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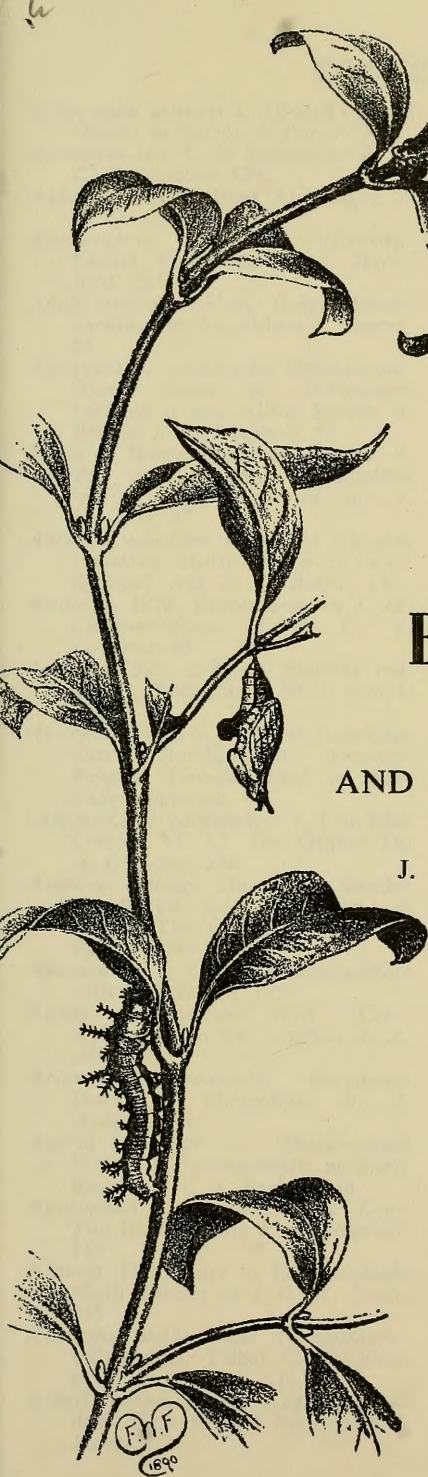


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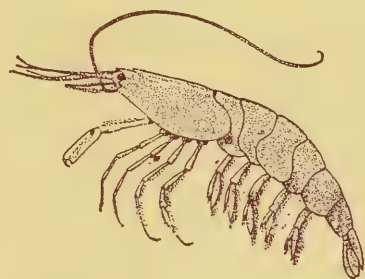
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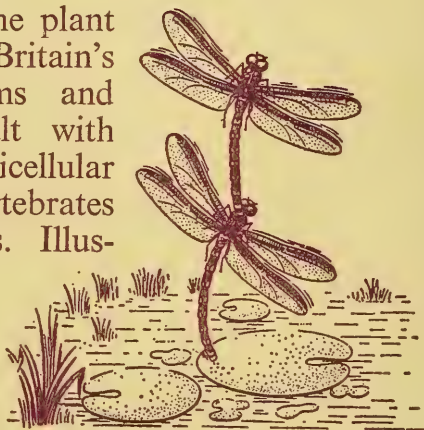


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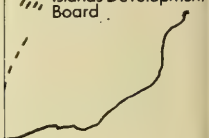
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The Lepidoptera of the Cairngorms National Nature Reserve

EUAN A. M. MACALPINE *

Introduction

The Aviemore district must be one of the most popular collecting areas in Scotland yet the lepidoptera of the Cairngorms NNR (hereafter referred to as the Reserve or the NNR) have remained relatively unknown. The reasons are not hard to find: most visitors stay only a few days in the valley and so do not have time to survey a significant part of the Reserve; Craigellachie NNR, Granish Moor and the Bogach at Alvie are all more accessible and, possibly more critically, contain known interesting species; and finally, by contrast, the Reserve is remote, exposed and very hard work to cover adequately.

In 1976 I was offered a sabbatical term by Winchester College and from late March until early September of that year I was employed by the Nature Conservancy Council to undertake as full a survey of the NNR as possible. In 1977 I returned for five weeks, the last week of July and the whole of August, and in 1978 I was in the area for three weeks, the last two weeks of August and the first week of September. On all these occasions the NCC kindly supplied me with transport and office facilities.

A full report of the survey is at present being prepared for the NCC and I am grateful to them for allowing me to publish this article first.

Anyone seeing this article who is able to add species to the list for the NNR, or can give additional localities, is kindly asked to contact the author, if possible enclosing two copies of his records. All letters will be acknowledged and one copy of the records forwarded to the NCC.

Brief Description of the Reserve

The Reserve, established in July 1954, now consists of 26,000 ha. and its main importance is that it contains the largest mass of really high land in Britain. Viewed from the north, the area appears as two high plateaux bisected by the Lairig Ghru, which runs from Coylumbridge, rises to a height of 835 m. and then descends to Deeside. The eastern plateau contains the summits of Cairn Gorm and Ben Macdui and the western plateau the summits of Braeriach and Cairn Toul. All four are over 1,240 m., the highest being Ben Macdui at

* Hawkins', St. Cross Road, Winchester, Hants. SO23 9HX.

MAP

Reproduced by courtesy of the NCC. The letters *a* to *g* indicate the positions of the main trap sites within the Reserve; the letter *t* indicates the positions of casual trap sites; and the letter *k* indicates the main trap site at Kincaira, outside the Reserve.

Note: (i) St. Valery Hut and Curran Bothy no longer exist; (ii) the nature trail at Achlean is closed.

1,309 m. The high land is the most truly 'arctic' in Britain. Associated with these tops are a series of spectacular corries, high-level lochs and streams. On the western plateau, south of Gleann Einich and above Glen Feshie, there is the largest area of high blanket bog in the country, most of the land being above 900 m. This is known as the Moire Mhor or 'The Great Moss'.

Between the high land and the lush margins of the Spey valley there is a succession of different habitats. At Rothiemurchus there is an extensive remnant of the old Caledonian pine forest, with its rich under-storey of bilberry-crowberry heath; at Craig Fhiaclach the pines reach their highest natural level in Britain at some 640 m.; heather dominates above this level, slowly becoming more wind-flattened with increasing altitude until it fades out at around 1,000 m. Patches of bearberry and, at higher altitude, crowberry can become quite extensive in this heath-land. Above 1,000 m. *Racomitrium* heath dominates.

Anyone wanting much fuller details of the vegetation in particular or the area in general should see Nethersole-Thompson & Watson, 1974.

Previous Work on Lepidoptera in the NNR

In 1952 Comm. G. W. Harper went to live in Newtonmore and from then until the late 60s collected and recorded over a large area. He wrote up his findings in a series of papers, *Harper* (1954-1968), and these papers give the only self-contained account of the macrolepidoptera of the region — roughly a circle of 20-mile radius centred on Newtonmore. At the request of the NCC he recorded as much as he could within the boundary of the Reserve but he limited his range to the area around Loch an Eilein, only occasionally going further afield.

E. C. Pelham-Clinton and R. M. Mere visited the Reserve soon after it was declared an NNR, and recorded particularly in Gleann Einich and on Braeriach plateau — and ran a trap on the summit! Pelham-Clinton also visited Glen Derry and Glen Luibeg in 1970 and Glen Derry again in 1971.

Sufficient to say that by 1976 there were approximately 115 species recorded on the NCC files, the majority of the macro records coming from Harper and the majority of the micro records from Pelham-Clinton.

There was an entomological survey sponsored by Shell but no records from this have seen the light of day — at least no records of moths or butterflies have appeared.

It is perhaps interesting to note that the provisional Atlas of the Insects of the British Isles, Part 2, Lepidoptera, had no records at all for the grid square:

- NJ00 Gairn Gorm Summit, Coire Raibert, Loch Avon,
Loch Etchachan;
- NN89 Carn Ban Mor, Coire Garbhlach;
- NN99 Loch Einich, Moine Mhor;
- NN88 Upper Glen Feshie.

This Survey

In view of the rather fragmentary nature of the previous records, I decided to approach the area as if nothing were known. I therefore selected seven trapping sites around the north and north-western edge of the Reserve, trying to choose them to give maximum coverage of the area and maximum diversity of vegetation type. I chose an eighth site, Inshriach, which I used whenever the NCC landrover was out of action, since this was the only locality that I could get my car to in the Reserve. In 1977, I dropped the sites at Loch Einich and Achlean and in 1978 I dropped Achnagoichan as well. A glance at the map will show that I got reasonable coverage of the lower area of the Reserve but, in view of the fact that I only trapped at each site once a week, I am sure that I have failed to get a complete picture at any of the sites.

During the day I covered as much of the Reserve as I could and I suppose I spent on average about six or seven hours a day in the hills — only just an adequate amount of time given the remoteness of so much of the NNR.

Traps and Trap Sites

To save space in the systematic list, I use the following letters to represent the trap sites:

A. Loch an Eilein	NN/899072.	290 m.
B. Cairgorm Club Footbridge	NH/928078.	300 m.
C. Loch Gamhna	NH/894073.	260 m.
D. Loch Einich	NN/921999.	510 m.
E. Inshriach Bothy	NH/885056.	285 m.
F. Allt Ruadh	NH/864010.	380 m.
G. Achlean	NN/852985.	340 m.
H. Achnagoichan	NH/912083.	310 m.

Apart from the restrictions mentioned above, these sites were all trapped once a week for the time I was in the area. In 1976 I used two 6-watt actinic Heath traps, and in 1977 and '78 I used a 125-watt Robinson trap.

Other trap-sites used were: Gleann Eninich — NH/925046 — 430 m. — July 10th, 15th, 24th, 29th, all 1976 — one Heath trap; Gleann Einich — NH/928066 — 350 m. — 29.vii.76 — one Heath trap; Coire Garbhlach — NN/872947 — 510 m. 24.vii.76; Coire Garbhlach — NN/881939 — 900 m. — 11.viii.77 — one Heath trap; Moine Mhor — NN/895926 — 980 m. — one Heath trap; Moine Mhor — NN/904927 — 974 m. — 11.viii.77 — one Robinson trap.

Site outside Reserve

K. 'Kincraig'	NH/8506.	220 m.
---------------	----------	--------

Apart from the first three weeks in 1976, I lived at the above site and in 1976 and '78 I ran a Robinson trap there every night. In 1977 I ran the Robinson trap in the Reserve and did no recording at all at Kincraig. Over all three seasons I did no day-time or dusk work there since I was always in the NNR. I have included these result in the systematic list so that they can be compared and contrasted with the results from the NNR and in the hope that all the results taken

together will eventually form the basis of a micro list for the whole area, and not just for the NNR.

Weather

The weather during 1976 has been commented on many times in this journal and it is clear that I could not have picked a better year to 'work' the Cairngorms. Indeed, after reading Harper's comments on the weather over the years, it is obvious that the weather in the Cairngorms was relatively even better than over the country as a whole. A few brief figures will confirm this.

Weather records kept at Achnagoichan for the period 1955 to 1964 gave the following:

Average warmest month: July, 16.2°C.

Average Minimum Monthly Rainfall: 40 mm. in April — with March and May similar.

Average August Rainfall (the wettest month): 98 mm.

Compare 1976: the average temperatures in June, July, August were 20.6, 22.2, 21.2°C; the *maximum* monthly rainfall was in May, 47 mm., all other months under 24 mm. and August had only 16 mm.!

Although 1977 and 1978 were not nearly so good as 1976, they were still better than average. In short, it is hard to imagine that any moth survey has been blessed with such good weather over such a long period of time in an area that is renowned for its bad weather!

Day-time Records

During the day I covered as much of the Reserve as I could and I list below the major areas of the NNR that I visited that were away from the trap sites. The numbers opposite each area indicate the number of visits specifically to these areas, as opposed to merely walking through the area on the way to somewhere else. The three sets of figures give the visits for each of the three seasons I was there.

(1) Cairn Gorm & Coire Railbert: 7-0-1. (2) Loch Avon & Loch Etchachan: 3-1-0. (3) Cairn Gorm to Ben Macdui: 3-1-0. (4) Lairig to Sinclair Hut: 5-1-2. (5) Gleann Einich to the Loch: 5-0-0. (6). Creag Fhiaclach, Coire Follais, & Argyll Stone area: 4-0-1. (7) Geal-charn & Coire Follais: 1-0-0. (8) Achlean & Coire Garbhlach: 5-0-1. (9) Moine Mhor & Carn Ban Mor: 3-1-0. (10) Upper Glen Feshie: 0-1-1. (11) Loch Einich to Braeriach: 3-0-0. (12) Cairn Toul: 1-0-0. (13) Lairig to Linn of Dee: 0-0-1.

A brief glance at the map will show that I failed to cover adequately the areas drained by the Geusachan Burn, the lower River Eidart and the upper Feshie and Glen Derry and Glen Luibeg.

The Systematic List

In the list that follows I have tried to convey as much information as space allows. After each species I give the trap sites it was recorded from, using the letter abbreviations, then the day-flying records and any larvae or pupae found. The only exception to this is for the records from Kincaig: I have grouped all these under the trap site and have not given

further details about day-flying, larvae, etc., since this report is mainly concerned with the NNR. To save space I use the following conventions:

A means at trap site A; *Loch an Eilein* means 'in the area of Loch an Eilein but not actually at trap-site A', similarly *Loch Gamha*, etc; *Achlean/Coire Garbhlach* means the area between these two places; *above Loch an Eilein* and *above Loch Gamhna* means the areas to the south of these places, where the land starts to rise.

This list contains all the records for the NNR that I have been able to find and unless otherwise stated all records are those of the author. In the case of records already on the files, I have only given these if I have failed to up-date them myself. In the event, additional records have come from Pelham-Clinton, abbreviated to E.C.P-C., Harper and two records from Charles Godfray and Mark Sterling, who visited the area in the summer of 1977.

The only species for which records are incomplete are those for the 'ear' moths: I killed only a few and, having identified all three species from the NNR, I then stopped recording them.

In general I have given full details of occurrence, but numbers for only a few species, and I am grateful to the Editor for advice on which species might be of interest to his readers.

Vice Counties. All records in this list are from *V.c.96, East Invernesshire*, except for the following places:

V.c.94 Banffshire. Fords of Avon, Loch Avon, Cairn Gorm, Coire Raibert, Coire Domhain, Shetler Stone, Lochan Buidhe.

V.c.92 South Aberdeenshire. Loch Etchanchan, Coire Spuntan Dearg, Glen Derry, Glen Luibeg, Cairn Toul, Pools of Dee.

V.c.92/V.c.96. Braeriach & Einich Cairn lie on the boundary between these Vice Counties.

Brief Summary of Results

The systematic list gives 387 species for the Reserve. I failed to record eleven species that were on the NCC files. The total number of different species at each of the trap sites were as follows: A — 225; B — 130; C — 160; D — 32; E — 141; F — 123; G — 102; H — 122; (K — 322). These figures give a good indication of the relative richness of the sites though two things need to be taken into account: I never ran a 125-watt trap at G; and I recorded more from A, Loch an Eilein, than any other site since it is the main entrance to the Reserve and without doubt the easiest place to see nearly all the butterflies. The figures for B, Cairngorm Club Footbridge, are slightly lower than I expected but this may be due to the fact that there is no really good birch in the area and the ants seemed particularly active there — the trap always had a lot of ants in it and I assume the toll on larvae is very great. I am informed that the best ant-free area is between the two rivers that meet at Cairngorm Club Footbridge but I never went there. Perhaps one day?

The records away from the trap sites, i.e. day-flying records only, give: Lairig to Sinclair Hut — 56; Gleann Einich — 54; Achlean/Coire Garhlach — 64; Upper Glen Feshie, from Ruigh-aiteachain bothy south — 27, this after only two visits, both in August when the main season was over. My guess is that Glen Feshie, from the bothy, would turn out to be the richest of these sites if only it could be adequately surveyed.

Acknowledgments

I wish to express my sincere thanks to Winchester College for granting me a sabbatical term and the Mathematics department for covering for me while I was away; to the Nature Conservancy Council and all the staff at Aviemore for the help they gave me; to Teddy Pelham-Clinton and the late Denzil Ffennell for the enormous amount of work they did on my behalf indentifying a lot of the micros; to Lord Dulverton and John Grant The Younger for granting me free access to all their land; and to all the entomologists who gave me help before, during and after my trips to the Cairngorms. These were: Bob Palmer, who gave me all the records he had for the south side of the NNR; Geoffrey Pyman, who sent me records of *Venusia cambrica* (Curtis) and *Eupithecia goosensiata* (Mabille) — I failed to find these in '76 but recorded both in '77; Charles Godray and Mark Sterling, who kindly sent me a copy of their records for '77; Col. A. M. Emmet, who indentified all larval mines; and David Carter of the British Museum (Nat. Hist.), who identified a large number of larvae I sent him, both as live specimens and as colour slides. To all these gentlemen thank you!

My thanks to the Edinburgh family who answered advertisement in *The Times* and offered the most marvellous accommodation for all these seasons. The house was in an ideal position to enable me to cover a large area of the NNR, situated as it was in Inshriach, and, as shown in the systematic list, it turned out to be an ideal locality for moths in its own right.

Finally, my thanks to my wife and children for putting up with moths for about 17 hours a day for the whole period. They also contributed a good many records, my four-year-old daughter being particularly good at finding larvae at head-height, her head-height that is!

A Few Useless Statistics

In the course of this survey I travelled over 7,000 miles by landrover, did over 130,000 vertical feet of hill-walking and open and shut gates while driving over 2,752 times.

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(to be continued)

Provençal Butterflies in April 1978

By DR. C. J. LUCKENS *

The snow and sleet which greeted us soon after we drove off the ferry at Le Havre and the bitter east wind which persisted right through to Provence did not make an encouraging start to our late April family holiday. Added to that was the increasing malaise of our motorcaravan which developed more and more ailments during our marathon 17-hour journey south. The warm, aromatic Mediterranean breeze was a wonderful tonic, however, as we drove in the darkness through the fringe of the Massif des Maures, and we finally arrived at our rented gîte a few kilometres outside Ste. Maxime, in the early hours of the morning.

A few hours sleep, a late breakfast on the sun-filled balcony, and the sight of a large *Iphiclides podalirius* L. flapping across the yard below, quickly restored morale, and I lost no time in taking the three boys for a walk along the narrow roads behind Guerrevieille. The dominant butterflies were *Euchloe crameri* Butler and *Pieris napi* L., but there were also a few *Anthocaris cardamines* L. and *Gonepteryx cleopatra* L. In a small hollow beside the road I netted a female *Pararge aegeria aegeria* L., but not all subsequent captures were of the typical orange form of this butterfly, and pale specimens very similar to *aegerides* also turned up from time to time. Beside the house *Celestrina argiolus* L. flitted around the flowering *prunus* trees.

The next day was spent mainly arranging for repairs to our car and hiring a replacement, but I did have a short time to explore the lower Couloubrier valley north of Ste. Maxime. *E. crameri* was again widespread and the only new species were *Erynnis tages* L. and *Callophrys rubi* L.

Two hopelessly wet days followed, but April 19th promised fair and we took the narrow hill road beyond Grimaud to Collobrières. As we neared Collobrières the first *Anthocaris belia euphenoides* Staud. appeared, fluttering over the yellow *biscutella* flowers beside the road. We eventually found a place to stop beside an orchard, and among some rough ground nearby single specimens of *Heodes tityrus* Poda and *Clossiana dia* L. turned up. A *Nymphalis polychloros* L. was seen feeding high up on a flowering cherry but flew off before I could net it. Just before leaving I caught a fresh female *Colias croceus* Geoff. which, over the next few days obliged with a number of ova. We left by the winding road over the Col de Babaou, stopping half way up to intercept a large female *Papilio machaon* L. which was fluttering over pink cistus, and which also produced a large batch of ova before her release three days later.

Thundery showers prevailed for two days, but the 22nd was hot and sunny and my second son came with me to explore the eastern edge of the Forêt de Dom beyond Cogolin. In

* 52 Thorold Road, Bitterne Park, Southampton SO2 4JG.

rough ground by a stream Colin spotted a worn female *Zerynthia polyxena* D. & S., a butterfly I particularly wanted to find. This prompted a more extensive search and after crossing the stream we eventually found ourselves in a lush meadow where this attractive butterfly was flying in numbers. The rich herbage harboured clumps of *Aristolochia rotunda* the main foodplant of *polyxena* and also several examples of the lovely yellow Southern tulip. On the far side of the meadow the fringe of the forêt domaniale clothed a gently rising slope, and in the centre was an overgrown vineyard with several flowering fruit trees. The blossom was attracting *podalirius* and a few *Nymphalids* such as *Polygonia c-album* L., *Nymphalis io* L. and another wary *polychloros*. Just before leaving I casually searched one of the clumps of *Aristolochia* and almost immediately found two *polyxena* ova.

April 23rd was the warmest day of our holiday. In the morning Colin and I went to the terraces east of Draguignan where Mr. R. F. Bretherton had done some profitable collecting in 1962. Times had changed however, and there was a plethora of notices alongside the road stating 'Propriété Privée. Défense d'Entrer' or more simply and perhaps more tellingly 'Attention. Chien Méchant'! We found one fairly good area however where several *A. belia euphenoides* were fluttering about like lemon-yellow flower petals, and Colin captured a single male *Philotes baton* Berg. in perfect condition. We also saw *C. dia*, *G. cleopatra*, *Leptidea sinapis* L. and *Pyrgus malvae* L. I was pleased to net a female *Libthea celtis* Laich., but to my chagrin failed to find any *Celtis australis* to sleeve her on.

In the afternoon we all went to the meadow west of Cogolin where *polyxena*, *crameri*, *croceus* and several more *podalirius* were flying. New species seen were *Spialia sertorius* Hoffmann. and *Aricia agestis* D. & S. Searching clumps of plantain, I found two *Melitaea* larvae which, bred out in May, produced large fine specimens of *Melitaea didyma* Esp.

Collecting was impossible for the next three days but on April 27th, our last full day at Guerrevieille the sun shone once more and my two older sons came with me to the disused railway line which runs along the coast east of Le Rayol. The track was bordered by Arbutus bushes in several places, but we searched in vain for larvae of *Charaxes jasius* L. The bright, orange-dappled form of *P. aegeria* was fairly common and I was also pleased to find *Pieris mannii* Mayer.

The following day we started north for home without a starter motor, which had broken with a horrifying noise the evening before. A veil must be drawn over the next two days, but suffice it to say we did not stall at any really inconvenient times and when we were finally pushed off the ferry at Portsmouth, a satisfying harvest of specimens and livestock made all the tribulations of the journey seem worthwhile.

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THE LARVA OF *EILEMA PYGMAEOLA* PYGMAEOLA (THE PIGMY FOOTMAN). — During a field meeting of the Canterbury branch of the Kent Trust for Nature Conservation at Sandwich Bay on the 11th June 1978, I found by a footpath on the Royal St. George's Golf Course, a large concrete bollard which I turned over in the hope of finding some beetles. On the side of this lichen-encrusted piece of concrete I found two Arctiid larvae. One of these furry brown caterpillars was evidently parasitised and unfortunately both host and parasite died. However, the other larva soon spun a cocoon from which there emerged a perfect specimen of *Eilema pygmaeola* Doubleday. This specimen was shown at the Annual Exhibition of the British Entomological and Natural History Society, where Mr. Chalmers-Hunt informed me that little or nothing appears to be known of the immature stages of this insect, at least in this country. Being unaware of the significance of my capture at the time, I made no description of the full grown larva and its cocoon. However, as it seems likely that the two larvae were feeding on the lichen on the concrete bollard it should be possible to find more in 1979. — L. D. M. PACKER, 1 Mary Green Walk, Canterbury, Kent.

[This is the first time to my knowledge that the larva of this species has been found in Britain, despite the fact that the moth has been known as an inhabitant of this country for more than 130 years, and is not uncommon where it occurs. — J.M.C.H.].

THE PAINTED LADY IN DECEMBER 1978. — I was interested to see a *Cynthia cardui* L. here in our garden on 4th December, a beautiful calm sunny day after a cold spell. It settled on Chrysanthemum and Senecio. — T. G. HOWARTH, Highview, 4 Clinton Road, Beer, Seaton, Devon.

EPIPHYAS POSTVITTANA WALKER IN HAMPSHIRE. — I recorded the second and third appearance of this species in Hampshire last year (in *Ent. Rec.*, 90: 82). This year's records strengthen the likelihood that it is now breeding in the Winchester area of Hampshire. I took two specimens in my Winchester (V.c.11) m.v.t rap on nights 25th/26th October and 1st/2nd November 1978. In addition Rev. S. C. Pittis brought me a further specimen that had come to a 15 watt actinic trap in his garden on nights 27th/28th October. This also in V.c.11 about a mile away from mine towards the centre of Winchester (V.c.11) m.v. trap on nights 25th/26th October and Lane, Winchester, Hants., SO22 5LF.

Flights of the Wood Ant *Formica lugubris* (Hym., Formicidae) in Ireland

By JOHN BREEN*

Most of the studies of the flight activities of *Formica* have been made on the North American species (Scherba, 1958; Talbot, 1959-1972; Kannoński, 1959, 1963; Clark & Comanor, 1972). These studies suggest a pattern of short morning flights on successive days with only small numbers of alatae taking flight each day. In contrast, there are few detailed studies of the flight activities of European *Formica*. Donisthorpe (1927: 297) observed a mating swarm of one of the *F. rufa*-group species at Aviemore, "in the middle of the afternoon" of 15.vi.1911. Marikovsky (1961) recorded mass flights of alatae from wood ant nests and swarms of alatae congregating on mountain tops. There is also an old record of *F. aquilonia* Yarrow swarming on top of Ben Nevis in 1896 (Brice, in Collingwood, 1958). The purpose of this note is to report observations of flights made during a recent study of *F. lugubris* Zett. Further details of the localities mentioned can be found in Breen (1977).

Production of Alatae

Alatae occurred in most medium (diameter *ca.* 0.7m) to large-sized active nests and were first observed in the nests on 12.v.1973, 11.v.1974 and 23.iv.1975. Males seemed to appear first. Most nests produced both sexes, a few produced males only and none were seen with females only. Alatae (males) were last seen in the nests in late September during 1973. Alatae occurred in nests at all the known Irish localities (c.f. Breen, 1977).

There were considerable differences in the time of appearance of alatae in different nests in the South Tipperary plantation woods. During 1973, alatae were first observed in Moore's Wood on 12 May and were present in all the active nests during the next few weeks. However, in some nests — generally large, non-active and shaded, sexual larvae and pupae, but no alatae were observed as late as the 20 June, and callow males and many sexual pupae were present in one such nest (MW 284a) on 6 July. I do not know if these late emerging alatae ever flew from the nests. Similar observations have been made on the American species *F. ulkei* Emery: "The mound that is shaded or has only a northern exposure to the sun lags in activities such as the development of brood and the initiation of activity in the spring" (Scherba, 1958).

Flights

Flights were first observed in 1975. However flight dates before this can be reasonably inferred from the appearance of dealate females on the ground: 26.v.1973, 13.vi.1974. During 1975, flights were observed from five nests in Kilcoran Wood on six days from 6-20 June (table 1) and the first and last flights at each nest may not have been witnessed.

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TABLE 1. Flight activities at five nests in Kilcoran Wood during June 1975. All times are in Irish summer time. Key: — no alatae on mound; + flights; ? alatae on mound but no flight; * no observation made.

Nest	Date						Take-off direction
	6	7	9	10	11	20	
440a	+	+	?	—	—	—	ESE
440f	+	+	+	?	+	+	NNW
440g	+	—	—	—	—	—	SSE
437b	*	+	—	?	—	—	WSW
437d	*	+	+	+	+	+	NNW
Starting time	08.00	08.30	08.30	10.40	10.40	09.35	

Males and females flew from the vegetation on or near the nest, and females also climbed nearby trees (up to 5m high) and flew from their highest points. Such differences between males and females were reported in *F. ulkei* (Talbot, 1959) and *F. opaciventris* Emery (Scherba, 1961). Flights of males only and of females only occurred from the same nest (KC-437d) on different days. All the flights lasted 30-45 minutes and although 20-30 alatae per minute was the highest number seen taking flight, the usual number was 5-10 per minute. Flights took place in the morning and the actual time of flight varied according to the temperature; each flight started after the first direct sun-rays hit the nest, air temperature 17.5-18.0°C. Alatae about to fly flapped their wings beforehand (cf. Kanno, 1963). One flight started at 16.2°C but the small number of alatae which took flight all landed on nearby trees. These observations are very similar to the observations made on the North American *Formica* (references above).

Observations made on 20.v.1977 in Kilcoran Wood (nest 440g) provide further evidence of the dependence of flights on air temperature. The observations began at 03.30. At 06.50 alatae (1 ♀, 4 ♂) appeared on the nest surface. However, cloud cover was 100%, air temperature 11.5°C and it was misting. At 10.30 it cleared (air temp. 13.6°C). At 10.45 *ca.* 200 alatae appeared on the nest. Clouds reappeared but this was followed by another clearance at 11.30 (air temp. 13.9°C). At 11.50 four males and one female took flight. At 12.00 a 5-minute count gave 17 males and 4 females taking flight (air temp. 19.4°C). Only a few more alatae took flight and it ceased by 12.30 (air temp. 20.6°C). This flight was the latest in the day I have seen and it appears to have been delayed by the repeated appearance of clouds.

The direction of take-off flight was quite constant at each of the five nests (cf. table 1). However the directions appeared to bear no obvious relationship either to each other, or to uphill/downhill direction, and may have been dictated by the tree positions at each site.

Alatae were rarely seen on the surface of the nest at other times, and this may be due to a circadian rhythm of alate emergence from the nest such as that demonstrated by McCluskey (1965) in alatae of five ant species, including the formicine *Campanotus clarithorax* Emery.

Acknowledgements

Most of these observations were made while I was a postgraduate student at the Department of Zoology, University College, Cork, under the supervision of Professor F. J. O'Rourke. I was in receipt of a U.C.C. College Scholarship and a Department of Education maintenance award.

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TROSLEY COUNTRY PARK (TROTTSCLIFFE) NEAR WROTHAM, KENT.—Entomologists may be interested to know that the 160 acres of woodland and downs south of Vigo Village has been a County Council Country Park since 1976. As an area of national importance biologically (Nature Conservancy S.S.S.I. Grade 1) the Council is keen to receive past records and observations which may be of use in formulating a management plan that will help to conserve the natural history interest of the Park. If you can help, please write to the County Estates Officer and Valuer, Springfield, Maidstone. If you wish to collect specimens or are organising a group visit, would you please first contact the above address.—N. F. HEAL, Fosters, Detling Hill, near Maidstone, Kent.

THE CLOUDED SILVER (BAPTA TEMERATA HUBN.) IN OCTOBER.—A fresh specimen of *B. temerata* Hubn. came to the m.v. light in my garden on 24th October 1978. Presumably this must be the result of our unusual weather this year. Today, 27th November, I have a group of purple and white spring crocus and a *Narcissus bulbocodium conspicuus* in full bloom.—J. A. C. GREENWOOD, Hambledon House, Rogate, West Sussex.

The History and Status in Britain of *Cosmiotes consortella* (Stainton, 1851) (*exiguella* Frey, 1885)
(Lep.: Elachistidae)

By A. M. EMMET *

Elachista consortella was named by Stainton from several specimens captured by Logan in March, 1850 near King Arthur's Seat, Edinburgh (V.c.82). Morris (1872) added Headley Lane, Surrey (V.c.17) as a locality and June-July as additional months for its occurrence; Headley Lane, Stainton's "sanctum sanctorum" of entomologists, lies in the ten-kilometre square which today holds records of more lepidoptera than any other in the British Isles. Meyrick (1895) added Westmorland and east Ireland to the distribution pattern, but in his revised edition (1928), he degraded *E. consortella* to synonymy with *E. nigrella* (Hübner.). Thereafter the species disappeared from our literature, though Waters (1928) recorded the capture in April, 1927 at Ventnor, Isle of Wight of *E. nigrella*, "mostly of the form described as *E. consortella* in the first edition of Mr. Meyrick's Handbook".

Bradley (1952) introduced *Elachista exiguella* Frey as a species new to the British list on the evidence of a specimen taken between the 3rd and 8th of June, 1951 in the Burren, Co. Clare (V.c.H.9). The second British record under the name *E. exiguella* was captured at Tresco, Isles of Scilly (V.c.1) between the 29th of June and the 6th of July, 1957 (Richardson & Mere, 1958). The third, again from Ireland, was taken at Glenmore, Co. Kilkenny (V.c.H.11) on the 27th of April, 1965 (Mere & Pelham-Clinton, 1966).

Bradley (1966) found *Elachista consortella* and *E. exiguella* to be synonymous and, in compliance with the Rule of Priority, sank *exiguella* as a junior synonym of *consortella*.

Bradley & Pelham-Clinton (1967) recorded the capture in the Burren of "a few" further specimens of *Cosmiotes consortella*, using a combination not previously found in our literature. Chalmers-Hunt (1970) recorded a ♀ taken on the 21st of July 1967, at Port Erin, Isle of Man (V.c.71). Emmet (1972) recorded a specimen taken in 1969 at Ballyconneely, Co. Galway (V.c.H.16). As far as is known, there is no subsequent reference in our journals.

The British collection in the British Museum (Natural History) contains only three specimens recognised as *C. consortella*, the first Burren example (see above), and two taken by Mr. W. G. Tremewan on the 24th of April, 1955 at Gwithian, Cornwall (V.c.1). Mr. E. C. Pelham-Clinton (*in litt.*) reports that he has additional specimens from West Lothian (V.c.83) and South Kerry (V.c.H.1). Mr. J. M. Chalmers-Hunt has a ♀ taken on the 2nd June 1957 at Halling, Kent (V.c.16) (gen. det. E. C. Pelham-Clinton).

The history of the species in Britain gives the impression that it has a predominantly northern and western distribution, but this is not necessarily the case. Suspecting that I had taken

* Labrey Cottage, Victoria Gardens, Saffron Walden, Essex.

specimens in Essex both of *C. consortella* and *C. freyerella* (Hübner) (*nigrella* (Hübner) nec (Fabricius)), I submitted some

of them to Mr. E. C. Pelham-Clinton, who pronounced three to be *C. consortella*; these bear the following data: Tiptree Heath, 3.vii.77, Great Sampford, 19.v.78 and Hadstock, 29.v.78 (all V.c.19). To these I add three (possibly four specimens taken at Benfleet (V.c.18) on 28.iv.66. Though this material is statistically insufficient, the indications are that the two *Cosmiotes* species are equally common in the county. If other microlepidopterists were to examine their series of "*Elachista nigrella*", they well might find that they possess both species. Should this be the case, the records should be published to give a clearer picture of the distribution pattern.

The differences between the species are described by Traugott-Olsen & Schmidt Neilsen (1977). Compared with *C. freyerella*, *C. consortella* is generally smaller, has the forewing lighter grey and the median fascia more obscure; the frons is shining pale beige as opposed to sordid white and the neck-tufts are mottled with darker-tipped scales as opposed to being uniform brownish grey. The most obvious difference in the male genitalia lies in a spine at the distal end of the sacculus; in *C. freyerella* it is free and distinct, whereas in *C. consortella* it is appressed to the sacculus. If the scales are brushed from the tip of the abdomen, this character can usually be seen under high magnification without the dissection of the specimen.

The life history of *C. consortella* is unknown. Dates of capture (March-May, June-July, September) show that it is double- or triple-brooded. The habitat is open grassland, often on calcareous ground. *C. freyerella* feeds mainly on *Poa* spp. and *C. consortella* may do so likewise. I have a fortuitously bred specimen in my collection acquired in the following circumstances. In a series of collecting notes contributed to the AES Bulletin, I stated that elachistid larvae did not spin cocoons but pupated under a girdle like many species of butterfly (Emmet, 1970). Mr. J. L. Gregory of St. Austell, Cornwall (V.c.2) rightly took me to task for overgeneralisation, since he had bred elachistids from cocoons. On the 1st of April 1971 he wrote to me as follows (slightly adapted): "The enclosed moth has just emerged (yesterday)—another cocoon-making *Elachista*! The cocoon was on the lid of a jar which was being used by my six-year-old daughter to rear some grass-feeding noctuids. The foodplant was probably *Poa* but might have been *Holcus*. I could not find the mine." The moth arrived alive and in perfect condition. At the time, following Meyrick, I misidentified it as *Elachista nigrella*. February is likely to be the best month to look for the first generation of larvae, which should not be too difficult to find.

Abroad, *C. consortella* has been recorded from Sweden, Denmark, Germany, Switzerland, South Spain and South Italy.

I am grateful to Mr. E. C. Pelham-Clinton for the identification of specimens and advice. I have drawn information freely from Traugott-Olsen & Schmidt Neilsen (*loc. cit.*).

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OBITUARY

WILLIAM EDWARD BUSBRIDGE

William Edward Busbridge (known to many as Buzz) was born in London on 27th July 1904, and died suddenly from a heart attack on 30th September 1978. He was the son of William Reginald Busbridge who became Station Master at Dover Marine in 1918, and as such was the holder of many foreign decorations given by crowned heads as they passed through the port.

After attending school in Dover he, like his father, joined the Railway and was a clerical officer in London throughout his career, except for the 1939-1945 War, in which he served in the army.

Busbridge was a keen collector of lepidoptera and observer of bird life. He spent most of his leave in the country and much of his collecting was done around Dover in the 1920's and 1930's, and later at Sevenoaks where he lived after the war. Probably the best insect he ever took was at Atchester Wood, Stelling near Elham on 6th June 1930. This was the very rare ab. *fuscaria* Prout of the Orange Moth (*Angerona prunaria* L.), which specimen is now in the RCK collection in the BMNH.

Latterly he lived alone in an hotel — he was never married — and became interested in chess, becoming Hon. Secretary of the Hastings and St. Leonards Chess Club. He had no near relatives but will be sadly missed by his many friends. — G. H. YODEN.

The Return of the Orange Tip

By ALBERT G. LONG*

(i) In Berwickshire VC 81

The Orange Tip, *Anthocharis cardamines* L., was a fairly well-known butterfly in the Eastern Scottish Borders about the time of the founding of the Berwickshire Naturalists' Club in 1831. Thus, in 1832, the founder Dr. George Johnston described it as a local species, rare near Berwick but occurring on the road between Paxton and Swinton and also between Swinton Mill and Coldstream (*H.B.N.C.* 1, 8).

In 1850 it was seen at Coldingham Moor on June 19 (*H.B.N.C.* 3, 5), and in 1880 one was taken by Dr. Stuart at Broomdykes (*H.B.N.C.* 9, 295), while others were noted at Humebyres and Gordon Moss by Robert Renton (*H.B.N.C.* 9, 295).

About this time it was also known in Lauderdale, as recorded by Andrew Kelly in the book *Lauderdale and Lauderdale* by A. Thomson (1902), though apparently it was becoming scarce, as in 1897 William Shaw wrote "Once common at Gordon Moss but never seen now" (*H.B.N.C.* 16, 231).

George Bolam, writing in 1925, said that it occurred in the Eyemouth district many years prior to 1887 and also in Duns district, but he had no records for the twentieth century (*H.B.N.C.* 25, 522). The last recorded year of occurrence in Berwickshire therefore seems to have been 1880.

During the period 1945-1966, when I lived in Berwickshire, I never saw or heard of a single specimen in the County and I thus regarded it as probably extinct. In my County List (1957), I wrote "Is it too much to hope for its rediscovery or is it extinct in the County?" (*H.B.N.C.* 34, 132).

The first known recent occurrence of Orange Tips in Berwickshire, was on the North bank of Tweed below Leaderfoot Bridge on 18.5.1975., when about 10 specimens were seen by D. G. Long (*H.B.N.C.* 40, 104); and the following year, a male was seen on *Aubretia* in a garden at Earlston by Henry Polson (A. J. Smith, *J. Edinb. nat. Hist. Soc.* 1976, 12).

In 1978, one was seen at Abbey St. Bathans on 24.5.78, and another at Stichcill on the same date (A. G. Buckham). One was observed at Eccles on 24.5.78 by P. Summers, and on the North bank of Tweed below Lennel Churchyard I saw two males and two ova on *Alliaria petiolata* on 27.5.78. One female was also seen at the same site on 11.6.78. The above constitute all the records for VC 81 known to me.

(ii) In East Lothian VC 82

In East Lothian (VC 82) less seems to be known of the Orange Tip than in Berwickshire. W. Evans could only record two at Tynefield in May 1860 and 1861 (*Ann. Scot. Nat. Hist.* 1897, p.91). It would therefore be of interest if any reader has knowledge of records this century.

* Hancock Museum, Newcastle-upon-Tyne.

(iii) In North Northumberland VC 68

The decline of the Orange Tip in Berwickshire towards the end of last century was matched by a similar decline in north Northumberland (VC 68).

Thus, in 1839, P. J. Selby recorded it on his estate at Twizell near Belford (*Ann. of Nat. Hist.* 3, 372); in 1843, Dr. Johnston observed it on May 3rd on the south bank of Tweed between Horncliffe and Norham (*H.B.N.C.* 2, 44); and in 1857, George Wailes noted it near Callaly on 4th June and added "Generally distributed over the two counties (i.e. Durham and Northumberland) (*T.T.N.F.C.* 3, 195).

In 1867 the butterfly was recorded at Lilburn Tower on 28.3.1867 (a very early date), and again on 10.6.1869 at the same place by R. F. Wheeler (*T.N.H.S.* 3, 28 and 478); and in 1872 it was stated to be scarce at Rothbury by R. F. Wheeler and R. E. Hooppell (*T.N.H.S.* 5, 99).

George Bolam, writing in 1925, recorded it for Hetton Hall near Belford. He wrote: "In W. B. Boyd's collection, in 1883, I saw a considerable series all taken at Hetton Hall, where as he informed me it used to be common" (*H.B.N.C.* 25, 522).

In the Phenological Report of the Royal Meteorological Society for 1929 the Orange Tip was recorded for Thornton (nr. Shoreswood), Berwick and for Lemmington nr. Alnwick. It is interesting to note that it was seen at Gargunnock, near Stirling (VC 85), on the early date of 27.3.1929.

Since the above we have no further records for VC 68 until 12.6.1976, when two males were seen by P. Summers on the old railway track. It is thus obvious that in north Northumberland, as in Berwickshire, the Orange Tip suffered a long period of eclipse.

(to be continued)

WARWICKSHIRE AND NORTHAMPTONSHIRE MIGRANTS.—There was a great deal of migrant activity in Warwickshire during October as the following m.v. light trap records show. 10th October: two *Rhodometra sacraria* L. at Charlecote, a ♂ and ♀. 13th October: *Cosymbia puppillaria* Hbn., at Alves-ton Village (New County Record). 14th October: *Leucania vitellina* Hbn., one each at Charlecote and Hampton Lucy; *R. sacraria*, two at Hampton Lucy, one at Thelsford (A. Gardner) and one at Charlecote; *Nycterosea obstipata* F., two at Charlecote. 25th October: *Leucania unipuncta* Haw. at Marton (R. Allen) (New County Record). 9th November: *L. unipuncta* ♀ at Charlecote (A. Gardner). 11th November: *L. unipuncta* ♀ at Charlecote.

On the night of 12th October 1978, two *Peridroma porphyrea* D. & S. and a good specimen of *Leucania unipuncta* Haw. were visitors to an m.v. trap situated in the grounds of the Primary School in Deanshanger Village. This appears to be the first Northamptonshire record for *unipuncta*.—D. C. G. BROWN, Jacksons Farmhouse, 25 Charlecote, near Warwick.

Rev. H. S. Gorham and Some 19th Century Records

By J. COOTER *

(Continued from Volume 90, page 286)

THE DIARY, SELECTED ENTRIES

The entries given below I have chosen as being representative but perhaps somewhat biased towards rarity and by personal opinion. Many captures would appear to be unrecorded, and others when quoted by other authors differ in point of fact or detail. I have also tried to put across something of the "flavour" of the journal, and atmosphere of the Victorian entomological world, a time when transport as we known it today and take it for granted was not available.

Date	Entry No.	
1869		
April	12	From E. C. Rye, one <i>Acylophorous glabricollis</i> captured on Barnes Common, April.
	13	From E. W. Janson, three <i>Bitoma crenata</i> , one <i>Helophorus intermedius</i> .
	14 ⁴	Wimbledon Common, <i>Paederus caligatus</i> , <i>Tachyporus transversalis</i> , one <i>Stenol. dorsalis</i> .
May 13th	19	Bagot Park,—out of old oak, one <i>Bat. venustus</i> , one <i>Cis fuscatus</i> , one <i>Omal. pusillum</i> . In garden, <i>Oc. brunnipes</i> .
June 29th	29	Found one <i>Leptinus testaceus</i> ⁵ in Bees' nest in the Church yard, note its activity.
30th	„	Found one more, and saw another which retired into the nest.
July 2nd	31	Nimrod caught one <i>Leptinus</i> in the Bees' nest and saw two others.
3rd	„	Got two <i>Leptinus</i> about half past eight in the same Bees' nest. They hide in the loose [?] litter near the mouth of nest.
4th	32	Nimrod brought two <i>Leptinus</i> and two black <i>T. flavilabris</i> from Hoarcross.
5th		Dug out Bees' nest, <i>Bombus pratorum</i> , found many <i>Leptinus testaceus</i> (about 50) ⁶ , two <i>Antherophagus pallens</i> , <i>Cryptophagus</i> , two <i>setulosus</i> , one <i>saginitus</i> , one <i>Epurea aestiva</i> ⁸ .
July 20th	37	Bournemouth, 16 <i>Serica brunnea</i> drowned in sea among detritus.
August	46	From Llewellyn, four <i>Trichius fasciatus</i> , North, South Wales ⁷ .
1870		
March 8th	8	Examined rubbish from Bees' nest 32.69, found two <i>Leptinus</i> , three <i>Epurea melina</i> .
March 31st	12	Beyond Crystal Palace on sallows Dor. [? <i>Dorytomus</i>]. Cutting up rushes, one <i>Quedius maurorufus</i> , <i>Brad. distinctus</i> .
„	„	

4. See Fowler 1888, 2: 323, Gorham found three further specimens at Wimbledon April 15th, 1870. *Stenol.* = *Stenolophus*, i.e. *Acupalpus dorsalis* (Fab.).

5. See Fowler 1889, 3:93.

6. *Epuraea aestiva*, see Fowler 1889, 3:228

7. See Fowler 1890, 4:61.

* 20 Burdon Drive, Bartestree, Hereford.

- 8 Agathidium seniculus, 1 Liodes lunulatus
 19 Filix - El. pusillo. 1 Beech bark -
 1 Homalium planum, 4 Bitoma crenata
 1 Acalles gibberis also. Phlorocharis subtilis varia
 N.B. - This is new to Britain
 perhaps Acalles quercus Sch.

- 24 In cellae 1 Pristonychus trivialis, Carabus vicinatus
 13 do 2 Pristonychus 1 Car. memoralis &
 In garden, cut-grass & Phil. discrepans. Frog.
 12 25 Brockenhurst toward Beaulieu & Lady Cross Shaft & Champion
 1 Grammoptera aristis, 4 Pogonocherus pilosus
 near Denny ? in decaying beech. 6 Eucnemis capucinus!
 also Sharp & Champion got Monty. New to Britain
~~Microstigma pygmaeus~~

- 15 26 Chandlers Ford, at Pit on London Road Bem. don.
Stenus luteipennis
Chalk pit, Polysphincta abund., 1 Capitula phlois
Beech cisti
 at Jury ford, wet meadows. Oodes, 1 El. virginiana.
Don. sagittariae &.

			In hayrick rubbish, <i>Sunius angustatus</i> abundant, neglectus also abundant.
April 1st	„		<i>Atomaria sericoderus</i> , <i>Crypt. pilosus</i> ?, <i>Dromius obscuroguttatus</i> abundant, <i>Micraspis 12 punctata</i> , profusion, <i>Corticaria</i> .
6th	14		Hampstead, four <i>Aphodius testudinarius</i> , two <i>Hetaerius sesquicornis</i> ⁸ , one <i>Atemeles</i> , one <i>Myr. limbata</i> .
May 3rd	20		Lewisham Loam Pit, two <i>Bem. 5-striatum</i> .
	28		Pool near Stonehams Farm, one <i>Bem. sturmi</i> ⁹ , <i>Stenus incrassatus</i> , <i>plancus</i> , <i>Playts. cornutus</i> .
30th	31		Went to pool near Stonehams Farm, <i>Bembidion quadripustulatum</i> ¹⁰ , new to Britain. On the way, <i>Pachyta collaris</i> , <i>Ceuthor. inaffectatus</i> .
June 1st	„		Went to pool near Stonehams Farm, one <i>Saprinus virescens</i> , <i>Stenus incrassatus</i> , <i>Bembidion bistriatum</i> , <i>Stenus picipennis</i> , on <i>Cochleria Phaedon armoriciae</i> . In wood <i>Polydrusus flavipes</i> .
7th	36		Pool near Stoneham's, wind north, somewhat cloudy, on the way, <i>Dasytes flavipes</i> , <i>Pachyta collaris</i> common, <i>Tel. oralis</i> (three), <i>Rh. fuscicornis</i> . At pool, <i>Deleaster dichrous</i> (one), <i>Bem. quadripustulatum</i> , <i>Stenus incrassatus</i> . Stream below pool, <i>Grap. consobrina</i> , <i>Cionus blattariae</i> common and <i>hortanulus</i> . On the hills, one <i>Orchestes pratensis</i> , <i>Th. anchusae</i> .
11th			Went to Stoneham's pool, five <i>Bem. 4pustulatum</i> .
13th			Went to Stoneham's pool, ? <i>Bem. 4pustulatum</i> , <i>Donacia sagittariae</i> . On the way, <i>P. collaris</i> , <i>Grapt. consobrina</i> , one <i>Mordella fasciata</i> .
July 9th	51		Banks of stream near Otham on <i>Spiraea</i> 60 [crossed through] 74 <i>Cercus pedicularis</i> [crossed through], <i>bipustulatus</i> pale specimens.
20th	58		Sweeping 7 o'clock to 8.30, damp copse near road, <i>Anisotoma calcarata</i> (small ♀), one <i>calcarata</i> , <i>Col. dentipes</i> , one <i>Catops</i> .

8. See Janson in *Entomologist's Annual* for 1857, p. 77. "Found by myself at Hampstead, in nests of *Formica flava* and *fusca*, beneath stones on a loamy hedge-bank having a western aspect, in 1848 and again in 1856, where I repeatedly and assiduously searched for it during the intervening years, but without success." On page 92, in his "Observations on the Myrmecophilous Coleoptera" is a short passage worthy of inclusion here, if only to show what may be achieved by hard work in the field. "And if after a long day's search, weary and perhaps disappointed at not having found *Hetaerius*, let him not, I entreat, churlishly destroy the homes of the unoffending ants, and with them all chance of future success—the morrow may prove more propitious; this I can assure him, the simple plan just described is one I have invariably pursued, vainly day after day for seven years it is true, but at length successfully."
9. Previous entry dated May 24th. See Fowler, 1887, 1: 107, and Allen, 1965. Gorham has thus captured *Bembidion octomaculatum* in three localities, Stoneham's Farm, near Bearstead, May 1870; near Love Groves, May 24th, 1872; and Hookland, May 24th, 1874.
10. See Fowler, 1887, 1: 114.

August 10th	66	In Gore Court, one <i>Laemophloeus bima-</i> <i>culatus</i> on stump of felled tree (Wych Elm?), one <i>Euplectus</i> . Near sand pit, Ware Street, three <i>Apion meliloti</i> , two <i>Crep. modeeri</i> .
23rd	71	At Hastings, two <i>Harp. rubripes</i> green vars. <i>Sit. puncticollis</i> .
26th		Sweeping in damp copse, one <i>Anis. cal-</i> <i>carata</i> .
	72	Dried stream near Snorkhurst [Snark- hurst], 13 <i>Agabus frontalis</i> , two <i>Hydro-</i> <i>porus memnonius</i> .
Next entry, number	73	number 73, is dated August 27th, thus the <i>Agabus</i> were captured on August 26th.
August 26th	84	In moss, one <i>Phloiophilus edwardsi</i> , one <i>Bythinus bulbifer</i> . Sand Pits Hd.
November 2nd	86	Searched in vain for <i>Phloiophilus</i> , under bark of oak bough, one <i>D. 4signatus</i> , in fungi <i>Bol. exoletus</i> .
7th		
1871		
May 30th	43	With Power, Banks of Len., one <i>Ampho-</i> <i>tis</i> (in nest), three <i>Bembidion</i> , <i>4pus-</i> <i>tulatum</i> ¹¹ , <i>Bem. bruxellense</i> .
June 6th		Before breakfast sought for <i>4pus-</i> <i>tulatum</i> without success.
17th	50	Fungi on old stumps. <i>Bolitochara lucida</i> ¹² in great numbers, took 50, <i>Triplax rus-</i> <i>sica</i> , <i>Mycetoph. multipunctatum</i> , <i>Epurae</i> <i>limbata</i> , <i>Engis</i> and <i>Ips 4pustulatus</i> were in profusion. Sent box to Scott.
October 16th	85	From R. Lawson, one <i>Bol. lunulata</i> , one <i>Oc. latipennis</i> , one <i>T. saliciti</i> .
17th	86	From E. A. Waterhouse — one <i>H. ser-</i> <i>vus</i> , four <i>Ag. nigripennis</i> , five <i>Hetero-</i> <i>thops praeivus</i> .
26th	87	From Power, six <i>Sphindus</i> , five <i>Tychius</i> <i>pygmaeus</i> , three <i>Rhin. bruchoides</i> , two <i>L. dissimilis</i> , four <i>Lypus cylindrus</i> , four <i>Monanthia</i> .
27th		From J. R. Hardy, two <i>C. viduatus</i> , four <i>C. distinguendum</i> .
November 4th	„	From C. O. Waterhouse, two <i>Cincindella</i> <i>sylvatica</i> .
16th	89	From D. Sharp, one <i>Dendrophagus cre-</i> <i>natus</i> .
—	90	From Fred Smith, two <i>Meloe rugosus</i> , four <i>Ceuth. resedae</i> , one <i>Ceuth. melano-</i> <i>stictus</i> , six <i>Tychius lineatus</i> .
21st	91	From G. C. Champion, nine <i>Apion</i> <i>Limonii</i> , three <i>Sybynes arenariae</i> <i>Tom-</i> <i>oxia biguttata</i> , two <i>Hydaticus hybneri</i> .
December 29th	93	Sir. H. Meux's one broken <i>Elater bal-</i> <i>teatus</i> .
30th	94	Clayhill, Cossuss infested elm, a young tree. One <i>Cryptarcha imperialis</i> , two <i>C.</i> <i>strigata</i> , one <i>Rhyn. concinus</i> .
1872		
January 1	1	Clayhill, Enfield, Cossuss tree, three <i>Cryptarcha strigata</i> , three <i>C. imperialis</i> , two <i>Litargus bifasciatus</i> , one <i>Baris lepidii</i> , several <i>Hypodphloeus bicolor</i> .
2nd	„	One <i>imperialis</i> , two <i>strigata</i> .

11. The River Len flows through Bearstead.

12. See Fowler, 1888, 2: 168 (Sandwich).

13. See Fowler, 1891, 5: 98.

3rd	„	Two imperialis, one strigata, one Coryphium, two Om. lucidium, Hypophloeus, four litargus. Hypophloeus, four litargus.
6th	2	From Janson for Crotch, six Apion astralagi.
	„	From Sidebotham, four Dorcat. bovistae (Barmouth), four Nemosoma elongatum ¹⁴ , four <i>Pach. comari</i> , four Lim. dissimilus (Llandudno).
	4	From Lennon, Dumfries — 16 Ph. concinnum, five Erirh. bimaculatus, four Omosita depressa, two Apion cerdo, four Cryto. maritimus.
17th	7	From Canon Hey, York, two Hydrop. nitidulus, eight Hyd. scalesianus, H. tristis.
20th	8	From Rev. H. Gore, two Licinus depressus, one Necrophorus vespillio, one interruptus, two Toxotus, one Leptura nigra, one Lucanus cervus ♂, one Chrys. goettingensis.
February 17th	9	Clay Hill, Enfield, Sir H. Meux's with Power, two <i>Ptinus subpillosus</i> ♀, one Scaphidema, Homalota aequata, two Apion vorax, Cerylon.
March 30th	14	Prittlewell. Looked for Plagiodera in damp willow copse near Priory, found two dead. One <i>Mymedonia Haworthi</i> ¹⁵ in cut wet stuff, four Qu. maurorufus, Stenus planicus.
April 1st	14	Prittlewell Priory, worked for <i>Haworthi</i> got one and then lost my bottle! Qu. maurorufus common, Qu. scintillans, Qu. peltatus.
	16	Rusper in pond in garden, Hal. fulvus, Hal. flavicollis, Hyd. pictus, H. palustris, H. erythrocephalus, Heloch. lividus, Lac-cobius nigriceps, L. minutus — right. Two Corixa Geoffroyi, Hel aeneipennis.
April 24th	19	See photograph, plate I.
May 24th	26	Pond near Love Groves, two <i>Bembidion quadripustulatum</i> , Bem. lampros (velox var.), one Bem. sturmi ¹⁶ , Lath. terminatum., one Stenus morio.
June 14th	36	Boxhill to Headley Lane — 31 Cryto-cephalus nitidulus ¹⁶ , one C. coryli, C. labiatus, 26 Crepidodera atropae ¹⁷ , Apion rufirostre and malvae in profusion. Thy-amis anchusae, two ¹⁸ , seven Th. bal-lotae ¹⁹ ?, Ceuth. floralis on fumitory. C. C. curx, Malth. one Clytus myticus, one Aspidophorus, one Nec. violacea, one D. lardarius.

14. See Fowler, 1889, 3: 268.

15. See Fowler, 1888, 2: 56. Donisthorpe (1927, p. 63) states that these specimens found were found in a nest of *Lasius fuliginosus*.

16. See Fowler, 1890, 4: 292.

17. See Fowler, 1890, 4: 385.

18. See Fowler, 1890, 4: 339.

19. See Fowler, 1890, 4: 348.

August 21st	57	Gathered pods of <i>Lathyrus</i> with <i>Apion</i> larvae. Gathered pods of Vetch (<i>V. sepium</i>) with <i>A. punctigerum</i> ?. Swept near Lyne for <i>Anisotomae</i> , got only two <i>Colenis</i> , one <i>Hydnobius strigosus</i> , one <i>Om. striatum</i> . do. near Axsmith.
22nd	57	Four <i>Apion subulatum</i> ²⁰ came out of <i>Lathyrus</i> pods! Collected yesterday.
23rd	59	Five more <i>Apion subulatum</i> came out and on till end of the month. Towards Altons. Ten <i>Sitona suturalis</i> on [???].
26th	60	Went to Portsmouth, visited H. Moncreaff ²¹ . He gave me — two <i>Tychius haematocephalus</i> , seven <i>Apion confluens</i> , five <i>A. annuae</i> , five <i>C. thaspi</i> , one <i>Lesteva sharpi</i> (from Sh.), eleven <i>Sitona Waterhousei</i> , five <i>Poly. chrysomela</i> , two <i>Meatropis rufescens</i> .
	61	Collected with him along shore. One <i>Phil. fumigatum</i> , one <i>ebinum</i> .

20. See Fowler, 1891, 5: 139.

21. See Fowler, 1891, 5: 267.

(to be continued)

Notes and Observations

ATHETIS HOSPES FREYER (LEP.: NOCTUIDAE): FIRST RECORD FOR BRITAIN.— On the night of 26th/27th August 1978, I was fortunate to take a female *Athetis hospes* Freyer at m.v.l. in Kynance Cove, Lizard, Cornwall.

This species is similar in size and colour to *Photedes pygmina* (Haw.) (Small Wainscot), but unlike *pygmina* sits with its wings flat on its back. It was because of this that I noticed it among the numbers of *pygmina* present.

Other interesting species that Paul Stirling and I recorded there that night, were *Euxoa obelisca* D. & S., *Mythimna putrescens* Hbn., *Polymixis xanthomista* Hbn., *Lithosia quadra* L. and *Eilema caniola* Hbn.; and of the migrants, *Cynthia cardui* L. (1), *Vanessa atalanta* L. (1) and *Autographa gamma* L. in great abundance.

The specimen of *hospes* was kindly determined genitally by Mr. M. R. Honey of the British Museum (Nat. Hist.), and I would like to thank Bernard Skinner for arranging for the identification. — J. PORTER, 16 Firdene, Tolworth, Surbiton, Surrey.

HELOPHORUS TUBERCULATUS GYLL. (COL.: HYDROPHILIDAE) NEAR BRISTOL.— Whilst looking over boxes of beetles taken long ago and never sorted, I discovered a specimen of *Helophorus tuberculatus*, labelled 11.5.1950, and taken with numbers of other species such as *Grammoptera ruficornis* F. and *Orsodacne cerasi* L. (which is abundant there) on the flowers of Mountain Ash, in Leigh Woods on the outskirts of Bristol.

This specimen gave me much food for thought, but unfortunately casts no light at all upon the beetle's habits, which appear not to have been properly revealed. There are so few

records of this species that the occurrence is worth noting, but that is all there is to be said about it.—JOHN A. PARRY, 38 Heather Drive, St. Michaels, Tenterden, Kent.

[This interesting and distinctive black *Helophorus* is scarce throughout its Holarctic range and has only once been found in any numbers in Britain — on a peaty moor near Coatbridge, Lanark, mostly in 1911-12. The other records (a mere handful) are of single specimens in diverse situations, suggesting stragglers from undected colonies or, as some think, casual immigrants. Mr. Parry's capture should be a notable addition to the fauna of Somerset and is the first *Helophorus* I know of to have been beaten off flowers. — A.A.A.].

AN UNUSUAL PUPATION SITE.—I have read with interest Lt. Col. Emmet's note (*antea* 244) on his having hatched 16 specimens of *Ectoedemia argentipedella* (Zeller) from the contents of a nest box cleared out for the coming season. No mention is made of the bird which occupied the box, but I take it that the occupants were either blue tits or great tits.

Would it not be a more likely explanation of the presence of *argentipedella* to consider the possibility of their having been introduced to the box dangling from the side of a parental beak and dropped wide of the half a dozen or more competing gaping beaks of its young? These small larvae must be exceedingly difficult for the parent to retain in the beak when adding others to its collection, and to carry them home to their families.

Looking at almost any nepticulid larva, one sees that its claspers are hardly developed, and while they have a bad habit of slithering up the side of a glass tube and spinning up against the glass and the cork, one can hardly credit them with the ability to transport their bodies over what must be exceedingly rough and uneven surfaces leading down from a leaf mine in a tree into the entrance hole of an occupied nesting box.

On the other hand, it is a fairly general habit of nepticulid larvae when kept in a breeding receptacle for the cocoons to be spun in a fairly close colony, but when a comparison is made between the distances separating the individuals in say a three inch diameter tin box, and in the full area of a birch tree from mine to nest box, one can hardly think that the gathering instinct could extend so far.—S. N. A. JACOBS, 54 Hayes Lane, Bromley, Kent, BR2 9EE. 23.xii.1978.

OCTOBER IN SCILLY.—I visited the Isles of Scilly from 4th to 18th October 1978. Based on St. Mary's I made day trips to St. Agnes, St. Martin's and Tresco. The weather was excellent and most days were warm and sunny enough to tempt butterflies on the wing.

I recorded the following species: *Pararge aegeria* L., easily the commonest species and seen on all islands visited. *Maniola jurtina* L., two late specimens on St. Martin's on 11th October. *Vanessa atalanta* L., seen on all islands visited in small numbers and on St. Mary's imbibing at ivy flowers. *Polyommatus icarus* Rott., a fleeting view of a blue on St.

Mary's was probably of this species. *Celastrina argiolus* L., two on St. Mary's and one in the Abbey Gardens on Tresco. *Lycaena phlaeas* L., seen on all the islands except Tresco; most in one day was four on St. Mary's on 5th October. *Pieris brassicae* L. and *P. rapae* L., a few on all suitable days. *Colias croceus* Geoffroy, not seen personally but reliable reports of odd specimens on St. Mary's and St. Agnes. I also saw two species of moth — *Macroglossum stellatarum* L., one seen on St. Mary's on 13th October and two more reported from the same island; and *Autographa gamma* L., two seen on each of St. Mary's and St. Martin's.— G. SUMMERS, 23 West Close, Stafford.

ACHERONTIA ATROPOS L. (DEATH'S HEAD HAWK) IN SURREY.— I wish to record the capture of a male of this species at m.v.l. in my garden at Tolworth. It arrived at approximately 2 a.m. on the 30th June 1978.— J. PORTER, 16 Firdene, Tolworth, Surrey.

IMMIGRANT LEPIDOPTERA IN DORSET AND SUFFOLK IN 1978.— There have been so many reports of rare migrant lepidoptera this autumn that I would not have reported any except for the fact that some have found their way to this extreme eastern part of the British Isles.

Whilst on holiday in Somerset in early October I ran an actinic light at Charmouth, Dorset on the night of 10th and noted one specimen each of *Mythimna vitellina* Hübn. and *Palpita unionalis* Hübn.

On my return to Suffolk I took a specimen of *Udea ferugalis* Hübn. on the night of 7th November and a *Mythimna unipuncta* Haw. on 10th. The only previous record of this species of which I am aware is of a specimen taken at Leiston in August, 1878 according to the Memoirs of the Suffolk Naturalists' Society published in 1937.

On 16th October 1977 I took what I thought was a rather unusual *Agrochola circellaris* Hufn., but on closer examination this has proved to be *Mythimna vitellina*. As far as I am aware the only other specimen reported from Suffolk was one at sugar at Gorleston on 1st October, 1922. Gorleston was at that time in Suffolk.— H. E. Chipperfield, The Shieling, Walberswick, Southwold, Suffolk.

THE GEM (NYCTEROSEA OBSTIPATA F.) AND AN UNIDENTIFIED CATOCALA IN DORSET.— On the cold and foggy evening of November 10th 1978, a battered female *Nycterosea obstipata* Fab. was taken at a hotel light in Swanage. Also, in Swanage, on the morning of November 12th a large *Catocala* sp. was seen sitting on a wall, unfortunately this was not secured. Could this have been *Catocala fraxini* Linn? — M. PARSONS, 43 Kings Avenue, Eastbourne.

EUPHYDRYAS AURINEA ROTT. PRESENT IN CUMBRIA. — The Note on the disappearance of this species from Monmouthshire contributed by Dr. G. A. Neil Horton (Vol. 90, No. 9, pp. 246-7) makes sad reading, which one fears could be paralleled

from other areas. The situation in Cumbria is rather more reassuring, though it needs constant vigilance. The previous County of Cumberland is alone of concern as the species is absent from what were formerly Westmorland and Furness.

1. The famous field near Great Orton which Dr. Ford deals with (*Butterflies*, New Naturalist, Vol. 1, 1945) was ploughed up nearly 25 years ago, notwithstanding S.S.S.I. status. The butterfly hangs on — only just — in a nearby field owned by the Cumbria Naturalists' Trust. As long as it hangs on there is hope that it might increase.

2. A very fine site nearly 1,000ft. above sea level near Lamonby, was also more recently ploughed up, despite appeals by Conservationist Bodies to the local farmer. S.S.S.I. status again proved to be of no avail, as the development was purely agricultural. However, the butterfly occurs not far away in a small area of Greystoke Forest left unplanted with conifers by Lord Lonsdale because of its Natural History importance. We are grateful to Lord Lonsdale for this gesture, but we wonder what will happen when the conifers, at present about 5-8ft high, have become large trees enclosing the small unplanted site.

3. The species occurs in a rough marshy field not far from Ivegill. It is possible that the Cumbria Naturalists' Trust, which is interested in it, may eventually gain at least some control over it. Meanwhile there seems to be no serious threat.

4. There is a strong colony far to the West in Ennerdale on open ground with a road running through. The terrain concerned is rough and marshy. One hopes that no interference will take place. It is apparently Common Land, so effective control is very difficult. There seems to be no immediate threat.

5. A colony at Finglandrigg, which produced large brick-red specimens differing markedly from those from any other Cumberland colony, became extinct about 1953. At least, subsequent attempts to find specimens there have proved negative, in spite of the fact that up to the present there has been no interference with the site, which was in any case small, with the result that the number of specimens was always small too.

6. There are reports that the species is turning up again in the Salta Moss area inland from Dubmill Point. It seemed to have become extinct there at about the same time as the Finglandrigg colony. So, provided there is no gross interference with a site, it is unwise to take apparent extinction as the final word, as the species seems to be able to hold on at a very low density indeed. — THE REVEREND J. H. VINE-HALL, 3 The Green, Melmerby, Penrith, Cumbria, CA10 1HG.

THE FOODPLANT OF *PSEUDOPHILOTES VICRAMA SCHIFFER-MUELLERI* HEMMING. — During a short visit to Spetsai Island, Greece, a number of female *P. v. schiffermuelleri* were observed laying eggs on the upper side of young leaves of *Satureia thymbra* L. (Labiatae). The eggs were pearly white, echinoid and strongly reticulated with ridges and hollows in

the form of rosettes. — JOHN G. COUTSIS, 4 Glykonos Street, Athens 139, Greece.

ADELA CROESSELLA (SCOP.) (LEP.: INCURVARIIDAE) IN ARGYLLSHIRE (VC98). — Two specimens of this pretty little moth were taken on an unidentified umbellifer on the roadside verge at Elleric, Glen Creran (grid ref. NN(27) 03.48) on 15th June, 1978. This would appear to be only the second record of the species in Scotland, and the first for Argyll (see *MBGBI*, 1: 298).

Although privet is given as the normal foodplant, none was noted in the vicinity of capture, and it is thought that ash, common in Glen Creran, would possibly act as a suitable alternative.

One specimen was given to Rev. David Agassiz, the other to Dr. John Langmaid who were collecting at Glasdrum about two miles down the Glen, and it is to these gentlemen that I owe the above information. The captures were made during the course of a Nature Conservancy Council invertebrate survey of certain sites in the County. — J. COOTER, Art Gallery and Museum, Kelvingrove, Glasgow, G3 8AG. 26th September, 1978.

EUCHROMIUS OCELLEA HAWORTH (LEP.: CRAMBINAE) IN MONMOUTHSHIRE. — On the night of 14th-15th October, 1978 a male specimen of the rare migrant Pyralid *Euchromius* (*Eromene*) *ocellea* Haw. in perfect condition appeared in my garden m.v. trap at Usk. This species, I believe, has not been previously recorded from Monmouthshire and I am told that probably the last British occurrence was in 1968.

For more than a week the weather here had been warm and sunny with mild humid nights and south-westerly breezes and two nights earlier (12th-13th October) a male *Mythimna unipuncta* Haw. had come to my trap. This moth too was in perfect condition and is also a species new to Monmouthshire. — Dr. G. A. NEIL HORTON, Plas Newydd, Usk, Gwent.

THE JAPANESE ORGYIA: ORGYIA THYELLINA BUTLER. — Many of us for a long time have been interested in the female dimorphism of this species which was known to occur in Japan. This year Sir Cyril Clarke obtained stock and was good enough to send me pupae, which in due course hatched and contained both winged and semi-winged females. I was unable to satisfy myself that the so-called "winged" specimens were capable of flight. The young larvae were sleeved on *Salix* in my garden, and on my return from Scotland imagines were hatching, and it was interesting to observe a very large number of our indigenous *Orgyia antiqua* (L.) assembling around the sleeve from mid-day onwards. On 3rd October I obtained a cross between a *thyellina* ♀ (winged) and a ♂ *antiqua* and eggs were subsequently laid, though I fear these may be infertile. It was interesting to see that the speed of metamorphosis varied greatly; there were imagines and half-grown larvae at the same time which were siblings. Further details of this interesting species will be published later. — BERNARD KETTLEWELL, Genetics Unit, Department of Zoology, University of Oxford.

DEILEPHILA ELPENOR L. ON MENYANTHES TRIFOLIATA L. — Eight nearly full grown larvae of *Deilephila elpenor* were seen feeding on bog-bean *Menyanthes trifoliata* at the Royal Horticultural Society's Garden at Wisley on 29th August, 1978. They were seen from the path so probably several more could have been found with a little effort. Mr. A. J. Halstead tells me that the insect is fairly common at Wisley but has not previously been noted on *Menyanthes*. It normally feeds on members of the Onagraceae — *Epilobium* spp. *Chamaenerion angustifolium*, *Circaea lutetiana* and *Fuchsia magellanica* — but also on *Galium* spp. and *Impatiens* spp. and has been recorded on *Lysimachia* sp., *Vitis vinifera* and *Malus* sp. These belong to seven different orders of flowering plants, the Geraniales, Rhamnales, Rosales, Myrtales, Primulales, Convolvulaceae and Rubiales which is an exceptional degree of polyphagy for British Sphingidae. — B. N. K. DAVIS, Institute of Terrestrial Ecology, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, Cambs.

THE MONARCH, DANAUS PLEXIPPUS L. IN 1978. — A specimen of this butterfly was observed by Mrs. Y. Stevens in her garden at Epsom, Surrey on the afternoon of the 11th September, 1978. Mrs. Stevens gave a good description of the insect, including its mode of flight and positively identified it as a male when shown these in my collection.

Williams (1958, *Insect Migration*) states that most examples of the species observed in this country are seen in the autumn with a peak in the second half of September, but I am concerned about the possibility that releases or accidental escapes from captivity may sometimes give rise to inaccurate reports of implied migration. If anybody reading this has allowed specimens of the species to escape this year, I strongly feel that this should be reported in the interests of scientific accuracy. — P. HOLDAWAY, 41 Willow Crescent, Durrington, Worthing, Sussex.

NEW IRISH RECORDS OF MICROLEPIDOPTERA IN AUGUST. — On 3.viii.78, I took a specimen of the Pyralid *Platytes alpinella* (Hb.) on sandhills at Inchydoney, near Clonakilty, Co. Cork (VC H3). The identification of this specimen was confirmed by Mr. E. C. Pelham-Clinton of the Royal Scottish Museum, Edinburgh.

Another species determined by Mr. Pelham-Clinton and which appears new to Ireland is *Cochylis flaviciliaria* (Westw.). I caught this specimen at The Hollow 6 km N.W. of Roscommon (VC H25) on 9.viii.78. — K. G. M. BOND, Luetzowstr. 4, 32 Hildesheim, West Germany.

