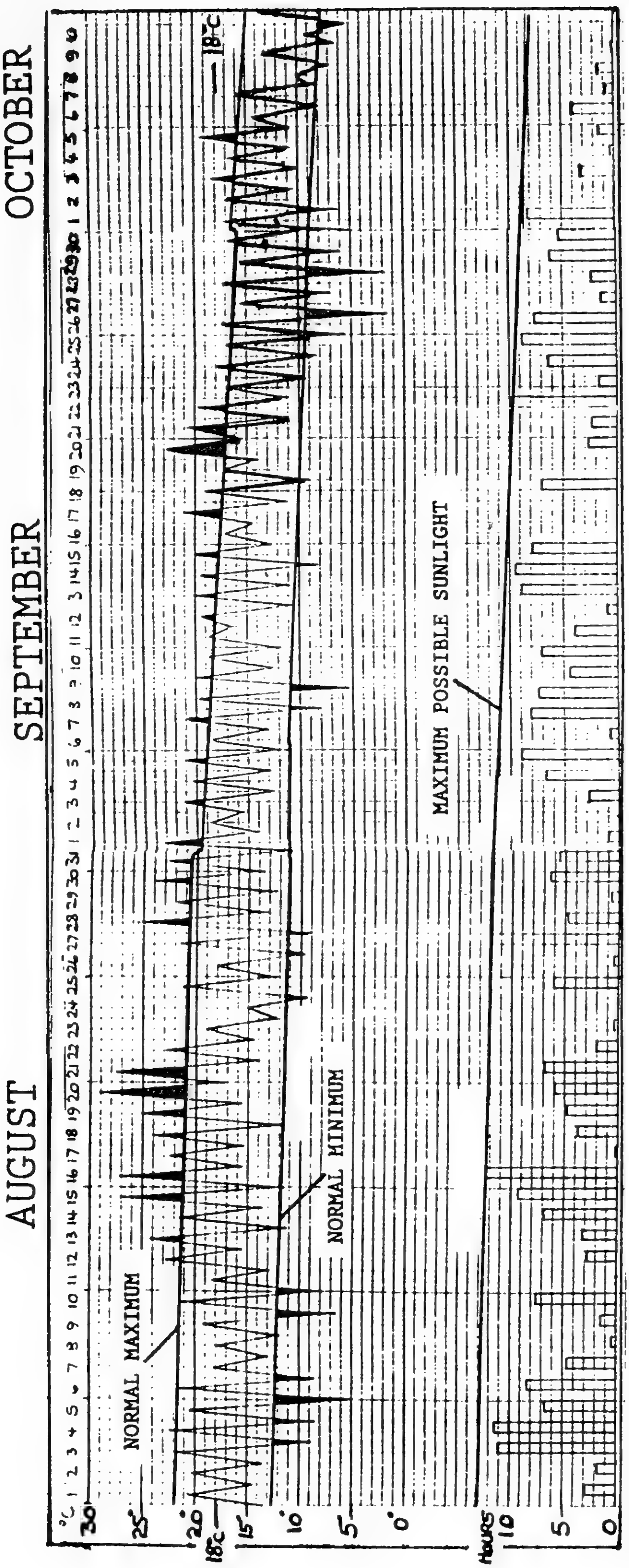

Fig. 1. Diurnal temperatures and sunshine during the adult season of *Thecla betulae* L. in Worcestershire, 1987 (weather near long term average).

Searches for non-flying adults in the trees can start from about 10th August, the initial sighting will usually be one basking in the morning sunshine. If crawling, any sighting is likely to be transient and frustrating because of the foliage. I suspect that several may be present when one is seen. Identification of favoured trees in a large area is difficult, but working from ova density distribution charts, the search areas can be narrowed down. It is a very time-consuming procedure, but does offer the prospect of seeing the elusive males. At ground level I did once find one feeding on fleabane about 25 yards from the edge of a wood, and last year on 15th August I had the novel experience of intercepting one flying in purposeful manner about 2 ft above the ground in the middle of a fairly large field, going in a northerly direction towards a small area which is regularly good for ova. I wondered whether it was responding to some signal from a freshly emerged female. No one seems to have explained how adults emerging over a large area manage to congregate together, or is it only happening in small groups? There is plenty of scope for research, perhaps even with some kind of monitoring by tagging individuals with novel microelectric devices? There is much more to be discovered about the life and habits of *betulae*.

Released bred specimens invariably fly upwards to the high tree tops and a few observations of freshly emerged wild adults indicates the same behaviour. Consider the case of an eventual adult from an egg laid in a hedgerow at a considerable distance from a wood. Suppose it is a female. The chances of finding a mate in the nearest tree will depend on the distance from the wood, as the density of eggs declines with distance. In a good year it could be lucky and find a mate, and in due course it could fly either nearer to or further from the "headquarters" wood. If habitat conditions were still favourable in the outward direction, then the range of the colony would tend to increase and perhaps reach and colonise another wood. If the female did not find a mate it would presumably fly to other trees, and might eventually get back to the "headquarters" wood. Thus the colony will tend to expand or contract with good or bad years. Destruction or severe cutting of long lengths of hedgerows on a route that has been used by successive generations seems to stop use of that route, moreover ploughing of an adjacent field is likely to lead to the same result. Repeated severe machine cutting of hedges and changes of land use from livestock to cereals is leading to fragmentation of the *betulae* colony in Worcestershire. In the past, despite the absence of records, the species must surely have been well established over a much wider area before the progressive destruction and damage of the undisturbed countryside by mechanisation and by use of chemicals in agriculture.

Turning to the habits of females, relatively speaking these are much easier to find once they begin their ovipositing flights from late August. In the first hour of morning activity it is always worth pausing to scan any large patches of bramble in the hope of very occasionally seeing one on a late flower or possibly on a ripe berry, just as in the case of *Strymonidia*

W-album L. They descend from their high overnight roosts to the blackthorn thickets and bushes, and spend the great majority of their active time simply crawling slowly along the branches, twisting and turning, often with abdomen bent downwards, but the ovipositing rate is slow. I once watched a female for 40 minutes before it deposited the first egg, although for most of that time the abdomen was positioned to do so. When they do fly it is often to a new location at least several yards away, after which the crawling routine will recommence. Sometimes a search of an outlying small bush will reveal a female, and they are easily approached for photographs. Another technique is to be on the look-out for one having a periodic rest on a hedgerow, where they like to bask with wings open. My wife has an uncanny knack of spotting such females. I do better scanning a length of hedgerow from some distance out using the high power binoculars — this in known ovipositing areas. For longer outward flights, they fly quickly in a characteristic manner, often quite high up. However, the actual time in flight is a very small part of their activity, explaining why they are so seldom seen by casual observers.

I have made an interesting discovery that in September a field maple tree in a tall hedge appears to serve as a staging post for females on outward flights. They arrive at a height of about 15 ft having flown 50 - 80 yards across a field on a slowly descending flight path from the tree tops of the wood. The maple leaves are turning golden brown and offer good camouflage plus honeydew. I have seen as many as five females at a time in this tree, some staying for 20 minutes before moving off individually in either direction along the top of the hedge to reach favoured ovipositing areas.

Table 1 shows sample data first used when seeking correlations between ova counts and the climatic factors throughout the life cycle. The climatic data was taken from recording stations in the Pershore area, the nearest to a particular part of the colony where, with the exception of 1976, I had comparable counts from 1970 to 1982, and where there had been a continuity of suitable habitat. The possibility of a significant local variation on account of a microclimate factor is considered small. The ova count basis was consistent, two people searching for two hours in a defined area; independent counts were carried out on occasions to verify that the same or very near same score was obtained. Comparison checks between late autumn and April showed no loss of ova. Total ova counts for the whole colony were much higher, at least several hundred in good years, but records were insufficiently complete to permit statistical analyses over a long period. Another problem was habitat destruction in some areas through agricultural practices, indeed records for the area covered by Table 1 were invalidated for that reason after 1982. These analyses produced a significant correlation between ova count in a season and the lowest monthly mean minimum temperature during the previous winter.

Simple statistical analyses were applied to the data in Table 1 because the ova counts were in general so low, and a ranking method determining

Table 1. Ova Counts *vs* Climatic Conditions 1969 - 1982

Climatic Factor / Year	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	Possible effect on Populations
Winter severity Mean min temp °C															
Previous December	1.5	1.4	2.3	4.7	3.1	2.9	6.3	3.0	−0.3	4.2	1.9	3.4	3.5	−2.9	1. Ova condition in spring 2. Reduction of predators
January	3.7	1.7	2.3	1.6	2.5	3.6	4.5	3.6	0	1.0	−3.4	−0.6	2.4	−0.5	
February	−1.4	0.6	1.5	2.6	1.4	2.8	1.7	2.0	2.9	0.2	−3.4	3.3	0.1	2.6	
Late spring warmth Mean daily temp °C May	11.9	13.7	11.6	10.6	11.8	11.0	10.2	12.2	10.4	12.1	10.4	11.7	11.7	12.3	Early development of larvae
August warmth and sunshine Mean max temp °C	21.1	20.8	20.5	20.3	22.2	20.5	25.0	24.2	19.6	19.8	19.7	20.8	22.5	20.5	1. Adult emergence 2. Mating 3. Adult food supply
Mean daily sunshine hours	4.69	5.45	4.30	5.22	5.74	5.92	7.06	7.91	5.10	4.22	5.49	4.85	6.50	4.67	
September warmth and sunshine Mean max temp °C	17.9	19.4	19.8	16.4	19.6	16.1	18.3	17.4	17.4	18.9	18.3	19.0	19.4	19.1	Ovipositing rates
Mean daily sunshine hours	3.05	4.85	5.95	3.90	4.93	4.65	4.91	3.35	3.76	5.57	5.34	5.01	5.50	4.59	
Annual sunshine total hours	15.15	15.37	14.82	12.92	15.73	14.89	16.13	15.62	14.64	14.05	14.45	14.37	13.06	13.80	
Ova count in 4 man-hours	30+	16	1	7	0	6	No check	0	5	11	27	7	27	35	
Year — spring	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	

NB: Long period averages at Pershore* Sunshine 1460 hours, Rainfall 644.1mm.

Spearmans Rank Correlation Coefficient showed the high correlation between ova count and previous winter severity, Students' t was 4.078 for 11 degrees of freedom and x^2 was 20.67. (P) was very slightly above the 5% level. The same approach for Table 2, with much higher ova counts showed even higher probability. Analyses then continued in a search for a second order variation on account of temperature and sunshine during the summer months, as proposed by others (Thomas, 1989 and Archer-Lock, 1979).

Table 2 shows data for the period 1985 - 1990 for another area of the colony where ova counts are much higher, and again the correlation between ova counts and previous winter severity is clear. A logical explanation is that losses to predators during subsequent phases of the life cycle are reduced because their numbers are much less after a hard winter; also ova will be in a better condition for hatching in late April and adult population should be higher with potential for laying more ova in late August and September, subject of course to any second order influence on account of other climatic factors during spring and summer. The adverse effect of severe winters on bird populations is well-known, and Dr Thomas noted from his research work on a Surrey colony that the highest percentage loss in a life stage occurred during the pupal stage through shrews, mice and carabids, accounting for about two-thirds of pupae; the importance of losses in the pupal stage was first proposed by Dr Tolman (Tolman, pers. comm.), who also noted the probable connection with the marked reduction in numbers of avian predators (especially owls) on voles and mice.

Table 2. Ova Counts *vs* winter severity 1985-1990

Monthly Mean Min Temp °C / Year	1985	1986	1987	1988	1989	1990
Previous December	3.2	5.3	4.7	3.8	6.6	3.5
January	−0.8	2.0	−1.1	4.0	4.1	5.1
February	−0.8	−2.8	1.9	2.8	3.7	4.95
Ova Count in following spring	35	93	50+	27	30	?
	1986	1987	1988	1989	1990	1991

It is appreciated that use of the available calendar monthly data could mask a very cold mid-month to mid-month period, with compensating warmer temperatures during the other two half months. However, other bases for indicating winter severity yield similar conclusions that there is a correlation with subsequent ova counts, although not as high as when the calendar mean minimum temperature statistic is used, e.g. winters of 1979 and 1982. If this hypothesis is correct the present 1990 third consecutive warm winter in Worcesetershire must be viewed with some concern for *betulae*. The UK distribution of the species suggests that overall higher annual temperatures such as in South Devon, are important and result in much higher populations (Archer-Lock, pers. comm and 1979). In Devon and in West Wales rainfall is much higher than in Worcestershire, and again winter temperatures are higher. Only in the East Midlands do climatic conditions approximate to those in central Worcestershire.

When the first ova were found in 1970, ornithological and botanical interests had already prompted Mr Cecil Lambourne of the Worcestershire Nature Conservation Trust (WNCT) to approach Mr Chris Fuller of the West Midlands Region of the NCC with the proposal that SSSI designation would be appropriate for the area; the discovery of *betulae* accelerated action and by 1971 this had been obtained. In retrospect this was important and the management agreement specifying acceptable farming practices compatible with the breeding cycle of the butterfly made a valuable contribution to subsequent conservation. In 1976 Mr Fuller was succeeded by Mr Noel King who had previously been in the NCC Regional Office which was responsible for parts of Bernwood Forest where both *betulae* and *pruni* were present, and he quickly became interested in the Worcestershire site. When I first took him there he immediately remarked on the close similarity of soil conditions and flora to those in Bernwood Forest. Subsequently he has made excellent contributions to enhance the goodwill and co-operation of landowners and farmers, and later Dr John Birks joined him to further promote those activities, indeed the contribution of NCC could hardly have been better. Management methods have been and continue to be refined and the SSSI area now provides a headquarters for *betulae* where, in terms of habitat requirements, the situation appears well safeguarded. Risks in the foreseeable future appear to rest mainly with possible commercial development of relatively poor agricultural land; large financial organisations have influence and SSSIs are not sacrosanct. The current nationally reported proposed large scale housing development around the village of Hanbury, which is the real life basis for the village of "Ambridge" in the well-known radio programme "The Archers" is an example, and that area has had and may still support a small population of *betulae*. This central area of Worcestershire is close to the M5 and conveniently near to the West Midlands conurbation, so such developments are always a possibility. I have no illusions that the presence of a rare butterfly would have any influence on developers! Another problem has arisen in the last few years with trespassers on the strictly private land. There has, perhaps inevitably, been some leakage of information about the colony, and butterfly enthusiasts do appear. Some unfortunately have undesirable habits such as leaving gates open at critical times for sheep breeding experiments, and this causes extreme annoyance to farmers, conceivably to a point where the presence of *betulae* might be to farmers, conceivably to a point where the presence of *betulae* might be regarded as undesirable by a farmer. Others take ova if they can find them, although tracks in rough ground quickly show that trespassers have been there. The risk does not lie with the relatively small loss of ova, it is the impact on the essential goodwill of owners and tenant farmers. WNCT have appealed to anyone who has learnt about the site to keep away. In the future it is envisaged that arrangements can be made for those with a genuine interest to see the work that has been done.

SSSI management is directed to ensure that in future years there will always be adequate areas of developing blackthorn in the 3 - 9 year old category in sheltered areas. Some older blackthorn is left to grow on to thickets, from which outlying suckers will appear, often in sufficiently sheltered positions to provide new ovipositing sites, other older thickets are deliberately removed. Tall hedges are periodically lowered in sections, and any longer hedges required to be cut regularly only receive attention in the period late July to mid August, and then often in sections on a two or three year cycle, this to minimise any loss of stock. At the same time careful consideration is always given to the requirements of the farmers; for example one farmer had a typical clause in his tenancy agreement about "delapidation" of land and property, whereby he could be liable for allowing blackthorn to spread to an extent which invoked the clause, thereby incurring a substantial financial penalty! NCC legal branch resolved that problem for him.