RECORDS OF CURCULIONIDAE (COL.) TAKEN IN CUMBERLAND (VC70). — The following three species of Curculionidae are here recorded from West Cumbria and are new records for Cumberland (VC70). *Barypeithes sulcifrons* (Boheman), one dead specimen was found on sand below a stunted gorse bush *Ulex europaeus* Linnaeus on top of a coastal sand hill on 15th April near Summer Hill, Silcroft, SD11/82. This species is regarded as scarce in this country and Joy (1932, *Practical*

Handbook of British Beetles, 1:183), states "very local England, Scotland and Ireland". In personal communication from Dr. M. G. Morris, the weevil has been recorded from 14 vice counties in England and Wales, five from Scotland and 13 from Ireland. It has a scattered distribution and most records are from coastal localities. E. B. Britten recorded the species from the Isle of Man (1945, *North Western Naturalist*, 20:195), and remarks "occasional at roots of heather and by sweeping" and he gives the months of capture from April to July. Crowson, R. A. (1971, *Entomologist's mon. Mag.*, 107: 49) records the species from Castle Hill Point, Rockcliffe Kircudbridgeshire and Duddingstone, Edinburgh. The weevil being taken from calciphilous vegetation with *Helianthemum chamaecistus*. *Dorytomus salicinus* (Gyllenhal), two specimens were beaten from the bare branches of common willow, *Salix atrocinerea* Brot. growing in a hedgerow by the side of a cart track near Monk Moors, Eskmeals, SD08/91 on the 8th April. Due to the cold weather in early spring catkins were still present in large numbers on these trees. The specimens collected are in good condition and well marked. A further four specimens were taken near the above site by beating willow at Stub Place, Eskmeals, SD08/90 on the 13th May. These specimens are also in good condition with a good covering of scales and are quite dark in colour. The weevil is very rare in Britain and is extremely localised and has only been recorded from five vice counties in England and one in Scotland. These are East Norfolk, (27), West Norfolk, (28), Cambridgeshire, (29), Huntingdonshire, (31), South West Yorkshire, (63) and Dumfriesshire, (72). M. G. Morris (1968, *Entomologist's Gaz.*, 19(4):219) gives a summary of the records for *D. salicinus* in Britain; and Welch, R. C. (1973, in Steele, R. C. and Welch, R. C. (edit.) "Monks Wood, a nature reserve", 230) a distribution map for the species based on the 10 kilometer grid. The species occurs in France where the foodplants are *Salix aurita* L. and *S. capraea* L. (Zetterstedt), as stated by Hoffmann, A. (1958, *Faune Fr.*, 62 Coléoptères *Curculionides*, 3: 1456). *Ceutorhynchus rapae* Gyllenhal, one specimen was tapped from its foodplant *Sisymbrium officinale* (Linnaeus) growing on waste ground at Haverigg near Millom, SD16/78 on the 29th July and two more specimens were taken at the same site on the 5th of August, again on *S. officinale*. This species is stated as being rare in this country by Joy (l.c.: 199) who gives the distribution as Southern England. A list of host plants of *C. rapae* is given by Dickmann, L. (1972, *Beitr. Ent.*, 22(1-2):75) together with notes on the biology; and Scherf, H. (1964, *Abh. senckenb naturforsch. Ges.*, 506: 205-206) describes the early stages. According to Hoffmann (l.c., 1954, 2:992) it is found on various species of *Brassica*, especially parsnips in France and that the female oviposits in the flowers and the larvae pupate in the soil.

I wish to thank Dr. M. G. Morris for kindly confirming the identity of the species and for supplying the vice county records. — R. W. J. READ, 43 Holly Terrace, Hensingham, Whitehaven, Cumbria CA28 8RF.

THE FLAME SHOULDER: OCHROPLEURA PLECTA (L.) IN NOVEMBER.—A specimen of this noctuid in good condition was attracted to my m.v. trap at Pont-a-dulas near Builth Wells, Breconshire, on the night of 1st November 1978, an extraordinarily late date.—DR. H. G. PARKER, 2 Oaks Road, Kenilworth, Warwickshire.

LITHOPHANE LEAUTIERI BOISD. IN WARWICKSHIRE.—This rapidly spreading species made its first appearance in Warwickshire when a specimen was found in my garden m.v. trap on the morning of 9th October 1978.—D. C. G. BROWN, Jacksons Farmhouse, 25 Charlcote, near Warwick.

THE VESTAL (RHODOMETRA SACRARIA L.) IN INVERNESSSHIRE.—When sorting and listing the Rothamsted Insect Trap catches from the Forestry Commission Research Station, Fort Augustus, I found a specimen of the Vestal in the box for 10th October 1978. I do not know whether or not the moth has been recorded from so far north before, but in any case it must be sufficiently rare from such a high latitude as to be worth noting. It is a male and exceptionally large, 27 mm. wingspan.—T. C. DUNN, The Poplars, Chester-le-Street, Co. Durham.

Practical Hints—March & April

The Orange Underwings — *Archiearis parthenias* L. and *A. notha* Hbn.—are usually the quarries of the first active daytime collecting of the season. A warm, sunny morning at the end of March is often good for both species, but *notha* is usually a week later than *parthenias*, with the two overlapping and *notha* continuing into the first week of April. Choose the edge of, or rides in, a fairly mature birch wood for the former, and a wood containing plenty of tallish aspen for the latter, and start operations about 10 a.m. In sunny conditions, the moths sit on bare patches of ground or dead leaves, but get up sharply on one's approach, and have a very erratic flight, making them difficult to net. One rarely gets a second chance before they are out of reach and fly up to the tree tops. If the presence of the species is not known in the locality proposed to be worked, carry out a preliminary reconnaissance on a sunny afternoon, when the moths (if any) will easily be seen flying round the tops of the trees. Both species are partial to sallow catkins, but a net on a stick is usually necessary to reach them, and one strike will scare off any others on the bush. During dull weather the moths may sometimes be shaken from smallish trees. Up till about 1 p.m. the moths are usually within reach, but later they fly high round the tree tops in a most tantalising manner (POOLES).

In April examine any stumps found in marshy areas where *Salix viminalis* occurs. A flat-topped two year old stump is an ideal oviposition site for *Conopia formicaeformis* Esp. Carefully peel back the bark and if a whitish larva is found

near the top of the stump, tape back the bark and cut off the entire top to a depth of from 6-8 ins. Place in damp sand; moths emerge over a long period, late May until late July. Failing to find text-book stumps look for any brown stains near trunk scars or twisted branches, examine as above and remove the appropriate section (B. R. BAKER).

As soon as the blackthorn is in bloom is the time to beat for larvae of the Sloe Pug (*Chloroclystis chloerata* Mab.). The larger bushes are best. The larva is stumpy, of a dull whitish or whitish-green ground with varying amounts of pinkish-brown marking. If the larvae beaten are very small, keep the blossom that falls in the tray as this will often yield further larvae if kept for a week or so. They feed up very quickly, and spin amongst their food. They should be left therein and not disturbed. The moths emerge about the last week in May (POOLES).

When working marshy localities in early spring remove any loose bark at the base of willows—larvae of *Apamea unanimitis* Hbn. seem to favour these hiding places. Also in early spring place pieces of sacking or polythene sheeting (weighted down with a brick) up in the flat crowns of pollarded willows. Examine every three to four days. Larvae of *Graphiphora augur* F. have been taken from below these coverings (B. R. BAKER).

The larvae of *Elachista cinereopunctella* Haw. may be found during the first week of March mining the leaves of *Carex glauca*; and in mid March those of *Agonopterix assimilella* Tr., spinning together the twigs of broom. Larvae of *Tischeria marginea* Haw. mine the leaves of *Rubus*, are long-lived and feed during the winter, and the collection of the mines should be left until March (HEAL).

Late April or early May is a good time to search plants of cowberry (*Vaccinium vitis-idaea*) growing on northern moors for larvae and pupae of micro-lepidoptera. The blackish larva of *Olethreutes mygindiana* D. & S. spins several leaves together in the form of an inverted tent and pupates within the tent. Other Tortricoid larvae which spin leaves together are *Aphelia viburnana* D. & S. and the abundant *Rhopobota unipunctana* Haw. but along with the latter may be *R. ustomaculana* Curt. which has recently been found in Derbyshire and Staffordshire.

Small brown spots on the upper surface of a leaf may reveal the presence beneath of the black pistol-shaped case of *Coleophora vitisella* Grgs. It has a two-year cycle; only the larger cases will produce moths the same year.

The mines of *Phyllonorycter junoniella* Zell. occupy the whole of the underside of a leaf, causing it to pucker, while *Fomoria weaveri* Staint. causes a blistered appearance on the upperside (R. G. WARREN).

Current Literature

Pennington's Butterflies of Southern Africa, edited by **C. G. C. Dickson** with the collaboration of **Dr. D. M. Kroon**. 674 pp. including frontispiece portrait of the author and 198 coloured plates, folding map. Thick 4to. (280 mm. high, 210 mm. wide). Ad. Donker, Johannesburg, 1978. Price £45.

This magnificent reference book is the first definitive work ever published, to be devoted solely to Southern African butterflies. It covers all the species that have been described to-date from the subregion concerned, that is, the area extending from the Cape to the Kunene River on the western side of Africa and the main portion of the Zambezi River on the eastern side.

K. M. Pennington had been working on the ms. of the book for some 25 years before his death, but the script of his final version was far from complete when he died, unexpectedly, in 1974. Shortly after this sad event, the Pennington family asked C. G. C. Dickson if he would take over the ms., and complete it fully, which he agreed to do. This entailed over three years' concentrated work in order to make the essential portion of the book as representative as possible, while at the same time endeavouring to retain to a large extent Pennington's attractive style and approach to the subject. In time, others became involved in the project as regards several subsidiary, or complimentary portions of the work, chief among these being Dr. D. M. Kroon. Almost from the start of the undertaking, Dr. Elliot Pinhey (National Museum, Bulawayo, Rhodesia) assisted the editor on countless matters of a technical nature, as well as on the relative status of many of the more northern South African butterflies, for information concerning Botswana and Rhodesian taxa (very poorly represented in the original script), and from this standpoint as well as regards essential data in certain other directions, he was by far the most important source.

The first 31 pages include a Foreward (3 pp.) by the author's son, R. Pennington, and Acknowledgment (4 pp.) and an Introduction (13 pp.), both by C. G. C. Dickson. The main text which is in double column, then follows. In this are treated the different species (781 in all) and various races. The name of the author of each species and race is cited together with the original reference and date. Description and relative differences are given, as are distribution, localities, historical particulars, food-plants in nature (when known), references to life histories if recorded, and times of appearance often with mention of the names of recorders. Throughout the text one is impressed by the lucid and informal yet concise style of the author, as well as by his immense knowledge of the subject gained over a period of sixty years of field experience.

Plates 1-38 depict over 1,000 minutely detailed coloured figures, from hand paintings by the late Gowan C. Clark, of the life histories of 37 species of Hesperiid butterflies. These illustrations are among the most remarkable features of this book, and the meticulousness with which they have been executed is marvellous. They are based on material obtained in the field by the artist and C. G. C. Dickson, and with but two exceptions are published here for the first time. Descriptive notes are given in the legends facing each plate, thus allowing ease of reference. About half of these life histories appear to have been previously unknown.

Plates 39-198 consist of 3,422 reproductions of coloured photographs of the perfect insects, of which 2,471 are shown natural size and the rest slightly smaller. We should have preferred that all these figures had been reproduced natural size, but one realises that to have done so would have further increased the bulk as well as added to the cost of the volume. However, the editor has wisely indicated precisely the degree of reduction in size in nearly every case where this has been done. Again, in order to facilitate reference, the particulars of each specimen figured appear opposite the plates. Moreover, we rejoice to see that every example is fully authenticated by, in addition to a note of the name of the species, subspecies or form, its sex, locality, date of capture, name of captor (when known) and a statement of whether the specimen is a holotype, paratype, allotype, metallotype or lectotype. These illustrations of the perfect insects are among the finest we have seen and do great credit to everyone involved in their production.

Pages 604-643 follow, with "Recorded South African butterfly foodplants and foodsources", compiled by D. M. Kroon. This is a most useful and interesting source of information presented in three columns with the genus and species of plant or other foodstuff arranged alphabetically in the first column, the name of the plant family in the second column, and in the third column the relevant butterfly species or subspecies. A bibliography of some 350 titles (pp. 646-650), and a splendid index of scientific names in which all taxa are listed alphabetically (pp. 651-669) complete the work.

Paper and printing are of good quality, and the book is strongly bound in dark blue boards in an edition of 2,650 copies. Two other editions were issued: a "Subscriber's Edition" of 300 copies bound in quarter leather (price about £233); and, a "Collector's Edition" in half leather limited to 50 copies. However, both these editions had been sold in advance before publication.

Mr. C. G. C. Dickson and his collaborators are to be congratulated on their efforts at bringing to completion this outstanding work, though it is sad that K. M. Pennington did not live to see the consummation of an undertaking that owed its existence to him in the first place.—J.M.C-H.

THE PROFESSOR HERING MEMORIAL RESEARCH FUND

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

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THE MICROLEPIDOPTERA OF ESSEX. — I am currently engaged on compiling a list of the microlepidoptera of the county on behalf of the Essex Naturalists' Trust and the Essex Field Club; it is proposed to publish the list in 1979. I should therefore be grateful if collectors who have not already done so will send me their records. Localities even for the common species help to complete distribution patterns. Entomologists who are planning their season's collecting should bear in mind that Essex is rich in microlepidoptera (over 1,000 species of "micro" are already in the list) but almost devoid of microlepidopterists and hence seriously underrecorded. They could profitably make 1978 their "Essex year". — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, 30.iv.1978.

EXCHANGES AND WANTS

Wanted — The Entomologists Record, Vol. 71 1959, entire. Bound or unbound. — Offers to Paul Stirling, Tel. 01-660 4766.

Help Wanted — with records of British Gelechiidae for publication in Vol. 4 of "Moths and Butterflies of Great Britain and Ireland". Vice-County records only wanted at this stage. A complete check-list will be supplied to those willing to help. If you have any records for this group, please write to: Paul Sokoloff, 4 Steep Close, Orpington, Kent BR6 6DS.

Wanted — Records of daily totals in traps of *Agrotis segetum* for as many past years as available. — Rosemary Kay, Ent. Section, National Vegetable Research Station, Wellesbourne, Warwick.

For Sale — a run of the Entomologist's Record from Vol. 76-89 inclusive (1964-1977). In wrappers. Issues 6, 11, 12 of Vol. 78 are missing, otherwise complete. A bargain at £55. — P. A. Sokoloff, 4 Steep Close, Orpington, Kent BR6 6DS.

Wanted — 20, 30 or 40 (preferably) drawer cabinet by Brady, Gurney or Crocket. — Col. W. A. C. Carter, Briarfields, Sandels Way, Beaconsfield, Bucks. Telephone 04946-3828 after 6.15 p.m. or weekends.

For Sale — 40 drawer mahogany cabinet, overall size 42" x 37" x 19". Drawers 16½" x 16¾" x 2". Framed glass lids, hidden bearer runners, camphor cells. In very good condition. Best offer over £700 secures. — T. W. Harman, Little Oaks, Church Lane, Westbere, Canterbury, Kent. Tel. Canterbury 710282.

Wanted — I am presently engaged in the evaluation of two insects which New Zealand authorities intend to introduce to combat gorse, which is a serious weed there. The species are *Agonopterix ulicitella* Stnt. (Lep. Oecophoridae) and *Apion scutellare* Kirby (Col. Curculionidae).

I will require large numbers of these insects to carry out experiments to show that they are specific to gorse before they are introduced into New Zealand. I would be grateful if readers could suggest localities where, in Southern England, I might collect several hundred of each species this summer. I would be interested to hear of records from further North, and of any host plants recorded other than gorse. — Richard Hill, Imperial College Field Station, Silwood Park, Ascot, Berks. SL5 7PY.

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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

The following gentlemen act as Honorary Consultants to the magazine:

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

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

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ILLUSTRATIONS are inserted on condition that the AUTHOR DEFRAYS THE COST.

Contributors are requested not to send us Notes or Articles which they are sending to other magazines.

All reasonable care is taken of MSS, photographs, drawings, maps, etc., but the Editor and his staff cannot hold themselves responsible for any loss or damage.

SPECIAL NOTICE

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

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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by J. M. CHALMERS-HUNT, F.R.E.S.

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NOTICE

Owing to printing difficulties we much regret delay in publication of the magazine.

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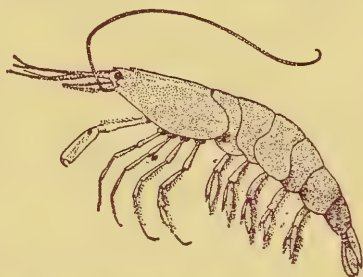
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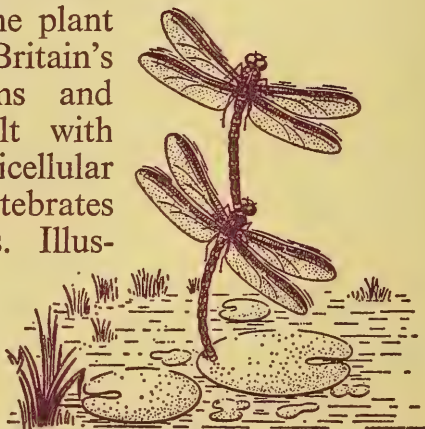


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The Brown Hairstreak: *Thecla betulae* L.

I: Searching for Ova

By T. W. C. TOLMAN, Ph.D., F.R.E.S.*

The traditional method of collecting the Brown Hairstreak butterfly is to beat the blackthorn bushes in May and June. This recommendation has been perpetuated, if not actually endorsed, by the entomological fraternity over a considerable period, and appears in nearly every textbook dealing with British butterflies. Writing in 1934, in "The Complete Book of British Butterflies", F. W. Frohawk observes . . . "Nearly all specimens in collections have been bred from larvae obtained by beating blackthorn bushes, the larval food-plant for this species". Over 40 years later, in "Aberrations of British Butterflies", my good friend Donald Russwurm comments . . . "The larvae, however, can be beaten from the bushes in a blackthorn thicket and most collectors obtain their short series in this way". These two statements are, I am sure, accurate in regard to the method as well as the proportion of collectors who employ it. The acquisition, or indeed, the detection of *T. betulae* can be effected by this means but perhaps because the advice is so often given, it is assumed to be the best available.

When considering the relative merits of two methods of securing the same object, it rarely happens that one has so little in its favour that the other becomes the automatic choice. It is, however, my firm contention that ova searching, as an alternative means of locating *betulae*, has so many advantages that, if given a fair try, would soon relegate the business of beating to obscurity — at least, as far as *betulae* is concerned.

Only once have I attempted to beat for larvae. I was neither enamoured of the process nor pleased with the result. The first difficulty I encountered was that of laying out the bed sheet I had chosen as a collecting surface. The frequency with which blackthorn thickets are surrounded by tussocks of strong grasses, brambles and, predictably, blackthorn seedlings, is pronounced, and I found this seemingly simple task quite tedious. More often than not, the sheet duplicated the contours of some miniature mountain range — hardly a surface conducive to retaining those numerous species of larvae which instinctively roll themselves into mobile little balls when rudely disturbed. Ironically, this habit, adopted in the course of evolution as a protective device serves only to enhance the probability of their premature demise, for it seems likely that a proportion of the larvae finding themselves in the grass some distance from their preferred habitat, do not regain the security of the blackthorn twigs. When asked what happens to the larvae which fall to the ground, the proponents of the beating technique almost invariably reply, "Oh, they crawl back up". Well, I must admit, I hardly expect to be told that a number don't make it, having fallen prey to whatever. As far

* 1 Clanfield Drive, Chandler's Ford, Hants., SO5 2HJ.

as I know, the reality of this aspect of beating is one of ignorance and in the absence of concrete evidence substantiating what appears to be little more than wishful thinking, I am inclined to the view that one should afford the inhabitants of blackthorn thickets, amongst which may be counted numerous creatures other than lepidoptera, rather more consideration.

Apart from this, minor irritations arising from inadvertently disarranging the sheet in an effort to get at the blackthorn of interest, manoeuvring the same into a suitable position without becoming impaled on the thorns and finding enough room to wield the beating stick, added to my growing reservations. When I discovered how much detritus was dislodged along with scores of insects — everything it seemed except *betulae* — my disillusionment was complete. However, one is advised to count one's blessings and in deference to this pearl of wisdom I am obliged to record that my singular experience of wrestling with blackthorns, bed sheets and beating sticks, was unattended by strong winds or rain. The thought of inclement weather obtruding upon my adventure, conjures up a vivid picture of a sodden white sheet marooned high in some oak like a stricken kite!

The problem of working in confined spaces may be overcome to some extent, by substituting the ground sheet for a hand held tray. However, the limitation in the size of the collecting surface is a detraction and it would also seem that the efficient use of the device requires three hands — one for the tray, one for the blackthorn and one for the beating stick.

The one situation for which, I believe, any variation on the beating theme is totally impracticable, relates to the machine-trimmed hedgerows, now a familiar sight in the British countryside. In Devonshire and Wales particularly, the hedgerows comprise the most important, and in some areas, the sole retreat of *betulae*. The short, dense convoluted growth is the most characteristic feature of these hedges. The blackthorn is often entwined with other shrubs such as dogrose, bramble and hawthorn which demand respect in their handling, but it is the strength and resilience of close-cropped hedges, conferred by repeated clipping, which render them quite unsuited to beating. The frequent association of ditches with roadside hedgerows is an additional deterrent. Of 141 new *betulae* sites I've located in the past three years by ova searching, all but three have occurred in hedgerow habitat which is either inconveniently sited or subject to periodic clipping, so that the self-imposed restriction suffered by the beater in his choice of collecting ground is considerable.

Despite the aforementioned difficulties, some of which may relate simply to my own inexperience, beating for larvae has, over the years, proved an efficacious means of obtaining *betulae*. That is a fact I would not question. However, efficiency, in terms of time as well as energy expenditure, is altogether a different consideration and it is on this basis that ova searching, in my opinion, offers its greatest advantage. To my own satisfaction at least, I have demonstrated that the examination

of a blackthorn stand, divested of its foliage in winter, takes somewhat less than a fifth of the time required for beating. Moreover, in considering the *rate* at which ova or larvae are found — the real measure of efficiency — it is clear that ova searching has a greater potential than would be indicated by a mere comparison of searching time. This is, of course, due to the higher incidence of ova than, say, half-grown larvae in a given locality and arises from natural depletion which accumulates in progressing through the metamorphic stages. Whilst it is true that not all ova will be seen, it is, presumably, equally true that not all beaten larvae will be detected and, indeed, some may even reside in scrub inaccessible to the beater but not to the ova seeker. I do not know what the average ratio of ova to half-grown larvae is, but I would be surprised if it was less than 5:1. Whatever it might be, the ratio of ova to larvae will be relevant to the maintenance of *betulae* colonies which receive attention from collectors, for proportionately less damage will be incurred by the removal of ova. Assuming, for the sake of argument, the quoted ratio is correct, it is evident that the consequence of removing five ova is equivalent to the removal of one half-grown larva. Moreover, if on average, 20 ova give rise to one pupa, the damage inflicted by the inadvertent elimination of a pupa whilst beating for caterpillars would be four times greater than that of removing a single half-grown larva.

It would seem therefore the beater needs to exercise care in choosing his time for beating. If he goes too early he may overlook the smaller larvae and if he goes too late, some may have pupated and of those that have, some may be damaged. I have no experience of *betulae* larvae in the wild, but in the absence of uniformity in the rate of larval development, the risk to the species, as well as the practical implication of detecting beaten larvae, is ever present.

In contrast, ova may be sought in a much more leisurely fashion at any time from the beginning of winter to the onset of spring and with relatively much less regard to weather conditions. I well remember finding my first ovum during a light fall of snow.

For anyone who has never seen a wild *betulae* ovum, it may be difficult to appreciate how easy it is to spot the large, brilliant white egg against its sombre background. It is entirely due to this marked contrast which enables the blackthorn to be inspected so quickly. It is not necessary to examine every twig individually, one simply scans rapidly but systematically and if ova are present they will catch the eye. My wife once discovered a new Welsh site for *betulae* by spotting an ovum in a roadside hedge through the window of our slowly moving car. Subsequently, we found another 56 ova deposited on the residue of hedge clippings, strewn about the verges and the road. More recently I discovered a new locality for *betulae* in Devonshire by locating several ova at night with the aid of a torch. The fact that, in the light of the following day, I found

ova on just about every twig of every bush in the area perhaps lends credibility to a remarkable example of serendipity!

Proficiency at any task improves with practice — I suppose even I could learn to beat for larvae were I so motivated — and one soon recognises that particular types of twigs on particular types of bushes are shown more favour than others as sites for ovipositing. I believe that the greatest dissuasion confronting the novice in the interesting and even exciting diversion of ova searching is, paradoxically, the easiest to overcome and that is the important psychological step of finding one's first ovum. As a very good friend — a former, confirmed beater — once remarked, "It's only a matter of getting your eye in".

It is worth mentioning that by rearing *betulae* from ova, a bonus awaits the collector whose predilection is for large insects. I have measured the fore-wing length of the 28 male and 25 female *betulae* of the R. W. Watson collection, and the mean values are 20.0 (standard deviation, 1.08) and 21.2 mm. (S.D., 0.73) respectively. All 43 insects originated from beaten larvae. The corresponding means of 57 males and 52 females — all from wild ova — in my own collection are 21.8 mm. (S.D., 0.55) and 22.2 mm. (S.D., 0.57) respectively. The differences are statistically highly significant. It will be appreciated that the comparison of a linear dimension does not adequately convey the subjective impression of the overall size difference.

A similar size disparity, associated with the same two methods of collecting, is also apparent in *Quercusia quercus* L. and *Strymonidae w-album* Knoch. Regarding the cause of the difference, I favour the hypothesis presented to me by Dr. Christopher Luckens, that beaten larvae undergo a trauma, as a result of their violent eviction, which induces premature pupation. Although the association is admittedly rather tenuous, it is interesting to consider this hypothesis in relation to the rather large difference in the standard deviations of the mean sizes of insects originating from beaten larvae and wild ova. If, as I suspect, the variation about the mean rate of development of wild larvae differs significantly from that of larvae captively reared from ova, it follows that a random sample of wild larvae will have a greater size variation than a corresponding sample of captive caterpillars. Now, if the full extent of the subsequent development of the wild larvae is related to their size at the time of their removal from the wild, it is clear that this will reflect on the variations in the size of the adult insects. The definitive test of the hypothesis is, of course, a comparison of adults reared from wild ova and those from larvae which have been carefully removed, rather than beaten, from their natural environment.

Acknowledgment

I wish to express my thanks to Mr. Robert Watson for allowing me access to his collection.

A Ban on Collecting Lepidoptera in the Department of the Alpes de Haute-Provence, France

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

As early as the end of last century Digne was a noted venue for lepidopterists because of localised species and rare aberrations to be found there (e.g. Jones 1890, 1894, Brown 1900). During the last fifty years many lepidopterists including French as well as other nationalities, have descended on the town each year. The attraction of the area is reflected in the number of papers published over the years concerning the lepidoptera of Digne and its neighbourhood. More recently, because of the higher level of living and easier travel facilities, the annual invasion of lepidopterists has sometimes reached very high levels. This has been to the benefit of local commerce and tourism, but apparently to the detriment of certain of the rarer butterflies and moths, the target species of many of the visitors. In order to protect these species the departmental authorities prohibited the collecting of lepidoptera in the area of Digne on the 18th April 1973.

In the years following 1973, the influx of lepidopterists into the department continued and some of our colleagues upset the local authorities by "overcollecting". Thousands of specimens of certain of the rarer species (both butterflies and moths) have been taken for commercial purposes. Resulting from this regrettable behaviour of a small minority, we have seen a gradual strengthening of the legislation against the collecting of lepidoptera. Decrees were published in 1976 and 1977 concerning the protection of wild life. In 1978, following advice from the departmental biological adviser, the Chamber of Agriculture, and the Departmental Commission on Sites, Panorama and Countryside, the capture of butterflies and moths in the entire territory of the department of the Alpes de Haute-Provence was prohibited as from 22nd June.

I have not yet seen or heard of anything in the entomological press concerning this action on the part of departmental authorities, which I think is unique in being the first of its kind in Europe. The entomological revues "Alexanor" and "Entomops" have not mentioned the subject despite the latter being a review of the entomologists of the Alpes Maritimes and Corsica, "almost on the doorstep" as it were. One must remember that the area in question is not a National Park or Nature Reserve but a department, i.e. similar to a county in Britain. The Alpes de Haute-Provence covers an area of 692,522 hectares.

Perhaps many lepidopterists have already experienced being told to pack their nets and go! The first I have heard of (I would have placed bets on it being an Englishman) was Mr. Russel Bretherton, who, accompanied by friends were collecting on the Montagne du Lure during July. A local forester soon appeared on the scene and informed them in no

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

uncertain terms of the new legislation. Having travelled such a long way specifically to collect on that mountain, how unfortunate to have one's holiday marred in such a fashion. It is worthy therefore to reproduce herea translation of the bye-law so that other British entomologists know of the new restrictions.

Prefecture des Alpes de Haute-Provence, Service de la Coordination et de l'Action Economique, Bureau de l'Environnement, du Tourisme, et de l'Amenagement due Territoire.

ARRETE No. 78 — 2536

Prohibition of capture of butterflies and moths in all the territory comprising the department of the Alpes de Haute-Provenc.

Article 1 Capture of moths carried out at night using artificial light sources and all other methods, also that of their caterpillars, is prohibited in all the territory of the Alpes de Haute-Provence.

Article 2 The capture of butterflies and day-flying moths is prohibited in all the territory of the Alpes de Haute-Provence for a period of ten years following publication of this bye-law in the collection of administrative records of the Prefecture.

Article 3 Capture or destruction of eggs, chrysalids and caterpillars of butterflies and moths is prohibited except those which are agricultural, horticultural or forestry pests.

Article 4 Exception from article 2 is made for children under twelve years of age who catch butterflies with pocket nets of a diameter not exceeding 20 c.

Article 5 Capture for scientific purposes of butterflies and moths as well as their eggs, chrysalids, and caterpillars is possible under exceptional authorization from the departmental Director of Agriculture, on the express condition that the request is made to him not less than one month in advance, the validity of such authorization not exceeding two months.

Article 6 The Secretary General of the Alpes de Haute-Provence, the Sub-Prefects, the mayors, the Colonel commanding the police of the Alpes de Haute-Provence, the Departmental Director of Agriculture and the employees of the National Forestry Office and municipal guards are entrusted, each and every one, with the carrying out of this present bye-law.

Digne 22nd June 1978

Signed: Paul Rouaze

It would appear from article 5 that collecting permits can be obtained under certain conditions. Perhaps being a member of an entomological society might be sufficient evidence of scientific intent? However, I doubt it because some commercial dealers are also members of entomological societies. In time, no doubt, the situation will become clearer.

In several European countries, laws are in force which protect certain species of lepidoptera. In Germany *Parnassius* species are protected in all their stages. Likewise *Zerinthia* species have been protected in Czechoslovakia since 1965. I

believe that there are similar laws in Austria and Switzerland but I have no information concerning which species are protected. Perhaps other readers can supply more information on this subject? The present collecting controversy and focus on conservation stimulated me to expand this paper more than I originally intended with the objective of making further information available to those interested.

In Britain we have seen many papers during the past few years concerning the misuse of light traps (e.g. Smith & Smith 1978) also there have been one or two papers specifically on insect/butterfly conservation (Owen 1974, Gardiner 1976). I echo the views of Smith & Smith in confirming that it is nearly always members of national organisations who run light traps which kill everything which enters them (i.e. Rothamstead traps). Although I have little knowledge of what goes on in the Alpes de Haute-Provence, I can present here some information concerning the Vaucluse. During ten years of collecting experience in the Vaucluse, the only light traps I have encountered which kill all the insects which enter, are those run by employees of the Institut National de la Recherche Agronomique (I.N.R.A.). Both the Montfavet Agricultural Research Station and the Laboratoire d'Ecologie de Mont Ventoux both run several such traps. I am informed that those positioned on Mont Ventoux and which are concerned mainly with the monitoring of populations of *Thaumetopoea pityocampa* Schiff., the Processionary Caterpillar of the Pine, frequently require emptying three or four times per night in mid-summer. The thousands of dead moths are later examined and identified (when possible) by students who act as temporary employees during summer months. All the light traps used by visiting amateur lepidopterists have been without exception of the "Robinson" or "Heath" design, and made use of a sheet or egg packing trays. These traps allow the lepidopterist to select the desired specimens and to release the remainder, usually the vast majority, unharmed.

In the case of the light traps used by Montfavet Agricultural Research Station, they are used to monitor the arrival of migrations and population fluctuations of twenty or more pest species of Noctuidae. The light traps are positioned in agricultural areas around Avignon. This type of use is perhaps acceptable to most lepidopterists.

In the case of the light traps used by the Laboratoire d'Ecologie du Mont Ventoux, Malaucene, I would query the necessity for using light traps to monitor the population of *T. pityocampa*. Having had some professional experience during 1963 involving a serious outbreak of the Pine Looper, *Bupalus piniarius* L. (the Bordered White) in Cannock Chase, I feel that I can discuss the matter with some authority. Although there will undoubtedly be correlation between numbers of moths killed in the traps and actual populations, for one reason or another the figures obtained are not very accurate and can only be used as an indication of fluctuations. The same indica-

tion may be obtained by other methods involving larvae. The ease with which one can count the web nests of larvae in the springtime also makes possible the counting of nests by aerial photography either using daylight or infra red film. Surely it is not necessary to kill thousands if not millions of moths in order to know when the adult moths are emerging and laying eggs. A further disadvantage of such semi-permanent light traps is that large numbers of moths are eaten by bats which soon learn that light traps are a good source of food. The numbers of bats involved can be large and fluctuations in the bat populations will be reflected in the numbers of moths taken in the traps.

My friend Mr. Gerard Luquet, the editor of "Alexanor", who is employed as a lepidopterist in the Museum Nationale d'Histoire Naturelle, Paris and sometimes at the Laboratoire d'Ecologie due Mont Ventoux, on being questioned about the effect of the "complete mortality" light trap, informed me that the statistics taken by his colleagues over a number of years indicate that there are no adverse effects on populations from the use of such traps. Personally I feel that this is an incorrect conclusion based on inadequate data. Perhaps it is correct for certain common species with wide distribution but I would suggest incorrect for uncommon species with restricted distribution. Populations normally fluctuate from generation to generation depending on parasitism, predation, food supply and weather. Should large numbers of an uncommon species be taken when a population is extremely low, long term damage can be inflicted on the population and it may take several years to regain its normal density. Thus we find conflicting evidence: that of personnel of I.N.R.A. on the one hand and that of the advisers to the Prefecture of the Alpes de Haute-Provence on the other. It appears obvious to me that the latter are correct.

I have already pointed out that it is not the effect of light traps upon common species with wide distribution which worries the conservationist. It is their effect upon uncommon species with restricted distribution. In the Alpes de Haute-Provence I presume that one of the major subjects for conservation is the Saturniid *Graellsia isabellae* Graells., undoubtedly one of the species most concerned with the present ban on collecting. There has been for some years, publicity concerning the rarity of this and other insect species in France, where it is restricted to two or three departments in the south. Despite this "warning", large numbers have been collected annually by both French and German commercial dealers. I fear that Mr. Gardiner's supposition (Gardiner 1977) that A1 specimens are more easily obtained by breeding is just not true. Soon after emergence most wild specimens are perfect. Unscrupulous dealers will kill and sell even damaged specimens. Mr. Gardiner also states, "There is no known proved instance of any butterfly or moth ever having been exterminated by over-collecting". This is, of course, very

difficult to prove, but a recent example of disgraceful behaviour on the part of a South African dealer/lepidopterist comes to mind. A recently discovered species of Lycaenid, *Oxychaeta dicksoni* (Gabriel) with a very restricted distribution was, as far as is known, collected to the point of extinction within one season so that the individual concerned could charge high prices for his "rarities". Mr. C. G. C. Dickson, after whom the species was named, informed me that it has not been seen since. Following on from this there is now a list of butterfly species protected by law in South Africa, with heavy fines or imprisonment for anyone transgressing the law. Laws such as this are very hard to implement especially in wild, mountainous areas, forests, etc. Far better is to prohibit the sale, as well as the collection, of the insects concerned.

In the case of the Alpes de Haute-Provence, protection of certain uncommon species would likewise be hard to implement (as it is in Britain). Those personnel required to assist in the carrying out of such a law are not likely themselves to be able to tell one species from another. Undoubtedly in cases such as this, it is better to establish a nature reserve or put a total ban on collecting.

While completing this paper, the October issue of "The Record" was delivered and with great interest I read various "Letters to the Editor" from Messrs. Jacobs, Hyde and Willmott (*Ent. Rec.* 90: 272-274). Undoubtedly permanent destruction of habitat is the major cause of the disappearance of insect species, with other factors such as over-collecting, temporary destruction of habitats by fires, droughts, etc., and interference in the natural balance of an ecosystem such as the introduction of myxomatosis, all playing lesser rôles. It is urgently necessary to protect as many unspoilt areas as possible from the ravages of mankind. To this end, local naturalists' trusts greatly need our support. I would also like to see greater action on the part of learned societies (ornithological, zoological, entomological and botanical) working together with government. Wild life must be protected for scientific interest and leisure activities of future generations. Action is needed now and anything which aids conservation should be welcomed, however irritating it might be to some individuals. For this reason I fully support the Prefecture of the Alpes de Haute-Provence in their present ban, which for butterflies is in force until 1988. We must wait ten years to see whether the ban will be a permanent one.

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The Return of the Orange Tip

By ALBERT G. LONG*

(Continued from page 17)

(iv) In South Northumberland VC 67

In south Northumberland (VC 67), as in County Durham (VC 66), the Orange Tip apparently suffered a decline in numbers towards the end of last century, but it seems never to have become completely extinct. The first record is that of John Wallis at Simonburn: "Frequent in warm shady vales in May and June" in 1769 (*Natural History and Antiquities of Northumberland*, p.353).

The next three known records are in a notebook of Albany Hancock¹. They are for the Newcastle area: 4.6.1826 and 29.4.1827, "Sides of lanes common"; and his bother, John Hancock, similarly recorded it for Ponteland Road, 3.6.1827.

George Wailes recorded it on 1.6.1860 at Riding Mill between March Burn and Dilston Castle (*T.T.N.F.C.* 5, 3); between 1861 and 1866, it was recorded each year at Stamfordham by J. F. Bigge and H. T. Mennell (*T.T.N.F.C.* 5, 209; 6, 50); and in the same period for Burradon 26.5.1861, Cambo 19.5.1862; and Plessey Woods 26.5.1865 (*ibid.* and *T.N.H.S.* 1, 237).

¹ MS. Notebook of Albany Hancock, in Hancock Museum, Newcastle-upon-Tyne.

Between 1867 and 1871 it was noted each year at Wallington by R. F. Wheeler, and on 16.6.1872 at Cresswell (*T.N.H.S.* 5, 99). This was the last known record for the century in VC 67, but in 1899, J. E. Robson wrote, "For some years this pretty species all but disappeared but it has resumed its usual numbers" (*T.N.H.S.* 12, 4).

The earliest records I know of Orange Tips in VC 67 this century occur in a notebook of G. T. Nicholson². For 4.6.1900 he wrote, "At Dipton near Hexham Rosie took one male Orange Tip". Again on 28.5.1901, he wrote — "Allendale, noticed this species flying in the locality". Similarly, on 4.6.1906 at West Dipton Burn, "Orange Tips seen but not caught". It is thus certain that Orange Tips were established in south Northumberland in the first decade of this century.

George Bolam, writing in 1925, said that Abel Chapman saw several about Houxty in 1918 — "The first he had ever seen anywhere in Northumberland. Since then it has appeared about Wark, in small numbers, in most years; and almost the same may be said of several other Tynedale localities, both to east and south" (*H.B.N.C.* 25, 522).

Other early records are to be found in the journal of W. G. Watson³ for Sidwood (N. Tyne). Orange Tips are there recorded for the garden at Sidwood on 1.5.1920, 30.5.1920, 2.6.1920, 5.6.1920 and on 27.5.1920 at Red Heugh Wood.

In 1930, J. R. Robinson wrote "A female Orange Tip, from which I now have eggs, taken at Ponteland, with one seen by Professor Harrison at Corbridge, shows that this

* Hancock Museum, Newcastle-upon-Tyne.

¹ MS. Notebook of Albany Hancock, in Hancock Museum, Newcastle-upon-Tyne.

butterfly can still be seen in South Northumberland" (*Vasculum*, **16**, 119).

In 1932, G. Bolam recorded one male in the glen below Staward Peel on 22.5.1932 (*Vasculum*, **19**, 123); and in 1934, F. C. Garrett wrote "Not uncommon in South Northumberland, but seems to be becoming more scarce" (*Vasculum*, **20**, 46). However, this interpretation may have been the exact reverse of the truth.

In the mid-thirties, Robert Craigs recorded Orange Tips in Redesdale, at Catcleugh, two on 27.5.1935, and at Rochester two on 27.5.1935 and 1.6.1935 (*H.B.N.C.* **29**, 17).

In 1941 it was observed as increasing near Stocksfield "between middle to end of June" (J. W. H. Harrison in *Vasculum*, **27**, 6); and in 1942 the species was again recorded for Stocksfield by Mrs. T. E. Hodgkin — two seen (*Vasculum*, **27**, 32).

Similarly, in 1945 it was seen at Bardon Mill on 6.5.1945 by C. J. Gent (*Vasculum*, **30**, 47), and commonly in Allendale by J. S. Ash (*Vasculum*, **30**, 55).

In 1946 F. W. Gardner recorded it as "now quite common at Riding Mill" and added: "Has increased considerably of recent years" (*Vasculum*, **31**, 6).

In 1951 it was observed at Apperley Dene, 2.6.1951; in 1960, at the Sneap 21.5.1960 (J. W. H. Harrison (*Vasculum*, **36**, 11 and **45**, 11); and in 1963, F. W. Gardner again recorded it for Riding Mill as "of regular occurrence throughout the district and fairly common in favourable years" (*Vasculum*, **48**, 23 and *Ent. Gaz.* **13**, 22).

The increase continued in the seventies. Thus, it was seen in June 1970 by J. T. B. and D. Bowman south of Caw Lough near Bonnyrighg Hall not far from Hadrian's Wall (*Vasculum*, **59**, 44); and in the same year, J. D. Parrack saw one male just emerged at Plashett's Pond (N. Tyne) on 6.5.1970.

In 1971 one was seen on 1.5.1971 by A. M. Tynan at The Belling (N. Tyne), two more were seen at Plashett's Pond by J. D. Parrack on 28.5.1971 and 6.7.1971; and in 1972, the same observer saw specimens at Plashetts on 5.6.1972; at Bolam 5.6.1972, Smalesmouth, 28.4.1972 (a pupa) and at Williamstone (S. Tyne) on 28.6.1972.

In 1973, several pairs were seen at Slaggyford (S. Tyne) by Gfl Fenwick on 9.6.1973, J. D. Parrack observed one near Cresswell 11.7.1973 and three at Williamstone; in 1975 it was seen at Low Shilfurd near Stocksfield by O. L. Gilbert (*Vasculum*, **61**, 8), and also at Warden near Hexham by D. A. Sheppard and M. Eyre on 1.6.1975; and in 1976, it was noted at Stocksfield 8.6.1976 and at Close House near Newcastle on 27.5.1976 by D. A. Sheppard, and J. D. Parrack recorded six at Staward on 13.6.1976 (*Vasculum*, **61**, 96).

In 1977, it was again seen at Warden on 28.5.1977 by A. Garside, D. A. Sheppard and M. Eyre, and also at Whittle

³ MS. Journal of W. G. Watson, in Library of Northumbria Nat. Hist. Soc., at Hancock Museum.

² MS. Notebook of G. T. Nicholson, in Hancock Museum, Newcastle-upon-Tyne.

Dene 4.6.1977, and was observed at Heddon on the Wall by H. T. Eales on 21.5.1977. A male was seen flying across an open bare field between Bolam Lake and Shaftoe Craggs on 22.5.1977 (A.G.L.). A single ovum was found at Wallington on *Alliaria petiolata*, by P. Summers on 20.6.1977.

In 1978 the increase was much in evidence in the S. Tyne and N. Tyne areas. It was seen at Brunton, Humshaugh and Haughton on 28.5.1978 by M. E. Braithwaite, at Chirdon Burn by A. M. Tynan, at the Kielder Dam site on 3.6.1978 (A.G.L.), and between Riding Mill and Slaley on 29.5.1978 by Mrs. Pybus of Dipton House.

It is clear therefore that in south Northumberland (VC 67), there is evidence of almost a continued presence of the Orange Tip from the time of John Wallis (1796) to the present (1978), with a possible diminution of numbers in the period between 1872 and sometime before 1899, when Robson published the first part of his "Catalogue". This partial break coincides more or less with the apparent extinction in Berwickshire lasting the greater part of a century.

(to be continued)

THE GREAT BROCADE (*EUROIS OCCULTA* L.): A STRANGE HABIT OF THE LARVAE IN CAPTIVITY. — Whilst in Scotland this year I collected a number of larvae of this species, and fed them up on birch at home. After about a week I noticed in one cage a larva infested with a hymenopterous parasite. These parasites had spun up a communal "candy floss" cocoon on a birch stem. Being a bit lazy at the time I left the stem in the cage as the *occulta* had plenty of foodplant. On preparing to change over to fresh food a few days later, I noticed with amazement a full grown *occulta* larva with its head and front segments actually inside the parasite cocoon. The following day the cocoon had vanished. I can only assume the larva had devoured the entire cocoon with its unsavoury occupants (my apologies to hymenopterists). There was no shortage of birch in the cage.

No doubt this change of diet suited the larva, but I wonder if this particular instance classes *occulta* as a cannibal. The larvae certainly do not eat one another in captivity. Incidentally, I have found they have a great liking for birch catkins which they devour readily, usually leaving some of the catkin uneaten. — J. PLATTS, 11 Maydowns Road, Chestfield, Whitstable Kent.

LIMENITIS CAMILLA LINN. AT FRISTON, NEAR EASTBOURNE, EAST SUSSEX. — In rather dull weather on the 20th July, 1978, I observed two *Limentis camilla* flitting through the trees in an area of Friston Forest where honeysuckle abounded. This prompted further investigation and on the 21st of July, another dull day, a further five were seen in the same locality. I decided to wait for a sunny day and luckily I only had to wait until the 24th July, when I returned to see at least 20 in flight, basking in the sun or resting on bramble flowers. — MARK PARSONS, 43 King's Avenue, Eastbourne, East Sussex.

Entomologising in Andorra, 1978

By J. M. CHALMERS-HUNT¹ and C. J. LUCKENS²

The customs patrol scattered as we swept over the frontier into Andorra. Not that we had anything against them but when peaked-capped figures appeared suddenly out of the thick mist in the middle of the road it was only the skilful driving of J.M.C-H. that avoided an international incident.

It was towards the end of an exhausting journey south in which we had already been delayed the evening before by a dock strike at Dieppe necessitating a longer route via Boulogne. We had looked forward to some collecting on our way through France but the weather was far from favourable until we reached the delectable limestone country around Cahors and then the sun came out for a while.

We sampled an area of rough ground near Payrac and almost immediately a mint female *Maculinea arion* L. was netted. There were further examples of this butterfly nearby in an overgrown orchard and they were of a large bright form with considerable variation in the forewing spotting. *Brintesia circe* D. & S. was fairly common and several other species were flying including *Papilio machaon* L., *Leptidea sinapis* L., *Thymelicus actaeon* Rott., *Cupido minimus* Fuess., *Nordmannia ilicis* Esp., *Brenthis daphne* D. & S., *Melitaea didyma* Esp. and *Coenonympha dorus* Esp.; and among the moths, *Zygaena hippocrepidis* Hb. (det. W.G.T.). A large ichneumon wasp was netted that turned out to be *Stauropoctonus bombycivorus* (Grav.) (det. I.D.G.), rare in Britain, but known for example from the New Forest, and has been reared from the Lobster Moth (*Stauropus fagi* L.).

Pressing on, we reached the foothills of the Pyrenees and then the weather turned sour once more and there was thick mist all the way up the tortuous road from Ax le Thermes to Andorra. After negotiating the aforementioned customs officers, who were rather angry over their lost dignity and told us so in at least two languages, we made better progress in the rapidly improving road conditions and finally reached our destination at St. Julia de Loria in the late evening.

Apart from an occasional shower we saw no more rain during the five days we stayed in the principality and enjoyed collecting in glorious weather and amongst superb mountain scenery. We recorded over 90 species of butterflies alone. Dr. P. J. L. Roche, who resides in Andorra, met us the following morning and remained an invaluable guide and entertaining companion throughout our stay.

The first day, July 20th, was spent at about 3,500 ft. just east of S. Julia, in a lightly wooded valley which Dr. Roche has made the subject of an ecological survey. Insect life was abundant in this relatively lowland part of Andorra. The larger fritillaries, *Argynnis adippe* D. & S., *Argynnis paphia* L. and *Brenthis daphne* D. & S. sailed among the thistles, and a

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white-flowered elder-like bush attracted hairstreaks and coppers, and also, to our delight, *Libythea celtis* Laich. There was a good selection of blues and *Melitaea* species, including a large race of *Melitaea phoebe* D. & S.; *Melanargia lachesis* Hb. was common, and *Hipparchia alcyone* D. & S. skipped around the tree trunks with elusive agility. *Satyrus actaea* Esp. was represented by newly emerged males. A few rather worn *Aporia crataegi* L. floated around the bushes and occasionally visited thistles in the lower part of the valley. The previous day Dr. Roche had taken a fine male *Apatura ilia* D. & S. f. *clytie* beside the shallow stream, and in the same spot, just after mid-day another male of this magnificent butterfly swept by J.M.C-H. who narrowly missed netting it. By 4.30 p.m. the prospect of liquid refreshment in Dr. Roche's residence was irresistible, but we felt that 49 butterfly species recorded on our first day was no mean score.

Among the moths noted were: *Zygaena filipendulae* L. (det. W.G.T.), a five-spotted form which we were to encounter later in the vicinity; the geometrid *Pseudoterpna coronillaria* Hb. (det. D.S.F.) which is similar to our *P. pruinata* Hufn. though greyer; *Chrysocrambus dentuellus* P. & M. (det. M.S.), and en route to the valley, *Dysauxes punctata* F. (det. D.S.F.).

The following morning we set off for some higher level, collecting between 6,000 and 6,500 ft. at Encamp Cortals. At this height one could feel the bite in the air and a slight tachycardia — quite apart from that caused by chasing the fast-flying *Colias phicomone* Esp. which were careering over the flowery slopes. We both collected a short series of this butterfly, and J.M.C-H., as well as netting micros and insects of several other orders, also managed to capture two *Euchloe ausonia ausonia* Hb. — a butterfly not previously on Dr. Roche's Andorran list. The little alpine fritillary *Boloria napaea* Hoffmannsegg was very common here — we thought we had *Boloria pales* D. & S. as well, but all the specimens subsequently shown to Dr. L. G. Higgins were found to be *napaea*. In the damper parts of the valley *Palaeochrysophanus hippothoe* L., *Brenthis ino* Rott. and the usually local *Procllossiana eunomia* Esp. were also well represented. Among a carpet of scabious C.J.L. took two *Euphydryas aurinia* Rott. which, though of a darkish and small form, were not quite true *debilis* in appearance. There were five species of *Erebia* in evidence, but one of these, *Erebia cassioides* Hohenwarth was only just emerging at this relatively late date and we found a single fresh male each. *E. meolans* de Prunner was locally common (in the superb form *bejarensis* Chapman) but *E. oeme* Hb., *E. epiphron* Knoch., and *E. euryale* Esp. were common and widespread. We were pleased to find the lovely blue *Plebicula dorylas* D. & S. on a stony dry slope; and even more locally, around the clumps of geranium, fluttered the little dark *Eumedonia eumedon* Esp. This latter species was past its best, however, and anything that looked like a fresh

specimen invariably turned out to be *Cupido minimus* Fuess. on closer inspection.

Moths seen include *Macrothylacia rubi* L., *Diacrisia sannio* L., *Odezia atrata* L., *Gnophos obfuscata* D. & S. (det. D.S.F.), *Udea uliginosalis* Steph. (det. M.S.), *Pyrausta cerealis* Hbn. (det. M.S.), *Eudonia lineola* Curtis (det. M.S.), *E. murcurella* L. (det. M.S.). Also, an attractive black and white Oecophorid which according to Mr. Jäckh conforms to *Schiffermuelleria raetica* Frey, and on comparison with the series of *S. rhaetica* in the B.M.N.H. it seems nearest to ssp. *graslinella* Staudinger, though in the opinion of Dr. Sattler our specimen may well be specifically distinct.

The next day we went to Juberri a few kilometres into the mountains south east of St. Julia, and here a magnificent large race of *Parnassius apollo* L. sailed about. J.M.C.H. at one point was observed in a sort of dervish whirl in the wake of a white butterfly which flew and behaved very like *Parnassius mnemosyne* L. and which led him a fine chase only to reveal itself as *A. crataegi*. He got a round of applause from a chalet balcony high up on the hill however! Though the precipitous stony slopes were difficult to explore we found a marvellous wealth of butterfly species flying alongside the road. Among the abundant *lachesis* a good proportion of *Melanargia russiae* Esp. were to be found, *Heodes virgaureae* L. was common and a single example of *H. alciphron gordius* was taken. Fritillaries were represented mainly by *Argynnis adippe* D. & S., *A. paphia* L. and a bright form of *Melitaea didyma* Esp., but a solitary *Issoria lathonia* L. put in a brief appearance and there were one or two worn *Mellicta athalia celadussa* Fruh. and *M. phoebe*. During our stay only two *Laeosopis roboris* Esp. were taken, (one of them here at Juberri), but normally this butterfly is abundant by this date Dr. Roche informed us, and it seemed yet one more evidence of the lateness of the season. Among the burnets we took at Juberri was *Zygaena hilaris* Ochs. (det. W.G.T.).

In the early afternoon we drove back through St. Julia, and after negotiating the traffic in Andorra la Vella turned off the main road just short of Soldeu into the Val d'Incles. The high meadows here were carpeted with wild flowers—geranium, gentian, viola and cistus and flying among them a host of butterflies. *Cyaniris semiargus* Rott., *Lycaeides idas* L. and *P. hippothoe* were the commonest lycaenids and worn *Clossiana selene* D. & S. flew with the similar *P. eunomia*. *B. ino*, *B. napaea* and *Pyrgus serratulae* Ramb. were common as were the two *Erebias*, *epiphron* and *oeme*. We patrolled the thickly-growing stands of *Gentiana lutea* hoping to turn up *Maculinea alcon* D. & S. but to no avail. J.M.C.H. captured an enormous *Tabanid* fly just as it was about to feast on C.J.L. who was totally unaware of his peril. There was some dispute afterwards whether a warning had been given before or after the net descended!

Moths we recorded from there included: *Hemaris tityus* L., *Parasemia plantaginis* L., *Epirrhoe molluginata* Hbn. (det.

D.S.F.), *Omorphina cymbalariae* Hbn. (det. D.S.F.), *Stenoptilia coprodactyla* Stn. (det. M.S.), *Udea ferrugalis* Hbn. (det. F. (det. M.S.)), *Argyroproce stibiana* Gn. (det. K. T.) and *Eana argentula* Clerck (det. K.T.).

We started operations the following day above El Serrat at approximately 7,600 ft. Several species were flying at, or just below, the snow line including *Erebia pandrose* Borkhausen., *C. phicomone*, *C. croceus* Geoff., and *Pieris brassicae* L. Dr. Roche also recorded a specimen of the ubiquitous *Coenonympha arcania* L. Our main butterfly quarry was *Pontia callidice* Hb., but the only whites we saw were of the larger plebeian variety. A little lower down, at around 6,000 ft., *E. meolans* appeared, and also a large *Pyrgus* which was subsequently identified by Dr. Higgins as *P. cacaliae* Rambur and probably new to Andorra. On the lightly wooded hillside at 5,600 ft. where we concentrated our activities for the remainder of the day, *P. apollo* was fairly numerous — nearly all of them fresh males of a large race (*pyrenaicus* Harcourt-Bath). There was also a strong colony of *Mellicta parthenoides* Kef. and many *Lasiommata maera* L. *Plebejus argus* L. was represented by a fine race, *hypochiona* Ramb., with silvery blue undersides in the males. A striated aberration of *P. hippothoe* was captured and also our only specimen of *H. tityrus* Poda.

Among the moths noted were: *Euplagia quadripunctaria* Poda, *Zygaena purpuralis* Brünnich (det. W.G.T.), *O. cymbalariae* Hbn. (det. D.S.F.), *Anaitis praeformata* Hbn. (det. D.S.F.), *Catoptria falsella falsella* D. & S. (det. M.S.) and *Pyrausta porphyralis* D. & S. (det. M.S.).

Thunder clouds blew up during the latter part of the afternoon and there were a few heavy showers on our way back to S.Julia.

The 24th was our last full day in Andorra, and we were determined to make the best of it. The morning was spent in the valley east of St. Julia where we met Dr. Roche accompanied by Michael Symes, who was just commencing his holiday in Andorra. *A. ilia* failed to put in another appearance but Michael Symes recorded a specimen of the large fritillary *Pandoriana pandora* D. & S. a species new to this area. *L. celtis* seemed more in evidence than it had been a few days before and the two blues *Plebicula escheri* Hb. and *Plebicula amanda* Schneider were also about in better numbers. Single examples were taken of *P. apollo* and *M. arion*.

After lunch J.M.C.H. and C.J.L. took themselves off to the road verges near Juberrí where so many species had been flying two days before. Fluttering down a precipitous stony slope was a lemon yellow *Anthocaris belia euphenoides* Staud. — the only one we had seen. Instead of turning back towards the road when it reached the dense shade of some alders, as all the other butterflies seemed to do, it kept on going and we failed to intercept it further down the road. We decided to glance at the yellow *biscutella* plants and the very first one

examined had a well-grown larva of *belia euphenoides*. Several more were found but unfortunately they suffered badly from the heat and only three survived the return journey to England. Those that did survive took very well to ordinary garden honesty in the absence of their natural pabulum. A single specimen of the emerald *Thetidia smaragdaria* F. was netted here, and a number of empty mines collected on *Malus* of *Lyonetia clerkella* L. (det. A.M.E.).

Reluctantly we had to start our preparations for the homeward journey and the following morning drove up the high winding pass out of Andorra. We had completely different weather from that we had experienced the previous time and the sun shone brilliantly — also there were no customs officers in the way. Stopping at the highest part of the road we briefly explored and another *P. cacalia* came our way. The only other butterflies were *E. pandrose*, *P. rapae*, *C. minimus*, and the yellow and black day-flying moth *Psodos quadrifaria* Salzer.

A large buddleia patch beside the road at Le Castellet near Ax le Thermes caught our eye, and on our inspecting it *Araschnia levana* L. was taken among numerous *B. daphne* and *A. adippe* imbibing from the mauve blossoms together with a magnificent carpenter bee *Xylocopa valga* Gerstaecker (det. G.R.E.). It was interesting to note that here, only a few miles north of the Pyrenees, *lachesis* appeared to be replaced by a *Melanargia* intermediate in form between that and *galathea*.

We drove most of the afternoon until we found ourselves once again in the limestone region around Cahors. Here we sampled a dry hillside covered in wild lavender and noisy with cicadas. Both *Zygaena sarpedon* Hbn. (det. W.G.T.) and *Z. fausta* L. (det. W.G.T.) were flying here, as well as numbers of the curious dragonfly-like *Libelloides longicornis* L. (Neuroptera, Ascalaphidae) (det. P.C.B.). *P. machaon* was numerous and there were plenty of the fine large *Satyrus ferula* F. flying over the dusty slopes. *Gonepteryx cleopatra* L. and *G. rhamni* L., both freshly emerged were frequent and we also recorded *Philotes baton* Berg. but so worn as to be virtually unrecognisable. The black and white *Brintesia circe* made life difficult for both butterflies and collectors by mobbing everything that came within range of their chosen perch. C.J.L. missed a large *Iphiclides podalirius* L. because of the aggressive antics of *circe* but just before we left J.M.C.H. dexterously netted one of these fine swallowtails in full flight.

This proved to be the last butterfly captured of the expedition as the following day the weather broke down, we inspected the Forêt de Rambouillet in heavy rain, and only when we were within a few miles of the Channel did the sun shine once more.

Species other than Lepidoptera noted in Andorra

TRICHOPTERA. Goeridae: *Silo graellsii* Pictet (det. P.C.B.), Val d'Incles, ♂, 22.vii. Sericostomatidae: *Schizopelex furcifera* McLachlan (det. P.C.B.), Juberri, ♂, 22.vii.

MECOPTERA. Panorpidae: *Panorpa meridionalis* Rambur (det. P.C.B.), St. Julia, ♀, 20.vii.

PLECOPTERA. Perlodidae: *Isoperla grammatica* (Poda) (det. P.C.B.), Juberri, ♂, 22.vii.

ORTHOPTERA. *Oedipoda caerulescens* L. (det. D.R.R.), St. Julia, 20.vii; Juberri, 22.vii. *Stauroderus scalaris* F.v.W. (det. D.R.R.), Encamp Cortals, 21.vii.

DIPTERA. Syrphidae (det. R.A.H.): *Volucella zonaria* Poda, San Julia, 24.vii; *Sericomyia lapponica* L., El Serrat (7,500 ft.), 23.vii; *Scaeva selenetica* Mg., Encamp Cortals (6,500 ft.), 21.vii. Conopidae (det. K.G.V.S.): *Sicus ferrugineus* L., Juberri, 22.vii. Asilidae (det. R.A.H.): *Cyrtopogon ruficornis* F., El Serrat, 23.vii; *Molobratia teutonius* L., El Serrat (5,600 ft.), 23.vii. Bombyliidae (det. D.J.G.): *Bombylius canescens* Mg., Val d'Incles, 22.vii; *Anthrax anthrax* Schrank, St. Julia, 20.vii. Tabanidae (det. J.E.C.): *Tabanus sudeticus* Z., El Serrat, 23.vii; Val d'Incles, 20.vii. Tipulidae (det. P.S.C.): *Nephrotoma flavescens* L., Encamp Cortals, 21.vii.

COLEOPTERA. Lepturinae: *Stenopterus rufus* (L.), ♀, Juberri, 22.vii; *Judolia cerambyciformis* (Schrank), ♀, Juberri, 22.vii; *Leptura rubra* L., ♂, Juberri, 22.vii. Scarabaeidae, Melolonthinae: *Amphimallon fuscus* (Scop.), St. Julia, 24.vii. Cleridae: *Trichodes apiarius* (L.), St. Julia, 24.vii. The Cerambycidae det. by C.R.S.; the Scarabaeidae and Cleridae det by R.D.P.

HYMENOPTERA. Apidae (det. I.H.H.Y.): *Bombus ruderarius* ssp. *montanus* Lepeletier, ♀, Encamp Cortals (6,500 ft.).

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Our grateful thanks go especially to Dr. Patrick Roche who accompanied us to several rich entomological localities, most of which he discovered himself, and who entertained us royally at the end of each days collecting. And finally to our wives, for letting us go to foreign parts without undue complaint!

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Agonopterix scopariella Heinemann: Some notes of differences between it and allied species in Britain

By JOHN R. LANGMAID *

Quite why this species was ever confused with *Agonopterix pulverella* Hübner seems a mystery, because the imagines are distinct macroscopically; and the foodplant of *scopariella* is *Sarothamnus scoparius*, while that of *pulverella* is *Genista tinctoria*.

Agonopterix scopariella Heinemann.

Sexes similar. Exp. 20-22 mm.

Head, thorax and tegulae brownish, scales paler-tipped.

Face whitish.

Palpi pale brownish buff, the rough-scaled second joint with fuscous-tipped scales; terminal joint with two blackish bands ventrally, more obscure dorsally; tip minutely black.

Antennae fuscous, somewhat paler toward base.

Abdomen dorsally greyish-brown with a row of paler scales of the segment below, giving a somewhat banded appearance; anal tuft brownish; ventrally pale greyish buff with a broad sooty black stripe laterally on each side sometimes interrupted at segments, and a row of black dots medially on each side.

Forelegs brownish buff, medial side of tibia distinctly reddish superiorly and and fuscous inferiorly; coxa and femur blackish, sprinkled buff; tarsi spotted dark fuscous superiorly.

Middle legs — coxa and femur blackish, sprinkled pale buff; tibia buff, sprinkled fuscous, with lateral hair-scales reddish; spurs fuscous; tarsi greyish-brown.

Hindlegs — coxa and femur blackish, sprinkled buff; tibia buff; spurs fuscous; tarsi brownish.

Forewings — costa straight.

Upperside brown, pinkish brown or reddish brown, more or less dotted black, a short black or dark brown line from dorsum near base obliquely upwards and outwards stopping half way to costa, in some specimens more or less obsolete; two black dots in disc at $1/3$, the inner one obliquely above the outer which is sometimes edged with white above; a distinct white dot in disc at $1/2$ and another beyond it sometimes edged with black, a darker suffusion in disc above inner white dot; a row of terminal blackish dots or dashes, sometimes obscure; cilia darkish brown, paler around tornus. Underside shining fuscous with a paler margin along costa which is distinctly marked with four to six blackish spots.

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Hindwings grey, paler basally; cilia greyish with 3 to 5 concentric fuscous bands, sometimes very obscure. Underside grey, brindled with blackish toward apex.

Agonopterix pulverella Hübner.

Sexes similar. Exp. 20-22 mm.

Head, thorax and tegulae pale buff to light brown, sometimes with a pinkish flush, and more or less sprinkled darker brown.

Face paler.

Palpi unicolorous pale buff.

Antennae dark shining fuscous with pinkish or purplish reflections.

Abdomen dorsally fuscous, mottled buff; anal tuft buff; ventrally pale greyish-buff with a row of sooty black spots laterally on each side and another row of smaller black dots medially on each side.

Forelegs buff; tarsi broadly banded fuscous.

Middle legs brownish-buff; spurs fuscous; tarsi banded fuscous.

Hindlegs brownish-buff; medial spurs buff, shorter lateral spurs fuscous; tarsi faintly banded fuscous.

Hindlegs brownish-buff; medial spurs buff, shorter lateral spurs fuscous; tarsi faintly banded darker.

Forewings — costa distinctly arched.

Upperside pale buff, dorsal 2/3 more or less suffused pinkish or rusty at base, this suffusion broadening to apex, more marked in disc and upper part of termen; a blackish dot in disc toward base, sometimes obsolete; one whitish dot in disc posteriorly, also sometimes obsolete; many blackish scales scattered along veins; a row of indistinct terminal dark fuscous dots; cilia more or less pinkish or rusty, paler around tornus. Underside shining light fuscous, with pale buff perimeter broader on costa which is scarcely marked fuscous.

Hindwings greyish-white, darker toward apex where there are two or three fuscous dashes around margin; cilia greyish-white with two to four concentric light fuscous bands. Underside pale shining greyish-white, more buff toward apex where it is brindled fuscous.

The only species of the genus *Agonopterix* which could be confused with *scopariella* is *A. subpropinquilla* Stainton, but the latter never has the white dots in the disc, and is generally of a smoother appearance.

The larvae of *scopariella* can be beaten from broom in the latter half of June and early July. If beaten in June, larvae of *A. nervosa* Haworth will almost certainly be found as well. *Nervosa* appears slightly earlier than *scopariella*, so in June the larger larvae are likely to be *nervosa*, while in July *nervosa* will most probably have pupated, and the larvae are more likely to be *scopariella*. If larvae of *A. assimilella* Treitschke. are beaten out also, then there is no problem with identifica-

tion as these are either dark brown or olive-green with a black head and plate. The larvae of *scopariella* and *nervosa* are quite distinct as juveniles, but can be almost indistinguishable when full grown. Similarly, as *nervosa* also feeds on *Genista tinctoria*, its juveniles and those of *pulverella* are also distinct, but again very similar when full grown. There follows descriptions of the larvae of the three species:

- A. nervosa* Juvenile — yellowish brown, dorsal and subdorsal lines blackish, head dark brown, plate of 2 yellowish, dots black, and the larva has a slight downy appearance.
- Full grown — extremely variable. It can be green, yellowish or brownish-yellow; dorsal and subdorsal lines darker green in the green larvae, but brown or blackish-brown in the yellowish ones; head brownish or black; plate of 2 greenish in the green larvae sometimes with a black crescentic mark on each side, but yellowish-brown in the yellowish larvae; anal plate pale green or yellowish; dots black.
- A. scopariella* Juvenile — green or pale green; head, plate of 2, and dots black.
- Full grown — green; dorsal and subdorsal lines darker green; head light yellowish-brown or greenish-brown, sometimes with a small black dot on each cheek; plate of 2 green or pale yellowish-brown, with two small black dots sometimes confluent into a crescentic mark on each side; anal plate green; dots black.
- A. pulverella* Juvenile — greenish-white; head pale brown; plate of 2 greenish-brown edged with black; dots black.
- Full grown — green; dorsal and subdorsal lines darker green; head pale brown; plate of 2 pale brown or greenish-brown, sometimes with black edging of a variable degree; dots black.

So far, *scopariella* has been found in central-south and south-east England. East Anglia, South Yorkshire and several parts of Scotland. The distribution of *pulverella* seems to be confined to the southern half of England and south Wales. Both *nervosa* and *assimilella* are widely distributed throughout the British Isles.

Hydrillula palustris and Wicken Fen

By R. P. DEMUTH *

It is difficult to imagine what a hold *palustris* had on the previous generation of entomologists. It was "the" collectors moth and the old generation were collectors, not conservationists, and of course magnificent field naturalists into the bargain. It was the obscurity of *palustris* that made it so attractive. Nothing was known about it. It turned up as single specimens in widely spread localities. The female was hardly ever seen. The larvae quite unknown.

Only in Wicken Fen was it taken fairly regularly and then there were many years when none were caught. The result was that weekends in the Fen in early June were fully booked. In the 1920's, when I first knew Wicken, it was financed and run by entomologists for entomologist. Barnes was the keeper. You booked with him and he did the rest. This meant providing and setting up a vertical sheet in the main drove, an acetylene lamp, table and chair and sugaring a number of cork strips fixed to posts. About six sheets was the maximum capacity and these occupied the whole length of the drove. The first thing was to claim ones pitch from Barnes and pay ones dues. All the older collectors had their favourites. "Can I have the second one from the near end?" "Mr. Edelsten always has that." "The next one along?" "The Doctor (i.e. Cockayne) likes to collect next to Mr. Edelsten." One fitted in in the end.

Wicken was a wonderful place fifty years ago. To begin with there was no bridge across the Cam and it was a dead end off a dead end. I used to bicycle over from Cambridge along the road to Waterbeach and then along the top of the flood bank along the river until one reached Upway where one had to cross. There was an inn on the opposite bank and on its gable end the words 'Five miles from anywhere. No Hurry!' You shouted 'grind'—local term for a ferry—and if there was no one about or the wind in the poplars drowned your call, your expedition failed.

Once at Wicken, there were several places to stay. Norton House was square Victorian with a famous notice 'Compartments' in the garden. Food was good and the visitors book held the signatures of most of the great early entomologists. I tried to get hold of it when Norton House closed, but failed. My other choice was Rose Cottage down on the Load. In those days there was a row of tiny timber framed cottages on both sides of the track from Barnes' cottage to the Fen. Each had a small flower filled garden and this was as good a place as any to watch *machaon*. All this has completely gone.

Tea was usually taken at Barnes cottage. Here the young entomologist sat at the feet of his betters! I remember Cockayne saying to me 'Never taken *quercifolia* larvae! Go into the Fen and find a small buckthorn bush with leaves heavily eaten. Hold the top of the stem in one hand and slide

* Watercombe House, Oakridge, Gloucestershire.

the other hand down the stem and through the reeds as far as the ground. About six inches above ground you will touch something furry. They should be as big as your finger by now.' I did as I was told and it works like magic.

I took my first *palustris* on June 7th 1929. My diary reads 'Palustris came at 11.10 (S.T.), fluttered about in the grass for some time (while I was putting on a sweater) and then climbed up a support of the sheet away from the light.' This is just as Barrett describes its behaviour. My capture was greeted with a great shout down the drove from Barnes 'Mr. Demuth, he got *palustris*. I always gets extra when they gets *palustris*!'

My next meeting with *palustris* was on June 18th 1932 when Arnold Hughes and I put lights on the old railway line near Worlington and not far from Mildenhall. The line at this point ran through what was then open dry Breckland. A male was the first insect to arrive, a second male arrived at 1.30 a.m. This much drier type of locality was nearer to its continental habitat where I understand it occurs on damp heathlands rather than wet fens.

A few years later *palustris* was found at Wood Walton Fen and after the war males were sometimes found in some numbers, but no females. I paid my first visit on June 11th 1948. Eric Classey, when he heard that I was going, rang me up and asked me to get him a female as he wanted to breed from it. On June 11th I got plenty of males. On June 12th I put my Colman petrol lamp on a sheet right in the middle of a clump of meadow sweet (its foodplant) and to quote from my diary "At 1.30 B.S.T. a *palustris* female crawled out of the meadow sweet onto the sheet. It appeared like a beetle, with tiny wings and long black legs and crawled slowly towards the light."

East Lincolnshire was the next area where *palustris* turned up. Richard Pilcher got it at light in his inland garden and it was found quite commonly on the coast on the wet areas on the sea side of the coastal sand-dunes. It was interesting to note that although Pilcher had plenty of meadow sweet near his garden there was hardly any in its coastal localities so there must have been alternative food plants. It was also interesting that although it was first found in the wetter parts of the coastal strip, it was subsequently found commoner on the drier areas.

I last visited Wicken in late May 1974. There were no other entomologists about and *palustris* was also absent (I was a bit early) and I saw none of the re-introduced *machaon*. Wicken is now on a main road holiday route. The 'compartment' notice has gone and so have the cottages on the path to the load. Barnes' cottage remains and Barnes' son was carrying on the fine work of his father. There is a good car park and a grand laboratory and exhibition centre in a corner of the Fen. The old windmill which pumped and squeaked all night has been handsomely restored (but doesn't pump any

more) and the Fen itself is in fine fettle — probably much better than in the 1920's. Missing is that marvellous feeling of remoteness, of being in a place untended, not conserved. Serengeti not Whipsnade. This is inevitable. Due to the fall in the water table of the surrounding land, the Fen would become scrub woodland if not continuously cleared, and what was in the old days the privilege of the few to visit lonely places has now become the right of many.

SCHIFFERMUELLERIA SUBAQUILEA (STANTON) ON CAIRNGORM. — It seems that the foodplant of this species is unknown and the rather irregular occurrence of the moth makes it difficult to identify and search likely foodplants in its haunts. Consequently it may be of interest to record that we found specimens on 17th June 1978 at 3,250-3,500 ft. on Cairngorm, Easter Ness, on the shoulder which runs north west down from the restaurant (Nat. grid ref. NJ 003053). The moths were flying in sunshine at about 3.00 p.m. over the short vegetation and there was little wind. The specimens were identified for us by Mr. E. C. Pelham-Clinton to whom we are most grateful. — P. D. HULME and M. R. YOUNG, Aberdeen.

STERRHA VULPINARIA H.-S. (LEP.: STERRHINAE) IN SOUTH DEVON. — On the night of 8th July 1978 a single specimen of *Sterrha vulpinaria* H.-S. came to mercury vapour light near Hopes Nose, Torquay. Only 78 individual macro-lepidoptera were in or around the trap the following morning, representing 28 species none of which were recognised migrants. To my knowledge this is the first record of the species from Devon for a considerable period of time. The species may still be resident therefore in the Torquay area rather than be an immigrant to it. (Ref. A. H. Dobson, *Ent. Rec.*, 68: 121). — ALAN KENNARD, Chancery Cottage, 79 Old High Street, Headington, Oxford.

ECTOEDEmia QUINQUELLA (BEDELL) IN GREATER LONDON. — This species is known only from south-east England, north-west France and Belgium and is often sought by continental collectors on their visits to this country. It occurs in a few isolated but often populous colonies which are usually confined to two or three trees; this is the species for which Meyrick once counted 123 mines in a single oak-leaf. Microlepidopterists may be interested to hear of a colony within easy reach of London where the population in 1978 was to be counted probably in millions rather than thousands. It is at Belhus Wood (TQ 565824), a "public access" wood belonging to the Essex County Council. The part of the wood where *E. quinquebella* occurs is immediately south of the car-park.

Collectors used to visit Madingley in Cambridgeshire for this species, but one of the two trees on which it was found has been felled; the colony I am now recommending is therefore to be preferred. A visit should not be made before the leaves begin to fall as the foliage is mostly out of reach. — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex. 8.ii.1979.

About two recent butterfly records from the Island of Thassos, Greece

By JOHN G. COUTSIS *

During an inspection of the butterfly collection at the Goulandris Museum, near Athens, two male *Palaeochrysophanus hippothoe* Linnaeus were encountered, that bore the following data: Griechenland Insel Thassos Limin 28.6.1968 leg. A. Kutsaftikis. The specimens were subsequently dissected, with the kind permission of the museum directors, and their genitalia showed them to belong to ssp. *hippothoe*, an inhabitant of central and northern Europe, and not, as had been expected, to ssp. *leonhardi* Fruhstorfer, which replaces the former in the Balkans and which is essentially a high mountain butterfly.

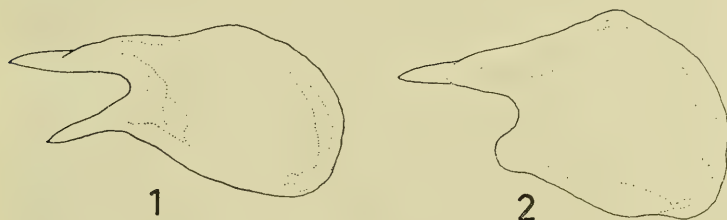


Fig. 1. Side view of exterior face of right valva of *Palaeochrysophanus hippothoe hippothoe* Linnaeus, bearing the following data: Griechenland Insel Thasso Limin 28.6.1968 leg. A. Kutsaftikis.

Fig. 2. Side view of exterior face of right valva of *Palaeochrysophanus hippothoe leonhardi* Fruhstorfer. 5 kms. south of Florina, Macedonia, Greece, 1300 m., leg. J. Stamatiades.

In view of the altogether unexpected presence of this ssp. on Thassos island and of the recently reported record of *Colias phicomone* Esper from the same island (Koutsaftikis, 1974), it becomes evident that more field work ought to be undertaken there in hope of solving some of the mysteries and perplexities presented by the island's faunal composition.

References

- Higgins, L. G., 1975. *The Classification of European Butterflies*. Collins, London.
Koutsaftikis, A., 1974. Recent Butterfly Records from Greece. *Ent. Record*, 86: 15-17.

* 4 Glykonos Street, Athens 139, Greece.

SIGHTING OF A YELLOW FORM OF THE SMALL WHITE (*PIERIS RAPAE* L.). — In late July 1978, I was returning home through the New Forest on the dual carriageway by Picket Post and the junction on the right to Burley; a little further on but before the then diversion, the traffic was stopping and moving for some distance. On the left grass verge four Small Whites were playing and feeding, and after looking at them a few times I saw that one was pure yellow. I had a really good look, and cursed my bad luck for being in the outside lane and helpless. — JOHN PAYNE, 10 Ranelagh Road, Wellingborough, Northants.

A Review of Lepidoptera in Britain during 1978

by C. G. M. DE WORMS *

Those early months of 1978 were appreciably different from those of their immediate predecessors, in that quite severe wintry conditions prevailed during both January and February, and very little was on the wing till right at the end of the latter month. However, quite a mild spring-like spell prevailed during the first half a March bringing out the early species of noctuids, mainly the *Orthosias* on normal time with the flowering of the willows which were at their best over the Easter holiday during the last week of March. April was on the whole a very fickle and by no means congenial month with, however, the final week giving some spring warmth. The season had become a distinctly late one. Among the first butterflies to appear both *Anthocharis cardamines* L. and *Celastrina argiolus* L. were exceptionally plentiful in most parts of the South of England, even more so than in 1977. As May progressed conditions became steadily warmer. The spring holiday in the last few days being one of the best periods of the year, with the thermometer well into the 70's. But in spite of this onset of warmth, insects at light were well below average and even *Clossiana euphrosyne* L. was only just appearing by the fourth week in May, with *C. selene* L. about ten days later. June proved yet another uncongenial period, though its early days produced quite a spate of the two bee-hawks with *Hemaris fuciformis* L. even more numerous in the south than it was in 1977, and *H. tityus* L. apparently quite common both in the Scottish Highlands and in western Ireland. At this period too, *Carterocephalus palaemon* Pall. was found to be fairly plentiful in several of its Highland haunts. But up to the turn of the year, virtually no migrants had been reported from any part of the British Isles.

Nearly all the woodland butterflies that appear at the beginning of the summer were late in their emergence and most of them such as *Aphantopus hyperantus* L. were not on the wing till well into July. Even *Maniola jurtina* L. was not out till nearly a fortnight after its usual time of appearance in mid-June. However, the opening of the second half of the year seemed much more favourable for the lepidoptera in general, and they proved much more prolific both by day and night. *Limenitis camilla* L. started flying the second week in July, when a summery spell began and this insect was about in more than its usual abundance, with quite a number of its melanic forms being recorded. *Argynnis paphia* followed about the middle of the month, distinctly on the late side but in fair plenty in several areas, especially in the region of the Surrey-Sussex border. *Apatura iris* L. appeared too about the middle of July, and was reasonably numerous in some of its well-known localities. During the later part of the month a small geometer new to the British List was recorded from

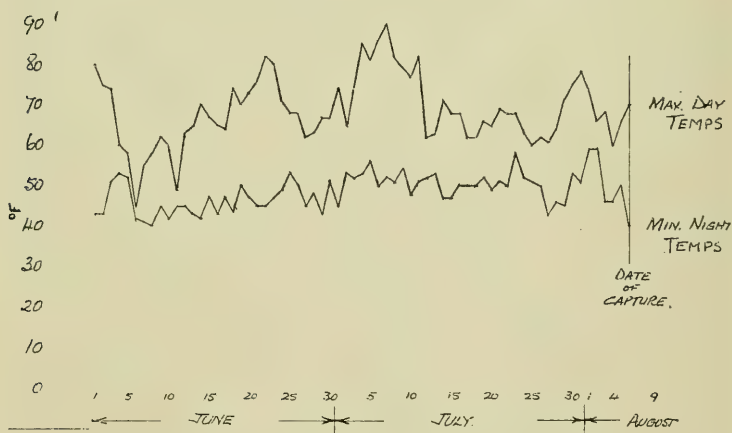
* Three Oaks, Shores Road, Horsel, Woking, Surrey.

south Hampshire It was *Terponincta trimaculata* Hbn. a Mediterranean species which somehow found its way to our coast, possibly a genuine migrant. There was no heat wave in July and rather dull and sultry weather continued into August with the first *Lysandra coridon* Poda emerging virtually only in its first week, much later than in the previous season. Most of the summer Lycaenids were under strength throughout their flying period and in particular *Polyommatus icarus* Rott., whereas the Holly Blue had a very good second brood in most southern areas. Peacocks were in plenty by the middle of August as also was one of our most local moths, *Amathes stigmatica* Hübn., mainly in the Brecksand district. In this latter part of the summer, a few rarities appeared on the scene, notably an example of *Clostera anachoreta* D. & S. at Dungeness, and during the last week of August on the Lizard, a noctuid new to Britain, *Athetis hospes* Hbn. the size of *A. ambigua* D. & S. and not unlike it in markings. After a very agreeable August a very fine September heralded one of the best autumn periods experienced this century. A few Painted Ladies were seen in the south during the last half of August, but not many Red Admirals. It was mainly throughout September that there was a flood of Small Tortoiseshells over most of the southern regions. *Luperina nickerlii* Freyer in its form *gueneei*, was once more in some quantity in early September along various stretches of the north coast of Wales. Only a handful of the bigger migrant Sphingidae, such as *Herse convolvuli* L. and *Acherontia atropos* L., were reported from our coast or other parts at this period, though the paucity of these insects was soon to be followed by one of the most remarkable autumn immigrations of recent years, even on a bigger scale than that in late October 1977. But the chief invasion arrived in mid-October on the south coast with several *Leucania albipuncta* D. & S. On the 14th of that month two examples of *Trogonophora flammea* Esp. were recorded on the seaboard of Dorset. This fine noctuid of which very few specimens have been noted this century, was common about a hundred years ago on ivy bloom in Sussex and has recently appeared in abundance on Guernsey. So that there seems to be evidence that it may be starting a new colonisation of the mainland. About this time too, that small and attractive geometer *Rhodometra sacraria* L. was coming to light, mainly singly over a big area of southern Britain, even being recorded as far north as Edinburgh. These were accompanied by a few *Leucania loreyi* Dup. and quite an influx of *L. vitellina* Hbn. which was recorded from Yorkshire for the first time. Another interesting migrant was *Plusia orichalcea* F. taken in Gloucestershire. *Nycterosea obstipata* F. was quite numerous at light in late October together with a few *Cosymbia puppillaria* Hbn., *Laphygma exigua* Hbn. and the Pyrales *Palpita unionalis* Hbn. and *Uresiphita polygonalis* D. & S., but by far the biggest impact was made by numbers of *Leucania unipuncta* Haworth which had its largest spate since 1966, and was seen

in greater quantity on the south-eastern seaboard than ever before, mainly in November with some records of it even in December. Well over a hundred were also reported from Southern Eire, chiefly in Co. Cork. About a similar number were noted along the coast of Hampshire, Sussex and Kent, with a few records in the Eastern Counties. The final members of this migration wave were a few *Hippotion celerio* L., about the middle of November. It was on the whole a good autumn too for the usual resident species among which *Gripesia aprilina* L. was in especial plenty, while *Lithophane leautieri* Boisd extended its range to East Kent.

After a poor start with hardly any migrants and a general paucity of insects and a late season, the second half of 1978 saw a distinct general improvement in numbers of lepidoptera, while the big autumn migration was a notable feature in a somewhat lean year.

AN UNUSUAL ABERRATION OF THE SMALL TORTOISESHELL IN SCOTLAND. — I caught an aberration of *Aglais urticae* L. on valerian in my garden at this address on the 6th August 1977. Its wing span is 49 mm. and it is similar to ab. *semiichnusoides* Pronin, illustrated in Russwurm's *Aberrations of British Butterflies* (1978) plate 18, fig. 1.



Aberrations of this butterfly seem to be extremely rare in Scotland and if, as is thought, a factor in their appearance is temperature, then it is interesting to note on the temperature chart figured that on 7th July 1977 the temperature in my garden rose to 90 degrees F, an unusually high temperature for this part of the country. At what stage in its life cycle this temperature occurred is difficult to assess, but *urticae* normally emerges here from the middle of July onwards. — J. R. MILLER, Sealladh-mhor Crieff, Perthshire, PH7 4AD.

The Early Family-Group Names of Butterflies

By CHARLES F. COWAN *

As with genera and species, family-group names all have priorities, but these have seldom been referred to in the past. Now it is becoming fashionable to assign them authors and dates, but in the main such citations have been woefully erratic. Even the I.C.Z.N. *Official List of Family-Group Names in Zoology*, so far as it has been compiled to date, is not faultless in this respect. This is an attempt to chart the earliest and basic names, and to establish their correct status. Additions and comments will be welcomed.

First, it will be profitable to survey the early genera; those of the first fifty years will suffice.

In 1758, Linnaeus published the tenth edition of his *Systema Naturae*, from which modern zoological nomenclature dates. He divided the Lepidoptera into the genera *Papilio*, with 193 species (numbered 1-192, plus *P. podalirius*), for all butterflies, and *Sphinx* (38 species) and "Phalaena" (305) for the moths. He sub-divided *Papilio* into several sections whose names have not been adopted for genera, and he divided "Phalaena" (another name not adopted) into the subgenera *Bombyx* (58 species), *Noctua* (68), *Geometra* (75), *Tortrix* (24), *Pyralis* (8), *Tinea* (66) and *Alucita* (6); which seven names are in use for genera now. His total Lepidoptera species numbered 536.

The wide interest generated by Linnaeus resulted in the rapid discovery of many more species, and by 1775 when Fabricius wrote his first work, the *Systema Entomologiae* (the title modelled on Linnaeus's), *Papilio* held 401 species and eleven moth genera totalled 599, to make a tidy thousand. In the moth genera, Fabricius ignored *Geometra* and *Tortrix*, included "Phalaena", and introduced the important new names *Sesia*, *Zygaena*, *Hepialis* and *Pterophorus*. He also, giving a foretaste of his independent character, substituted the name *Glossata* for Lepidoptera.

The next major work by Fabricius was his neatly named *Entomologia Systematica*, in four volumes plus a supplement and two indexes (1792-99), of which the "Glossata" occupied the two parts of volume three (1793, 1794) and 92 pages of the supplement (1798). Whereas Linnaeus needed only 824 pages to accommodate the entire Animal Kingdom in 1758, Fabricius forty years later needed (487+349+92=) 928 pages for the Lepidoptera alone. And, at last, in 1793, he had to split *Papilio*, separating what are now the RIODINIDAE, LYCAENIDAE and HESPERIIDAE into his new genus *Hesperia*. Seven new new moths genera were also created; *Cossus* and *Hyblaea* (1793), and *Lithosia*, *Galleria*, *Phycis*, *Crambus* and *Ypsolophus* (1798). To complete the census, the butterflies now totalled about 1,184 and the moths 1,782 species.

* 4 Thornfield Terrace, Grange-over-Sands, Cumbria.

Meanwhile other authors had been at work on a minor scale. By 1802 at least another thirteen butterfly genera had been established in four of which, *Heliconius*, *Danaus*, *Nymphalis* and *Plebejus*, Krzysztof Kluk validated names of some of Linnaeus's informal groupings. Five; *Argyreus*, *Ascia*, *Battus*, *Graphium* and *Pterourus* were validly published by Scopoli in 1777, and four: *Cupido*, *Erynnis*, *Maniola* and *Pieris*, followed from Schrank in 1801. Among others which were soon added were *Parnassius* and *Polyommatus* Latreille, 1804 and *Satyrus* Latreille, 1810.

Finally, for this review of early genera, we must return to Fabricius and his last work. Having revised several other orders, he came back in his old age to his favourite "Glossata". But he had delayed too long, dying in 1808 when only a third of his first volume had reached proof stage. Fortunately, he had passed a copy to his friend Illiger, with permission to publish extracts in his *Magazin für Insektenkunde* (vol. 6, 1807). When, about thirteen years ago, I began to study the literature, I noticed a recent remark to the effect that "Illiger was a notorious plagiarist of other authors' works". That writer had obviously not studied Illiger, who was a scrupulous editor and punctual reviewer. His object was the diffusion of knowledge, and we owe it entirely to him that the names of "Fabricius, 1807" or more pedantically, "Fabricius, 1807 (in Illiger)" make sense, and that a major nomenclatural disaster did not occur. Those proof sheets (eventually published by Felix Bryk in 1938 when all danger was past) show that Fabricius had intended to change every specific epithet as soon as each insect's foodplant was known. The familiar *Papilio machaon* L. was now to be *P. umbellatarum*, *P. polydorus* L. became *P. aristolochiae* (nom. nov., nec. Feb. 1775!), and *P. podalirius* became *P. brassicae* (!). Under *Euploea*, Fabricius planned to change *P. plexippus* L. to *E. asclepiadis*, while under *Vanessa* he had the aptly named *P. io* L. as *V. humuli*, and *P. antiopa* as *V. betulae*. And so on throughout; a chaotic state of affairs, and with Fabricius's prestige, who knows what would have resulted?

Illiger clearly would have none of this. He published all Fabricius's useful generic diagnoses practically verbatim, and placed against each two or three of the included species under their accepted names, with no hint of the changes. This was absolutely perfect for posterity, and a fine piece of editing. It has saved for us, in Fabricius's words but without his elaborations, the diagnoses for 30 new butterfly and six new moth generic names; and it is quite wrong to say, as appears in the references section of a recent work, that these names "have sometimes been attributed to Fabricius instead of Illiger". They have always, and rightly, been treated as of Fabricius (as that same work does in its main text; e.g. *Apatura*, and *Vanessa* Fab.)

The names Fabricius planned to cover in his first volume of the *Systema Glossatorum* were numbered 1-50 but accidentally omitted number 6, so they totalled 49. Of them, only 11½ (up to the middle of *Vanessa*) were covered in the 112 proof pages in detail down to species, but generic diagnoses were given for all. Of the 49 names, five were junior homonyms, three have become junior objective synonyms, and *Papilio*, *Hesperia*, and three moths names were already established. The 36 valid new names (M indicating the six moth names were:—

Acraea	no. 25	Cethosia	7	Hipparchia	15	Morpho	5
Aegeria	M 46	Colias	23	Idea	20	Myrina	35
Amata	M 47	Cynthia	12	Laothoe	M 43	Neptis	16
Amathusia	2	Danis	38	Libythea	29	Nymphidium	37
Apatura	10	Emesis	39	Limenitis	11	Pontia	22
Argynnis	18	Euploea	9	Lycaena	33	Procris	M 50
Biblis	14	Haetera	24	Mechanitis	28	Thecla	36
Brassolis	17	Helias	41	Melanitis	19	Urania	M 1
Castnia*	M 8	Helicopis	31	Melitaea	30	Vanessa	13

* also in the misspelling "Casinia".

So far, only genera and species have been discussed and, despite the title, some moths have been included. Their names are thoroughly covered in the many reference works, so no references are given for them here. Now the scene is set for the study of the family names of the butterflies, for which full chapter and verse will be cited.

First, it will be worth glancing at the "rules". Under the International Code a family-group name must be based on the name of one of its constituent genera and be formed from its stem, with the appropriate suffix. Naturally it will be invalid if it is evident that its author has misidentified the type-genus but, failing such evidence in the original publication, it is to be assumed that he identified it correctly. A name wrongly formed, or introduced with a vernacular suffix, is not *ipso facto* invalid, but must be corrected. Once founded, a family-group name may be used in any category (superfamily, family, subfamily, tribe) with the same author and date, by employing the relevant suffix (-OIDEA, -IDAE, INAE, -INI respectively), and within any category the senior name applies to the whole.

Up to 1802 various quite elaborate systems of classification had been tried, resulting in all sorts of ingenious names. Even as late as 1876, Scudder, one of the great etomologists of his time, was writing of, for example, the "Ephori, Villicantes and Adolescentes" for the Hairstreaks, Coppers and Blues of the LYCAENIDAE. Such names were doubtless well understood in those days, when most naturalists were also classical scholars, but now they are evocative of little and lead to obscurity or confusion. Current practice is stable and preferable.

It will be noted that the highest rank covered by the Code is that of superfamily. Above that comes the order and the suborder. The order LEPIDOPTERA divides conveniently, if unscientifically, into butterflies and moths, and by 1802 these were called quite sensibly DIURNI and NOCTURNI, with

the CREPUSCULARIA separated by 1809. However, the more ponderous RHOPALOCERA (ROPALOCERIA Rafinesque, 1815: 127, ROPALOCERES Duméril, 1823: 139, 163, RHOPALOCERES Boisduval, 1832, 1: 11 and HETEROCERA (HETEROCERES Boisduval, 1833: 70) have since gained universal acceptance, and so it is the basic family-group names of the RHOPALOCERA that are our quest.

Latreille, [1803] was the first validly to subdivide the LEPIDOPTERA. He split it into six families; PAPILIONIDAE (only the corrected names will be given here), and five families of moth. Of the latter, SPHINGIDAE, BOMBYCIDAE and TORTRICIDAE are already on the I.C.Z.N. *Official List*, but PTEROPHORIDAE is there credited to Zeller, 1841, while PAPILIONIDAE is inexplicably shown as Leach, 1815. An application to rectify the last has been submitted.

It is worth examining Latreille's text text carefully, as some misquotations have occurred. Writing in French with scientific names in French and Latin, he includes two genera, *Papilio* (p.387) and *Hesperia* (p.398) in PAPILIONIDAE before going on to SPHINGIDAE (p.400). He explores *Papilio* in detail, subdividing it into seven groups and many subgroups to each of which he gives names, all of Latin nouns in the plural and often comprising two or more words. These (e.g. Equites, Danai festivi, Nymphales proprie dicti, Satyri, Parnassii, etc.) have sometimes been mistaken (notably the two last) for family-group names, but they are not even eligible as subgeneric names. Latreille was here simply continuing the traditional Linnean subgroupings, as augmented by Fabricius, 1775 with Parnassii and in 1793 with Satyri. As a generic name, *Parnassius* was validly published by Latreille in 1804. Then Fabricius, discarding his neatly named Satyrs (for the four-legged beasts, in contrast to the six-legged Chevaliers), introduced the equivalent *Hipparchia* in 1807, and Latreille in turn validated *Satyrus* in 1810. These last two genera are consequently closely related, although distinct, and both are eponyms of early family-group names.

Latreille (1809: 187, 207) then took the next logical step, by creating HESPERIIDAE, for which also an I.C.Z.N. official listing has been applied.

(to be continued)

A NOTE ON THOMAS MARTYN'S THE ENGLISH ENTOMOLOGIST (1792). — Dr. R. S. Wilkinson (1978, *Ent. Rec.*, 90: 263-264) describes in detail a unique copy of this work which is in the Michigan State University Library. I have a bound copy which collates with the one referred to by Dr. Wilkinson. Both engraved title pages are dated 1792. The dedication in the English text is dated on the last page 21.3.1793. In view of this anomaly, what was the actual date of publication? — S. C. S. BROWN, 158 Harewood Avenue, Bournemouth, Dorset.

The Lepidoptera of the Cairngorms National Nature Reserve

By EUAN A. M. MACALPINE *

(Continued from page 6)

MICROPTERIGIDAE

Micropterix aureatella (Scop.). — previously recorded by E.C.P.-C.

ERIOCRANIIDAE

Eriocrania sangii (Wood). — K.

HEPIALIDAE

Hepialus humuli (L.). — K. *H. hecta* (L.). — two good colonies at A & C. *H. fusconebulosa* (De Geer). — A; B; C; E; G; H; K.

NEPTICULIDAE

Stigmella hemargyrella (Kollar). — A, mines in beech. *S. nylandriella* (Teng.). — B & E, mines in rowan. *S. luteella* (Stain.). — A. *S. hybnerella* (Hübner.). — K, mines in hawthorn. *S. anomalella* (Goeze). — Glen Feshie, NN/8889, mines in *Rosa* species. *S. salicis* (Stain.). — A & Loch Gamhna, mines in sallow. *S. tityrella* (Stain.). — A, mines in beech. *S. sorbi* (Stain.). — Creag Fhiachlach, mines in rowan; Glen Derry in 1970 & '71, E.C.P.-C. *S. lapponica* (Wocke). — mines in birch at Allt Ruadh, A, B & E. *Ectoedemia argentipedella* (Zell.). — mines in birch at Allt Ruadh. *E. mediofasciella* (Haw.). — B; C; mines in birch by Allt Ruadh. *Trifurcula immundella* (Zell.). — K.

OPOSTEGIDAE

Opostega salaciella (Treit.). — K.

INCURVARIIDAE

Phylloporia bistrigella (Haw.). — C; mines in birch by Allt Ruadh. *Incurvaria zinckenii* (Zell.). — K. *Lampronia oehlmanniella* (Treit.). — C; day-flying in Gleann Einich, above Loch an Eilein and in Lairig to tree-line. *Nematopogon panzerella* (Fab.). — A; K. *N. pilella* (D. & S.). — C; day-flying in Gleann Einich.

TINEIDAE

Myrmecozela ochraceella (Teng.). — one at F, 4.vii.76. *Haplotinea insectella* (Fab.). — one at K, 5.vii.76. *Nemapogon cloacella* (Haw.). — B; E; F; G; H. *N. picarella* (Clerck). — one day-flying at K, 6.vi.76. *Triaxomera fulvimitrella* (Sodoff.). — B. *Monopis rusticella* (Hübner.). — B; G. *M. weaverella* (Scott). — B; C; H; day-flying at Achlean/coire Garbhlach. *Tinea seifluvela* (Haw.). — K.

OCHSENHEIMERIIDAE

Ochsenheimeria bisontella (L. & Z.). — day-flying in Gleann Einich.

LYONETIIDAE

Leucoptera spartifoliella (Hübner.). — C. *Bucculatrix capreella* (Krog.). — one day-flying above Loch Gamhna 18.v.76.

* Hawkins', St. Cross Road, Winchester, SO23 9HX.

GRACILLARIIDAE

Caloptilia elongella (L.). — K. *C. syringella* (Fab.). — K. *Aspilapteryx tringipennella* (Zell.). — K. *Parornix betulae* (Stain.). — K. *P. scotiella* (Stain.). — mines in Rowan at F. *Phyllonorycter sorbi* (Frey). — C; mines in rowan by Loch an Eilein. *P. junoniella* (Zell.). — H; larvae on cowberry at B & E. *P. corylifoliella* (Hübner.). — K; mines in birch at E and by Allt Ruadh. *P. maestingella* (Müll.). — E. *P. alnifoliella* (Hübner.). — mines in alder at E. *P. ulmifoliella* (Hübner.). — K; mines in birch by Allt Ruadh. *P. emberizaepenella* (Bouché). — K. *P. froelichiella* (Zell.). — mines in alder at Loch an Eilein.

GLYPHIPTERIGIDAE

Glyphipterix simplicella (Steph.). — K.

YPONOMEUTIDAE

Argyresthia praecocella (Zell.). — A. *A. arceuthina* (Zell.). — A; E; H. *A. aurulentella* (Stain.). — Glen Derry, 1971; Carn Crom above 800 m., 1971; both records from E.C.P.-C. *A. goedartella* (L.). — A; B; C; D; E; F; G; H; K; many day-flying records from throughout the area, to 600 m. *A. pygmaeella* (Hübner.). — K. *A. conjugella* (Zell.). — B; C; E; F; K; day-flying in the area of Loch an Eilein and Loch Gamhna. *Yponomeuta evonymella* (L.). — K. *Swammerdamia caesiella* (Hübner.). — K. *Cedestis gysselella* (Zell.). — A; B; C; F; H; K. *C. subfasciella* (Steph.). — A; B; C; F; H; larvae on pine at E & F; Glen Luibeg, 1970, E.C.P.-C. *Ocnorostoma friesei* (Sven.). — K; pupae in pine needles by the river between B and Coylumbridge. *Ypsolopha dentella* (Fab.). — K. *Y. parenthesella* (L.). — A; B; C; F; G; day-flying at C, Loch Einich and at the back of Loch an Eilein; larvae on birch at C and on bog-myrtle at Achlean. *Y. vittella* (L.). — K. *Plutella xylostella* (L.). — B; C; F; day-flying at 1,150 m. on Cairn Gorm and in Glen Feshie near bothy. *Rhigognostis senilella* (Zett.). — one day-flying record from Loch Avon, near Shelter Stone. *R. incarnatella* (Steudel). — one at rest on old pine tree at A on 13.v.76 and one in trap at K on 23.v.76.

COLEOPHORIDAE

Coleophora serratella (L.). — A; K; pupal cases on birch at A & F. *C. vitisella* (Gregson.). — day-flying by Einich Gate. *C. albicosta* (Haw.). — K. *C. striatipennella* (Teng.). — K. *C. taeniipennella* (H.-S.). — day-flying at Achlean. *C. alticolella* (Zell.). — A; B.

ELACHISTIDAE

Elachista pulchella (Haw.). — E; G; H; K; day-flying at Achlean. *E. alpinella* (Stain.). — K. *E. kilmunella* (Stain.). — K; day-flying at Achlean. *E. luticomella* (Zell.). — K. *E. albi-frontella* (Hübner.). — A; G.

OECOPHORIDAE

Schiffermuelleria subaquilea (Stain.). — B. *S. similella* (Hübner.). — A; B; E; H; day-flying in Lairig to tree-line. *Borkhausenis fuscescens* (Haw.). — C; E; F; H; K; day-flying above Loch an Eilein. *Endrosis sarcitrella* (L.). — K. *Pleurota bico-*

stella (Clerck). — A; B; E; F; H; day-flying at A, B and Achlean; Glen Derry in 1971, E.C.P-C. *Hofmannophila pseudospretella* (Stain.). — G; K; larva in trap at H. *Tubuliferola josephinae* (Toll.). — H. *Semioscopis avellanella* (Hüb.). — K. *Depressaria pulcherimella* (Stain.). — K. *D. weirella* (Stain.). — one at K on 18.iv.76. *Levipalpus hepatariella* (L. & Z.). — one at E on 13.viii.77 and one at F on 21.viii.77. *Agonopterix arenella* (D. & S.). — A. *A. ocellana* (Fab.). — K. *A. assimillata* (Treit.). — A; B; C; E; F; G; day-flying in Lairig to tree-line and by Coire Follais burn. *A. nervosa* (Haw.). — C; K; larva on broom at B.

GELECHIIDAE

Monochroa tenebrella (Hüb.). — K; *Exoteleia dodecella* (L.). — A; C; E; F; H; day-flying at A and Loch Einich; Glen Derry in 1970, E.C.P-C. *Rhynchopacha tetrapunctella* (Thun.). — one at K on 1.vi.76. *Xenolechia aethiops* (H. & W.). — day-flying in the Lairig. *Teleiodes proximella* (Hüb.). — G. *T. alburnella* (Zell.). — three at K; 12.vii.76, 24.vii.76; & 28.vii.76; one at C on 29.vii.77. *Teleiopsis diffinis* (Haw.). — K. *Bryotropha similis* (Stain.). — recorded by E.C.-P., no details. *B. galbanella* (Zell.). — one at C, 9.vii.76; one day-flying near Loch an Eilein & Loch Gamhna, 23.vii.76; one in lairig, 22.vii.76; Glen Derry in 1970, E.C.P-C. *B. politella* (Stain.). — A; K; Glen Derry in 1970, E.C.P-C. *Mirificarma mulinella* (Zell.). — A; B; C; F; H; K. *Lita virgella* (Thun.). — day-flying at Loch an Eilein and at 1,150 m. on Cairn Gorm. *L. solutella* (Zell.). — E; K. *Neofaculta ericetella* (Hüb.). — A; C; E; F; G; H; day-flying at F & G and on all heaths from the tree-line in the Lairig round to Coire Garbhach; also at Sinclair Hut at 600 m. *Scrobipalpa acuminatella* (Sircom). — E; K. *Acompsia cinerella* (Clerck). — K. *Dichromeris juniperella* (L.). — three specimens: H, 28.vi.76; H, 5.vii.76; A, 6.vii.76.

MOMPHIDAE

Mompa raschkiella (Zell.). — mines in rose bay willow herb by Allt Ruadh.

TORTRICIDAE

Dichrorampha petiverella (L.). — K. *D. montanana* (Dup.). — A; K. *D. plumbana* (Scop.). — day-flying at Achlean/coire Garbhach. *Cydia cosmophorana* (Treit.). — day-flying above Loch an Eilein. *C. coniferana* (Ratz.). — A; day-flying in the Lairig, at Einich Gate, above Loch an Eilein and at Achlean. *Petrova resinella* (L.) — larvae in young pine shoots at A, B, C, Einich Gate and in Glen Feshie near bothy. *Rhyacionia pinivorana* (L. & Z.). — A; B; C; day-flying above Loch an Eilein and in the Lairig at 500 m. *R. duplana logaea* (Durr.). — K; day-flying at A and over wide areas of the heath. *Blastesthia posticana* (Zett.). — day-flying above Loch an Eilein. *Eucosma hohenwartiana* (D. & S.). — K. *E. cana* (Haw.). — K. *E. campoliliana* (D. & S.). — C; K. *Epiblema cynosbatella* (L.). — K. *Zeiraphera diniana* (Guenée). — A; C; E; F; H; K. *Rhopobota ustomaculana* (Curtis). — B; F; H; K; larvae at A, C, E on bilberry and cowberry; day-flying at A, Loch Einich, in the Lairig, above Loch an Eilein and by Creag

Ehiacloch/Craig Follais at 550 m. Glen Derry in 1971, E.C.P-C. *R unipunctana* (Haw.).—A; B; C; E; F; G; H; larvae on bilberry at E & H; found day-flying in nearly all areas to the tree-line. The commonest moth at light, e.g. about 5,000 at F on 21.viii.77. Glen Derry in 1970 & '71, E.C.P-C. *Epinotia stroemiana* (Fab.).—C; K. *E. caprana* (Fab.).—K. *E. brunnichana* (L.).—A; B; C; E; G; K; day-flying at A. *E. solandriana* (L.).—*E. subocellana* (Don.).—day-flying north of B. *E. bilunana* (Haw.).—K. *E. ramella* (L.).—C; E; G; K; day-flying around Loch an Eilein and Loch Gamhna and on Creag Fhiacloch to tree-line. *E. immundana* (F. von R.).—K. *E. tetraquetra* (Haw.).—A; K; day-flying at F and around Loch an Eilein. *E. nisella* (Clerck.).—K. *E. tenerana* (D. & S.).—A; G; K; larva at B on bilberry; day-flying at A, C, lairig to tree-line and by Allt Ruadh. *E. nemorivaga* (Teng.).—K; day-flying at Einich Gate, Achlean/Coire Garbhlach and over Creag Fhiacloch/Coire Follais at 450 m. to 600 m. *E. tedella* (Clerck.).—K; day-flying at A and in the Lairig. *E. rubiginosana* (H.-S.).—K; day-flying near Einich Gate. *E. cruciana* (L.).—day-flying in Glen Feshie, NN/8888. *E. mercuriana* (Frölich).—day-flying from above Coire Dhondial to Braeriach summit and, on the other side, from Cairn Gorm to the March Burn. Also found near Fords of Avon and at 1,050 m. above Coire Sputan Dearg (east of Ben Macdui summit). *Ancylis unguicella* (L.).—day-flying in the Lairig, above Loch an Eilein and in the Achlean/Coire Garbhlach area. *A. uncella* (D. & S.).—C; G; day-flying in Coire Garbhlach. *A. geminana* (Don.).—day-flying north of B; a few on willow in Glen Derry, 1971, E.C.P-C. *A. myrtillana* (Treit.).—B; C; H; day-flying at E. *Bactra furfurana* (Haw.).—day-flying in the Lairig. *B. lanceolata* (Hübner.).—B; day-flying at Loch Einich, on Creag Fhiacloch and at Sinclair Hut; Glen Derry in 1971, E.C.P-C. *Apotomis turbidana* (Hübner.).—three: at K, 30.vi.76; at C, 9.vii.76; and one day-flying above Loch an Eilein, 7.vi.76. *A. betuleta* (Haw.).—A; C; E; H; K. *A. sororculana* (Zett.).—C; F; day-flying at E. *A. sauciana grevillana* (Curtis).—day-flying at Sinclair Hut. *Orthotaenia undulana* (D. & S.).—E; F; day-flying at B, H, in the Lairig and by the Coire Follais burn. *Hedya nubiferana* (Haw.).—B; K; larvae on bilberry at E. *H. atropunctana* (Zett.).—A; H. *Olethreutes obsoletana* (Zett.).—“on Cairn Gorm at 1,000 m.”, Stirling & Godfrey, 1977. *O. bifasciana* (Haw.).—A. *O. mygindiana* (D. & S.).—larvae on bilberry on the lower slopes of Creag Fhiacloch; day-flying in Coire Garbhlach. *O. metallicana* (Hübner.).—one day-flying in the lower part of Coire Garbhlach on 19.vi.76. *O. schulziana* (Fab.).—day-flying at B, on the south face of Cairn Gorm at 1,150 m. and near the Argyll Stone above Creag Fhiacloch. *O. olivana* (Treit.).—“on Cairn Gorm at 1,100.”, Stirling & Godfrey, 1977. *O. lacunana* (D. & S.).—A; B; E; H; K; day-flying at B and in the Lairig. *Pandemis cerasana* (Hübner.).—A; B; C; E; F; G; K; larvae on bilberry at E & F. *Argyrotaenia*

pulchellana (Haw.). — B; K; day-flying at Sinclair Hut, Einich Gate, above Loch an Eilein and in Coire Garbhach. *Syndemis musculana* (Hübner). — K; day-flying at E, F, at Sinclair Hut and above Loch an Eilein. *Aphelia virburnana* (D. & S.). — H; larvae on bog-myrtle at Achlean; day-flying at A, Loch Einich, in the Lairig, over Creag Fhiaclach/Coire Follais to 600 m., Sinclair Hut, Achlean/Coire Garbhach and in Glen Feshie NN/8888. *A. paleana* (Hübner). — above Coire Dhondail at 1,000 m. *Clepsis senecionana* (Hübner). — K; day-flying at E and at Achlean/Coire Garbhach. *Lozotaenia forsterana* (Fab.). — A; C; E; F; H; day-flying at B. *Philedone gerningana* (D. & S.). — recorded by E.C.P.C., ? date. *Pseudargyrotoza conwagana* (Fab.). — K. *Eulia ministrana* (L.). — C. *Cnephasia interjectana* (Haw.). — K. *C. incertana* (Treit.). — C; K. *Eana osseana* (Scop.). — A; B; C; E; F; G; H; K; day-flying in Gleann Einich, at Loch Einich, in Glen Feshie from Achlean to the River Eidart, at the back of Loch an Eilein and in Glen Luibeg. Glen Derry in 1971, E.C.P.C. *E. incanana* (Steph.). — A; C. *Acleris latifasciana* (Haw.). — A; B; C; E; H; day-flying at B and by the Coire Follais burn. *A. caledoniana* (Steph.). — E; F; larvae on bilberry/cowberry at Loch Einich; day-flying on Creag Fiaclach to tree-line, by the Coire Follais burn and in Coire Dhondail at 730 m.; Glen Derry in 1970, E.C.P.C. *A. rhombana* (D. & S.). — C; day-flying by Allt Ruadh and at Achlean. *A. aspersana* (Hübner). — A; E; K; day-flying at the back of Loch an Eilein. *A. tripunctana* (Hübner). — A; C; D; G. *A. logiana* (Clerck). — one at A on 4.v.76. *A. hyemana* (Haw.). — B; H; K; day-flying above Loch an Eilein. *A. lipsiana* (D. & S.). — two at H on 9.iv. 76. *A. maccana* (Treit.). — H; larvae on bog-myrtle at Achlean; Glen Derry in 1970, E.C.P.C. *A. emargana* (Fab.). — E.

COCHYLIDAE

Eupoecilia angustana (Hübner). — C; G; H; K; day-flying at Loch Einich, Achlean, above Loch an Eilein, on the north-east slope of Geal-charn, in the Lairig and in Glen Feshie NN/8888; Glen Derry in 1970 & '71, E.C.P.C. *Cochylis atricapitana* (Steph.). — K; C. *nana* (Haw.). — C; K.

ALUCITIDAE

Alucita hexadactyla (L.). — K.

PYRALIDAE

Chrysoteuchia culmella (L.). — E; K; day-flying at E and Achlean/Coire Garbhach. *Crambus ericellus* (Hübner). — two records only: at Loch Einich, 5.vii.76; and at Sinclair Hut, 31.vii.77. *C. pratellus* (L.). — K. *C. nemorellus* (Hübner). — A; C; F; G; K; day-flying at E, F, above Loch an Eilein and at Achlean. *Agriphila straminella* (D. & S.). — A; B; C; F; G; K; day-flying at A, by Allt Ruadh, around Loch an Eilein and in Glen Feshie to the bothy; Glen Derry 1970, E.C.P.C. *A. tristella* (D. & S.). — A; C; E; F; K. *Catoptria margaritella* (D. & S.). — A; B; E; H; day-flying in Gleann Einich; Glen Derry in 1971, E.C.P.C. *C. furcatellus* (Zett.). — day-flying in the

Cairn Gorm/Coire Raibert area and at the very top of Coire Garbhlach. *Scoparia ambigualis* (Treit.). — A; B; C; E; F; H; K; day-flying at Einich Gate, above Loch an Eilein, at Achlean and at the tree-line in the Lairig and on Creag Fhiacloch; Glen Derry in 1970 & '71, E.C.P-C. *Eudonia murana* (Curtis). — A; C; E; F; H; K. *E. truncicolella* (Stain.). — E; F; day-flying in the Lairig to tree-line. *E. angustea* (Curtis). — A. *Pyrausta purpuralis* (L.). — K; day-flying at Achlean/Coire Garbhlach. *P. ostrinalis* (Hübner). — day-flying in Coire Garbhlach. *P. cespitalis* (D. & S.). — day-flying above Loch an Eilein. *Opsibotys fuscalis* (D. & S.). — E; K; Glen Derry in 1971, E.C.P-C. *Udea lutealis* (Hübner). — B; C; K; day-flying at Achlean. *U. uliginosalis* (Steph.). — A; E; F; day-flying on Cairn Gorm at 1,150 m., above Coire Dhondail at 900+m., on edge of Coire Garbhlach at 950 m. and near Loch Etchachan at 900 m.; Glen Derry and Pools of Dee in 1971, E.C.P-C. *Aphomia sociella* (L.). — A. *Pyla fusca* (Haw.). — E; F; H; K. *Dioryctria abietella* (D. & S.). — A; B; C; E; F; H; K. *Amblyptilia acanthadactyla* (Hübner). — K; day-flying at A, C. *A. punctidactyla* (Haw.). — day-flying above Loch an Eilein and Loch Gamhna. *Platyptilia pallidactyla* (Haw.). — K. *Stenoptilia bipunctidactyla* (Scop.). — G. *S. pterodactyla* (L.). — H; K.

PIERIDAE

Pieris brassicae (L.). — K; Loch an Eilein and one fresh male at 360 m. in Gleann Einich on 6.vii.76. *P. rapae* (L.). — K; Loch an Eilein. *P. napi* (L.). — K; Loch an Eilein and in Gleann Einich to 400 m. *Anthocharis cardamines* (Verity). — K; Loch an Eilein. Very good numbers in 1976 from 5.v. — I have no last date.

LYCAENIDAE

Callophrys rubi (L.). — recorded from B right round to E. *Lycaena phlaeas* (L.). — K; around Loch an Eilein. *Aricia artaxerxes* (Fab.). — Loch an Eilein. *Polyommatus icarus* (Rott.). — K; Loch an Eilein, Loch Gamhna, Coire Garbhlach and in Glen Feshie to the Eidart. Also seen regularly in good weather over the Eastern Plateau at over 1,200 m.; Glen Derry in 1971, E.C.P-C.

NYMPHALIDAE

Vanessa atalanta (L.). — K; only seen once in the Reserve: in the top of a pine tree at the tree-line in the Lairig. *Aglais urticae* (L.). — K; at lower level, seen at Loch an Eilein, around Einich Gate, Gleann Einich and at Inshriach; at higher level, around Loch Einich, on Creag Fhiacloch and quite often on the Eastern Plateau at 1,200 m. *Boloria selene* (D. & S.). — K; widely distributed from the Lairig right round to Glen Feshie NN/8888; maximum altitude: 460 m. in Gleann Einich and 750 m. in Coire Garbhlach. *B. euphrosyne* (L.). — seen from Gleann Einich round to the Eidart; highest altitude: 600 m. in Coire Garbhlach; Glen Derry in 1971, E.C.P-C.

(to be continued)

Notes on Diptera taken in 1976

By IAN F. G. McLEAN *

Nephrocerus flavicornis Zett. (Pipunculidae) new to Norfolk. I took a single male of this scarce species on the 10th June 1976 while collecting with Mr. J. W. Ismay at the new Norfolk Naturalists Trust reserve of Wayland Wood, near Watton (grid reference TL 9299). It was swept from low vegetation beside a main ride through areas of formerly coppiced hazel understory with oak-ash standards. Because of its large size it was not recognised at the time of capture as being a member of the family Pipunculidae, but later when sorting the catch, its distinctive appearance under the microscope immediately betrayed its true identity.

Chelifera pectinicauda Collin (Empididae) new to Norfolk. Although Collin (1961) states this species is not uncommon in Scotland, and he lists further records from Wales, Herefordshire, Shropshire and Oxfordshire, there are apparently no records from eastern England. It therefore seems worth recording that on 13th June 1976 I swept a male of this species at Upton Broad (grid reference TG 3813). Perhaps further collecting on the Norfolk Broads will result in the detection of other species of this genus hitherto known only from the wetter northern and western counties of Britain. The large areas of fen vegetation alongside broads and waterways certainly provide a suitable habitat for these empids.

Rhingia rostrata L. (Syrphidae) and *Conops strigatus* Wied. in Mg. (Conopidae) taken in Hampshire. On the 27th July 1976, one of the many hot and sunny days of that memorable summer, I visited Alice Holt Forest (grid reference SU 84) where I was fortunate in obtaining these two uncommon species. A single male *R. rostrata* was captured as it hovered sluggishly around the lower leaves of a burdock (*Arctium* sp.) at the edge of a ride. Even in flight, the absence of the median dark stripe on the abdomen readily differentiated this individual from the common and closely related *R. campestris* Mg. Nearby, flowers of the marsh thistle (*Cirsium palustre* L.) were proving attractive to insects, and among the visitors were two male *C. strigatus* in company with many *Conops quadrifasciatus* Degeer. Not only were Diptera observed in this fine locality, but a total of nineteen species of butterfly were also recorded in my notebook for the day, including a single egg of *Apatura iris* L. on a leaf of willow (*Salix caprea* L.).

Lispocephala spuria Zett. (Muscidae) in Sussex. At Pict's Wood, near Cowfold (grid reference TQ 2123) on the 17th September 1976, I swept a male of this uncommon fly under beeches (*Fagus sylvatica* L.) in dappled autumn sunshine. This capture extends the known range of this species, as the previous records listed by Fonseca (1968) indicate a northern and western distribution.

* Ganavan, Guise Lane, North End, Bassingbourn, Royston, Herts., SG8 5PJ.

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PRACTICAL HINTS — MAY

Larvae and cocoons of the Muslin Footman (*Nudaria mundana* L.) may be found in May under loose stones and rocks of 'dry' walls, by simply lifting off the top stones. Larvae of the Olive (*Ipimorpha subtusa* D. & S.) may be found spun between two leaves or in a folded leaf of poplar or, less easily, aspen, at the end of May, by standing under a branch and looking upwards and outwards, so that the larvae are silhouetted against the sky; they will pupate in peat, and the pupae should be left undisturbed (POOLES).

The banded black and white form of the Square-spot (*Ectropis consonaria* ab. *waiensis* Rich.), peculiar to the Forest of Dean, is to be found on trunks of spruce, Douglas fir and larch. The melanic ab. *nigra* Banks, which also occurs in Gloucestershire on the Cotswold escarpment, prefers beech and ash trunks, and in one wood, larch (A. RICHARDSON).

Several species of Microlepidoptera feed on the young plants of ploughman's spikenard (*Inula conyza*) in May. The lower leaves are mined by *Digitivalva perlepidella* Stainton; the larvae move via the petioles to fresh leaves and when full-fed pupate in their mines. Two species eat out the central rosette; *Ebulea crocealis* Hbn. does so with, and the first brood of *Leioptilus carphodactyla* Hbn. without, silken spinning. The former may also bunch larger leaves together in its final instar. *Oidaematophorus lithodactyla* Tr. chews holes in the leaves and *Coleophora conyzae* Z. makes small, transparent blotch mines from its hairy case. *E. crocealis* and *O. lithodactyla* have a wide range, but the other three are southern insects. It is best to dig up and pot the foodplant (A. M. EMMET).

The larvae of *Scythris fletcherella* Meyrick can be sought in May in localities where rockrose (*Helianthemum nummularium*) is common. The larva spins a loose web on the foodplant extending over several shoots with a silken tube going down into moss or debris. The eaten leaves take on a whitish appearance which makes them conspicuous. Places where the rockrose grows over moss seem most productive (J. ROCHE).

The larval webs of *Scythris grandipennis* Hb. can be found throughout the winter and spring on gorse (*Ulex* spp.). However, the foodplant soon dries up when cut so they are best collected as late as possible. The larva pupates in the web and in late May both larvae and pupae may be found. Good secateurs and gloves are essential. Does *grandipennis* prefer *Ulex minor* or *U. europaeus* when both are present? (J. ROCHE).

Larvae of *Mompha ochraceella* Curtis can be obtained in late April and early May from the lower stems of *Epilobium hirsutum*, particularly those growing in sheltered ditches and stream-sides. Break stem off at ground level — a brown discolouration indicates presence of larva, which will eventually mine a lower leaf, and form a cocoon. The stems of *hirsutum* become unpleasant when stored, and cocoons should be salvaged if possible. However, do not discard decomposing stems, as moths will often emerge from them (SOKOLOFF).

Larvae of *Teleiodes sequax* Haw. can be collected mid-May onwards from spun shoots of rockrose (*Helianthemum*). On the North Downs, Kent, the larvae seem to prefer rockrose growing on ant-hills (SOKOLOFF).

In May go around the woods and look carefully at twigs, stems and branches for frass extrusions. Branches hanging in the shrub layer, fallen trees, wood lying on the ground are all worth looking at. Places where there have been wounds or damage in the past seem to attract Tineids and will pay inspection, especially if fungus has developed there. Prune or saw off the interesting sections and keep them in a large fish or water tank covered with fine muslin. In due course, apart from the Oecophorid *Dasycerus sulphurella* F. that nearly always turns up, you may breed some interesting Tineids including *Triaxomera fulvimitrella* Sodoffsky, *Nemapogon ruricolella* Stainton, *N. cloacella* Haw., *N. arcella* F., etc. (BRADFORD).

LITA VIRGELLA THUNBERG (LEP.: GELECHIIDAE) A SPECIES NEW TO IRELAND. — A specimen of *Lita virgella* Thunberg was collected on the 4th of June 1977 from the slopes of Kippure Mountain Co. Wicklow, Ireland. (Irish Grid Reference O.1419). The moth was swept from Heather (*Calluna vulgaris*) on a moorland blanket bog at an altitude of approximately 500 metres.

The larvae feed on *Calluna* in April and May, the adult emerges in June (Ford 1949). The moth is common in Britain, being distributed from Hereford to Sutherland. Abroad it is found in North and Central Europe to East Siberia, and it also occurs in North America (Meyrick, 1928). Therefore one would assume it as common in Ireland, and over looked by Beirne in his list of Microlepidoptera of Ireland (1941).

The specimen was kindly identified by Dr. J. P. O'Connor of the National Museum, Dublin. His identification was confirmed by Dr. K. Sattler of the British Museum (Natural History), London. The moth has been placed in National Collection of the National Museum, Dublin. — D. N. DOWLING, Capaghmore Estate, Clondalkin, Co. Dublin.

LETTERS TO THE EDITOR

Dear Sir,

The Conservation of Wild Creatures and Wild Plants (Amendment) Bill, before the House of Lords, shows a measure of improvement over that first introduced by the late Lord Cranbrook in the last session. The Joint Committee for the Conservation of British Insects shared the concern of conservation bodies generally regarding this legislation. We would much prefer a careful consideration of the role and extent of wildlife conservation legislation in the near future rather than a piecemeal amendment to existing legislation. Given that the Bill, with Government approval, could become law before the end of 1979 there have been discussions in an attempt to make the measure more realistic and practical. These discussions are continuing. A number of amendments will be put at the committee stage of the Bill, planned for 13th February 1979, and its final form may then be determined.

The aim of the Bill is to afford a measure of protection to those species which are regarded as vulnerable as opposed to endangered, i.e. species which, in the absence of active conservation, might soon fall into the endangered category. The legislation may cover some eleven species of insect in addition to *Maculinea arion* L., the one species classified as endangered under existing legislation.

The effect of the legislation will be to make it illegal to kill a vulnerable species without a licence from the Nature Conservancy Council. A vulnerable species may be taken for identification provided it is released without unreasonable delay. A person undertaking a study of the ecology of a vulnerable species will require a licence from the N.C.C. It will be possible to take the eggs of a vulnerable species on the grounds that in so doing, the population will not be impoverished to any significant degree. The restrictions which the legislation might place on the entomologist, both amateur and professional, in the context of the number and nature of the species involved, is thought to be very small indeed and not unreasonable in the light of current opinion.

Whether conservation of endangered or vulnerable species of our insect fauna will be achieved through legislation of this type is open to question. What is not open to question is the need to create a real awareness amongst conservationists generally, and the public, of the value of insect conservation. In exceptional cases legislation may give a strengthening hand to other more important methods of conserving our endangered insect fauna. The role of the amateur entomologist is vital in establishing the knowledge upon which positive conservation measures may be taken where and when they are needed. A full participation of the County Trust movement will improve effectiveness in this field. We need also to ensure that the N.C.C. get on with their task on the land rather than be tied to a bureaucratic desk issuing permits to all and sundry.

The J.C.C.B.I. would be pleased, I know, to learn from any readers of the Record, of their ideas for the promotion of a greater awareness of the need for insect conservation whether it be ecological surveys, co-ordination of entomological field work, entomological knowledge within the County Trust movement, legislation or any other aspect. — ALAN KENNARD, Chancery Cottage, 79 Old High Street, Headington, Oxford.

Dear Sir,

I have followed the correspondence about the above Bill with interest, and I feel I should write to correct some of the statements that have been made about the late Earl of Cranbrook.

I have been Hon. Treasurer of the Suffolk Naturalists' Society for nearly 30 years and for 25 of that period Lord Cranbrook was President. He was also President of the Suffolk Trust for Nature Conservation from its inception. It is quite true to say that Lord Cranbrook was not as knowledgeable about insects as he was on various other branches of natural history, but it is quite wrong to say that he simply lifted the list of local species for inclusion in his Bill. In fact he consulted me about the butterflies, and I suggested that the only species that should be added to *Maculinea arion* was *Carterocephalus palaemon*, but that he should consult the Committee for the Protection of British Insects, which he did. It was the Committee's list on which the schedule was based. — H. E. CHIPPERFIELD, The Shieling, Walberswick, Southwold, Suffolk.

Dear Sir,

I read with interest Mr. E. H. Wild's views regarding the Conservation of Wild Creatures and Wild Plants (Amendment) Bill, published in the June issue. But it is my annoyance aroused by a certain letter in the October issue that has prompted this reply.

I am in full agreement with all the sane and relative points that Mr. Wild makes. I would consider it reasonable if the new proposals were put forward by a professional entomologist as to what lepidopterous species should go on the list, but surely a botanist, even though Treasurer of the Linnaean Society, is hardly able to offer expert opinion on a subject other than his own.

During the past five years or so, there has been some pretty awful scaremongering regarding disappearing species, particularly among the butterflies. And it is shameful that some people running under the Conservationist banner, should be so ill informed on insects and their way of life as to blame the collector so soon as a species goes into decline, and with little published evidence in support of their claims.

It is both stupid and immature to blame the collector all the time. Far more harmful is the County Council flail mower, which destroys grass verges and hedgerows and at the same

time countless micro habitats; the get-rich-quick forester, who demands maximum returns from his acres of regimented soft-wood plantations, with their sterile undergrowth; and the big oil companies which take huge areas of rich marshland and lay it under tons of concrete and steel. These are among the real culprits.

It seems that we are on the road to yet another restriction on our freedom. I am all in favour of sensible controls, but believe such misguided conservation to be gravely detrimental. — REX LANE HARVEY, F.R.E.S., The Flat, Pembroke Garage Ltd., H.M.S. Pembroke, Chatham, Kent.

Notes and Observations

CAMBERWELL BEAUTY (*NYMPHALIS ANTIOPA* (L.)) IN KENT. — I was pleased to see a specimen of this fine butterfly on the beach at Sheerness on the 21st August, 1978, where it was flying around a clump of Creeping Thistle (*Cirsium arvense* (L.) Scop.). It was in fresh condition, the wing edges being of a bright yellow colour. — E. G. PHILP, Natural History Department, The Museum, Maidstone, Kent, ME14 1LH. 1.x.1978.

THE SILVER-STRIPED HAWK: *HIPPOTION CELERIO* L. IN HAMPSHIRE. — A fine specimen of the Silver-striped Hawk was found by Mr. James Barnett on the door of his garage in Sway, Hants. on the morning of the 10th November 1978. Mr. Barnett carefully placed it in a plastic box and advised his friend Mr. D. Heginbotham who is a client of ours. It is a male in perfect condition. — R. W. WATSON, F.R.E.S. and A. M. W. WATSON, F.R.E.S., Porcorum, Sandy Down, Boldre, Lympington, Hants.

CYCLOPHORA PUPPILLARIA HBN. IN HAMPSHIRE. — For the second consecutive year a single specimen of this moth appeared in my garden. This time it was resting in a shrub near the moth trap, and would have gone unnoticed had I not tapped an egg-tray on the bush to release some other moth. The *pupillaria*, disturbed from its slumber, flitted lazily out and came to rest on the lawn. It was a female, and the date was 15th October 1978. — Dr. J. R. LANGMAID, 38 Cumberland Court, Festing Road, Southsea, Hampshire, PO4 0NH.

DESCRIPTION OF A NEW SUBSPECIES OF *CHARAXES JAHLUSA* TRIMEN FROM SOUTHERN AFRICA. — Whilst the map accompanying S. F. Henning's paper under the above title (1978, *Ent. Rec.*, **90**: 211-215) is absolutely correct in the strict context of the paper, it is, I submit, extremely misleading in a general sense. The map appears to indicate that *jahlusa* does not occur north of the Tanzania/Kenya border, whereas, in fact, it is a common species (ssp. *kenyensis* Joicey & Talbot) throughout the dry Acacia scrub country of Kenya, and extending into South West Ethiopia (ssp. *ganalensis* Carpenter). It also occurs in North Western Tanzania (ssp. *kigoma* van Someren). — D. G. SEVASTOPULO, F.R.E.S., P.O. Box 95026, Mombasa, Kenya.

BLASTOBASIS DECOLORELLA WOLLASTON (LEP.: BLASTOBASIDAE) AT SHARNBROOK, BEDFORD. — I obtained a specimen from my kitchen window on 29th October 1978 which I tentatively identified as a male of the genus *Blastobasis*. On 8th November 1978 a second specimen (female) appeared, and I took both specimens to the British Museum (Nat. Hist.) where Mr. David Carter kindly confirmed the identification as *B. decolorella* Wollaston. On 13th November seven eggs were laid, and these hatched on 21st November. The larvae fed on dry sallow leaves until 10th December, but have not been seen to be active since that date. The female was kept in a laboratory culture dish, and when disturbed flicked about madly finally coming to rest on its back where it "played dead". — D. V. MANNING, 27 Glebe Rise, Sharnbrook, Bedford.

A LATE GHOST SWIFT: HEPIALUS HUMULI (L.) IN 1978. — At approximately 22.3 on 21st September, I found a large and perfect specimen of *H. humuli* on a street light at the end of my road. Is not this a very late date for this moth? — D. DEY, 9 Monmouth Close, Rainham Gillingham, Kent ME8 7BQ.

THE NOVEMBER MIGRATION OF MYTHIMNA UNIPUNCTA HAW. — Between 6th and 22nd November 1978 no fewer than 22 specimens of this moth were taken at m.v. in my garden. In the preceding 24 years the sum total of the species had been two. — Dr. J. R. LANGMAID, 38 Cumberland Court, Festing Road, Southsea, Hants., PO4 0NH.

HYPERA VENUSTA F. (COL.: CURCULIONIDAE) FOUND IN MID-WINTER, ETC. — On 9th January last I was much surprised to find crawling on the kitchen table-cloth a fresh and perfect specimen of this prettily-variegated little weevil (perhaps better known as *Phytonomus trilineatus* Marsh.). How it got there can only be guessed, but in all likelihood the immediate source was a bunch of parsley bought that same afternoon, which had been lying for some time, with other shopping, on the table. This, be it noted, is not a foodplant of the species but could have been serving as a hibernaculum. *H. venusta*, which feeds like many of its congeners on various low-growing Papilionaceae, tends in my experience to occur singly and seems hardly ever to be common*; nor have I ever met with it before in the Greater London area, but only a good deal farther out. Also there may be few records of its occurrence in the winter months.

In my own district these weevils are few and scarce. *H. postica* Gyll. (= *variabilis* Hbst.) is the one least seldom seen — probably the case almost everywhere — while the striking green *H. nigrirostris* F. is very sporadic. *H. punctata* F., the giant among our species, appears to be of the greatest rarity here; but it is more retiring in its habits than most of them, normally keeping low down under cover, and is probably largely nocturnal. — A. A. ALLEN, 49 Montcalm Road, Charlton, London, SE7 8QG.

* I have taken it in some plenty at the Lizard, Cornwall, with *H. plantaginis* Deg. — A.A.A.

LATE MIGRANTS IN CUMBRIA IN 1978 AT M.V. LIGHT. — After a poor season for migrants in these parts, the appearance of four *Agrotis ipsilon* (Hufn.) at the end of October, and two *Udea ferrugalis* (Hubn.) on the night of November 1st, the signs were of a rare and late migration for so far North. This was confirmed by the appearance of a female *Orthonama obstipata* (Fab.) on the night of November 5th, which I found with the aid of a torch, sat in a dark corner near to the M.V. trap. She laid six eggs in the pill box next day, which hatched on November 23rd, but the larvae died after refusing Groundsel, Chrysanthemum, and Alyssum., in the absence of Knot-grass. On the morning of November 12th, only four moths were inside the trap, one was a perfect male *Mythimna unipuncta* (Haw.) a newcomer to these parts, and as far as I can ascertain, a new addition to the Cumbria list of Lepidoptera. — J. BRIGGS, Frimley House, Deepdale Close, Slackhead, Beetham, Milnthorpe, Cumbria.

THE CLAP-NET AND THE HIGH-NET. — A recent contribution of mine to the *Record*, "The History of the Entomological Clap-net in Great Britain" (90: 127-132) has prompted a number of personal letters about the uses and styles of collecting nets. Despite these very interesting comments, neither I nor the Editor have been sent any definite information about the actual survival of a clap-net. Considering the frequent preservation of antique scientific apparatus, it seems at least likely that some examples of a once common item of entomological equipment, used as late as the turn of the century, might still remain. Mr. J. M. Chalmers-Hunt would especially like to know, for the historical record, of any clap-nets extant in Great Britain or elsewhere.

In the paper cited above, I also discussed the history of the high-net used for *Apatura iris* (L.). Traditionally this net had a length of twenty or thirty feet, and after recording its use since the eighteenth century (it was first mentioned by Moses Harris over two centuries ago). I concluded that "Now and then conjectures have been published as to whether these bag-nets of enormous length were really effective, or indeed useful at all, but it is certain that one of over thirty feet in length was employed relatively recently by Mr. I. R. P. Heslop: it was described and illustrated in *Notes & Views of the Purple Emperor* (1964)". In a note to one of his contributions in that volume, Mr. Heslop stated (p. 185, fn. 33) that his "high net, with maximum extension, now considerably exceeds 30 feet in length; so that, with my own height and reach, I can strike at and secure specimens up to 40 feet from the ground".

I have discovered from several letters that Mr. Heslop has hardly been alone, and that the high-net is, or has recently been, "alive and well" in Britain. The most interesting communication was from Mr. D. E. Wilson of Much Hadham, Herts., who related his experiences with the high-net. Mr. Wilson has a thirty-foot net, but on the few occasions he has put his long extension to use, he has found it unwieldy.

Several years ago he encountered two collectors using the high-net in an Oxfordshire wood, and he knows of a similar net used in the same wood by an elderly lepidopterist some years ago. Mr. Wilson has no doubt that a number of British collectors have used the method with various degrees of success (letter to the author, 12th June, 1978).

That differing success must be due to experience and physical dexterity. Mr. Wilson's comment about the unwieldiness of his high-net added evidence to a similar evaluation by an old moth-hunter friend, the late P. B. M. Allan, who reminded me many years ago of the principles of physics involved in manipulating a pole of thirty feet in length with a net at its end and expecting to capture a butterfly with it. To satisfy my curiosity, late last summer I jointed three-quarter and one-inch dowel with ferrules to a length of thirty feet and affixed my Watkins and Doncaster kite net. Initial efforts at wielding the net with precision were almost humorous, and after several weekends I gave it up, realising that we are not all Heslops. I touch my cap to those who have used the high-net with great success. The method obviously requires long practice. — Dr. RONALD S. WILKINSON, The American Museum of Natural History, New York, New York 10024.

Current Literature

Illustrated Papers on British Microlepidoptera by various authors. Reprinted from the Proceedings and Transactions of the South London Entomological and Natural History Society (1944-57). 174pp., 12 coloured plates (321 figures) by S. N. A. Jacobs, F. C. Fraser and D. C. Twinn, and 57 text illustrations. Edition limited to 500 copies. 8vo., cloth, 1978. Price £9 (£6 to Society Members) plus 60p postage. Obtainable from R. F. Bretherton, Folly Hill, Birtley Green, Bramley, Surrey.

This book consists of 12 monographs (each with a coloured plate) in which are described and illustrated in colour 289 species, i.e. about one-third of those formerly grouped together under the *Tineina*. They are as follows: (1) Lithocolletis, (2) Lamproniidae and Adelidae, (3) Oecophoridae (part 1) and Allied Genera, (4) Oecophoridae (part 2), (5) Oecophoridae (part 3); all by S. N. A. Jacobs. (6) Mompha, by S. Wakely. (7) Psychidae, (8) Plutellidae, (9) Glyphipterygidae and Allied Families, by L. T. Ford. (10) Caloptilia and (11) Lyonetiidae, by S. C. S. Brown. (12) Eriocraniidae and Micropterygidae, by J. Heath.

For ease of reference, the pages and plates have been re-numbered and fully indexed accordingly. There is a new appendix of species belonging to those groups which have been added or sunk; also included is a list of species which relates names used in the text to up-to-date nomenclature and classification. The Rev. David Agassiz was responsible for these innovations, for writing the Foreward and for seeing the book through the press.

Owing especially to the coloured plates and general high standard of illustration, students of the Microlepidoptera both here and on the European continent, will find these Papers of great service in the identification of the species they cover.

The Auchenorrhyncha (Homoptera) of Fennoscandia and Denmark. Part I: Introduction and infraorder Fulgoromorpha. By F. Ossiannilsson. Fauna Entomologica Scandinavica, vol. 7, pt. I. Boards, 222 pages. Scandinavian Science Press Ltd., Klampenborg, Denmark, 1978.

This work, by one of the leading European specialists on the leaf-hoppers, fully upholds the high standards set by the few volumes already published in this ambitious and admirable series, which is in English throughout. It is copiously illustrated with 732 very clear text-figures of genitalia and other diagnostic features (heads, wings, etc.), and 36 plate-figures of mostly whole bugs, of which 12 are in colour; all are of high quality. After some introductory matter, including a survey of past work on the hoppers for the region concerned, there follow sections on general characters and classification of Hemipteroidea, and morphology, diagnostic characters, bionomics, parasites, economic importance, and keys to families (adults and "larvae") of Auchenorrhyncha. This takes us to p.31; the main part of the book follows, treating of the four families of Fulgoromorpha in N. Europe, viz. Cixiidae, Delphacidae, Achilidae and Issidae. The bulk of this section of hoppers is made up by the second of these; the other three together comprise a mere handful of species, and the Achilidae (unrepresented in Britain) only two. All the information needed for most purposes is concisely and clearly given: keys to the various taxa, full descriptions of species, distribution, and biology (habitats, and foodplants where known).

The student of the British fauna will, of course, find a very large element in common between it and that treated here. Among the more conspicuous forms, he will note the absence therefrom of the remarkable genus *Asiraca*, with a British species; and of our *Issus coleoptratus* (included however in the key). On the other hand the Issid genus *Ommatidiotus* for instance, with one species in the area — and likewise *Cixidia* with two, is not British. The determination of many female Delphacids of closely allied species has generally been considered uncertain or impossible; and though for some species this remains true, the present work shows that good characters can often be found in the modified apical sternites of females, so the many figures of those should prove to be of great utility.

Paper quality, printing, binding, etc., leave nothing to be desired, and no misprints have been noticed. The one lack that might be felt is of an index, but this will doubtless be provided in the concluding volume on the hoppers. Meanwhile the generic keys will serve as a rough index. Altogether a most creditable and excellent production which all Homopterists should possess. — A.A.A.

THE PROFESSOR HERING MEMORIAL RESEARCH FUND

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

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

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

Awards may be made to assist travelling and other expenses necessary to field work, for the study of collections, for the attendance at conferences, or, exceptionally, for the costs of publication of finished work. In total they are not likely to exceed £300 in 1979/1980.

Applicants should send a statement, if possible in sextuplicate, of their qualifications, of their plan of work, and of the precise objects and amount for which an award is sought, to A. M. Emmet, M.B.E., T.D., M.A., F.L.S., F.R.E.S., Hon. Secretary, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, as soon as possible, and in any case not later than 30th September, 1979.

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THE MICROLEPIDOPTERA OF ESSEX. — I am currently engaged on compiling a list of the microlepidoptera of the county on behalf of the Essex Naturalists' Trust and the Essex Field Club; it is proposed to publish the list in 1979. I should therefore be grateful if collectors who have not already done so will send me their records. Localities even for the common species help to complete distribution patterns. Entomologists who are planning their season's collecting should bear in mind that Essex is rich in microlepidoptera (over 1,000 species of "micro" are already in the list) but almost devoid of microlepidopterists and hence seriously underrecorded. They could profitably make 1978 their "Essex year". — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, 30.iv.1978.

EXCHANGES AND WANTS

Wanted — The Entomologists Record, Vol. 71 1959, entire. Bound or unbound. — Offers to Paul Stirling. Tel. 01-660 4766.

Help Wanted — with records of British Gelechiidae for publication in Vol. 4 of "Moths and Butterflies of Great Britain and Ireland". Vice-County records only wanted at this stage. A complete check-list will be supplied to those willing to help. If you have any records for this group, please write to: Paul Sokoloff, 4 Steep Close, Orpington, Kent BR6 6DS.

Wanted — Records of daily totals in traps of *Agrotis segetum* for as many past years as available. — Rosemary Kay, Ent. Section, National Vegetable Research Station, Wellesbourne, Warwick.

Wanted — Records of Blair's Shoulder-knt, *Lithophane leautieri*. Please give dates, localities, numbers, and any details of larval foodplants. This species seems to be rapidly colonising Britain and it is planned to document the colonisation in as much detail as possible. — Dr. D. F. Owen, 66 Scraftoft Lane, Leicester LE5 1HU.

I am eager to hear from anyone who is planning a trip to the Alps this year who may have room for two others, or from anybody who is interested who would like to form a party to save costs. June or July. — P. Legon. Tel. Medway 56108 evenings.

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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

The following gentlemen act as Honorary Consultants to the magazine:

Orthoptera: D. K. Mc E. KEVAN, Ph.D., B.Sc., F.R.E.S.; *Coleoptera:* A. A. ALLEN, B.Sc.; *Diptera:* E. C. M. d'ASSIS-FONSECA, F.R.E.S.

TO OUR CONTRIBUTORS

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

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

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

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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by J. M. CHALMERS-HUNT, F.R.E.S.

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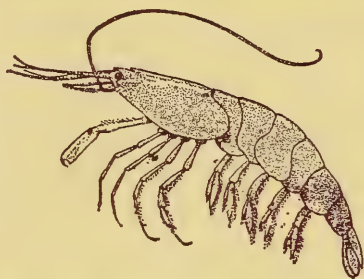
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The Immigration of Lepidoptera to the British Isles in 1978

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

1978 was not a great year for immigrants, comparable to 1976 or 1968; but it shows a pattern which is interesting both in timing and in content of species. There was no early invasion such as occurred in 1977, and immigrants were hardly seen before June. None of the scarcer butterflies were reported. Throughout the summer the usually common species, both butterflies and moths, were much below their usual numbers, and the poor weather which lasted until early August probably reduced local breeding by those which did arrive. Surprisingly, however, single examples of two species new to the British list, which were probably immigrants, were caught in mid June and late August. There was little trace of immigration from northern Europe or beyond, which was prominent in 1976 and 1977. Few of the less common migrants were reported in September. But in the second week of October in Britain, rather later in Ireland, there came a dramatic change with a widespread invasion, which reached far northwards and inland and included many rare species in unusual combination. This was followed by several successive waves of immigrants from the last week of October through November and possibly even in early December. These were dominated by the largest influx of *Mythimna unipuncta* (Haworth) since 1966, which, however, showed little penetration inland from the south and west coast.

During the first three weeks of June *Autographa gamma* L. became fairly numerous on the south coast of England, a total of 76 being recorded in the month in a light trap at Peacehaven, East Sussex, with a peak of 14 on 19th; but many recorders have commented on its unusual scarcity elsewhere, even on the coast, both then and later. There were also a few records of *Agrotis ipsilon* Hufn., *Peridroma saucia* L., and *Udea ferrugalis* Hübn. scattered in date and place, and of a single *Orthonama obstipata* F. at Peacehaven on 9th; but their usually commoner companion, *Nomophila noctuella* D. & S. was reported only singly in two places on 8th and 11th. There was, however, a surprising high-light in the capture on 14th by B. G. Withers (*Ent. Rec.* 90: 333) in his trap at Stoborough, Dorset of a specimen of *Terpnomicta trimaculata* Vill., which was accompanied by several *A. ipsilon*. This species, new to the British list, is known on the Atlantic coast of France at least as far north as Nantes.

July was a barren month until its last few days. The unusual immigrants remained scarce, except for *Phlogophora meticulosa* L., which was common on the south coast and showed a marked peak at Peacehaven on 12th, when it was accompanied by one of the few *Agrius convolvuli* L. reported this year;

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

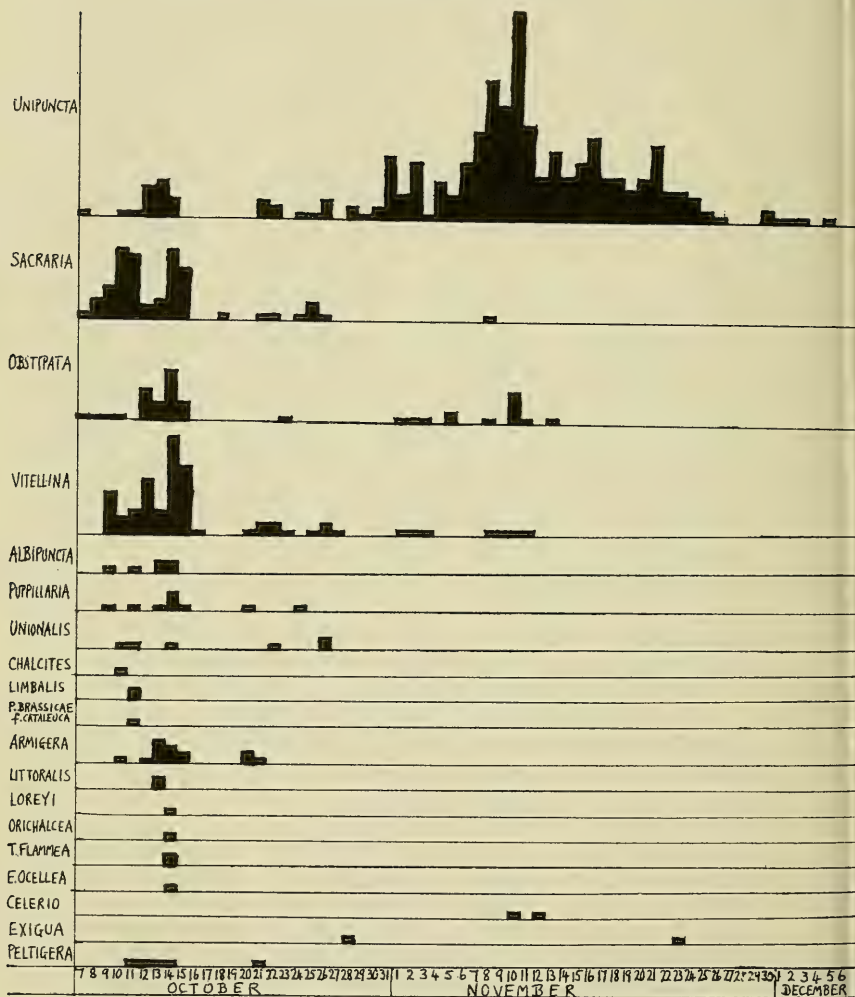
²1 Hardcourts Close, West Wickham, Kent BR4 9LG.

there was also a single *O. obstipata* at Caversham, Berks. on 25th. *P. meticulousa* is a common resident as well as an immigrant, and there may often be doubt about the origin of examples seen early and late in the year; but as its overwintering resident larvae usually produce moths in June and those of the second generation from late August onwards, it is probable that most July moths are immigrants.