The Malvern Sub-Regional office of NCC West Midlands have already financially supported important lepidoptera surveys, and if the predicted "greenhouse effect" of higher temperatures occurs, the counties of Herefordshire, Worcestershire and Gloucestershire which they cover, offer good potential for further research. To date they have sponsored a three year study of *A. adippe* D. & S. on the Malvern Hills, West Worcestershire and Herefordshire Commons, by Matthew Oates, following his work on that species in Cumbria. This has confirmed and refined the dynamic habitat management methods evolved since the 1970s by the Malvern Hills Conservators and we now have in local areas the highest density colonies in the UK. It should be noted that the Conservators have publicly stated that within their legal powers granted by Parliament they will not hesitate to prosecute anyone found taking specimens of this Red Book species on their land. Maintenance support grants have benefitted the SSSI within the *betulae* colony. In the Gloucestershire Cotswolds, Matthew Oates was supported for studies of *H. lucina* L., revealing a very satisfactory situation albeit in many very local colonies, and currently under the enthusiastic direction of Mike Wilkinson assessment of habitats and lycaenidae are proceeding. In Worcestershire given higher temperatures one can envisage research and controlled re-introduction experiments with species such as *S. pruni* and *N. polychloros,* both of which might conceivably still survive; *A.*

crataegi and *C. palaemon* are other possible candidates. We know where *A. iris* L. has bred and can breed in the county and I have sporadic definite records over the last 40 years, but perhaps surprisingly nothing since 1986.

In conclusion on *betulae*, I am reasonably optimistic about future prospects. I regard it as a survivor from the Royal Feckenham Forest of the Middle Ages and probably since the sub-boreal period after the last ice age. It would indeed be a sad day if it finally became extinct through man destroying its habitat after such progress has been made in understanding why it has survived for so long in our isolated Worcestershire colony.

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References

Archer-Lock,A., 1979. *The Field,* 6 June.

Edwards, W. and Towndrow, R.F., 1899. *The butterflies and moths of Malvern.*

Green, J.E., 1982. *A practical guide to the butterflies of Worcestershire.* Worcs. Nature Conservation Trust.

Green, J.E., 1985. Factors leading to a local abundance of *Eurodryas aurinia* Rott. (Marsh Fritillary) in Worcestershire. *Entomologist's Rec. J. Var.* **97**: 188-189.

Hastings, C.M.D., 1834. *Illustrations of the natural history of Worcestershire.*

Horton, E., 1870. The entomology of the Malvern district. *Trans. Malvern Field Club.* Pt. III.

Thomas, J.A., 1989 in Emmet, A.M. & Heath, J. *The moths and butterflies of Great Britain and Ireland,* **7** (I).

A Small Tortoiseshell "courting" a Peacock butterfly?

I was most interested to read Mr A.A. Allen's description of the courtship display between a Small Tortoiseshell and a Peacock butterfly (*(Ent. Rec.* **102**: 198) as I witnessed a similar event during the spring of 1984 on the edge of a meadow at Middleton, Freshwater, Isle of Wight. In this case the sexes were the same and I wonder whether such a courtship display is governed by a sex-pheremone. This case was described in the *Entomologist's Gazette* **37**: 82.— S.A. KNILL-JONES, Roundstone, 2 School Green Road, Freshwater, Isle of Wight.

THE DISTRIBUTION OF THE GENERA *TRINOPHYLUM* BATES, *GRACILIA* SERV., *AROMIA* SERV., AND *HYLOTRUPES* SERV. (COL. : CERAMBYCIDAE) IN THE BRITISH ISLES.

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INTRODUCTION

THESE four beetles are in strong contrast to each other — in size, appearance, habits and occurrence. Two are serious pests, *Gracilia* and *Hylotrupes*; probably more has been written about the costly infestation and ravages caused by the latter than of any European Longhorn. Of the remaining two, *Aromia*, the Musk Beetle, is one of the largest and arguably the most beautiful of our indigenous Cerambycids; the fourth, *Trinophylum*, is a comparative newcomer from the Indian sub-continent, originally found here by the late J.W. Saunt in 1946. There are no published records to indicate when first it established itself here — presumably it transferred itself from imported host logs. On the other hand, there is the possibility that this rather dull looking beetle has been with us for a considerably longer period and for some unaccountable reason completely overlooked, as was indeed the case with two other British genera, *Tetropium* and *Arhopalus* (*antea* **102**: 55).

Balfour-Brownean letters for the counties and vice-counties are used (Kaufmann, 1989); those italicised indicate widespread localities and bracketed ones are dubious records which require confirmation. A dagger (†) denotes an importation or a fortuitous example.

Trinophylum cribratum Bates

Attention to the presence of this Indian species in Britain and at that time still unidentified was indicated by Kaufmann (1947b), who was presented with the first four specimens found in English oak being seasoned in a Cowes boatyard. These beetles were in turn sent to a Longhorn collector who redescribed them (Gilmour, 1948). More examples were subsequently taken from the same site and have since been distributed among various national and international collections.

A year later *Trinophylum* turned up elsewhere, too late, unfortunately, to allow Duffy, in his Handbook (1952) and his Monograph (1953a), to make other than short comments on the history and distribution of the beetle in this country; nonetheless, Fraser's (1948) note on a new occurrence prompted him to undertake a long and thorough investigation, the fruits of which are encapsulated in a paper (1953b) which appeared after the publication of the Monograph.

It is impossible to state with any authority for how long *Trinophylum* has chosen England as a second home, but using the materials he had studied as a guide, Duffy estimated that it had been with us for some seven to ten years prior to its discovery by Mr Saunt, which suggests that the species was introduced here well before the Second World War. It is now listed as an established indigenous beetle.

ENGLAND: HT IW L MX SR WO

The larval brood trees in the Far East are Indian oaks and probably other native hardwoods; here, it is in the English and Turkey oak that *Trinophylum* is principally found, particularly, it seems, in well-seasoned logs often already heavily infested with the larvae of *Phymatodes testaceus*. However, it soon became apparent that *T. cribratum* was far from confined solely to oaks; the larva is amphixylophagous: it has been found attacking and spoiling hard- and softwood growths, both those being seasoned at the timber merchants, and in some cases standing trees, namely:- apple, ash, beech, birch, hornbeam, larch, oak, pear, plane, *Pyracantha* (rather oddly), Scots pine and walnut.

Metamorphosis takes a year, as it does in India, the adults emerging usually in mid-summer and surviving until as late as September. Diurnally lethargic, the beetle is crepuscular, quite a strong flier, and on more than one occasion attracted to household lights. There are indications that this addition to our fauna is being over-collected.

Damage to heavily infested logs in the merchants' yards has resulted in the timber being sawn up and dispatched to various parts of the country to be disposed of as firewood; this is confirmed by the capture of, for instance, the Middlesex and Worcestershire examples, some two dozen in all, which were found in log piles destined to be chopped and burnt. *Sic transit ...habitatio coleopterorum*.

Gracilia minuta F.

Another very small injurious beetle of destructive habits similar to those of *Nathrius* with which it not infrequently infests the same items of indoor and outdoor finished goods and products.

It is recorded from many parts of the country, ranging from the extreme south-west to East Anglia, the Midlands and as far north as Durham and Cumberland. There is a Welsh entry and one of an importation into Ireland.

ENGLAND: *BK* (BX) CB CH CU DM DT DY EC *EK* EN ES EX EY† GE GW HF HT IW *L* LR *MX* MY NM NS NW OX SD SE *SH SL SR* ST SY WC† WK WN WO WS WW WY

WALES: GM

IRELAND: WX†

In the wild the larva develops in the dry dead twigs and slender branches of birch, brambles, buckthorn, *Ceratonia siliqua*, dogrose, hawthorn, hazel, horsechestnut, loganberry stems, oak, osiers, raspberry canes and willow. It has also been found in decayed twigs dragged into their nest by the wood ant, *Formica rufa*.

The larva occurs as well in manufactured merchandise such as carboys, garden furniture (which can be reduced to dust), flour casks, hurdles, old basket ware and wickerwork, trellis and even discarded shoe leather.

Metamorphosis normally takes a year to complete, although it may sometimes extend to two years; pupation occurs in March and April, the imagines emerging in May.

The adults may be swept or beaten from then onwards until August off blackthorn, elm, hazel, laurel, lime, osiers, old posts and dead hedgerows. Modern records are becoming increasingly scarce.

Hylotrupes bajulus L.

This very injurious beetle, popularly known as the House Longhorn, thought to have been introduced here from the continent of Africa, has occurred in numbers in the metropolitan area of London, some localities in the Home Counties and a few areas restricted to the south coast. Records of isolated captures, often of single specimens, up and down the country but not specifically of infestations also exist, many dating from the late 18th century onwards (Martyn, 1792; Marsham, 1802, Samouelle, 1819; Curtis, 1830; Stephens, 1831, 1839; Kirby & Spence, 1867 *et. al.*). The Fowlerian collection contains an example caught in 1795 (Fowler, 1890). The latest infestations in the 1980s have been those at the Royal Naval Hospital, Greenwich and in a church in the same borough.

Whatever its origins, autochthonous — there are one or two published records suggestive of this (Champion, 1917; Duffy, 1953) — or synanthropic, *Hylotrupes* is now confirmed as a truly domestic Cerambycid, responsible for sporadic outbreaks, generally in the upper roof structures of private and public buildings, where, if undetected and left undisturbed over the years, it causes immense damage necessitating in many cases the wholesale replacement of beams, joists and rafters.

The question of autochthonism and synanthropy was discussed in some detail (Kaufmann, 1947a, 1947b): contrary to the opinion then expressed, the latter now accepts that this pest has successfully colonised and established it self as a native household species.

ENGLAND: BK† BX† CB† EK† EN ES EX GW HT IW† L MX† SE SH SR WK† WO WX WY†

WALES: GM

IRELAND: (RO) WI†. Ulster: no further data

Insofar as buildings in this country are concerned the larvae develop in very dry, well-seasoned wood, principally fir, Scots pine and spruce. House infestations are difficult to detect initially as the larvae reduce first the sapwood and then the heartwood to tightly-packed frass, tunnelling to and fro, leaving externally an apparently whole thin shell which will only eventually either break open under the pressure of the frass or rupture round the bolt holes of the emerging beetles. Sometimes a blistering of the wood surfaces manifests the depredations of the larvae within. The rasping sound the larva makes as it gnaws its way inside the wood is distinctly audible and is sometimes indicative of its presence. It is only on such occasions that the enormous damage to the timbers becomes evident.

Larval development is greatly influenced by seasonal variations and the temperature inside the roof space of the buildings attacked. In consequence the duration of the instar stages varies, depending upon these and other factors, such as the dryness of the wood or the distance the larvae have travelled away from a source of warmth, such as the incorporated brickwork of chimney stacks.

Normally, the life cycle covers three to four years; in less conducive circumstances it may stretch to six years or more: there are exceptional instances recorded in which metamorphosis has lasted more than two and even three decades (Bayford, 1938; Hickin, 1987).

The larva is parasitised by these Hymenoptera:—
Caenocryptus minator Grav., *Cryptus dianae* Grav., *C. seticornis* Ratz., *Doryctes leucogaster* Nees, *Ephialtes manifestator* L., *E. tuberculatus* Fourc. and by *Rhoptrocentrus* species.

Abroad, it is attacked by the predatory beetle, *Opilo domesticus* L., whose introduction to this country might perhaps be one of several advocated methods to control *Hylotrupes*.

Pupation usually takes place in May, but is variable, being sometimes delayed until the autumn or even the winter months; in ideal conditions the perfect insect emerges during June and July.

The imaginal state, during which no food is partaken (Klausnitzer & Sander, 1981), lasts less than a month. Pairing takes place within this period, either on the infected timbers or even in the multi-tunnelled wood itself.

In hot weather *Hylotrupes* becomes very active, indulging in vigorous short flights. It is then that the beetle, it is suggested, escapes in search of a new, suitable pabulum in a neighbouring building; this may lead to another infestation. It is possible, too, that on such occasions it will attack other acceptable pabula of a coniferous nature within its flight path. In cases where the completed life cycle has been delayed by indoor temperature changes or climatic considerations, imagines have been found until as late as September.

Besides its pernicious and insiduous presence in roof spaces and attics, the beetle has been recorded from telegraph poles, fencing, posts and rails, dead tree stumps, orchard trees (Fowler, 1890), packing cases (Duffy, 1952) and orange boxes — known sources of importation into Britain, floorboards, shelving, worked furniture and fittings. There are also records of both larvae and adults biting through lead pipes, cables and metal sheeting protecting wooden frames (Westwood, 1839; Dallas, 1859, Laing, 1919, 1920; Duffy, 1953).

Excellent colour photographs by Dr S. Cymorek showing the life history of *H. bajulus* from egg to fully developed beetles *in copula* are included in Dr Hickin's 1987 booklet and the Ministry of Technology pamphlet (1969) contains various photographs of the extensive damage inflicted on house timbers by this most serious pest.

Aromia moschata L.

Generally widespread throughout the British Islands but declining in numbers, except possibly in certain counties. This may be due to scrub clearance and river bank maintenance.

ENGLAND: *BD* BK BX *CB CH* CU DM *DT* DY EC *EK EN* ES EX EY *GE* (GW) *HF HT* HU IW *L* LN *LR LS* MM *MX* MY NH *NM* NS NW NY *OX* SD SE *SH SL* SN *SR* ST SY WC *WK* WL WO WS WW WX WY
WALES: CR DB *GM* MN
SCOTLAND: AS DF HD I KF LA† PN
IRELAND: DO NG NK SK WC

Of the many colour variations which have been described only the undermentioned have been published in this country:—

v. *cuprata* Reitt. ENGLAND: HT
v. *nigrocyanea* Reitt. ENGLAND: SH
v. *versicolorea* Donis. ENGLAND: IW

The Musk Beetle, one of our biggest Cerambycids, usually of an iridescent brassy green coloration, is depicted in every popular work on insects in general. It is not regarded as an economic pest in this country despite the extensive damage it does to a variety of commercially unviable trees; these fortunately do not include the "cricket bat" willow. Nevertheless, *Aromia* can ruin young trees and plantations growing in wetlands and water meadows: it is by no means confined to older dead timber, preferring, as it does, young healthy growths rather than established trees.

The larva, which will eventually riddle its host plants, has been found in alder, Bedford willow, birch, crack willow, great maple, grey sallow (greatly favoured), lime, Lombardy poplar, osier willow, pussy willow and white willow.

Hymenopterous parasites which attack *A. moschata* include *Deuteroxorides albitarsus* Grav., *Ephialtes tuberculatus* Fourc., *E. messor* Grav., *Ischnocerus filicornis* Krb., *I. rusticus* Grav., *Perithous divinator* Rossi, *P. mediator* Grav., *Pyracmon austriacus* Tschek, *Xorides praecatorius* F., and possibly *Pimpla lignicola* Ratz. The Green Woodpecker is also a known predator.

Metamorphosis takes several years to complete — from three to four years or even longer — being perhaps prolonged by the flooding during the winter months of marshy land supporting sallows and willows; the larvae are able to endure and surmount an underwater existence lasting many weeks (Duffy, 1953).

Pupation occurs in spring and early summer, the adults emerging from May until September, the main eclosion taking place from June to August. In hot sunny weather the imagines become very active, taking to flight, though never to any great height, and will settle on tree trunks to sun themselves. They also enjoy the nectar of *Angelica,* chervil, cow parsley, ragweed, Shasta daisy and *Spiraea.* The beetle is sometimes attracted to entomologists' "sugar".

As its name suggests, *Aromia* emits a strong scent, reminiscent of attar of roses, and it stridulates when provoked or picked up.

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References

Aurivillius, C., 1912. Cerambycidae *in* Junk, W.A. & Schenkling, S., *Coleopterorum Catalogus,* **39**: 129-130; 306-308; 339-341.

Bayford, E.G., 1938. Retarded development: *Hylotrupes bajulus* L., *Naturalist,* 1938: 254-256.

Bílý, S. & Mehl, O., 1989. Longhorn Beetles (Coleoptera: Cerambycidae) of Fennoscandia and Denmark, *Fauna Entom. Scand.,* **22.** Leiden.

Champion, G.C., 1917. *Pediacus depressus* Herbst, a species frequenting pines in the Woking district, *Entomologist's mon. Mag.,* **53**: 173-174.

Cox, H.E., 1874. *A handbook of the Coleoptera of Great Britain and Ireland,* **2**. London.

Curtis, J., 1830. *British Entomology,* **7**. London.

— , 1838. *Ibid.,* **15**. London.

— , 1839. *Ibid.,* **16**. London.

Dallas, W.S., 1857. *Elements of Entomology.* London.

Demelt, C. von, 1966. *Die Tierwelt Deutschlands,* **52**: 2, Bockkäfer oder Cerambycidae, **1**. Jena.

Donisthorpe, H. St.J., K., 1898. Notes of the British Longicornes, *Entomologist's Rec. J. Var.,* **10**: 219-231.

Donovan, E., 1794. *The natural history of British Insects,* **3**. London.

— , 1813. *Ibid.,* **16**. London.

Duffy, E.A.J., 1945. Observations on *Aromia moschata,* L. (Col.: Cerambycidae), *Entomologists's mon. Mag.,* **81**: 87-88.

— , 1949. A contribution towards the biology of *Aromia moschata* L., the "Musk" Beetle, *Proc. S. Lond. ent. nat. Hist. Soc.,* 1947-1948: 82-110, 2 pls., 16 figs.

— , 1952. *Handbooks for the identification of British Insects.* Coleoptera: Cerambycidae. London.

— , 1953a. *A monograph of the immature stages of British and imported Timber Beetles (*Cerambicydae*).* London.

— , 1953b. *Trinophylum cribratum* Bates (Col.: Cerambycidae). A new Indian pest of British timber yards, *Entomologist's Gaz.,* **4**: 254-264, 3 pl., 6 figs.

Fowler, W.W., 1890. *The Coleoptera of the British Islands,* **4**. London.
— and Donisthorpe, H. St.J. K., 1913. *Ibid.,* **6** (Supplement). London.
Fraser, M.G., 1948. Beetles in household logs in Middlesex. *Entomologist's mon. Mag.,* **84**: 47.
Gilmour, E.F., 1948. *Trinophylum cribratum* Bates (Col.: Cerambyciudae) new to Britain, *Entomologist's mon. Mag.,* **84**: 12-16, 2 figs.
Halbert, J.N., 1898. Beetles collected at Mote Park, Mount Talbot and Clonbrock, *Irish Nat.,* **7**: 90-95.
Hickin, N.E., 1947. The status of *Hylotrupes bajulus* L. (Col.: Cerambycidae) in Surrey, *Entomologist's mon. Mag.,* **83**: 132.
— , 1987. *The Longhorn Beetles of the British Isles.* Princes Risborough.
Jarvis, C.M., 1947. Further notes on the occurrence of *Hylotrupes bajulus* L. (Col.: Cerambycidae) in the British Isles, *Entomologist's mon. Mag.,* **83**: 150-151.
Johnson, W.F. & Halbert, J.N., 1902. A list of the Beetles of Ireland, *Proc. roy. Ir. Acad.,* **3**: 537-827.
Joy, N.H., 1932. *A practical handbook of British Beetles,* 2 vols. London.
Kaufmann, R.R. Uhthoff-, 1947a. Notes on the occurrence of *Hylotrupes bajulus* L. (Col.: Cerambycidae) in the British Isles, *Entomologist's mon. Mag.,* **83**: 37-40.
— , 1947b. Supplementary notes on the status of *Hylotrupes bajulus* L. (Col.: Cerambycidae) in Great Britain, *Entomologist's mon. Mag.,* **83**: 215-216.
— , 1948. Notes on the distribution of the British Longicorn Coleoptera, *Entomologist's mon. Mag.,* **84**: 66-85.
— , 1989. Browne *versus* Watson: Round Two, *Entomologist's Rec. J. Var.,* **101**: 61-63, 1 map.
Kirby, W. & Spence, W., 1867. *An introduction to Entomology.* Popular ed. London.
Klausnitzer, B. & Sander, F., 1981. *Die Bockkäfer Mitteleuropas.* Wittenberg Lutherstadt.
Kloet, C.S. & Hincks, W.D., 1977. *A check list of British Insects:* Coleoptera and Strepsiptera, **11**(3): 71. 2nd ed. London.
Laing, F., 1919. Insects damaging lead, *Entomologist's mon. Mag.,* **55**: 278-279.
— , 1920. *Idem:* supplementary note, *Entomologist's mon. Mag.,* **56**: 12.
Landen, B. Olof-, & Hvass, H., 1971. *Insects in colour,* English ed., Riley, N.D., 3rd impr. London.
Marsham, T., 1802. *Entomologia Britannica,* **1**, Coleoptera. London.
Martyn, T., 1792. *The English Entomologist,* pl. 24. London.
Ministry of Technology, 1969. *The House Longhorn Beetle,* Tech. note **39**. Princes Risborough.
Parkin, E.A., 1934. The occurrence of the Longhorn Beetle, *Hylotrupes bajulus* L. in England, *Forestry,* **8**(2): 150-154, 1 pl.
Reitter, E., 1912 (1913). *Fauna Germanica,* die Käfer des Deutschen Reiches, **4**. Stuttgart.
Roer, H., 1988. Zum Freilandauftreten und Flugverhalten des Hausbocks *Hylotrupes bajulus* L. (Col.: Cerambycidae) in einem Rheinischen Kieferbestand, *Mitt. Dtsch. Ges. allg. angew. Ent.,* **6**: 343-346, 1 pl.
Rye, E.C., 1866. *British Beetles.* London.
Samouelle, G., 1819. *The Entomologist's Compendium,* London.
— , 1832-33. *The Entomologist's Cabinet,* **1**. London.
Scherer, G., 1986. *Beetles of Britain and Europe,* pl. 54, English ed.. Longman Group, Harlow.
Stephens, J.F., 1831. Illustrations of British Entomology, *Mandibulata,* **4**. London.
— , 1839. A manual of British Coleoptera. London.
Villiers,A., 1978. *Faune des Coléoptères de France,* **1**. Cerambycidae. Paris.

Westwood, J.O., 1839. *An introduction to the modern classification of Insects,* **1**. London.
Whitehead, P., 1989. *Trinophylum cribratum* Bates, *Col. Newsletter,* **35**: 3.
Winkler, A., 1929. *Catalogus Coleopterorum regionis palaearcticae,* **10**: 1144; 1169; 1175.

Hemicoelus nitidus (Herbst) (Col.: Anobiidae) at Windsor

To get the best migrants, it seems you must have luck (Wild, 1990 *Ent. Rec.* **102**, 171). You need luck, too, in catching rare beetles. I brought home a fallen branch of field maple from Windsor Great Park in January 1984 and put it in pieces in a polythene bag but, by the end of the summer, all that had emerged were a few unexciting beetles and two, nasty looking sawflies. I gave the sawflies to my friend Mark Shaw and discarded the pieces of branch on to our compost heap. Understandably, I was taken aback when I was told that the sawflies were examples of *Xiphidria longicollis* (Geoffroy), not previously recorded from Britain (Shaw & Liston, 1985 *Ent. Gaz.* **36**: 233). Luckily our compost heap is the sort which is only emptied once a decade. So I retrieved the pieces of branch in case there were more to emerge and put them in another polythene bag.

During the next summer no more sawflies emerged, but in July, two beetles appeared in the bag. They looked for all the world like the common furniture beetles but they were not this species, they were specimens of *Hemicoelus nitidus* (Herbst) — the second and third examples to be recorded in Britain. But for the sawflies being special, the beetles would have emerged unnoticed on the compost heap and the specimen of *H. nitidus* collected by my friend Howard Mendel in Suffolk (1982, *Entomologist's mon. Mag.* **118**: 253) would have remained the only one known from Britain.

It was lucky too, as I found out later, that I found the fallen branch in winter, for there is nearby a permanent campsite for young persons. Had the fallen branch been left lying there till the summer, it would have found itself on a camp-fire.

When my colleagues and I failed during the next few years to find other examples of the beetle in spite of diligent search of the area, I thought, without complaint, that my quota of luck on this beetle had been used up but, as I passed the tree on an unrelated errand six years later (February 1990), there was another fallen branch. By July, I had another three examples of *H. nitidus.* I shall push my luck and keep the branch for another year!

I must thank Mr A.R. Wiseman of the Crown Estate Office for allowing me to study beetles in Windsor Great Park and the NCC through its Newberry Office for arranging this.— J.A. OWEN, 8 Kingsdsown Road, Epsom, Surrey KT17 3PU.

THE HABITATS OF THE MADEIRAN GRAYLING *HIPPARCHIA ARISTEUS MADERENSIS* (LEP.: NYMPHALIDAE: SATYRINAE)

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HIGGINS & RILEY (1970, 1973) describe the Madeiran grayling *Hipparchia aristeus maderensis* as a very local butterfly which flies in July/August on grassy and stony slopes from 100m upwards. Kudrna (1977) places it as *H. algirica maderensis* and also describes it as local and rare, but describes its habitats as rocky clearings in sparse deciduous woodland between 1000 and 1700m. Kudrna further states that its flight period is from the end of June to early September. Neither author gives hostplants and in view of the differences of their accounts we think a very brief description of our observations of this species warrants recording.

We visited Madeira between 7th and 21st September 1989 and travelled extensively over most of the island and its habitats. *H. aristeus maderensis* was observed at several sites (Table 1) and appeared widespread, though numbers seen varied between sites. At all sites individuals were worn and our observations probably coincide with the end of the flight period. From our observations it appears that the butterfly is most commonly associated with areas of light (conifer) woodland with extensive grass and herb layers which also contain both bare earth and abundant nectar sources (especially *Origanum* and *Rubus* species). Such habitats generally occur at mid-altitudes (800 - 1200m.) on the island particularly in the south and south-western parts. In view of the habitat associations of the butterfly and the distribution of these habitats over the island, combined with the ease with which we came across specimens, we suggest that the butterfly is probably both widespread and common. No individuals were observed on the most extensive area of high altitude (c. 1500m.) flat stony grassland, Paul de Serra, towards the centre of the island. Neither were there any individuals on Ponta de Sao Lourenco, an extensive area of low elevation (<100m.) dry broken grassland at the eastern tip of the island. We suspect that the butterfly is absent from Paul de Serra because the area is very exposed and subject to heavy grazing pressure, which, in combination with low air temperatures, the dry nature of the site and the lack of trees and shrubs apart from isolated gorse bushes make the habitat unsuitable for the butterfly. It was, however, found flying in some abundance on the southern and south-western slopes below this area, excluding those locations where there was very dense regenerating tree heath (*Erica arboracea*). Ponta del Sol is also unsuitable habitat because of extreme drought in the summer, at the time of our visit there was little live vegetation and the site was remarkable for the absence of flying insects.

Of note is the observation that the Madeiran grayling can occur at very high density. For example, in lightly-grazed pine woods south of Poiso the density of the butterfly appeared to be greater than that of any other

Table 1. Locations, habitats and an estimate of relative sizes of populations of *Hipparchia aristeus maderensis* on the island of Madeira, recorded between 7th and 21st September 1989.

Location	Habitat	Altitude (m)	Numbers observed
Route ER103, 5 km stretch of road, south of Poiso	Open pine woodland, with grassland ground cover	1150-1400	>>100
Route ER103, 2 km south of Ribo Frio	Pine woodland with dense laurel regrowth, bramble and small grassland areas	850	>30
Route ER104, Boca do Encumeada	Small area of grassland in dense laurel forest	1000	1
Route ER208, south approach to Paul de Serra	Grass slopes in open laurel and heath woodland interspersed with eucalyptus	1100	>20
Route ER208, north of Achada do Poiso	Open pine and eucalyptus woodland with grassland ground cover	600	<5
Route ER204, Fonta da Pedra	Grazed laurel forest with closely cropped grassland below trees	1000	<5
Junction of ER204 and ER101, Centro de Reproducao Animal	Grazed grassland and laurel and eucalyptus woodland interspersed with grassland and waste	650	<5
Route ER102, 1 km south of Aguas Mansas	Open pine and eucalyptus woodland with grassland ground cover	700	<5
Route ER103, junction with route to Sao Roque do Faial	Laurel, eucalyptus and pine woodland, apple orchards with patches of dry grassland	550	>5
Route EN101, from Achadas da Cruz to Ponta do Pargo (15 km length)	Open pine, eucalyptus and laurel woodland with limited agriculture; grassland under trees	450-900	Isolated individuals all along route.

Most observations of numbers refer to the number seen within a period of approximately five minutes.

populations of grayling observed by us in western Europe, save those of *Arethusena arethusa* in relict Mediterranean forest in southern France (Shreeve, pers. obs.). We suspect that local weather patterns on the island of Madeira may be responsible for such aggregations for two reasons. Firstly, the wooded grassy slopes where the butterfly was most abundant are subject to strong updraughts and fog from mid-day onwards, and the location in which we located the densest population was at the head of a steep south facing valley which was somewhat sheltered from the main updraughts. Aggregations may be caused by butterflies being carried on updraughts to particular sheltered locations. Secondly, our observations at Poiso suggest to us that this site tended to be less cloudy than those on immediately adjacent slopes. Although the butterfly can fly in fairly cool and dull conditions, adults being observed flying in dense fog, prolonged sunshine at selected sites may extend the time available for feeding, mate-location and egg-laying, hence leading to the formation of dense assemblies of individuals in those sites where time constraints on activity are minimised.

Six females were observed egg-laying at Poiso, and the placement of nine eggs noted. Of these, six were placed low (<10mm.) on green shoots of a *Holcus* grass species, the remainder on dry stems, and exposed roots of an *Agrostis* species (our identifications). The behaviour of egg-laying females was similar to that described for *H. semele* (see Shreeve, 1990). At Poiso these two grasses represent the most widespread and common of those present and they may represent the principal larval foodplants there. Other larval hostplants may be used since members of the genus *Hipparchia* are known to use a variety of grasses as hostplants (*Emmet & Heath,* 1989).

We are aware of the systematic minefield involving the genus *Hipparchia* and the *semele/arethusena* species, the status of the Madeiran and Azores graylings and their relationships to each other and to mainland forms (see Higgins & Riley, 1973; Higgins, 1975; Kudrna, 1977). We are further aware of the dangers of over-extrapolation from limited data. All systematic studies of these species have relied on adult size, pattern variation and genital structure. However, we consider size and pattern to be too variable in *Hipparchia* species to be reliable taxonomic characters. The underside colour and pattern of the Madeiran grayling is more variable than admitted by Kudrna (1977) (Shreeve & Smith, in prep.), and Higgins (1976) and Kudrna (1977) differ in their descriptions of its genitalia. Higgins & Riley (1970, 1973) class the Madeiran grayling as a subspecies of *H. ariseus* and separate the Azores grayling as a distinct species. Subsequently, Higgins (1975) downgrades the Azores grayling to a subspecies of *H. aristeus.* Kudrna (1977) retains specific rank for the Azores grayling and considers the Madeiran grayling as a subspecies of *H. algirica.* Implicit to these systems are differences of emphasis in phylogenetic origin and differentiation.

Of interest to us are the origins of the Atlantic island graylings, their relationship to each other and to the mainland species complex. The main species to which the island forms are most closely related are characteristic of Mediterranean regions in which the occupied habitats are subject to a summer drought. On Madeira there is also a summer dry season, though this may be less severe than in parts of mainland Europe, the Mediterranean islands and north Africa. With one exception (*H. aristeus senthes, sensu* Higgins & Riley), the mainland species in the Mediterranean zone have flight periods at the beginning or mid-way through the summer drought (May - August). From our observations the Madeiran grayling flies towards the end of this dry period (August - September), though Kudrna (1977) gives an earlier start to the flight period (June). The Madeiran grayling is also associated with a woodland element within grassland, this last being described as the usual habitat of all other members of this group. Woodland is the endemic dominant vegetation type on Madeira and, with the exception of Ponta de Sao Lourenco, extensive grassland areas form a relatively new habitat. It seems feasible that this distinct butterfly may have developed associations with the ancient (wooded) rather than the modern habitat types and may also have developed a distinct flight period with associated life-history adjustments. That no association has developed with the only ancient grassland area, at Ponta de Sao Lourenco, is not surprising, given the very dry nature of the site in the summer months. We therefore suggest that more careful examination of flight periods and hostplant-habitat associations may reveal much about the evolutionary origins and systematics of the graylings of the Atlantic islands and elsewhere.