In late July and August the picture improved a little. *A. gamma* became common on the south coast, some 600 being trapped at Peacehaven, with peaks of over 20 on 28th and 30th July and 8th, 19th and 23rd August. The first *Palpita unionalis* Hübn. was recorded at Bradwell-on-Sea, South Essex, on 29th and the only *Hyles gallii* Rott. of the year on 5th August; there was another *O. obstipata* in West Cornwall on 13th August; and on 18th a male *Clostera anachoreta* D. & S., last recorded in 1976, was caught at light at Dungeness, East Kent, along with a few *A. gamma* (*Ent. Rec.*, 90: 274). This was probably a short distance visitor from across the Channel, as attempts to find more moths or larvae later were unsuccessful. Late in the month, and extending into early September there appears to have been a small, probably mainly longer distance migration. Single examples of *H. convolvuli* L. were recorded at Compton Chine, Isle of Wight, along with one of the few *Colias croceus* Fourc. of the year, and at Micheldever, North Hampshire, on 26th, and at Speke, North Lancashire, on 28th. On 27th August Mr. J. Porter caught a small moth at the Lizard, West Cornwall which was later identified at the British Museum (Natural History) and exhibited to the British Entomological & Natural History Society as *Athetis hospes* Frr., new to the British list (*Ent. Rec.*, 91: 22). This brownish Noctuid, related to our resident *A. pallustris* Hübn., has its nearest localities in the Gironde area of south west France. On 4th September, at the end of this spell of south westerly winds, continuous streams of *Pieris brassicae* L. and *P. rapae* L. were seen to arrive at the Lizard, a single worn *Cynthia cardui* was noted on the beach at Strete in South Devon, and at night among some 60 species of moths trapped at Dittisham on the estuary of the Dart there were one *Mythimna albipuncta* D. & S. and several *A. gamma* *gamina* Stdgr. The rest of September was almost blank, except for an extraordinary capture of a female *M. unipuncta*, the first of the year, at Winchburgh, on the outskirts of Edinburgh; three others were reported in West Cornwall and Scilly on 23rd and 29th.

The most varied immigration of the year began in England on the night of 7th October, reached its height probably on 13th or 14th, and then ceased abruptly; in south west Ireland the timing was later by nearly a week. During this period over thirty immigrant species were recorded; the numbers and dates of the scarcer ones are shown in histograms A and B. The most notable were two examples, both worn, of *Spodoptera littoralis* Bdv. at Lymington, South Hampshire and Stoborough, Dorset; two *Trigonophora flammea* Esp. and a single *Mythimna loreyi* Dup. at Swanage (*Ent. Rec.*, 90: 338); one *Diachrysia*

HISTOGRAM A
SCARCE IMMIGRANT LEPIDOPTERA: NIGHTLY RECORDS 7 OCTOBER TO 5 DECEMBER 1978
(GREAT BRITAIN)



orichalcea F. at Southrop, Glos., and another at Fountains-town, co. Cork; a *Chrysodeixis chalcites* Esp. found on a house wall far north in Inverness-shire; *Cyclophora puppillaria* Hubn., of which there were five in Hampshire, two in Dorset, and one as far north as Alveston in Warwickshire, for which it is a new county record; also a single capture of the immigrant Pyrale *Euchromius ocella* Haw. at Usk, Monmouthshire and two of *Uresiphita limbalis* D. and S. at Sparsholt, North Hampshire and Stoborough, Dorset.

The captures of two *S. littoralis* are particularly interesting because, though its larvae are sometimes imported with chrysanthemum cuttings and flowers and at one time threatened to become a pest in English glasshouses, there seems to be only one record, in 1960, of a moth found in the wild. These captures now confirm its status as an occasional natural immigrant. Of *T. flammea* there have been only about eight records in England since the end of its period of residence in Sussex in 1892; it is a southern species, but reaches to Normandy in France and is resident in the Channel Isles. *D. orichalcea* is a tropical and sub-tropical species, probably not established north of the Mediterranean; there are about twenty records of it in England, the last at Ringmer, East Sussex, on 10th October 1977, and two in Ireland in 1946 and 1964. *C. chalcites*, also sub-tropical and even rarer in Britain, was last recorded in 1965 in several places on the south coast; the present record at Insh in Inverness-shire is paralleled by one of *Rhodometra sacraria* L. at Fort Augustus on the same date. Of the little Crambid *E. ocella* there are less than twenty records, most of them of the white form in early spring, when it may be less easily overlooked. Of *C. puppillaria* and *U. limbalis* there are still less than fifty records. The finding of a female *P. brassicae* f. *cataleuca* Rober, the form found on the Mediterranean coast of France and eastwards, outside a light trap at Bramley, Surrey at 11 p.m. on 11th October both indicates nocturnal migration by this butterfly and possibly gives a clue to the origin of this migration.

The other scarce immigrants reported in Britain during this period were *R. sacraria* (over 50), *M. vitellina* (over 50), *O. obstipata* (21), *M. unipuncta* (17), *H. armigera* (11), *M. albipuncta* (6), *H. peltigera* (3), *P. unionalis* (3). Among the common immigrants, *P. meticulosa* was dominant, with large clearly migratory swarms reported in and around light traps in Sussex, Surrey and Oxfordshire. *A. gamma*, though more plentiful than before, remained in most places below normal numbers, a sudden peak of 63 at Peacehaven, East Sussex, on 14th October being apparently exceptional. *P. saucia* and *A. ipsilon* were reported widely, but in small numbers; and there were still fewer *N. noctuella* and *U. ferrugalis*. Three or four *C. croceus* were seen near Helston, West Cornwall, on 12th and 13th October, and two at Brook, Kent on 15th October. *Vanessa atalanta* L. was reported in several places and in some numbers in October; but it is not clear that these were associated with the main immigration. The general impression

is of unusual diversity of species and spread northwards and inland, but in rather small numbers for individual species, except perhaps for *P. meticulosa*. The usual large immigration of *H. convolvuli* between late August and early October was hardly represented and, except for a single diurnal record of *Macroglossa stellatarum* L. at Maltravers, Dorset on 19th October, and one other at St. Mary's, Scilly Isles, on 14th October, the other migrant Sphingidae seem to have been absent.

The immigration of 8th to 15th October occurred after a long period in which the air stream reaching Britain, except possibly Cornwall and Devon, was obstinately north westerly, from the north Atlantic. The change began about 4th October, when winds began to blow round an area of high pressure off the north west tip of Spain. This moved slowly east across Europe, causing fronts over Britain first from S.W. later from S.E. and S., and finally, as low pressure became centred over the Azores, from S.W. again. This diversity of directions, permitting various points of origin abroad, may have accounted for the large and unusual coverage of species. Immigrants were first recorded on the night of 7th and, in greater numbers, on 8th and 9th. The long interval between the change of wind and the first records, and the fact that these covered mainly *R. sacaria* and *M. vitellina*, suggest a distant origin, perhaps in the deserts of north west Africa. Some of the species recorded in the middle of the week, such as *P. brassicae* f. *cataleuca*, *C. puppillaria*, *H. armigera*, and also *M. unipuncta*, which was reported "in thousands" at Lourdes in south west France in October, may have come north from the Mediterranean coasts. The recorded peak of over 50 examples of 13 scarce immigrant species on 14th probably included both new and previous arrivals. Mr. Peter Davey has been good enough to trace meteorological back-tracks of moths arriving at Swanage on that night, on alternative assumptions that, flying directly down wind, they were wholly carried by it, or that they added $5\frac{1}{2}$ m.p.h. by their own flight. The first track points to an origin 48 hours earlier near the western end of the Pyrenees; the second to northern Spain, Portugal, or even the Canary Islands. For species which were first recorded on the nights of 13th or 14th (*D. orichalcea*, *S. littoralis*, *M. loreyi*, *T. flammea*, *E. ocella*) what we know of their distribution abroad gives preference to the Canary Islands, except in the case of *T. flammea*; and this may also be preferable on physiological grounds, since it seems unlikely that such species could maintain height for long distances by gliding flight without impetus of their own. It is interesting that on this night of highest record (and also on that of the later peak of 10th November) the moon was almost full: a condition which is usually unfavourable, if not the flight of moths, at least to their attendance at light traps; but these were also Saturday nights, when lepidopterists are notoriously active in the field!

PLATE III
HISTOGRAM B
SCARCE IMMIGRANT LEPIDOPTERA: NIGHTLY RECORDS
24 SEPTEMBER TO 11 NOVEMBER 1978
(SOUTH-WEST IRELAND)



20 to 31	1 to 23	24	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11		
AUGUST										SEPTEMBER										OCTOBER										NOVEMBER									

On 16th October winds over south England veered sharply to north west and north, and the few records of immigrants during the following week probably represented survivors rather than new arrivals. But from 25th October, with warm fronts again from the south west, it is clear that immigration began again, and this seems to have built up further during the first half of November with almost continuously south west and even south winds, sometimes of gale force, and with unseasonably high temperatures. The records of scarce immigrants reached a high peak on 10th November, and then fell irregularly, with minor peaks which may represent either fresh immigration or survivors. The prolonged warm spell was ended after 24th November by a week of cold, with severe frosts at least away from the coast, and it is possible that subsequent records to 5th December were of fresh arrivals.

The immigrations of late October and November had only a limited species content, being dominated by *M. unipuncta* of which about 270 were recorded in Britain. Until the middle of November they were accompanied by small numbers of *O. obstipata*, and by a late *R. sacraria* on 8th. There were also two *Spodoptera exigua* Hübner, which had not been previously recorded in Britain, and single examples of *Hippotion celerio* L. at Sway, South Hampshire, West Wittering, West Sussex, and Waterbeach, Cambs., for which most past records have been in October and November. Records of *M. unipuncta* extended round the coasts from Suffolk on the east to Westmorland, Isle of Man, and the Isle of Canna on the west; but less than a dozen examples were reported more than ten miles from the sea. Among the common species there were many more *U. ferrugalis* and *P. saucia* than earlier in the year, moderate numbers of *P. meticulosa* and *A. gamma*, and at least one of that rarity of 1978, *N. noctuella*. Apart from *M. unipuncta*, this composition agreed well with those of autumn immigrations in previous years, though it was considerably later.

For Ireland we have records from only one trap, which was almost continuously operated from 20th August to 26th September and from 7th October to 11th November near the coast at Fountainstown, co. Cork, and from another observer for shorter periods in October and November at Killarney, co. Kerry. At Fountainstown little of interest was seen in August or September except one *H. armigera* on 24th September and an example of *Discestra trifolii* Hufn., which had not been reported in Ireland since 1930 and may be only immigrant there. The timing and pattern of the mid October influx differed considerably from that in Britain. It began very suddenly on 13th October, and seems to have lasted for only three or four nights, with survivors merging with another small influx late in the month. The dominant species was already *M. unipuncta*, of which 48 were recorded from 13th to 15th and a further 13 by 22nd. In this period *R. sacraria* counted 25 (plus 6 at Killarney, where the only other migrants seen were half a dozen *A. gamma*); *N. noctuella* 20; *O. obstipata* and

P. unionalis seven each; *M. vitellina*, two; *D. orichalcea*, one on 20th; *A. gamma* very few. But singles of *Trichoplusia ni* Hüb. on 13th and of *A. atropos* L. on 14th, and a pair of *S. exigua* on 15th represented species which were not recorded in Britain at this time. Arrivals seem to have begun again about 23rd October, and after gales and cold nights from 5th to 8th November what was probably another wave built up to a peak on 11th, much as in Britain. These later immigrations added a further 53 *M. unipuncta*, 2 *R. sacra*, 17 *O. obstipata*, and 5 *N. noctuella*. The total of 114 *M. unipuncta* in a single trap at Fountainstown was approached in Britain only by that of 95 similarly recorded at Hayling Island, South Hampshire.

Little information is yet available about migration in 1978 on the Continent. In France, during an expedition by road from Calais to the south east, from 23rd July to 3rd August, one of the authors noted that the usual migratory butterflies appeared to be very scarce, as in England, and during some night collecting in Dauphiny little was seen of the migratory moths. Later, we have been informed that *M. unipuncta* was seen "in thousands" at Lourdes in the south west, and that it was also recorded in November near Charleroi and Liège in Belgium, where also three examples of *S. littoralis* were caught near Brussels in October. From the Netherlands, however, a barren year is reported.

The authors acknowledge gratefully records received directly or indirectly from over 80 recorders, whose names are listed in Annexe I, and also local histograms from Mr. Colin Pratt and meteorological back-tracks from Mr. Peter Davey. Records of the scarcer immigrant species are detailed in Annexe II, where those for each species are arranged in geographical order by vice counties, recorders' initials being given where there are several for the same locality. Full details for the common species were not generally requested and except in some special cases these have been referred to in the main text only. Nearly all records refer to attendances of moths at light, many of them in regularly monitored garden traps; but there are also some important field records and diurnal observations. Dates stated here are as far as possible those of lighting up, *not* those of trap clearance on the following day; but it has not been practicable to check this in all cases, so that the daily totals shown in the histograms or otherwise referred to may be subject to a small margin of error. The localities recorded are rather more numerous than those named in "Annual Migration Records, 1966 and 1967" (R. A. French, 1971, *Entomologist* 104: 204-218), years in which immigration appears to have been on a scale broadly similar to that in 1978.

In addition to the species listed, records of some "suspected immigrants" need consideration. A single specimen of *Meganola albula* D. & S. was trapped at Bradwell-on-Sea, S. Essex, on 28th July. Previous examples which have been noted there

in ten of the years from 1949 to 1973 have been regarded as migrants, and occasional records in Suffolk and Lincolnshire in the past are also suggestive of immigration. No resident colony appears to be known in Essex; but several exist, or have existed, both on the coast and well inland, from Kent to Devon, and it seems possible that the Bradwell specimens may have come from a local Essex colony which has been overlooked because of the small size of the moth and its superficial resemblance to several common micro-lepidoptera. Of *Rhyacia simulans* Hufn. one was caught at Boughton-under-Blean, East Kent, on 7th September, and no less than nine at Bradwell-on-Sea, and elsewhere in Essex between 29th July and 10th September. Some at least of these were of a darker form than those found in Gloucestershire (cf. *Ent. Rec.*, 90: 324). There has been only one previous record in Essex (at Coxtie Green in 1974) and none confirmed in Kent. But occasional past occurrences of the species elsewhere far from its normal range in Britain are more suggestive of internal vagrancy in years of abundance than of immigration. Of *Senta flammea* Curtis one specimen was found on the top of a reed in Pevensey Levels, East Sussex, on 14th June. There have been other occasional records of it in Sussex and Kent in past years, but no resident colony there is known. The possibility of short distance migration across the Channel from the marshes of the Somme or the Pas de Calais, where the species is locally abundant, should not be excluded. Its nearest known British localities are probably in the fens of East Anglia. Finally, a specimen of the Monarch, *Danus plexippus* L. was seen at Epsom, Surrey, on 11th September, which may or may not have been an escape from captivity.

Some warnings must be given about the use and interpretation of these records. The coverage, though geographically wide, is uneven and has important gaps. Because there are many more potential recorders in south east England than in any other region the relative frequency of immigrants there is likely to be considerably overstated. Regular recordings are especially few or absent for the south western English counties, south Wales, and most of Ireland, where in past years many immigrants have been reported. The authors very much hope that further records may be received both from these places and elsewhere, for possible publication in a supplement. It is also hoped to continue the collection and publication of migration records in 1979.

Precise determination of the timing of the arrival of migrations is difficult. Simultaneous records after a blank period are a reasonably safe guide in most cases; but thereafter records may represent a mixture of survivors and further arrivals. Moreover, high numbers on particular nights may be due to improved flying conditions or more recording, rather than to new arrivals. Further, since the life span of immigrants after arrival is unknown, and may well vary between species and with temperatures, there is often uncertainty for how long

after a time of abundance straggling records reflect survivors of old or the beginning of new immigration. This is well illustrated by the records of *M. unipuncta* and other species in late October and again in late November and early December 1978.

The determination of origin is still more speculative. Most of the species immigrant to the British Isles have very wide distributions abroad; only rarely is it possible to identify origin at all closely by reference to the species, sub-species or form of the immigrant. Information about conditions in potential areas of origin is usually either non-existent or misleading by its very scantiness or selectivity. Expert meteorological back-tracks can give valuable general clues; but so little is yet known about average flight speeds of the various species concerned, or about the extent to which they may deviate accidentally or deliberately from a direct down wind course, that the distance between the origins indicated as possible may be very great. This is clearly shown by Mr. Davey's alternative tracks which are described above. The field for the gathering of further information, and for research into the physiology of immigrant lepidoptera is enormous.

ANNEXE I RECORDERS AND LOCALITIES

- | | |
|---|--|
| Archer-Lock, A., S. Devon, Cornwall. | Dickson, R., Titchfield Haven, S. Hants. |
| Arcy, John d', Cholderton, S. Wiltshire; Edington, S. Wiltshire. | Dillon, T. J., Oxted, Surrey. |
| Baker, B. R., Caversham, Reading Berks. | Dixon, C. H., Micheldever, N. Hants. |
| Baker, P. J., Swanage, Dorset. | Down, D. G., Swanage, Dorset. |
| Baskcomb, K. N., Worth Maltravers, Dorset. | Duffield, J., Brook, E. Kent. |
| Bell, R., Sparsholt, N. Hants; Swanage, Dorset, per Col. D. H. Sterling and B. Skinner. | Dunn, T. G., Fort Augustus, E. Inverness. |
| Bland, K. P., Mid Lothian. | Dyke, R., Malborough, S. Devon. |
| Blathwayt, C. S. H., Weston-super-Mare, N. Somerset. | Edmunds, H. A., Crawley Down, N. Hants, per BENHS. |
| Briggs, J., Beetham, Westmorland. | Else, G. R. and Sterling, P. H., Compton Chine, Isle of Wight. |
| Bretherton, R. F., Dittisham, S. Devon; Bramley, Surrey. | Elvidge, M., Horsell, Surrey, per Dr. C. G. M. de Worms. |
| Brown, D. C. G., Charlecote, etc., Warwicks.; Northamptonshire; Studland, Portland, Dorset. | Evans, K. G. W., Addiscombe, Surrey; St. Alban's Head, Dorset. |
| Burton, G. N., Sheppey, E. Kent. | Fairclough, R., Leigh, Surrey; Thaxted, N. Essex. |
| Cadman, M., Trew, W. Cornwall, per Dr. F. H. W. Smith. | Garland, S. P., Sheffield, S.W. Yorks. |
| Campbell, J. L., Isle of Canna, Hebrides. | Greenwood, J. A. C., Rogate, W. Sussex. |
| Chambers, D. A., East Malling, W. Kent. | Gregory, J. L., St. Austell, E. Cornwall. |
| Chipperfield, H. E., Charmouth, Dorset; Walberswick, E. Suffolk. | Hadley, M., Eastbourne, E. Sussex. |
| Classey, E. W., Southrop, N. Glos. | Halstead, A. J., Wisley, Surrey. |
| Corley, M., Littleworth, Berks. | Harman, T. W., Westbere and Ham Street, E. Kent. |
| Craik, J. C. A., Ashurst, Hants. | Harper, Dr. M., Ledbury, Herefords. |
| Dey, D., Rainham, Gillingham, E. Kent. | Haynes, R. F., Killarney, Kerry. |
| Demuth, R., Oakridge, N. Glos. | Hedges, J., Ballakaighen, Isle of Man. |
| Dewick, A. J. and S. F., Bradwell-on-Sea, S. Essex. | Horton, Dr. G. A. N., Usk, Mon. |
| | Holmes, J., Bordon, N. Hants. |

- Jewess, P., Aylesford, W. Kent.
 Kettlewell, H. B. D., Steeple Barton, Oxon.
 Knill-Jones, S. A., Freshwater, Isle of Wight.
 Langmaid, Dr. J. R., Southsea, S. Hants.
 Leavett, R., Insh, Inverness-hire, per E. C. Pelham-Clinton.
 Largen, R. E., Findon, W. Sussex.
 Leech, M. J., Ross-on-Wye, Herefords.
 Leestmans, R., Belgium, S.W. France.
 Lempke, B. J., Netherlands.
 Lorimer, R. I., Totteridge, Herts.
 Meredith, P. R., Chipping Sodbury, S. Glos., per B. Skinner.
 Messenger, J. L. Wormley, Surrey.
 Michaelis, H. N., Glan Conwy, Denbighs.
 Myers, A. A., Fountainstown, co. Cork (mid.)
 O'Hefferman, H. L., Chillington, S. Devon.
 Parsons, M., Swanage, Dorset; Eastborne, E. Sussex.
 Pelham-Clinton, E. C., Winchburgh, W. Lothian.
 Penny, C. C., per A. E. S. Exhibition.
 Philp, E. G., Maidstone, E. Kent.
 Pickering, R. R., Aldwick Bay, W. Sussex.
 Pickles, Mr. and Mrs. A. J., Lymington, S. Hants.
 Pooles, S., Eastbourne, E. Sussex.
 Porter, J., The Lizard, W. Cornwall.
 Pratt, C., Peacehaven, E. Sussex.
 Richardson, Austin, St. Agnes, Scilly; Poldhu, W. Cornwall.
 Rix, I. P., Swaffham, W. Norfolk.
 Rogers, D. A., Yarnar Wood, Bovey Tracey, S. Devon.
 Senior, G. Petersfield, S. Hants., per BENHS.
 Skinner, B., Dungeness, E. Kent; Swanage, Dorset; Birling Gap., E. Sussex.
 Smith, Dr. F. H. N., Perranporth, W. Cornwall.
 Sterling, Col. D. H., Winchester, S. Hants; Leckford, N. Hants.
 Stirling, P. M., Purley, Surrey.
 Summers, G., St. Mary's, Scilly Isles.
 Thomas, J. D., Waterbeach, Cambs., per J. Heath.
 Townsend, M., Gibraltar Point, N. Lincs.
 Tweedie, M. F. W., Houghton Green, E. Sussex.
 Valletta, A., Malta.
 Wallace, Dr. I. D. Speke, S. Lancs.
 Walters, J., Hayling Is., S. Hants.
 Watkinson, Dr. I. A., Boughton-under-Blean, E. Kent.
 Watson, R. A., Sway, S. Hants.
 Wild, E. H., Selsdon, Surrey.
 Winter, P. Q., Muston, nr. Filey, S.E. Yorks.
 Withers, B. G., Stoborough, Dorset.

ANNEXE II

RECORDS OF SCARCE IMMIGRANT SPECIES IN 1978

(received by February 1979)

EUCHROMIUS OCELLA Haw. MONMOUTHSHIRE. Usk. 14.10.

URESIPHITA LIMBALIS D. & S. DORSET. Stoborough, 10.10. N. HANTS. Sparsholt, 10.10.

PALPITA UNIONALIS Hübner. DORSET. Charmouth, 10.10; Furzebrook, 11.10. N. HANTS. Micheldever, 26.10. S. HANTS. Southsea, 20.10. W. SUSSEX. Rogate, 26.10. E. KENT. Dungeness, 14.10 (P.M.S.). E. ESSEX. Bradwell-on-Sea, 29.7. CO. CORK (MID). Fountainstown, 13.10 (3), 15.10 (2), 18.10, 19.10—7 in all.

PIERIS BRASSICAE L. f. *CATALEUCA* Rober. SURREY. Bramley, 11.10, outside light trap at 23 hrs.

CYCLOPHORA PUPPILLARIA Hübner. DORSET. Swanage, 14.10 (2) (B.S.). S. HANTS. Southsea, 15.10; Lymington, 24.10; Winchester, 14.10. N. HANTS. Micheldever, 11.10, 21.10. WARWICKS. Alveston, 13.10.

RHODOMETRA SACRARIA L. W. CORNWALL. Perranporth, 14.10. E. CORNWALL. St. Austell, 12.10, male, 21.10, female. S. DEVON. Yarnar Wood, 9.10, 15.10. DORSET. Stoborough, 9.10, 10.10, 11.10 (2), 13.10 (2), 14.10, stragglers later; Swanage, 10.11 (M.P.). Charmouth, 10.10. S. HAMPSHIRE. Ashurst, 8.10; 9.10. Lymington, 13.10, male, 14.10, male; Winchester, 14.10. N. HAMPSHIRE. Micheldever, 10.10, 11.10; 8.11; Leckford, 14.10; Sparsholt, 14.10 (2), 25.10 (2); Crawley Down, 15.10 (3). W. SUSSEX. Findon, 12.10; Rogate, 13.10, female, 14.10, male, 26.10, female. E. SUSSEX. Peacehaven, 25.8;

11.10; 8.11. E. KENT. Boughton-u-Blean, 14.10. W. KENT. East Mall-
ing, 11.10, 18.10. SURREY. Wormley, 7.10, 14.10; Leigh, 9.10; Addis-
combe, 9.10; Purley, 11.10, male; Wisley, 15.10; Selsdon, 21.10. S.
ESSEX. Bradwell-on-Sea, 25.10, female. HERTS. Totteridge, 10.10; Little
Hadham, 11.10 (2). W. NORFOLK. Beachamswell, 14.10. S. WILT-
SHIRE. Cholderton, 15.10 (2). S. GLOS. Chipping Sodbury, 10.10.
HEREFORDS. Ross-on-Wye, 13.10, male; Ledbury, 24.10, male. WAR-
WICKS. Charlecote, 10.10 (2), 14.10; Hampton Lucy, 14.10 (2); Thels-
ford, 14.10. S.W. YORKS. Sheffield, 11.10, male. ISLE OF MAN.
Ballakaighen, 8.10, male. WEST LOTHIAN. Winchburgh, 11.10. E.
INVERNESS. Fort Augustus, 10.10. CO. KERRY (NORTH). Killarney,
11, 12, 13.10, one male, five females, all of the ochreous brown form.
CO. CORK (MID). Fountainstown, 13.10 (4), 14.10 (10), 15.10 (3),
16.10 (3), 17.10, 19.10, 20.10 (2), 21.10, 29.10, 8.11.

ORTHONAMA OBSTIPATA F. W. CORNWALL. Perranporth,
13.8, male, 14.10, male. E. CORNWALL. St. Austell, 9.11.
DORSET. Stoborough, 12.10, 13.10, "stragglers later"; Swanage,
14.10 (7) (B.S.), 10.11, female (M.P.). S. WILTSHIRE. Cholderton,
15.10. BERKSHIRE. Caversham, 25.7. N. HAMPSHIRE. Sparsholt,
14.10; Crawley Down, 15.10. W. SUSSEX. Aldwick Bay, "quite frequent
2nd half 10"; Liss, 1.11, female on station glass. E. SUSSEX. Peace-
haven, 9.6; 9, 12, 13, 14, (2).10; 3, 5, 8.11 (9 in all). E. KENT. Ham
Street, 10.11; Dungeness, 12.10 (2) (B.S.). S. HAMPSHIRE. Hayling Is.,
7.10, 12.10. Ashurst, 10, 11 (2), 13.11. N. HAMPSHIRE. Crawley
Down, 15.10. SURREY. Wormley, 11.9; 8.10; Bramley, 2.11, male;
Selsdon, 2.11, female; Leigh, 9.11, male. E. ESSEX. Bradwell-on-Sea,
14.10, female; 23.11, female. WARWICKS. Charlecote, 14.10 (2).
WESTMORLAND. Beetham, 5.11, female. ISLE OF MAN. Balla-
kaighen, 10.10. CO. CORK (MID). Fountainstown, 5.10, 14.10 (6);
8.11 (2), 10.11 (7), 11.11 (8) (25 in all).

TERPNOMICTA TRIMACULATA Vill. DORSET. Stoborough,
13.6, male, with several *A. ipsilon*.

AGRIUS CONVULVULI L. ISLE OF WIGHT, 26.8, on fence
post near cliff. N. HAMPSHIRE. Micheldever, 26.8. E. SUSSEX. Peace-
haven, 12.7. N. ESSEX. Thaxted, 15.8, with many *A. gamma*. S.
LANCS. Speke, 28.8, at rest.

ACHERONTIA ATROPUS L. E. KENT. Preston Hall Hospital,
Maidstone, 5.7, fresh. CO. CORK (MID). Fountainstown, 15.10.

HYLES GALLII Rot. S. ESSEX. Bradwell-on-Sea, 5.8.

HIPPOTION CELERIO L. S. HANTS. Sway, 10.11. W. SUSSEX.
West Wittering, no exact date. CAMBS. Waterbeach, 12.11, at house
lights.

CLOSTERA ANACHORETA D. & S. E. KENT. Dungeness, 18.8,
male (E.H.W.).

EUROIS OCCULTA L. S.E. YORKSHIRE. Muston, nr. Filey,
19.8.

MYTHIMNA ALBIPUNCTA D. & S. S. DEVON. Dittisham,
4.9, male. DORSET. Swanage, 23.9 (P.J.B.), 26.9, 27.9 (4) (D.G.D.),
20.9 (R.B.). E. SUSSEX. Peacehaven, 9.10, 11.10; Houghton Green,
13.10; Eastbourne, Sept. or Oct., one (M.H.). E. KENT. Broughton-u-
Blean, 13.10, 14.10. W. NORFOLK. Beachamswell, 14.10.

MYTHIMNA VITELLINA Hübner. W. CORNWALL. Poldhu, 23.9,
25.9; Perranporth, 9.10. S. DEVON. Malborough, 26.10. DORSET.
Stoborough, 9.10 (2), 11.10 "stragglers later". Swanage, 14.10 (9) (B.S.);
20.10 (R.B.); Studland, 22.10; Portland, 23.10, female, fertile ova; Char-
mouth, 10.10. S. WILTSHIRE. Edington, 13.10. S. HANTS. Southsea,
10.10; Hayling Is., 11.10, 12.10 (2), 14.10 (2), 16.10, 1.11, 9.11 (8 in all).
N. HANTS. Micheldever, 10.10, 12.10, 14.10; Sparsholt, 11.10, 25.10,
10.11. ISLE OF WIGHT. Freshwater, 11.11. W. SUSSEX. Findon, 9.10,
15.10 (7), 26.10, 31.10 (10 in all); Aldwick Bay, 14.10, 21.10, 23.10. E.
SUSSEX. Houghton Green, 13.10; Birling Gap, 15.10 (3); Peacehaven,
27.10, 2.11, 8.11. E. KENT. Dungeness, 12.10 (6) (B.S.); Sheppey, 15.10.
S. ESSEX. Bradwell-on-Sea, 9.10, 21.10. BERKS. Littleworth, 9.10 (2).
N. GLOS. Southrop, 13.10. WARWICKS. Charlecote, 14.10; Hampton
Lucy, 14.10; Thelford, 14.10. N. LINCS. Gibraltar Point, 14.10. S.E.

YORKS. Muston, nr. Filey, 11.10. CO. CORK (MID). Fountainstown, 18.10, 19.10.

MYTHIMNA UNIPUNCTA Haw. WEST CORNWALL. Poldhu, 23.9; St. Agnes, Scilly, 29.9, 30.9; Perranporth, 12.10, female, 28.10 (2 females), 9.11. E. CORNWALL. Par, 24.10, male, 6.11, male, 16.11, male. S. DEVON. Malborough, 22.10, 26.10. DORSET. Stoborough, 13.10; Swanage, 14.10 (2) (B.S.), 21.10 (R.B.); Studland, 22.10; Charmouth, 10.10; St. Albans Head, 21.10 (2). S. WILTSHIRE. Cholderton, 13.10. ISLE OF WIGHT. Freshwater, 10.11 (10). S. HAMPSHIRE. Ashurst, 13.10, 6.11, 9.11, 10.11 (3); Hayling Is., 13.10, 31.10 (2), 1.11, 2.11, 3.11, 4.11, 7.11 (5), 8.11 (6), 9.11 (3), 10.11 (7), 11.11 (2), 12.11 (3), 13.11 (6), 14.11 (2), 15.11 (6), 16.11 (7), 17.11 (3), 18.11 (2), 19.11 (4), 20.11 (7), 21.11 (7), 22.11 (4), 23.11 (4), 24.11 (3), 25.11 (2), 26.11, 30.11 (2), 1.12, 2.12, 5.12 (95 in all); Petersfield, 4.11; Winchester, 10.11; Southsea, 6.11 (2), 7.11 (3), 8.11 (2), 9.11 (2), 10.11, 11.11, 12.11, 13.11 (2), 14.11, 15.11, 16.11 (4), 21.11 (21 in all); Titchfield Haven, 1.11 to 24.11 (c. 12 in all). W. SUSSEX. Rogate, 13.10, 25.10, male, 7.11 (worn male), 11.11, 21.11, 3.12; Findon, 31.10, 8.11. Aldwick Bay, 5.11, 6.11, 24.11. E. SUSSEX. Peacehaven, 12.10, 30.10, 31.10 (2), 2.11 (5), 4.11, 6.11, 7.11, 8.11 (8), 9.11 (5), 10.11 (2), 11.11 (2), 12.11 (1), 13.11 (2) (32 in all); Birling Gap, 15.10 (2 at sugar); Eastbourne, 2.11 (2), 10.11 (2), 11.11, 12.11 (2), 13.11 (M.W.); 5.11, 6.11 (S.P.); Houghton Green, 7.11, 8.11. E. KENT. Boughton-u-Blean, 8.11, female, 10.11, male, 11.11, female, 12.11, male, 13.10, 27.11, female (6 in all); Westbere, 6.11; HamStreet Village, 10.11 (5). W. KENT. East Malling, 8.11. SURREY. Selsdon, 14.10 with 61 *P. meticulosa* and 20 *A. gamma*; Horsell, 1.11; Oxted, 14.11. S. ESSEX. Bradwell-on-Sea, 7.10, 12.10, 26.10 (2), 29.10, 31.10 (5), 1.11 (2), 2.11, 4.11 (2), 5.11, 7.11 (2), 8.11 (4), 9.11 (5), 10.11, 11.11 (5), 14.11 (3), 16.11, 17.11 (4), 18.11 (5), 19.11, 21.11, 23.11. BERKS. Littleworth, 11.10; Caversham, 7.11. E. SUFFOLK. Walberswick, 10.11. NORTHAMPTONS. Deans Hanger, 12.10; Marton, 26.10. N. GLOS. Oakridge, 13.10. MONMOUTHS. Usk, 12.10. WARWICKS. Charlecote, 9.11, female, 11.11, female. WEST-MORLAND. Beetham, 11.11, males. ISLE OF MAN. Ballakaghien, 4.11, 5.11, 6.11, 9.11. WEST LoTHIAN. Winchburgh, 20.9, female. HEBRIDES. Isle of Canna, 11.11, found in house after incessant gales. CO. CORK (MID). Fountainstown, 13.10 (24), 14.10 (18), 15.10 (6), 16.10 (3), 17.10 (2), 18.10 (2), 19.10 (2), 20.10 (13), 21.10 (2), 22.10, 23.10 (3), 24.10 (5), 25.10 (3), 29.10 (7), 30.10 (3), 1.11, 3.11 (2), 4.11 (3), 5.11, 9.11 (5), 10.11 (3), 11.11 (19) (114 in all).

MYTHIMNA LOREYI Dup. DORSET. Swanage, 14.10 (B.S.).

TRIGONOPHORA FLAMMEA Esp. DORSET. Swanage, 14.10 (2, females) (B.S.).

SPODOPTERA EXIGUA Hübner. N. HANTS. Lindford, nr. Borden, 28.10. W. SUSSEX. Aldwick Bay, 23.11. CO. CORK (MID). Fountainstown, 15.10 (2).

SPODOPTERA LITTORALIS Bdv. DORSET. Stoborough, 13.10, worn. S. HANTS. Lymington, 13.10, worn.

ATHETIS HOSPEs Frr. W. CORNWALL. The Lizard, 27.8.

HELICOVERPA ARMIGERA Hübner. DORSET. Stoborough, 10.10; Swanage, 20.10 (2). W. KENT. Aylesford, 14.10 (♀). E. KENT. Boughton-u-Blean, 13.10, 21.10; Rainham, nr. Gillingham, 14.10, at a street lamp. SURREY. Purley, 13.10. N. GLOS. Oakridge, 12.10. BERKS. Littleworth, 13.10. OXON. Steeple Barton, 13.10, 15.10, both dark form, with 150 *P. meticulosa*, and *A. ipsilon*, *P. saucia*. HEREFORDS. Ross-on-Wye, 15.10. CO. CORK (MID). Fountainstown, 24.9.

HELIOTHIS PELTIGERA D. & S. DENBIGHs. Glan Conwy, 11.10. S. WILTSHIRE. Edington, 13.10. DORSET. Swanage, 21.10 (R.B.). W. SUSSEX. Findon, 12.10. E. SUSSEX. Peacehaven, 14.10.

CHRYSOIDEIXIS CHALCITES Esp. E. INVERNESS. Insh, nr. Kincaig, 10.10, on a house wall.

TRICHOPLUSIA NI Hubner. CO CORK (MID). Fountainstown, 13.1.

DIACHRYsia ORICHALCEA F. N. GLOS. Southrop, 14.10. CO. CORK (MID). Fountainstown, 20.10.

Microlepidoptera in Scotland, 1978

By A. M. EMMET *

My wife and I visited Scotland between the 19th of July and the 9th of August 1978. Our entomological objects were as follows: —

- (1) To study the life histories of certain northern species of Microlepidoptera so that these may be described in forthcoming volumes of MBGBI.
- (2) To study the nepticulids feeding on *Rubus chamaemorus*.
- (3) To study *Stigmella nanivora* (Petersen), a form or species of uncertain status feeding on *Betula nana*.
- (4) To look for evidence of the presence in Scotland of *Etainia albimaculella* (Larsen), a north European species feeding on *Arctostaphylos uva-ursi*.
- (5) To make as many vice-county records as possible of leaf-mining lepidoptera, continuing the work of previous visits in 1972 and 1975.

Since the purpose of our visit was to collect information rather than specimens, I shall not give the usual travelogue but deal with the results achieved species by species, introducing discussion where necessary. Our precise route is of little consequence; we made records in the following vice-counties: — 76, 78, 79, 80, 81, 82, 85, 86, 87, 90, 92, 94, 95, 96, 97, 98, 99, 101, 105, 106, 107 and 108. We also visited North Northumberland (VC 68), one of the least recorded English vice-counties, and made one or two records on our journey north in Nottinghamshire (VC 56) and Mid-west Yorkshire (VC 64). We were accompanied, and greatly assisted, by Mr. E. C. Pelham-Clinton on the 23rd of July and from the 28th of July to the 4th of August, and by Mr. J. M. Chalmers-Hunt from the 28th to the 30th of July. In all, we made 322 Scottish and 27 English vice-county records which are apparently new; these will appear in future volumes of MBGBI or, in the case of the species already described in Volume I, in the proposed supplement which will give over 600 vice-county records made since publication.

NEPTICULIDAE

Ectoedemia argyropeza (Zeller). Although the larva does not appear in the blade of the leaf until October, records can quite easily be made from the ovum, which is laid in a constant position on the side of the petiole of an aspen leaf. The moth's range extends considerably further north than had been supposed, reaching Aviemore (VC 95) and Toomich (VC 96).

Fomoria septembrella (Stainton). This species, which was first recorded in Scotland in 1976 from Midlothian (VC 83) by Mr. K. Bland, was found in five other central Scottish counties. Its principal foodplant in Scotland seems to be *Hypericum pulchrum*.

Etainia albimaculella (Larsen). This species, described by Adamczewski (1947), is quite likely to occur in Scotland, but is particularly difficult to detect. The larva mines a twig and

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petioles of *Arctostaphylos* in late summer and winter, moving in spring into the base of the leaf where it pupates. We spent a whole morning searching bearberry at Tulloch Moor (VC 96) and E.C.P.-C. found a sprig in which the petioles had undoubtedly been mined. The sprig, which was this year's growth, was kept under observation until it withered, but there was no sign of a larva or further feeding. Our timing was wrong; the leaves containing pupae probably drop off the plant in spring, like those containing *Fomoria weaveri* (Stainton) from *Vaccinium vitis-idaea* and the feeding of the next generation of larvae would hardly be noticeable as early as July. It would be well worth the while of a diligent and patient microlepidopterist to search for it in April or May.

Stigmella aurella (Fabricius). Since the larva of this species mines during the winter, it is unable to withstand severe frost and its history in Scotland is one of alternate extension and contraction of range, according to the mildness or severity of the winter. In 1978 we found mines only in one maritime vice-county, namely Kintyre (VC 101).

S. splendidissimella (Herrich-Schäffer) and *S. tengstroemi* (Nolcken). I have previously written that though we have a nepticulid feeding on cloudberry (*Rubus chamaemorus*) in the Highlands of Scotland, its identity is uncertain (Emmet in Heath *et al.*, 1976: 223). During our Scottish visit of 1975, my wife and I collected tenanted mines at two altitudes on Cairngorm (VC 96) and near the Lecht Road (VCs 92 and 94). Several moths which emerged in August, 1975 appeared to be referable to *S. tengstroemi* but were destroyed when a clumsy batman dropped the drawer which contained them. Early in 1976 more adults emerged, this time of two species, one resembling *S. tengstroemi* and the other *S. splendidissimella*. The mystery of the conflicting descriptions of "*S. tengstroemi*" in our literature was now explained, but further doubt was engendered over whether the second species really was *S. splendidissimella*. At the time of collection I failed to observe any differences in larval coloration or mines suggesting that two species were involved and the mines I had pressed included none which were characteristic of *S. splendidissimella*. Mr. E. S. Bradford kindly made dissections and drawings of the genitalia of both sexes of the Scottish "*splendidissimella*" and British specimens from Wicken Fen for comparison; we could find no significant differences. Thus there was an apparent conflict between the evidence of the specimens themselves and their biology.

In 1978 we revisited the exact localities where we had collected in 1975 and now that we knew what to look for, there was no difficulty in separating the mines into two species. Those in the cloudberry growing at 1,600 feet just above the tree-line were *S. splendidissimella*, whereas those on plants growing at about 2,600 feet and above the start of the ski-lift were *S. tengstroemi*. Evidently all the mines I pressed in 1975 were from the higher ground and represented *S. tengstroemi* only.

In both species the ovum is usually laid on the underside of a leaf; thereafter the larvae and mines differ as follows: — *S. splendidissimella*. Larva greenish yellow, head light brown, ganglia greyish; mine a long, rather angular, irregular gallery, mainly with linear frass leaving broad, clear margins, but also with short areas of cloudy or dispersed frass. Cocoon grey-green.

S. tengstroemi. Larva pale yellow, head and ganglia yellow-brown; mine shorter and more contorted, often ending in a small blotch; the frass is at first rather cloudy, filling the gallery, but later is broken-linear, more copious in quantity, leaving only narrow clear margins. Cocoon yellow-brown to brown.

S. tengstroemi, at any rate in captivity, is partially bivoltine, about half the adults emerging in August after a pupal period of two or three weeks, whereas the remainder lie over until the next spring. Whether wild August adults could parent a second generation able to finish feeding before the foodplant dies down is questionable. *S. splendidissimella*, on the other hand, appears to be wholly univoltine in the Highlands.

A long series labelled "*tengstroemi*" in the Tyerman collection (BMNH) consists entirely of *S. splendidissimella*. Likewise, the specimens bred by Threlfall and now in the Dorset County Museum, Dorchester are referable to *S. splendidissimella* (Brown, 1967); Threlfall himself doubted whether they were *S. tengstroemi*. Tutt (1899: 247) considered that there was only one authentic British specimen of *S. tengstroemi*; this was collected as a larva south of Loch Rannoch, Perthshire by Carrington and given to Sang who bred the adult which he later gave to Dr. Mason. I am not aware of the species having been reared in Britain in the hundred years which elapsed between Carrington's specimen and my own.

We found *S. splendidissimella* in two other localities and on three other foodplants. On the 21st of July my wife found its mines on wood avens (*Geum urbanum*) beside the R. Leven at Markinch, Fifeshire. Searching of the area revealed that they were much more plentiful on wild raspberry (*Rubus idaeus*). Then on the 2nd of August E.C.P.-C. guided us to the enclosures at Inchnadamph, West Sutherland (VC 108); these are patches of mountainside fenced off to exclude grazing sheep and deer and consequently supporting rich vegetation. E.C.P.-C. had found vacated mines there on stone bramble (*R. saxatilis*) in the past and we wished to establish their identity. The mines still occurred plentifully and the larval coloration, the mine-form and, later, the colour of the cocoons all indicated that they were *S. splendidissimella*. It is interesting that mines on cloudberry in the same enclosure were, on the same grounds, referable to *S. tengstroemi*.

The validity of *S. tengstroemi* as a distinct species is questioned by continental authors. Borkowski (1975: 506) considers *S. poterii* (Stainton, 1857), *S. tengstroemi* (Nolcken, 1971) and *S. serella* (Stainton, 1888) to be conspecific. Certainly

the adults look alike and the genitalia have not been examined in enough specimens to show whether the slight differences which have been observed are constant. Yet if they are treated as one species on three foodplants, more problems are raised than solved. *S. poterii* feeds on salad burnet (*Poterium sanguisorba*) and is almost entirely confined to chalk and limestone; *S. tengstroemi* is limited to cloudberry on mountains; and *S. serella* to tormentil (*Potentilla erecta*) growing in damp situations amongst heather or long grass. Often two of these foodplants are found growing together on the same ground, but I know of no instance where both plants are attacked. For example, in the Highlands tormentil is sympatric with cloudberry and very much more common; yet diligent searching failed to disclose any feeding on tormentil in the areas where *S. tengstroemi* occurs. *S. serella* does, however, occur on lower ground in the Highlands; indeed, its type locality is in Perthshire. Tormentil and salad burnet grow side by side in the Burren, Co. Clare, yet only *S. serella* is recorded in Ireland. I could cite numerous other instances. It seems that the moth associated with each foodplant is unable (or at any rate disinclined) to transfer to another. Though the mines of *S. poterii* and *S. serella* are similarly formed, those of *S. tengstroemi* are dissimilar. My specimens of *S. tengstroemi* seem marginally larger than those of the other two species. Pending further study the three are best regarded as distinct.

S. dryadella (Hofmann). This was scarce but mines were found at Invernaver Nature Reserve and Eribol (West Sutherland, VC 108), and at Loch Kishorn (Wester Ross, VC 105), the last being a new vice-county record.

S. paradoxa (Frey). It is remarkable that this species which was added to the British list only in 1969 (Emmet, 1970) has already been recorded from 43 vice-counties. This year's records brings the Scottish vice-county total to 11, the range extending as far north as Mid Perthshire (VC 88).

S. betulicola f. *nanivora* (Petersen). I was sent mines in July, 1974 from Inverness-shire, but the larvae were dead on arrival. Since virtually nothing is known of *nanivora* in Britain, I was particularly keen to find tenanted mines. I obtained details of the locality which is on the mountains west of the Alvie Estate, MR NH 859118, with plants scattered thinly over a wider area. Permission is necessary, but willingly granted by the agent. We tramped up on one of the wettest days of a cold and wet holiday and had no difficulty in locating patches of *Betula nana*; some of them have been marked with posts by the botanists. However a long and thorough search revealed larval feeding of *Atemelia torquatella* (Zeller) in plenty, but no sign of the nepticulid. The inference is that *nanivora* is essentially univoltine, feeding in the early autumn, and only producing a summer brood in favourable seasons—a small crumb of information to set against the disappointment of failure in one of our objectives.

Other nepticulids for which new vice-county records

were obtained were *Ectoedemia mediofasciella* (Haworth), *E. pulverosella* (Stainton), *Trifurcula immundella* (Zeller), *Stigmella sorbi* (Stainton), *S. plagicolella* (Stainton), *S. salicis* (Stainton), *S. auritella* (Skala), *S. myrtillella* (Stainton), *S. trimaculella* (Haworth), *S. floslactella* (Haworth), *S. tityrella* (Stainton), *S. perpygmaeella* (Doubleday) (*pygmaeella* Haworth)), *S. hemargyrella* (Kollar), *S. atricapitella* (Haworth), *S. ruficapitella* (Haworth), *S. svenssoni* (Johansson), *S. malella* (Stainton), *S. hybnerella* (Hübner), *S. nylandriella* (Tengström) (*aucupariae* (Frey)), *S. magdalenae* (Klimesch) (*nylandriella* sensu auctt.), *S. crataegella* (Klimesch), *S. betulicola* (Stainton), *S. microtheriella* (Haworth), *S. lapponica* (Wocke) and *S. confusella* (Wood).

INCURVARIIDAE

Records were made of *Phylloporia bistrigella* (Haworth), *Incurvaria pectinea* (Haworth) and *Lampronia oehlmanniella* (Hübner).

HELIOZELIDAE

Heliozela resplendella (Stainton). When the map was printed (MBGBI, I: 303) there were only three vice-county records in Scotland; now there are 16, extending to the north coast at Borgie Bridge, West Sutherland (VC 108).

H. hammoniella (Sorhagen) (*betulae* (Stainton)). First noted in Scotland in the south-west in 1975, this species is now known in nine vice-counties, the most northerly record being at Dallacholish, Argyll Main (VC 98).

LYONETIIDAE

Leucoptera orobi (Stainton). This was recorded in East Inverness-shire (VC 96) as well as in Moray (VC 95), where it is well-known. Both larvae and adults were found and a gap in the knowledge of the life history was filled. The cocoon is spun on a leaf like that of *L. laburnella* (Stainton) and is constructed in a similar manner, each end having a sprung orifice which opens under pressure from within; consequently the sloughed larval skin is extruded from the cocoon on pupation. With *L. lotella* (Stainton) there is no such opening and the larval exuviae are retained within the cocoon.

Paraleucoptera sinuella (Reutti). A thorough search was made of the aspens near Aviemore station where this species used to occur, but no trace of its mines could be found.

Bucculatrix capreella (Krogerus). Mines, free-feeding larvae and cocoons were found near Kincaig, East Inverness-shire (VC 96) and adults were bred. Descriptions were made for MBGBI and West Inverness-shire (VC 97) was added as a new vice-county record.

New vice-county records were also made for *Leucoptera laburnella* (Stainton), *L. spartifoliella* (Hübner), *Lyonetia clerkella* (Linnaeus), *Bucculatrix nigricomella* (Zeller), *B. cidarella* (Zeller), *B. ulmella* (Zeller) and *B. demaryella* (Duponchel).

(To be continued)

Density Related Development in *Andraca bipunctata* (Walker) (Lepidoptera, Bombycidae)

By BARUNDEB BANERJEE *

Density affects the dynamics of animal growth and populations through a process of self-regulation (Chitty 1957). The functional relationship between density and development has been studied in several insects (Beaver 1973; Klomp 1966; Henneberry and Kishaba 1966; Gruys 1970) but not in any tropical species. This paper quantitates the effects of varying density levels of larval instars and fecunds of *Andraca bipunctata* (Walker) on its growth rate. Aspects of the biology of this moth are discussed elsewhere (Banerjee 1970, 1971, 1979).

MATERIALS AND METHODS

Field collected moths were kept in the insectaries under natural fluctuations of light, temperature and humidity. Some of these moths mated and laid eggs. The larvae, pupae and moths that sequentially emerged from these eggs were used in the experiments on density effects.

Moths were kept in densities of 5, 10, 15, 20 and 25 pairs (1: 1 sex ratio) in insectary jars (diameter 30 cm.; height 40 cm.) and the total number of eggs laid by these pairs during an oviposition period of seven days was recorded. Sex wise survival of these moths was noted at intervals of seven and fifteen days.

First to fifth instar larvae and pupae were reared separately in groups of 10, 20, 30, 40 and 50 in insectary jars mentioned earlier on tea leaves provided as food. Larvae and pupae in these containers were examined every third day to record growth, and mortality until 95% of the population could be accounted for. The three day sampling period was decided from a knowledge of the life cycle of the moth. In evaluating density effects of fifth instar larvae, larval duration as well as the weights of pupae that emerged at various larval densities were recorded, while those for pupae, eclosion and sex of moths were recorded.

Each experiment had five replications with a control series having a single larva, pupa or moth depending on the nature of the experiment: all the replicates could not be run simultaneously. Experiments were conducted at room temperature varying between 23°C and 26°C under natural conditions of light.

RESULTS

1. Oviposition

In Table 1 the number of eggs laid at different density levels of the months during an oviposition period of seven days is shown. Although the variability due to individual oviposition within the group and mating effect could not be studied, average oviposition in the groups was definitely lower than that of single (control) pair. Increase in density led to a steady decline in the total and average numbers of eggs, except

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at density level of 25, when oviposition was slightly higher than at 20 pair level: this possibly reflects more of individual variation rather than reversal of group effect. In general, low densities were conducive to high rate of oviposition. Thus during the seven day period, oviposition at density level of 25 pairs was 61% lesser than that at single pair level.

Table 1. Fecundity of *Andraca bipunctata* Walker at different density levels with 1 : 1 sex ratio.

Density level (pairs of moths)	Total number of eggs laid in seven days	Average oviposition per day per female
1	500	71.43
5	1754	50.11
10	3896	55.65
15	4832	46.00
20	5432	38.80
25	7644	43.68

2 Adult survivorship

Survivorship of the male and female moths at various density levels with 1 : 1 sex ratio is shown in Table 2. Moth survival declined with increase in the density, and at all densities, females survived slightly longer than that of males possibly to complete oviposition. Moth survival also declined with time because by the second week, i.e. on the 15th day after starting the experiment, there was on an average a 50% reduction in population at all density levels. Survivorship may therefore depend on an interaction between density level and time.

Table 2. Survivorship of the adult moths of *Andraca bipunctata* Walker at different density levels with 1 : 1 sex ratio.

Density level (pairs of moth)	Numbers surviving on:					
	Seventh day			Fifteenth day		
	Male	Female	Percentage of total moth surviving	Male	Female	Percentage of total moth surviving
10	4	4	80	3	2	50
20	6	9	75	4	3	55
30	9	11	66	7	8	50
40	13	17	75	10	12	55
50	16	18	68	11	14	50

3. Duration of larval development

A measure of the density effect on larval duration may be obtained from the relationship:

$$\text{Density effect} = \frac{\text{Mean duration of grouped larvae}}{\text{Mean duration of single larva}}$$

The ratio computed for different larval instars at various density levels is shown in Figure 1. A ratio of <1.00 indicates no difference in the duration of the developmental stages maintained either in groups or singly, i.e. no density effect whereas >1.00 shows a definite density effect. The effect was significant, though varying, at all density levels and on all developmental stages. At all density levels the effect was most marked on fourth larval instar and least on first larval instars, i.e. the ratio increased.

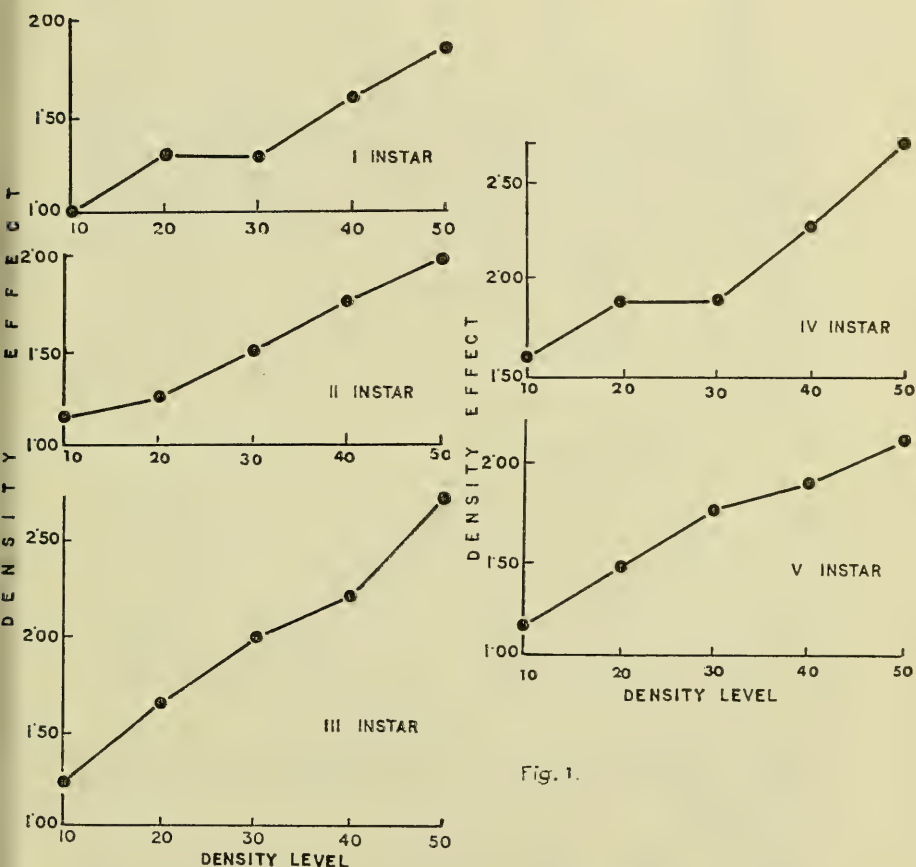


Fig. 1.

Fig. 1. Effect of larval density levels on the duration of larval stages of *Andraca bipunctata* Walker. Density effect is computed as the ratio of means duration of grouped larvae to mean of single larva.

Density levels did not however have any specific effect on larval mortality: the moulting successes in the succeeding larval instars were almost identical at all density levels (Table 3). There was an overall decline in moulting as development progressed but the trend was identical at various density levels.

4. Pupal weight, eclosion and sex ratio

Density levels of fifth larval instars affected the weight of the pupae that emerged in the groups. The ratio of mean group

Table 3. Effect of density on the percentage of moulting by larval instars of *Andraca bipunctata* Walker. Figures shown are the percentage of successful moulting from one larval instar to the next and are not continuous series.

Instar	10	20	30	40	50
Larval density					
Instar 1	95	96	80	83	75
Instar 2	85	87	75	75	70
Instar 3	90	95	80	75	68
Instar 4	80	82	77	75	70
Instar 5	75	70	70	65	57

weight, i.e. weight of pupae reared at various density levels of fifth instars to individual weight decreased linearly with larval density, and at 50 density level the average weight of the pupae was nearly half of that at 10 density level (Figure 2). The correlation between density and weight was highly significant ($\pi = -0.98$; $P < 0.01$).

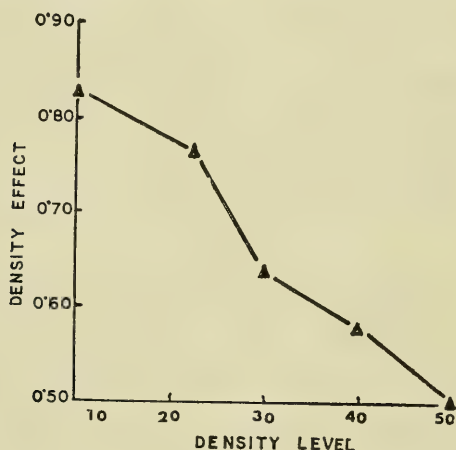


Fig. 2. Effect of densities of fifth larval instars of *Andraca bipunctata* Walker on pupal weight. Density effect is measured as the ratio of mean pupal weight to weight of single pupa. Weight of single pupa is about 240 mg.

Pupae kept at various density levels were followed to the emergence of moths. By and large, the percentage of eclosion was nearly the same at various density levels of the pupae and the sex ratio of the emerged moths did not vary significantly from an expected 1 : 1 sex ratio (Table 4).

DISCUSSION

Mutual interference resulting from high populations in restricted space affects growth, fecundity and pupal weight of lepidopterans (Ullyett 1950; Harrison 1964; Gruys 1970). In *Andraca bipunctata* rising larval densities prolonged duration of the larval stages, and reduced pupal weight, without causing a significant density related mortality at any stage. How-

Table 4. Effect of pupal densities on percentage of eclosion and sex ratio in *Andraca bipunctata* Walker.

Pupal density	Percentage of moth emergence	Average numbers of	
		Male	Female
10	94	4	5
20	93	9	9
30	95	15	13
40	92	18	18
50	92	22	24

ever, in some insects population level above a threshold caused a density related mortality (Stenhaus 1958; Doane 1960), but in *A. bipunctata* this did not become functional possibly because of three reasons. First, in all experiments food supply was adequate for the larvae thus eliminating a source of mortality; second, the containers were regularly cleaned to avoid any bacterial or other contamination that normally causes mortality; third, the level of population was possibly not high enough to induce competition which ultimately causes mortality. A reduction in fecundity and longevity with increase in density, on the other hand, suggests chances of adult survival and reproduction decreases with density. Therefore density above a level will not have any selective advantage for the population.

A differential response to increasing density levels is thus shown by the developing stages of *Andraca bipunctata*. Being inactive the pupae do not react in any way to density levels. In all cases density beyond a threshold has a negative effect on the developmental rates of larval instars and adult fecundity of *Andraca bipunctata*. If the effect is genetic, it could form a basis for selection (Gruys 1970), so that to avoid possible consequence like depletion of resources and consequent density related mortality, field populations of *Andraca bipunctata* will not become dense enough at any site for competition to become functional. This does not however preclude possibilities of a density related mortality from natural enemies which may have a regulatory effect on the populations of *Andraca bipunctata* (Banerjee 1979).

ABSTRACT

Oviposition and longevity of *Andraca bipunctata* Walker decrease with increase in moth density. Duration of each larval instar increases but pupal weight proportionally decreases with the increase in larval density. Eclosion rate and sex ratio of moths are not affected at different pupal densities. Differential responses of the developing stages of the insect to varying density levels suggest density above a threshold has no selective advantage for the species.

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interest, and Tea Research Association for permission to publish this report.

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EMUS HIRTUS LINNAEUS (COL.: STAPHYLINIDAE) AT CANTERBURY IN 1950. — In a collection of Coleoptera taken in the Old Park at Canterbury in May 1950, there is a specimen of the very rare *Emus hirtus* L. which was caught in a jar of meat bait set for *Necrophorus* and other carrion species. This impressive rove beetle is usually taken on or in fresh cowdung, but it is well known that predators are attracted to that medium not so much for the soup as for the maggots it contains, and so its occurrence in carrion is not surprising. This species has been recorded so rarely that this instance should perhaps not go unnoted, particularly in view of the different habitat. — JOHN PARRY, 38 Heather Drive, St. Michaels, Tenterden, Kent.

NOTICE

As we go to press, we hear of the sad news of the death on 10th May, of Dr. H. B. D. Kettlewell. An obituary notice will appear in due course.

Flies, Bees and Butterflies on La Palma, Canary Islands in 1976

By PETER J. CHANDLER *

In late May and early June 1976, I stayed ten nights on La Palma, the most westerly of the Canary Islands when my intention was to compare the dipterous fauna with that on Tenerife, which I had visited in early April 1973. As the total diversity of the Canarian Diptera is relatively low, however, some attention was also given to other insects especially aculeate Hymenoptera and butterflies.

La Palma is a small island of 730 square kilometres, but is extremely rugged, rapidly rising from coastal cliffs to inland mountain ranges and in the broader north there is a large central crater—9 kilometres in diameter, La Caldera de Taburiente, which is a national park. The highest point of the island (2,413 metres) is on the northern rim of the Caldera. The broad leaved evergreen forest type ("laurisilva"), which formerly dominated the more humid northern slopes of the western Canary Islands, was best developed on La Palma but now only a few pockets of high laurel forest remain, dominated by the trees *Ocotea foetens* (Aiton) Benth., and *Laurus azorica* (Seub.) Franco with about 15 other species of evergreen trees and shrubs. Much of it has been replaced with a secondary growth ("fayal-brezal") dominated by the evergreen shrub *Myrica faya* Aiton and tree heather *Erica arborea* L. The more common woodland type is dominated by *Pinus canariensis* Chr. Sm., which forms open woods clothing much of the Caldera and the higher slopes of the mountain ranges even quite close to the southern extremity of the island, which lacks the semi-desert south of the other western islands although xerophytic scrub is present on large areas especially on the western slopes. The lower slopes are more or less intensively cultivated and the laurisilva particularly has suffered by clearance for agriculture. The landscape is cut by many deep ravines (barrancos), which radiate from the Caldera and the ranges of Cumbre Nueva and Cumbre Vieja further south; many of these were once torrents but the water from them has been canalised and all are now dry. The microclimate of the surviving remnants of laurel forest has, however, preserved many of the moisture loving insects. The faunal diversity of the generally more open pine forest is usually lower.

Machado (1977) carried out extensive field work on La Palma in 1975 and was unable to refute the apparent poverty of the carabid beetle fauna compared with the other western islands; he deduced that this was due to the geological youth of most of La Palma, which has several recently active volcanos. This factor appears to have had less effect on other more mobile insects where there are in any case fewer endemic species confined to single islands. The total dipterous fauna of the Canary Islands (Frey, 1936, 1958) is upwards of 800 species; probably at least half occur on La Palma but it is

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difficult to be precise because much revision is necessary of the work of Dr. Elias Santos Abreu, who published considerable descriptive works on several groups of Diptera from 1918 to 1930 (his work on Muscidae, Fanniidae and Anthomyiidae was published posthumously as recently as 1976). Dr. Santos lived at Santa Cruz de la Palma and much of the material he studied originated in this island. Baez (1977) has revised the Syrphidae and reduced the Canarian list to 26 species, to which few additions now seem likely; 23 occur on La Palma and I found 16 during my visit. Theowald (1977) thoroughly revised the Tipulidae of the Canaries, Madeira and the Azores; he recognised 28 Canarian species, of which 17 occurred on La Palma and I found seven of these there. Another recent contribution on Canarian Diptera was by Papp (1977) on the Sphaeroceridae, bringing the Canarian list to 34.

At least 260 of the Canarian Diptera are currently considered endemic to these islands or to the Canaries, Madeira and the Azores (Macaronesia), although this figure is continually undergoing revision. Better knowledge of faunas of adjacent areas is essential before endemism can be certain in the less worked groups. Half of the 28 Tipulidae are endemic, a higher proportion than in most families. In the Syrphidae, eight of the 26 species are endemic (five of them closely related *Eumerus* species) and there are distinct local forms of two other species. François (1970) has shown the endemism of two bombyliids previously thought conspecific with widespread forms. The only well attested case of speciation having occurred within the Canary Islands is in *Promachus*, a genus of large (24-34 mm.) robust asilids where there are five species each inhabiting a different island; they fly in late June to August and I have not met with them.

I collected about 190 species of Diptera on my visit to La Palma, of which Muscidae and Mycetophilidae with 18 species each were the richest families; the latter group were confined to very circumscribed refuges and were hard to find in most localities, although being particularly sought because of my projected revision of the Canarian fungus gnats. The Muscidae are the best represented dipterous family in the Canaries with about 70 species (at least 60 in La Palma, but more than a third are the riparian Limnophorinae which have evidently now declined).

The aculeate Hymenoptera are poorly represented on La Palma compared with the drier parts of the other islands. Ten species of bees and seven of wasps were observed during my visit. Lieftinck (1958) listed 70 species (55 precisely determined) of Canarian bees, of which 14 were recorded from La Palma. Peters (1975) added two species to the Canarian list and one to La Palma. Warncke (1968) increased the Canarian *Andrena* from five to 19, recording four from La Palma, but this genus did not occur during my visit. De Beaumont (1968) increased the Canarian list of Sphecidae to a probable 52 (44 precisely determined), based largely on Guichard's material but only four were recorded from La Palma. Soika (1974)

recorded 16 species of Eumenidae, three of which he considered recent introductions, but only one (*A. fortunatus*) from La Palma. Other groups of wasps have been neglected but records of six species in other families are given by Bischoff (1936), who records *Vespula germanica* (L.), a scoliid and a chrysid from La Palma.

Guichard (1976) tabulated the butterflies known from the Canaries, recognising 26 species and two subspecies of which 20 were listed from La Palma; of these 15 were observed during my visit. The five not recorded were the two *Danaus* spp., *Vanessa atalanta* (L.), *V. cardui* (L.) and *Zizeeria knysna* (Trimen). Since Guichard's summary, the large white and brimstone have been recognised to be endemic Canarian species; according to Kudrna (1975) the *Gonepteryx* on La Palma is a distinct species (*G. palmae* Stamm) from that on Tenerife and Gomera (*G. cleobule* (Hübner)). Kudrna (1973) also followed other recent authors in accepting *Pieris cheiranthi* (Hübner) as a distinct species, supported by larval coloration and biology differing from *P. brassicae* (L.). Manley & Allcard (1970) also recognised the skipper *Thymelicus christi* Rebel & Rogenhofer as an endemic species although Schmidt-Koechl (1971) considered it conspecific with *T. acteon* (Rott.) in his comprehensive account of the butterflies of Tenerife. There are thus 27 species of butterflies on the Canary Islands of which seven are endemic as are the Canarian subspecies of three others.

I stayed in the main town, Santa Cruz de la Palma, situated centrally in a wedge of low ground on the east coast with hills rising steeply behind and with the aid of a hired car it was possible to reach most parts of the island. On my arrival it was cloudy as it was to be for most of my stay, but there was little rain and the clouds often cleared to provide sunny spells, the weather on higher ground being especially changeable.

On the first morning, I followed the tortuous road to the north of the capital, initially investigating a dry ravine at the foot of a scrub covered hillside south of the La Galga tunnel. The butterflies *Pieris rapae* (L.), *Maniola jurtina hispulla* (Esper) and *Pararge xiphioides* Staud. were frequent and a few *Thymelicus christi* and *Cyclirius webbianus* (Brullé) were seen. The bees *Lasioglossum viride unicolor* (Brullé) and *L. laetum* (Brullé) were here at flowers and *Bombus terrestris canariensis* Pérez were common; these three species were found in most relatively open localities visited. *B. t. canariensis* is a very distinct race—mainly black with a white tail and is the only *Bombus* known in the Canary Islands. Among the Diptera, *Thereva occulta* Beck. was alighting on rocks when the sun broke through; the Orthoptera parasite *Stomorhina lunata* (F.) was numerous here and in similar localities. Flowers attracted the common European hoverflies *Episyrphus balteatus* (Deg.), *Sphaerophoria scripta* (L.), *Meliscaeva auricollis* (Mg.) and *Eristalis tenax* (L.) and the endemic *Melanostoma incompletum* Beck. The small dolichopodid *Chrysotimus varicoloris* Beck. was numerous running over foilage of bushes. In shady spots some flies characteristic of

the laurisilva occurred, e.g. *Euleia separata* (Beck.), *Hebecnema rufitibia* Stein, *H. fumosa* (Mg.) and *Sapromyza insularis* Beck. (the three latter were frequent in such places throughout La Palma).

In the afternoon I proceeded to the laurel woods at Los Tilos but the weather deteriorated and rain began at 4.0 p.m. Insects were sparse, although some typical species were collected including a few Tipulidae and Mycetophilidae, *Asteia amoena* Mg., *Drosophila pallida* Zett., *Hylemya latevittata* Stein, *Helina obscurisquama* (Stein) and *Fannia pubescens* Stein. A female *Sylvicola* (Anisopodidae — family first recorded from the Canaries on *S. fenestralis* (Scop.) by Baez (1977)) was found.

On the following day, 26th May, I went south and made a foray on the south-west slopes of the Montaña del Fuego Las Indias. Overgrown fields containing much *Opuntia* graded into pine scrub and a large variety of flowers were present. *Pieris rapae* was seen and the lycaenids *Lampides boeticus* (L.) and *Aricia cramera* (Eschscholtz) were numerous. The small bombyliids *Cyrtosia canariensis* Engel and *Geron hesperidum* Frey and the syrphids *M. auricollis*, *Scaeva pyrastris* (L.) and *Syritta pipiens* (L.) occurred at flowers; *Sphaerophoria scripta* was abundant. The silver haired *Thereva frontata* Beck. was settling on volcanic ash and several of a slender brown *Thereva* like a small *occulta* were taken. The many small acalypterates included several tephritids (among them an *Ensina*, probably *decisa* Woll. only hitherto known from Madeira) and *Pherbellia argyrotarsis* (Beck.). *Musca vitripennis* Mg. and *Helina duplicata* (Mg.) were common and a few *H. clara* (Mg.) were caught; *Dilophus minor* Beck. was abundant here and in many other scrubby places in and near pine forest — it was the only bibionid seen in La Palma while my visit to Tenerife, being earlier, also produced the other two Canarian bibionids.

Then returning via Fuencaliente, I stopped briefly on open windswept ground near the Volcán de San Antonio. *M. j. hispulla* and *Eristalis tenax* were flying and seven species of Tephritidae (including *Sphenella marginata* (Fall.) not seen elsewhere) were swept but little else was about.

The east slopes of the Montaña del Fuego north of Fuencaliente support open pine woods interspersed with cultivation, where a short stop produced little of note. *Metasyrphus corollae* (F.) and the tephritid *Oedosphenella canariensis* (Macq.) were first found. Where low pine foliage touched the ground, it provided a moist spot harbouring a few of the mycetophilid *Macrocrea incompleta* Beck.

On 27th May, I took the northern route again, continuing past Barlovento until the Garafia road became a dirt track, where rather degraded mixed forest was sampled in slight rain. Sweeping heather produced several species of mycetophilids and two females of *Callomyia dives* Zett. (Platypezidae) previously known from Tenerife under the name *fortunata* Lw. The syrphids *M. incompletum*, *M. auricollis* and *M. corollae*

were seen; most other Diptera were in common with Los Tilos but a single example of the beautiful tephritid *Orotava caudata* (Beck.) was swept up. As no woods worth investigating remained in the entire stretch from Barlovento through Los Sauces, I returned to Los Tilos where I concentrated on the Barranco del Agua, a narrow deep gorge adjacent to the laurel forest, which contained some stagnant pools. Several *Tipula rufina* Mg. were flying, chironomids and psychodids were numerous, a few dolichopodids (*Sympycnus*, *Hercostomus* spp.) and mycetophilids occurred as did *Thaumalea subafricana* Beck. and *Dicranomyia* spp. but in general the catch was disappointing.

In late afternoon, I stopped at the village of La Galga and took the route prescribed by Bramwell & Bramwell (1974), i.e. the steep track alongside the water conduit, following the base of a cliff and eventually reaching the mature laurel forest of Cubo de la Galga which fills the floor of a narrow valley hemmed in by hills on three sides. It was too late in the day to produce much of interest but *Suillia oceana* (Beck.) and *Euleia separata* (of the shining black form — all others seen were brown variety "flavicollis") were taken. *Aulacigaster leucopeza* (Mg.), which Baez (1977) added to the Canarian list, was frequent and it was decided to return to this locality on a more propitious day.