References

Emmet, L.M. & Heath, J., 1989. *The Moths and Butterflies of Britain and Ireland. Volume 7, Part I. Hesperiidae - Nymphalidae.* Harley Books: Colchester.

Higgins, L.G., 1975. *The Classification of European Butterflies.* Collins: London.

Higgins, L.G. & Riley, N.D., 1970. *A Field Guide to the Butterflies of Britain and Europe.* Collins: London.

Kudrna, O., 1977. *A Revision of the Genus Hipparchia (Fabricianus).* Classey: Faringdon, Oxon.

Shreeve, T.G., 1990. Microhabitat use and hindwing phelotype in *Hipparchia semele* (Lepidoptera, Satyrinae): thermoregulation and background matching. *Ecological Entomology,* **15**: 201-203.

New Microlepidoptera records from Nottinghamshire (v.c. 56)

The following constitute new county records for Nottinghamshire:

Stigmella centifoliella Zell. Occupied mine in *Rosa* sp., Colwick, collected 5.11.89, emerged 22.2.90 (forced).

Narycia monilifera Geoff. Two occupied larval cases found on Oak trunk, Colwick Wood 27.4.90, and one imago caught at the same site 1.6.90. Also found more commonly at Carlton when one imago and seven occupied larval cases were taken on trunks of *Tilia* and *Castanea* 18.6.90.

Luffia ferchaultella Stephs. Seven old larval cases found on trunks and boughs of apple trees, Colwick C.P. in mid-February.

Phyllonorycter dubitella H.-S. Occupied mines in *Salix caprea,* Colwick (old goods yards) collected 28.6.90, emerged 8.7.90 onwards.

Yponomeuta malinellus Zell. One gravid female taken on leaf of apple tree in friend's garden, Carlton, 13.7.90, the tree showing very heavy infestation by the earlier larvae.

Mompha nodicolella Fuchs. Presence first detected on 8.6.90, when old dead stems of *Epilobium angustifolium* were noticed showing conspicuous galls at a wasteground at this site and several collected on 24.6.90. The first emerged on10.7.90 and subsequently. The larval workings were also detected a couple of miles away at Colwick (old goods yards) but were very noticeably less common at this site.

My thanks are due to A.M. Emmet for confirming my identifications.—
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OCCURRENCE OF THREE NEW PESTS OF MAIZE IN INDIA

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THE MAIZE pest situation in India reveals that about 250 insects and mites belonging to 174 genera under 69 families and ten natural orders, occur on maize from sowing to harvest and from grain storage to its consumption (Mathur, 1987). However, the seed maggot, *Decachaetophora aeneipes* (de Meijere); cut worm, *Xestia c-nigrum* Linnaeus and silk cutter, *Popillia pulchrips* Arrow collected during regular survey of maize pests in recent years, do not appears in the list of reported insects. Considering them to be first records on maize, the nature and extent of damage caused by these insects and their salient marks of indentification are referred to in the present note.

Decachaetophora aeneipes (de Meijere) (Diptera: Sepsidae) — Maize seeds damaged by the maggots were first noticed in heavily manured fields at Auli (Joshimath), 3000 Mt. MSL during May-June. The eggs were laid on the soil and the newly hatched maggots made their way into the seed. The infested seeds either did not germinate at all or bore with weak seedlings which did not persist longer. Preliminary observations recorded on 9.vi. 1988 had shown that the infestation due to these maggots varied from 7 to 15 per cent in each row of a six row plot sown on 11.v.1988 as compared to those sown on 21.v.1988 and 31.v.1988.

The full grown maggot is cream coloured and measures about 4.5 mm in length. The apodous worm has a pair of dark hook-like mandibles at its pointed end and the body segments are indistinct. The grey bodied fly measures 5 mm in length. The second antennal articulation bears no angular projection, the metatarsi of hind legs are slender, the anal cell and lower cross veins of the wing are present, the costa remains unbroken and the metastigmatal bristles are present. Hypandrium and aedeagal apodomes are completely fused and the ovipositor is non-piercing type.

Xestia c-nigrum Linnaeus (Lepidoptera :Noctuidae) — The cut worm remains active during May-June at high altitudes where summer maize is grown as food and fodder. As many as 6 larvae of variable size and growth were found associated with roots of each infested plant. As a consequence of their feeding on the root hair and primary rootlets of one month old seedlings, the plants had either shown sickly appearance or laid on the earth surface. The infestation in a 10 x 3 m plot was about 32 per cent.

The greasy matured larvae measure 35 mm long and the general appearance of the body is red to olive green in colour. The head is red brown, the lateral yellow bands along the spiracles are mixed with brown spots and the transverse band at the junction of third thoracic and first abdominal segments is more prominent. The medium built adults are dark or red brown in colour and the wing expansion is almost 44 mm (Hampson, 1894). The collar has whitish scales. Each forewing bears double sub-basal and ante-medial unevenly curved lines, triangular black patches before and after a pale triangular patch emerging from the middle costa, the post-medial line bears a series of dark specks and the sub-marginal line is indistinct. The hind wings are slightly pale and their underside bear an indistinct post-medial line and a cell spot.

Popillia pulchrips Arrow (Coleoptera : Rutelidae) — The adults were seen feeding on the silk during September 1987 at Nagenahalli, Mysore. The extent of damage was such that not a single ear remained untouched by the insect in the locality. As a result of such a feeding the emerging silk was badly damaged and the grain filling was adversely affected.

The metallic green, blue or coppery adults measure 10-12 mm long and 6-7 mm broad (Arrow, 1917). The body is elongate-oval in shape, very smooth and shining with a small but compact tuft of greyish hair on each side of the pygidial base and a thin clothing of hair on the underside of the body. The clypeus is rugose, forehead and pronotum finely punctured and scutellum almost smooth. Each elytron bears a deep transverse impression behind the scutellum, a finely punctured striae, a much wider row of striations and a last row of few punctures. The pygidium is coarsely transversely punctured and the mesosternal process is compressed, curved and almost blunt. The foretibia of the male is armed with two sharp teeth, the lower lobe of the inner front-claw is not angulated and the longer claw of the middle foot has no cleft.

We owe our gratitude to the Director, Indian Agricultural Research Institute and the Ministry of Defence, Government of India, for undertaking the observations on the reported insects and also the Mr. K.T. Pandurangegowda, Assistant Maize Pathologist, Agricultural Research Station, Nagenahalli, for collection of rutellid beetle and related information. Our sincere thanks are also due to Dr. M. Dutta, Dipterist, Zoological Survey of India, Calcutta and Dr. S. Ghai, Senior Taxonomist, IARI, New Delhi, for the identification of the reported insects.

References

Arrow, G.J. *The Fauna of British India including Ceylon and Burma, Coleoptera: Lamellicornia, Pt. II.* 1917, p.80

Hampson, G.F. *The Fauna of British India including Ceylon and Burma, Moths, Vol. II.*, 1894, p.188.

Mathur, L.M.L. *Bibliography of the Maize Pests in India* All India Co-ordinated Maize Improvement Project, IARI, New Delhi, 1987, 144 pp.

LEPIDOPTERA ON COLONSAY AND ORONSAY, INNER HEBRIDES

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STUDY of the flora and fauna of islands provides much exciting ecological information, which can then be used to suggest and test ideas of wide interest. Such basic questions as how communities of species assemble and persist, how effective physical barriers are in preventing dispersal, or how new arrivals influence existing communities,find their best solution in island studies. Unfortunately there are very few instances where the flora and fauna are well enough known to provide sufficiently complete data and so the Hebrides, which are already better known than more remote islands, deserve our further attention. More appealing reasons for such studies lie in the beauty of the islands and the interesting appearance of some of the isolated populations of moths. In 1989 we visited Colonsay and Oronsay in July and August and this account includes records of Lepidoptera which we made, which are additional to those already summarised by Wormell in 1983.

Colonsay and Oronsay offer many points of interest. They have a range of habitat types, including some of unique value; are sufficiently small, at around 16 x 5km, to be easily covered; are already reasonably well studied, so that the insects, the other animals and the plants can be compared; and are placed in an interesting position near Mull, Jura and the Scottish mainland.

Study of Boyd and Bowes (1983) and discussion with Wormell before arrival, suggested that we could expect to find the full range of Hebridean habitats; that the Lepidoptera had already received enough attention to show that some exciting species were present; but that some major groups, such as leaf miners, were still very under-recorded. The habitats include excellent examples of certain types. Dunes are present both as very extensive dry stable ridges, as at Ardskenish, and with wide damp dune slacks, as at the eastern end of Oronsay. Behind the shore at Machrins, Kiloran and Balnahard is machair grassland and, whereas it is mostly heavily grazed, at Balnahard a new fencing scheme is restricting this for the benefit of the flowers. The inner part of the island has much damp acid moorland, with some beautiful lochans such as Loch Cholla, but there is also farmland interspersed with marshland, which is rather unlike that of other islands. The marshes have luxuriant growths of purple loosestrife amongst the more usual meadow sweet and smaller plants. The woodlands include the sub-tropical plantings around Colonsay house in the sheltered centre of the island, but of especial value are the unique oak woodlands on the north-east coast at Coille Mhor and Coille Beag. These are the most celebrated of Colonsay's habitats, well known for their colony of Purple Hairstreak (*Quercusia quercus*) butterflies, and are supposed to be genuine remnants of the original Hebridean woodland.

Wormell (1983) summarises what was then known of the Lepidoptera of Colonsay and Oronsay but has also produced a more up-to-date manuscript list. This runs to 297 species, including many Microlepidoptera recorded by Langmaid and Agassiz in 1978. Of special note from these lists are populations of Peacock (*Inachis io*), Small Copper (*Lycaena phlaeas*), Ringlet (*Aphantopus hyperanthus*) and Marsh Fritillary butterflies (*Eurodryas aurinia*), as well as the Purple Hairstreaks of Coille Mhor, as such species are otherwise mostly scarce or absent in the Hebrides. However, the Peacock has not been seen since 1987 and its status must now be doubtful. At Coille Mhor several interesting woodland species are found, including *Strophedra nitidana* on oak, and the Vapourer moth (*Orgyia antiqua*) which is polyphagous. Presumably either the newly hatched larvae of the Vapourer ballooned to Colonsay, or some stage was introduced accidentally by man, perhaps on some of the enormous numbers of plants and trees which have been introduced, especially around 1900. The woods around Colonsay House have abundant *Ypsolopha nemorella,* feeding on the honeysuckle, and other sparsely distributed specied already found on the island are the sallow feeding *Pammene populana,* and the loch margin species *Donacaula mucronellus.* A major puzzle is why no Burnet moths are found in what seems to be ideal conditions, but the same question could also be asked of Tiree and some other apparently suitable islands.

The current visit, by MWH and MRY in late July/early August and IC in early/mid August 1989, added 51 species to Wormell's manuscript list, 15 of which were also not recorded by Wormell (1983) from the other small islands of Coll, Rhum and Canna. However Inner Hebridean records are scattered in the literature and there have been some recent visits by lepidopterists to islands with no resultant published list and so it is not necessarily correct to claim these as wholly new. At some stage soon it will surely be desirable to collate and publish all records that are available for these islands.

The new records are listed in Table 1, with annotations where appropriate, and it can be seen that many are very common species, which have probably been merely overlooked or have not been considered worth recording previously (for example *Argyresthia goedartella* or *Xanthorhoe fluctuata*). However most past visits by lepidopterists have been earlier in the season and not all have combined the use of MV light traps with direct searching for adults, larvae and leaf mines.

As noted above, some groups of moths have been neglected before and the five new Stigmellids fall into this category. There seems no doubt that a visit in autumn could add many further species of leaf miner and, in view of the contention that Coille Mhor is an ancient wood, this could prove most interesting. This wood includes oak, birch, aspen, sallow, rowan, ash and hazel, with associated rose and honeysuckle and knowledge of its complement of leaf miners would be valuable evidence of its history. Of the

Table 1. **Species recorded as new to Colonsay and Oronsay**

* Additions to Wormell's (1983) list for Rhum, Coll,Canna and Colonsay.

Stigmella salicis Stt.
S. anomalella Goeze
S. nylandriella Tengstr.
**S. magdalenae* Klim.
S. lapponica Wocke
Opostega salaciella Treit.
Lampronia oehlmanniella Hb.
Heliozela respendella Stt.
Tinea semifulvella Haw.
**Leucoptera laburnella* Stt. (Scalasaig)
**Caloptilia betulicola* Her.
**Phyllonorycter quinqueguttella* Stt. (N. shore of Oronsay)
Glyphipterix schoenicolella Boyd (E. dunes on Oronsay)
Argyresthia goedartella Linn.
A. retinella Zell.
A. bonnetella Linn.
**A. albistria* Haw.
Yponomenta evonymella Linn.
**Y. padella* Linn.
**Paraswammerdamia albicapitella* Sch.
Rhigognostis annulatella Curt.
Phaulernis fulviguttella Zell.
**Diurnea fagella* D. & S.
Scrobipalpa clintoni Pov. (Oronsay strand)
S. acuminatella Sirc.
Acompsia cinerella Cl.
**Aethes rubigana* Treit. (Scalasaig)
Eupoecilia angustana Hb.
**Eana incanana* Steph. (Coille Mhor)
Acleris variegana D. & S.
**Endothenia quadrimaculana* Haw.
Epinotia immundana F. v R.
E. nemorivaga Tengst.
**Zeiraphera isertana* Fabr.
Dichrorampha petiverella Linn.
D. montanana Dup.
**Eudonia pallida* Curt. (Scalasaig)
**E. crataegella* Hb.
Idaea biselata Hufn.
Xanthorhoe spadicearia D. & S.
X. fluctuata Linn.
**Chloroclysta concinnata* Steph. (Moorland near Colonsay House)
Thera cognata Thunb.
T. juniperata Linn.
Rheumaptera hastata Linn.
Eupithecia absinthiata/goossensiata
Epione repandaria Hufn.
Clostera pigra Hufn. (Oronsay strand)
Agrotis ipsilon Hufn.
Xestia triangulum Hufn.
Hoplodrina alsines Brahm

new records, that of *Eana incanana,* a bluebell feeder, is a notable addition to the scarcer woodland species of Coille Mhor. In early August the most common moth in the wood was *Alcis jubata* and many were disturbed from tree trunks.

A notable area proved to be the north coast of Oronsay, bordering the Strand, where *Scrobipalpa clintoni* was found on the shore line and *Phyllonorycter quinqueguttella* larvae were present on *Salix repens.* Just east of there, in the damp dune slacks, *Glyphipterix schoenicolella* occurred in the extensive *Schoenus* stands.

The woods and gardens in the centre of the island, with their exotic plants and weedy species, have allowed the establishment of a number of other species. *Leucoptera laburnella* was present there on Laburnum bushes and *Aethes rubigana* was favoured by the burdock plants present as weeds. Other species, such as *Xestia triangulum,* which is apparently greatly outnumbered by *X. ditrapezium* in western Scotland and the Hebrides, are presumably also associated with this rather domesticated area. Also in the centre of the island there are some impressive marshy areas and loch fringes, which must be the habitat of *Eudonia pallida,* and where *Parapoynx stagnata* was abundant.

On the moorland above Colonsay House were "carpet" moths resembling *Chloroclysta concinnata,* but determining the true status of these would require a breeding programme.