On the fourth day I travelled on the southern route through Fuencaliente and took the road north on the west side of the Cumbre Vieja, where it traversed rugged country lightly wooded with pine. The first stop was made near El Charco, where a dry flowery gulley crossed the road adjacent to pine forest. The flowers here attracted the orange bodied syrphid *Chrysotoxum triarquatatum* Macq. and the robust *Tachina canariensis* Macq., which resembles our *T. fera* (L.) in coloration (except for a narrower median stripe on the abdomen) but is of the build of *Nowickia ferox* (Panzer.). *S. pyrastris*, *E. balteatus*, *M. auricollis* and *E. tenax* occurred and the butterflies *C. webbianus* and *Vanessa indica vulcania* (Latreille & Godart) were seen. The black larvae of a *Cionus* weevil were conspicuous on foliage of *Scrophularia glabrata* Aiton.

Proceeding northwards via Los Llanos de Aridane, I followed the tortuous route through the banana plantations of the Barranco de las Angustias where many *Anax* dragonflies were on the wing and made another stop in an arid partly cultivated area 2 km. north of the viewpoint of El Time. Butterflies were numerous here along a dry ravine with shrubby vegetation, especially *P. rapae*, *A. cramera* and *M. j. hispulla*; several *Colias crocea* (Geoff. in Fourcr.) and a single *Pontia daplidice* (L.) were seen. Only ten species of Diptera were collected but these included seven Syrphidae, *E. balteatus*, *S. scripta*, *S. pipiens*, *Myathropa florea* (L.) var. *nigrofemorata* Santos, *Ischiodon aegyptium* (Wied.) and two of the endemic *Eumerus* species (*latitarsis* Macq. and *purpureus* Macq.) which settled on stems of the prolific *Opuntia*.

(To be continued)

Notes and Observations

CATERPILLARS FEEDING ON BUDDLEJA DAVIDII. — I refer to the latter part of B. J. Lempke's note (1978, *Ent. Rec.*, **90**: 252) under the above heading. In this he records the laying by *Celastrina argiolus* L. on the flower buds of this plant, but only one pupa resulted from the six ova laid. Usually, in these misplaced layings, no larva reaches the second instar. I am quite certain that this is a phenomenon that occurs far more frequently than is generally realised. After all, when searching for ova, it is the recognised foodplants that are examined, so that the chances of finding misplaced ova are minimal. In Kenya I know of two *Charaxes* species which frequently lay on plants on which the hatchling larvae feed but fail to thrive, dying without moulting — *C. lasti* Gr. Sm. on *Afzelia quanzensis* (Caesalpinaceae) and *C. brutus* Cr. on *Melia azedarach* (Meliaceae) — both plants closely allied to the normal foodplants of the species. Strangely enough, half grown larvae of *brutus* transferred to *azedarach* complete their development successfully. Is some trace element, vital to the hatchling larvae, absent from the substitute foodplant, or is something lethal present? — D. G. SEVASTOPULO, F.R.E.S.

ELACHTERPA UNISETA COLL. (DIPT.: CHLOROPIDAE): A CORRECTION, AND FURTHER RECORDS. — In my note on this until recently very little-known fly (*antea*: 210), I unfortunately overlooked a paper by Dr. J. W. Ismay (1975, *Ent. mon. Mag.*, **111**: 102-103) wherein he redefines the characters of the species (which prove in part different from those originally given), and cites records from Germany and Hungary, and in Britain from Orford, Suffolk (3 exx. in coll. B.M.N.H.). He also discovered colonies in two Surrey localities, Virginia Water and Frensham Little Pond, the latter one being very populous; and confirms its association with waterside vegetation — usually *Phragmites*. My sole excuse for passing over this work is the fact that the annual index to the journal in question has not been issued since 1961, making the search for possible references highly laborious and time-consuming. To set the record straight, and despite the reservations expressed in my note (all too necessary as it turns out) I feel obliged in fairness to Dr. Ismay — who is doing excellent and much-needed work on the Chloropidae — to call attention to his valuable paper. As for the present species, its status in our fauna has been completely transformed in the space of a few years by his researches.

Dr. Ismay has four records of *E. uniseta* that have accrued meanwhile (all of single specimens) which he kindly invites me to publish, as follows: Old Slade Reserve, Bucks., ♀, 19.vii.70, open ground by gravel pits, and Leckford Reserve, Hants., ♂, 18.iii.73, in sedge tufts, both by P. J. Chandler; Cringleford, Norfolk, ♂, 9.xi.75, J. W. Ismay; Walberswick N.N.R., Suffolk, ♂, 15.iv.76, in grass tussock, A. G. Irwin. — A. A. ALLEN.

THE PORTLAND MOTH: *OCHROPLEURA PRAECOX* (L.) IN NOTTINGHAMSHIRE. — During a recent visit to the Sheffield Museum I noticed a few lepidoptera in the “new acquisitions” cabinet. Among those shown was a specimen of the Portland Moth with a data label — “Clumber 14.8.78, Fred Harrison”. Whilst there have been previous Derbyshire records I believe this may be the first from Nottinghamshire. The specimen exhibited was significantly smaller and paler with more intense markings, than those I have seen on the Dorset coast. — P. J. BAKER, Mount Vale, The Drive, Sandhills Lane, Virginia Water, Surrey.

Practical Hints — June

Overwintering the eggs of the High Brown Fritillary (*Argynnis adippe* L.) can present problems, but I have found the most successful way is to keep them in a refrigerator. Most of mine were laid on the flowers of red valerian (*Kentranthus ruber*), which had been put into the laying cage for the female to feed from. The petals bearing eggs were plucked out each evening, and trimmed off close to the egg with a sharp knife and left to dry. After about a month, when the small larva had matured inside the egg, the eggs were sealed in a small plastic box and placed in a fridge. They were then left there till early the following March, when it was noticed that several larvae had hatched, though the temperature had been kept at about 38°F. However, nearly all the larvae hatched about a week after removal of the eggs from the fridge. Some petals with eggs attached were not trimmed, and though left in the fridge, mould developed and none of these eggs hatched (REVELS).

The last week in June is the best time to collect larvae of the Butterbur (*Hydraecia petasitis* Doubleday). Make a small tear in the leaf to separate the top of the main petiole. If there is a brown stain inside, a larva will be present in the root, which should be dug up and buried in wet peat. Collect the pupa from the peat at the end of July (WILD).

Agrotis ripae Hbn. is one of the most beautiful agrotids, though unfortunately the lovely delicate speckling on its wings fades after a time. The ground colour and speckling match the sand on which it rests, where I assume it sits flat and shuffles its wings so that some grains trickle onto them and obscure its outline. The red sands at Dawlish where it feeds on sea convolvulus produce the most striking form; the white sands of West Wittering produce the palest insects I know; and the white and black speckles of the sand in Cornish coves has a lovely form to match. The latter form is repeated in the Scilly Isles (but mine only from Bryer) and at Roslare Strand in Ireland, but I have not found it on the west coasts of Ireland or Scotland though it is common on the east coast both north and south of Montrose. I can tell at once if *ripae* is likely to be present as it requires special conditions — ordinary sand-dunes are not sufficient — what it needs are its special food-

plants, such as sea rocket, growing clear of the marram and in pure sand and preferably between the dunes and the high water mark. *Ripae* comes freely to light. Pick out a hollow in the dunes where there is shelter from the wind and do not use a sheet. They will sit quieter on the bare sand. It also comes to sugared marram heads (DEMUTH).

The Rosy Marbled (*Elaphria venustula* Hbn.) flies freely from dusk till an hour after dark above its foodplant *Potentilla* where this grows along the verges of short turfed rides. It also comes to light on a sheet. Tilgate and Limpsfield are good localities (WILD).

The larvae of several species of plume moth may be found early in June. Those of *Pterophorous galactodactyla* D. & S. feed on the underside of the lower leaves of burdock. The feeding site is usually easily seen as many larvae often occur together, each eating small holes in the leaf such that the plant takes on the appearance of having been peppered with a shot-gun. I have more frequently found the larvae on plants growing in more open situations. The larvae of *Capperia brittaniiodactyla* Greg. feed singly, but also betray their presence by their feeding habits since they prefer their leaves to be slightly wilted. This they achieve by eating small holes in the stems of the wood sage plants on which they feed; this causes the whole tip of the shoot to wilt and droop over. The larvae rest among these wilted leaves where they are well camouflaged. I have found the larvae in reasonable numbers among the clumps of sage growing on the shingle at Dungeness. Searching for them is hard work, but once 'ones eye is in', the plants bearing wilted shoots are easily spotted even in woods or on the downs where the plants are often surrounded by herbage. A third plume species, the very common *Stenoptilia pterodactyla* L. is not often seen as a larva because it does not betray itself by its feeding habits. Its hostplant speedwell, *Veronica chamaedrys* is common in lanes, the edges of fields and on the downs where at the end of May the very well camouflaged larvae feed on the flowers. I have found that a simple method to collect these is to use the plastic lid of a sandwich box as a small beating tray. After selecting a suitable clump of the foodplant, bunches of the flowers may be carefully bent over the lid and combed with the fingers to dislodge the larvae which fall into the lid (WATKINSON).

Several nepticulid larvae are early feeders and their mines should be collected in June, at any rate in the south of England. The following species are univoltine; they should be reared in flower-pots containing earth or peat covered with damp sphagnum and left out of doors until April: *Stigmella paradoxa* (Frey) on hawthorn; *S. sorbi* (Stt.) on rowan; *S. lapponica* (Wocke) on birch; and *Ectoedemia pulverosella* (Stt.) on apple. Bivoltine species which should be collected early include *Stigmella hemargyella* (Kollar) and *S. tityrella* (Stt.) on beech; *S. hybnerella* (Hbn.) on hawthorn and *Johansonia acetosae* (Stt.) on sorrel. The timing of leaf-miners is

PLATE IV



B. C. S. WARREN

September 1953

controlled by temperature and they are rapid feeders. If the season is advanced, many other species will be missed unless looked for in good time (EMMET).

In late June, beat hedgerow spindle bushes for larvae of the local *Ypsolopha mucronella* Scop. This species is by far the largest of the genus *Ypsolopha*, but its larvae in common with others in the genus, will wriggle violently if disturbed on the beating tray, and will quickly disappear over the edge if not tubed. The best way to betray their presence on the tray is to blow on the plant debris whilst at the same time keeping a sharp eye out for any movement. The larvae are best caught by positioning an empty tube in their path as they wriggle, and they will enter this without the need for any further manipulation. Larvae of the Scorched Carpet (*Ligdia adustata* D. & S.), will probably be beaten out at the same time (WATKINSON).

OBITUARY

Brisbane Charles Somerville Warren (1887-1979)

With the passing of B. C. S. Warren on the 22nd January 1979 at the great age of 91, the world of entomology and in particular that of lepidopterists, has lost one of its most eminent personalities who, though one of the older generation was a real *savant* in every sense. His name will always be linked with that large genus of mountain-loving butterflies, the *Erebias*.

Born at Fermoy in Ireland on the 29th March 1887, he left that country for England in 1894 soon after the death of his father, the Dean of Cork. He was educated at St. Paul's School, and in 1901 at the age of 14, visited Freiburg. He tells how his love of opera brought him into contact with one of its leading baritones, a Herr Junior who was a keen butterfly collector and used to take him on trips into the Black Forest. It was there that the first sparks were kindled for his lifelong interest in, and study of, these insects. During the first twelve years of this century, he divided his time between England and Germany, and in 1912 went to live in Switzerland, returning to this country in 1919. After his marriage in 1922, Warren went to reside at Lausanne where he remained till 1934 when he returned to live permanently at Folkestone, except for five years during the second world war. It was during his residence in the Swiss Alps, that he built up a very extensive collection covering a wide field both in Europe and Asia, though he himself did not cast his net outside Europe. He travelled almost annually till the late 1950s to some rewarding locality, chiefly in his beloved Alps, but Corsica and the Pyrenees were also among his favourite haunts. This fine accumulation of specimens, all meticulously labelled, has now been housed as part of the National Collection at South Kensington, a most valuable and generous addition under his will.

He became a fellow of the (then) Entomological Society of London as far back as 1908 and may well have been its father at the time of his death, and it was to the Transactions

of that society that he contributed some of his most important papers. In *Nota Lepidopterologica* for 1978, is published a complete list of 112 notes and larger contributions, starting in 1910 with a paper in *The Entomologist's Record* entitled "Some Butterflies of the Black Forest and Rhine Plain". He also wrote in foreign journals, but it is probable that he published more in *The Record* than in any other journal.

It was in 1926 that his first major work appeared in the Transactions of the Entomological Society of London. This was a Monograph on the Hesperidae (Skippers), mainly the Palaearctic series, and was inspired by an article by Reverdin in 1912 on the same group of insects. It consisted of 160 pages with many fine photographs of the perfect insects, but also of their genitalia which was then quite a novel approach. The excellence of this large paper at once won Warren international repute. But it was ten years later, in 1936, that appeared the large book comprising over 400 pages, *The Monograph on the genus Erebia*, which he compiled while living in Lausanne and was sponsored by the British Museum (Nat. Hist.). In this, he tells how indebted he was for much valuable help and advice from Prof. Reverdin of Geneva, and from Dr. Stracey of Diemtigen. Again the text and superb photography were carried out in the same meticulous and scholarly manner which characterised all his research. Though much more has been learnt about the *Erebias* in the last forty years, this great work is still a classic and brought him further renown as well as a lasting memorial to his name as one of the great entomologists of this century.

In 1944, he turned his attention to the smaller fritillaries with another most erudite treatise on the genus *Boloria*, again in the Transactions of the Royal Entomological Society, with a second part on some of the Asiatic representatives which appeared in 1955. During the subsequent 15 years he was mainly engaged on the study of the androconial scales, chiefly among the Pierids. In 1961, he published in a Norwegian journal, a paper on *Pieris napi* in Scandinavia when he erected a new species *Pieris adalwinda*. Some of his conclusions in this field were somewhat controversial and possibly not generally accepted, but nevertheless he laid the foundations for much more research. He never fell in with or took kindly to some modern methods of separating species, such as on their respective chromosome numbers. In spite of failing health and a partial amputation of his left leg in the 1960's, he carried on his research indefatigably and with the same attention to detail, especially in his photographic work, and only gave this up in 1971 with a final note on *Pieris pseudorapa* Verity.

Handsome, tall, of upstanding stature and of distinguished appearance, Warren was of most genial and kindly disposition always ready to receive and help those equally keen on the lepidoptera of Europe and the British Isles. A very fine figure has been taken from us and he will indeed be missed. All sympathy goes out to his widow and daughter.—C. G. M. DE W.

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THE MICROLEPIDOPTERA OF ESSEX. — I am currently engaged on compiling a list of the microlepidoptera of the county on behalf of the Essex Naturalists' Trust and the Essex Field Club; it is proposed to publish the list in 1979. I should therefore be grateful if collectors who have not already done so will send me their records. Localities even for the common species help to complete distribution patterns. Entomologists who are planning their season's collecting should bear in mind that Essex is rich in microlepidoptera (over 1,000 species of "micro" are already in the list) but almost devoid of microlepidopterists and hence seriously underrecorded. They could profitably make 1978 their "Essex year". — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, 30.iv.1978.

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WEALDEN AREA — Records wanted of all groups of insects, especially Lepidoptera, Coleoptera, Hymenoptera and Orthoptera from East Sussex and Kent, for inclusion in the publications of the Wealden Entomology Group. All records duly acknowledged and information supplied on request. — MARK HADLEY, 7 Beverington Close, Eastbourne, East Sussex BN21 2SB.

EXCHANGES AND WANTS

Wanted. — Pierce & Metcalfe; The Genitalia of the Tineidae. — *Dr. F. H. N. Smith*, Turnstones, Perrancoombe, Perranporth, Cornwall, TR6 0HX.

For Sale. — Honda £200 generator, as new, used for part of last season only. Price £160. Robinson trap complete with 125 w. choke, etc. £20. — *D. O'Keefe*, 55 Camden Road, Bexley, Kent. Crayford 523594.

Wanted. — I am preparing a one-volume edition of the entomological works of Vladimir Nabokov, and would greatly appreciate information about papers, notes, or other works by Nabokov, with any entomological content, which were published in Great Britain or Europe. His papers in *The Entomologist* 53(1920): 29-33; 64(1931): 255-257, 268-271; and 81(1948): 273-280 have already been recorded. For the introduction, I should be grateful for correspondence with persons (other than the family) who were acquainted with Nabokov in this aspect of his work.

Help Wanted — with records of British Gelechiidae for publication in Vol. 4 of "Moths and Butterflies of Great Britain and Ireland". Vice-County records only wanted at this stage. A complete check-list will be supplied to those willing to help. If you have any records for this group, please write to: Paul Sokoloff, 4 Steep Close, Orpington, Kent BR6 6DS.

Wanted — Records of daily totals in traps of *Agrotis segetum* for as many past years as available. — Rosemary Kay, Ent. Section, National Vegetable Research Station, Wellesbourne, Warwick.

Wanted — Records of Blair's Shoulder-knt, *Lithophane leautieri*. Please give dates, localities, numbers, and any details of larval foodplants. This species seems to be rapidly colonising Britain and it is planned to document the colonisation in as much detail as possible. — Dr. D. F. Owen, 66 Scraptoft Lane, Leicester LE5 1HU.

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 J. M. CHALMERS-HUNT, F.R.E.S.

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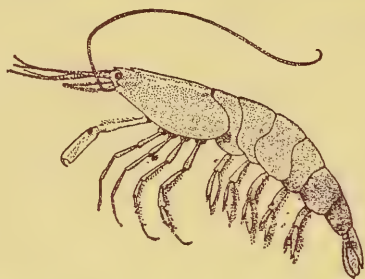
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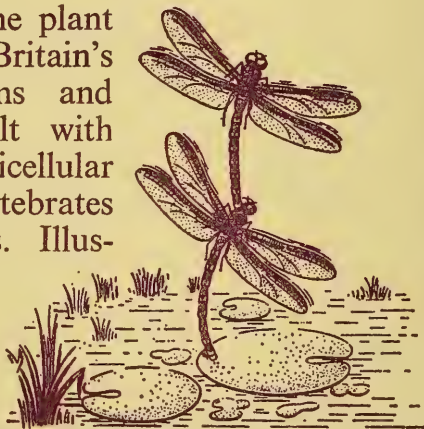


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Coleoptera in Flood Refuse in East Kent Coastal Floods

By JOHN A. PARRY, M.P.S.*

During the extraordinarily high tide of 11th January, 1978, the shingle wall protecting the Cinque Ports Golf Course at Deal was overtopped and in places severely reduced. The land was inundated with sea-water for some days, and small lakes persisted for a month.

The course was visited by myself on 15th January and again in the next week by myself and Mr. Peter Hodge of Lewes, with a view to investigating the beetle content of the flood refuse thrown up on the greens and tees. It was thought that this opportunity to observe total-population samples of coastal sandhills and shingle beds would be very nearly unique, and should not be missed.

The Cinque Ports course is accessible from the north via the toll-gate serving the Sandwich Bay residential estate, or from the south at Sandown Castle, Deal. The refuse examined at these two approaches was broadly similar in content, but there were exceptions. Some species were extremely localized in small areas of refuse, and it was evident that the flooding did not mix up the populations as much as one would expect.

In most samples the dominant single species was *Metabellus truncatellus* L., even outnumbering *Tachyporus hypnorum* F.; it was run a close second by *Kissister minimus* Aubé in some places and by *Dyschirius globosus* Hbst. in others. With sundry small Aleocharinae and *Tachyporus* species these constituted about two-thirds of the beetles present. The remaining third consisted chiefly of Carabidae and Staphylinidae; apart from some numbers of *Helophorus*, *Phytomus*,¹ *Chaetocnema* and some Coccinellidae, other families were poorly represented.

The Carabidae were made up as follows: *Notiophilus substriatus* Wat. (many); *N. aquaticus* L. (few); *N. germinyi* Fauv. (few, south end); *Leistus ferrugineus* L. (two, north end); *Nebria brevicollis* F. (few); *Dyschirius salinus* Schaum (one, south end); *D. globosus* Hbst. (many, mostly south end); †*Panagaeus bipustulatus* F. (3, south end); *Badister bipustulatus* F. (few); *Stenolophus mixtus* Hbst. (few); *Acupalpus dubius* Schil. (few, south end); *A. dorsalis* F. (two south end); *Bradycellus verbasci* Duft. (few); †*B. distinctus* Dej. (two, south end); *B. harpalinus* Serv. (few, south end); *Trichocellus placidus* Gyll. (few); *Harpalus aeneus* F. (few); *H. rubripes* Duft. (few); *H. tardus* Panz. (few); *H. latus* L. (one, north end); *H. anxius* Duft. (few); *H. attenuatus* Steph. (few); †*H. serripes* Quens. (few)²; †*Platyderus ruficollis* Marsh. (2, north end); *Pterostichus versicolor* Stm. (2, south end); *P. vernalis* Panz. (many, south end); *P. strenuus* Panz. (many); *Amara plebeia* Gyll. (few); *A. familiaris* Duft. (abundant); *A. aenea* Deg. (abundant); †*A. spreta* Dej. (few); †*A. curta* Dej. (about 12, towards north end); †*A. lucida* Duft. (about 12, north

* 38 Heather Drive, St. Michaels, Tenterden, Kent.

end)³; *A. ovata* F. (few); *A. anthobia* Villa (about 30, south end); †*A. communis* Panz. (few)⁴; *A. tibialis* Payk. (abundant); *A. apricaria* Payk. (one, south end); *Calathus fuscipes* Goeze (few); *C. erratus* Sahlb. (few); *C. mollis* Marsh. (few); *C. melanocephalus* L. (many); *Agonum albipes* F.; †*Agonum nigrum* Dej. (one, south end); *Bembidion harpaloides* Serv. (few); †*B. nigropiceum* Marsh. (one, north end); *B. biguttatum* F. (few); *B. clarki* Daws. (many); *B. assimile* Gyll. (few); †*B. gilvipes* Stm. (many, south end)⁵; *B. lampros* Hbst. (few); *B. normannum* Dej. (few); *B. properans* Steph. (few); †*Trechus fulvus* Dej. (abundant, north end); *T. obtusus* Er. (several); *T. quadristriatus* Schk. (several); *Asaphidion flavipes* L. (few); †*Masoreus wetterhalli* Gyll. (about 20); *Demetrias monostigma* Sam. (about 15); *D. atricapillus* L. (many); *Dromius linearis* Ol. (many); *D. melanocephalus* Dej. (many); *Microlestes maurus* Stm. (few); †*Metabletus truncatellus* L. (abundant)⁶; *M. foveatus* Geoff. (many).

A dagger sign indicates the more notable or interesting species.

I was most pleased to see *Bradycellus distinctus*, of which I have taken two specimens at Camber also this year, and of which records are few. It has been previously recorded from Deal. *Amara curta* I have not seen before, nor *A. anthobia*⁷, which however is so similar to *A. familiaris* that it might be overlooked amongst that very common species. *Bembidion nigropiceum* and *Trechus fulvus*⁸ both appear to be adapted to a shingle habitat, and I suspect this is why they are so seldom met with. Shingle is a difficult medium to dig, search in, or flood with water, the three most common methods of discovering Carabidae, and I have always found pitfall traps unsuccessful in stones except for larger species such as *Calathus*. *Trechus fulvus* was swarming under the first handful of refuse I lifted, but only one *B. nigropiceum* appeared.

Several interesting Staphylinidae were found. *Gabrius vernalis* Grav., a rarity first noticed by Peter Hodge, later turned up in quantity at Sandown Castle. I found two specimens of *Philonthus lepidus* Grav. (a very local species restricted to sandy places). There were a few of the uncommon *Philonthus nitidicollis* Bsd. & Lac. (= *bimaculatus* Grav.).

Of the weevils, *Apion sedi* Germ. appeared as might have been expected, since this has been for many years a well-known locality for it. The whole length of the shingle wall has now been bulldozed and rebuilt, and it may well be that this species will have a lean time until the foodplant (*Sedum*) is replenished. Other Apions included *A. dissimile* Germ., *A. affine* Kby., *A. laevicolle* Kby., *A. ononis* Kby., *A. ononicola* Bach, and *A. malvae* F. Several species of *Phytonomus* were present in numbers, namely *P. punctatus* F., *P. murinus* F., *P. variabilis* Hbst., *P. trilineatus* Marsh. and *P. nigrirostris* F. However, *P. fasciculatus* Hbst. was absent although I have taken it there in the past and fully expected to see it in the refuse. A number of *Tychius flavicollis* Steph. and *T. tibialis* Boh. were found, and Peter Hodge tells me that amongst the

common *Sitona* species he found *S. waterhousei* Walt.

Aphodius species were almost absent, which was rather odd, since a large area beside the Marina at the Sandwich end is used for grazing. *A. foetidus* Hbst. (= *scybalarius* auct. nec F.) and the coastal *A. plagiatus* L. were noted, but I was very pleased to find also three specimens of *A. distinctus* Müll.—a species which does not seem to belong there. Perhaps they came from very much further up the east coast and were swept down by the severe currents generated at that time.

Of the Chrysomelidae, *Chrysomela haemoptera* L. and *Timarcha goettingensis* L. (= *coriaria* Laich.) were common; and the Tortoise beetle *Cassida nobilis* L. (about a dozen specimens), one *C. prasina* Ill. (= *sanguinolenta* auct. Brit. nec Müll.), *C. rubiginosa* Müll., a few *Chrysomela staphylea* L. and an abundance of *Psylliodes chrysocephala* L. (including the form *anglica* F. with yellow elytra) made up most of the Phytophaga present.

In the Clavicornia, numbers of the very smelly *Silpha tristis* Ill. appeared at Deal, and also at this end were several *Hister purpurascens* Hbst. and *H. duodecimstriatus* Schk. together with many hundreds of *Kissister minimus* Aubé. There were a few *Saprinus aeneus* F. and a single *S. immundus* Gyll., but surprisingly *S. metallicus* Hbst. was absent. There were quite a few *Euconnus fimetarius* Chaud. and about equal numbers of *Agathidium laevigatum* Er. and *A. marginatum* Stm. *Hyperaspis pseudopustulata* Muls. (= *repensis* auct. nec Hbst.) was the best Coccinellid.

Except for the Carabidae this is not, of course, a complete list, and I have still to identify many *Atomaria* etc. It contains one or two surprises but also several unhappy absences, such as *Lixus vilis* Rossi (= *bicolor* Ol.) which should be there if anywhere, and *Phytonomus fasciculatus* Hbst. However, great upheavals are often followed by population explosions of unexpected beetles, and it remains to be seen what will turn up there in a year or two.

Further notes on certain species

Bradycellus distinctus Dej. A. A. Allen (1959, *Ent. mon. Mag.*, 95:123) records the presence of this species on the Deal sandhills. Mr. Eric Philp tells me that he took one in the sand-pit at Aylesford, Kent, 13.vi.1963 (specimen confirmed by Peter Hammond) and this is here recorded.

Philonthus lepidus Grav. This is first recorded in the Victoria County History list as far back as 1907 as occurring at Sandwich⁹, and Mr. Philp and Mr. Hodge have taken it here since, although I understand it to prefer the estuary of the Stour further to the north.

Apion sedi Germ. There is only one other recorded locality in Kent for this species that I can trace, and that is at Dungeness, where Dr. M. G. Morris took it on an arranged expedition (1959, *Proc. S. Lond. ent. nat. Hist. Soc.*:85). It has persisted at Deal and Sandwich for very many years. I found it there in June 1977 after much searching, on desiccated and almost unrecognizable stonecrop (*Sedum acre*) by sifting soil

from around the roots in a fine sieve. Whether it will survive there after this will remain to be seen.

[¹The older name *Hypera* has now come back into use. ²The absence of *H. servus* Duft. and *cordatus* Duft., typical Deal species, is curious. ³This mainly coastal species seems to be quite scarce nowadays. ⁴Though usually regarded as common I am convinced that it is not so at least in the S.E., the closely-allied but more frequent *A. convexior* Steph. often doing duty for it. ⁵Also generally scarce at the present time though apparently rather common formerly. ⁶By no means a common species as a rule, but it seems to be presently undergoing a large increase in some areas. ⁷Widespread and locally plentiful at times; much commoner than e.g. *lucida* or *communis*. ⁸I have taken both these species on shores of sand or fine shingle where the special feature was the proximity of a small stream or trickle of fresh water. ⁹My copy of the V.C.H. list for Kent is dated 1908 and *P. lepidus* is there recorded only from Deal, whence however there are much earlier records by Walker and Power, as given in Fowler (1888). I have taken it there singly twice. — A. A. A.]

TRIBAL CLASSIFICATION OF ASIRACINE DELPHACIDAE (HOMOPTERA: FULGOROIDEA). — Delphacidae that possess an awl-shaped post-tibial spur from the subfamily Asiracinae. This has never been subdivided, although its genera fall into two distinct groups. These are here defined and proposed as new tribes.

Asiracini, trib. nov. Genae with an oblique carina from below base of antenna to frontoclypeal suture near its junction with lateral margin of frons. Rostrum not attaining post-trochanters. Macropterous form with subapical cell reaching to apical quarter or apical fifth of tegmen; apex of clavus narrowly acute, and only rarely followed by a transverse flexure line.

The nominal genera of this tribe include: *Asiraca*, *Elaphodelphax*, *Manchhookonia*, *Copicerus*, *Pentagramma*, *Bergias*, *Idiosemus* and *Idiosystatus*.

Ugyopini, trib. nov. Genae without an oblique carina between antennal socket and frontoclypeal suture near its junction with lateral margin of frons. Rostrum attaining or surpassing post-trochanters. Macropterous form with subapical cell reaching to about apical third of tegmen; apex of clavus subtruncate or thickened, and usually followed by a transverse flexure line.

The nominal genera of this tribe include: *Ugyops*, *Epibidis*, *Canyra*, *Eucanyra*, *Ostama*, *Ugyopana*, *Consualia*, *Melanesia*, *Punana*, *Platysystatus*, *Perimececera*, *Livatiella*, *Melanugyops*, *Notuchus*, *Paranda* and *Tetrasteira*. — R. G. FENNAH, c/o Commonwealth Institute of Entomology, British Museum, Natural History, Cromwell Road, London SW7 5BD.

Flies, Bees and Butterflies on La Palma, Canary Islands in 1976

By PETER J. CHANDLER *

(Concluded from page 107)

Returning via Los Llanos I diverged onto the El Paso road and crossed the plateau towards the Cumbre Nueva range above Santa Cruz; the road from El Paso to Breña Alta, which passes by a long tunnel through the Cumbre Nueva is the best on the island, having been recently constructed to shorten the journey between Santa Cruz and Los Llanos. While crossing the plateau, the slopes of the Cumbre Nueva appear well forested but this is deceptive because most trees had been felled leaving the fayal-brezal community of the type which covers much formerly forested ground in Tenerife. I stopped below this hillside shortly before reaching the tunnel and investigated some dry ravines in an area of partly cultivated lower slopes grading into steep pine forest. Bees were numerous on flowers here and included *Anthophora a. alluaudi* Pérez and *Lasioglossum chalcodes* (Brullé) in addition to the commoner *Lasioglossum* spp. *Tachina canariensis* and *Scaeva albomaculata* (Macq.) were also visiting them. The few butterflies, the large fritillary *Pandoriana pandora* (Denis & Schiffermüller) and a bright orange form of *Lycaena phlaeas* (L.), were new sightings.

On the next day, I returned by the same route and sampled two sites on the eastern slopes of the Cumbre Nueva above Breña Alta, where there are extensive plantations of chestnut (*Castanea sativa* L.). These sheltered many of the shade loving species also found in the laurisilva, including several tipulids, mycetophilids, *Hylemya latevittata* and the rather local syrphid *Heringia adpropinquans* (Beck.) which I had previously found at Las Mercedes and Agua Garcia in Tenerife. In open places, *Oedosphearella canariensis* and *Thereva occulta* occurred and the same selection of bees were found at flowers as on the west side of this range.

Upon regaining the plateau, I took the side road which winds up the slopes of La Caldera de Taburiente to the viewpoint of La Cumbrecita. The road soon entered mature pine forest, which is relatively open with plenty of the shrub *Cistus symphytifolius* Lam. with large pink flowers, which attracted *E. tenax* and the bees *A. a. alluaudi* and *Eucera algira* Lep. *V. i. vulcania*, *P. rapae* and *C. croceus* were flying. Several of the large bombyliid *Villa nigriceps* (Macq.) were settling on bare stony ground, while an *Epitriptus* species (Asilidae) was frequent on boulders. Other insects included *Scaeva albomaculata*, *Cyrtosia canariensis* and the pompilid wasp *Arachnospila carbonaria* Scop. *Suillia setitarsis* Cz.), very similar to *S. oceana* but with bare mesopleura, was taken here; it appeared to be more associated with pine forest than *oceana*, which is common in the laurisilva. On ascending to La Cumbrecita, a

* Weston Research Laboratories, 644 Bath Road, Taplow, Maidenhead, Berks SL6 0PA.

good view was initially obtained of the extensively pine clad slopes of the crater but mist soon descended and slight precipitation began; the only insect seen at this altitude (1,833 metres) was *B. t. canariensis* at the *Cistus* flowers. A short stop was made on the descent where sweeping heather produced a few mycetophilids and *Cyrtosia*; *Scathophaga stercoraria* (L.) occurred in an open grassy area.

On 30th May I once again ascended to the plateau, quickly passing Los Llanos and El Time to the road north to Puntagorda, reaching the end of the surfaced road by 11.45 a.m. Most of this route was through cultivated areas but partly pine clad hills were usually in view. In fields near the junction of the Las Tricias and Garafia roads, few insects were about other than the syrphids *M. auricollis* and *M. corollae* and various small acalyptrates. I soon returned via Puntagorda and stopped near the beginning of the mountain track to Montaña del Arco. A dry ravine with a wide variety of flowers produced *L. v. unicolor*, *B. t. canariensis*, *Tachina canariensis* and *Chrysotoxum triarctatum*. *M. j. hispulla* was abundant; *C. croceus*, *P. rapae* and *C. webbianus* were also on the wing. Scattered pines were present nearby but here they had upright branches rather than the spreading crowns at higher altitudes and a dense ground cover of *Cistus* proliferated beneath them. Shaded spots produced *Suillia setitarsis* and *Euthycera guanchica* Frey (the less frequent of the two Canarian Sciomyzidae) among other smaller Diptera.

A few brief stops were made on the plateau while returning towards the Cumbre Nueva; here the landscape was open, with grassy fields and some bare areas covered with volcanic ash. Along one gully, *Oedosphenella* and *Pherbellia* were swept; *Lycaena phlaeas* was noted at the purple flowered *Senecio papyraceus* DC. The Western slopes of the Cumbre Nueva were again sampled as the sun was now shining and on this occasion the cleared forest area dominated by "fava" and tree heather with occasional pines was investigated. Clearings with much *Senecio papyraceus* produced *L. phlaeas* and *P. pandora* again; *Metasyrphus corollae*, *Melecta curvispina* Lieftinck, and a red-tailed *Sphecodes* bee were also visiting the flowers. Further along the forest road *C. croceus* was flying and the only example of *Issoria lathonia* (L.) seen during the visit was observed. *Villa nigriceps* was again settling on the ground. *Suillia oceana*, *Pherbellia argyrotarsis* and *Oedosphenella* occurred and the shade of a large *Myrica* produced several mycetophilids.

On 31st May I returned to the area south of Santa Cruz as collecting was confined to the very overcast afternoon. Four localities were briefly sampled but none were very productive. *Cyrtosia* and *Geron* were swept in numbers from rough grassland near Tiguerorte. *Geron* was also abundant in sparse scrub on volcanic ash below Hoyo de Mazo and the few other insects included the syrphids *Eumerus latitarsis* and *Paragus tibialis* (Fall.) form *meridionalis* Beck.; the tephritid *Oxyaciura tibialis* (R.-D.) was also caught. On the rocky shore at Punta

de las Palomas only the tephritid *Myopites nigrescens* Beck. could be found when rain was beginning; this had already been taken at several scrubby localities inland.

The weather improved for the last two days and although a single area was visited on each day, a large variety of species was obtained. On 1st June, the course of the Barranco de las Nieves, which reaches the coast at Santa Cruz, was followed from the Las Nieves road until it becomes a narrow gorge. The upper reaches are flanked by forested cliffs but there is no closed canopy woodland. Sweeping rock overhangs on the more open lower reaches, where the valley is cultivated, produced a female *Sylvicola* and very many of the aberrant psychodid *Nemopalpus flavus* Macq. (resembling a tipulid of the genus *Molophilus*), while the damper rock faces at a higher level produced instead a small *Psychoda* and mycetophilids were found sparsely. The acalypterates included *Euleia separata*, *Suillia oceana* and *Drosophila pallida*. *Melanostoma incompletum* was numerous and *Helina obscurisquama* was frequent.

The sky was at first overcast but bright spells followed; the cloud cleared by 3.30 p.m. and the hot sunshine brought out the butterflies, bees and wasps. *M. j. hispulla*, *P. rapae* and *C. croceus* were abundant; *C. webbianus*, *V. i. vulcania*, *T. christi*, *P. xiphioides* and *Pieris cheiranthi* were also noted. A *Chrysis* of the *ignita* group was running rapidly over a wall and the active sand wasp *Podalonia tydei* (Le Guillou) was settling on bare ground; *Prosopis pictipes atra* Saunders and an *Osmia* (probably *submicans* Morawitz) were at flowers. A small yellow umbel attracted the wasp *Ancistrocerus fortunatus* Bl. and a black evaniid; *Euthycera guanchica* was also at rest on this plant. A white flowered plant produced a smaller eumenid (*Leptocheilus* sp.) and the conopid fly *Physocephala biguttata* v.Röd., which I had collected at Guimar in Tenerife. This fly is superficially like our *P. rufipes* (F.) but its legs are darker and the waisted part of the abdomen bears a black band; it also lacks the clear spot near the tip of the brown wing band. The tachinid *Alophora* (*Hyalomya*) *pusilla* (Mg.), not previously recorded from the Canaries, was swept from coarse vegetation. Under a hedge in the cultivated area, the striking xylomyiid *Solva nigriritibialis* (Macq.) was swept; I had collected a pair near a rotten log at Las Mercedes in Tenerife. Enderlein (1929) recorded rearing *S. cabrae* (Beck.) (probably a synonym of *nigriritibialis*) from a rot hole in the large succulent shrub *Euphorbia canariensis* L. but Frey (1973) mentioned *nigriritibialis* flying around a tree stump. Both habitats may be utilised by this species and Machado's (1977) suggestion that it is more typical of the lower xerophytic zone but may invade the laurisilva, may not be entirely correct.

The final excursion on 2nd June was the planned return visit to Cubo de la Galga, the most accessible laurel forest, the approach this time being made by the forest road from near the La Galga tunnel. It was a hot sunny afternoon and many butterflies were flying along the open track and in the clear-

ings. *P. pandora*, *V. i. vulcania*, *L. phlaeas*, *P. rapae*, *M. j. hispulla*, *P. xiphioides*, *C. croceus* and *P. cheiranthi* were flying, the last only in small forest glades where several examples of *Gonepteryx palmae* were also conspicuous.

Much of the ground in the close canopy forest was covered with large boulders with clumps of *Crambe* and *Geranium canariense* Reut. growing between. Sweeping here produced few species although *Aulacigaster* was again abundant; *Drosophila pallida*, *Hylemya latevittata*, *Fannia pubescens* and *F. monilis* Hal., *Hebecnema vespertina* (Fall.), *H. rufitibia*, *Suillia oceana*, *Coenosia bivittata* Stein and *Oedosphenella* were also collected. *Myathropa florea* var. *nigrofemorata* was sunning itself in glades; there is another variety in the Canary Islands, *varifemorata* Santos, with paler legs, which I did not find. The Canarian race of *M. florea* differs from the typical form in the pilosity being denser and more golden; also the pile on the frons is golden while in European examples the frons is black with black hairs. *Melanostoma incompletum* was common. A sunlit puddle on the track was attracting the muscids *Lispe tentaculata* (Deg.), *L. thoracica* Santos and *Limnophora obsignata* Rond., the dolichopodid *Argyra canariensis* Beck., *Eristalis tenax* and the wasp *Trypoxylon attenuatum* Sm. A muddy patch elsewhere produced *Scatella* and *Parydra* (Ephydriidae) and *Gonomyia copulata* Beck. (Tipulidae). A good catch of mycetophilids was made from overhangs on damp rock faces, which also sheltered countless *Pesychoda*.

Shortly before my departure, I located Señor Santos Pinto, the grandson of Santos Abreu, who lives at Santa Cruz; I found that much of his grandfather's collection is now at the museum in Tenerife but he was able to show me a good range of local Diptera including many specimens collected by his father (Santos Rodriguez). These included the asilid *Pro-machus palmensis* Frey and a good series of the platypezid *Callomyia dives*, also a wider range of moisture loving flies such as tipulids and dolichopodids than I had been able to find.

Acknowledgments

My thanks are due to Mr. W. Parker for assistance with identification of the butterflies and to Mr. G. R. Else for his efforts in obtaining identifications of the aculeate Hymenoptera, to which Mr. K. M. Guichard, Mr M. Day, Dr. A. W. Ebmer, Dr. M. A. Lieftinck and Dr. K. Warncke have contributed.

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SOME UNUSUAL DATES IN THE SUMMER AND AUTUMN OF 1978. — The latter half of 1978 was indeed anomalous in its production of species at most unusual and unexpected dates, some of which as enumerated below are distinctly precocious, while others are very much on the late side and probably designate of prolonged emergence or second broods. The dates refer to records in my m.v. trap run continuously in the garden here.

August 17th, *Deuteronomos fuscantaria* Steph.; August 18th, *Hyloicus pinastri* L.; August 20th, *Parascotia fuliginaria* L.; September 9th, *Cosymbia albipunctata* Hufn.; September 10th, *Euphyia bilineata* L.; September 16th, *Cosmia trapezina* L.; September 19th, *Cosymbia punctaria* L.; September 21st, *Cleora rhomboidaria* D. & S.; September 23rd, *Amathes xanthographa* D. & S.; September 21st, *Mamestra brassicae* L., *Hypena proboscidalis* L., *Sterrhia aversata* L.; October 11th, *Xanthorhoe fluctuata* L.; October 28th, *Cirrhia icteritia* Hufn. — C. G. M. DE WORMS, Three Oaks, Horsell, Woking.

Microlepidoptera in Scotland, 1978

By A. M. EMMET *

(Concluded from page 96)

GRACILLARIIDAE: GRACILLARIINAE

Caloptilia rufipennella (Hübner). New to Scotland. On the 19th of July we parked the car in Yair Hill Forest, Selkirkshire (VC 79) and, in accordance with our frequent practice, my wife and I walked in opposite directions to extend the range of our search. A few minutes later we rejoined forces with smug expressions on our faces and sycamore leaves with their lobes spun into cones in our polythene bags. On the principle of "ladies first", I give my wife the credit for finding the first feeding. A few of the cones were still tenanted and we bred five adults. Subsequently we found larval cones in VCs 68, 72, 78 and 81, showing it to be widespread in that region. In the unpublished Victoria County History for Westmorland (proofs in the general library of BMNH), it is stated Stainton recorded "*rufipennella*" at Ambleside in 1846; later Stainton himself and subsequent authors discounted the record but in the light of our discovery one wonders now whether it may not have been correct. In England, *C. rufipennella* has been recorded only from East Anglia and the adjacent counties, viz. VCs 19, 25, 26, 28, 29 and 54. All these are Emmet records: is it not time that more lepidopterists switched off their light-traps and made records in the field?

C. falconipennella (Hübner). On the 7th of August we stopped at a lay-by facing Loch Lomond just south of the junction of the A82 and A83 (MR NN 3203). On some young alders we found feeding, both mines and leaf-folds, which I am virtually certain were made by this species. The larvae had gone but we saw no cocoons or adults. *C. falconipennella* has not been found in Scotland and its most northerly English locality is the Lake District. I am well acquainted with its feeding since I have already made a detailed description of the early stages from Surrey material; however, I do not feel justified in making a positive record and urge other entomologists to try to visit the spot and look for larvae.

Calybitis auroguttella (Stephens). A record made near Unapool on the west coast of West Sutherland (VC 108) is the most northerly for this species.

Parornix loganella (Stainton) and *P. betulae* (Stainton). No records were made since I cannot distinguish the mines, larval folds or larvae. I would be grateful for any information enabling the early stages to be separated.

P. devoniella (Stainton). Apparently new to Scotland. Our two records are odd since we found it only right in the south near Newcastleton, Roxburghshire (VC 80) and in the far north at Drumbeg on the west coast of West Sutherland (VC 108). We looked for it unsuccessfully in all intervening localities where there was hazel.

* Labrey Cottage, Victoria Gardens, Saffron Walden, Essex CB11 3AF

P. scoticella (Stainton). Though bivoltine in the south of England, it is apparently univoltine in Scotland, not feeding until August. We found it only in West Perthshire (VC 87) on the 7th of August.

P. alpicola (Wocke) and *P. leucostola* Pelham-Clinton. A main objective was to make descriptions of the early stages. Accordingly, ECP-C took us to Invernaver Nature Reserve and Eribol (West Sutherland, VC 108), where he had discovered them. Since the early stages of the two appear to be indistinguishable, one description will have to serve for both; this will appear in MBGBI and, in a shorter form, in the forthcoming *A Field Guide to the Smaller British Lepidoptera*. An interesting feature is that what appears to be a leaf spun into a pod is in fact a mine which causes the leaf to fold downwards and the white lower epidermis to project, giving an illusion of white silk. The cocoon is spun on the underside of a leaf which curls downwards to conceal it, and it, therefore, is in a kind of pod.

Other Gracillariinae which were recorded were *Caloptilia populetorum* (Zeller), *C. elongella* (Linnaeus), *C. betulicola* (Hering), *C. alchimiella* (Scopoli), *C. stigmatella* (Fabricius)—only in Selkirkshire (VC 79) for it evidently feeds later in Scotland, *C. syringella* (Fabricius), *Aspilapterix tringipennella* (Zeller), *Parornix anglicella* (Stainton) and *P. torquillella* (Zeller). *Callisto denticulella* (Thunberg), which we recorded in Dumfriesshire (VC 72) in 1975, appears not to extend further north.

GRACILLARIIDAE: LITHOCOLLETINAE

Records were made only of species which could be determined with certainty from their mines or were reared. A list was sent to Dr. I. A. Watkinson who reported that it gave 52 new vice-county records. Recorded species were as follows: *Phyllonorycter oxyacanthae* (Frey), *P. sorbi* (Frey), *P. pomonella* (Zeller), *P. corylifoliella* f. *betulae* (Zeller), *P. scopariella* (Zeller), *P. maestingella* (Müller), *P. coryli* (Nicelli), *P. rajella* (Linnaeus) (*alnifoliella* (Hübner)), *P. ulmifoliella* (Hübner) and *P. geniculella* (Ragonot).

CHOREUTIDAE

Eutromula diana (Hübner). A major aim was to search for the early stages. Our search was concentrated on Glen Affric (VC 96) where ECP-C had previously taken the moth. We devoted the whole of the 29th of July to this purpose, even returning after dinner and continuing the quest until dark. Something like 32 man hours of intensive searching resulted in only two cocoons, both found by JMC-H. He kindly gave me one of these and we both reared our moth. We believe this is the first occasion on which this rare species has been reared in Britain. The cocoons were spun on the underside of leaves of birch, the foodplant. A few weeks later I studied cocoons of *E. pariana* (Clerck) found at Saffron Walden and was struck by the close similarity; the only difference was in situation, for they were spun on the upperside of the leaves of apple, their foodplant. Why did we find so few? Perhaps the

usual pupation site is different, for example in leaf-litter; or possibly the leaves on which the larvae have fed and pupated drop to the ground.

COLEOPHORIDAE

This family was little observed. Cases which we found on birch at Glen Affric were subsequently determined by Mr. R. W. J. Uffen as *Colephora binderella* (Kollar), and a record I passed to him of *C. violacea* (Ström) (*hornigi* Toll) from Dumbartonshire (VC 99) was, I believe, new to the county. We saw mines of *C. arctostaphyli* Meder not uncommonly while we were searching the bearberry at Tulloch Moor.

ELACHISTIDAE

I took specimens of *Biselachista eleochariella* (Stainton) beside Lock Thom, Renfrewshire (VC 76) and, directed by ECP-C, of *B. serricornis* (Stainton) near Alvie (VC 96). We found *Elachista kilmunella* (Stainton) beside Lock Thom, in Strathspey and at Glen Affric, where the form was unusual. The only feeding elachistid larvae we encountered were of *E. cerusella* (Hübner) near Newcastleton, Roxburghshire (VC 80).

OECOPHORIDAE

Schiffermuelleria similella (Hübner). A fresh specimen taken on the lower slopes of Cairngorm (VC 96) on the 24th of July has prompted me to change the time of appearance of the imago from "6" to "6-7" in the *Field Guide*.

Depressaria olerella Zeller and *D. silesiaca* Heineman. Feeding larvae of both these species were found on *Achillea millefolium* near Kincaid (VC 96) and adults were reared. The larvae and feeding patterns were described, in the case of *D. silesiaca*, it is believed, for the first time in Britain. The information has been used in the *Field Guide* and will be available to the authors of MBGBI, if they want it.

GELECHIIDAE

The family was rarely encountered. The only record of note was of *Bryotropha boreella* (Douglas) captured beside Loch Thom (VC 76). I am grateful to Mr. E. S. Bradford for dissecting and determining this moth.

MOMPHIDAE

Mompha raschkiella (Zeller). Mines were plentiful on *Epilobium angustifolium* as far north as Ullapool, Wester Ross (VC 95); the majority of the 15 vice-county records which we made were new.

TORTRICIDAE

Pandemis cinnamomeana (Treitschke). A specimen taken resting on a leaf on the 19th of July at Newcastleton, Roxburghshire (VC 80) constitutes, I believe, the first record for Scotland (see Bradley, Tremewan & Smith, 1973:96).

Acleris logiana (Clerck). I was pleased to rear a specimen from a larva found on birch at Glen Affric during our search for *Eutromula diana* (Hübner).

A. hyemana (Haworth). reared a specimen from a larval spinning on *Dryas octopetala* found at Invernaver (VC 108). This foodplant seems not to have been recorded previously.

PYRALIDAE

Few species of interest were seen. *Crambus ericella* (Hübner) was found only at Inchnadamph (VC 108), perhaps because the day of our visit there was the only one on which the sun shone brightly. We made a special expedition, following directions given us by Mr. B. Goater, to Craigie, Aberdeenshire (VC 92) to look for *Catoptria permutatella* (Herrich-Schäffer). We took only two specimens, one worn and the other in mint condition. On our return to our base at Newtonmore, we found that the good one was missing; I had evidently dropped the pill-box when I was transferring it to our cold box which carries our lunch on the outward journey and our specimens on the way home. If I catch you laughing, I'll wallop you hard.

The expedition would not have been possible without a grant from the Professor Hering Memorial Research Fund. We were generously given more than we applied for. We are most grateful to the Fund and hope that the entomological results have justified the award.

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EPIBLEMA CNICICOLANA ZELL. IN HAMPSHIRE. — On 20th June 1976 I took a single male specimen of this scarce moth in Botley Wood. The wing pattern is quite distinct from other members of its genus, and superficially it looks much more like *Epinotia demarniana* F.v.R., being of a similar size though with a straighter costa, and the ocellus not so chalky white. Examination of the genitalia confirms the identification. The only previous record from the Hampshire mainland was by the late Mr. Ffennell who reported it from one area in the Itchen Valley in VC 12, and he was later rather doubtful that he had made a correct identification. — Dr. J. R. LANGMAID, 38 Cumberland Court, Festing Road, Southsea, Hants., PO4 0NH.

DEILEPHILA ELPENOR (L.) IN INVERNESS-SHIRE. — While working for the Nature Conservancy Council in the Cairngorms, I recorded a specimen of *D. elpenor* (L.) from Kincaig on 30.vi.76. Russell Leavett, the R.S.P.B. warden at Insh Marshes, has since recorded single specimens on 2.vii.77 and 8.vii.78 at Insh. — EUAN A. M. MACALPINE, Hawkins', St. Cross Road, Winchester, SO23 9HX.

Two Continental Journeys During 1978

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

(1) Central and Northern Greece in June

Greece is always a great source of attraction from every angle, not least its flora and lepidoptera. Though I had already paid three visits to this wonderful part of Europe (*vide* this journal, **75**: 233, **84**: 33 and **87**: 77), I was encouraged to go there yet again when I saw that Peregrine Holidays based on Oxford were arranging a botanical tour of central and northern Greece during the middle of June. When I made my first enquiries it was fully booked, but in the spring a vacancy materialised so that I was able to be included in the party which left England on June 7th. There were 25 naturalists, all dedicated botanists led by Mr. Hugh Singe of Kew. Though I felt rather "the odd man out", I derived some comfort to learn that on an almost similar itinerary in 1977 at this period of the year, the tour was accompanied by Dr. Jeremy Holloway, a very noted entomologist and field collector mainly in the Far East. On this earlier occasion, he had recorded no less than almost 200 species of butterflies, so that I hoped to emulate him. In spite of ideal conditions during our fortnight with daily temperatures in the 80s, the season was very different from that of 1977.

We reached Athens airport on the afternoon of June 7th, and our party at once left in a small motor coach on the road to Delphi. Our venue that evening was Arachova, a small town a few miles east of the famous ancient resort. We all put up at an excellent Xenia, and the next morning early we left for Delphi which I had visited in 1963 and again in 1971. I at once made for the rocky piece of ground overlooking the Temple of Athene, just past the Castalia spring. This area had proved very fruitful on the two previous occasions, but as soon as I reached it, I at once realised the lateness and leanness of the season. *Melanargia larissa* Geyer was very sparse as also was *Maniola jurtina* L., and it was only when I came to several clumps of valerian that there was any quantity of insects. These included only a single *Papilio alexanor* Esper—and a few males of *Goneperyx farinosa* Zeller. There were also singles of *Polygonia egea* Cramer and of *Hipparchia aristaeus senthes* Fruhstorfer.

The next morning of June 9th, we set out early again to make the ascent of Mt. Parnassus by the road that was completed in the early 1970's. Little was flying on the plateau beneath the mountain, and when we reached the hut at about 6,000 ft., it was obvious the high level species were not out. There were large matts of the prickly astragalus, the food-plant of *Colias libanetica heldreichi* Staudinger of which Dr. Holloway took several examples at this date in 1977, but a thorough survey in brilliant sunshine failed to reveal any. The

* Three Oaks, Shores Road, Horsell, Woking, Surrey.

only insects flying at this altitude were many *Aglais urticae* L. and singles of *Iphiclides podalirius* L. *Pyrameis cardui* L. at slightly lower levels.

Yet another early start on the 10th, took our party via Itsea along the gulf of Corinth westwards to Naupaktos, the site of the naval battle of Lepanto in 1571, then to Missolonghi where Byron died in 1824, and finally to the large town of Ioannina only a few miles from the Albanian border. Again a spacious Xenia was our haven. This picturesque town has on its immediate outskirts a large lake with a sizeable island at its centre. Most of us spent the Sunday, the 11th, surveying its monasteries and other locations of interest, notably the marshes bordering the islands. These harboured several Great Reed Warblers, which vied with each other with their raucous call. The flora was especially fine on the circular path, but it produced very few butterflies, only a few Pierids including *Euchloë ausonia* Hbn. The afternoon was spent at the famous ancient shrine of Dodona with its large amphitheatre, around which were flying many *Aporia crataegi* L., with numerous Blues mainly *Polyommatus icarus* Rott., and a few *Plebicula amanda* Schneider. The morning of June 12th saw us at the small town of Aresti, high up on the edge of the Pindos range and even closer to Albania. A track skirted the mountainside with plenty of rich vegetation, but in spite of a brilliant day the paucity of insects was remarkable. Along the path were flying an occasional *Melitaea didyma* Esp. and *M. phoebe* D. & S. *Gegenes pumilio* Hffmsg. was skimming over the ground in one spot and there was a single *Pyrameis atalanta*. On June 13th, our venue was another small Pindos locality, that of Monodendri. We halted at a high area with large rocks where we saw one of the rarest of European plants, *Ramonda serbica* akin to the African violet. In some adjoining meadows were flying numerous species including many *Pieris rapae* L. On a dry path I disturbed a couple of congregations of Blues which turned out to be mainly *Cyaniris semiargus* Rott., with *Plebicula thersites* Cantener and a single *Cupido osiris* Meigen. Also there was *Pyrgus malvoides* Elwes and Edwards, while among the rocks was flying *Lasiommata petropolitana* Fab. Later that morning we visited a local monastery in the great heat, and on the way there noted *Pieris mannii* Mayer flying with *Leptidea sinapis* L. That afternoon we went on by a very tortuous and picturesque route through the Pindos range for nearly 100 miles to the small town of Metsevon, almost in the centre of Greece, where we put up at a very pleasant alpine type of hotel. The next morning, June 14th, our coach took us up to the high level meadows at some 4,000 ft. where we spent a brilliantly sunny and warm day among a galaxy of choice flora including a large purple patch of the magnificent *Salvia grandiflora*, but most astonishingly the lepidoptera were sadly lacking except for a few of the common Pierids as *A. crataegi*, an occasional *Iphiclides podalirius* L. and *Colias croceus* Fourc. It was very disappointing not to see

more on the wing in this very luscious environment. The morning of the 15th we once more set out at a very early hour to cover the big distance to the Aegean coast. Our first stop was at the Katara Pass at over 5,000 ft. but nothing of note was flying at this altitude. Our next halt was at the town of Meteora with its famous monasteries perched high up on pinnacles of rock. Two of these were visited. At one, two huge, full-fed larvae of *Saturnia pyri* L. were located on a small bush, and as we were leaving the other, a *P. alexanor* gave a good display on thistles in front of the whole party. We then proceeded right across the edge of the Plain of Thessaly in the centre of Greece, via Larissa to the seaside resort of Platamon, putting up at a large hotel on the main Athens to Salonika highway. Our venue for the 16th was Mount Olympus, which was reached by a very winding mountain road that ended at the small location of Prioni, which was surrounded by massive woods mainly of beech at about 3,000 ft. Here was quite a congregation of butterflies in the glades on these lower slopes of this highest and famous Greek summit. By far the most numerous was *Issoria lathonia* L., with a good many *Clossiana euphrosyne* L. *G. farinosa* was also in some numbers and there were mainly singles of *L. petropolitana*, *Celastrina argiolus* L., *Aricia agestis* D. & S., *Callophrys rubi* L. and *Ochlodes venatus faunus* Turati. Some of the party who had scaled the higher levels said they had seen several *Nymphalis antiopa* L. and a number of the remarkable endemic plants of the mountain. The following day, June 17th, we moved south to another delightful resort on the borders of the Aegean at Isangarada to a very attractive hotel hidden among the wooded western slopes of Mt. Pelion. Two days were spent at this very pleasant locality which in spite of the heat and sun produced very little of note except for a few more *N. antiopa* and *Limenitis reducta* Staud. Refreshing bathes were had each day by most of the participants. Early on June 20th we set our course still further southward. We reached the big port of Volos by a very tortuous mountain road and then soon hit the big north-south-highway along which we made a short halt at the site of the famous battle of Thermopylae which is very suitably commemorated with a fine statue. We sped down the wide route and were soon in Athens which was in intense heat. That evening I was kindly entertained by Mr. John Coutsis, the eminent authority on Greek butterflies who showed me his splendid collection of them. During this period, Salonika was struck by a violent earthquake which fortunately was not felt in Athens some 300 miles away. After a very sultry morning spent in the city at one of its new large hotels, we took plane back to Heathrow on the 21st after what had proved a most enjoyable couple of weeks spent among the flora and fauna of this glorious country.

(2) Morocco in July

Morocco is another most attractive and productive country for lepidoptera which I had already visited three times in 1965, 1969 and 1972, but in the spring of these years (*vide* this Journal 77: 77, 81: 287 and 85: 241). I thought I would try to sample its fauna in the late summer. The opportunity arose in July when my niece invited me to come and stay at Rabat where her husband was Chargé d'Affaires at the British Embassy. As all flights to Gibraltar were fully booked, I flew direct to Tangier on the afternoon of the 18th. It was late when we arrived so that I had to put up for the night, and was fortunate in finding accommodation at the well-known Hotel Minzah. The following morning of the 19th, I picked up a small Renault and was soon speeding along the coastal route to the south which I knew so well, but in spite of the intense heat little seemed to be on the wing at my various halts. I only saw *Euchloë ausonia* Hbn. flying near Larache. The 175-mile journey was completed by early evening, and I was met in Rabat by my niece, who conducted me to their spacious house on the outskirts of the city. It had a small garden rich with many flowering plants which boded well. The next day by early morning, *Pieris rapae* L. was in quantity around the bushes together with a number of *Pararge aegeria* L. with very orange markings. Later that day, we visited the residence of the British Ambassador which was being renovated for a new occupant. In the garden were flying *Iphiclides feisthameli* Dup., some huge examples with very long tails, appreciably different from *I. podalirius* L. On July 20th the temperature exceeded 100°F in the shade when I went to the fine Zoo, situated in a large park some five miles from the centre of Rabat. Here several *Colias croceus* Fourc. were careering about the enclosures. Later that day my relatives' garden was quite productive of this species and also of many Lycaenids, in particular several *Syntarus pirithous* L., while *Lampides boeticus* L. was flitting around some aromatic plants. The buddleia was also very attractive to Vanessids such as *Nymphalis atalanta* L., *Polyommatus icarus* Rott. also put in appearance. Newcomers to the garden on the 22nd were *Heodes phloeas* L., *Zizeeria knysna* Trimen and *Cupido lorquinii* H.-S. *I. feisthameli* used to arrive almost daily on the big buddleia about midday.

The morning of July 24th I set out for the Middle Atlas which had been my venue both in 1969 and 1972. I followed the excellent highroad towards Meknes and then turned south, steadily ascending till I reached the Forêt de Jaba just north of Ifrane which was once more to be my haven. Here in the forest at over 5,000 fe., the heat was still intense with quite a number of insects flying by the roadside, though in nothing like the numbers of my two spring visits. *Maniola jurtina* L. was well to the fore with a few *Pontia daplidice* L., and near the river below Ifrane, *P. rapae* was in great plenty. Further up in the vicinity of Ifrane were several *Hiparchia alcyone caroli* Rothsch., a distinct sub-species of this widespread

species. They mostly disported themselves on the edges of the cedar forest which was my venue the next morning of the 25th, but it was soon evident the profusion of insects which pervaded this area in the spring, was already passed. There was no sign of the two large fritillaries *Argynnis lyauteyi* Oberthur and *A. auresiana* Fruhstorfer. However, a fine female *A. pandora* D. & S. did put in appearance, a late emergence. I did a short tour under ideal conditions revisiting my former haunts round Misschliffen and the forest above Azrou, all of which yielded very little. There was an occasional *P. aegeria*, *C. croceus* and *I. feisthameli*. The next day with a blazing sun, I went again to the ground bordering the cedars, where a particular low-growing plant with pink flowers was attracting a good many *Lycaenids*. These included mainly *Plebicula thersites* Cantener, *P. icarus*, *Aricia cramera* Eschscholtz and a late *Callophrys rubi* L.; also, a very worn *Melanargia lucasi* Rambur together with *Vanessa cardui* L. Later that day, it did not take me long to cover the 145 miles back to Rabat. I was glad to have been once more in the fine country of the Middle Atlas, though the showing of insects was disappointing. Most of the species already mentioned were flying in my relatives' garden on my last full day with them, July 27th, which was again exceptionally hot. On the 28th, I went on an excellent express train direct to Tangier putting up once more at the El Minzah. The following morning I went to the airport to find the flight to Madrid heavily delayed. We eventually reached the Spanish capital in the early afternoon to find there was yet another lengthy hold-up owing to the strike of the French air controllers. Eventually we took off about midnight, reaching Heathrow in the early hours of the 30th after what had been a most pleasant if not an over-rewarding visit to this most attractive part of North Africa.

FOODPLANTS OF *PHYLLONORYCTER TRIFASCIELLA* HAWORTH.
— The campus of the Technical College at Bromley, Kent contains an ornamental planting of *Leycesteria formosa* Wall (Flowering Nutmeg). These shrubs have for some years supported a small colony of *Phyllonorycter emberizaepenella* Bouche. A few mined leaves were collected in early October 1978, but for various reasons were not immediately transferred to their winter quarters in the garden. On 22nd October, a single specimen of *P. trifasciella* was seen resting on the leaves, and subsequent inspection revealed a small underside mine in the apex of a leaf, with the pupal case of *trifasciella* protruding. The mine was inconspicuous when compared to the large, disfiguring workings of *emberizaepenella*. The only other record of *trifasciella* feeding on *L. formosa* I can locate is for a single, atypical, upperside mine from Cornwall (Gregory, *Ent. Rec.*, 84: 78). *P. trifasciella* occurs throughout the Bromley area on its normal foodplant, Honeysuckle, although I bred a single third brood specimen from Snowberry (*Symphoricarpos* sp.) during 1976 from a wood near Orpington, where Honeysuckle and Snowberry occur together. — P. A. SOKOLOFF, 4 Steep Close, Orpington, Kent.

Editorial

We offer our heartfelt thanks to Mr. S. N. A. Jacobs who has for more than 20 years been Registrar, and who feels it is now time a younger man takes on this duty. We therefore have pleasure in welcoming Mr. Paul Sokoloff who has kindly agreed to act as the new Registrar, to whom all changes of address, and enquiries regarding back numbers, Volumes and Sets should be addressed as indicated on the inner back cover of the magazine.



Practical Hints — July

To breed the Silver-washed Fritillary (*Argynnis paphia* L.) from the egg, I put a captured female in a large wooden box, the top covered with netting, and containing two or three jam jars with water and flowers of red valerian (*Kentranthus ruber*). The insect imbibes from the flowers and lays her eggs readily upon them. White valerian should not be used as the eggs are then so much more difficult to see. When the young larvae hatch in August, gently brush them into a small plastic box containing pieces of bark and netting. Leave them there for about two weeks at room temperature to settle down. Then put them into a refrigerator (about 38°F) where they are left undisturbed until March, when I empty them out onto potted violets or pansies and netted over. I have tried this method for two winters with about 90% of the larvae surviving each time. (REVELS).

Larvae of *Hadena caesia mananii* Gregson (The Grey) leave the seed pods fairly soon and begin to disperse. In July it is profitable to gather large bunches of *Silene* from which many *H. conspersa* D. & S. (Marbled Coronet) will appear along with a few *H. caesia*. Most of my collecting has had to be done in August when they are very hard to find, rarely under or among their foodplant, but in chinks of rocks, or under other herbage, though they may be found on the *Silene* at night. Pupae are widely dispersed and almost impossible. The moth needs to be bred as it wears quickly. I have taken it in Cos. Clare, Kerry, Cork, also in Skye, Canna, Mull, Islay and the Isle of Man. I was the first to find it in Clare, Skye and Mull. I failed to find it in Northern Ireland, where it must be. (A. RICHARDSON).

Early July is a good time to try for the Olive Crescent (*Trisateles emortualis* D. & S.) in its few known haunts in the Chilterns. The moth comes to light and an eye should also be kept open for the Rufous Minor (*Oligia versicolor* Borkh.). This can only be determined by the genitalia but in the Chil-

terns at least the presence of a rust-coloured thoracic tuft is a good indication that one has not boxed the commoner *O. strigilis* L. Other visitors at the same time may well include the Green Arches (*Anaplectoides prasina* D. & S.) and the Large Twin-spot Carpet (*Xanthorrhoe quadrifasiata* Clerck). Females of both species should be kept for eggs. The former may be persuaded to produce a second brood the same year but larvae of the Carpet need to be hibernated. This may be done by resting them on woodwool either in a W. & D. breeding cylinder or in a roomy plastic box. Occasional gentle spraying throughout the winter is advisable to prevent dessication, although in the case of larvae kept in a plastic container, it might be preferable to insert the occasional dock leaf to maintain humidity (CHATELAIN).

During July and August I beat about 60 larvae of *Eupithecia dodoneata* Guenée (Oak-tree Pug) from hawthorn over a wide area of central Lincolnshire, but most were parasitized. The wasps emerged within days of spinning their tiny white cocoons and appeared to be the same insect that attacks *E. insigniata* Hbn. (Pinion-spotted Pug) (HAGGETT).

Fullfed larvae of *Colobochyla salicalis* D. & S. (Lesser Belle) seem to need small angle-branches of aspen, on which to make their cocoons (A. RICHARDSON).

During the third week of July we took numbers of the distinctive Tortricoid *Eucosma maritima* H. & W. flying at dusk round clumps of *Artemisia maritima* at the edges of salterns at Camber, Sussex, and later that night swept it from the same plants. It also occurs in similar situations in Kent and Essex, and is recorded from Norfolk and Suffolk (CHALMERS-HUNT).

A visit in late July to a stretch of river bank or waste ground on which tansy is growing may produce *Platyptilia ochrodactyla* D. & S., which sometimes sits on the flowers, and *Dichrorampha flavidorsana* Knaggs which is readily disturbed from the plants. *D. simpliciana* Haw. may similarly be put up from mugwort and can be distinguished from other species of the genus by its broader wing shape (R. G. WARREN).

Late June and early July is the time for the full-grown larva of the local *Agonopterix putridella* D. & S. which occurs in spun leaves of *Peucedanum officinale* in its restricted localities in Kent and Essex. Towards the end of July you may readily obtain the moth by using a bee-smoker, but it needs two—one to operate the smoker and the other to net. The insect hides in thick grass and other vegetation among the foodplant. (CHALMERS-HUNT).

The Common Spike-rush (*Eleocharis palustris*) frequents ditches and the margins of ponds, is generally distributed and common in the British Isles, and should be swept by day for the moths of *Bactra furfurana* Haworth and the more local *Monochroa lucidella* Stephens, both of which sometimes occur together in numbers (CHALMERS-HUNT).

Notes and Observations

DECORATIVE ART IN BUTTERFLIES. — With reference to B. O. C. Gardiner's note under this heading (1978, *Ent. Rec.*, 90: 249-250), a good many years ago, I think it was in a book on the butterflies of Ceylon but cannot now trace the reference, this single, or direct, transfer method was described but it was noted that when colours were due to structure the results were not satisfactory, because, for want of a better term, the scales were then back to front. A double transfer method was described. This consisted, briefly, of making the initial transfer onto a wax-covered, not gummed, paper. This was then gummed to a second paper, and then, after drying completely under pressure, the two papers were transferred to a bath of suitable wax solvent, and the original waxed paper was peeled off, leaving the scales, now in their proper order, attached to the second paper. This, at least, was the theory. — D. G. SEVASTOPULO, F.R.E.S.

SCALE TRANSFERS OF LEPIDOPTERA. — Mr. B. O. C. Gardiner's recent note (90: 249-50) contrasted the current commercial practice of severing the wings of Lepidoptera and using them in various forms of so-called 'decorative art' (a traffic which has, in fact, been frequent since the Victorian era) with the methods of actual scale transfer with gum arabic explained by George Edwards in his *Essays upon natural history, and other miscellaneous subjects* (London, 1770).

I share Mr. Gardiner's enthusiasm, for I first became interested in various methods of scale transfer (part of the larger and very complex history of 'nature printing', which has been chiefly botanical) upon reading the reprint of Edwards' same account, included in Patrick Matthews' delightful anthology *The pursuit of moths and butterflies* (London, 1957), and by purchase in the following year of a copy of the classic example of lepidopterous scale transfer, Sherman Foote Denton's *Moths and butterflies of the United States east of the Rocky Mountains* (Boston, [1897-] 1900). Denton's work, published in eight fascicles, was illustrated by black and white figures and embellished by many plates of actual scale transfers from specimens. (I have only recently initiated a full bibliographical study of this curious book, and an example in the Library of Congress, Washington, D.C., apparently Denton's personal copy according to the stamp on the spine, is 'extra-illustrated' by very numerous tipped-in plates of additional scale transfers with manuscript identifications).

Denton explained in his book that he was required to make over 50,000 scale transfers to provide suitable plates for the edition of 500 copies, and the difficulty of the method leaves little doubt that his estimate, incredible as it seems, was probably correct. The bodies were printed from engravings and then hand-coloured. Denton's book is one of the most remarkable examples of 'nature printing' and, of course, it

commands a very high price in the antiquarian book market.

Denton's biographical data are sparse. He was born in Dayton, Ohio, U.S.A. on the 24th September 1857. His father, William Denton (1823-1883) was a controversial non-conformist Methodist lecturer and author. Sherman Denton was educated in Massachusetts, and visited the far West on an extended collecting trip as a young man. His subsequent expedition to Australasia was described in *Incidents of a collector's rambles in Australia, New Zealand, and New Guinea* (Boston, 1889). These years were followed by work on his **American** book. In later life, Denton mounted biological specimens for a number of museums, including the Smithsonian. He died on the 17th June 1937, and the exact method of his scale transfer is not known.

Of course, other efforts of varying merit have been attempted. I am especially interested in those of Lionel G. O. Woodhouse, co-author with G. M. R. Henry of the well-known *The butterfly fauna of Ceylon* (Colombo, 1942), and author of the abridged edition of this important work (Colombo, 1950), because some years ago my friend E. W. Classey gave me a number of unpublished transfers on paper of *Attacus atlas* (L.) made by Woodhouse in 1933-34. He 'painted in' his bodies, and the scale retention and appearance of his wing transfers are remarkable. I should like to know if any older entomologists recall Woodhouse's method and any details of his work in this medium. This aspect of Woodhouse's work deserves to be recorded. — Dr. R. S. WILKINSON, 228 Ninth Street, N.E., Washington, D.C. 20002, U.S.A.

SOME OBSERVATIONS ON GONEPTERYX RHAMI L. IN 1978.
— Following a slight frost, March 3rd 1978 was a brilliant warm day, and during the morning whilst in my garden at Batheaston, Bath, I was delighted to see a male Brimstone Butterfly creep from the ivy which topped a dry stone wall. The wall faced due south and was in full sunshine. The insect sunned itself on a leaf for five or six minutes and then flew off strongly in a northerly direction. During the following thirty minutes or so a butterfly (or the butterfly) flew back to the ivy on eight different occasions, always settling on the same leaf and making as if to re-enter the ivy but never doing so. Eventually it flew off not to return. The ivy was carefully examined in the evening and on the following day but without sign of the Brimstone.

September 12th was a perfect autumn day which brought out the Vanessids to feed on the garden Buddleia, and I was fascinated to see a *ramni* (male) fly over the garden wall and show great interest in a *Clematis montana* which was trained along its southern face. The insect flew up and down for about twelve minutes, sometimes settling on leaves and sometimes completely leaving the area, but always returning to the same place in the Clematis. Finally it settled on a leaf from which it crawled into the creeper and settled itself in a wings-down position firmly clinging to a leaf stalk. The colour of the under-

side of the wing so merged with the leaves as to make the butterfly almost invisible. Here the insect remained, motionless on the hot days, but as the wind moved the leaves of the Clematis on the cold windy days it also moved the wings of the butterfly in unison with the leaves, thus completing the camouflage.

I was beginning to wonder what would happen when the leaves of the Clematis were shed, but on 20th September, a very hot day, I was fortunate enough to be in the garden and observe the Brimstone crawl out into the sunshine, bask on a leaf for a few minutes and then fly off to the north.

The butterfly returned to its basking position several times before flying off completely. — BRYAN W. MOORE, Church Cottage, Batheaston, Bath, Somerset.

SELATOSOMUS BIPUSTULATUS (LINNAEUS) (COL., ELATERIDAE) IN WILTSHIRE AND SUFFOLK. — This handsome Elaterid appears to be rarely encountered and then usually as single specimens.

The only Wiltshire record of which I am aware is for the northern vice-county and precise details are not provided (1938, *Marlborough College Nat. Hist. Soc. Report No. 87 — Hand-list of the Col. of the Marlborough District — 10 miles radius*). The collectors who supplied the majority of records for this list were E. Meyrick and A. G. Jebb. Some records were provided by Janson but he did not take this species. I took a single example from under the back of a dead, fallen hawthorn branch in the middle of Langley Wood near Redlynch (SU 2220) on April 4th 1974. A specimen of the Anthribid *Choragus sheppardi* Kirby emerged a short while later from a piece of the branch which had been retained.

Claude Morley, 1899 (*Col. of Suffolk*, p.69) recorded *S. bipustulatus* from Bungay (Garneys) and from Battisford (in coll. Baker). I know of no other Suffolk specimens. I swept a single example in Shrubland Park, Barham (TM 1252) from long grass growing under mature pines, and oaks with dead lower branches. The latter were almost certainly the breeding site of the beetle.

I thank Mr. N. Anderson and Lord de Saumarez for allowing me to collect on their respective estates at Redlynch and Barham. — D. R. NASH, 266 Colchester Road, Lawford, Essex, CO11 2BU.

NOTABLE MOTH SPECIES AT ASHURST, HAMPSHIRE, IN 1978. — The following species of Macrolepidoptera were recorded by M.V. trap in my garden at Ashurst, Hampshire (map ref: SU 344115) in 1978, not having been recorded in 1976 or 1977. Numbers of individuals are in brackets. *Macrothylacia rubi* L. (2), *Scopula floslactata* Haw. (2), *Rhodometra sacraria* L. (2), *Orthonama vittata* Borkh. (1), *Eulithis prunata* L. (2), *Hydriomena ruberata* Freyer (2), *Eupithecia linariata* D. & S. (1), *E. succenturiata* L. (1), *E. simpliciata* Haw. (2), *E. fraxinata* Crewe (1), *Lobophora halterata* Hufn. (5), *Acasis viretata* Hubn. (4), *Selidosema brunnearia* Vill. (3), *Cleora cinctaria* D. & S. (4), *Boarmia roboraria* D. & S. (5), *Lomo-*

grapha bimaculata Fab. (2), *Clostera pigra* Hufn. (1), *Dasychira fascelina* L. (2), *Leucoma salicis* L. (2), *Eilema sororcula* Hufn. (1), *Diacrisia sannio* L. (1), *Mythimna unipuncta* Haw. (6), *M. obsoleta* Hubn. (2), *Xanthia gilvago* D. & S. (1), *Ipimorpha subtusa* D. & S. (1), *Apamea unanimis* Hubn. (1), *Arenostola phragmitidis* Hubn. (1), *Chilodes maritima* Taus. (1), *Nycteola revayana* Scop. (3), *Autographa pulchrina* Haw. (3), *Parascotia fuliginaria* L. (3).

The following were among the less common species found at this site in 1978, although they were also found here in 1976 and/or 1977. *Trichiura crataegi* L. (3), *Drepana cultraria* Fab. (4), *Idaea sylvestriaria* Hubn. (1), *I. emarginata* L. (1), *I. straminata* Borkh. (3), *Orthonama obstipata* Fab. (3), *Epirrhoe rivata* Hubn. (1), *Euphyia unangulata* Haw. (3), *Eupithecia intricata* Zett. (20), *E. phoeniceata* Rambur (1), *Ennomos quercinaria* Hufn. (2), *Apocheima hispidaria* D. & S. (26), *Odontosia carmelita* Esp. (4), *Thumata senex* Hubn. (1), *Eilema deplana* Esp. (1), *Mythimna pudorina* D. & S. (1), *M. straminea* Tretits. (4), *Cucullia asteris* D. & S. (1), *Aprorophyla lutulenta* D. & S. (20), *Lithophane semibrunnea* Haw. (2), *L. socia* Hufn. (2), *L. ornitopus* Hufn. (22), *L. leautieri* Bois. (109), *Conistra rubiginea* D. & S. (1), *Xanthia citrigo* L. (1), *Cosmia pyralina* D. & S. (14), *Apamea scolopacina* Esp. (10), *Stilbia anomala* Haw. (1).

Thanks are due to Col. D. H. Sterling and Mr. A. H. Dobson for confirming the identities of the rarer species — Dr. J. C. A. CRAIK, 48 Whartons Lane, Ashurst, Hampshire.

ARE AMATHES AGATHINA DUP. AND RHYACIA SIMULANS HUFN. IMMIGRANT SPECIES?—With reference to Dr. de Worms note (1978, *Ent. Rec.*, 90: 337) on *Amathes agathina* Dup. at Woking, Surrey, I was also agreeably surprised to find a single specimen in the trap at Caversham, Reading on the morning of 8th September 1978. The nearest extensive heathland is at Burghfield, 10 miles south of Caversham, where R. D. Sitwell took the species at heather bloom in 1906 and 1907. These specimens are in his collection at Reading Museum and are the only Berkshire records known to me excepting one at Aldermaston in 1977 and one from a heath north of Newbury in 1978. The Caversham specimen is greyer than those I have taken in Hampshire and Dorset and one is tempted to suggest that it, and Dr. de Worms' specimen are immigrants. It is conceivable that other *agathina* arriving over this period could have been overlooked by making landfall in areas of southern England where the species is not considered uncommon. If not immigrants there must have been a widespread movement of resident populations taking place, but it is interesting to note that at this same time the first confirmed Kentish record for *Rhyacia simulans* Hufn. occurred and other specimens were recorded in Essex as our Editor has indicated.

I discussed these records of *agathina* and *simulans* with Peter Davey of the Met. Office at Bracknell who kindly looked through all the weather maps for the period 17th July to 30th

September 1978 and says (*in lit.*) that he can find only three periods when conditions were favourable for a Continental source of migration: —

(a) 29th July (06 hrs.) to 2nd August (12 hrs.); (b) 18th August (00 hrs.) to 20th August (06 hrs.); (c) 5th September (06 hrs.) to 7th September (12 hrs.). He has also suggested the following sources for immigrants over these periods: —

(a) S. Holland or Belgium (possibly N.E. France); (b) N.E. France or Belgium; (c) Central or N. France (possibly N.E. France or Belgium at first). Seitz gives the distribution of *agathina* as Britain, France, Belgium and Spain and for *simulans* says "Occurs in most of the countries of N. Europe . . .". — B. R. BAKER, Reading Museum & Art Gallery, Reading, Berkshire.

COLEOPHORA MACHINELLA BRADLEY IN SUSSEX. — On the 28th of July 1977 I paid a very brief visit to Ditchling Common — so brief that my wife never left the car. The purpose was to study the habits of *Dichrorampha sylvicolana* Heinemann flying amongst its foodplant, sneezewort (*Achillea ptarmica*), as a preliminary to what was to prove a successful search for that species in Epping Forest, where it had not been taken since 1898. I also netted two coleophorids flying amongst the sneezewort; these have since been determined by Mr. R. W. J. Uffen as *C. machinella*.

This species was discovered on the south Essex salt-marshes by W. Machin and named by him *Coleophora maritimella* in 1884. This name was preoccupied by *Coleophora maritimella* Newman, 1873 (*obtusella* Stainton, 1874), so Dr. Bradley renamed it in honour of its first captor. H. J. Turner exhibited cases with living larvae feeding on sea-wormwood (*Artemisia maritima*) at a meeting of the South London Entomological & Natural History Society in 1903 and some of the resultant adults are in the Jacobs collection, now in the British Museum (Natural History). As far as I know, the species was not recorded subsequently until Dr. J. Langmaid found the larvae feeding on sneezewort in south Hampshire in 1977. — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF. 27.i.1979.

ANTENNAL DEFORMITY IN AN EXAMPLE OF HARPALUS (OPHONUS) RUFIBARBIS (Fabricius, 1792) (Col.: Carabidae. — Whilst collecting Carabidae from under stones on waste ground at Parkeston, Harwich, Essex (TM 2332) on May 28th 1976, I took several specimens of *Harpalus rufibarbis* (F.). Amongst these was a male with a most curious deformity of its left antenna and since I am only aware of a few published references to teratology in Coleoptera, I feel a brief description may be of interest.

The antenna has all the joints except the third correctly formed. The latter, however, consists of two normally proportioned joints fused about a third from their common base, these lying at about 45° to each other. The outermost of these joints is attached to correctly formed joints 4-11. The innermost has attached to it an obovate joint somewhat shorter than

the normal 4th joint and this is followed by a large, grotesque, apically clavate joint somewhat longer than the typical joints 5 and 6 taken together. The latter bears marks indicating a fusion of two abnormal, enlarged joints. It is surmounted by a very short patella-like joint and fused to this are two further obovate joints each of approximately the same size as the deformed 4th joint, these last joints springing at a 45° angle from the exterior corner of the enlarged clavate joint, resulting in their lying parallel to the normally formed 6th and 7th joints of the set specimen. — D. R. NASH, 266 Colchester Road, Lawford, Manningtree, Essex, CO11 2BU.

EUPROCTIS CHRYSORRHOEA HUBN. (LEP.: LYMANTRIIDAE) LARVAE IN N.W. KENT. — While perusing Volume 83 of this Journal for the year 1971 in search of other data, I came upon B. K. West's note (pages 216-217) concerning his discovery on 18th May 1971 of "a considerable, but localised colony" of larvae of the above-named species on hawthorn and other trees and bushes along a road on the chalk hills between Dartford and Darenth Wood.

Although they are not necessarily connected, I feel I should place on record that on 19th April 1952 I liberated, perhaps reprehensibly, between 250 and 300 *chrysorrhoea* larvae, collected earlier that month at Dungeness, on hawthorns not far from the Long Reach Isolation Hospital on the Dartford Marshes. As I have rarely been able to visit these marshes since that year, I do not know whether or not the species became established there. I think it is unlikely, as during the following winter the marshes were inundated by the notorious high tides of 1953 which breached the Thames river-wall in several places and flooded the marshes to a depth of several feet. — J. F. BURTON, 11 Rockside Drive, Henleaze, Bristol, BS9 4NW.

OBSERVATIONS UPON THE OCURRENCE OF CARABUS MONILIS F. AND C. NEMORALIS MULL. IN SUFFOLK, N.E. ESSEX, AND WILTS. — I must begin by stating that I cannot recall any published notes specifically commenting on the relative uncommonness or otherwise of these two *Carabus* species in recent times. Lindroth, however, in his recent work on the British Carabidae (*R.E.S. Hbks. for the Ident. of Brit. Ins.: IV* part 2, 1974) indicates that the status in this country of both species has altered over the last century. In this context, therefore, it seems worthwhile to place on record my limited experience of casual captures of these species over the last decade. Obviously, intensive all-year-round pitfall trapping is required to efficiently estimate the density of any active *Carabus* population — *nemoralis* has, in fact, been shown to aestivate during the summer months. Lindroth (op. cit. p.23) states that *Carabus monilis* Fabricius seems to have become less common everywhere. My few captures over the last ten years or so would seem to confirm that present comparative scarcity of this beetle. I have only met with *monilis* in N.E. Essex. My records are as follows: Lawford (TM 0931): 7.vi.68, 2 exx.

under street lamps at night; 15.v.71, 1 ex. dead in my garden. Dovercourt (TM 2430): 24.v.72, 2 exx. under rubbish on waste ground; 27.vi.77, 1 ex. in school classroom. Harwich/Dovercourt (TM 23): 13.v.70, 1 ex. in road. Eighty years ago, Claude Morley (*Col. of Suffolk*, 1899 p. 1) regarded it as uncommon in the Ipswich area. Despite collecting a great deal in East Suffolk I have never found or been given for identification any examples of *monilis*, and my friend Mr. C. Barham has only taken one example in the last 28 years — Ipswich (TM 1845): 12.viii.51, in garden. Moore (1957) in his County Distribution of the British Carabidae (*Ent. Gaz.* 8, p.171-180) does not record the beetle from Wiltshire although it was reported from the Marlborough area around the turn of the century by both E. Meyrick and A. G. Jebb (*Marlborough College Nat. Hist. Soc.*, Report No. 87, 1938, p.2).

Lindroth (loc. cit.) also notes that *Carabus nemoralis* Müller has become more abundant in some places whilst becoming rarer in others, notably in comparison with *C. violaceus* Linnaeus. Morley (op. cit.) also regarded this species (*nemoralis*) as uncommon in Suffolk eighty years ago. I have not found the beetle in Suffolk and Mr. Barham has only a single example which he took in Ipswich (TM 14) in 1948. My records for N.E. Essex are as follows: Lawford (TM 0931): 10.viii.68, 1 ex. carrying dried worm vertically in its jaws at night under street lamp; 10.iv.69, 2 exx. at street lamps; 21.vii.71, 1 ex. in my garden. Parkeston (TM 2331): 22.x.71, 1 ex. under stone. Parkeston (TM 2332): 28.v.76, 1 ex. under stone on waste ground. My records for Wilts. are as follows: Gariner Forest (SU 0321): 1.ix.71, 1 ex. dead in pit. Grovely Wood (SU 0633): 30.v.74, 1 ex. under stone on wood edge. Great Ridge (ST 9436): 1 ex. under log on woodland edge. Hamptworth (SU 2218) 8.iv.77: 1 ex. in moss by flush in woodland.

I hope that these remarks and records will prompt other Coleopterists to comment upon their experience of these two *Carabus* species. — D. R. NASH, 266 Colchester Road, Lawford, near Manningtree, Essex, CO11 2BU.

SOME REMARKS ON LARVAL FOODPLANTS WITH SPECIAL REFERENCE TO PHILEREME TRANSVERSATA HUFN. AND P. VETULATA D. & S. — I cannot agree with the inclusion of some of the foodplants mentioned in P. B. M. Allan's *Larval Foodplants* (1949). For the Cinnabar (*Tyria jacobaeae* L.) he seems far too generous in listing ten foodplants, including those such as Coltsfoot, Hop and Great Mullein (*Verbascum thrapsum*). In nearly 50 years experience I have seen larvae on only two plants — Ragwort (*Senecio jacobaeae*) the chief foodplant, and Groundsel (*S. vulgaris*). I suggest the larvae of *C. jacobaeae* would not feed up successfully on any plants other than Ragwort and Groundsel, and that the larvae have only crawled on to the other plants mentioned after having eaten up all their regular foodplant (as often happens).

Nine foodplants are listed for the Sprawler (*Brachionycha sphinx* Hufn.) in addition to Sallows, Poplars and Apple. These

are probably correct, though the chief foodplants upon which I have found the larva, are blackthorn and oak (as at Monks Wood), lime, and in Yorkshire and the north, usually elm. However, around 1954, while beating in Skellingthorpe Woods near Lincoln, I beat two *sphinx* larvae from honeysuckle (*Lonicera periclymenum*), a foodplant I have never seen mentioned for this species in any book.

I have beaten larvae of the Orange Moth (*Angerona prunaria* L.) in Kent, Surrey, Sussex, Lincolnshire and at Monks Wood, but never on anything but honeysuckle. Yet, Allan (*op. cit.*) makes the ridiculous statement, which I am sure is wrong, that *prunaria* larvae have been found on almost every species of deciduous tree and shrub, in addition to Broom, Clematis and Mint.

The species I particularly wish to refer to in this Note are *Philereme transversata* (Dark Umber) and *P. vetulata* (Brown Scallop). For these, Allan (*op. cit.*) is less generous than usual in only listing one foodplant for both species — *Rhamnus catharticus* (Purging Buckthorn). Stokoe and South in their book on larvae list only *R. catharticus* against these two species, but at the end of the book also include *Rhamnus frangula* (Alder Buckthorn) for them.

P. transversata and *P. vetulata* occur very locally in a few places in Yorkshire, with *vetulata* the more local of the two and seemingly confined to three or four localities. I took both species in a small copse near Selby until this was felled in 1950 (and the site later ploughed) — I never found larvae there, but as far as I know only *R. frangula* grew at that locality. Over 50 years ago, *transversata* and *vetulata* were recorded from Askham Bog, but again as far as I am aware it is only *R. frangula* that grows there and no *R. catharticus*. — S.M. JACKSON, 22 Armoury Road, Selby, North Yorkshire. [It would be interesting to hear from any reader who knows of the finding of the larva on Alder Buckthorn of either *P. transversata* or *P. vetulata* — Editor].

AN UNUSUAL COLOUR VARIETY OF *CHRYSOLINA MENTHASTRI* (SUFFRIAN) (COL.: CHRYSOMELIDAE). — Whilst sweeping bank-side vegetation including *Mentha aquatica* beside the River Avon at Great Durnford near Salisbury, Wilts. (SU 131373) on August 18th 1972, I took an unusually-coloured *Chrysolina* of the same size and shape as *Chrysolina menthastri* (Suffrian), a species which occurs quite commonly in this locality. The head and thorax of the beetle were black, the entire base of the predominately green elytra — especially in the sutural area — was of a distinct coppery colouration, and the legs and first three antennal joints, although having a greenish reflection, were considerably darker than in typical *menthastri*. In addition, the punctures of the pronotum had coalesced in many places, so that it appeared transversely strigose on its disc and longitudinally strigose at its base.

I submitted the insect to Mr. A. A. Allen who kindly determined it as *C. menthastri* and not *C. graminis* (L.) as I

had suspected it to be from its elytral colouration. Mr. Allen (in litt.) stated that he had not previously seen a similarly coloured individual of this species.

It is perhaps worth drawing attention to the fact that Mohr in "Die Käfer Mitteleuropas" (1966, vol. 9: 164) considers *menthastri* as merely an entirely green large variety of *Chrysolina herbacea* Duftschmid, the latter insect being described as green, copper coloured, blue-violet, or black with a blue shine. — D. R. NASH, 266 Colchester Road, Lawford, Manningtree, Essex.

[Mr. Nash's specimen is certainly highly unusual for Britain; on the Continent the members of this genus tend to be very much more variable in colour. The insect under notice would appear further to be something of a sculptural abnormality, and presumably the two aspects are due to the same cause or are linked in some way.

It is worth noting that though Mohr (*l.c.*) gives the same length for *C. graminis* and *C. menthastri* (or *herbacea* v. *menthastri*), the British races differ in this respect, *graminis* being obviously the larger on average with the males more elongate. I find also a character additional to those given in the literature to separate these species, viz., that in *graminis* the hind tibiae are distinctly sinuate towards apex on their outer margin, where they bend slightly outwards, whereas in *menthastri* they are practically straight in the apical half or even curve a little inwards. — A.A.A.].

AN ALTERNATIVE LARVAL FOODPLANT OF THE WHITE LETTER HAIRSTREAK (STRYMONIDIA W-ALBUM KNOCH. — In early March 1978, a single *S. w-album* ovum was found on blackthorn (*Prunus spinosa*) while searching for *S. pruni* ova in Oxfordshire. This ovum was laid on a terminal twig about three metres above ground level, the bush being at the edge of an extensive blackthorn thicket.

The resulting larva fed on blackthorn blossoms thereafter and almost completely ignored the leaves which were also available. It duly pupated and produced a typical female some weeks later. Several days passed after I had noticed the empty ovum before the minute larva was located. In the first instar and for part of the second, the larva concealed itself within the blossoms when feeding. During this period, the only time I saw the larva was when it left the blossom buds to complete the first ecdysis. The larva spun a pad of silk on a nearby twig and remained there until the moult was completed. As the larva grew in size, the feeding method was changed. Only the head and first few segments were able to enter the blossoms, the larva resting on the twigs between feeding sessions. This pattern of feeding was similar to that used by some *w-album* larvae I had reared on wych elm in the past. These larvae also entered the blossoms immediately after hatching, transferring to the leaves when half grown.

This interesting observation may provide a clue for those who, like myself, have considered the fate of *w-album* now

that the usual foodplant has disappeared from much of the countryside. It is possible that *w-album* uses blackthorn occasionally as an alternative to elm. This may explain the sightings of unidentified hairstreaks seen flying around blackthorn in areas well outside the normal distribution of *S. pruni* (cf. Symes, *Ent. Rec.*, 80: 40). One thing which could undermine this theory is that blackthorn is one of the most frequently beaten shrubs by those collectors who use this method to obtain larvae. With this in mind, I have made enquiries but have not been able to find a single instance of *w-album* larvae being beaten from blackthorn. If anyone does know of an instance, then I shall be glad to hear from them. On the other hand, the use of blackthorn could simply be a more recent trend resulting from the disappearance of the usual foodplant.

In Gloucestershire, *w-album* had a population explosion in the fine summers of 1975 and 1976. The butterfly was more widespread and numerous than I have ever seen it anywhere before. Ova were very easy to locate on those elms which were still disease free. In 1977, several fully fed larvae were observed seeking pupation sites and I looked forward to seeing imagines around their favourite trees later. This was not to be, as in contrast to the two previous summers, only two were seen. 1978 was even worse, I saw one pupa and no imagines on the few remaining elms. A gloomy picture and observers in other parts of the country have made similar reports. Time will show if *w-album* can continue to be a member of our countryside by using alternative foodplants. — JOHN McFEELY, 90 Stonechat Avenue, Heron Park, Gloucester.

THERA JUNIPERATA L. (JUNIPER CARPET) IN WARWICKSHIRE.— Among some moths sent to me for identification was an example of *Thera juniperata* L. taken by Mr. Alan Garner at a lighted window near Nuneaton on 8th October 1978. Another was seen two days later. There is no juniper in the area, so either this was a dispersal flight — the wind was southerly at the time — or possibly this species is beginning to establish itself locally on garden conifers, as *Eupithecia pusillata* (D. & S.) does so readily.

It is perhaps worthy of note that on 11th October 1963 I found a Juniper Carpet on a tree trunk in the town of Rugby; I assumed it had bred on *Cupressus* growing in a nearby cemetery. Both this and the Nuneaton example are of the southern form, not as dark as specimens I have bred from North Lancashire.— R. G. WARREN, Wood Ridings, 32 Whitmore Road, Trentham, Stoke-on-Trent.

DANAUS CHRYSIPPUS L. IN MALTA.— During a bird ringing session of the Ornithological Society, at Xemxija, St. Paul's Bay on the 14th October 1978, at approximately 8.30 a.m. a friend called out saying he had just seen a strange butterfly flying amongst the vegetation. I was soon on the spot and to my surprise I saw a very rare species of butterfly for the Maltese Islands, the *Danaus chrysippus* L. I had no net with me, and all I could do was to throw a light jacket onto it, and luckily

soon had it secured in a cigarette box. As usual I hurried home and soon contacted Mr. Anthony Valletta, who after a few minutes was at my place. The specimen turned out to be a male.

The only two previous documented records for this species had been *Danaus chrysippus* L. var. *alcippus* Cram. The first record was taken on the 4th June of 1923, by Col. Harford in Hastings Gardens at Valletta, and the 2nd in 1952, 29 years later, by Mr. Anthony Valletta, two males taken on the 10th April from Wield is-Sewda, Attard. In the same month of the same year (1952) two more were observed at Villa Gomerino — limits of Rabat.

It is of interest to note that like Mr. Anthony Valletta observed when he collected his two specimens back in 1952, we had a very large influx of Painted Ladies (*V. cardui*) and Small Whites (*P. rapae*) during the same week this specimen was taken. Although this butterfly has a wide distribution, from Africa across Asia into the Indo-Australian region, the vagrants we get in Malta must be coming from Africa (North and West). The var. *alcippus* Cram. is found only in Africa. The fact that the species is recorded as a vagrant on our Islands shows that they are to be considered as accidentals, and not a normal migratory species to this part of the world.—References: 1969, Williams, J. G., *Butterflies of Africa*. Collins. 1971, Valletta A. *The Butterflies of the Maltese Islands*. Progress Press Co. Ltd. — GUIDO BONETT, 76 Valley Road, B'Kara, Malta.

TRAPPING AND TREACLING.—Trapping in the Cévennes during August 1978, using a conventional mercury vapour moth trap, yielded some interesting and unusual records from at least six orders of insect. There were always a few female Oak Eggers (*Lasiocampa quercus* (Linnaeus)) attracted to the light but on one occasion a male made its appearance. Another surprise was a specimen of the Tree Grayling (*Hipparchia statilinus* Hufnagel). Winged ants invaded the light on another occasion, carpeting the ground and making observation and identification of other insects almost impossible; and on another evening two honeybees were recorded. Other interesting records for the latter half of August included a siphonurid ephemeropteran, a mantispid neuropteran, and a red damselfly (*Ceriagrion* sp.).

Treacling with a mixture made up from Pastis, black rum, Martini, beer, local red wine, honey and concentrated orange juice, which was liberally daubed over gnarled olive stumps, proved immediately effective from the first night of application. Even on nights when there was a full moon and no cloud cover moths were plentiful at the reacle but on occasions entirely absent at the light. The species most readily attracted to the treacle were the Red Underwings (*Catocala* spp.), but they had to compete with hordes of ants for food. It was noticed that during the day that various Satyrid butterflies fed off the sweet mixture.—DR. JOHN FELTWELL, 35 Fishers Road, Staplehurst, Kent, TN12 0DD.

Current Literature

Twelve Little Housemates by Karl von Frische. Revised edition translated by A. T. Sugar. 115 pp. 78 illus. Pergamon Press, 1978. £2.50 (limp); £5.00 (boards).

This volume, intended for the 'popular' market, covers the general biology of twelve groups of invertebrates that have colonised either man, or his dwellings, and could be loosely described as pests. Coverage includes house-flies, aphids, gnats, ants, fleas, silver-fish, bed-bugs, spiders, lice, ticks and clothes-moths. There is no particular pattern to the coverage of each group tackled, but the Author strives (with a considerable measure of success) to fill the text with interesting and informative matter.

From a general entomologists point of view the book suffers from two main disadvantages: firstly the style of presentation, although no doubt suitable for the layman, proved a major source of irritation to the reviewer as it ranged from the serious to the patronising, with an occasional stop at the infantile. This is the first book in which the reviewer has seen the causative organisms of Typhoid and Tuberculosis referred to as "scallywags". The second criticism arises in the translation from the original German. Most of the material reads as if originally written in English, but a number of terms obviously confuse the translator — for example "Schmetterling" appears to have been liberally translated. Phrases such as "... the clothes-moth, then, is a small butterfly. Most of its nearest relations, called moths is the narrower sense by Zoologists..." provide amusement at first, but eventually detract from the enjoyment of reading the book. — PAUL SOKOLOFF.

Imms' Outlines of Entomology. 6th edition. O. W. Richards and R. G. Davies. 254 pp. 95 illustrations. 8vo. London: Chapman and Hall, 1978. Paper £3.95; Boards £7.50.

This volume is essentially a condensed version of Imms' General Textbook of Entomology (Reviewed in *Ent. Rec.* 90: 281). The title correctly describes the scope of the work, and it should not be interpreted as an introduction to entomology, as the reader will need to be familiar with the general style of zoological textbooks in order to benefit from reading this book. The first half is devoted to the various aspects of Anatomy and Physiology whilst the second half covers the nomenclature, classification and biology of the 29 Orders of insect recognised by the authors.

The presentation of a zoological text on insects in 254 pages is a daunting task, and each aspect is dealt with in a highly compressed manner. The diagrams are clear, but many are unnecessarily complex, and some of the material has been taken directly from the 'parent' book. The absence of a glossary is peculiar in a work so obviously designed as a guide to entomology for zoologists specialising in other fields. The bibliography is likewise compressed, and many of the important texts are omitted from the literature references. The price of the paperback version is, however, very reasonable. — PAUL SOKOLOFF.

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THE MICROLEPIDOPTERA OF ESSEX. — I am currently engaged on compiling a list of the microlepidoptera of the county on behalf of the Essex Naturalists' Trust and the Essex Field Club; it is proposed to publish the list in 1979. I should therefore be grateful if collectors who have not already done so will send me their records. Localities even for the common species help to complete distribution patterns. Entomologists who are planning their season's collecting should bear in mind that Essex is rich in microlepidoptera (over 1,000 species of "micro" are already in the list) but almost devoid of microlepidopterists and hence seriously underrecorded. They could profitably make 1978 their "Essex year". — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, 30.iv.1978.

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WEALDEN AREA — Records wanted of all groups of insects, especially Lepidoptera, Coleoptera, Hymenoptera and Orthoptera from East Sussex and Kent, for inclusion in the publications of the Wealden Entomology Group. All records duly acknowledged and information supplied on request. — MARK HADLEY, 7 Beverington Close, Eastbourne, East Sussex BN21 2SB.

EXCHANGES AND WANTS

Wanted. — Pierce & Metcalfe; The Genitalia of the Tineidae. — Dr. F. H. N. Smith, Turnstones, Perrancoombe, Perranporth, Cornwall, TR6 0HX.

For Sale. — Honda £200 generator, as new, used for part of last season only. Price £160. Robinson trap complete with 125 w. choke, etc. £20. — D. O'Keefe, 55 Camden Road, Bexley, Kent. Crayford 523594.

Wanted. — I am preparing a one-volume edition of the entomological works of Vladimir Nabokov, and would greatly appreciate information about papers, notes, or other works by Nabokov, with any entomological content, which were published in Great Britain or Europe. His papers in *The Entomologist* 53(1920): 29-33; 64(1931): 255-257, 268-271; and 81(1948): 273-280 have already been recorded. For the introduction, I should be grateful for correspondence with persons (other than the family) who were acquainted with Nabokov in this aspect of his work.

Help Wanted — with records of British Gelechiidae for publication in Vol. 4 of "Moths and Butterflies of Great Britain and Ireland". Vice-County records only wanted at this stage. A complete check-list will be supplied to those willing to help. If you have any records for this group, please write to: Paul Sokoloff, 4 Steep Close, Orpington, Kent BR6 6DS.

Wanted — Records of daily totals in traps of *Agrotis segetum* for as many past years as available. — Rosemary Kay, Ent. Section, National Vegetable Research Station, Wellesbourne, Warwick.

Wanted — Records of Blair's Shoulder-knt, *Lithophane leautieri*. Please give dates, localities, numbers, and any details of larval foodplants. This species seems to be rapidly colonising Britain and it is planned to document the colonisation in as much detail as possible. — Dr. D. F. Owen, 66 Scraptoft Lane, Leicester LE5 1HU.

Wanted — Foreign correspondents interested in exchanging notes on, and living and papered specimens of Hawkmoths. — Write to D. C. Wareham, 27 Bright Street, Radcliffe, Manchester M26 9XX.

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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

The following gentlemen act as Honorary Consultants to the magazine:

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TO OUR CONTRIBUTORS

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

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SPECIAL NOTICE

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

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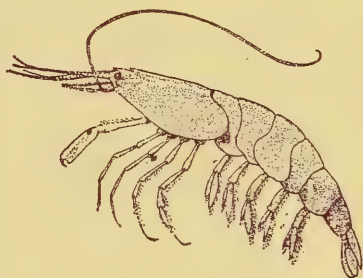
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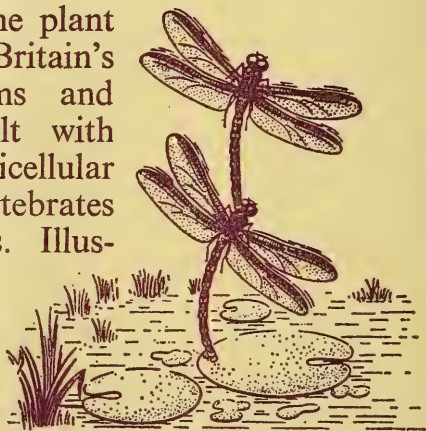


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The Large Dark Prominent (*Notodonta torva* Huebner) in Eastbourne, Sussex, and the First Recorded Instance of the Capture of the Imago in Britain

By M. HADLEY *

On the evening of the 29th May 1979, I switched on the mercury vapour light trap in the garden, and the following morning inspection revealed a female notodontid resting on brickwork near the trap, which with the aid of "South" I identified as *Notodonta torva* Hbn., and apparently only the second confirmed occurrence of this species in Britain. The evening of the 29th was humid, with maximum temperature 12°C and a light southerly wind blowing.

N. torva is widespread abroad, and in France ranges from north to south, and I suspect that my specimen was a fortuitous migrant. Further indication that this moth was intercepted on a migration from the continent, is that of known migrant species being taken upon the same night by Mr. C. Pratt of Peacehaven, East Sussex, who lives a few miles along the coast from me. These were *Agrotis ipsilon* Hufnagel and *Autographa gamma* L. upon the 29th, 30th and 31st of the month. Herbulot (1971: 110) gives the flight time for *torva* in France as April/May.



Photo: Graeme of Eastbourne.

Fig. 1. *Notodonta torva* Hb., Eastbourne, 29.v.1979 (nat. size).

Acknowledgments

I wish to thank Mr. Colin Pratt and Mr. S. W. P. Pooles for kindly confirming the determination.

Reference

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[Mr. Mark Hadley is to be congratulated on this highly notable capture, though it is unfortunate the specimen was not kept for eggs. The only other confirmed British *torva* is that mentioned in Barrett (1896, *The Lepidoptera of the British Islands*, 3: 123), who also figures in colour the actual specimen (*op. cit.*, *plt.* 107, fig. 1a) and says: "Only one reliable British specimen is known. It was reared by Mr. Frank Norgate, formerly of Sparham, Norfolk, now of Bury St. Edmund's, from either an egg or larva found by him in North Norfolk in July or August 1882 . . .". Norgate was regarded as absolutely trustworthy and besides Barrett (*loc. cit.*), both Meyrick (1895) and South (1907) accepted its authenticity unreservedly. — J.M.C.H.]

* 7 Beverington Close, Eastbourne, Sussex.

The Early Family-Group Names of Butterflies

By CHARLES F. COWAN *

(Concluded from page 64)

In 1815, C. S. Rafinesque published his very succinct but misprint-prone *Analyse*, in which he set out all genera known to him, arranged in Orders, Families and Subfamilies. His Order 8 "LEPIDOPTERIA" comprised Family 43 "ROPALOCERIA" with three subfamilies, "NYMPHALIA, PAPILIONA and DIORTHOSIA". Unfortunately the 22 genera (numbered 1-23, with 15 missing) and 5 synonyms included under the first subfamily (p. 127) do not include *Nymphalis*. It may have been the omitted No. 15 or maybe not, but the name NYMPHALIDAE is not here established. The new name DIORTHOSIDAE (p. 128) is founded on the generic name *Diorthosus* which Rafinesque here introduced as new, at the same time synonymising it with *Hesperia* without further explanation. So DIORTHOSIDAE Rafinesque, 1815 = HESPERIIDAE Latreille, 1809.

Brewster's *Edinburgh Encyclopedia* vol. 9 [1815] had a long anonymous article [by W. E. Leach] on Entomology, with several new names in the classification. The only one here relevant is LYCAENIDAE (p. 129).

Until 1827, PAPILIONIDAE, HESPERIIDAE and LYCAENIDAE remained the only established names. Then Swainson published a brief paper which successfully introduced NYMPHALIDAE, HELICONIIDAE, POLYOMMATIDAE and COLIADINAE. He also proposed the invalid ERYCINIDAE (based on a junior homonym), whose priority has been transferred to its replacement name RIODINIDAE Grote, 1895 (1827), and "PAPHIANA", also based on a junior homonym (all these, 1827: 185-188). Later, Swainson (1831: pl. 85) established THECLINAE.

The scene now shifts back to France, where a ghost must first be laid. There are several old references to "PIERIDAE Boisduval, 1829". These trace back to a remark on page 2 of Boisduval & Le Conte, *Histoire naturelle des . . Lépidoptères . . de l'Amérique septentrionale*, saying that they considered PAPILIONIDAE to embrace "tous les papillons appelés Chevaliers, Pierides, Coliades, Polyommates, etc". These are not family-group names but simply the plural forms of generic names. It was not until 1833 that Boisduval started classifying. Then, in quick succession came DANAIDAE (p. 84) and SATYRIDAE (p. 128) based on European genera, while based on African (Madagascar) genera were ACRAEIDAE (1833b: 29), LIBYTHEIDAE (: 52) and BIBIDINAE (: 53).

Next, cataloguing the European species, Duponchel introduced PARNASSIIDAE, PIERIDAE, RHODOCERINAE, ARGYNNINAE and VANESSINAE (1835: 380, 381, 385, 394 and 397), the second and fourth of which are given incorrect dates on the *Official List* of the I.C.Z.N., but they have been informed. Moreover, it has been necessary to apply for

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protection for PIERIDAE, as it is junior to COLIADINAE and the name COLIADIDAE ought strictly to have been used in its place. Then, in the New World scene, came four new names from Boisduval (1836), "EUMENIDES", PERIDROMIIDAE, BRASSOLIDAE and MORPHIDAE (1836: 163, 164, 166 and 166). The first, based on *Eumenia* Godart, [1824], was a junior homonym of "EUMENIDA" Leach, 1812 and "EUMENIDES" Dahlbohm, 1815 founded on *Eumenes* Latreille in Hymenoptera, where the name EUMENIDAE has long stood. Fortunately it was never adopted, and it was corrected to EUMAEIDAE Doubleday, 1847 based on the senior generic name *Eumaeus* Hübner, [1819] which has subjectively the same type-species as *Eumenia*. The other three are all useful names; MORPHIDAE being the subject of an I.C.Z.N. application. Finally, in another catalogue of the European fauna in Latin appeared APATURINAE Boisduval (1840: 24).

The name HIPPARCHIIDAE Kirby (1837: 297), repeated by Westwood (1840: 88), now calls for examination. It was introduced in place of SATYRIDAE, the two type-genera concerned being closely related. Indeed, only in very recent times have the two genera *Hipparchia* Fabricius, 1807 and *Satyrus* Latreille, 1810 been correctly defined and the name HIPPARCHIINI been applied to the tribe which contains the true type-species of *Hipparchia*. However, although Kirby undoubtedly regarded *Hipparchia* as a senior synonym of *Satyrus*, there is no evidence that he misidentified the genera, and as a tribal name HIPPARCHIINI Kirby, 1837 is valid when considered distinct from SATYRINI Boisduval, 1833.

A ridiculous mishap occurred in 1840. Swainson emigrated to New Zealand in that year, leaving his draft *On the History and natural Arrangement of Insects* for Shuckard to publish in their joint names. Under this promising title he only planned to introduce one new butterfly name. As he explained on page 87, it was to cover the fourth subfamily of PAPILIONIDAE, and to be based on his earlier generic name *Licina*, which he figured (fig. 3). However, each time the new name appeared in the text (pp. 87, 89), it was "LYCAENINAE"! The Index does list it as LICINIINAE and I have seen one other casual allusion to it (Trimen, 1889: 3, under PIERINAE), but it has long been ignored and the junior but well established name DISMORPHIINAE has supplanted it. Exorcism of this ghostly name by I.C.Z.N. may be advisable. Incidentally, Swainson did not require the correct use of the name LYCAENIDAE because he included the genus *Lycaena* in his omnibus family ERYCINIDAE, which he did not trouble to subdivide.

The closing decade of this review, 1840-1850, was comparatively uneventful. Further publications from France, notably by Blanchard and by Duponchel, introduced nothing new for Rhopalocera above generic level. It remained for Edward Doubleday to make some minor adjustments. EUMAEIDAE Doubleday, 1847a (: 20) has already been mentioned. Earlier, EURYTELIDAE Doubleday, 1844 (: 143), and then

AGERONIIDAE Doubleday, 1847b (: 81) were substituted respectively for BIBLIDIDAE and PERIDROMIIDAE, under which they may now be valid at tribal level.

Summary

(Corrected names only are shown)

ORDER/SUBORDER Names:

LEPIDOPTERA Linnaeus, 1758 (= GLOSSATA Fabricius, 1775).	
RHOPALOCERA Rafinesque, 1815. HETEROCERA Boisduval, 1833 b.	
<i>FAMILY-GROUP Names</i> ; allotted rank and suffixes approximating to current classification requirements, although the first four are now usually given Superfamily rank (-OIDEA).	
PAPILIONIDAE Latreille, [1803]	PARNASSIIDAE
HESPERIIDAE Latreille, 1809	PIERIDAE
LYCAENIDAE [Leach], [1815]	RHODOCERINAE
Nymphalidae	ARGYNNINAE
HELICONIIDAE	VANESSINAE
POLYOMMATIDAE	"EUMENIDES"
COLIADINAE	PERIDROMIINAE
[ERYCINIDAE]	BRASSOLINAE
RIODINIDAE Grote, 1895 (1827)	MORPHIDAE
(replaces ERYCINIDAE)	HIPPARCHIINI Kirby, 1837
THECLINAE Swainson, 1831	APATURINAE Boisduval, 1840
DANAIDAE	"LYCAENINAE" [LICINIINI]
SATYRIDAE	Swainson, 1840 (= present DISMORPHIINAE)
ACRAEIDAE	EURYTELINI Doubleday, 1844
BIBLIDINAE	EUMAEIDAE Doubleday, 1847 a
LIBYTHEIDAE	(replaces "EUMENIDES")
	AGERONIINI Doubleday, 1847b

Note: the two names shown in quotes are to be submitted to the I.C.Z.N. for suppression.

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Postscript

A reference by S. H. Scudder (1875, *Bull. Buffalo Soc. nat. Sci.* 2: 239) to SATYRIDAE Swainson, 1822-23 has just been found. This can only refer to Swainson, 1823, *Zool. Illustr.* (1) 3: pl. 159 and text, where Swainson described the neotropical *Satyrus argenteus*. I am unable to check that reference at present, but I do have one plate by Swainson, his 1820 *Zool. Illustr.* (1) 1: pl. 11 and text of 2pp., describing *Drusilla horsfeildii* [*horsfieldii*] "in the natural family HIP-PARCHIAE".

It could be argued that HIPPARCHIIDAE Swainson, 1820 might have priority over both SATYRIDAE Swainson, 1823 and also SATYRIDAE Boisduval, 1833 of the *Official List*. However, Swainson at this period was only beginning to formulate his complex ideas on classification, and in my opinion these early essays should not be accepted without more mature consideration.

COSCINIA CRIBRARIA L. SSP. ARENARIA LEMPKE: SPECKLED FOOTMAN IN KENT. — On 13th August 1965, I took at light a male of the above, at St. Peters, Isle of Thanet. I was unaware of its identity until recently when on looking through my insects Mr. Tony Harman recognised it as this rare moth. — W. D. BOWDEN, 21 Lonsdale Avenue, Cliftonville, Margate, Kent. [Only seven other examples of this immigrant race of *cribraria* have ever been recorded with certainty for Britain. Excepting one each for Suffolk and Hants., all occurred in Kent and are as follows: Sandwich, July 1914 (Metcalf, *Entomologist*, 47: 245); Sandwich, July 1922 (Chalmers-Hunt, *Butterflies and Moths of Kent*, 2: 95); Dungeness, July 21 1934 (Demuth per Bowes, *Entomologist*, 73: 25); Sandwich, August 7 1937 (Bowes, *loc. cit.*); Chandlers Ford, Hants., June 2 1945 (Jackson, *Entomologist*, 78: 126; Goater, *Butterflies and Moths of Hampshire and Isle of Wight*, 324); Thorpeness, Suffolk, August 6 1965 (A. Richardson *pers. comm.*); Minster, Sheppey, July 6 1977 (Burton, *Ent. Rec.*, 89: 322). — J.M.C.H.]

LATE RECORDS OF CALOTHYSANIS AMATA (THE BLOOD VEIN). — I would like to record two late captures of this moth. The first at my home in Eastbourne, after the long hot summer of 1976, on the 16th October that year. The second at Ninfield in East Sussex, was captured on the 29th of October during the warm autumn of 1978. — M. PARSONS, 43 Kings Avenue, Eastbourne, Sussex.

Rev. H. S. Gorham and Some 19th Century Records By J. COOTER*

(Continued from page 22)

[During 1873 Gorham moves from Rusper to nearby Shipley. At this time Rev. H. Gore was Vicar of Rusper, and also an active Coleopterist. Gore's collection (of British Coleoptera) was sold by auction at J. C. Steven's sale-rooms during 1890.]

1873		Entry No.	Detail
	Date May 9th	5	Holmbush Pond, 12 <i>Badister peltatus</i> ²² , <i>St. skrimshiranus</i> , <i>vespertinus</i> , 1 <i>Oodes</i> , <i>Rhinoncus inconspiculus</i> , <i>R. subfasciatus</i> , <i>Eirrhinus scirpi</i> , 1 <i>nerais</i> .
	14th	5	Ifield Mill Pond, 19 <i>Badister peltatus</i> ²³ , <i>St. skrimshiranus</i> common, 2 <i>Oodes</i> , 1 <i>G. equiseti</i> , <i>Rhinoncus inconspiculus</i> , <i>subfasciatus</i> , 2 <i>Bem. Clarkii</i> .
		8	Sallows Pit, Rusper. 1 <i>Hypulus quercinus</i> ²⁴ , <i>Apion coarctatus</i> .
	June 17th	12	Holmbush Ponds — 3 <i>B. peltatus</i> ²² , 1 <i>Dorc. bovistae</i> , 11 <i>Donacia typhae</i> , 1 <i>D. thalassina</i> , 9 <i>D. impressa</i> , 1 <i>D. hydrochaeridis</i> , <i>Anis.</i> 19 <i>punctata</i> , 1 <i>Philonthus nigrita</i> , 2 <i>Stenus planitarsis</i> .
	21st	13	Bought at Stevens, From Adams Colln. 1 <i>intricatus</i> , 1 <i>Cal. sycophanta</i> .
	21st	14	do. do. Lewis duplicates — <i>C. germanica</i> , <i>Pilystichus</i> , <i>Drypta</i> 1, <i>St. aurulenta</i> 2, <i>Cet. aenea</i> 2.
1874			
	May 24th	5	Hookland — 1 <i>Bembidion sturmi</i> ⁹ .
	30th	7	Shipley Flood gates. <i>Badister peltatus</i> ²⁵ , <i>Anch. piceus</i> , 3 <i>Anch. pelidum</i> ? <i>pachyrhinus</i> .
	2nd	8	Floodgate, <i>B. peltatus</i> , <i>Crepidodera pubescens</i> .
1876			[Four entries only]
	May 4th	3	Knepp Pond, 9 <i>Odocantha melanura</i> ²⁷ , 1 <i>B. peltatus</i> ²⁸ .
	9th	4	Knepp. 22 <i>Odocantha</i> ²⁷ , 1 <i>B. peltatus</i> ²⁶ .
1877			[No entries]
1878			
	July	6	With S. Stevens searched for <i>Teretrius</i> and <i>Tillus</i> ²⁹ , got 5 <i>Teretrius picipes</i> , 2 <i>Mal. rubricollis</i> .
		6a	From S. Stevens, 1 <i>Lyc. brunneus</i> , 1 <i>Teretrius</i> .
		8	Knepp Pond, 2 <i>B. peltatus</i> ²⁶ , <i>Ph. vitellinae</i> on <i>populus nigra</i> <i>Orch. ulmi</i> .
		10	Shipley on fence Harry got <i>Xyletinus ater</i> !!

22. See Fowler 1887, 1: 30. Holmbush Pond is without doubt near Faygate in St. Leonards Forest; there are various other places named "Holmbush" in Sussex. All the specimens remaining in Gorham's cabinet are *B. dilatatus* Chaudoir.

23. See Fowler 1887, 1: 30.

24. See Fowler 1891, 5: 47, the entry should read "Rusper; near Maidstone, (one specimen in wet stuff)".

25. See Fowler 1887, 1: 107.

26. See Fowler 1887, 1: 30.

* 20 Burdon Drive, Bartestree, Herefordshire HR1 4DL.

Date	Entry No.	Detail
August	14	Received from W. W. Saunders 1 <i>Calomicrus</i> . From J. [T.?] Harris 8 <i>Oxytelus fulvipes</i> from my old locality at Needlewood.
October 4th	18	With G. Lewis near School Lycopodina bovistae. Harry got 4, also near Knepp entrance Lewis and H. got 10, in wood, Fir, T. micrographus, Cryhalus and 4 <i>T. bidens</i> .
26th	20	In flood rubbish Caps Bridge Shipley, a great number of common things also 6 <i>Lathrobium pallidum</i> ³³ , 3 <i>Achenium humile</i> ³⁴ , 1 <i>Hypera murina</i> .
1879		
May	6	Knepp Pond 1 <i>Odocantha</i> ²⁷ , 12 <i>Badister pelatus</i> ²⁶ , 1 <i>B. humeralis</i> , 2 <i>Paederus longipennis</i> .
May 29th	7	Flood, rejectamenta Capps and " near home. 5 <i>Trechus micros</i> ²⁹ , <i>Pt. picimanus</i> abundant. <i>P. inaequalis</i> ³⁰ , <i>Bemb. bistratum</i> , <i>Am. plebjia</i> , <i>Achenium humile</i> ³⁴ , <i>A. depressum</i> ³⁴ . <i>Lath. pallidum</i> ³³ in abundance. 1 <i>Anisotoma</i> .
June 26th	8	From G. Lewis, Folkestone, 3 <i>Staph. fulvipes</i> ³⁵ .
July 19th	9	From S. Stevens 1 <i>Tillus unifasciatus</i> ³¹ alive.
21st	"	From W. W. Fowler. 7 <i>Euplectus ambiguus</i> var <i>minor</i> ? ³⁶ from Repton.
August	12	Shipley Flood Aug. and Sept. <i>Stenolophus</i> n.sp.? near <i>luridus</i> . [=] Black var of <i>luridus</i> .
1880		
August 16th	22	Shoreham with Power, Rover and Brewer, visited localiy of <i>Dyschirius extensus</i> , but found only <i>Dys. nitidus</i> (2) ³⁷ , <i>Dys. salinus</i> (1). <i>Bledius spectabilis</i> ? <i>tricornis</i> ³⁸ in plenty <i>Bem. eppiphium</i> , <i>Bem. pusillum</i> , <i>Bryaxis Helferi</i> (2), <i>Lymnoeum nigropiceum</i> (1). Nearer Fort <i>Bledius unicornis</i> ³⁸ in plenty, <i>Heterocerus sericus</i> (16), <i>H. femoralis</i> many a little immature.
25th	23	Shoreham with Gore, <i>Bledius unicornis</i> , <i>Heterocerus sericans</i> and <i>femoralis</i> . 8 <i>Dyschirius extensus</i> Putz ³⁷ . 1 <i>D. Bledius tricornis</i> ? ♂ (♀ in profusion) ³⁸ .

27. See Fowler 1887, 1: 136.

28. No locality is given, but it can be assumed to be Upper Norwood. See Fowler 1889, 3: 213 and 1890, 4: 168, the dates given are incorrect, and should read 1877 for the first capture of *Teretris*, and 1876 for *Tillus*. See Stevens, 1876 and 1877.

29. See Fowler 1887, 1: 126 recorded from Horsham.

30. See Fowler 1887, 1: 67.

31. This species should be known as *Tilloidea unifasciata* (Fab.).

32. See Fowler 1888, 2: 378.

33. See Fowler 1888, 2: 303.

34. See Fowler 1888, 2: 305.

35. See Fowler 1888, 2: 251.

36. Most probably *Biblopectus minutissimus* (Aube).

37. See Fowler 1887, 1: 23 for notes on *nitidus* and *extensus*.

38. See Fowler 1888, 2: 370.

Date	Entry No.	Detail
24th	24	From W. W. Fowler, 2 <i>Lithocharis maritima</i> .
November 2nd	29	In the drive and fott path in Shipley garden <i>Bledius opacus</i> ⁴⁰ making casts in plenty. N.B. I had noticed the casts a fortnight or more before.
December 4th	31	Found <i>B. opacus</i> making casts again in drive after the rain had dried, got 9.
1881		
January 10th	3	From A. E. Hodgson, 7 <i>Cic. maritima</i> , Devon. 7 <i>Elater pomorum</i> ⁴¹ (Forest of Dean). 6 <i>Aph. conspurcatus</i> Dean F. 13 <i>Dyschirius impunctipennis</i> from Devonshire.
	5 ⁴²	Tuddenham Fen with Verrall. 3 <i>Bem. gilvipes</i> , <i>Stel. orbicularis</i> , <i>Psyll. chalcomera</i> , <i>Cocc hieroglyphica</i> .
July 28th	15	Knepp Pond with G. H. Verrall. 4 <i>Tel. thoracicus</i> Ol. ⁴³
1882		
April 14th	5	Wood beyond Falconers (Hawkhurst). 1 <i>Orsodacne nigriceps</i> . 2 <i>Cocc. oblitterata</i> (1 var.), several Diptera.
	8	Knepp Pound. 1 <i>Badister peltatus</i> ²⁶ , 12 <i>Aphthona ventralis</i> .
May 13th	„	Knepp Pond with Florie, 1 <i>B. peltatus</i> ²⁶ , 4 <i>Donacia impressa</i> .
June 16th	16	From Blatch, 2 <i>Scydmaenus exilis</i> ⁴⁴ , Cannock Chase, several <i>Oxytelus fulvipes</i> ³² , Sutton Park, Birmingham.
August	22	Knepp Pond. 4 <i>Badister peltatus</i> ²⁶ .
October 17th	23	Flood rubbish at bottom of field by bridge. <i>Ocypus fuscatus</i> common, 1 <i>Ilyobates nigricollis</i> ⁴⁵ , 4 <i>Trechus micros</i> , 1 <i>Cassida vibex</i> ⁴⁶ , 1 <i>Cass. obsoleta</i> ? (<i>Cassida chloris</i> Suff.?) ⁴⁷ with gold specks near scutellum, <i>Hister cadaverinus</i> several, 11 <i>Geotrupes mutator</i> , many <i>Pter. versicolor</i> .
November 6th	24	In cellar 2 <i>Cryptophagus fumatus</i> ♂ ♀.
25th	„	do. do. on various days always
25th	„	on beer cask.
1883		
January	1	On cellar Shipley, <i>Cryptophagus variolus</i> ? and many <i>C.</i> also 2 <i>Ptinus</i> .
June 16th	6	From Lord Walsingham <i>Agapanthia cardui</i> bred from thistles from Norfolk.
July 5th	9	From Jenner — 2 <i>Phosphaenus hemipterus</i> ⁴⁸ taken at Lewes by Mr. Morris.
July 5th	11	Mickleham with Mabel and Lewis. On fence about 60 <i>Ptinus lichenum</i> Marsh. ♂ ♀.
September 10th	12	From E. Saunders 1 <i>Meloe brevicollis</i> ⁴⁹ taken at Chobham — From W. G. Blatch, 6 <i>Omophlus armerius</i> ⁵⁰ Chesil Bank.
December 23rd	15	From Baynes, 4 <i>Anisotoma cinnamomea</i> from truffles, Marlborough. Many <i>A. cinnamomea</i> alive feeding in dry dusty truffles. ♂ and ♀ from same place. Very variable in size.

39. Presumably captured at Ventnor, Isle of Wight (see Fowler 1888, 2: 315).
40. See Fowler 1888, 2: 370.
41. See Fowler 1890, 4: 91.
42. Last entry is for February 14th, and the next entry in the date column is "31" (entry number 6), then June 2nd (entry 7). Most likely entry 5 is for May.
43. See Fowler 1890, 4: 142.
44. See Fowler 1889, 3: 79.
45. See Fowler 1888, 2: 46.
46. See Fowler 1890, 4: 399.
47. See Fowler 1890, 4: 399. Gorham (1885) states that the specimens were found in flood rubbish from the River Adur. Kevan (1963) gives a detailed account of this species in Britain. See also footnote number 61. Nomenclature — *Cassida denticollis* Suffrian = *chloris* auct. Brit. *nec* Suffrian.
48. See Fowler 1890, 4: 131.
49. See Fowler 1891, 5: 98.
50. See Fowler 1891, 5: 32.

(To be continued)

TYRIA JACOBABAE L. AB. PALLIDULA **nom. nov.** — The aberration of *T. jacobabae* described in 1968 in my paper (in *Ent. Rec.*, 80: 181, plt. X, fig. 4) was there given the name *pallida* in error. An objective replacement name for *pallida* Watson, 1968, which is preoccupied by *pallens* Vaughan Roberts, 1954, is *pallidula* **nom. nov.** I thank Mr. D. S. Fletcher (Br. Mus. [Nat. Hist.]), for kindly checking for me the status of *pallida* Vaughan Roberts. — R. W. WATSON, Porcorum, Sandy Down, Boldre, near Lymington, Hants.

LEIODES OBLONGA ER. (COL.: LEIODIDAE) IN S.E. LONDON. — When looking through the collections of locally-taken insects kept at Plumstead Museum, a year or two ago, I was interested to note among the Coleoptera a fine male *Leiodes* tentatively named as *cinnamomea* Panz., but which I recognized as *L. oblonga* Er. This is a rare species, the records of which (also under the names of *grandis* Fairm. and, mostly, *anglica* Rye) are largely south-eastern, but for Kent the only one I know is Cobham Park (J. J. Walker). The present capture, apparently the first for Greater London, is labelled "Woolwich/25.8.59/R. Goldsack"; the captor was a local collector who worked N.W. Kent for a time and then left the district. It may be remembered that 1959 was an excellent insect year. The species under notice is closely allied to *L. cinnamomea* and often mistaken for it; the last-named has been bred in numbers from truffles, but I have not heard that *L. oblonga* has ever been so obtained. Its distribution as given by Joy (1932, *Pract. Handb. Brit. Beetles*, I: 548, under *anglica*) — viz., "Eng. S." — is defective because it takes no account of the records under the other two names, which, as may be seen from Fowler (1889, *Col. Brit. Isl.*, 3: 27), include such localities as Burton-on-Trent, Sherwood Forest, York and Dumfries.

I am grateful to the Curator, Mr. R. G. Rigden, for the opportunity of examining the above collections and for much valuable information. — A. A. ALLEN.

The Brown Hairstreak: *Thecla betulae* L.

By T. W. C. TOLMAN, Ph.D., F.R.E.S. *

II: Notes on Rearing

Rearing *betulae* from ova is straightforward. The twigs carrying the ova should be allowed to dry for several days before storing in plastic boxes for the winter. A cool garage is a good place for storage but it is wise to examine the boxes frequently for condensation and to ensure that the twigs are free from fungal infection. To minimise this possibility, as much wood as allows convenient handling with fine forceps should be removed from around the ovum. This also facilitates location of the newly-hatched larvae and for this reason I prefer not to use paper liners as an absorbent for moisture. Any infected wood should be pared away with a sharp, clean knife. For labelling boxes I prefer small cards placed inside the containers.

In captivity, *betulae* ova start to hatch in the third week of March, but this may vary according to the time the ova are removed from the wild. In the middle of March therefore, some clean blackthorn stems should be brought indoors and kept in water. The warmth greatly accelerates bud development and ensures an adequate food supply for the larvae in their early days.

When laying out the ova bearing twigs, I try to arrange for all the eggs to be visible from the top of the box and in this way, a larva betrays its presence by its empty egg shell. Freshly hatched larvae are transferred to another plastic box containing a small twig of foodplant. When all the larvae have been accounted for, the twigs carrying the empty egg cases are discarded. Subsequent hatchings are then apparent at a glance. The risk of fungal growth on unhatched ova is one disadvantage of placing foodplant in the winter storage containers. In addition, I note that newly-hatched larvae have more difficulty in locating their food if distracted by a large number of dead twigs. The quantity of foodplant used should always be minimal: one tiny bud per newly-hatched caterpillar per day is more than sufficient. This eliminates condensation along with its ever attendant risk of disease. It also makes it easier to find the larvae when replenishing the foodplant. I always remove the foodplant used in the previous days feeding, having first accounted for all the larvae, and I tend to be fairly rough in my treatment of those which seem reluctant to relinquish old quarters. The caterpillars are, however, remarkably tolerant of abuse and losses at this, or indeed, any other stage occur only rarely.

Throughout its larval life, *betulae* does not seem to object to crowding and I am quite sure this is one Lycaenid which does not indulge in cannibalism.

As the larvae grow and foodplant requirements increase, rearing boxes will require absorbent layers of papers to deal with excess moisture. I generally use newsprint. Too much

* 1 Clanfield Drive, Chandler's Ford, Hampshire, SO5 2HJ.

paper will rapidly desiccate the foodplant and a compromise between the two conflicting needs has to be found by trial and error.

As a pupation site, *betulae* displays a strong attraction for the folds in the lining paper. When changing the foodplant, old liners carrying pupae may be transferred intact to a separate box. Several days should elapse before attempting to handle pupae.

As an emergence "cage", I use a plastic box carpeted with corrugated paper and draped with paper towels pinched in the box lid. The towels serve the dual purpose of providing a more secure foothold for freshly emerged imagines — a particularly vulnerable state — and absorbing expelled meconium. The height of the boxes is unimportant but need not be more than $1\frac{1}{2}$ inches. Pupae are probably best handled with the aid of a small spoon and soft brush.

If the pupae are stored in a cool place, such as a larder, the adults, after they emerge, will remain quiescent indefinitely.

In my almost fanatical attachment to the belief that excessive moisture is responsible for more deaths amongst livestock than any other single agency, I never spray pupae. However, I confess that as an act of blind faith I periodically breathe into the cool boxes in the hope that the small quantity of condensation precludes the risk of dehydration! I cannot say that this curious practice is effective but I can claim to have lost only a negligible number of pupae.

Generally speaking, no two individuals will adopt identical procedures for rearing livestock. Usually, in terms of results, the differences are inconsequential and where this is true, there is no justification for criticising an alternative technique. In strongly recommending, therefore, against one particular method of rearing *betulae* from ova, I do so on the basis of the numerous reports I've received concerning its high failure rate. The method, which enjoys considerable popularity, is that of attempting to reproduce natural conditions by tying ova-bearing twigs to an outdoor blackthorn bush. I have no personal experience of the method and can only speculate on the cause(s) of its mediocre success. As a general observation, I offer the tentative proposition that only a superficial correspondence to natural conditions is attained. The siting of ova on the foodplant and the local conditions of humidity and temperature (this is appreciably higher in proximity to heated buildings) are theoretically relevant considerations which, collectively, may represent a significant departure from optimum survival conditions. "Sleeving" with the finest netting may exclude most parasites — certainly not those enclosed by the net — but the finer the netting the greater will be the restriction to air flow within the sleeve and here, again, I would indict excessive moisture as the arch-enemy of larvae. It is a fact in most cases, that under truly natural conditions, a dormant species is subjected to rain and damp air, but it may

be that compensation is concomitantly effected by greater exposure to drying winds and lower temperatures.

Whatever the reasons for the low success rate of the so-called natural method of rearing, one fact strikes me rather forcibly; namely, that in nature the losses accompanying the transition from ovum to imago are, on average, close to 100%. It is manifestly obvious that if we, as rearers of butterflies and moths, need to start with one hundred eggs to sustain a reasonable probability of ending up with a pair of adult insects, which may not even be of different sexes, most of us would think twice before giving the time and energy to this facet of our hobby. Nature is indeed wonderful but it doesn't always answer to our needs.

TRIAENODES REUTERI MCLACHLAN IN KENT (TRICHOPTERA: LEPTOCERIDAE). — During the British Entomological Society field meeting at Higham Canal in N.W. Kent on 21.6.75 I collected a number of caddis-flies at light which I submitted to P. C. Barnard at the British Museum for identification. Amongst this material he found 1 ♀ *Trianodes* sp. which he could only tentatively name *simulans* Tjeder as the ♀♀ of this genus were difficult to identify. Since then, he has been able to characterise the ♀ genitalia of *simulans* and *reuteri* McLachlan (*Ent. Gaz.* 29: 244-246). On re-examining the genitalia of my specimen I was able to identify it positively as *reuteri* McLachlan. The locality fits in well with its known preference for brackish water. I has been found, so far, in Britain only from Spurn Head, Yorkshire in 1963 and Rainham, Essex in 1976. — S. E. Whitebread, Hofackerstr. 7, CH-4132 MuttENZ, Switzerland.

SCARCE PROMINENT (ODONTOSIA CARMELITA ESP.) AT EPSOM DOWNS, SURREY. — On the night of 19th May 1979 I was very pleased to find a single specimen of this fine member of the *Notodontidae* in my garden m.v. trap. It was a clear, cool, starry night with a south westerly breeze.

O. carmelita has, according to South, been reported from “. . . the Weybridge district, Dorking and Haslemere, in Surrey . . .” and “certainly appears to be distinctly local”. Its occurrence here is particularly encouraging since birch trees are particularly numerous in the locality and it may well breed at Epsom Downs if circumstances favour this.

On 13th May I boxed a typical spring brood specimen of the rather local Purple Thorn (*Selenia tetralunaria* Hufn.) which had alighted upon my garden fence whilst the light trap was in operation.

As a further note, the list of Prominents I have taken so far this spring includes the Swallow Prominent (*Pheosia tremula* Clerck), the Coxcomb Prominent (*Lophopteryx capucina* L.) and the Iron Prominent (*Notodonta dromedarius* L.) — M. J. SYMES, 2 Montrouge Crescent, Epsom, Surrey, KT17 3NY.

The Macrolepidoptera of Inverness-shire — Newtonmore District Supplement 10

By EUAN A. M. MACALPINE *

Commander G. W. Harper wrote up the macrolepidoptera of the Newtonmore area in a series of papers, Harper (1954-68). The purpose of this note is to give details of further species found in the area. All records are those of the author except for those marked with an *, which were kindly sent to the author by Stewart Taylor, the R.S.P.B. warden at Loch Garten.

GEOMETRIDAE

Xanthorhoe ferrugata (Clerck)*. One at Loch Garten on 2.vi.76.

Eupithecia abbreviata (Steph.). Two at Kincaig: one on 18.v.76 and one on 19.v.76.

Ennomos erosaria (D. & S.). Two at Kincaig: one on 24.viii.76 and one in August, 1978.

Gnophos obscuratus (D. & S.). One in the Cairngorms NNR at Achnagoichan on 9.viii.76.

SPHINGIDAE

Deilephila elpenor (L.). One at Kincaig on 30.vi.76.

NOCTUIDAE

Argochola lychnidis (D. & S.)*. One at Loch Garten on 15.ix.76.

Harper, in his final supplement, commented on eight species that he had not seen for some years and he wondered if they still occurred in the region. While working for the Nature Conservancy Council, during the years 1976-78, I recorded five of the species, *Lycaena phlaeas* (L.), *Endromis versicolora* (L.), *Anarta myrtille* (L.), *Panolis flammea* (D. & S.) and *Mythima pallens* (L.), but failed to find the other three he mentioned: *Nymphalis io* (L.), *Lasiocampa quercus* (L.) and *Polychrisia moneta* (Fab.).

Reference

Harper, Cmdr. G. W., 1954-1968. The Macrolepidoptera of Inverness-shire, Newtonmore District. *Ent. Rec. J. Var.*, vols: 66, 67, 68, 71, 72, 73, 74, 77, 80. The main list is in three parts, in vol. 66, and there are nine supplements.

* Hawkins', St. Cross Road, Winchester SO23 9HX.

RED ADMIRAL (VANESSA ATALANTA L.): SURVIVING HARD WINTER. — On April 27th 1979, I watched a ragged worn specimen feeding on willow catkin and basking on the ride floor deep in a West Country wood. Another fresh specimen, apparently a migrant, was seen in Plymouth during the same week, by a gardener. I also saw one in Plymouth on January 11th 1979, basking on a building site. I may add that I have now seen this butterfly during every month of the year in England. — A. ARCHER-LOCK, 5 Windsor Villas, Lockyer Street, Plymouth, Devonshire PL1 2QD.

The Return of the Orange Tip

By ALBERT G. LONG *

(Concluded from page 44)

(v) In County Durham (VC 66)

As early as 1846, the Orange Tip was recorded by Rev. George Ornsby in his book "Sketches of Durham". Later, George Wailes (1857) described it as "generally distributed" (*T.T.N.F.C.* 3, 195). The evidence for the rest of the last century is inconclusive; in all probability the species persisted, though it may have decreased towards the end, as in Northumberland and the Scottish border counties.

During the first two decades of the present century the Orange Tip seems to have become scarce. In 1939, Professor J. W. H. Harrison published an account "The Present Position of our Local Butterflies compared with that of 40 years ago", in which he wrote: "In 1900 this butterfly occurred in certain Durham and Southern Northumberland localities in small numbers, and even the years 1902 and 1903 produced little change for the worse. Nevertheless, after that, its numbers progressively lessened, and it even vanished from some Northumberland stations. Now it is once more on the upward grade" (*Vasculum* 52, 119). In 1951 the same author wrote "After many years of decadence produced by the bad seasons of 1902-3 the Orange Tip began to recover lost ground in 1919. One of the last areas to be recolonized was the Blackhall Rocks. However, on July 2nd it was flying in the little dene half a mile south of the Hotel" (*Vasculum* 36, 24). As early as 1905 G. T. Nicholson had recorded in his field notebook that he netted nine specimens in June at Croft.

Its history in the years 1919-1969 is one of regular occurrence, generally at low density but in relative abundance in some seasons in certain localities. Writers regarded its years of plenty as welcome exceptions to its general scarcity. During this period, the date of its first appearance was recorded under the Royal Meteorological Society's scheme for phenological observations. Such a record testifying to its presence was made in fourteen of the fifteen years 1925-1939 by the Darlington and Teesdale Naturalists Field Club (*Vasculum* 26, 20-24). Years of relative plenty include 1925, 1930, 1934, 1935, 1937, 1939 and 1945, only seven years in the period under consideration. Throughout the fifties and early sixties no marked change seems to have been noted. Thus, in 1958, Professor J. W. H. Harrison wrote "This butterfly was very scarce this year although a female was found at rest on flowers of an umbellifer at Elemore on June 28" (*Vasculum* 43, 32). The first indication of marked increase was noted in 1969 by T. C. Dunn, who wrote "The Orange Tip was such more widespread than usual" (*Vasculum* 54, 10). Evidence of the increase in the Redworth

* Hancock Museum, Newcastle-upon-Tyne NE2 4PT.

area in 1971 was given by T. W. Jefferson, who wrote "Some species have appeared for the first time for many years in this area including *Anthocharis cardamines*—in places where they have been strangers since 1965" (*Vasculum* 57, 1). In 1973, T. C. Dunn wrote "This year has seen a sudden explosion in the populations of the Orange Tip butterflies in Durham County . . . all inland colonies seem to have increased, with some of them spilling over their natural boundaries . . . This year it has turned up all over the place and has even appeared in urban gardens in some of the most built-up industrial towns. Has the recent series of mild winters had anything to do with it?" (*Vasculum* 58, 10). In a later note he added "The first specimen noted in the Chester-le-Street area was in my garden on May 25th 1973. This is right in the built-up area of the town and this is the first time I have known it to fly so far from its usual haunts in 25 years residence here . . ." (*Vasculum* 58, 13). Similar reports were recorded from Darlington, south-west Durham, Winlaton Hill and elsewhere, so that T. C. Dunn again wrote in 1975 "news has been flowing in of its increase almost everywhere in Durham . . ." (*Vasculum* 60, 4). Subsequent records show that this increase and spread has continued into the present year (1978).

**(vi) In Peebles (VC 78); Selkirk (VC 79); and
Roxburgh (VC 80)**

In order to try and trace the increase of the Orange Tip in these Scottish border counties, I have sought the help of Mr. Arthur J. Smith (A.J.S.) of Selkirk and Mr. Andrew G. Buckham (A.G.B.) of Galashiels, from whom I have received most of the records listed below.

At Peebles one female and two males were seen on 18.7.1975 and several at Innerleithen on 18.5.1978 (A.G.B.). Doubtless there would be earlier records and it would be of interest to know of these, especially if they are for last century.

For Selkirkshire, A.J.S. wrote saying he knew of no records before 1975. His former schoolmaster who was a keen collector had never seen it. Mr. Smith's first view of a Border specimen was one which came to him in a matchbox from Lanton in Roxburgh about 1928. His first known record for Selkirk was on 17.5.1975 at Duchess Drive, Bowhill, and the second of a male seen by Dr. J. Meikle at Bridgeheugh on 27.5.1975. Another male was seen in a Selkirk garden by Dr. C. Tinlin on 30.5.1975. Ova were found on *Alliaria petiolata* at Bridgeheugh near Selkirk on 3.6.1976 (A.J.S.) and two males were seen at Thirlestane, Ettrick, in 1976 by Mrs. Sanderson. Several were seen at Mauldsheugh by the river at Selkirk on 26.5.1977 (A.J.S.). One male was seen at St. Mary's Loch on 25.5.1978 and another at Selkirk Hill on 27.5.1978 (A.J.S.). Several males were seen at Blackpool Moss on 3.6.1978 and at Nether Whitlaw Moss on 4.6.1978 (A.G.B.), others were observed at Lindean Reservoir 4.6.1978 (A.J.S.).

For Roxburghshire the published evidence shows that the Orange Tip was well established in the second half of last century. In 1867 Sir Walter Elliot recorded it for Denholm (*H.B.N.C.* 5, 329), and in 1882 Adam Elliot of Samieston, Jedburgh recorded it for Roxburghshire (*H.B.N.C.* 10, 154). In 1895 William Grant Guthrie reported it as not uncommon for Burnfoot and Hornshole at the east end of old Hawick (*H.B.N.C.* 15, 332). George Bolam in 1925 wrote that "more than fifty years ago it used to be taken fairly commonly by W. B. Boyd at Cherrytrees near Yetholm" (*H.B.N.C.* 25, 522). By 1901, it was once more becoming frequent in Jedwater (*Entomologist* 63, 130). Mr. A. J. Smith received a specimen from Lanton about 1928 (see above).

More recently there has been a remarkable increase of the Orange Tip in Roxburgh similar to that in Northumberland and Durham. In the years 1971-78 it has been seen each year at Wells Sawmill, naer Denholm (A.G.B.). Other records are from near Newcastleton and Ancrum in 1974 (A.J.S.); and from Crookholm Wood in Liddesdale in June 1977 (A. Garside). In 1978 it was seen at St. Boswells (P. Summers and A.G.B.); Newtown St. Boswells and Maxton (A.G.B.); Denholm (G. A. Elliot); Morebattle (M. E. Braithwaite); Kelso and Galashiels (A.G.B.), between May 17 and June 3.

It would appear therefore that the commencement of the increase in the Scottish border counties was about 1971, two years later than in County Durham, but four years earlier than that in Berwickshire. This might mean that the increase in the Borders was in part caused by a spread from the south or west in a north and easterly direction.

(vii) In south-west Scotland (VCs 72-74)

Although I have no personal knowledge of the Orange Tip in south-west Scotland, Mr. E. C. Pelham-Clinton of the Royal Scottish Museum, has informed me that there are a few dated records, e.g. for Stranraer (VC 74) in 1882; Kirkcudbrightshire VC 73, in 1884; followed by a gap up to 1943, when it was recorded for Tynron, Dumfries VC72, and several records in 1947 and 1948. This pattern suggests a decline and recovery.