Colonsay lies within about 14km of Jura, but this island is predominantly acid moorland and its value as a source of colonists, especially of woodlands, must be limited. The more varied islands of Islay and Mull are both within about 10 - 20 km and the mainland itself is about 30km to the east. Only to the west is there no obvious source of colonisation. Although there may at present be no records of some of Colonsay's moths on the nearby mainland or adjacent islands, this is probably merely because we do not yet have complete records from them. None of the species recorded as new here are obviously outside their normal range, although some are only sparsely recorded in western Scotland.

References

Boyd, J.M. and Bowes, D.R., 1983. The Natural Environment of the Inner Hebrides. *Proceedings of the Royal Society of Edinburgh* Section B. **83**: 1-648. (Includes: Wormell, P. Lepidoptera in the Inner Hebrides.)

Wormell, P., 1983. Lepidoptera in the Inner Hebrides. (In Boyd, J.M. and Bowes, D.R., 1983. The Natural Environment of the Inner Hebrides. *Proceedings of the Royal Society of Edinburgh* Section B. **83**: 1-648.)

THE DOTTED RUSTIC (*RHYACIA SIMULANS* (HUFNAGEL), LEPIDOPTERA: NOCTUIDAE) IN THE WEST OF SCOTLAND

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A SINGLE dead example of the Dotted Rustic, *Rhyacia simulans* (Hufn.) was brought to the museum from inside a cottage at Lochranza, Isle of Arran in the Firth of Clyde, in August 1988, by Prof. Norman R. Grist. The latest distribution map (Heath, 1979) shows no records of the Dotted Rustic *Rhyacia simulans* (Hufn.) between the Solway Firth and the Outer Hebrides in the west of Scotland. In fact there are several literature records, which are catalogued in the Scottish Insect Record Index (SIRI) held in the Royal Museum of Scotland, Edinburgh. This valuable source of information contains numerous observations on this moth from the north-east of Scotland but there were only four which can be added to the present record for the west. Despite there being ten published references to the occurrence of the Dotted Rustic in the west of Scotland these prove to relate to only four known occasions. These are Canna (Campbell, 1956 and 1970; Haggett, 1968), Rhum (Harrison, 1946; Steel & Woodroffe, 1969; Wormell, 1982), Ayrshire, Monkton (King, 1876; Dalglish & Ord, 1901) and Arran (Leech, 1964; Coxey, 1969). In each of these four cases the first reference gives the details, the others repeat them, of the capture of this species. Except the Arran experiences of Leech and Coxey only one example was recorded.

The purpose of this note is to highlight these records. There does not seem to be any obvious reason why the Dotted Rustic should not occur over a wide area of suitable ground in Scotland. It seems to provide another example of the severe lack of recording north of the border. There is another potential factor affecting its recording in that it is unlikely to be noted simply by dashing about the landscape using a portable light trap.The records are of single specimens recorded by resident naturalists except for those spending some time in one area and using techniques such as described by Leech (1964). This entailed searching heather flowers near the rocky coastline of Arran at night with the aid of a torch. In this respect this species has similar habits and tendencies to its close relative the Northern Rustic, *Standfussiana lucernea* (Linn.), which I believe is under recorded for the same reason (Hancock, 1982).

The geography of Scotland, which makes it such an attractive place, acts against the mobility of visitors. An additional factor which unbalances distribution maps is the tendency for naturalists to head for the classic localities, mainly established by our nineteenth century predecessors. One of the more obvious examples of this is the great lack of records within the southern uplands of Scotland through which everyone drives at 70 mph (including myself!) in order to get to Glasgow, Edinburgh or the north.

There are not sufficient resident entomologists to cater for all these gaps because of the low population. Can I urge visiting entomologists to spread more widely and having done so to let the museums in the area have a list of their records for furthering local knowledge?

References

King, J.J.F.X. (1876). Lepidoptera in Cameron, P. (Ed.) *Notes on and list of the fauna and flora of the west of Scotland;* 29.

Campbell, J.L., (1956). Isle of Canna, collecting notes, summer and autumn, 1956. *Entomologist's Rec. J. Var.* **68**: 295-7.

— , (1970). Macrolepidopterae Cannae, the butterflies and moths of Canna. *Entomologist's Rec. J. Var.* **82**: 293.

Coxey, S. (1969). Lepidoptera from Arran (Exhibit at indoor meeting). *Ann. Reports and Proc. Lancs & Cheshire Entom. Society,* 1964-7. **14.**

Haggett, G.M. (1968). Larvae of the British Lepidoptera not figured by Buckler. *Proc. Trans. Brit. ent. nat. Hist. Soc.* **1**: 57-109.

Hancock, E.G. (1982). The Northern Rustic in Lancashire. *Entomologist's Rec. J. Var.* **94**: 233-5.

Heath, J. et.al (1979). *The moths and butterflies of Great Britain and Ireland,* **9**: 156.

Harrison, J.W. Heslop (1946). Noteworthy lepidoptera from the Isle of Rhum. *Entomologist,* **79**: 147.

Dalglish, A.A. & Ord, G.W. (1901). Macrolepidoptera in Elliott, et. al. (Eds) *Fauna, flora and geology of the Clyde area*: 227.

Leech, M.J. (1964). The Isle of Arran, 1964. *Entomologist's Rec. J. Var.* **76**: 229-230.

Steel, W.O. & Woodroffe, G.E. (1969). The entomology of the Isle of Rhum NNR. *Trans. Soc. Brit. Ent.,* **18**(6): 122.

Wormell, P. (Ed.) (1982). The entomology of the Isle of Rhum NNR. *Biol. J. Linn. Soc.,* **18**: 343.

Dystebenna stephensi (Staint) (Lep.: Cosmopterigidae) in N.W. Kent (v.c.16)

Michael Chalmers-Hunt told me that the late L.T. Ford used to find *stephensi* on a large old oak tree near Bexley Village in Kent, about 40 - 50 years ago. During the 1970s I lived at Bexley in a house previously owned by L.T. Ford's son Richard and I remembered that almost opposite the house stood, all alone, a very old oak tree, perhaps 500 or more years old.

I wondered if this was the tree on which Ford had found *stephensi* so on 22nd July 1990 I resolved to find out. Arriving at the tree I soon found *stephensi* in very fresh condition. In all I counted 19 specimens sitting in the chinks in the bark on the shady side of the tree, plus a good many more caught in spiders' webs.

It was a great satisfaction to find that this elusive species is still present as a strong colony on the tree which, I am now certain, Ford obtained it nearly half a century ago.— D. O'Keeffe, 50 Hazlemere Road, Petts Wood, Kent BR5 1PD.

DOLERUS MEGAPTERUS CAMERON, *PONTANIA TUBERCULATA* (BENSON) AND OTHER RARE SAWFLIES (HYMENOPTERA: SYMPHYTA) IN WARWICKSHIRE (VC38)

ADAM WRIGHT

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ALTHOUGH poorly studied on a national scale, the Sawflies (Hym: Symphyta) have attracted considerable attention in Warwickshire over the last seventy years. A review by Wright (1988) listed the local status for the 262 species recorded in the vice county at the time. Subsequent fieldwork, however, has yielded a further 14 species "new" to Warwickshire.

The rare *Dolerus megapterus* Cameron was swept from an area of damp meadow containing several species of *Cyperaceae* (male; 8.5.1989, A. Wright) at Ufton Fields, SP3861. Benson (1952) refers to the then only English record as ". . . according to Cameron, the Manchester district of England." It is worthwhile noting that the species has previously been recorded in Warwickshire at Sutton Park, SP 0998 (male; 23.4.1958, H.W. Daltry).

Three species of *Dolerus* were added to the county list following fieldwork at Sutton Park, SP0998 on 17th May 1988. They were all taken by the author during sweeping of marginal vegetation and nearby wet heath in the vicinity of Little Bracebridge Pool, Sutton Park. Males of *Dolerus anticus* (Klug), *Dolerus gessneri* Ed. Andre and *Dolerus yukonensis* Norton were obtained. All three species are essentially northern, being largely confined to sites north of the Humber/Severn line, and Benson (1952) regards the first two species as very local. A further species of extremely localised *Dolerus, Dolerus bimaculatus* (Geoffroy), was encountered on the same day. A site visit to Little Bracebridge Pool on 18th June 1988 produced large numbers of *D. bimaculatus*, both by sweeping marginal vegetation and by sweeping areas of *Equisetum* near the pool. *D. bimaculatus* had previously been taken on one occasion in Warwickshire (Wright and Lane, 1989). Sutton Park produced one further species new to Warwickshire. Several groups of Diprionid larvae were found feeding gregariously on *Pinus sylvestris* L. (18.6.1988, D.J. Mann). Some of the larvae were retained, and upon emerging as imagines proved to be *Neodiprion sertifer* (Geoffroy). Emergence occurred over the period 15-25.9.1988, producing twenty females and one male specimen.

Pontania tuberculata (Benson) was taken during fieldwork at Herald Way Marsh SSSI, SP3876 (female; 19.5.1988, D.J.Mann), although precise details of the capture are unfortunately not available. Benson (1958) gave only five known British localities for the species, only one of which was in England (Malham Tarn, Yorkshire).

Neurotoma saltuum (L.) new to Warwickshire, was found basking in sunlight on a Bramble leaf at Ryton Wood, SP3872 (female; 22.5.1989, A. Wright). Data from the Sawfly Study Group files reveals only six other recent records of this species in Britain. During the same excursion a second county record for *Pamphilius balteatus* (Fallen) was also produced (female; 22.5.1989, A.Wright).

Other species recently added to the County lists are as follows:

Xiphydria camelus (L.) flying fast down the main ride of Brandon Wood, SP3976 (female; 19.6.1988, D.J. Mann).

Hartigia nigra (Harris) - Wappenbury Wood SP3771 (female, 20.6.1988, D.J. Mann).

Perineura rubi (Panzer) - Kingsbury Wood SP2397 (female; 18.5.1989, R.J. Barnett).

Tenthredo olivacea Klug - Ryton Wood SP3872 (male; 18.7.1988, A. Wright).

This species subsequently has been found at several woodland localities in Warwickshire.

Eutomostethus gagathinus (Klug) - fields near Hungerley Hall Farm, Coventry SP3879 (male; 30.5.1989, A. Salisbury).

Dineura testaceipes (Klug) — Ryton Wood SP3872 (female; 11.5.1988, D.J.: Mann).

Euura testaceipes (Zaddach) — Ryton Wood SP3872 (female; 11.5.1988, D.J. Mann).

Amauronematus trautmanni Enslin — Brandon Wood SP2976, (female; 17.5.1988, A.C. Barlow).

Vouchers for all the above are housed in the collections of the Herbert Art Gallery and Museum, Coventry.

Acknowledgements

Thanks are due to Darren Mann, Tony Barlow, Ray Barnett and Andrew Salisbury for permission to use their records.

References

Benson, R.B., 1952. Hymnenoptera. 2. Symphyta *Handbk, Ident. Br. Insects* **VI** Part 2 (b) pp.64-77.

— , 1958. Hymenoptera. 2. Symphyta *Handbk. Ident. Br. Insects* **VI** Part 2 (c) p.205.

Wright, A., 1988. The Sawflies (Hymenoptera: Symphyta) of Warwickshire. *Proc. Coventry and District Natural History and Scientific Society* **VI** No. 2, pp.69-80.

— , and Lane, S., 1989. Records of Sawflies (Hym.: Symphyta) new to Warwickshire. *Entomologist's mon. Mag.* **125** p.127.

LEPTACINUS INTERMEDIUS DONIS. (COL.: STAPHILINIDAE), A SPECIES LITTLE KNOWN IN BRITAIN

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Mr. P.F. WHITEHEAD having recently (*in litt.*) raised the question of the status of this species, I embarked upon two courses: first, a critical scrutiny of my six specimens taken in the very haystack in Windsor Great Park from which the beetle was described in 1936, and in the very same year; and second, a rapid run through the indexes of the *Entomologist's Monthly Magazine* from that year on, to see whether coleopterists had followed up the original discovery and published new records in confirmation of the species.

The results were interesting and seem to call for some notice. In the first place, two of my specimens proved to be males and presented the very definite characters given for that sex of *L. intermedius* in the foreign literature, thus dispelling any doubt that might remain about the validity of our species and its identity with the continental one to which its name has long been applied. In the second, no further reference to *L. intermedius* in our leading journal (as regards Coleoptera) came to light — notwithstanding that the name has figured in all subsequent catalogues and check-lists. This is of course not to say that our literature contains no such references; but it is safe, I think, to infer that the species has been widely, if not generally, ignored or passed over in Britain since its discovery.

The reason for this neglect is not far to seek. The late Horace Donisthorpe acquired a reputation — not undeserved, it must be owned — for allowing zeal in the "creation" of new species to outstrip critical judgement. *L. intermedius* was described at a period when several such "species" (few of which have stood the test of time) were being published. More importantly, his description actually overlooks the essential specific features, confined unfortunately to the male, which would have stamped his species at once as authentic. Instead, the characters given there, relating to size, head-shape, elytral coloration etc, and even the number of punctures in the pronotal rows, turn out to be almost unusable because of their variability; they may have, at best, some small statistical value only. The species is indeed intermediate on the whole between its two British allies, *L. batychrus* Gyll. and *L. pusillus* Steph. (= *linearis* Grav., auct.). The accompanying figures show the heads of the three species as decidedly different, yet this is not borne out by the insects themselves. In particular, the head-shape given to *linearis* is too short and triangular; the figure must surely have been drawn from an atypical specimen. Influenced no doubt by these considerations, the staphylinid specialists of the day, notably the late C.E. Tottenham and W.O. Steel, tended to be sceptical of Donisthorpe's species, believing the *intermedius* of continental authors to be something different — an opinion now seen to be untenable.

Donisthorpe did not regard the aedeagus of his species as diagnostic, remarking that "it differs little, except in proportion to size, in all three". This however, is not the case. The extraordinarily large aedeagus of *batychrus* is somewhere about 20 times greater in area than the very small narrow organ of *pusillus,* yet the beetle itself is nowhere near 20 times as large! That of *intermedius* is less than halfway between these extremes and of a much broader, more rounded form than in *pusillus* (the species more likely to be confused with *intermedius*) and similar to that of *formicetorum* Märk.; it is thus quite determinative. Even more so is the male 6th sternite, the hind margin of which is broadly and deeply excavate, almost in the form of an open Λ with the vertex varying from an angle to a smooth curve, and bearing long hairs towards the corners. In the other species (especially *pusillus*) the excavation is very much shallower and with at most an even fringe of very short hairs. Figures will be found e.g. in Lohse (1964: 159) or Hansen (1952: 9).

It is of interest to note that in mid-Europe *intermedius* is the commonest *Leptacinus* overall, according to Lohse (p.160); whilst in Britain *pusillus* is easily the commonest. The former species when better known will almost surely prove widespread, though possibly very local. I have not found it elsewhere than as above, but have a female from G.H. Ashe labelled without query as *intermedius* (Hartlebury, Worcs, iii.31) — I believe correctly, but cannot be certain. At present only two definite records outside Windsor can be given: Mr Colin Johnson took it in a haystack at Broadbottom, Cheshire, together with *pusillus,* about 20 years ago or more; and my friend Prof. J.A. Owen has a series from a compost heap in the garden of Tooting Hospital, S.W. London, taken in January 1975, and checked from two males. Donisthorpe (p.270) mentions "a good series" placed as "*linearis* var." in the D. Sharp collection, but does not give the locality.

References

Donisthorpe, H.StJ.K., 1936. *Leptacinus intermedius* n.sp. (Col.: Staphylinidae), a beetle new to science. *Entomologist's mon. Mag.* **72**: 269-270 & Pl. V.

Hansen, V., 1952. *Danmarks Fauna 58: Biller 16* (Rovbiller 2). Kobenhavn.

Lohse, G.A., in Freude, H., Harde, K.H., & Lohse, G.A., 1964. *Die Käfer Mitteleuropas,* **4**. Krefeld.

Epermenia insecurella (Staint) (Lep.: Epermeniidae) in Wiltshire

Whilst on a field visit to the central area of the Salisbury Plain Army Training Area on 3rd June 1990, Dr Langmaid suggested that a search be made of patches of *Thesium humifusum* (Bastard Toadflax) for *Epermenia insecurella.* The first site for the plant drew a blank, mainly due to the absence of *Thesium!* Despite a stiff north-westerly wind and occasional showers the second site looked instantly more promising due to the present of good quantities of the larval foodplant. With the aid of quantities of cigar smoke two imagos were "smoked out" within a few minutes, but after a further three cigars, the tally still stood at two moths.

The moths appeared quite rapidly from the vegetation which led us to believe that they were probably the only two present at the time of the visit.

The *Thesium* plant from which the moths were obtained was on a bank (south-west facing) which is part of a bank and ditch system between two tumuli and at the lowest, and hence most sheltered, portion of the bank system.

The only other known record for Wiltshire was from Granham Hill near Marlborough on 14th June 1889 (Marlborough College List).—S.M. PALMER, The Warren, Hindon Road, Dinton, Wilts SP3 5EG.

***Lasius brunneus* (Lat.) (Hymenoptera: Formicidae) rediscovered in Monks Wood National Nature Reserve, Cambs.)**

On 17th May 1966 a single *Lasius brunneus* worker was collected (by R.C.W.) from under the bark of a fallen aspen (*Populus tremula* L.) in Compartment 19d of Monks Wood NNR, adjacent to Neaverson's Ride (TH 196 799) (see Moller, G.J., p. 210, In: Steele, R.C. & Welch, R.C., 1973, *Monks Wood: A Nature Reserve Record,* The Nature Conservancy, Cambridge). Coleoptera recorded from the same tree included *Anisotoma orbicularis* (Hbst.), *Gabrius splendidulus* (Gr.) and *Dinaraea aequata* (Er.). A thorough search of the same tree the next day failed to reveal further specimens and, despite several years of intensive collecting in the wood, no more specimens were seen.

On 16th March 1990 several small ants with distinctive dark gaster were seen (by J.N.G-D.) running up and down the trunk of an aspen growing beside Hotel Ride in Monks Wood NNR (TL 200 802). Their identity was confirmed (by R.C.W.) as *L. brunneus.* Examination of the tree revealed the presence of an old "beef steak fungus", *Fistulina hepatica* Schaeff. ex. Fr., at a height of about three metres. In almost every case where side branches had been removed rot holes could be seen developing, and it appeared most likely that the ants were living within an extensive heart rot, although no ants were seen entering these wounds. Ants were seen to pass down the trunk and continue below soil level, suggesting that their nest may be at the base of the tree. A search of neighbouring trees produced only three *L. niger* (L.) on another aspen. Two *Dromius quadrinotatus* (Zenk, in Pz.) were found associated with the bracket fungus.

L. brunneus has a distribution in Britain predominantly centred on Berkshire and Surrey, with Windsor Forest its best known locality, where it is more usually associated with ancient oaks (*Quercus robur* L.). It is also known from South Essex and Herts, around Oxford, Beds and Worcs, and

North Glos. In 1979, when K.E.J. Barrett edited Pt. 5 (Hypemoptera: Formicidae) of the 2nd edition of the *Prov. Atlas of Brit. Insects,* the 1966 Monks Wood record was the most northerly known in Britain. The reference in Bolton, B, & Collingwood, C.A., 1975 (*Handbk. Ident. Brit. Ins.,* **6**, Pt, 3c, Royal Ent. Soc., London) to *L. brunneus* from Northants is an error and is presumed to refer to this Hunts (v.c. 31) record. Collingwood (*in litt.*) considers that *L. brunneus* "could occur in Northants, perhaps in the Rockingham Forest area", but knows of no records from that County, or further north. A few *L. brunneus* workers were still present on the same aspen in Monks Wood on 24th May 1990.— R. COLIN WELCH & J.N. GREATOREX-DAVIES, Institute of Terrestrial Ecology, Monks Wood Experimental Station , Abbots Ripton, Huntingdon, Cambs PE17 2LS.

***Carpelimus halophilus* (Kiesenwetter) (Col.: Staphilinidae) and other Coleoptera from North Somerset (ST/36).**

Carpelimus halophilus (Kiesenwetter): On 27.iii.1989 I was checking a large mechanically-piled heap of shore debris that had been covered with a thick layer of sand, and encountered several examples of this species. The species is a Red Data Book entry, and it is suggested that there are few modern records.* It has in the past been taken in ten English coastal counties, to which North Somerset should now be added. Both I, and Mr A.A. Allen, who confirmed these records, venture to suggest that woodland records of this species require confirmation (as given by Fowler, 1888, *Col. Brit. Isl.* **2**: 389. Likewise for *C. foveolatus* Sahlb., *ibid.*).

Immediate coleopteran associates of *C. halophilus* on the sand were *Dyschirius salinus* Schaum, *Bembidion minimum* (Fabricius), *B. normannum* Dejean, *Cercyon littoralis* (Gyllenhal), *Bledius germanicus* Wagner, *Stenus crassus* Stephens, *Rugilus orbiculatus* (Paykull), and *Quedius pallipes* Lucas.

Harpalus schaubergerianus Puel: Male, 26.v.1987, amongst *Cochlearia officinalis* L. in limestone rubble, back of saltmarsh. This is a localised calcicolous species of exposed environments.

Kissister minimus (Aubé): Breeds in large numbers (imagines numbered in hundreds) in beach drift. The habitat, decomposing organic matter, is more typical of the family in general than the regular finding of this species at the roots of plants in sandy places. My only Worcestershire record (SO/93, 28.ii.1988) accords with the latter niche, but may be a dissipant from such favoured coastal strongholds.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcs WR10 3EP.

*I do not regard *C. halophilus* as particularly rare, especially in the latter half of this century (I first took it in 1948); but it may be highly localised, and being very sluggish is easily passed over on the surface of the mud. It was quite common here and there in the Thames near Slade Green and Crayford, W. Kent in 1984.— A.A. ALLEN.

Hazards of butterfly collecting — Iraq 1972

I set off for Babylon from the Palestine Hotel in Bagdad on a fine summer Friday, the day of rest in Islamic countries. The sun-baked flats of the Euphrates-Tigris depression are not among the best butterfly collecting grounds, but on the other hand few people have ever tried out a net in the area. The day before I had been able to establish that the large Swallowtail butterfly, *Papilio demoleus,* was well established in Bagdad; it hovered about citrus trees in the garden in ministries and agencies, livening up otherwise dull meetings. There was only one previous record, so it is an interesting example of recent colonisation. Anyhow, Babylon was probably worth the trip, butterflies or not.

At the time Babylon was not much of a site. The Tower of Babel was a heap of rubble. The Hanging Gardens were a gleam in an archaeologist's eye (Russian or Polish). My most memorable memento of the occasion is the photograph of a big sign proclaiming: '*depArtmenT of anTiquiTise -excavaTe and resToraTe KasHnogaTe*'. I understand that the present government is in the process of resToraTing the site to the point where you can no longer see even traces of the original rubble.

Babylon was poor in butterflies as well. *Colotis fausta* swarmed around caper bushes, and in small wadis with a bit of vegetation *Junonia orithya* was not uncommon. This tropical species migrates into Iraq every year to breed, in much the same way as *Vanessa atalanta* reaches northern Europe. By two in the afternoon the temperature reached 35 degrees centigrade; tourist and entomologist alike decided to get back to the relative comforts of the Palestine Hotel.

A crowded minibus brought me to the main bus terminal on the outskirts of Bagdad. A very large Buick taxi (of the fish-tail vintage) was soon procured. An elderly man, almost blind, and his nephew asked to share it — yes, to drop them at the Palestine would be just fine. Being nice to people is often rewarded; after much argument the taxi driver and the old man settled on a price less than half of what I would have agreed to.

On leaving the bus station we got stuck in a queue of cars. The traffic police were checking driving permits, taxi licenses, or whatever. Progress was slow. The driver was fidgety, more so than seemed appropriate despite the delay. His foot hovered over the clutch. Suddenly he put the car in gear, mounted the pavement, and gunned past the police check-point. The grinning face of the Buick hit a portly Iraqi merchant, whose large buttocks suddenly raced across the hood in my direction, glancing off the windscreen. Police whistles blew. The siren of an alert police car went into action. The driver obviously did not have some document that the police wanted to inspect.

Round and round we went, cutting the wrong way round the imposing traffic circles of Bagdad, named after countless coups and counter-coups, the 13th October, 15th March, or whatever. Four police cars, lights flashing, horns blaring, sirens screaming, eventually joined the chase. The driver was in a state of total panic by now, with good reason. Landing in the tender care of the Iraqi police or other security services at the time was no less pleasant than it is to-day.

It was when we crossed the same bridge across the Tigris for the third time that I suddenly realised that I had forgotten to bring my passport — the guys in the screaming cars behind would not like that at all. Just then the driver got boxed in by some buses in a one-way street. The pursuers stopped and advanced towards us, bristling with guns. The driver reversed (at which point I left the cab), and went past them in the opposite direction at great speed. All the police and militia piled into their cars and set off in hot pursuit. I dived into an alley. Had they really missed seeing me abandon ship? They had. I flagged down a cab and went to the Palestine Hotel. I paid three times the regular fare without a murmur. The next hour was spent phoning every person of any influence I knew in Bagdad, telling them my story. I hoped it would also count for something that I had an official meeting with the Minister of Health the next day. They must eventually have caught the taxi driver, and I hate to think what they would have done to him, but at least he had behaved with stupidity. I was more concerned about the poor old man and his nephew; the innocent lift I had given them could well become the basis of a spying charge. But there was nothing I could do.

A few days later I left. There were no problems at the airport. I settled down in my seat on the rickety Iraqi Airways Trident aircraft. Finally safe? Suddenly a platoon of heavily armed police charged on board. Oh . . . my god!!! It turns out they are the escort of a deportee, who is unceremoniously chained to his seat. Some people are less keen to leave Bagdad than others. Despite remonstrations from the cabin crew the deportee succeeds in lighting up a cigarette before take-off. As the wheels leave the runway I cannot say that I am unduly perturbed by that.— T.B. LARSEN, 358 Coldharbour Lane, London SW9 8PL.

New Lepidoptera for Guernsey

On 7.vi.1989, two mercury vapour lights were operated in a dense stand of tamarisk (*Tamarix gallica*) near Cobo Bay, Guernsey, in an attempt to catch *Eupithecia ultimaria* Boisduval (Channel Islands Pug). Although this species was not present in the catches, single males of *Sideridis albicolon* Hübner (White Colon) and *Eupithecia fraxinata* H.-Crewe (Ash Pug) were caught and these are new to the Guernsey list (R. Austin, pers. comm.). The capture of *E. fraxinata* is particularly interesting as sea buckthorn (*Hippophae rhamnoides*) is absent from the island and ash (*Fraxinus excelsior*) is not present in this part of Guernsey (R. Austin, *loc. cit.*). These are the only currently accepted British foodplants for *E. fraxinata*. The individual may represent the tamarisk-feeding race formerly known as *E.*

tamarisciata Freyer, the Cornish Tamarisk Pug, recorded by Tutt (1906; 1908) from larvae collected by Holmes in Cornwall at the beginning of the century. G. Prior (pers. comm.) also found an *E. fraxinata* larva on Cornish tamarisk in September 1979 and the identification of the resulting imagine was confirmed by myself. The existence and status of the tamarisk-feeding race of *E. fraxinata* in Britain should be further investigated as it appears to have been overlooked in the more recent literature.

Thanks are extended to R. Austin for his help and advice on Guernsey Lepidoptera and the status of ash and sea buckthorn on the island and to G. Prior for allowing examination of his Cornish *E. fraxinata*.

References. Tutt, J.W. (1906). A puzzling group of Eupitheciids. *Ent. Rec.* **18**: 157-158. Tutt, J.W. (1908). *Eupithecia tamarisciata* as a British insect. *Ent. Rec.* **20**: 102-104.- ADRIAN M. RILEY, Dept. Entomology and Nematology, AFRC Inst. Arable crops Research, Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

Insects and swimming pools

I was interested to read the correspondence (*Ent. Rec.* **102**: 4; **102**: 152) on the question of Purple Hairstreaks and swimming pools, and that both writers should ascribe the attraction of the pool to its blueness.

I have abundant evidence for the attractiveness of sky-blue to beetles, although I have no knowledge either of its mechanism nor the more general understanding of it. It may however be reasoned that changes in the quality or density of air over a large pool could influence flying insects to land in it.

On 21st July 1990 the following beetles were attracted to our sky-blue sun-bed cover at Little Comberton between 20.00 -21.45 BST:
Anotylus tetracarinatus (Block) 2, *Gabrius pennatus* Sharp 1, *Tachinus signatus* (Grav.) 3, *Atheta laticollis* (Ste.) 1, *Epuraea unicolor* (Ol.) 1, *Glischrochilus hortensis* (Fourc.) 3, *Monotoma longicollis* (Gyll.), *Cryptolestes ferrugineus* (Ste.) 2, *Atomaria lewisi* Reitt. 2, *Typhaea stercorea* (L.) 1.

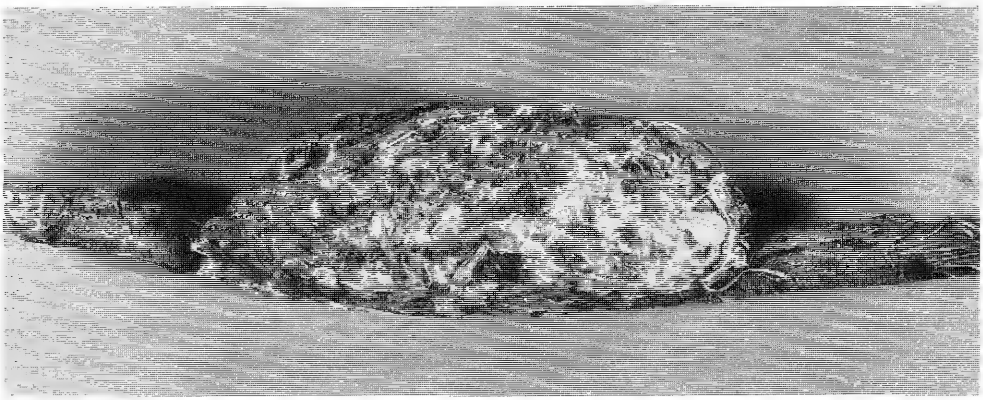
My sky-blue parasol that apologises for a beating tray distinguishes itself in a number of ways. Once, whilst inside a hollow oak, hearing an unusual sound, I glanced outside and found that it had opened spontaneously causing a herd of cows to stampede. Its more usual source of interest however arises from the number of insects that fly into it when left opened. Amongst beetles I recall in particular *Paromalus flavicornis* (Hbst.) and *Dorcatoma chrysomelina* Stm. All of this supports a possibility that the attraction is colour-based.

The beetle *Meligethes aeneus* (F.) has a particular perception of colour occurring in prodigious numbers on such yellow flowers as *Hemerocallis* and *Centaurea macrocephala* Muss. Pushk. and on such purple ones as *Allium giganteum* Regel. In 1988, over 10,000 *M. aeneus* were in one blue pool in Worcestershire.— P.F. WHITEHEAD, Moors Ley, Little Comberton, Worcestershire WR10 3EP.

Unusual pupation site for *Cerura vinula* Linnaeus (Lep.: Notodontidae), the Puss Moth.

As most Lepidopterists are aware, this species usually pupates in a deep fissure in the bark of a tree or at the junction of branches of boughs. Crevises in man-made wooden structures have also been used if a larval foodplant is nearby.

Mr J. McWilliam, who operates the Rothamsted Insect Survey light trap at Leverburgh on the Isle of Harris, recently sent me a cylindrical Puss Moth cocoon which was attached to a slender *Salix* twig. This pupation site is remarkable in its similarity to that of many of the burnet moths (*Zygaenidae)* which pupate in similar fashion on grass stalks. The accompanying photograph may be of interest to readers.