(viii) In Cumbria (VCs 69 and 70)

According to information received from Dr. N. L. Birkett, the Orange Tip has been common in southern Cumbria over a period of about 50 years. This is confirmed from notebooks of the late Dr. R. C. Lowther of Grange-over-Sands who also maintained that it was scarcer in northern Cumbria (formerly Cumberland). The late Frank Littlewood of Kendal also recorded it in the Kendal area (common) but said it was scarcer about Lancaster. The evidence therefore suggests that in at least southern Cumbria as in Durham and south Northumberland, the Orange Tip has been present for as long as records are known. In northern Cumbria, however, its status is less certain. G. T. Nicholson recorded Orange Tips near Keswick (VC 70) on 4.6.1911, and in a wood near Gilsland

railway station near the northern limit of Cumbria on 25.5.1896. I personally saw a few specimens near the King Water in VC 70 on 28.5.1977.

Conclusion

The evidence shows that in the Scottish border counties the Orange Tip was established last century, but a decline set in sometime after 1880. This resulted in virtual extinction over much of the Border region but mostly in the eastern half. Except in certain years, this state of affairs lasted up to the seventies of this century. The increase that then occurred, was possibly the culmination of a long gradual recovery most pronounced in the south and west, resulting in a steady extension northwards and eastwards. Two factors may have influenced this recovery. Mr. E. C. Pelham-Clinton favours the view that agriculture, especially draining and grazing, may have gradually eliminated *A. cardamines*, but that forestry has possibly helped it to spread again, since *Cardamine pratense* grows along the sheltered drainage ditches in young plantations. Another factor may be the more recent changed policy of reduced cutting of roadside verges. This favours the growth of *Alliaria petiolata*, another favourite foodplant of the Orange Tip along hedgerows and roadside ditches.

Whether or not the climate was a factor affecting the decline of *cardamines* towards the end of last century is impossible to assess. There were two very severe winters in the Scottish Borders in 1879 and 1880, but the effect of these on the Orange Tip population was apparently never noticed to my knowledge.

Postscript

In the first part of this article, there are three errors. These are: (1) Page 16, line 17 down — the book title should read: "*Lauder and Lauderdale*". (2) Page 16, line 12 up — the place name should read: "Stichill". (3) Page 17, line 29 — "the old railway track" should be followed by "near Powburn".

Abbreviations

H.B.N.C. History of the Berwickshire Naturalists' Club.
T.N.H.S. Transactions of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne.
T.T.N.F.C. Transactions of the Tyneside Naturalists' Field Club.

THE HORNET (*VESPA CRABRO* L.) IN WARWICKSHIRE. — For some time I have been meaning to report the occurrence of the Hornet in Claverdon, a village some six miles due west of Warwick. A listener to the BBC Radio 4 programme "Wild-life", Mrs. Katherine Penrose, sent in a queen which was passed to me for identification. It was caught by her in her garage on 7th November 1978, and she also mentioned that another was caught two or three days previously by her next door neighbours. — J. F. BURTON, BBC Natural History Unit, Broadcasting House, Bristol BS8 2LR.

British Lepidoptera Collecting in 1978

By C. G. M. DE WORMS *

Though January opened with a few mild days, the subsequent winter period was on the whole much more severe and inclement than for some five previous years, with continuous cold spells and a good deal of snow with blizzards in the south of England, especially in February. No profitable collecting was possible during these first two months when the daily temperature did not rise above the 40's. However, a milder spell began during the last few days of February bringing forth the first geometerues, mainly with the appearance of *Erannis leucophaearia* L. and *Phigalia pedaria* F. on the 23rd at Woking, followed by *Orthosia gothica* L. on the 26th, and *O. incerta* Hufn. the next day in my m.v. trap.

March began with some really congenial conditions which were prevailing on the 5th when I accompanied Mr. Peter Baker on Chobham Common in search of willow stems containing the galls made by the larvae of *Aegeria flaviventris* Staud., but very few cut stems with swellings were inhabited by this clearwing. On March 10th the thermometer rose to the 60's which tempted out the first hibernating butterflies, both the Brimstones and the Small Tortoiseshells, but this sudden onset of warmth was soon to be succeeded by a very rainy spell which was prevalent when I visited Kent on the 17th. Nothing was forthcoming in the Folkestone area or near Rye when I went over to Mr. Michael Tweedie on the 19th. By this time the season was showing signs of lateness with the willows hardly in bloom. But they were really at their best over the Easter period which started with Good Friday as early as 24th March. That day I travelled to Dorset in bright sunshine to stay with my relative near Blandford. But virtually nothing was on the wing the next day in the Wimborne region when I met Mr. R. Hatton and his wife and went to their home just to the north near Holt, in spite of the fine weather which gave way on Easter Sunday to dullness and rain. On the Bank Holiday I went on to Mockbeggar near Ringwood to stay with the late Mr. George Woollatt, but conditions were not much improved by day, though better by night for his m.v. trap which produced some 80 insects on the first occasion. These included a few *Achlya flavicornis* L. and *Biston strataria* Hufn., also several *Orthosia munda* D. & S. together with many *O. gothica* L., *O. cruda* D. & S., *O. stabliis* D. & S. and *O. incerta* Hufn., but only single examples of *Xylocampa areola* D. & S. and *Apocheima hispidaria* D. & S. The next night was of a very similar pattern with some 60 visitors and almost all the species already mentioned but with the addition of *Conistra vaccinii* L., several more *X. areola* and a single *Pachynemania hippocastanaria* Hübn. A visit to Godshill Enclosure on March 28th was marred through heavy rain. However, conditions had improved considerably when I went on to Brockenhurst on the 29th, with *Aglais urticae* L. flying in

* Three Oaks, Shores Road, Woking, Surrey.

Admiral Torlesse's garden near Sway, also later that day in that of Mr. C. H. Dixon near Micheldover. Back in Surrey, the temperature reached 60°F on March 30th, with *Gonepteryx rhamni* L. again on the wing. In fact March went out very lamb-like with the first days of April quite congenial. But these conditions soon gave way to quite a cool spell, which lasted till the middle of the month with considerable snow on the 11th. Very little was moving till the 18th when some warmth returned after this inclement spring period. The ensuing week was much more conducive to the appearance of the Notodontidae, especially *Odontesia carmelita* Esp. which was well out by the third week of April. On the 25th I travelled to Steeple Barton, north of Oxford to stay with Dr. H. Kettlewell, but his m.v. trap was virtual blank after heavy rain, which persisted all the following day when I returned to Surrey. The last day of April was spent beating loc blossom on the Surrey-Sussex border, but without success in obtaining any larvae of *Chloroclystis chloërata* Mab.

After a chilly start, May 3rd proved a glorious day when I travelled once more to the New Forest and visited Adm. Torlesse en route to a meeting of Scientific Committee in Lyndhurst, but nothing was seen on the wing till the following day, when the temperature reached 70°F in the shade and the first *Pieris rapae* L. appeared back at Woking. This onset of warmth continued during the ensuing week, and was still persisting when I motored on May 13th to stay with Ronald and Veronica Demuth at their delightful home near Bisley in the Cotswolds, which I have known for over twenty years.

My host had kindly arranged for me to plug in my m.v. trap at the home of Capt. Buddy, R.N., just outside Haresfield in the Severn Valley. Among only 29 visitors were many *Orthosia gothica*, as well as single examples of *Cerastus rubricosa* D. & S., *Orthosia gracilis* D. & S., *Apamea basilinea* D. & S., *Abrostola tripartita* Hufn., and *Lycia hirtaria* Clerck. However, the following night of the 14th with 44 individuals, produced a most pleasant surprise with a single specimen of the type, pale form, of *Xylomiges conspicillaris* L. my chief desideratum, together with most of the species cited above but with the addition of *Pheosia tremula* Clerck, *Cycnia mendica* Clerck and *Selenia bilunaria* Esp. After a dull day on the 14th when I visited Mr. George Mansell near Stroud, it was very warm and sunny when I left Watercombe House and spent the morning on Haresfield Beacon searching pine and other trunks in the local woods, which yielded both melanic forms of *Ectropis biundularia* Borkh. and the dusky form of *E. crepuscularia* D. & S. I then proceeded via Gloucester to the Forest of Dean, which was glorious with the vegetation just getting into full leaf. My destination was the Beaufort Hotel at Tintern, which has been my haven on many occasions since 1964. That evening Mr. Michael Leech came over from near Ross-on-Wye and we ran our m.v. light in a noted locality among beech and small-leaved lime adjoining the road to

Chepstow, up to 11 p.m. we saw the following ten species, mainly in singletons. These included *Notodonta ziczac* L., *N. trepida* Esp., *Colocasia coryli* L., *Orthosia incerta* Hufn., *Acasis viretata* Hübn., *Earophila baditat* D. & S., *S. bilunaria*, *E. biundularia*, *E. crepuscularia* and four *Celama confusalis* H.-S. It was another very sunny day when I toured the Forest of Dean on May 16th visiting Symond's after many years. but only a good many *Pieris napi* L. were seen over most of the Forest. It was equally fine on the 17th, when I went over to see Dr. Michael Harper just outside Ledbury, and saw the fruits of his m.v. trap run in his orchard under a low cliff face. Its contents included *P. tremula*, *P. gnoma* F., *N. trepida* Esp., *C. coryli*, *C. mendica*, *L. hirtaria* and *Menophra abruptaria* Thunb. I returned to the Wye Valley via Queen's Wood near Dymoke, where *P. napi* was flying in force. My outing on the 18th took me to near Brecon in Wales, to visit some friends in whose garden were flying several Green-veined Whites and Orange-tips. Both these insects were much in evidence on the 19th, another very fine day, when Dr. Neil Horton joined me at Tintern. In the afternoon we went over to a wood near Llandogo a few miles northward up the Wye Valley. There was a big stand of spruce where we flushed a number of *Thera albonigrata* Höfer, now distinguished from *T. variata* D. & S. which apparently has never existed in Britain. Adjacent to the spruce was some huge *Abies grandis*. Around the top of a smaller specimen of this fine tree were flitting a large number of the tiny tortrix *Eucosma subsequana* Haworth, of which my companion took several with much agility, as they were very difficult to follow in the dark background. My last day in these grand surroundings was spent making a further tour of the Forest of Dean in very warm conditions, but only a few Whites and Orange-tips were to be seen, mainly near the Speech House. During the week I had run my m.v. trap on four nights in the grounds of the Beaufort Hotel, but it attracted disappointingly few moths, among which were *P. tremula*, *C. mendica*, *C. coryli*, *O. incerta*, *O. gothica*, *O. gracilis* and *Scoliopteryx libatrix* L. I motored back to Surrey on the 21st via the Severn Bridge and the M4, again a very sunny occasion.

The last week of May proved to be probably the warmest of the whole year. This period included the Spring Holiday week-end. The common Whites and *A. cardamines* were in full force on the 28th, especially in King's Park Wood in the Chiddingfold area, where many Brimstones were flying together with a few *Clossiana euphrosyne* L. and the first *Leptidea sinapis* L. There were many *Pararge aegeria* L. and *Pseudopanthera macularia* L. in the rides sweltering in the upper 70's, while the last days of May saw the thermometer top 80°F in the shade. This great warmth was still prevalent during the opening days of June, when I revisited the Chiddingfold woods on the 3rd to find many more butterflies, in particular Wood Whites and both the small fritillaries, as well as *Pyrgus malvae* L. and *Erynnis tages* L., while several *Hemaris fuciformis* L.

were noted by other visitors. The next day, the 4th, I was in Alice Holt Forest at 82°F even without full sun. Many Whites were flying, and I flushed a female *Cynthia mendica*, which later provided a host of ova from which the larvae fed up rapidly. In the afternoon, I joined Dr. John Holmes at Lindford near Bordon. We went to some woods in Woolmer Forest, but it had become overcast and sultry and little was moving except a few Pierids. This was the last day of the heat wave, and it was much cooler on June 7th when I flew to Greece on a tour of the central and northern regions, returning two weeks later on the 21st, to find more equable temperatures in the lower 60's with on the whole a late season. It was sunny and a good deal cooler when I went to the Durfold woods on the afternoon of the 25th, but only saw a few Wood Whites. I was once more in Alice Holt Forest on June 28th, and was surprised to find so little on the wing at this optimum period with only a few *Maniola jurtina* L. On the last day of the month, *Plebeius argus* Rott. was just starting to appear on Chobham Common, where I ran a Heath light later, attracting only a few micros.

The second half of the year opened with some very rainy and cool conditions which had hardly improved when I motored to Kent on July 7th but the only visitor to a Heath light in the Orlestone woods that night was an *Apatele megacephala* L. It was dull and rainy on the 8th, but much brighter and warm on the 9th when I was at Dungeness in the morning, though nothing was at rest on the posts. Later that day I motored to the downs near Otford and Eynsford where nothing seemed to be flying. After calling on Col. and Mrs. Manley at Otford, I was back in Surrey to be welcomed by a marked return of warmth, with the thermometer once more in the 70's. On July 12th, I was again with Dr. Holmes in the Woolmer Forest region, where we only saw a few Meadow Browns and Large Skippers, but a further visit to King's Park Wood on the 14th produced many more insects including the first *Limenitis camilla* L. and *Argynnis paphia* L. but only males. There were many *M. jurtina* with a few *P. oegeria* and *L. sinapis*. It was fine and warm on the 16th which saw me again in Alice Holt Forest, where I met other lepidopterists, one of whom spotted a freshly emerged male *Apatura iris* L. sitting in the main ride after seeing others sailing high round tops of oaks. In an adjoining enclosure there were a few *L. camilla* among firs wreathed with honeysuckle bowers. Later that day *P. argus* was in full spate on part of Chobham Common.

On July 18th, I flew to Morocco, returning on the 29th after a very hot sojourn in North Africa, to find the month ending on a cool and rainy note. These conditions prevailed on the 30th, when I was once more in Alice Holt where there seemed to be no butterflies moving. However, in spite of a dull day on August 1st, quite a number of insects were on the wing in King's Park Wood. Fairly fresh *L. camilla* were still to be seen, together with quite a few female *A. paphia* which had

another good season in that area. The summer broods of *P. rapae* and *P. napi* were out, but there was still an occasional *L. sinapis* as well as many *M. jurtina* and a few *Ochlodes venata* Br. & Grey.

On August 4th I set out for East Anglia which I had not visited in the summer since 1975. En route my first halt was on Royston golf course, where besides many *P. napi*, I only saw a few *Zygaena filipendulae* L. but no *Lysandra coridon* Poda. My next stop was on the golf course at Mildenhall, where I was glad to see a good growth of *Silene otites*, but there was no sign of larvae of *Anepia irregularis* Hufn. As in 1975 my next haven was just outside Saxthorpe in Norfolk, where my host was Mr. Tony Palmer who kindly let me plug in my static m.v. trap at his home overlooking a marsh with good results. The two nights which were relatively mild, attracted just over 300 individuals embracing 43 macro species comprising a dozen *Laotoë populi* L., but only a single *Deilephila elpenor* L. The only Notodonts were *Pheosia tremula* Clerck and *P. gnoma* F. Arctiids were well to the fore with at least a dozen *Arctia caja* L. and over twenty *Eilemea lurideola* Zinck. and a single *Comacla senex* Hübn. Besides *Euproctis similis* L. and *Philudoria potatoria* L., the only other Bombycid was *Drepana falcataria*. The noctuids were well represented by 28 species. Both *Euxoa nigricans* L. and *E. tritici* L. were quite numerous with many *Caradrina blanda*, *Apamea monoglypha* L. and *A. secalis* L. *Euschesis janthina* D. & S., *E. pronuba* L. with a few *Apamea lithoxyla* D. & S., *Procus furuncula* D. & S. and singletons of *Plusia gamma* L., *P. iota* L. and *P. chrysitis* L. Of ten species of geometers the most spectacular was a fresh *Geometra papilionaria* L. with *Lygris mellinata* F., *L. pyraliata* D. & S., *Croallis elinguaris* L., *Selenia bilunaria* Esp., *Hydriomena furcata* L., *Ouropteryx sambucaria* L., and *Biston betularia* L. A very dull day met us on August 5th when my host and I spent first on Kelling Heath which only provided some *Ortholita palumbaria* and later in the fen below his house where a few *Maniola tithonus* L. were flushed. The next morning of August 6th I motored to Cley-next-Sea to visit Mr. Patrick Kearney whose m.v. trap had been equally productive during the previous nights. It harboured several *Heliophobus albicolon* Hübn. and *Cucullia asteris* D. & S. among a good assortment of commoner insects. That afternoon I proceeded via Norwich through a violent thunderstorm and deluge to the Suffolk coast putting up at the Randolph Hotel near Reydon on the outskirts of Southwold. This had been my haven on many earlier visits to this delectable region of East Anglia. I went out after dark to a large marsh known as Potters Bar where a Heath light only attracted a single *Pterostoma palpina* Clerck and a few *Apamea secalis* L. The morning of the 7th saw me at Minsmere under dull conditions with nothing moving, not even the five spoonbills which made that famous spot their summer quarters. Later I went to Walberswick to see Mr. David Chipperfield and accompanied him to

Dunwich Forest where we dislodged by beating branches a few *Abraxas sylvata* Scop. That evening we were joined by Mr. George Antram. It was our intention to run our lights in the marsh just below the well-known wartime pillbox, but to our dismay we found a fence had been erected preventing us reaching the desired area. We therefore resorted to the big marsh adjoining Dunwich where we operated our light till nearly midnight, but a dew descended and little was seen except for a couple of *Arenostola brevilinea* Fenn, with single examples of *A. phragmitidis* Hübn. and *Apamea oblonga* Haworth with several *Cosmotriche potatoria* L., *A. secalis* and *E. janthina*. The next day, the 8th I spent in dull and rainy weather first on the Walberswick sandhills and in the afternoon on those at Thorpeness where nothing of interest appeared. On August 9th I had another wet and dull day when I returned to Surrey via Bury St. Edmunds and Newmarket.

(To be continued)

CONSERVATION OF WILD CREATURES AND WILD PLANTS (AMENDMENT) BILL (H.L.). — According to the published report in *Hansard* (Vol. 398, No. 35, column 1,185) on the Amendment to the Wild Plants and Animals Conservation Bill in the Lords, the following exchange took place on 13th February 1979:

‘Viscount SIMON: In that case, I should like to ask the noble Lord who is in charge of the Bill one question, of which I have given him notice. I was a little surprised, and so were some of my lady friends, to find among the species we are seeking to protect something called the Barberry Carpet moth. Unless its name belies its characteristics, I wonder whether it is a moth which consumes carpets and, if so, whether we are wise to give it this “endangered” qualification which will seek to ensure its survival. In any case, I would say that if anybody saw a moth eating his carpet I am afraid he would stamp on it first and find out later whether or not it was the Barberry Carpet moth. I wonder whether the noble Lord can help me?’

‘Lord SKELMERSDALE: I am happy to relieve the noble Viscount’s mind. The Barberry Carpet Moth is one which some people would have us believe looks a little like a Persian carpet and it lives on the barberry plant. The barberry plant is being removed at a rate of knots — not least, I should say, by the noble Baroness’ Department in one or two of its operations. For that reason, if for no other, it needs protection under this Bill. Incidentally, should any moth shown in one of these Schedules be found to be eating a carpet, the householder would be an authorised person and would be quite at liberty to stamp on it!’

— E. H. WILD. 112 Foxearth Road, Selsdon, Croydon, Surrey CR2 8EF.

Practical Hints — August

The Holly Blue butterfly (*Celastrina argiolus* L.) is not easy to take in cabinet condition, but spring and summer broods can be bred without difficulty. For the spring brood, sheltered mature patches of ivy on walls or palings are the best situations in which to find the eggs, particularly in urban and suburban areas. The females of the summer brood deposit readily on quite small patches of ivy, and even where the buds are as low as from three to six feet from the ground. Search for the eggs soon after the first males are observed flying in the vicinity of ivy in early to mid August. They seem to locate the females with great ease, and these deposit even without sun if conditions are calm and the weather be warm. Often there are more than one or two eggs on a particular bud cluster. The desired shoots are easily severed, and for the first two weeks these should be placed in small jars of water and the larvae then transferred to plastic boxes for the last stages. The pupae should be kept cool and out of doors (protected) during the winter to avoid dehydration. I am told the larvae have cannibal inclinations, but this has not been my experience over a period of ten years with this species. I found that up to twenty last instar larvae, placed together in a plastic box measuring 6in. x 8in., came to no harm if provided with an adequate supply of ivy buds daily and the frass removed. Incidentally, it is better to collect eggs than larvae, since the latter are often heavily parasitised, mainly by the small hymenopterous wasp, *Listrodromus nycthemerus* Gravenhorst (R. M. CRASKE).

The larva of *Agrotis ripae* is as easy to find as the moth (see p. 109) if the sand is dry. Get as close to the high tide mark as the foodplant grows, kneel on the sand and lift a clump and scratch quickly with outstretched fingers through the top inch of sand and the larvae will be thrown out right and left. August is the best month and sea rocket the easiest to deal with. Saltwort and sea holly are very prickly propositions. I keep my larvae in deep old-fashioned biscuit tins. Fill the tin with pure sea sand to within three inches of the top. If the larvae are very small (and still bright green) I feed them on their foodplant for a few days. When bigger they get sliced carrot. The carrot wants changing every few days or it gets too hard. Put an old handkerchief over the top of the tin and then replace the lid. The handkerchief will absorb the condensation and the lid will keep the sand from drying out. Add no additional moisture. When full fed the larvae go down to the bottom of the tin and I leave them undisturbed and in the cold until the new year, and then they go into the linen cupboard and emerge in about five weeks. Before they are due to emerge, put a few twigs in the top of the tin and keep the handkerchief in position (which will be ruined by this time anyhow) (DEMUTH).

Imagines of *Chloroclysta citrata pythonissata* Mill. were not seen by day in Unst (Shetland), but could be found freely after dark in August, hanging on the heather, on the slopes above the lighthouse (A. RICHARDSON).

The Centre-barred Sallow (*Atethmia centrago* Hbn.) is difficult to obtain as perfect specimens at sugar or light, but they may be found, newly emerged, during the last two weeks of August and the first in September, by searching at the bases of ash trees after 4.00 p.m. Choose large trees growing in fields or hedgerows, preferably in the vicinity of woods containing a number of these trees, and not surrounded by much undergrowth. Do *not* look on the trunks of the trees, but on the ground, twigs and dead leaves not more than one foot from the base. By this time of day the moths will have dried their wings, and will be sitting on the ground in normal resting attitude, and can easily be boxed (POOLES).

The Square-spotted Clay (*Xestia rhomboidea* Esp.) occurs in a number of wooded localities in the South but is elusive. It will come to light and sugar but has been found in numbers feeding on the flowerheads of Burdock. The larvae may be forced through the same year, but the resulting moths are invariably undersized and it is far better to hibernate them. Plantain, dandelion and dock are acceptable foodplants. (CHATELAIN).

In Lincolnshire, as in other seaboard counties, the larva of *Eupithecia fraxinata* Crewe can be found with certainty and regularity only on Sea Buckthorn, but the moth turns up oddly in most inland places and its foodplants there are less easily discovered. From a female caught inland I reared caterpillars sleeved entirely on Chinese lilac and obtained good-sized pupae (HAGGETT).

In mid-late August, raised florets in the flowerheads of *Inula conyzae* indicate the presence beneath of pupae of the plume moth *Leioptilus carphodactyla* Hbn. The adults emerge in the late afternoon and hang on the flowerheads to dry their wings. Another plume *Platyptilia gonodactyla* D. & S. may be found freshly emerged just before dusk, sitting on the leaves of its foodplant, coltsfoot (WATKINSON).

Eucosma tripoliana Barrett can be netted freely at dusk on the Kentish saltings in the first fortnight of August, preferring the oozy parts where *Aster tripolium* luxuriates, especially where the roots of the plant are submerged at high tide. Second brood *Phalonidia vectisana* H. & W. and *P. affinitana* Douglas are common at the same time and in the same places (HUGGINS).

In places where *Coleophora spissicornis* Haworth is known to occur, collect flower-heads of white clover (*Trifolium repens*) into a cloth bag, close the bag tightly with string and hang it up. The larval cases are virtually impossible to detect among the dead florets, but untie the bag after a few days and if present, some of the larvae in their reddish-brown longitudinally ribbed cases (each formed from a dead floret) should be visible crawling up the inside of the bag ((CHALMERS-HUNT).

Notes and Observations

LICINUS DEPRESSUS PAYKULL (COL.: CARABIDAE) IN SUFFOLK. — In view of the general scarcity of published records of this *Licinus* from Suffolk, it would seem of value to provide a summary of those known to me, together with details of a few probably unpublished ones.

Claude Morley (1899, *Coleoptera of Suffolk*, p.4) repeats the record from Stephens' "Illustrations" (1827-35) — a single specimen at Aldeburgh by the Rev. F. W. Hope in 1824, and refers to a single specimen on Thetford Warren (no date given) and one on Lakenheath Station Road in September, 1896. The latter Breck captures, made on a joint collecting trip by Morley and E. A. Elliott, had earlier been recorded by Morley (1897, *Entomologist's mon. Mag.*, p.9) in words which, in my opinion, are liable to misinterpretation. Morley stated there that the *Licinus* occurred "very sparingly from Thetford to Lakenheath, under stones and upon the roads — upon the heath and in the fen — and never near chalk". This would read one to assume that more than two examples were observed which was plainly not the case, as study of Morley's collection and annotated "Col. of Suffolk" and diaries shows. There are only three Suffolk examples in Morley's collection with data as follows: "17.ix.96 Thetford Warren/Brandon District"; "26.ix.96 Brandon District"; "3.v.1923 Chalk Pit, Freckenham". The first two of these are presumably the specimens referred to in his 1899 work, and the data labels bear his initials. Morley's annotated copy of his "Col. of Suffolk" contains details of these singletons and yields only the following additional records: Brandon — one in August 1903 by Jennings, and Aldeburgh in 1912 by Dr. Nicholson (no details of numbers provided). Had Elliott taken specimens, Morley would almost certainly have recorded details of these as well. There are no Suffolk examples in the Doughty collection. The beetle was later recorded by Donisthorpe from roots of Mullein at Barton Mills on September 8th, 1917 (1918, *Ent. Rec.* p.29). I am unaware of any other published records of the species in Suffolk, and my friend Mr. C. S. Barham has never encountered it.

I have only taken a single example — under a stone on the beach/dunes at Thorpeness, near Aldeburgh TM 4759) on September 25th, 1976. This provides interesting confirmation of Stephens' old record and also that of Nicholson.

I thank Mr. H. Mendel of Ipswich Museum for supplying details from the Morley collection/diaries and C. G. Doughty collection. — DAVID RIDLEY NASH, 266 Colchester Road, Lawford, Manningtree, Essex CO11 2BU.

AN EARLY BRITISH 'DESCRIPTION' BY JAMES PETIVER OF AN AMERICAN EUPTYCHIA (LEPIDOPTERA: SATYRIDAE). — One of the most interesting aspects of the bookman's continuing adventure is the occasional scrap of paper which might be found in a book which he purchases. Several years ago, when examining the volumes offered for sale in the shop of a rural Maryland dealer, I was delighted to obtain for a few dollars a book of no value in itself, M. Schele de Vere's *Stray leaves from the book of nature* (New York, 1855). But it was from the library of one of the most important 19th century American entomologists, Townend Glover (1813-83), inventor of the entomological light trap, about whom I have written upon several occasions (e.g. *Ent. Rec. J. Var.*, 89: 56). Glover's book stamp, signature and date were present, and ordinarily this would have been enough of a triumph for the entomological bookman, as most of Glover's once significant library was dispersed and has disappeared since the sale after his death. (Some of his books are now in one of the largest entomological collections in the United States, the library of Michigan State University.)

However, the real treasure in my purchase was a 'book-mark'. Appearing as such was a fragment of very old paper, upon which was the obvious hand of James Petiver (ca. 1663-1718), one of the founders of scientific entomology in Great Britain. In his very familiar script, Petiver described (in Latin) a butterfly sent to him from America by one of his correspondents. The manuscript description, which appears to be the earliest of Petiver's to be found in the United States, and certainly one of the earliest manuscripts concerning American entomology to be discovered in this country, is a brief account of a butterfly furnished to his 'cabinet' by one of his collectors in Carolina. He noted that it was a "minor *Var.*" of G. N. 2. 3. According to Petiver's usual form of notation, this is a reference to the third figure of the second plate of *Gazophylacii naturae & artis* (London, 1702).

In the key to Petiver's plates, the figure represents "*Papilio Marianus fuscus, area marginali oculata*". The insect on the plate is easily recognisable as a specimen of the satyrid *Euptychia cymela* (Cramer), a common butterfly in the eastern United States. Yet, Petiver's mention of "minor *Var.*", as well as the Carolina locality, leaves some doubt as to the insect's precise identity, for he could have had a specimen of the vaguely similar 'Carolina satyr' *Euptychia hermes sosybia* (Fab.).

Despite its historical interest in this country, of course Petiver's manuscript description has no taxonomic value. Similar brief descriptions of Petiver's entomological acquisitions, often on fragments such as this, are among his papers in the Sloane MSS., British Library. But the obvious question in this case is that of provenance. How did Glover obtain a

brief manuscript description by Petiver? I fear that question will never be answered. Glover was a curious person, an accumulator of anything relevant to his work as the first U.S. Entomologist, and his papers at the Smithsonian Institution Archives, as well as published accounts of him, indicate that he saved every scrap of paper which he found to be of entomological significance. — DR. R. S. WILKINSON, The American Museum of Natural History, New York, New York 10024.

LEOPOLDIUS SIGNATUS WIEDEMANN (DIPTERA, CONOPIDAE) IN NORTH-EAST HAMPSHIRE. — During the recent mild autumn of 1978 I had the good fortune to catch and observe numbers of this less frequently found member of the Conopidae. This all happened quite by chance when I went for a short walk along a public footpath near my home in Alton, Hampshire taking a net with me just in case but not particularly expecting to catch anything interesting, it being relatively late in the year — 7th October. Presently I saw in flight a single Conopid-type fly crossing this path at about three feet from the ground. When I had caught this specimen, on superficial examination it appeared to be a *Leopoldius* species, especially noticeable in this genus compared to other Conopidae being the much shortened proboscis. Further examination at home revealed it to be a ♀ *Leopoldius signatus* Wied. Later that day I also took a ♂ specimen flying through the shaded flowerless lower parts of an ivy covered tree, ivy being profuse and large amounts in full flower attracting many insect species at this time in the area.

Returning to this locality the next day — 8th October — I managed to secure two more females and three more males in the morning. Later, in the afternoon further examples were caught, these I checked to make sure they were all of this species before being released back into the habitat. All those I caught on this day were either flying in similar situations to the first caught specimens of the day before, or sitting at rest with wings extended, on the ivy leaves in the shade well below the actual ivy flowers near to the trunk of the supporting tree.

On the 10th October, while at Hermitage in Berkshire, on checking an isolated clump of ivy covering an old building, I caught a solitary ♀ flying around the perimeter of this ivy, despite checking this site throughout the rest of October and the beginning of November no other specimens were seen or caught at this spot.

Returning to the Alton site on the 14th October, I caught and examined nine more examples of *L. signatus*, but as they exhibited no variation I released them back into their habitat. On the 22nd October, the *Leopoldius* were still frequent, flying around and sitting on the ivy foliage again mostly in the shade, and I selected two more examples that were still in good condition for my collection. The following week, on the 28th October, most of the ivy had finished flowering and the *Leopoldius* were not easily found; I secured one more ♀ in

flight around ivy covering a hawthorn tree; and saw one other specimen in flight but out of reach.

Of all the *Leopoldius signatus* specimens observed, not one was seen to actually visit the ivy blossom, thus confirming some previous published observations (cf. Fonseca *Ent. Rec.*, 64: 186 & 187, 67: 69 & 70). However, nearly all the specimens I captured were taken flying in amongst the more shady parts of the ivy clumps that were weighing down the wind-blown hawthorns growing on this chalk down, or at rest on the ivy foliage in the shade, particularly the males in the latter case. Indeed, on one occasion I saw I saw three males of this species at the same time all sitting at rest, each on an ivy leaf a few inches from each other at about five feet above the ground, in the shaded part of the ivy growth on the host tree, despite it being a sunny day and the west facing ivy branches and leaves being well lit. Hence looking at the shaded portions of the ivy foliage appeared to give most success in finding more examples of *L. signatus*. One or two specimens were seen to sit at rest in full or partial sun, but this occurrence was not noticed frequently. It was observed however that this species would still fly on an overcast day presumably because its probable hosts (*Vespula* sp.) are also completely active on such days. The *Leopoldius* would also sit at rest on the leaves and narrow branches of the host bushes and small trees of hawthorn that supported the ivy, but none were seen to approach or make contact with others of the opposite sex, nor were they seen to come into contact with any of the numerous individuals of the *Vespula* sp. here. Two *Vespula* sp. were taken here, they were *Vespula vulgaris* L. and *V. germanica* Fab. During October and November 1978, I also visited other sites in the Alton area where ivy was profuse, but I only observed *L. signatus* to occur in this small area of about a quarter mile in length, adjacent to a modern housing estate at one end, and a chicken farm at the other just north of Alton, Hants. — S. R. MILES, 25 Northanger Close, Alton, Hants.

TRIPHOSA DUBITATA LINN. HIBERNATING IN LIMESTONE CAVES IN BRECONSHIRE. — Whilst on a caving weekend in Wales on 8.10.78, we were exploring some of the caves on the Craig y Ciliau nature reserve at Llangattock near Crickhowell, Breconshire. The caves are entered from narrow openings in the face of the limestone escarpment at approximately 1,000 ft. A short way in from the entrance my lamp lit up numerous tiny eyes, which on inspection belonged to *Triphosa dubitata* Linn. These were dotted about in small groups over the sides and roof of the cave. Numerically we estimated between 80 and 100 pairs in about 10 ft. of tunnel. After this the tunnel became very wet and unsuitable as a roost. The temperature in the cave was about 50°-55°F, and probably varies very little from this. The moths were very torpid, showing almost no movement even when removed from the wall. The two most interesting things about the specimens observed, were firstly, they were all in immaculate condition looking as

if they had just crawled from the pupae. Secondly the moths were grouped in pairs, each female having a male resting beside it. Unfortunately I have not been able to revisit the area to continue my observations. — B. J. TAYLOR, 86 Furzebrook Road, Wareham, Dorset.

[A similar phenomenon was witnessed here in 1934 and recorded by Brig.-Gen. J. B. G. Tulloch in *Entomologist*, 68: 93-94. On that occasion the *dubitata* were estimated to run into hundreds and were accompanied by *Vanessa atalanta* L. and dozens of *Scoliopteryx libatrix* L. It would be interesting to know if such a concourse occurs here annually.—J.M.C.H.].

THE VOLTINISM OF *PHYLLONORYCTER ROBORIS* (ZELLER). — I have already drawn attention to experience in rearing this species suggesting that it is univoltine (*Ent. Rec.* 88: 158-159). This year I have had corroboration. On our drive south from Scotland on the 10th of August 1978, my wife and I visited the battle-training area near Ollerton, Nottinghamshire where we had previously taken mines. This time we needed fieldcraft as well as field-work as an army exercise was in progress and we would certainly have been ejected had we been seen. The mines were scarce and we found only five, two of which appeared to be aborted. The date makes it certain that they belonged to the first, or only, generation. The mines were kept in a warm room for the next six weeks but no emergence took place. At the beginning of October I put them outside, laying them on the ground in an old nylon stocking; for much of the period between January and March they were under snow. On their being brought in again at the beginning of April, moths emerged on the 23rd and 28th of the month, later than other *Phyllonorycter* reared in similar circumstances. The voltinism of this species may differ in different parts of its range, but there seems to be no doubt that it is univoltine in Nottinghamshire. — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, 18.v.1979.

APOMYELOIS BISTRIATELLA NEOPHENES DURR. IN SHROPSHIRE. — On the August Bank Holiday Monday in 1978, Barry Goater, Dr. John Langmaid and I called briefly at Whixall Moss, Salop. Upon seeing the black fungus *Daldinia concentrica* on a burnt Birch tree I broke it off to demonstrate the feeding place of this species and the very first fungus contained a larva! Further search produced several larvae, but they were not common. The first specimen was bred by B. Goater on 11th May 1979 confirming the record. Reference to Beirne's 'Pyralid and Plume Moths' showed the known distribution of *neophanes* to be 'Surrey, Hampshire, Isle of Wight, Dorset and Devon' although one of the references quoted gives also a record from Sussex. Our specimens from Shropshire would seem to indicate a remarkable extension in the known range of distribution of this species. — REV. D. J. AGASSIZ, St. James' Vicarage, 144 Hertford Road, Enfield, Middlesex EN3 5AY.

OBITUARIES

Sir Henry Lawson (1898-1978)

Henry Lawson who died on December 10th 1978, aged 80, was yet another most knowledgeable and enthusiastic field naturalist who enjoyed to the full his pastimes and interest both in ornithology and the study of mainly the British lepidoptera. He was educated at Lancing College and Cambridge University, taking up the legal profession and eventually becoming chief legal adviser to Lloyds Bank. On becoming President of the Law Society in 1963, he received the honour of a Knighthood. He had a lifelong interest in our butterflies and moths and it was while in the Highlands in the early 1930's that he observed a large moth flying over the heather. It turned out to be a *Crymodes assimilis*, a rarity in those days and seldom seen on the wing in the daytime. Later, he found a Bedstraw Hawk at rest in a room at his home at Pirbright, where he lived for just over forty years, and where he ran a m.v. trap regularly during many of them. In 1949, in the Isle of Wight, he was fortunate enough to be there during the big immigration of *Celerio livornica*. In the vicinity of his Surrey home he found the red form of the Powdered Quaker breeding on bog-myrtle, a rare plant in the region. He often combined bird-watching with entomology in several parts of the British Isles, and not least his country cottage on Selsey Bill which served as a very good base. Henry Lawson joined the then South London Entomological and Natural History Society as far back as 1927, and was made an Honorary Member just before his death. All sympathy is accorded to his widow, his daughter, and three sons for the loss of one who through his quiet nature and most kindly manner endeared himself to all who had the privilege of knowing him. — C. G. M. de W.

George Woollatt (1908-1978)

With the passing of George Woollatt on October 26th 1978 at the age of 70, the fraternity of field lepidopterists has lost one of its keenest members who resumed his early interest in these insects quite late in life. The son of an engineer, it was largely from his uncle, that eminent lepidopterist Edgar Hare, from whom he learnt a great deal about our butterflies and moths. He used to run a m.v. trap at his home near Chobham, Surrey, where the autumn of 1969 was especially propitious since it attracted only the second British specimen of the large Snout moth, *Hypena obesalis*, and shortly afterwards a remarkable aberration of the Silver Y moth, with a blotch instead of the usual gamma-mark. When he retired from his career in the Westminster Bank in 1971, he moved to the West Country where near Yeovil in 1973 he reported seeing a *Plusia bractea*, a very southern record for this species. Further west he resided near Exeter and twice near Seaton where his trap was visited by a good many choice insects, including some remarkable forms of the Jersey Tiger, some with the forewings almost totally obscured with brown. In March 1977, he took

near Beer, Devon, superb example of the little noctuid *Eublemma ostrina*. He finally settled at Mockbeggar near Ringwood, where he kept his trap running and altogether during his latter years was able to obtain a very comprehensive series of the macrolepidoptera, though he seldom travelled far afield. He was also a great adept and authority on wireless and used to receive and transmit messages all over the world from an apparatus he built at his Surrey home. Of charming and kindly personality, he will indeed be missed by all who knew him, and all sympathy is extended to his widow and surviving family. — C. G. M. de W.

Current Literature

The Observer's Book of Caterpillars by **David J. Carter**. Pp. 159 with 226 coloured illustrations by **Gordon Riley** and 17 line drawings. Published by Frederick Warne & Co. @ £1.25 ISBN 0 7323 1592 8.

This is a most useful addition to the Observer Books.

Written by the curator of our National Collection of Lepidoptera, the text combines the skill of the professional entomologist with the understanding of a field naturalist. The introduction is a model of a concise account of caterpillars, their place and function in the life cycle, their general features, defence and camouflage, predators, parasites and diseases. There are informed comments on Conservation and collecting, rearing and preservation.

Sadly, because of space, only 205 species have been included. Selection of species has depended on whether they are most likely to be encountered or if they have an unusual appearance or specialized biology. Family form and shape are displayed as silhouettes on the end papers. For each species illustrated, foodplants, months when found, distribution and notes on habits including mode of pupation and time of adult emergence are given.

The plates are generally good and compare favourably with other hand illustrated books on larvae though some of the greens are not quite right—*Saturnia pavonia* for example. Where dimorphism is present, two colour forms are given. Nevertheless the painting of *P. bucephala*, when compared with Miss Angel's cover photo of that species, does suggest that modern photographic technique generally gives a better illustration than a hand painting where larvae are concerned. The illustration of the larva stated to be that of *Xylena exsoleta* L. refers to *X. vetusta* Hbn.

An excellent book for naturalists or gardeners who wish to name their finds and one which most lepidopterists will be glad to have by them. — E.H.W.

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THE MICROLEPIDOPTERA OF ESSEX. — I am currently engaged on compiling a list of the microlepidoptera of the county on behalf of the Essex Naturalists' Trust and the Essex Field Club; it is proposed to publish the list in 1979. I should therefore be grateful if collectors who have not already done so will send me their records. Localities even for the common species help to complete distribution patterns. Entomologists who are planning their season's collecting should bear in mind that Essex is rich in microlepidoptera (over 1,000 species of "micro" are already in the list) but almost devoid of microlepidopterists and hence seriously underrecorded. They could profitably make 1978 their "Essex year". — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF, 30.iv.1978.

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WEALDEN AREA — Records wanted of all groups of insects, especially Lepidoptera, Coleoptera, Hymenoptera and Orthoptera from East Sussex and Kent, for inclusion in the publications of the Wealden Entomology Group. All records duly acknowledged and information supplied on request. — MARK HADLEY, 7 Beverington Close, Eastbourne, East Sussex BN21 2SB.

EXCHANGES AND WANTS

Wanted. — I am preparing a one-volume edition of the entomological works of Vladimir Nabokov, and would greatly appreciate information about papers, notes, or other works by Nabokov, with any entomological content, which were published in Great Britain or Europe. His papers in *The Entomologist* 53(1920): 29-33; 64(1931): 255-257, 268-271; and 81(1948): 273-280 have already been recorded. For the introduction, I should be grateful for correspondence with persons (other than the family) who were acquainted with Nabokov in this aspect of his work. — R. S. Wilkinson, 228 Ninth Street, N.E./Washington D.C. 20002, U.S.A.

Help Wanted — with records of British Gelechiidae for publication in Vol. 4 of "Moths and Butterflies of Great Britain and Ireland". Vice-County records only wanted at this stage. A complete check-list will be supplied to those willing to help. If you have any records for this group, please write to: Paul Sokoloff, 4 Steep Close, Orpington, Kent BR6 6DS.

For Sale — Ex British Museum insect cabinet, 48in. wide x 42in. high x 20in. deep. 26 drawers each 20in x 18in. x 2½in. Glass top and bottom. At present containing small English Butterfly collection and some tropical. — Offers to J. Shapland, Solitude, Rawlings Lane, Seer Green, Beaconsfield, Bucks. HP9 2RQ.

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AND JOURNAL OF VARIATION

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

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TO OUR CONTRIBUTORS

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

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

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SPECIAL NOTICE

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

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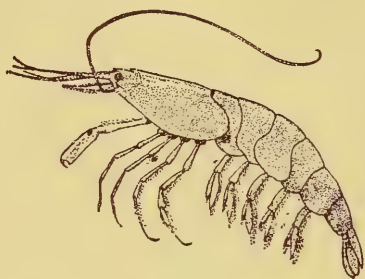
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PLATE V



1



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8

History of some recently described *Charaxes* with the description and life history of *Charaxes vansoni* van Someren (Lepidoptera: Nymphalidae)

by S. F. HENNING *

Abstract

The evidence which led to van Someren (1975) establishing the three species *Charaxes phaeus* Hew., *Ch. brainei* van Son and *Ch. vansoni* van Som. is herein presented. The complete description, life history, habits, habitat and distribution is given of the latter species. A key is provided for the identification of these morphologically similar species.

Introduction

Van Someren (1975) in an additional note at the end of his Revisional Notes of African *Charaxes*, Part X, raised to species status several taxa which were previously considered subspecies or forms. He was unable to include the evidence which led to the establishment of these species because the manuscript had already been submitted to the publishers. He requested, however, that on completion of the study the relevant evidence should be published, which is the object of the present paper.

History

In 1972 an attempt was made to solve the intriguing problem of the uneven distribution of the female forms of the species then known as *Charaxes viola phaeus* Hew. in the Transvaal. Large series of both the southern and northern populations were examined and a number of specimens were bred. Enough evidence was obtained with regard to the differences in the morphology and the early stages to prove that the ♀ form *vansoni* was actually a species in its own right.

It was found that *phaeus* bred on *Acacia nigrescens* Oliv. and *vansoni* on *Peltophorum africanum* Sond. Neither species would accept the foodplant of the other. The larvae were morphologically quite distinct and the headshields were structurally different. Slight constant morphological difference were found in the males and the aedeagi were markedly different.

It was further concluded that *phaeus* also warranted full species status as, morphologically, it differs greatly from *Ch. viola* Butler and on examination of the genitalia and the life histories of both species this was confirmed. The larvae of *phaeus* and *viola* were quite distinct.

Morphologically *Ch. vansoni* is similar to *Ch. brainei* from South West Africa, but a comparison of the male genitalia showed marked differences. The aedagus of *vansoni* is distinct in having a large ventrally-projecting hook. In

* 1 Lawrence Street, Florida Park, Florida 1710, South Africa.

PLATE V

Charaxes vansoni van Someren ♂. 1. Upperside. 5. Underside.

Charaxes brainei van Son ♂. 2. Upperside. 6. Underside.

Charaxes phaeus Hewitson ♂. 3. Upperside. 7. Underside.

Charaxes fionae Henning ♂ — paratype. 4. Upperside. 8. Underside.

brainei the large hook is present but it projects dorsally and the aedeagus is rather differently shaped. The differences between *vansoni* and *brainei* are great enough to consider them to be separate species. They possibly occur sympatrically in the Okavango Swamp area in Botswana but more collecting is required to determine their exact distribution.

The differences in morphology and genitalia between *brainei* and *viola* were such that it was decided that they, too, were best considered separate species.

Acting on the above information, van Someren (1975) raised *Charaxes phaeus*, *Ch. vansoni* and *Ch. brainei* to specific level. The above study also led to the discovery of *Charaxes fionae* Henning which is a species closely allied to *Ch. phaeus*.

KEY TO THE MALES

1. Underside reddish-brown, upper tail on hindwing longer than lower one ... *Ch. fionae*
- Underside grey or pale brown, lower tail on hindwing longer than upper ... 2
2. Forewing upperside: subapical spots white or orange; aedeagus with irregular small teeth ... *Ch. phaeus*
- Forewing upperside: subapical spots blue or green; aedeagus with large hook ... 3
3. Hindwing underside, pale coppery-brown with a silvery discal sheen only at costa, or absent; aedeagus with large ventral hook ... *Ch. vansoni*
- Hindwing underside, grey with silvery discal sheen from costa to inner margin; aedeagus with large dorsal hook ... *Ch. brainei*

KEY TO THE FEMALES

1. Upperside with discal band ... 2
- Upperside without discal band ... 3
2. Upperside hindwing discal bar broad, underside ground colour pale coppery-brown ... *Ch. vansoni*
- Upperside hindwing discal bar narrow, underside ground colour grey with a slight violaceous tinge ... *Ch. brainei*
3. Underside reddish-brown ... *Ch. fionae*
- Underside grey or pinkish-grey ... *Ch. phaeus*

KEY TO FINAL INSTAR LARVAE

1. Body dull olive-green with fine creamy-yellow oblique lateral lines and two small creamy-yellow dorsal spots on each segment except the last ... *Ch. phaeus*
- Body green without creamy-yellow oblique lines or dorsal spots ... 2

PLATE VI

Charaxes vansoni van Someren ♀. 1. Upperside. 5. Underside.

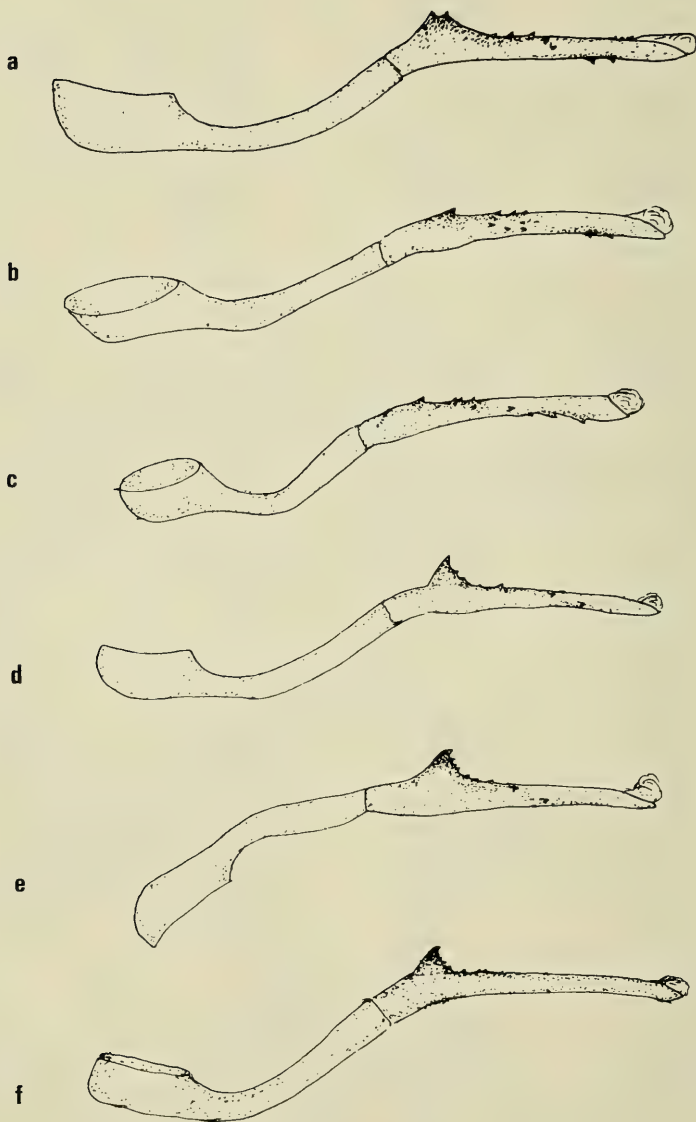
Charaxes brainei van Son ♀. 2. Upperside. 6. Underside.

Charaxes phaeus Hewitson ♀. 3. Upperside. 7. Underside.

Charaxes fionae Henning ♀ — paratype. 4. Upperside. 8. Underside.



PLATE VII



Aedeagi of *Charaxes*:

a. *Charaxes viola kirki* Butler.

b. *Charaxes phaeus* Hewitson.

c. *Charaxes fionae* Henning.

d. *Charaxes brainei* van Son.

e. *Charaxes vansoni* van Someren.

f. *Charaxes howarthi* Minig.

2. Intersegmental membrane yellowish between first six segments *Ch. vansoni*
- Intersegmental membrane not yellowish between first six segments 3
3. Body green with narrow somite bars *Ch. viola diversiforma*
- Body green with broad somite bars *Ch. fionae*

Charaxes vansoni van Someren

Charaxes viola phaeus ♀ f. *vansoni*, van Someren & Jackson, 1957: 43.

Charaxes viola phaeus ♀ f. *vansoni*, van Someren & Jackson; van Someren, 1969: 137.

Charaxes vansoni van Someren, 1975: 107.

DIAGNOSIS: *Male, Upperside:* Velvety black with basal bluish lustre. Two blue subapical spots. Hindwing margin orange-red bordered with blue or greenish above upper tail, then olive to anal-angle. Postdiscal wavy green line faint. Lower tail longer and larger than upper. *Underside:* Forewing ground colour grey-brown. Black markings similar to those of *Ch. phaeus*. Hindwing ground colour coppery-brown with silvery satin sheen, extending from base across costa and cell. The silver sheen never extends discally down to the inner-margin as in *phaeus*.

Female, Upperside: Ground colour brownish-black. White discal and postdiscal spots well apart except that the spots in 1b may touch; anterior half of discal bar and postdiscal spots may be orange. Hindwing discal white band extends from costa, where it is widest, then tapering towards inner fold and there represented by a pale mark, the lower half of the band shaded with blue or orange, submarginal marks clear, lilac or bluish with white centres. Upper tail longer and larger than lower. *Underside:* Basal area of forewing greyish, shading to brownish towards the outer border, discal band creamy to ochre. Hindwing marks obscured, discal pale band slightly indicated at costal end. The whole underside with a satiny glaze.

DESCRIPTION OF MALE

Forewing length 29.5 — 32.3mm; antenna-wing ratio: 0.42.

Head: Fronto-clypeal region thickly covered with dark grey hairs; epicranial region covered with black hairs. There is a patch of white scales anterior and posterior to each antennal base. Compound eye is ringed posteriorly with white scales. Labial palps are dorso-laterally black, ventro-laterally pinkish-grey. Antennae are black, proboscis ochre. *Thorax:* Black covered with greenish-black hairs and scales dorsally, pinkish-grey ventrally and laterally. *Legs:* Femur dorsally black with bluish-white spots, otherwise legs pinkish-grey. *Abdomen:* Greenish-black dorsally and laterally, pinkish-grey ventrally. *Wings: Upperside:* Forewing shape falcate. Ground colour velvety black with basal bluish lustre. Two blue or bluish subapical spots; midway between these and the cell are two more blue spots, the upper being larger than the lower which is often faint; at the distal end of the cell is another

small, faint blue spot. Margin bluish or greenish, merging into the ground colour. It is broken by black along the veins; width 2mm, broader at apex. Faint blue submarginal spots may be present. *Hindwing*: Ground colour blue-black with very fine greenish-black hairs basally extending along the upper edge of the anal fold to the tornus. Anal fold dark grey to greyish. Margin in 4 to 6 orange-red bordered with blue or greenish-blue with a very small faint bluish mark in 7. Margin is broken by black along the veins. Two tails on veins 2 and 4. The tail on vein 2 is 3.7 — 4.7mm long, and on vein 4 is 4.0 — 5.6mm. The lower is always broader and slightly longer than the upper. Margin between tails greenish-ochre and extending into the tails. Tornus protruding, margin olive with two submarginal blue spots thinly lined with white proximally. The other submarginal blue spots are smaller, usually centred with white. Faint postdiscal line from tornus to 6.

Underside: Forewing ground colour grey-brown with silvery satin sheen extending over entire forewing except for basal, discal and submarginal areas. The black discal striae begin at the costa below the subapex, becoming wider posteriorly until they form a black patch surrounded by light blue scaling in 1b. Two submarginal black patches appear in 1b. Basal, sub-basal median and submedian black lines distinct. *Hindwing*: Ground colour pale coppery-brown with a silver satin sheen extending from base across the costa and cell. Anal fold greyish with slight silvery sheen. Postdiscal line of olive and red lunules better developed towards inner margin. Margin above tails red to orange red, olive or greenish below and extending into the tails. Submarginal line of blue and white spots from tornus to 7 or 8; submarginal area with pinkish sheen.

DESCRIPTION OF FEMALE

Forewing length 33.3 — 37.5mm; antenna-wing ratio: 0.36.

Head: Fronto-clypeal and epicranial region thickly covered with dark brownish-grey hairs. There is a patch of white scales anterior and posterior to each antennal base. Compound eye is ringed posteriorly with white scales. Labial palpi are dorso-laterally greyish-black, ventro-laterally pinkish-white. Antennae are black, proboscis ochre. *Thorax*: Black covered with hairs and scales, dark greenish-grey dorsally, ventrally and laterally pinkish-grey. *Legs*: Femur dorsally black with bluish-white spots, otherwise legs pinkish-grey. *Abdomen*: Dark grey becoming lighter ventrally.

Wings: The following is the description of the holotype as given by van Someren and Jackson in 1957. "*Upperside*: Forewing ground colour black with a strong greenish suffusion basally; a bluish-white spot often present in the cell; a small one (often doubled) just beyond the cell: discal bar white or bluish-white, commencing with a subcostal spot in 5—6, then sub-basal in 3, widening to middle of 1a. A post-discal series of white spots from 2 — 7. Hindwing discal bar strongly bluish, or at least edged distally with blue, extends from costa to inner

fold, but does not cross it except just above anal angle. A submarginal series of lunulate blue or bluish white spots distally edged with black; margin olive to upper tail, then red. *Underside*: Forewing ground colour as in the male, but white marks show through; hindwing discal bar less strongly indicated".

There is some variation among the females of this species and three forms are easily distinguishable. At the one extreme there is the female corresponding to the holotype, in which the discal bar is white or bluish, while at the other extreme there is a variation in which the discal bar is orange and white, while the third is an intermediate between the two in which the orange markings are reduced to a pale yellow-ochre colour. All three variations were bred from ova laid by a single female collected at Waterpoort in the Transvaal. The two extremes are scarcer than the intermediate.

Variation 1: This is the form described as the holotype, with a white or bluish-white discal bar.

Variation 2: Upperside: Forewing, ground colour black with a strong greenish suffusion basally, distal margin reddish-brown, widest at apex and tapering towards tornus. Discal bar orange in 2—6, white in 1a and 1b, widest in 1a and narrowing anteriorly. Postdiscal series of orange spots from 2—7.

Hindwing: discal bar extends from costa to inner margin, white suffused with orange in 1b—4; distally white, suffused with blue in 5—8. *Underside*: Forewing as in holotype, but orange as well as white shows through. Distal margin red-brown as on upperside. Hindwing as in holotype. Tail on vein 4 is 6.2—8.0mm and on vein 2 is 4.9—6.9mm.

Variation 3: This variation appears to be an intermediate between the other two. The orange markings on the forewing upperside of Variation 2 are reduced to a pale yellow-ochre colour and the hindwing discal bar has no orange at all. In some specimens the hindwing discal bar can be completely suffused with pale blue scales.

* ♂ **GENITALIA**: Uncus longer than tegumen, a single rounded lobe with a small apical projection and several hairs; gnathos about the same length as the uncus, expanded distally; valva produced into an apical process, ventral edge folded inwards, ridge turns ventrally below apical process where it runs into a long hook; furca short, broad, distally expanded convex plate, apically compressed, forming a short sharp hook. Ratio of valva to aedeagus, about 0.6; ratio of proximal to distal portions of aedeagus, about 0.88; the aedeagus has a large toothed, ventrally-protruding hook which is of diagnostic value; distal end is compressed. Vinculum narrow.

♀ **HOLOTYPE**: Transvall, Pretoria, 29.IV.1948, C. R. S. van Son, in Transvaal Museum, Pretoria.

♀ **PARATYPE**: Transvaal, Pretoria, 22.IV.1948, C. R. S. van Son, in British Museum (N.H.), London.

Life History

Foodplant: Peltophorum africanum Sond. (Leguminosae).

EARLY STAGES: Larvae and ova of this species can be found on both saplings and larger trees. With some experience one can soon differentiate between promising and unlikely vegetation types. On small saplings the larvae tend to hide themselves amongst the vegetation, but on larger trees they prefer odd sprays on the outside of the main mass of vegetation. During the past season Bampton has found several larvae while motoring through the Transvaal, and spotting a likely looking tree on the side of the road. Larvae can be found all the year round, but one of the best months is May.

Egg: Oval, 1.2mm in diameter, flattened at the base with a slightly fluted dorsal depression. It is pale green when first laid and develops a brown ring around the depression within 48 hours of being laid if fertile. The egg hatches from 5 to 14 days. The eggs are laid singly on the upper surface of the leaves of the foodplant. At eclosion the larva eats the entire egg shell.

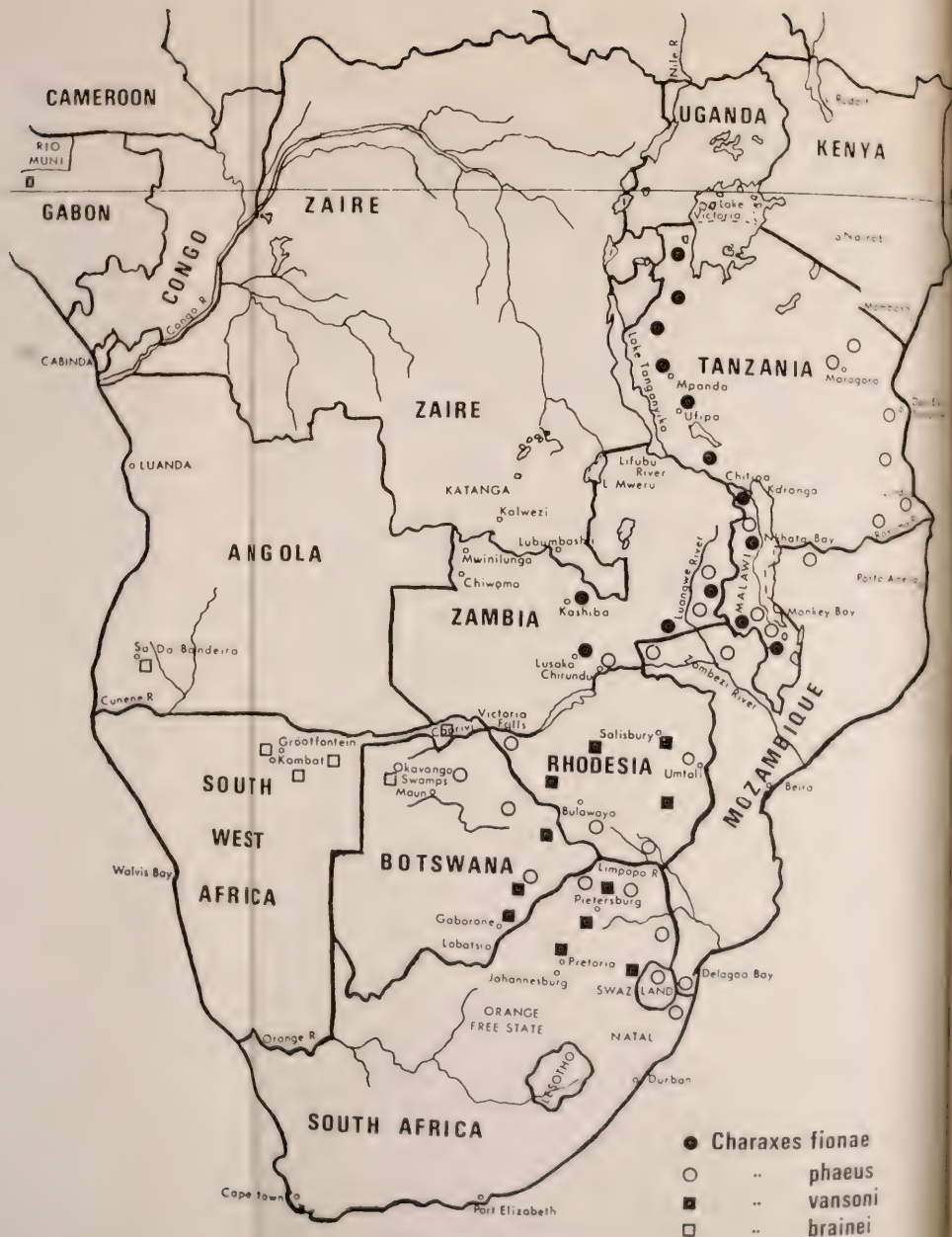
LARVA: 1st instar: Total length at eclosion about 4mm. Body ochre, becoming immaculate green once it starts to feed. Headshield is black, oval, diameter 0.7mm; dorsal horns 0.8mm long and curved inwards at the tips; lateral horns 0.4mm long and straight. Length attained by the larva was about 6mm. Duration of instar is normally 1 — 2 weeks.

2nd instar: Body immaculate green. Headshield is pale brown, becoming slightly green in the ventral half in some specimens. Diameter of facial disc 1.5mm; dorsal horns 1.6 — 1.9mm long and lateral horns 0.8mm long. Duration of instar normally from 2 — 3 weeks. Length attained by the larva was about 11mm.

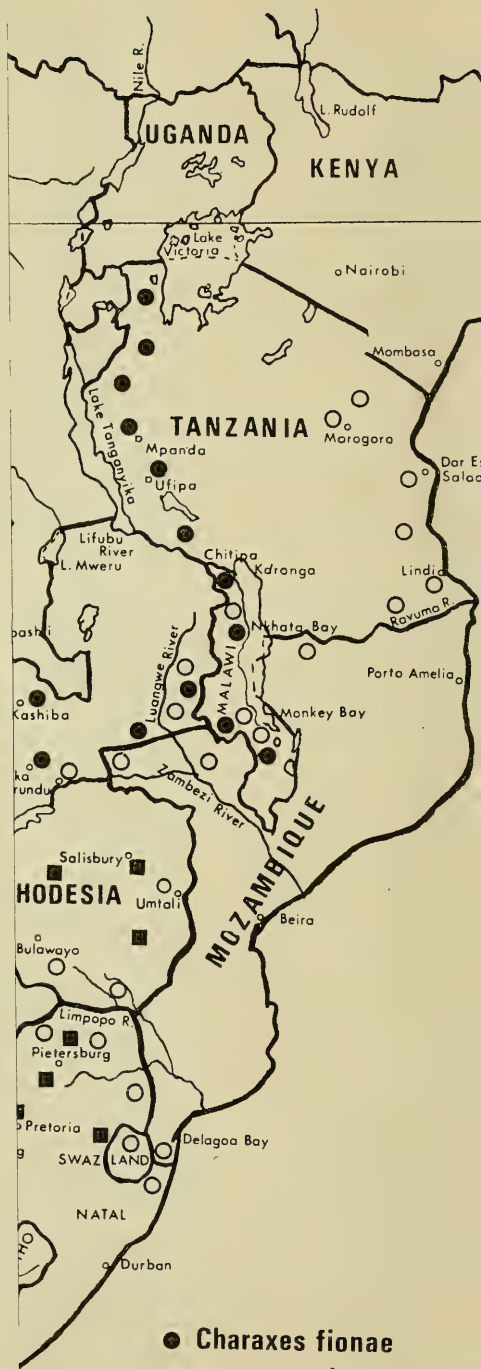
3rd instar: The body is green, developing yellowish-white somite bars on the sixth and eighth segments. The bar on the sixth segment is well developed while that on the eighth is faint. The headshield diameter is 2mm; it is green with a broad yellow band around the lower margin, ventral side of the lateral horns and laterally on the dorsal horns. There are two laterally situated black patches on either side of the head near the lower angle. The dorsal horns 2 — 2.5mm long and the lateral horns 1 — 1.5mm long; the former are curved inwardly at the tips; the horns are green, occasionally tipped with brown. Length attained by larva is about 15mm. Duration of instar normally from 2 — 3 weeks.

4th instar: Develops third somite bar on the tenth segment. All three bars are now well developed. The intersegmental membranes anteriorly are yellowish. The headshield is similar to that of the third instar, diameter is 3mm, dorsal horns 4 mm and lateral horns 2mm. Length attained by larva is about 23mm. Duration of instar is normally 2 — 3 weeks

5th instar: Body green, with three well developed somite bars on segments six, eight, and ten. Intersegmental membrane is yellowish between the first six segments and to a lesser



Distribution of Charaxes.



- **Charaxes fionae**
- " **phaeus**
- " **vansonii**
- " **brainei**

extent between the remaining segments. Larval markings are similar to those found in *Ch. ethalion* Bsdv. Some larvae, especially in the dry months, have the yellow markings suffused with pinkish-orange. The colour of the headshield is similar to that of the previous two instars, diameter is 4.5mm, dorsal horns 5—6mm, lateral horns 3.5—4.0mm. In some specimens the headshield is laterally almost completely yellow. Lateral horns may be yellow with only a thin green dorsal stripe; the dorsal horns are heavily marked with yellow laterally and are occasionally tipped with brown. The lateral horns on some specimens are nearly as long as the dorsal horns. Both sets of horns are extremely long and stout compared with those of *phaeus*. The cast headshields are much thinner and less intensely marked than those of *phaeus*. They have a "washed out" appearance. Length attained before pupation is nearly 40mm. Duration of instar is normally 2—4 weeks.

The above information was obtained during the breeding of about 80 imagines of *vansoni* and about 40 other larvae which were parasitized or died from fungal and virus diseases.

Pupa: Green, margin of wing-case may have a yellow stripe. It is 16—20mm long. The pupal stage lasts about three weeks.

Habits of Adult

Charaxes vansoni is an inhabitant of dry bushveld country. The habits are very much like those of *Ch. phaeus* in that the males arrive at the hilltops and establish territories from which they chase intruders of the same or other species. The females are rarely seen as they spend the majority of their time flying at random through the bush looking for suitable foodplants on which to lay their eggs.

The butterfly is rarely seen in numbers at sucking-trees, unlike the females of *phaeus*. My brother G. A. Henning once captured 15 males and females at a sucking-tree at Rashoop near Brits; otherwise only the odd specimen has been caught there. They also do not come readily to traps and the majority of specimens obtained have resulted from breeding the species.

Distribution

The species is distributed from Zululand and the eastern Transvaal westwards to eastern Botswana, and northwards into Rhodesia.

Records

Transvaal: Barberton; Dendron; Waterpoort; Saltpan, Zoutpansberg; Rashoop near Brits; Pretoria; Rustenburg; Naboomspruit.

Botswana: Gaborone; Malapye.

Rhodesia: Salisbury; Bulawayo; Lake Kyle.

FLIGHT PERIOD: The species flies throughout the year, the best months being March, April and May.

Acknowledgments

I wish to express my gratitude to my father W. H. Henning and my brother G. A. Henning for their active support and encouragement throughout the preparation of this paper; to

Mr. I. Bampton for the provision of much information and material; to the following for information and specimens: Messrs. J. Braine, R. I. Vane-Wright, Dr. L. Vári; to Mrs. F. I. Martin for typing the manuscript; and to Mr. C. G. C. Dickson and Dr. L. Vári for reading the manuscript and for many useful suggestions.

Note

Actual forewing length of specimen 1, *Charaxes vansoni* ♂, in Plate V is 28mm from the middle of the thorax to the apex of the wing. Actual forewing length of specimen 1, *Charaxes vansoni* ♀, in Plate VI is 32mm from the middle of the thorax to the apex of the wing.

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SCARCE PROMINENT (ODONTOSIA CARMELITA ESP.): SECOND ONLY RECORD FOR THE EASTBOURNE DISTRICT. — This rather local insect was taken for the first time since 1951, when Mr. S. Salvage recorded the species in the Transactions of the Eastbourne Natural History Society, a singleton taken on the 30th April in Abbot's Wood.

The present record is for a freshly emerged male which arrived at light on the 11th May 1979 in the very same locality whilst I was collecting in the company of Mr. M. Parsons. — M. HADLEY, 7 Beverington Close, Eastbourne, Sussex B21 2SB.

PUPATION DATE OF COSMORHOE OCELLATA L. — One of the pleasures of rearing common and familiar species is the rediscovery of their lesser known characteristics and in this most species can spring surprises. A large brood of *C. ocellata* I reared from the egg in 1977 spun up in August and remained as unchanged larvae right through the winter. I kept examining cocoons until as late as April when suddenly all pupated. It is well known that the species overwinters as a larva in its pupal cocoon but the late date of pupation is not so widely known. — G. M. HAGGETT.

British Lepidoptera Collecting in 1978

By C. C. M. DE WORMS *

(Concluded from page 167)

During my brief stay in Suffolk, Mr. George Baker had most kindly let me run my static trap in his garden at Reydon as he had also done in 1975. The three nights provided some 350 individuals comprising 62 species of macros most of which I had already seen in Norfolk. Both *A. nigricans* and *A. tritici* were again present together with seven *H. albicolon* on the night of the 8th. Other species of note in his trap, mostly not previously mentioned, included *Lophopteryx capucina* L., *Eilema complana* L., *Cilix glaucata* Scop., *Nola cucullatella* L., *Lampra fimbria* L., *Hadena rivularis* L., *H. suasa* D. & S., *Mythimna conigera* L., *Procus literosa* Haworth, *Amathes baja* D. & S., *Apamea anceps* F., *A. remissa* D. & S., *Abraxas grossuaria* L. and *Hepialus sylvina* L.

Many butterflies were flying on the subsequent days in Surrey in brilliant sunshine, especially a spate of Peacocks with a good many Small Tortoiseshells and Large Whites. On August 11th in Alice Holt Forest *Limenitis camilla* L. and *Argynnis paphia* L. were still on the wing in reasonably good condition. On the 13th Mr. J. L. Messenger accompanied me to King's Park Wood. Among a dozen species of butterflies noted were *Gonepteryx rhamni* L., *L. sinapis* L., *L. camilla*, *Inachis io* L., *A. paphia*, *Polygonia c-album* L., *M. jurtina*, *M. tithonus* L., *Pieris brassicae* L., and *Thymelicus sylvestris* Poda. The next day I visited White Down in equally fine weather with the temperature at over 70°F in the shade, but only a few *Lysandra coridon* Poda were to be seen with a fair number of *M. jurtina*. Both these insects were also none too numerous on Ranmore Common on the 18th. Two days later on the 20th, I was again in Alice Holt with Dr. J. Holmes in an unfamiliar part of the forest by Lodge Pond, which was surrounded by beds of flea-bane which attracted several Commas, together with a single Red Admiral, and a few Peacocks and many *Pieris napi* and *M. tithonus*. It was still in the 70's during the third week in August, and these conditions were still pervading when I travelled to Dorset on the 26th for the late summer holiday, which I spent with my relative near Blandford. En route I called on Mr. C. Dixon at Northbrook Farm near Micheldever, where many Pierids patronised his large buddleia. Later, near Coombe Bisset west of Salisbury, the only insect seen on the downs was an *Eremobia ochroleuca* D. & S. on a flower head. On the 27th many Peacocks graced the buddleias of Mr. Anthony Deane at Milton Abbas, while the next day the 28th Mr. R. Hatton not far from Wimborne at Lower Row had nine species of butterflies on it, including singletons of *Pyrameis cardui* L., *Satyrus semele* L. with a good many *Aglais urticae* L., *I. io* and *G. rhamni*. That afternoon saw me at the

* Three Oaks, Shores Road, Woking, Surrey.

home of Mr. N. G. Wykes at Uploders near Bridport, where again many Whites, mainly *P. napi*, were in his garden. Peacocks seemed everywhere in the New Forest on the 29th both in the gardens of Admiral Torlesse and in that of Mr. Donald Russwurm.