Thanks are extended to Gordon Higgins of Rothamsted Photography Department for photographing the cocoon and to Mr McWilliams of Leverburgh.— ADRIAN M. RILEY, Dept. Entomology and Nematology, Inst. Arable Crops Res., Rothamsted Experimental Station, Harpenden, Herts AL5 2JQ.

Another case of mistaken identity?

A.A. Allen's note (*Ent Rec.* **102**: 198) on apparent inter-specific courtship in butterflies prompts me to place on record a comparable observation.

In the morning of 7th June 1982, on a grassy bank at Cleaves Wood, near Wellow in Avon (formerly North Somerset), I watched a male Large Skipper *Ochlodes venata* repeatedly and persistently attempt to mate with a Burnet Companion *Euclidia glyphica,* of indeterminate sex. The latter would have none of it and after several minutes the *venata* gave up and flew off. It seems remarkable that attempted inter-specific mating should occur between members of two quite different families, until it is remembered that *glyphica* has some of the habits and superficial appearance of a skipper. Although there is evidence (*vide* Emmet & Heath, eds., *The Moths and Butterflies of Great Britain and Ireland,* vol. 7) that *venata* males can locate hidden females, presumably by scent, one wonders whether visual cues may also be important. If so, this might explain how such a case of mistaken identity could arise.— A.G. DUFF, 4 Amberley Close, Keinton Mandeville, Somerset TA11 6EU.

More abnormal courting behaviour in butterflies?

A.A. Allen's note (*Ent. Rec.* **102**: 198-9) on apparent courtship behaviour by a Small Tortoiseshell towards a Peacock prompts me to record that on 25th July 1990 I saw a small cloud of some twenty white butterflies fluttering around a hedge near Harvel in Kent. Reaching that point I saw a female Brimstone feeding on a thistle flower. When it flew it was immediately pursued by two Small Whites which I think were males. They fluttered in an excited manner just behind the Brimstone, but were not aggressive. The flight lasted for about half a minute. However, as soon as the Brimstone returned to the thistle the Small Whites lost interest, and although many others passed close to the feeding Brimstone they showed no interest in her whatsoever.— I.L. BRYDON, 128 The Drive, Bexley, Kent DA5 3BX.

Early sightings of Red Admirals (*Vanessa atalanta*)

The Heathcotes' observation of *Macroglossum stellatarum* on 23rd February 1990, and their note of the high temperatures prevailing around that time (*Ent. Rec.* **102**: 185), prompts me to record a Red Admiral sighting by our walking group on 18th February 1990, around noon, in a garden near Walberton on the West Sussex coastal plain. A neighbour, Mr Phil Tyler, also reported seeing a Red Admiral in Richmond Park on 25th February 1990.

This seems too early for migrant specimens and seems to confirm Colin Hart's view, after observing a Red Admiral at Buckland, Surrey, on 18th March 1990, that the winter was warm enough for this species to overwinter in the south of England (*Ent. Rec.* **102**: 193).

However, S.A. Knill-Jones suggested a migratory origin for his Red Admiral sightings on the Isle of Wight, at Newtown on 18th January (1), and at Luccombe on 22nd February (3) (*Ent. Rec.* **102**: 197).

There is also a reference to early sightings by Richard Harrington in the current issue of Antenna (*Antenna* **14**, 3: 113).— R.C. DENING, 20 Vincent Road, Selsey PO20 9DQ.

Further to the search for a safe pest-repellent

The other day I chanced upon an old clipping from the magazine *New Scientist* (undated, but propably going back eight to ten years) pointing out that a safe, *cheap* (my italics) and pleasantly fragrant substance, namely, cedarwood oil, has powerful insecticidal and pest-repellent properties; that it "inhibits moths and beetles [from] chewing clothes and carpets" (and, one may suppose, natural history specimens) — the above presumably includes their larvae — and kills mosquitoes, cockroaches and houseflies; that the market for a cedarwood insecticide could be immense; and that the soap industry extracts the oil in bulk from wood-chips of the Indian cedar. (For details see *Naturwissenschaften* **71**: 264). The latter fact very likely accounts for my favourite experience with scented soap in this connection (*antea* 185.) All this seems to offer great promise for a solution of the problem to which I called attention, even if not a complete answer.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

A safe and practical pest-repellent for insect collections

Smugness is always irritating (in others), and it is with some consciousness of this that I write in response to Mr A.A. Allen's note about protecting collections against insect and mite attack (*antea* pp.184-5). The truth is that I have never been troubled by *Anthrenus* and the like since adopting a method of protection which I first encountered in the Entomology Section of East Malling Research Station some 30 years ago. I have always been puzzled as to why the method is not better known.

It is, in brief, to paint the internal edges of storeboxes or cabinet drawers with a 4% solution of DDT (or Dieldrin: Aldrin and other organochlorines would probably also answer) in an organic solvent such as acetone. These days DDT and other organichlorines are difficult to obtain and this is probably the most pertinent objection to their use.

To those environmentalists who shudder at the mere mention of DDT, I point out the following facts:

(1) The mammalian toxicity of DDT is low.
(2) The small amounts impregnating storeboxes and cabinet drawers are not volatile and pose negligible risks to the entomologist's health.
(3) There is little or no risk of the DDT being translocated into the environment.
(4) The protection given is virtually absolute and very long lasting. I have not yet had to re-treat any of my storeboxes.
(5) The application is simple and not dependent on the frequent filling of awkward cells or vials.

I do not have a supplier of DDT and do not know what I shall do when my current supply of solution in acetone runs out.

And I have no answer to the problem of *mould* (though central heating helps).— Dr M.G. MORRIS, Orchard House, 7 Clarence Road, Dorchester, Dorset DT1 2HF.

Early occurrence of Red Admiral, *Vanessa atalanta* (L.) in Cardiganshire in 1990

There is strong evidence for the survival of a Red Admiral butterfly, *Vanessa atalanta* (L.) over the winter 1989-1990 following the appearance of a specimen on 23rd February 1990 in Aberystwyth, Cardiganshire, together with a Small Tortoiseshell, *Aglais urticae* (L.). It is stated that *A. urticae* appears on the first warm, sunny day *after* the end of February (the italics are mine), (Emmet, 1989 *The moths and butterflies of Great Britain and Ireland* Vol. 7, Pt.1). A warm front during the third week of April resulted in the highest recorded temperature on this day this century in the United Kingdom, 1959 and 1961 excepted, reaching 19°C (66°F) in some places with Cardiganshire 18°C (64°F), but it seems not to have been associated at this time with an influx of migrant insects into Britain. It was on 17th March that *A. urticae,* and 28th March, *V. atalanta,* were seen again — a lapse of thirty-four days.

The sighting of *V. atalanta,* a migrant not usually resident, suggests it had overwintered. However, it may not have survived the subsequent −1°C (30°F) frost and snow of 2nd March, and frost of 11th March, 3°C (37°F). At the end of April a migration into the United Kingdom possibly took place when *Plusia gamma* (L.) was seen on 22nd with *V. atalanta* on 24th and 30th in the company of a Hummingbird Hawkmoth, *Macroglossum stellatarum* (L.) feeding at red dwarf Azalea flowers in my garden at Cnwch Coch, while I was in the company of Adrian Amsden.

The earliest evidence so far recorded of migration of *V. atalanta* into West Wales was from 2nd March 1952, only a week later than the sighting now reported with over seventy observations on record (Miles 1952, *Entomologist's mon. Mag.* **88**: 181).— PHILIP M. MILES, Werndeg, Cnwch Coch, Aberystwyth, Dyfed, Wales.

Possible overwintering in Britain of *Autographa gamma* Linn. (Lep.: Noctuidae), the Silver Y.

On 15.ii.1990 a final instar larva of *A. gamma* was found on annual nettle (*Urtica urens*) near Stanford, Bedfordshire (TL 163 402). The larva was brought into the laboratory where it subsequently pupated. An adult male moth emerged three weeks later.

Single adults in perfect condition were caught in three Rothamsted Insect Survey light traps operating as part of an ecology project on the Rothamsted Farm, Hertfordshire (TL 120 137) on 3, 4 and 9.v.1990. No other known migratory species was caught at this time which, along with their condition, suggests that these individuals resulted from locally bred stock.

Heath and Emmet (*The Moths and Butterflies of Great Britain and Ireland,* **10**: 342-343. Harley, Colchester, 1983) state that, although there are a few proven cases of winter survival by moths, the early stages of *A. gamma* cannot develop at low temperatures and frost is fatal. However, the discovery of a fully-grown larva at this time of year, and the subsequent capture some 30 km distant of adult moths, provides strong evidence that this species was able to survive the very mild winter conditions of 1989/90. Further evidence of this species' ability to survive our winter climate is documented by Cooper, B. (Overwintering of *Plusia gamma* larvae in Yorkshire. *Entomologist* (1946) **79**: 176) who states that single larvae were found on 28.ii and 1.ii.1946 on cabbage leaves which were covered with snow during a period of sharp air frosts and frozen ground. One of these was accidentally killed but the other developed normally in the laboratory and emerged as an adult on 8.v.1946.

This species is an occasional pest of vegetable crops and, as such, its response to possible climatic change, particularly with respect to overwintering survival, should be carefully monitored.— ADRIAN M. and DEBORAH K. RILEY, Dept. Entomology and Nematology, AFRC Inst. Arable Crops Res., Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

Cossonus linearis F. (Col.: Curculionidae) in Surrey and West Kent

This weevil, added to our list in 1939 from Norfolk, has since then been found several times in East Anglia — mostly the Suffolk Breck — in decaying poplar trunks. In later years it has been met with occasionally in the south-east also: Deal, E. Kent, one by C. Johnson, and in E. Sussex by R.D. Dumbrell and P.J. Hodge. Two further Watsonian divisions can now be added. Prof J.A. Owen asks me to publish his capture of a specimen on a log of Lombardy poplar in Richmond Park, Surrey, 7.vi.83 — a locality which had earlier produced our other and more widespread (but still very local) species of the genus, *C. parallelepipedus* Hbst. Finally on the night of 11.vi.90 I was much surprised to take an example of *C. linearis* at my m.v. light here — my first encounter with the species. Not very far away in Maryon-Wilson Park, where some of the insects visiting the lamp must certainly originate, are various kinds of poplar including two or three prostrate trunks, barkless, hard, and deep in brambles and nettles. Somewhere there, perhaps, a breeding-site may exist.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

A "white" Gatekeeper — *Pyronia tithonus* var *albida,* Russell (Lep.: Satyrinae) in Suffolk, August, 1990

The brown and white butterfly seemed, at first, a startling intruder. It fluttered by like an exotic Helicoinid. But this was Suffolk, on the heathland just south of Walberswick and the thrill for me was to see this Gatekeeper butterfly, *P. tithonus,* var *albida,* Russell — the variant in which the normal orange colour is completely replaced by white.

It was 6th August 1990. There had been a run of hot sunny days but that particular morning we had had rain and I was not expecting to see many butterflies about. However, the rain stopped, the sun came out and we set off for a walk. I left the path to examine a clump of bramble. *P. tithonus* was abundant; also about were *L. megera, L. phlaeas, P. napi* (and/or *P. rapae*) and a solitary *I. io.* Then the brown and white butterfly came into view. With the courtesy "inbred" in *P. tithonus,* it gave me plenty of time for observation; it flew slowly; it kept to the same area; it alighted frequently and, when alighted, it kept its wings spread wide for easy identification.

For me, this the second sighting of an unusual "white" variation. In 1976 I took a *L. phlaeas* var *Schmidtii* in Cumbria. The interesting thing is that too was a year of a sustained hot, dry summer. Is there perhaps a direct connection with the summer temperature or is it simply that the hot summer brings our more butterflies and, therefore, more chance of variants?

Certainly, summer 1990 has been a good year. In that first seven days of August I noted 15 species of butterfly in the Walberswick area:— *P. brassicae, P. rapae, P. napi, I. io, V. atalanta, A. urticae, H. semele, M. jurtina, P. tithonus, C. pamphilus, L. megera, L. phlaeas, C. argiolus, P. icarus* and *T. sylvestris.*— G.G. BALDWIN, 22 Edgerton Grove Road, Huddersfield, W. Yorks HD1 5QX.

Eudonia mercurella (L.) (Lep.: Pyralidae) and Kidney Vetch

Mr J. Robbins has kindly pointed out a record held in the Warwickshire Biological Records Centre of a larva collected from Kidney Vetch *Anthyllis vulneraria* L., reared by the late Dr K.C. Greenwood and identified from the imago as *E. mercurella* by myself (*Entomologist's Rec. J. Var.* **102**: 166). This is indeed unusual as of the fourteen British species in the subfamily Scopariinae listed by Goater (*British Pyralid Moths,* Harley Books (1986)), only two are known to feed on herbaceous plants and even then on the roots. However, the life histories of at least three of the species are unknown.

What is also unusual about this record, but not commented on in the previous note, is the capture of the larva in July. Emmet (*A Field Guide to the Smaller British Lepidoptera,* BENHS (1988, 2nd edn.)) gives September to April as the time of appearance of the larva.

These anomolies of foodplant and time of appearance are interesting as so little is known about this group of moths. Larvae in July, on a previously unknown foodplant, could perhaps explain the occurrence of imagines well into September, as does occur in many years. However, other explanations can be thought of for this record: a fully grown larva of *E. mercurella* displaced whilst searching out a pupation site and not actually feeding on Kidney Vetch or alternatively perhaps a pupa of *E. mercurella* inadvertently collected along with a larva of another species which itself subsequently failed to complete its life-cycle.

Unfortunately neither the data label on the specimen nor the notebooks of Dr Greenwood, now both held at the Herbert Art Gallery and Museum, Coventry, detail whether the larva was full grown or whether it was collected and reared in a moss-lined container. However, the fact that Dr Greenwood, a very competent and well-respected lepidopterist, did not publish this record himself, after I had confirmed its identification, suggests an element of doubt. This record I would therefore suggest is worthy of note as a stimulus to further investigation but not on its own is it evidence for a hitherto unknown larval pabulum.— RAY BARNETT, City Museum and Art Gallery, Queens Road, Bristol BS8 1RL.

Two further Kentish specimens of *Pelosia muscerda* Hufn. (Lep.: Arctiidae), The Dotted Footman

In search of *Scopula nigropunctata* Hufn. on 1st August 1990 at the Warren, Folkestone, Kent, the appearance of a male *P. muscerda* on the sheet (sitting next to an immaculate *S. nigropunctata*!) at 23.30 hours was most unexpected. To find another when emptying the traps in the morning was even more surprising. *Orthonama obstipata* Fab. was also seen, a male at about 24.00 hours, together with 30 - 40 *Autographa gamma* L. and one *Nomophila noctuella* D. & S. These observations together with the favourable weather conditions (light easterly winds with a minimum temperature of 16 degrees), the lack of suitable habitat locally and the occurrence of other specimens in Kent around this time must make migratory origin certain.

Previous records of this species in Kent are for resident populations: at Ham Fen near Deal at the end of the 19th century to 1911 and Appledore, July 1898 (Chalmers-Hunt, *Butterflies and moths of Kent* **2**: 92-93); Fordwich, no date but "old" (*ibid.* **2**: 362). More isolated records are Lydd, 1 at light 14.8.1965 (*ibid.* **2**: 362); Longrope, Ham Street, 1 male at m.v. — 19.7.1969 (*ibid.* **3**: 235); Orlestone Forest, Ham Street, 1, 16.7.1983 (Collins, *Ent. Rec.* **95**: 222) and Bromley, 1 male at m.v. (Clarke, *Ent. Rec.* **96**: 55).

On 4th August the site was revisited but apart from a strong flight of *A. gamma* shortly after dusk and one *Udea ferrugalis* Hübn. no more migrants were seen; the most interesting moth was a rather worn example of *Standfussiana lucernea* L. at actinic.— Dr JULIAN CLARKE, Oaklea, Felcourt Road, Lingfield, Surrey RH7 6NF.

***Evergestis limbata* L. (Lep.: Pyralidae) new to the British Isles**

I am pleased to record the capture of what I believe to be the first British specimen of *Evergestis limbata* L. which came to m.v. light on Guernsey on 18th July 1990. This attractive little pyralid is illustrated in Palm (1986) *Nordeuropas Pyralider* and has been recorded in the larval stage on *Sisymbrium* (rocket), *Alliaria petiolata* (garlic mustard), *Isatis tinctoria* (woad) and *Genista tinctoria* (Dyer's greenweed).

I am also pleased to record that further specimens of the Guernsey Underwing, *Polyphaenis sericata* and *Thera cupressata* have also been taken in my Guernsey garden.— T.D.N. PEET, Le Chene, Forest, Guernsey.

Some recent records of localised synanthropic Coleoptera

Cryptopleurum subtile Sharp (Hydrophilidae). An immigrant from eastern Asia first recorded in Britain in 1966.

Compost heap, Little Comberton, Worcs. (SO/94) 7-8.viii.1989 (3)
Compost heap, Broadway, Worcs. (SP/03) 6.vi.1989 (1)*
Manure heap, Helmdon, Northants (SP/54) 18.viii.1989 (1)

Phacophallus tricolor (Kraatz) (Staphylinidae). First taken in Britain by Mr P.M. Hammond on 9.vii.1980 in London (*Entomologist's mon. Mag.*) **118**: 231-232) as an immigrant, probably initially from the eastern Palaearctic. This is a distinctive species with pale elytra, the suture bisecting dark confluent triangles widening basally (Smetana, A. 1980 *Ent. Scand.*: **54**). Now almost cosmopolitan.

Compost heap, Broadway, Worcs. (SP/03) 4.viii.1988 (female)*
Compost heap, Little Comberton, Worcs. (SO/94) 6.viii.1989 (male)

Myrmechixenus vaporariorum Guérin-Méneville (Colydiidae).

According to *Faune de l'Europe et du Bassin Med.* **8** (pub. Masson 1977) this species is pan-European, rarer in the east, extending to Cape Verde Islands, Morocco and Egypt, and is found in "les bouses désséchées," doubtless the French equivalent of "old manure heaps."

Compost heap, Little Comberton, Worcs. (SO/94) 27.vii.1989 (1)* in breeding colony *Labia minor* (L.) (Dermaptera, Labiidae) in friable laminated decomposing vegetation with some lignified stems. One of the few modern British records.

Anthicus tobias Marseul (Anthicidae).

Compost heap, Broadway, Worcs. (SP/03) 19.viii.1988 (1)

According to Hammond, P.M. 1974, *Changing flora & fauna of Britain,* this species was first taken in Britain in 1935. This specimen was taken in fresh lettuce leaves, with the clear indication in this case of aphidophagy.

My identifications were confirmed by A.A. Allen, M.L. Cox, C. Johnson and R. Madge whom I wish to thank. Mr P. Hodge kindly allowed me to publish his Northamptonshire record of *C. subtile.*
"*" indicates species new to Worcestershire, v.c. 37.— P.F. WHITEHEAD, Moor Leys, Little Comberton, Pershore, Worcestershire WR10 3EP.

Unusual flight times of *Eupithecia tripunctaria* H.-S., *Operophtera brumata* L. and *Colostygia multistrigaria* L. (Lep.: Geometridae) in Rothamsted Insect Survey light traps.

There have recently been several interesting articles in this journal which discuss the voltinism of *E. tripunctaria* (White-spotted Pug). The conclusion appears to be that this species is at least partially bivoltine in Britain. However, a single male was caught at the RIS trap at Yarner Wood, Devon (Site No., 266, O.S. Grid Ref. SX 786 788) on 29.xii.1988.

This record constitutes a third emergence at Yarner Wood during that year, possibly as a result of the mild winter of 1988/89. A single male *O. brumata* (Winter Moth) was caught at the same site on 29.vi.1988. This species usually flies between mid-November and mid-February at Yarner Wood, though one late capture was recorded on 2.iii.1979.

A single male *C. multistrigaria* (Mottled Grey) was caught at Rowardennan, Stirling (Site No. O.S. Grid Ref. NS 378 958) on 5.vii.1989. This species is usually recorded during March and April at Rowardennan, with occasional specimens in late January and early May.

These unusual records may be of particular interest considering the current discussions on climatic change which may affect the life cycles of moths as well as their distribution and abundance. Thanks are extended to P. Page and his staff at Yarner Wood and to R. McMath at Rowardennan for their continuing support in operating Rothamsted light traps.— ADRIAN M. RILEY, Dept. Entomology and Nematology, AFRC Inst. Arable Crops Research, Rothamsted Exp. Stn., Harpenden, Herts AL5 2JQ.

Evergestis extimalis (Scop.) (Lep.: Pyralidae) in the Isle of Wight.

On 18th July 1990 I took a specimen of this species at light at Freshwater which was presumably a migrant. According to Goater the last date given for this species for the island was at Bembridge on 11.vi.1858 by Wall. The only other migrant worthy of note taken in June or July 1990 was *Mythimna vitellina* (Hübn.) which I took on 26th June 1990.— S.A. KNILL-JONES, 2 School Green Road, Freshwater, Isle of Wight.

Abundance of *Leptura livida* F. (Col.: Cerambycidae) in a S.E. London locality

This season, 1990, the small but attractive longhorn beetle *Leptura livida* L. has been extraordinarily plentiful in suitable spots on Woolwich Common (barely ten minutes' walk from my house). An idea of its numbers will be given by the fact that, on an isolated plant of *Heracleum sphondylium* in a bush area (24.vi) the average count of *L. livida* was a dozen to each of several umbels. This profusion, admittedly, was not quite equalled elsewhere on the Common, and the distribution though wide was not uniform over the area; but still it occurred copiously in other parts too, affecting chiefly (besides hogweed) rose, blackberry, and thistle flowers — more especially in sheltered bushy spots.

This singular abundance bears all the marks of a temporary "outbreak" and may well prove a one-year phenomenon, perhaps paralleled by an immense quantity of familiar Cantharid *Rhagonycha fulva* Scop. in a neighbouring locality, to be seen as a rule only sparingly in this district. The *Leptura* first appeared on the Common in 1987 when, and up to this year, it was noted very sparsely. My only previous record for the district is of singletons twice in my former garden at Blackheath on golden-rod flowers, both in 1952. Its seeming absence, hitherto, from wholly suitable habitats at Shooters Hill, almost adjacent to Woolwich Common and well-worked by me, is not easy to explain.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Tyria jacobaeae L. (Lep.: Arctiidae), the Cinnabar moth larvae on colt's-foot

Whilst working waste ground locally on 7th August 1990 I noticed larvae of the Cinnabar on colt's-foot (*Tussilago farfara*).

Having in previous years seen larvae on this foodplant, normally in close proximity to their normal pabulum, I thought little of it until I chanced upon a soil-tip some two meters high, sparsely vegetated with, at the top, a clump of grass and a few plants of colt's-foot attended by larvae of the Cinnabar. Although there were examples of grasses, *Polygonum* species and goosefoot, neither ragwort nor groundsel were present.

My curiosity aroused, I began to search other colt's-foot plants, well away from ragwort or groundsel, and found larvae commonly in this situation.

This record, along with those of Minnion, Wallace and Birkett (*Ent. Rec.* **92**: 26, 144) lends support to the suggestion that colt's-foot is a natural alternative foodplant for the Cinnabar.— A.S. BOOT, 38 Balmoral Road, Colwick, Notts NG4 2GD.

A Convolvulus Hawk-moth in West Sussex

The night of 29th August 1990 was very humid, the temperature around 18°C with heavy rain and thunderstorms. At 23.45 hours a Convolvulus Hawk (*Agrius convolvuli* L.) flew into the house and settled on an oleander plant in the conservatory. This was my first example of this fine Hawk, despite many years of operating a light trap.— J.K. KNOTT, 9 The Brook, Southwater, West Sussex.

Two interesting Carabid captures (Col.) in S.E. London (W. Kent)

Single examples of the two following ground beetles, seldom recorded, occurred at my m.v. lamp recently, the first on the night of 15th July, the second on that of 3rd August, 1990. Both species seem new to the Greater London area.

Acupalpus brunnipes Sturm. — This species, which I had never previously taken, is a very local rarity recorded apparently only from Dorset (Studland and Bournemouth), Hants (Woolston and Hartley

Heath), a number of Surrey localities, and Herts — the source of the latter record I do not know. The habitat seems to be boggy places in sphagnum, but also damp sandy spots; in any case on acid and peaty soils. The nearest localities to London are Esher and Wimbledon — records of last century. The Charlton specimen, which should furnish a new Kent record for *A. brunnipes,* is fully identical with some I have from Studland (ex Harwood). I know of no likely locality in the area at the present time, and its provenance remains a mystery.

Badister anomalus Perris. — The specimen, fortunately a male, was determined from the aedeagus. The species was only in 1955 separated in our fauna from its close allies *B. peltatus* Panz. and *B. dilatatus* Chaud., and would seem to be still known definitely from only Dorset, Sussex and Kent. The present record is likely to be the first for West Kent and the metropolitan area. It is not known (to me at least) to which of our three species of the subgenus *Baudia* the old London record — "Notting Hill and Hammersmith Marshes" (Fowler, 1887, *Col. Brit. Isl.* **1**: 30, under *B. peltatus*) — refers. The late Dr A.M. Massee and I took *B. anomalus* in some numbers, together with *Odacantha melanura* L., on the Pett Levels in E. Sussex (7.vi.53); I also found one male at Pond Lye near Cuckfield in the same vice-county on the 13th.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

CURRENT LITERATURE

Larvae of owlet moths (Noctuidae) - biology, morphology and classification, by **O.I.Merzheevskaya.** 419 pp 97 figs. Boards. E.J. Brill, Leiden, 1989. 115 Guilders.

This work was originally published in 1967, and the current English language edition is one of a series sponsored by the Smithsonian Institution Libraries in cooperation with the National Science Foundation in the USA.

Merzheevskaya deals in great detail with the larvae of 144 noctuids of economic importance found in Belorussia, and in doing so she draws upon and effectively complements Beck's *Die Larvalsystematik de Eulen*, published in 1960. Despite being restricted to Belorussia, the majority of the species considered range across northern Europe and into the United Kingdom although few are regarded as pest species here.

The book covers methodology, larval biology, external morphology of larvae — copiously illustrated with line drawings — eggs and oviposition, and systematic detail by subfamily. A valuable addition to the sparse literature on the larval morphology of the noctuidae. Paul Sokoloff

Entomology : A guide to information sources by **Pamela Gilbert** and **Chris Hamilton**. 259 pp. Boards. Mansell, 1989. £30.00

The first edition of this useful work was published in 1983 and reviewed in this journal (*Ent.Rec.* **96**: 135-136). In essence this is a compendium of citations, references and addresses pertaining to all matters entomological. In many respects it is the senior partner to *A directory for entomologists* published in 1989 by the Amateur Entomologists' Society (reviewed *Ent.Rec.* **102**:148).

Information is well organised, cross-referenced and indexed and as a whole is easy to use. Inevitably, as the authors freely admit, some information rapidly becomes out of date, but is was disappointing to see several citations for UK journals and Societies chronically out of date (including this journal, the EMM and the AES for example). Despite the dubious accuracy of some of the entries this book remains a valuable, even unique, source of reference for the serious entomologist. Paul Sokoloff

The Hebrides. A Natural History, by **J.M. Boyd** and **I.L. Boyd**. Foreword by HRH Prince Philip, Duke of Edinburgh. With 21 colour and over 150 photographs in black and white. 416 pp. Collins. The *New Naturalist Library*. £12.95.

This is an impressive volume, which must have involved a great deal of work, not only in research but also in proof reading and indexing. The style is both readable and informative, conveying the authors' zeal for their subject and for the conservation of wild life in the Hebrides. The amount of information which is presented is enormous, but it is rightly not presented as final. There is still room for further research, continuing the work which was begun by Edward Lhuyd and Martin Martin quite independently in the late seventeenth century.

As far as entomology is concerned, comparatively little work had been done in the area before 1930; since when a great amount of information has been obtained, especially since the coming of the mercury vapour light trap. Entomologists will read this book with much interest, but I think they will feel that in future editions their subject should have its own chapter. As for lepidoptera, though the Bibliography contains about 300 entries, it does not include any to the Distribution Maps published by the Biological Records Centre under the editorship of J. Heath, nor to J.M. Chalmers-Hunt's invaluable *Local Lists of Lepidoptera* (1989), though this was possibly not available while the book was actually being written. This reveals that there was an article on the Macrolepidoptera of the Isle of Barra published in the *Scottish Naturalist* in 1938, and one on the Macrolepidoptera of the Isle of Canna in 1954. This list contains a reference to The Grey (*Dianthoecia caesia*) having been taken in a light trap in 1952 there, the first recorded Scottish capture (the moth was previously only known from Kerry and the Isle of Man).

Nowadays the contrast is made between the Outer and the Inner Hebrides; but anciently the contrast was between the islands north of, and those south of, Ardnamurchan Point, the southern isles being Arran, Bute, the Cumbraes, Islay, Jura, Gigha, Colonsay, Iona, Coll, Tiree and Mull. In fact, the southern isles have more in common with Argyll than they do with Skye and the Small Isles, the Northern Inner Hebrides. This is shown by the Biological Centre's 1982 map, which shows that out of a total of 24 resident species of Hebridean butterflies, eight occur only in the Southern Isles, while a ninth, *A. cardamines,* is only noted in the Northern Isles by an unlikely record for Barra (in the Southern Isles it is marked as recorded from Islay and Bute).

Of these twenty-four resident species, only thirteen are mentioned in the book, and only nine of them are mentioned in the "butterfly" entry in the Index, which includes a moth, the Marbled Brown (*D. dodonaea*). Including this, there are twenty-eight species of moths mentioned. One which might also be included is the Dew Moth, *S. irrorella,* with its lichen-feeding larva; a day-flying species found on warm south-facing cliffs on Canna, Rum and Skye (Heath, 1980; Wormell, 1983). The migratory lepidoptera, which come regularly, like *V. atalanta, C. cardui, P. gamma* and *N. noctuella,* or occasionally, such as *A. atropos, H. convolvuli, M. stellatarum,* or *C. croceus,* are not discussed. (If *noctuella* can get to Canna with *its* wings, why not *P. aegeria*?)

Insect migration does not seem to be discussed in the book ("migration" is not a heading in the Index), but it may reasonably be suggested that the distribution of lepidoptera in the Hebrides is a function of the wind and weather as well as of the vegetation and the soil. In his *Lepidoptera of the Orkney Islands,* 1983, R.I. Lorimer describes how interesting captures in the Orkneys have often coincided with high pressure systems over Scandinavia with north-east winds, with the immigrants occasionally producing descendants which may persist over several years (pp.10, 13). Precisely the same thing has been the impression of the reviewer as regards the Isle of Canna, where a light trap has been run since 1951.

The authors are to be congratulated on reverting to the traditional spelling "Rum"; the "h" was inserted after the "R" by the Post Office at the whim of a non-native proprietor. But they are wrong when they say that "little natural history exists in the Gaelic language"; Gaelic poetry, proverbs and folk anecdotes are pervaded by a sense of oneness with nature; the beauties of nature were a popular theme with Gaelic poets. Alexander MacDonald (1710 - 1770) has three long nature poems in his first edition (1751), and translated many names of birds, insects and animals from Latin-English word list in his 1741 Vocabulary. He was aware of the contemporary idea that birds which, like the swallow, disappeared in autumn and returned in spring, spent the winter hibernating in caves.

J.L. Campbell

References

Heath, J. (1982). *Distribution Maps of the Butterflies of the British Isles.* Biological Records Centre.

Wormell, P. (1983). Lepidoptera in the Inner Hebrides. *Proc. Royal Society of Edinburgh* 83B, 531-546, 1983.

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SPECIAL INDEX

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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.

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