August ended on quite a warm note. It was very congenial when Mr. J. Messenger and myself set out on September 1st for North Wales. Travelling by the two big motorways and Middlewich to Flint, we reached that afternoon the Nant Hall Hotel just east of Prestatyn, which was to be our very pleasant haven with an excellent cuisine during the next five days. En route we surveyed the shore line at Point of Air with its many sandhills, which was our venue the next evening, but a thorough search of the low-growing sea couch grass failed to disclose any insects. By day on the 2nd, we went over to Great Orme Head in bright sunshine, but little was flying except for a few Walls and only a single very worn female of the diminutive form of the Grayling f. *thione*, while we saw nothing on the wing on our return journey over the Sychnant Pass, west of Conway. Another fine day greeted us on the 3rd, when we visited the famous garden at Bodnant, where many Whites were flying with a good many Speckled Woods. That evening we were again on the Point of Air sandhills under much better conditions. A Heath light run till nearly 11 p.m. attracted thirteen species which included *Philudoria potatoria*, *Euproctis similis* L., *Amathes xanthographa* L., many *Luperina testacea* D. & S., *Diarsia rubi* View., *Apamea secalis* L., *Euschesis comes* Hübn., also *Ortholitha chenopodiata* L. and *Epirrhoë alternata* Müll., but there was no sign at light or at rest of *Luperina nickerlii* Freyer our main quarry which another visitor saw in some numbers in this area ten days previously. Another brilliant day on September 4th tempted us to visit Anglesey which we reached about midday. In the early afternoon we went to the South Stack lighthouse at Holyhead where quite a number of Pierids were on the wing with a few *M. tithonus*. But a search under vegetation on a beach at Trearddur Bay failed to yield any larvae of *Agrotis ripae* Hübn. which had been numerous some fifteen years before in this region. Bad weather on the 5th following a day at Chester Zoo prevented our revisiting the shore locality, but we ran our static m.v. trap in the garden of our hotel for our last two nights. Among 240 insects recorded comprising 32 species, were several *Euxoa nigricans*, *E. tritici* and *L. testacea* as well as *Agrotis vestigialis* Hufn., *Agrotis puta* Hübn., *Mamestra brassicae* L., *Aporophyla nigra* Haworth, *Proculus literosa* Haworth, *Cosmia trapezina* L., *C. affinis* L., *Gortyna micacea* Esp., *Plusia gamma* L., *Hypena proboscidalis* L., *Thera obeliscata* Hübn., *Hydriomena furcata* Thunb., *Deuteronomos alniaria* L. and many *Cleora rhomboidaria* D. & S. Early on September 6th, we set our course south again returning to Surrey by the same route as we had taken five days before, but we were somewhat empty-handed — after our long journey and efforts.

Very pleasant conditions prevailed for this late summer period with the daily temperature in the low 70's, but they deteriorated very much on the 11th when I literally set sail for Guernsey going by train to Weymouth and embarking on the 4½ hours crossing in almost a gale with heavy seas running. Luckily the boat was well stabilised. It was my first visit to the Channel Islands whose lepidopterous fauna is now included in that of the British Isles in the recent volume of "the Butterflies and Moths of Great Britain and Ireland". I was met at the quay by Dr. Tim Peet who took up residence in 1977 to practise as the chief surgeon on the island. He had arranged for me to stay at the Hotel Favorita which looks out on the sea just above St. Peters Port. Fortunately the rough conditions relented and my three days were spent in brilliant sunshine and warmth. I hired a car, and on the 12th and 13th, surveyed the very attractive wooded coast towards the west, visiting Bôt Bay and the larger Rocquane Bay. Many *P. aegeria* were flying in these rocky areas round the low vegetation studded with stunted oaks, and with *Pieris napi* accompanying the Speckled woods. These two butterflies seemed to be the main inhabitants at this period, and were also plentiful in Dr. Peet's garden, which lies just behind the airport some five miles from St. Peters. On the 14th I took the launch to the small island of Herm, where I spent most of the day visiting its beauty spots and seeing again many *P. napi* and *P. aegeria*. However, it was the yield of the static m.v. trap run in Dr. Peet's garden, and then at a friend's house overlooking St. Martin's Head on the last two nights, that yielded the best results. By far the most numerous visitor was *Agrotis trux* Hübn., both at le Chêne (my friend's garden) and also at St. Martin's Head, where *Eilema caniola* Hübn. was almost equally numerous, especially on the night of the 14th among about 150 individuals. Other species of note recorded on the four nights the traps were run, included *Eumichtis lichenea* Hübn., *Aporophyla nigra* Haworth, *Antetype flavicincta* D. & S., several *Leucochlaena hispida* Geyer and *Leucania putrescens* Hübn. in a large and bright form, as was also the local form of *Cryphia muralis* Forst. Of the few geometers present by far the most noteworthy was *Ortholitha peribolata* Hübn. of common occurrence there, but a very rare visitor to the British mainland. Also seen were a fair number of *Scopula promutata* Guen. On September 15th, I once more set out on a much kinder sea for Weymouth and Surrey, after a brief but most interesting sojourn in this most delightful part of the British Isles.

The rest of September was mostly fine and warm with daily temperatures in the upper 60's, and occasionally topping 70°F, with 77°F on the 23rd. It was under such congenial weather, that I motored to Rogate near Petersfield on the 17th, to visit Mr. and Mrs. Jack Greenwood. Their fine garden was full of flowers which attracted a spate of Small Tortoiseshells and Small Whites. Another such summerlike day welcomed Dr. Holmes and myself on the 24th, when we were once more in

the Woolmer Forest area where *Aglais urticae* L. was everywhere, as it had been in numbers the previous week round Woking. In a small nearly dried-up pond we saw a colony of the large water beetle *Dytiscus marginalis*. My companion's m.v. trap at Linford was alive with autumn moths with at least 40 *A. nigra* and many *Aporophyla lutulenta* D. & S., *Agrochola lychnidis* D. & S., *Anchoscelis litura* L., *Omphaloscelis lunosa* Haworth with several *A. flavicincta*, *Amathes glareosa* and *Arenostola pygmina* Haworth.

October which opened very mild and with fine days, proved to be one of the warmest autumn periods this century and at the same time one of the driest. It was under these favourable conditions that I travelled by train to Thorpe-le-Soken in Essex on the 2nd, on a visit to Mr. Ben Fisher after a five years' interval at this time of the season. After dark we set up a portable m.v. lamp on some ground full of reeds and *Peucedanum officinale*, but for the 1½ hours we ran it from 9 till 10.30 p.m. we had few arrivals with only one *Rhizedra lutosus* Hübn., and a single *A. lutulenta* together with a few *G. micacea* and *A. lychnidis*. However, my host was able to plug in a static trap not far from our first site starting about 11 p.m. By the morning it had attracted quite a number of moths, including three fresh males of *Gortyna borelii* Mab., as well as a few *Agrochola lychnidis* D. & S. and a single *Catocala nupta* L., also *Phlogophora meticulosa* L. and *Noctua pronuba* L. As mentioned, October proved to be one of the best autumn months with the thermometer well in the 70's when I visited Alice Holt Forest and the Chiddingfold Woods on the 9th, but surprisingly nothing of note seemed to be on the wing in either locality, though Small Tortoiseshells were still plentiful on michaelmas daisies. These grand conditions continued with 77°F on the 11th and they only seemed to relax slightly during the second half of the month, which was equally dry and sunny, with a temperature above 60°F almost daily. November too opened with some of the mildest autumn days ever recorded for the time of year. On the 2nd, a number of *Oporinias* came to my m.v. light on the edge of Chobham Common, with about equal numbers of *O. dilutata* D. & S. and *O. autumnata* Borkh., as well as a good many *Chesias legatella* D. & S. and a few *Thera obeliscata* Hübn. and *Allophyas oxyacanthae* L. It was still in the 60's during the second week of this month and only slightly cooler when I travelled to Kent on the 11th, but nothing seemed to be on the move in those parts nor in Mr. Tweedie's garden near Rye on the 12th, a very bright and congenial day. I returned to Surrey on the 13th. The amazingly mild spell continued till the 26th, when a very cold and wintry snap set in, but only lasting just a week with warmer days ushering in the first half of December. After a cold snap in the middle of the month, there were some very mild days over the Christmas period with plenty of *Operophtera brumata* L. at my sister's doorlight on December 26th at Virginia Water. But heavy snow fell on the 30th and the year ended on a very bleak and wintry note.

The first half of 1978 was very lean and late for the lepidoptera, but insects were much more numerous from late July and the autumn migration with its spate of *Leucania unipuncta* brought quite a notable end to an otherwise not very outstanding year.

LEPIDOPTEROLOGY IN BELGIUM.—Since the early 1830s, when Edmond de Sélys-Longchamps published the first lists of Lepidoptera, Lepidopterology has changed considerably in Belgium. In 1857 the first Belgian entomological journal was created, but apart from two important catalogues of Lepidoptera (in 1857 and 1882), few papers dealing with butterflies and moths have appeared in the *Bulletin de la Société entomologique de Belgique*.

Lambillion with the help of a few colleagues, founded an entomological society in 1897, which published from 1901 onwards a monthly review called *Revue mensuelle de la Société entomologique namuroise*. In 1926, this journal was renamed *Lambillionea*, after which F. Derenne worked it up and made it "world read". In 1944, L. Berger took over the direction of *Lambillionea*, and for sometime this journal has consisted mainly of papers dealing with the African fauna, though Sarlet and Hackray try hard to finish their catalogue of Belgian Lepidoptera which is issued as a supplement. Consequently J. Van Schepdael felt there was a need for a new journal dealing mainly with European Lepidoptera, so in 1958 he founded *Linneana Belgica*.

Since 1963, the "Antwerpse Vereniging voor Entomologie" has published some rather scattered papers on Lepidoptera in *Schakel*, a journal of several local Antwerp societies dealing with natural history and helped financially by the local zoo. These facilities came to an end, and since 1973 the entomological society of Antwerp has had to "fly with its own wings". So they started publication of a nice off-set bulletin named *Phegea* in honour of the local rarity *Amata phegea* L.

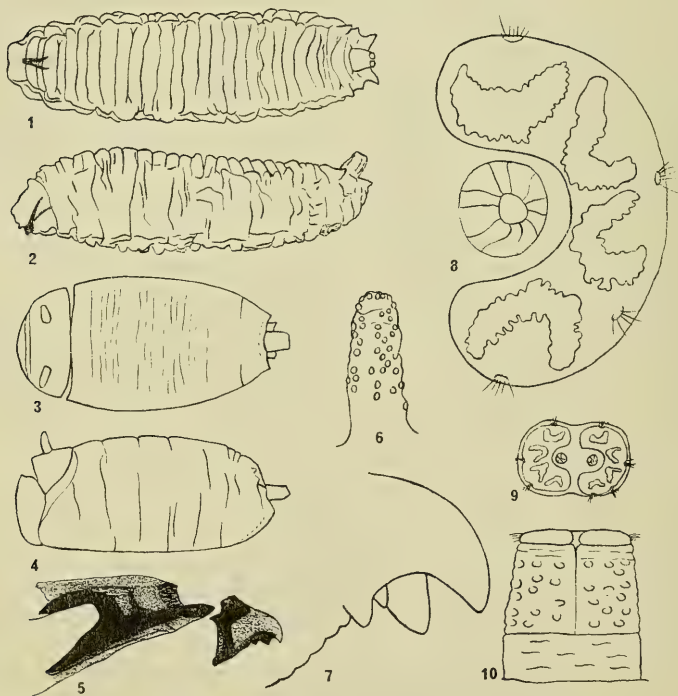
In 1968 the "Cercle des Lépidoptéristes de Belgique" was born. With a membership of 200, mostly amateurs, we estimate that this society consists of about half the total number of lepidopterists resident in Belgium. Its off-set bulletin publishes short papers both in french and dutch, as well as accounts of their monthly meetings at the "Institut Royal de Sciences Naturelles" in Brussels.

Since 1974 we have edited *Linneana Belgica*. Considerable efforts are made to increase the number of subscribers. We publish mainly in French on Lepidoptera from all over Europe, mostly with summaries in English, Dutch and German. Great care is taken over the illustrations of papers, which are received from every country in Europe. There are four issues per annum and a total of 192 pages. The annual subscription is B.F.300 — (about £5). — R. LEESTMANS, 4 Parvis St. Gilles, B-1060, Brussels, Belgium.

The larva and puparium of *Cheilosia bergenstammi* Becker (Diptera: Syrphidae) with a summary of the known biology of the genus in Europe

By KENNETH G. V. SMITH *

The genus *Cheilosia* contains some 130 Palaearctic species but of these the immature stages of only 9 species have been described and some biological information is available for some 21 species. Hennig (1952) includes references to descriptions and illustrations of 4 species: *C. cynocephala* Loew, *C. fasciata* Schiner & Egger, *C. morio* Zetterstedt and *C. scutellata* Macquart. Dusek and Laska (1962) describe and illustrate the larvae and puparia of *C. grossa* Fallen and *C. fasciata*, and Dusek (1962) describes the larvae and puparia of *C. canicularis* Panzer, *C. omissa* Becker and *C. variabilis* Panzer. In the present paper the larva and puparium of *C. bergenstammi* Becker are described.



Figs. 1-10. *Cheilosia bergenstammi* Becker: 1, larva, dorsal view; 2, larva, lateral view; 3, puparium, dorsal view; 4, puparium, lateral view; 5, larval cephalopharyngeal skeleton, lateral view; 6, puparium, anterior spiracular disc; 7, larval mandible, lateral view; 8, larval posterior spiracle, dorsal view; 9, puparium, spiracular disc; 10, puparium, posterior spiracular tube in spiracle.

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Larva roughly cylindrical in shape but narrower anteriorly and broader posteriorly: 9-10 mm long, 3 mm broad and 3 mm deep; colour whitish to brownish (figs. 1, 2). Cephalopharyngeal skeleton (fig. 5) of the photophagous type (Hartley, 1963), with mandibles fused together dorsally and ventrally and toothed (fig. 7). Anterior spiracles small; posterior spiracles sessile, stem $1\frac{1}{2}$ times as long as broad at base. Spiracular disc flat, each spiracle surrounded by 4 curved slits with serrated margins (fig. 8). Three pairs of short lappets, middle pair reduced.

Puparium somewhat inflated, muddy-brown with reddish-brown spiracular processes (figs 3, 4). Anterior spiracles (fig. 6) long and tuberculate. Posterior spiracles (figs. 9, 10) a little longer than broad.

The larvae were found mining the roots and crowns of Ragwort (*Senecio jacobaea*), near Omagh, Co. Tyrone, Northern Ireland in October 1969. There was visible wilting of the plants. The larvae pupated in November and emerged in April, 1970. The larva closely resembles that of *C. omissa* Becker as illustrated by Dusek (1962) which was found on *Senecio nemorensis fuchsii*. The possible synonymy of these two species should therefore be considered when the adults of this difficult genus are revised. Both species were described by Becker in the same paper (1894). It would be of interest to investigate the possibility of biological control of ragworts by these species. The known biology of the european species of the genus is summarised below.

CHEILOSIA SPECIES	PLANT (orig. nomenclature)	SOURCE
<i>albipila</i> (as <i>chrysocoma</i>)	<i>Carduus crispus</i> (stem-root)	Weyenburgh (1869)
<i>albipila</i> (as <i>flavicornis</i>)	<i>Carduus crispus</i> , <i>Cirsium oleraceum</i> (stem)	Boie (1850)
<i>albipila</i>	<i>Cnicus palustris</i> (stems)	Andrews (1944)
<i>antiqua</i> (as <i>sparsa</i>)	<i>Primula</i> spp. (roots)	Carpenter (1913)
<i>bergenstammi</i>	<i>Senecio jacobaea</i> (roots, crowns)	present paper
<i>canicularis</i>	<i>Petasites hybridus</i> , <i>albus</i> , <i>kablikianus</i> (rhizome)	Dusek (1962)
<i>chloris</i>	<i>Petasites niveus</i> (roots)	Kaltenbach (1874)
<i>cynocephala</i>	<i>Carduus nutans</i> (stem)	Frauenfeld (1866) Dusek & Laska (1962)
<i>fasciata</i>	<i>Allium ursinum</i> (leaf-mine)	Beling (1888) Dusek & Laska (1962)
<i>grossa</i>	<i>Cnicus palustris</i> (stem)	Nurse (1910a, b)
<i>grossa</i>	<i>Carduus crispus</i> (stem)	Dusek & Laska (1962)
<i>hercyniae</i>	<i>Amanita muscaria</i>	Vimmer (1925)
<i>longula</i>	<i>Boletus luridus</i> , <i>bovinus</i>	Buxton (1955)
<i>longula</i>	<i>Suillus</i> & <i>Leccinum</i>	Hackman & Meinander (1979)
<i>maculata</i>	Associated with <i>Allium</i>	needs further investigation
<i>morio</i>	'pine' (bark wounds)	Trägårdh (1939)
<i>mutabilis</i>	<i>Carduus acanthoides</i> (root)	Rossi (1848)
<i>nitidula</i>	<i>Matricaria chamomilla</i> (stem)	Kaltenbach (1864)
<i>omissa</i>	<i>Senecio nemorensis</i> ssp. <i>fuchsii</i>	Dusek (1962)

<i>scutellata</i>	rotten fungi	Roser (1834)
<i>scutellata</i>	<i>Boletus edulis</i> , <i>pinetorum</i>	Dufour (1840)
<i>scutellata</i>	<i>Polyporus</i>	Frauenfeld (1868)
<i>scutellata</i>	truffles	Goureau (1852), corrected
(as ♂ nr. <i>mutabilis</i>)		Verrall (1901)
<i>scutellata</i>	<i>Bolets</i> , <i>Leccinum</i> , <i>Suillus</i>	Eisfelder (1956)
<i>scutellata</i>	<i>Boletus</i> , <i>Leccinum</i> , <i>Gyroporus</i> , <i>Xerocomus</i>	Dely-Drascovits (1972)
<i>scutellata</i>	<i>Boletus</i> , <i>Pholiota</i>	Chandler (1969)
<i>scutellata</i>	<i>Leccinum</i>	Hackman & Meinander (1979)
<i>soror</i>	truffles	Goureau (1852) corrected
(as ♀ nr. <i>scutellata</i>)		Verrall (1901)
<i>variabilis</i>	<i>Carduus nutans</i> , <i>acanthoides</i> , <i>Cirsium lanceolatum</i> (buds-stalks)	Kaltenbach (1874)
<i>variabilis</i>	<i>Scrophularia nodosa</i> (roots)	Fryer (1915)
<i>variabilis</i>	<i>Scrophularia nodosa</i> (roots)	Dusek (1962)
<i>velutina</i>	<i>Scrophularia nodosa</i> (roots)	Brischke (1880)
(as <i>gigantea</i>)		
<i>vernalis?</i>	Under decaying leaves	Dufour (1848)
(<i>aerea</i>)	of <i>Verbascum pulverulentum</i>	
<i>vernalis?</i>	<i>Matricaria chamomilla</i>	Kaltenbach (1864)
(<i>nitidula</i>)	(stem root)	
sp.	Truffles	Laboulbene (1864)
sp.	Truffles	Reaumer (1740)
sp.	Turnips	Lunbeck (1916)
sp.	Onions	present paper

In addition to the above records Zetterstedt (1843) records finding pupae of *C. variabilis* and *C. albitarsis* (as *flavimana*) but gives no habitat details. In most of the stem-feeders the larvae appear to migrate down towards the root and pupate in the soil. Lundbeck (1916) records finding the puparia of *C. scutellata*, *C. intonsa*, *C. albitarsis* and *C. vernalis* in flood refuse and a larva of an unidentified species in turnips when about 12% of the crop was destroyed, but unfortunately the larvae were not reared. I have seen a *Cheilosia* larva from frozen onions from Spain and one wonders if some of the records of *Eumerus* from similar sources may in fact be *Cheilosia*.

There appears to be some evidence, from field observations, that *Cheilosia* adults often frequent flowers of the same species of plants in which their larvae develop and this offers a fruitful line of investigation. There is no doubt that the taxonomy of this difficult genus will only be satisfactorily resolved when long series of reared specimens are available for study, coupled with a careful reappraisal of type material.

Acknowledgements

I thank Mr. D. J. Mowat, Agricultural Entomology Division, Ministry of Agriculture, Queen's University, Belfast for sending this interesting material for study and to Dr. M. C. D. Speight of the Forest and Wildlife Service, Dublin for agreeing with my identification of the adult.

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Postscript

Since writing the above paper Mr. Alan Stubbs has kindly drawn my attention to two records of reared *Cheilosia semifasciata* Becker: Speight, M. C. D., Chandler, P. J. & Nash, R., 1975, *Proc. R. Irish. Acad.* **75** (B) (1): 9, record it mining *Umbilicus*; Uffen, R. & Chandler, P. J., 1978, *In* Stubbs, A. E. & Chandler, P. J., *A Dipterist's Handbook*, *Amat. Ent.* **15**: 221, record it from *Sedum telephium* and *Umbilicus*.

GEGENES PUMILIO (LEP.: HESPERIIDAE): A RECORD FOR CRETE. — Belatedly, I would like to record the capture of a single specimen of this species on the island of Crete. The specimen was taken on 9.iv.1973 on rough land, close to a small patch of cultivated land at about 400 metres above sea-level, close to Neapolis in the east of the island. This area is about 20 kilometres north of the Plateau of Lasithi, and 10 kilometres from the north coast of the island. Whilst this is not the first record of this butterfly occurring in Crete (L. G. Higgins *pers. comm.*), the fact remains unrecorded in Higgins and Riley, *A Field Guide to the Butterflies of Britain and Europe*, third Edition (1975). — DAVID C. HOCKIN, Culterty Field Station, University of Aberdeen, Newburgh, Ellon, Aberdeenshire.

KYBOASCA BIPUNCTATA (OSHANIN) (HOMOPTERA: AUCHENORHYNCHA: TYPHLOCYBINAЕ): A SPECIES NEW TO BRITAIN. — 40 ♂ 40 ♀ specimens of *Kyboasca bipunctata* (Oshanin) were identified in a large sample of leafhoppers collected from English Elm (*Ulmus procera*) at Mitcham, Surrey on 2nd July 1978. Although previously unrecorded in Britain, *K. bipunctata* is widely recorded in the Palaearctic on Elms. A further male specimen was taken on English Elm at Twitton nr. Otford, Kent, July 1978, by Mr. W. R. Dolling. My thanks to Dr. J. Dlabola (Narodni Museum, Czechoslovakia) for confirming the identification. It will be dealt with by Dr. W. J. de Le Quesne in his forthcoming Royal Entomological Society handbook on the Typhlocybinae. — M. R. WILSON, Department of Zoology, University College, Cardiff.

Two Close Encounters with *Apatura iris* L.

By J. E. GREEN *

On 20th July 1977 I joined Gordon Haines and Norman Turner for a day in a South Wiltshire wood. Our particular aim was to observe the Purple Emperor (*Apatura iris* L.) and I hoped to get some photographs. Our first brief sighting was at tree top level at 10.20 a.m. following rain, and shortly afterwards Gordon spotted a fresh male on the ground in the ride. I got my first pictures from about 5 feet distance using a 135 mm lens, 7 mm extension tube and electronic flash. Then I slowly inched forward on hands and knees to about 2 feet. Through the viewfinder I saw that he was feeding on apparently bare earth, the end of the yellowish proboscis moving about frequently to different points. Photographs were taken with difficulty because he was restless, rarely staying still for more than 10 seconds, and walking quickly in random directions. I particularly noticed the sure footed ability to negotiate obstacles, and he often paused to probe under stones. The wings were normally closed, but when walking they tended to be partly opened as if to assist balance, and occasionally he paused to display. Sometimes when walking the proboscis was only slightly withdrawn, rather in the manner of an elephant's trunk. There was no reaction to the electronic flash.

He seemed to be wary of my friends who were standing, and flew off to settle about 8 feet up on a nearby oak. After several sorties to settle momentarily on the same ground, they decided to retreat, and he then settled. By approaching smoothly on all fours I was able to get within 8 inches of him. Using a 50 mm lens, 7 mm extension I photographed at f 22, to show great detail and that superb iridescent purple. Suddenly he took off and flew quickly out of sight. The whole encounter had lasted for 30 memorable minutes, and we saw no more Emperors that day.

A year later on July 21st, my wife Anne and I had breakfast at 6 a.m. at Malvern, and by 9 a.m. we were over 100 miles away walking in that same ride. Anne had never seen a P.E. and I stressed that a repeat of the 1977 encounter was quite remote. How wrong I was! An hour later a male P.E. suddenly appeared near a stack of recently sawn logs, and began feeding on chippings, presumably on resin. I took several photographs from 4 feet using the 135 mm lens system described above. Then he flew off, just before the sun clouded over, to settle about 12 feet up on a silver birch. Adding a 2X converter to the lens, I took a nice picture of the two antenna projecting outwards from a leaf. Ten minutes later the sun came out, and immediately he flew to the logs again.

This time though we saw he was feeding on a small piece of dry deer dung, and was motionless apart from the rhythmic movements of the proboscis. We crawled to within a few inches of him and took numerous photographs with the 50 mm lens

* 25 Knoll Lane, Poolbrook, Malvern, Worcs. WR14 3JU.

system. Twenty minutes later we decided to find out how tolerant he would be to disturbance. My wife carefully picked up the dung and closely examined "His Majesty" from various aspects. I got out my magnifying eyeglass and joined in the inspection. She then stroked his wings in the hope that he might open them and pose for another photograph but he wouldn't co-operate and just kept feeding with wings closed, even when gently pushed. We noted details such as the orange kneecaps, the purplish bands and orange tips of the antenna knobs and even spots on his eyes. The encounter ended with the passage of a cloud over the sun when suddenly he was away with that powerful flight, and as in 1977 that was the only sighting of the day.

My wife now discounts those descriptions in the literature of the elusiveness of the Purple Emperor. I wonder if anyone else has ever had such a fascinating first encounter with this species?

AN UNUSUAL PUPATION SITE. — Mr. S. N. A. Jacob's suggestion (*antea* 23) that the larvae of *Ectoedemia argenti-pedella* (Zeller) which pupated in a nest-box had been carried there by tits feeding their young is ingenious and convincing but for one apparently fatal flaw: the larvae of the single generation do not quit their mines full-fed until October or even early November, long after the nesting season is over. Mr. Jacobs is, of course, right about the rudimentary nature of the legs of nepticulid larvae, but I think he underestimates their ambulatory powers. — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, CB11 3AF. 12.iv.1977.

THE SCARCE BORDERED STRAW: *HELICOVERPA ARMIGERA* HBN. IN 1978 and 1979. — Recent reports of *H. armigera* in this journal (vol. 90, no. 12) prompt me to record two larvae given to me on 2.xii.78 and 5.i.79 by my son who is in the fruit trade in Wellingborough. He found them feeding in Canary tomatoes which at this time of year are imported at the end of the British crop, from October to April. I recognised these from previous experience and had asked my son to watch out for them. The first larva was soon into its final skin and went under the peat provided, and produced a female on 26.i.79. The second pupa produced a moth on 12.iii.79. They were given water spray plus airing cupboard treatment. The larvae are said to be polyphagous as well as cannibalistic and in America where it is a pest, five generations have been recorded in one year. Records of *armigera* in the British Isles are usually for October. I feel it is significant that the light trap records coincide with the arrival of the tomatoes and that this species continues to be brought into this country in its immature stages at least into January, although the prospect of the adults being found must diminish rapidly with the advance of winter. — P. J. GENT, 3 Irthlingborough Road, Wellingborough, Northants.

Rev. H. S. Gorham and Some 19th Century Records

By J. COOTER *

(Concluded from page 153)

[Gorham retires from Shipley, and moves to "The Chestnuts", Shirley Warren, just outside Southampton (now part of the City), and becomes a close neighbour of Dr. David Sharp.]

Date 1884	Entry No.	Detail
June 3rd	5	From Gulliver at Lodge. 4 <i>Prionus coriarius</i> , 2 <i>Elater epphipium</i> , 3 <i>E. praeustus</i> , ⁵² 2 <i>E. pommonae</i> , 1 <i>Hister quadrimaculatus</i> .
October 15th	9	New Forest with Sharp and Lewis. 7 <i>Triphyllus punctatus</i> , <i>Berosus signatipennis</i> , <i>B. affinis</i> , 2 <i>Hel. laticollis</i> , 1 <i>Phil. splendidulus</i> .
24th	11	2 <i>Plegaderus</i> . 1 <i>Ptinidium gresneri</i> . ⁵³ <i>Plerya suturalis</i> (plenty) Trichopt. New Forest, Stoney Cross with Clair & Mab. & Lucy Gore. 1 <i>Cicones</i> , 4 <i>Quedius infuscatus</i> , ⁵⁴ <i>Ptenidium gresneri</i> ⁵³ in abundance. <i>Abraeus</i> . 1 <i>Pten. turgidum</i> . ⁵⁵
November	13	From W. W. Fowler. 1 <i>Ocyrops cyaneus</i> taken by Hadfield at Newark. ⁵⁶ 2 <i>Phil. splendens</i> . 1 <i>Teredus nitidus</i> (Trueman, Sherwood 1854, teste J. Power), 3 <i>Phosphuga subrotundata</i> Ireland, 1 <i>Actidium coarctatum</i> , 2 <i>Ptilinum foveolatum</i> , 2 <i>Euthia scydmaenoides</i> , Birmingham. ⁵⁷ 1 <i>Agathidium rhinoceros</i> ♀, 2 <i>Tachinus proximus</i> , 1 <i>Bledius atricapillus</i> .
December 13th	15	From Matthews critically examined types [i.e. examples] of:— red tickets <i>Ptinella testacea</i> ♂ ♀, <i>P. aptera</i> ♂ ♀, <i>P. angustula</i> ♂ ♀, blue tickets <i>Trichop. atomaria</i> , <i>grandicollis</i> , <i>brevipennis</i> , <i>lata</i> , <i>fascicularis</i> , <i>Chevrolati</i> , <i>montandoni</i> , <i>sericans</i> , <i>bovina</i> . <i>Ptenid. aenescens</i> , <i>Pt. fusicornis</i> , <i>nitidum</i> . Yellow <i>Ptilium spencei</i> , <i>kunzei</i> , <i>myrmecophilum</i> , <i>excavatum</i> , <i>foveolatum</i> , <i>milliolium</i> , <i>trisulcatum</i> , <i>Nephanes Titan</i> .
1885 May 9th	11	New Forest with Sharp. 16 <i>Synchita juglandis</i> (larvae & pupae) <i>Ennarthron cornutum</i> ? 4 <i>Ptinella aptera</i> , <i>Litargus bifasciatus</i> , <i>Cerylon angustatum</i> , 1 fagi.
June 11th	18	Lyndhurst towards Mark Ash with Verrall, Sharp and Champion; 6 <i>Mycetochares bipustulatus</i> in old Maple, 1 <i>Melasis</i> in beech [?] cord/hard/Lord [—not very clear], 2 <i>Liodes bipustulatus</i> , 1 <i>Cicones</i> .
	19	Lyndhurst with Gore and Sharp. 1 <i>Liodes orbiculatus</i> , 2 <i>Aspidophorus</i> , 1 <i>Agath. clypeatum</i> .

* 20 Burdon Drive, Bartestree, Hereford.

Date	Entry No.	Detail
October 27th	33	From Dr. Lowe. 1 <i>Aph. consputus</i> (Richmond Park), 2 <i>Aph. depressus</i> (red var.), 1 <i>Elater sanguinolentus</i> , 2 <i>Corym. metallicus</i> (Wimbledon).
December 3rd	34	From Th. Wood. 2 <i>Hydnobius punctatissimus</i> crawling up cliff at Margate ? <i>Actinopteryx fucicole</i> (12), <i>Actidium coarctatum</i> (12).
1886 May 1st	9	New Forest with Fowler & Harry. 1 <i>Carabus violaceus</i> var <i>exasperatus</i> , <i>Paederus caligatus</i> , Phil. 2 <i>Mesosa nubila</i> . ⁵⁹
June 12th	25	Brockenhurst towards Beaulieu and Lady Cross, Sharp & Champion. 1 <i>Gramoptera analis</i> , 4 <i>Pogonocherus pilosus</i> . Near Denny? in decaying beech 6 <i>Eucnemis capucinus</i> ⁶⁰ also Sharp and Champion got plenty. New to Britain. [See plate 1.]
15th	26	Chandlers Ford, at Pit on London Road. Bem. doris, <i>Stenus latifrons</i> . Chalk pit, <i>Polyommatus albus</i> , 1 <i>Cassida chloris</i> , ⁶¹ <i>Bruchus cisti</i> . At Twyford, wet meadows <i>Oodes</i> , 1 <i>El. uliginosus</i> , Don. <i>sagittariae</i> , D.
June 22nd	28	Brockenhurst, with D. Sharp got about 40 <i>Eucnemis capucinus</i> .
August 2nd	31	Shirley Sand Pit with Sharp, Harry & Arthur, 17 <i>Gronops lunatus</i> ⁶² (Harry <i>Gronops</i> & 1 <i>Sybinia arenariae</i> , Arthur 20 <i>Gronops</i> , 1 <i>Sybinia potentillae</i>). ⁶³ 2 <i>Sten. teutonius</i> .
August 17th	31	Harry got <i>Annomatus</i> (10) in puff-balls in Shirley garden with Crypt. lycoperdi, Aug. 21 in house 1 <i>Serica brunnea</i> .
October	44	<i>Acritus punctum</i> from J. J. Walker taken at Whitsand Bay, Cornwall.
October 27	46	From Moncreaff several <i>Pentarthrum huttoni</i> ⁶⁵ taken in wood from the cellar of Moody confectioners in Kings Road [?Southsea].
1887 March 21st	3	From Jenner. 6 <i>Phosphaenus hemipterus</i> , 2 <i>Helochares</i> .
May 30th	7	Lords Wood with D. Sharp. 1 <i>Rh. ophthalmicus</i> , <i>Rh. nanus</i> , <i>aeneovirens</i> , <i>Luperus</i> . 1 <i>Geotrupes sylvaticus</i> (<i>Melanippes hastata</i> — 1 <i>Nemerbius</i>).
June 20th	17	Brockenhurst with Sharp and Champion. 1 <i>Colydium elongatum</i> , 9 <i>Anoplodora sexguttata</i> , 1 <i>Gramm. analis</i> , 1 <i>Leptura nigra</i> , 1 <i>Dasytes niger</i> , 1 <i>Thymalus</i> , 1 <i>Pterost. oblongo-punctatus</i> , 2 <i>Rhiz. cribratus</i> , 1 <i>Lat. carbonarius</i> .
June 27th	19	<i>Dorcatoma flavicornis</i> ⁶⁶ from pupae got at Vinney Ridge June 4. 1 <i>Orchesia undulata</i> from pupae at Busketts Lawn, 3 <i>Thymalus</i> . (Sharp got <i>Odontaeus</i> in his house at light.)
July 8th	„	About 10 more <i>Dorcatoma</i> hatched. ⁶⁶
10th	„	8 <i>Dorcatoma</i> came out. ⁶⁶

Date	Entry No.	Detail
12th	23	8 more <i>Dorcatoma</i> came out. ⁶⁶ On furze lane to Sampsons — <i>Calomicrus circumfuscus</i> in tolerable plenty also a few <i>Pol. confluens</i> .
July 19th	25	With Mabel in Lords Wood, saw <i>L. sybilla</i> & <i>A. adippe</i> .
20th	„	With Wynnies & the three girls, captured <i>sybilla</i> , 1 very good, 6 <i>adippe</i> some worn. 1 <i>Strangalia armata</i> var.
30th	27	Lords Wood with Harry & Arthur. <i>A. adippe</i> abundant but worn, <i>L. sybilla</i> worn, a few. Got <i>Conops rufipes</i> ?(2), <i>Conops</i> sp. ?(1), <i>Volucella inanis</i> , <i>Crysotomus</i> sp., saw 1 <i>Strangalia</i> .
[During 1887 the first volume of W. W. Fowler's "Coleoptera of the British Islands" was published, volume two appeared the following year.]		
1888		
April 11th	8	From Robt. Gillo, Bath. 4 <i>Onth. nutans</i> ⁶⁷ 2 ♂ 2 ♀, 13 <i>Aphodius constans</i> .
April 16th	—	Went to New Forest with Arthur & Harry, got nothing.
23rd	11	Ventnor with Fowler, in shingle and under stones 4 <i>Lymneium nigropiceum</i> , <i>Lith. maritima</i> . ⁶⁸
24th	„	Sandown, Harp. caspus, 1 <i>Trichonyx maerkelii</i> , ⁶⁹ <i>Mecinus circulator</i> , ⁷⁰ <i>Ceuth. Dawsoni</i> , ⁷¹ <i>Tychius polylineatus</i> .
July 12th	22	Hythe, Southampton. Found galls of <i>Mecinus collaris</i> and 1 beetle on <i>Plantago lanceolata</i> .
[Volume three of "Fowler" published during 1889.]		
1889		
June	7	Knepp Pond, 9 <i>Badister peltatus</i> , ²⁸ 1 <i>unipustulatus</i> , <i>Galeruca nymphae</i> , <i>Donacia crassipes</i> , <i>D. sparganii</i> , <i>Pachyrhynchus</i> .
21st	11	Knepp — 10 <i>Badister peltatus</i> , ²⁸ 1 <i>B. unipustulatus</i> , 1 <i>Pt. anthracinus</i> .
November 3rd	23	2 <i>Xyleborus dispar</i> from S. Mosley, Huddersfield, taken in plum-tree at Cheltenham.
[Volume four of "Fowler" published during 1890.]		
1890		
March 4th	6	Lyndhurst Rd. to near Lynhurst OL right. 8 <i>Cicones</i> , 2 <i>Litargus</i> , 1 <i>Q. truncicola</i> , 3 <i>Pt. Gresneri</i> ⁵³ in hayrick. <i>H. praetexta</i> , 1 <i>St. orbicularis</i> , <i>Mycetaea heterophops</i> , <i>Ceryl. angustatus</i> , 2 <i>Trypodendron</i> , 4 <i>Rhagium</i> just out, 2 Bugs, <i>Acanthia</i> in beech.
1891		
June 16th	11	New Forest, Brockenhurst, to Ramnor 1 <i>Euconnus</i> visited <i>Eucnemis</i> tree <i>Ptilinus</i> just emerging ♂ and more ♀. 1 <i>Tiresias serra</i> . 1 <i>Omosita depressa</i> on bone.
July 9th	13	Swaythling (from Chestnuts) sweeping, 1 <i>Phosphaenus hemipterus</i> . On <i>Lathyrus Sit. suturalis</i> , <i>Apion</i> . By river 1 , on <i>Spiraea Cercus bipustulatus</i> , immature.
August	17	Lakes of Killarney, 1 <i>Silpha</i> ?subrotundata? <i>Phloeocharis</i> .

Date	Entry No.	Detail
November 25th	20	Gruts' sale. 4 <i>Trachys nanus</i> , 2 <i>Agrilus laticornis</i> , 1 <i>Ischnodes sanguinicollis</i> , 1 <i>Anisod. poeciloides</i> , 2 <i>Cassida vittata</i> , <i>Aleocho. grisea</i> , 3 <i>obscura</i> .
December 2nd	21	From R. Beck, 1 <i>Lixus paraplecticus</i> Christchurch 4 Don.
1892		
January 20th	1	From A. J. Chitty. 1 <i>Anthaxia nitidula</i> caught at Brockenhurst last June by Gulliver. 2 <i>Octhebius aeratus</i> Devon, 2 <i>C. inquisitor</i> .
May 27th	4	Brockenhurst, Gulliver's, Ramnor in dead willow wood by F. Gulliver. 1 <i>Agrilus viridis</i> ⁷² and dead body of <i>Agrilus</i> ? with marks of larvae but no larvae. <i>Scaphidium quadrimaculatum</i> in oak. 1 <i>Callidium</i> variable, immature. From E. Gulliver, 2 <i>El. pommonae</i> , 1 <i>El. praeustus</i> alive in oak, 1 immature <i>Callidium</i> variable.
June 8th	6	Ramnor Wood with F. Gulliver. <i>Agrilus viridis</i> ⁷² flying about and settling on willow. 1 <i>Chilocorus</i> in oak stump, 10 <i>Ips quadriguttata</i> , 2 <i>I. 4-punctata</i> , <i>Rhizophagus</i> , 1 <i>Quedius</i> .
June 11th	7	From Gulliver. 1 <i>El. pomonae</i> , 1 <i>Crypt. lineola</i> , 1 <i>Mesosa nubila</i> , 1 <i>St. fulvipes</i> .
June	„	From Gulliver 1 <i>Agrilus viridis</i> , ⁷² 1 <i>El. "pomonae"</i> 1 <i>Phloeotrya rufipes</i> , 4.
August 2nd	12	In old potatoes in the earth, many specimens of <i>Anommatus 12-striatus</i> . ⁶⁴ 15 + 20.
November 24th	18	From W. F. Johnson, ⁷³ Armagh. 2 <i>Pselaphus dresdensis</i> from Amagh, Drummannore (Oct. 1892).
1893		
May 12th	3	New Forest, to Emery Down & Manor Wood with Florie. 2 <i>Elater miniatus</i> ⁷⁴ Gorh. under oak bark, 1 <i>Asclera</i> and <i>Melandrya</i> in beech stump.
May 30th	5	Brockenhurst with Sharp. 1 <i>Eucnemis</i> ⁷⁵ On. <i>fratricornis</i> ⁷⁶ 7 ♀, 10 ♂ <i>Anthon. ulmi</i> .
June 4th	7	Brockenhurst with Sharp and Chitty. <i>Ips 4-guttatus</i> , 4-punctatus, <i>Coprophilus</i> 2 <i>Chlaenius nigricornis</i> .
5th	„	Sharp took <i>Anthaxia</i> .
6th	„	Gulliver took an <i>Anthaxia</i> .
August 16th	12	Scilly Isles, St. Mary's in sandy bay, <i>Broscus</i> , <i>Calathus melanocephalus</i> , <i>C. mollis</i> , <i>C. flavipes</i> , <i>Notiophilus aquaticus</i> .
October 21st	13	From D. Sharp. 4 <i>Harpalus obscurus</i> , Swaffham Fen; [18]92.
1894		
March 4th	3	From G. Gulliver — 8 red <i>Elaters</i> Brockenhurst — 3 <i>E. miniatus</i> Gorh. ♂ ⁷⁴ , 5 <i>E. lythropterus</i> ♂ ♀.
15th	4	From Gulliver; 7 <i>E. miniatus</i> , ⁷⁴ 1 <i>Lyth.</i>
May 9th	8	2 <i>Psammotus porricollis</i> , Whitesand Bay, Plymouth from C. J. Dale.

Date	Entry No.	Detail
June 26th	14	Brockenhurst with Sharp & Champion. 1 <i>Anthaxia nitidula</i> , (Sharp got 3, Ch. 2), 1 <i>Crypt. moroei</i> , 1 <i>Tychius 5-punctatus</i> , 1 <i>Hister</i> , 1 <i>Triplax russica</i> , 2 <i>Xyloterus</i> , <i>Dorcat. flavicornis</i> .
July 9th	15	Brockenhurst to Gritnam in rotten stump with powdery mycelium, <i>Leiodes humeralis</i> , 1 <i>L. orbicularis</i> , 1 <i>Pt. gresneri</i> , ⁵³ 2 <i>Aspidiphorus</i> , many <i>abraei</i> .
July 27th	17	<i>Odontaeus mobilicornis</i> ⁷⁷ flew into my study.
August	18	In a rotten carrot, 8 <i>Annomatus</i> , 1 <i>Rhizophagus ferrugineus</i> .
December 16th	22	R'd, from Frank Gulliver, <i>Agrilus viridis</i> , 1 <i>Anthaxia Agrilus</i> , taken at Brockenhurst in '94.
December 29th	23	From Chas. Gulliver, Brockenhurst. <i>Elater miniatus</i> , ⁷⁴ <i>E. lythropterus</i> , 1 <i>Anobium denticolle</i> , 2 <i>Carabus arvensis</i> .
1895		
January 14th	2	Bought at sale of Francis collection (sold by Adams)
	3	(sold by Adams) many <i>Carabidae</i> from
	4	colls. of Lewis, Power. 1 <i>C. schranki</i> . <i>Clavicornia</i> including 10 <i>Endophloeus</i> , Weevils <i>Rhynchites</i> , <i>Anthrib. albinus</i> .
April 3rd	11	From W. F. Johnson, Armagh. 1 <i>Myrmec. collaris</i> , 2 <i>Psilaphus dresdensis</i> , ⁷³ (Armagh). 4 <i>Bledius erraticus</i> (Coolmore), <i>Hister neglectus</i> .
June 7th	17	Brockenhurst, on <i>Eucnemis</i> stump, 1 <i>Tillus elongatus</i> <i>Spilomyia speciosa</i> , saw <i>Tomoxia</i> , could not catch it, <i>Ptilinus</i> out, 1 <i>Scraptia</i> ? On stumps near gate in to Ramnor, 1 <i>Pogonocherus pilosus</i> , 1 <i>C. arietis</i> ; sweeping <i>Anoploidea</i> , 1 <i>Q. truncicola</i> saw Donisthorpe who had a <i>Colydium</i> and <i>Anthaxia</i> .
June 21st	19	In garden, on gravel path near box hedge, 7 <i>Phosphaenus hemipterus</i> (cf. 13.91) ⁷⁸ ♂.
22nd	„	do. many <i>Phosphaenus</i> ♂ about 33 (with Arthur 12) ⁷⁸
25th	„	do. and on Sunday 4 or 5, Arthur 15. ⁷⁸
August 1st	22	Wicken Fen, with Sharp. <i>Anthocomus sanguinolentus</i> , 3 <i>Silis ruficollis</i> , <i>Tel. thoracicus</i> , 1 <i>Myrm. collaris</i> , from "Mrs. Webb", <i>Saperda carch.</i> , 20 <i>Chrysolina menthastri</i> , <i>Lina populi</i> abundant. <i>Machaon</i> flying, & obtained 12 pupae from Mrs. W. <i>Dorytomus salicis</i> ?
	24	From Wicken (Mrs. Webb). 1 <i>Ar. moschata</i> , 1 <i>Saperda</i> , & several pupae of <i>machaon</i> .
November 9th	34	From R. W. Lloyd, 1 <i>Bem. virens</i> , Lochmaree, Ross-shire.

Date	Entry No.	Detail
1896 June	8	Brockenhurst to Holiday Hill with Donisthorpe. 1 <i>Ischnomera sanguinicornis</i> . Triplax russica, Ptenidium gresneri, ⁵³ turidum, ⁵³ 1 Agath. rotundatum. From Donisthorpe, 2 Leptura scutellata.
June 11th	„	Saw Pospaenus in garden, do. 12th, 11. ⁷⁸
	11	A ♀ Odontaeus came in Dining room? to Florie to lamp.
June 18th	12	Brockenhurst, met Sharp and his girls, got 7 <i>Anthaxia</i> , 3 of them in the afternoon, 1 <i>Microrhagus</i> at Gullivers, 1 <i>Eucnemis</i> , ⁷³ 1 Cl. mysticus, 1 Tillus ♂ beating oaks, Polydrusus flavipes common.
December 4th	20	From J. J. Walker, 1 <i>Dyt. dimidiatus</i> ♀ Hope Coll. 2 <i>Rhantus notatus</i> , 2 G. urinator, 6 <i>Den. punctatus</i> .
1897 May 10th	5	New Forest beyond Matley bog, in wood, 3 <i>Elater miniatus</i> , 2 Agathid, 1 male with horn A. ? clypeatus, 1 Ag. seminulum.
May 13th	6	do. by self near Denny, 6 <i>Plegaderus</i> , 11 <i>Abraeus</i> , <i>Ptenidium turgidum</i> ? ³⁵
June 11th	14	Brockenhurst with Donisthorpe (no rose bloom). (He got 1 <i>Anthaxia</i> .) 3 <i>Synchita</i> , 1 El. miniatus, ⁷⁴ 1 <i>Eucnemis</i> on log. Donisth. give me 8 Nitid. obscura from Holiday Hill. 1 Ag. sordidum from Lymington. 1 Gr. analis.
June 24th	15	New Forest, Denny. 3 Lept. scutellata. dug out. 7 <i>Liodes orbicularis</i> , 1 <i>Tomoxia</i> , 4 <i>Velleius dilatatus</i> , 1 <i>Cryptarcha</i> .
July 2nd	16	New Forest with Arthur, 2 Lept. scutellata, 1 El. metallicus, 1 <i>Plegaderus</i> , 1 <i>Trichonyx sulcicornis</i> , - <i>Scydma.</i> , <i>Abraeus</i> , 2 <i>Liodes orbiculatus</i> , <i>Hom. cinnamomaea</i> .
July 1st	17	Shirley Warren. Arthur captured 1 <i>Lytta vesicatoria</i> ⁷⁹ near garden.
July 13th	„	Went to Wood Fildley with Hugh Saunders, he got 1 Ap. iris ♀, saw one more on trees, L. sibylla is worn, 1 Ag. rotundatum?
November 16th	24	From W. W. Esam, St. Leonards. 4 Har. cordatus, 6 Phyt. Waltoni 6 C. Chevrolati, 6 Syb. primitus.
November 20th	„	4 Chrys. goettingensis, 3 <i>Clythra tridentata</i> from Reading, 3 C. Chevrolatii.
December 2nd	„	4 more <i>Clythra tridentata</i> "Pamber Wood, Reading".

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51. See Fowler 1889, 3: 27.
52. Almost certainly *elongatulus* (Fab.).
53. See Fowler 1889, 3: 141.
54. Most likely *microps* Gravenhorst.
55. See Fowler 1889, 3: 141.
56. See Fowler 1888, 2: 255.
57. See Fowler 1889, 3: 83, this record refers to Knowle.
58. See Fowler 1889, 3: 191.
59. This information differs from that given by Fowler (1890, 4: 250). Presumably Gorham is correct, certainly as to the year, there being no entry for May 1st, 1885 in the diary.
60. The date given by Fowler 1890, 4: 78 is June 13th. Sharp (1886) describes in detail the larva of this species, examples of which were found with the adult, he also gives the date as June 13th.
61. From this entry it is evident that Gorham took *Cassida denticollis* Suff. (*chloris* auct. Brit.) at Chandlers Ford. Subsequent authors have quoted "Twyford" as the locality. I have, through the good offices of my friend P. J. Osborne, been able to examine the specimens in the Gorham Collection standing as "*chloris*". Only two specimens were present, both undoubtedly *denticollis* Suff., one pinned direct, and one carded on its dorsal surface. They bear

- labels "Shipley" and the code "23/82" (see footnote 47). I do not know of the whereabouts of the Hampshire (Chandlers Ford) specimen, but it is possible that Gorham gave it to a friend by way of exchange.
62. See Fowler 1891, 5: 227.
 63. See Fowler 1891, 5: 303.
 64. See Fowler 1889, 3: 278.
 65. Compare with Fowler 1891, 5: 391.
 66. See Fowler 1890, 4: 198.
 67. See Fowler 1890, 4: 12.
 68. See Fowler 1888, 2: 315 (*Medon pocoferus* (Peyron)).
 69. See Fowler 1889, 3: 98.
 70. See Fowler 1891, 5: 313.
 71. See Fowler 1891, 5: 367.
 72. See Fowler & Donisthorpe 1913, 6: 273.
 73. See Fowler & Donisthorpe 1913, 6: 250.
 74. Gorham's collection has a series of this species, i.e. the original Type material. Recently it has been examined by Miss von Hyeck, who found the species to be *Elater pommonae* (Stph.). One specimen has been designated lectotype by von Hyeck, and bears a label to this effect.
 75. *Eucnemis capucina* Ahrens remains one of our great rarities, being found sporadically this century in the New Forest, most notably by those assiduous Coleopterists J. J. Walker (in 1910, 1919 and 1922), P. Harwood (on three occasions in June 1936), and David Appleton (most recent captures to date).
 76. Presumably *similis* (Scriba), the specimen should be checked.
 77. See Fowler and Donisthorpe 1913, 6: 272.
 78. See Fowler and Donisthorpe 1913, 6: 277.
 79. See Fowler and Donisthorpe 1913, 6: 300.
-

NEW RECORDS OF BUENOA (HEMIPTERA: NOTONECTIDAE) FROM PERU. — On May 1st 1978, J. M. Smilanick collected *Buenoa communis* Truxal and *Buenoa salutis* Kirkaldy at Puerto Maldonado near the junction of the Madre de Dios River and the Tambopata River in southeastern Peru. In his revision of the genus *Buenoa*, Truxal (1953, *Univ. Kans. Sci. Bull.*, 35: 1351-1523) reported *B. communis* only from Brazil and Bolivia, and *B. salutis* from Bolivia, Brazil, British Guiana, French Guiana, Paraguay, and Venezuela. This report expands the distributions of both species to include the headwaters of the Amazon River. The 55 male and 66 female *B. communis* taken had a mean length of 6.23 ± 0.25 mm. The 9 male and 13 female *B. salutis* collected measured 3.81 ± 0.31 mm.

This record is especially noteworthy as it confirms the sympatric existence of closely related species of *Buenoa*. Zalom (1978, *Ann. Entomol. Soc. Amer.*, 73: 143-148) determined behavioral and ecological mechanisms permitting sympatry among predatory *Buenoa* spp. and *Notonecta* spp. It seems likely that the much larger *B. communis* would occupy a niche sufficiently removed from *B. salutis* to allow the species to coexist.

All specimens have been deposited in the insect repository of the University of California, Davis. — F. G. ZALOM and J. M. SMILANICK, Dept., of Entomology, University of California, Davis, CA 95616, USA.

A Holiday Collecting Butterflies in Andorra, July, 1978

By M. J. SYMES *

My parents and I left Salbris, just north of Vierzon at 7.30 a.m. Keeping to the N 20, we passed through Cahors at lunch-time. It was here that the butterflies really became noticeable. The large and unmistakeable *Brintesia circe* Fab. was to be found gliding across this road and I observed a large female specimen on the road-side before another was hit by our own car. This parallels Mr. G. G. Baldwin's observations (*Ent. Rec.* 90: 90) regarding his experiences of numerous incidences of this butterfly having been hit by motor vehicles whilst holiday motoring in France.

Half-way to Montauban, having covered 420 Km without a single break, we pulled into a lay-by for a picnic lunch. Armed with a cheese and tomato roll in one hand and my kite net in the other, I made a quick but thorough search of the immediate area. Half-an-hour later we resumed our journey to Andorra. In those thirty minutes I had consumed four rolls and had collected a fresh female *Nymphalis polychloros polychloros* L., one male *Gonepteryx cleopatra cleopatra* L., a male and female *Melanargia galathea* L., and both sexes of *Brintesia circe* Fab. It was from that lunch-time onwards that I was convinced that a successful and exciting fortnight's holiday lay ahead of me. We reached my Aunt's home at Encamp after a fierce thunderstorm as we climbed from Ax-les-Thermes to the numerous hairpin bends of the Pas de la Casa, a days run of 700 Km.

The following morning, the 25th July, I awoke to brilliant sunshine and a clear blue sky as Mr. Kincaid, ex-motor racing driver, hurled me around the mountain bends to St. Julià de Lòria where I had a date with Dr. P. J. L. Roche and the unexpected pleasure of meeting and collecting with Mr. J. M. Chalmers-Hunt and Dr. C. J. Luckens. It was a marvellous thrill and great honour for a seventeen year old to be accepted in the midst of such experienced entomologists. Dr. Roche is primarily a hemipterist but also has amassed an extensive knowledge of the *Rhopalocera* of Andorra and has produced a fine reference collection of butterflies from this country. During my stay he kindly showed me his favourite haunts and indicated other areas of entomological interest.

By far the most exciting and productive locality for general collecting was the valley visited by Dr. Roche, J. A. C. and D. F. Greenwood in July, 1976 (*Vide Ent. Rec.*, 89: 277).

This being my first collecting holiday abroad I walked the narrow, stony path leading to this area in sheer wonder as numbers of *Melanargia galathea lachesis* Hueb. and *Colias crocea* Geoff., as if taunting me, winged their respective ways to more rugged parts inaccessible to even the most agile and eager lepidopterist. *Macroglossum stellatarum* L. were busily hovering, darting away at slightest approach. All this even

* 2 Montrouge Crescent, Epsom Downs, Surrey.

before we had reached the valley! *Coenonympha arcania* L. was quite abundant, its flight being slow and fluttering rather like *C. pamphilus pamphilus* L., settling now and again upon grass stalks and stems. Other common Satyrids that I took on my first day were a male and female *Maniola jurtina hispulla* Esp., a male *Lasiommata megera megera* L. and a female *Pararge aegeria aegeria* L. It seemed odd to me that the slow and hesitant latter butterfly should have orange instead of yellowish spots due to my familiarity with the West-European sub-species *tircis*. *B. circe* Fab. was also common here frequently alighting upon the path before me. I noted that the thick trunks of oak trees were particularly favoured by this large and striking species as resting places. When disturbed it tends to fly for some distance before it considers it prudent to settle once more. Fritillaries were similarly abundant and to be honest I was amazed at the number of different species to be found in such a small area. We then tried to attract *Apatura ilia barcina* Vty. with fermented banana bait à la *Charaxes* hunter but unfortunately to no avail on this particular occasion. *Parnassius apollo* L. seemed to be fairly scarce, yet Mr. Chalmers-Hunt kindly managed to take one fine male specimen for me.

However, various members of the *Lycaenidae* were more willing to show themselves such as *Lycaeides idas* L., *Nordmannia ilicis* Esp., *Lycaena phlaeas phlaeas* L., and *Heodes virgaureae* L. There was also no paucity of Pierids which ranged from the colourful fast-flying *Colias* species, *hyale* and *crocea* to the inconspicuous *Leptidae sinapis* L., who well deserves P. B. M. Allan's comic title of "The Bosky Footle" due to its weak and irresolute flight. The skippers *Ochlodes venatus* Brem. & Grey. and *Carcharodus flocciferus* Zeller. were flying low and swiftly along the ground like most species of this family. I spotted a Large Blue, this sighting being confirmed since Mr. Chalmers-Hunt secured a specimen of *arion* shortly afterwards. One sight record, however, was to remain unconfirmed, this concerning *Pandoriana pandora* D. & S. I recall that it flew in the manner of *Argynnis paphia* L., but was easily distinguished from it by the brick-red colour of the underside of the forewings. It was gliding high amongst the trees at one stage and then dropped, swooping suddenly to feed where it remained tantalizingly out of reach. This constitutes the first record of this butterfly in Andorra known to Dr. Roche. Another note of entomological interest was struck by the capture of an elegant adult member of the *Myrmelcontidae* which Dr. Roche accepted since the insect had not previously been recorded by him in the Principality.

A visit to Encamp Cortals on the following day yielded a few different species in addition to those observed in the valley at St. Julià the day before especially *Erebia* species, scores of *E. epiphron fauveaui* de Lesse. taking to the wing in bright sunshine. Certain members of the *Polyommata* were also noticeable, a list of the butterflies I have recorded follow-

ing this general account. A few days later at this locality *Colias phicomone* Esp., and *Eumedonia eumedon* Esp. were taken. A darker race of the former butterfly was noted at Grau Roig. *E. eumedon* was found in great abundance but was extremely local, not venturing any further than two metres from its pabulum. *Geranium pratense*.

My great reward was undoubtedly the capture of *Apatura ilia barcina* Vty., at St. Julià on July 29th. What a day! Having seen *ilia* flashing speedily by, my hunting instincts were aroused and with a nearby stone covered generously with bait there was little I could do but wait, ignore the other distracting butterflies and let those troublesome Tabanid flies feast on me. I did not have to wait for very long to be graced with his regal presence. The lofty insect totally ignored our humble offerings and commenced to imbibe moisture from a muddy pool to quench the royal thirst. "Even Emperors can be beaten", I thought, approaching with extreme caution as I nervously viewed those illusive quivering wings with iridescent purple sheen. Expecting to clap my net down upon it easily, my "prize" had other ideas, darting swiftly to my right where I netted it in flight. Another memorable catch for me was that of a male and female *Iphiclides podalirius feisthamelii* Duponchel both looking freshly emerged, a female *Lampides boeticus* L., being taken in the same net as the female Scarce Swallow-tail.

I spent many fine and happy days collecting with Dr. Roche in his wonderful valley but as you will have already noted, my collecting was not confined there alone. Let me tell you of just one afternoon near Encamp. We left at 3.30 p.m. and within ten minutes we had arrived at Vila, a small village at 1,328 m. Here the tarmac ended and a rough winding flinty track led upwards towards Cortals de Vexalis at 1,550 m. On leaving the car we came to a small stream. There were butterflies everywhere including an intermediate between *Melanargia galathea lachesis* Hueb. and *Melanargia galathea galathea* L. A male *Lampides boeticus* L., not a common butterfly here, was netted, flying alongside *Lysandra albicans albicans* H-Sch. As we climbed the dusty track and the family commenced to pick wild strawberries and raspberries I had boxed my first *Macroglossum stellatarum*, quickly followed by another. My father greatly enjoyed his sightings of a Black Redstart and Woodchat Shrike as I pursued *Colias crocea* ignoring *B. circe* settling on the road at our feet. Whilst we rested at the "American House" my father caught a magnificent female *Mesoacidalia aglaja aglaja* L. We walked back to the car, tired and dusty, with a bag of wild fruit and an exalting afternoon's catch. As I sit upstairs with my setting boards in the cold winter months, each specimen brings back those sunny, happy and exciting days in Andorra.

The following is a list of the Rhopalocera noticed:—

PAPILIONIDAE: 1. *Iphiclides podalirius feisthamelii* Duponchel, 2. *Parnassius apollo* L.

PIERIDAE: 3. *Aporia crataegi* L., 4. *Pieris brassicae brassicae* L., 5. *P. rapae* L., 6. *P. napi napi* L., 7. *Colias phicomone* Esp., 8. *C. crocea* Geoff., 9. *C. hyale* L., 10. *C. australis* Vty., 11. *Gonepteryx rhammi* L., 12. *Lepidea sinapis* L.

LIBYTHEIDAE: 13. *Libythea celtis* Laich.

NYMPHALIDAE: 14. *Apatura ilia barcina* Vty., 15. *Limenitis camilla* L., 16. *Inachis io* L., 17. *Vanessa atalanta* L., 18. *V. cardui* L., 19. *Aglais urticae urticae* L., 20. *Polygonia c-album* L., 21. *Argynnis paphia paphia* L., 22. *Mesoacidalia aglaja aglaja* L., 23. *Fabriciana adippe adippe* D. & S., 24. *Pandoriana pandora* D. & S., (Unconfirmed), 25. *Brenthis daphne* D. & S., 26. *B. ino* Rott., 27. *Boloria pales pyrenes-miscens* Vty., 28. *B. napaea* Hoff., 29. *Proclossiana eunomia eunomia* Esp., 30. *Clossiana selene* D. & S., 31. *Melitaea cinxia* L., 33. *M. phoebe phoebe* D. & S., 34. *M. didyma meridionalis* Stdgr., 35. *M. diamina diamina* Lang., 36. *M. diamina vernetensis* Rondou, 37. *Mellicta athalia celadussa* Fruh., 38. *Mellicta parthenoides* Kef.

SATYRIDAE: 39. *Melanargia galathea lachesis* Huebn., 40. *Satyrus actaea* Esp., 41. *Brintesia circe* Fab., 42. *Erebia epiphron fauveau* de Lesse, 43. *E. euryale euryale* Esp., 44. *F. cassioides arvenensis* Obthr., 45. *E. oeme oeme* Huebn., 46. *Maniola jurtina hispulla* Esp., 47. *Hyponephele lycaon* Kuehn., 48. *Pyronia tithonus* L., 49. *Coenonympha pamphilus pamphilus* L., 50. *C. arcania arcania* L., 51. *Pararge aegeria aegeria* L., 52. *Lasiommata maera maera* L.

LYCAENIDAE: 53. *Thecla betulae* L., 54. *Quercusia quercus quercus* L., 55. *Nordmannia acaciae* Feb., 56. *N. ilicis* Esp., 57. *Strymondia spini* D. & S., 58. *Strymonidia w-album* Knoch., 59. *Lycaena phlaeas phlaeas* L., 60. *Heodes virgaureae virgaureae* L., 61. *Palaeochrysophanus hippothoe hippothoe* L., 62. *Lampides boeticus* L., 63. *Everes alcetas* Hoff., 64. *Cupido minimus minimus* Fuess., 65. *Celastrina argiolus* L., 66. *Maculinea arion arion* L., 67. *Lycaeides idas idas* L., 68., 69. *Cyaniris semiargus* Rott., 70. *Plebicula escheri escheri* Huebn., 71. *P. thersites* Cant., 72. *Lysandra albicans albicans* H.-Sch., 73. *Polyommatus icarus* Rott.

HESPERIIDAE: 74. *Pyrgus malvae* L., 75. *P. cirsii* Rambur., 76. *Carcharodus alceae* Esp., 77. *C. flocciferus* Zeller., 78. *Thymelicus sylvestris* Poda., 79. *Hesperia comma comma* L., 80. *Ochlodes venatus* Brem. & Grey.

Acknowledgement

I would like to thank Dr. Roche for his great kindness and encouragement.

Reference

Higgins, L. G. and Riley, N. D., 1970. *A Field Guide to the Butterflies Britain and Europe*.

REQUEST FOR INFORMATION ON IMMIGRANT LEPIDOPTERA NOTED IN 1979. — Please send any records of interest for inclusion in a paper by us to: R. F. BRETHERTON, Birtley Green, Bramley, Guildford, Surrey, GU5 0LE; or to me. — J. M. CHALMERS-HUNT, 1 Hardcourts Close, West Wickham, Kent, BR4 9LG.

The Scarce Chocolate-tip: *Clostera anachoreta* D. & S. (Lep.: Notodontidae) in South-east Kent

By BERNARD SKINNER *

The history of *anachoreta* in Kent has been well documented by J. M. Chalmers-Hunt in his critical account of Kentish Lepidoptera. Briefly this species has been taken sporadically between 1858 and 1912 along the seaboard area from Deal through Dover and Folkestone to Hythe, although there are isolated records from Ashford, Romney and Minster. Most were found in the larval state with records of ova on one occasion, pupae on two and as adults on three. Evidence would therefore indicate that *anachoreta* was resident at intervals, if not permanently, throughout this 54 year period. For the next 40 years records appear to be non-existent, perhaps no one bothered to look. Probably owing to the advent of the mercury vapour light trap, the species was noted at Dover on the 8th August 1951, at Lydd on the 9th August 1953, again at Dover on the 26th July 1964, and at Dungeness on the 16th August 1974.

The rest of this paper deals mainly with my involvement with this species and begins on the morning of the 19th August 1978 when a very excited Ted Wild informed me of his capture of a male *anachoreta* the previous night at Dungeness. Ten M.V.L.s were operated on the 'Ness' that night and again several days later, but despite favourable weather conditions no specimens were seen. During September, myself and others made several unsuccessful attempts to find larvae by searching and beating Sallow, Black Poplar and Aspen in the Dungeness, Lydd and Greatstone areas.

The 4th August 1979 saw me once again on the 'Ness', and shortly before dusk I was joined by Messrs. C. Lane, R. Lane, J. Platts, J. Porter and P. M. Stirling. An almost full moon prevented ideal collecting conditions, however the north west breeze which had prevailed during the day had dropped and the temperature was warm and the humidity very high. Fortunately thick cloud cover came over later in the night causing a small but perceptible rise in temperature this turned an average night into a very good one. The first round of the traps produced nothing exceptional, species such as *Lasiocampa trifolii flava* C.-H., *Dasychira fascelina* L. and *Eilema pygmaeola pallifrons* Zell. were in good numbers and the three Lymantrids — *Euproctis chrysorrhoea* L., *E. similis* Fuesl., and *Leucoma salicis* L. were then very common and by the end of the night their abundance proved embarrassing. Several times the act of brushing a female *chrysorrhoea* off ones face resulted in an unpleasant attack of Urticaria. Just after 12.30 the traps were revisited and this time I was rewarded with a female *anachoreta* in fair condition. Having passed the inspection of those present she was enclosed with a sprig of sallow in a three inch plastic container lined with tissue and capped

*5 Rawlins Close, South Croydon, Surrey CR2 8JS.

with netting. It might be appropriate to add here that over 90 eggs were laid on all the surfaces except the sallow and the eggs took 11 days to hatch at indoor temperature. An uneventful round of the traps took place at 3 a.m. and at 4 a.m. after the others had departed, I decided to empty the traps of the large numbers of insects and so enable them to find adequate cover before the arrival of dawn. It was on this round that I took a second *anachoreta*, a male in fine condition.

The following night in the company of Messrs. R. G. Chatelain and C. Hart, two more males were seen both appearing after 12.30.

As a detailed account of additional records will shortly appear in a Supplement to the *Butterflies and Moths of Kent*, it is perhaps sufficient here to note that between the 14th and 26th August, further specimens were seen by Messrs. R. Fairclough, C. Hart, T. Harman, A. Jenkins, J. Platts and G. Senior, bringing the total up to 18 males and 3 females.

The occurrence therefore of 21 specimens seems to indicate the presence of a breeding colony in the Dungeness area, whether or not it is of recent origin is anybody's guess. It is possible that a species with the habit of flying late could remain undetected in an area frequently visited by lepidopterists, but what is perhaps more puzzling is the complete lack of records of first brood individuals which should occur between late April and mid June.

References

- Chalmers-Hunt, J. M., 1962-1968. *The Butterflies and Moths of Kent*, 2: 37-39, 356.
Coster, W. L., 1975. The Scarce Chocolate-tip (*Clostera anachoreta* D. & S.) in Kent in 1974. *Ent. Rec. J. Var.*, 87: 125.
Wild, E. H., 1978. *Clostera anachoreta* D. & S. in Kent in 1978. *Ent. Rec. J. Var.*, 90: 274.
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SOME OBSERVATIONS ON THE HABITS OF THE LARVAE OF THE BROWN-TAIL (*EUPROCTIS CHRYSORRHOEA* L.) IN THE EASTBOURNE DISTRICT. — The Brown-tail is a common insect in this area, the usual foodplant being blackthorn upon which the larvae spin their conspicuous webs. During the course of the last several years, observations on this species show that the larvae also occur here on hawthorn, sallow and *Cotoneaster*. The latter foodplant is unusual in that it is very local in its native form, occurring along the cliffs at Eastbourne and is the species *Cotoneaster horizontalis*. Observations on the larvae in the spring showed that they were far more advanced on this than the colonies upon blackthorn (*Prunus spinosa*), and this may possibly be accounted for by the fact that the latter foodplant loses its leaves totally and the overwintering larvae must wait for the buds to break before they can start feeding, whereas the former foodplant being a semi-evergreen provides the larvae with immediate food. — M. HADLEY, 7 Beverington Close, Eastbourne, Sussex BN21 2SB.

Bagpipes and Cider

By A. ARCHER-LOCK *

1978. The year of the cloud! We passed through Tummel Bridge on July 20th where, in spite of a strange combined mixture of drizzle in sunshine, many Dark Green Fritillaries (*Argynnis aglaia*) were on the wing, with one pair in cop, and a very fesh ♂ Scotch Argus (*Erebia aethiops*). The morning of the 21st was kind on Ben Lawers, the sunny intervals threatening to cease however, so I climbed fifteen hundred feet a good deal faster than nature intended, to see several worn Mountain Ringlets (*Erebia epiphron*) of both sexes. On returning to the car park, the family pointed to a dark little butterfly — a ♂ Mountain Ringlet of course!

July 22nd at Lochearnhead was torrential, washing out most of the Highland Games, and any butterfly prospects too. We were surprised to hear the most enchanting pibroch wafted to our ears through the downpour (rain can ruin bagpipes) — but the soul wrenching notes were tracked down to the public conveniences. Such engaging music.

A generous friend had confided the location of a site in the Aviemore area which turned out to be one of nature's secret flower gardens, overshadowed by the great snow patched hills of the Cairngorms. In spite of the deluging leaden skies during the morning of July 26th, my permanent manageress, fully intuitive, suggested a visit that afternoon — the skies cleared on arrival! Within an hour, a pair of relatively fresh Artaxerxes, and a worn pair of Small Blues (*Cupido minimus*) had been seen, both ♀'s laying, as were Common Blues (*Polyommatus icarus*) and Dark Green Fritillaries. Twelve (and probably thirteen) species were seen, including the largest Small Tortoiseshell (*Aglais urticae*) I have ever seen — unfortunately it was not polychloros!

Well before the end of the month, the ♂ Scotch Argus was abundant and confused, for the first ♀ was not seen until July 31st, in a pine clearing of bracken fronds, serenaded by chipping crossbills and scolding crested tits. Large Heaths (*Coenonympha tullia*) on a spey valley moss overlooked by a famous blackcock lekking knoll, were well past their best.

For the South West it was a strange year, and yet produced a sighting once more, of a different species for each calendar month. At a communal colony of High Brown (*Argynnis cydippe*) and Dark Green Fritillaries, normally emerging almost together, the first of the former was seen on July 14th, twenty-six days after *aglaia*.

The first fresh ♂ Brown Hairstreak (*Thecla betulae*) was seen on August 24th and the first ♀ on the 29th, the former having become so addicted to Hemp Agrimony, that he failed to notice her basking in full view a yard away! A ♀ Grayling (*Eumenis semele*) came over the high forest one day to settle briefly in the lush little meadow; a brief bask, and she was on her way southwards — presumably a case of long distance dispersal.

* 4 Glenwood Road, Mannamead, Plymouth.

The fine autumn produced quite a spate of coastal Painted Ladies (*Vanessa cardui*), and Red Admiral numbers came up to normal, two being seen in December. Also a Peacock (*Nymphalis io*) was watched on December 9th, obviously enjoying life, for she spent the sunny middle day of gale force wind alternately basking on an old chapel wall, and then deliberately flying up to ridge height for a battle with the elements, before dropping to bask. This she did repeatedly, before returning(?) through the broken lattice window, once more to hibernate.

Strangest of all, in this same rough grassed city cemetery on October 4th I saw a Marbled White (*Melanargia galathea*), far from any known colony. I had to rub my eyes! Presumably a late emerged wanderer, justifiably looking perplexed when on the wing. Finally, may I gratefully thank those who so kindly advised me about life north of the border.

OBITUARY

Cecil Ralph Haxby, F.R.E.S.

The death of Cecil Haxby on the 17th December 1978 at the age of 66, he having been born on the 6th July 1913, came as a great shock to his many friends. Cecil had only retired in July 1978, and was looking forward to frequent visits to us in Hampshire where he had made many friends over the past 30 years. Indeed, most of his entomological activities both in the field and socially took place in the New Forest, where for many years we welcomed him as our special guest.

The son of the late Fred Haxby who was a prominent member of the Yorkshire Naturalists' Union, Cecil followed in his father's footsteps. He was for many years a member of the Lepidoptera Committee of that body, a Fellow of the Royal Entomological Society and a well-known and popular member of the British Entomological and Natural History Society to which he attended most of its Annual Dinners and Exhibitions. He was also a past President of the Bradford Naturalists' Society and assisted in the preparation of the Yorkshire List of Macrolepidoptera published in *The Naturalist* from 1967 to 1970.

Cecil Haxby served with the R.A.F. Signals during the war, mostly in South Africa and the Middle East, but acquired a good knowledge of the New Forest while stationed at Holmsley. He was also a gifted organist.

His immaculate and well set collection of lepidoptera has been accepted by Bradford Museum at Cliffe Castle, Keighley, but during our long friendship, Cecil gave us all his aberrations and these are now incorporated with ours as part of the National Collection. Among the most interesting he gave us are a female somatic mosaic *Laothoe populi* L. pink one side and pale on the other, and the gynandromorph of *Erebia aethiops* Esp. illustrated in Russwurm's *Aberrations of British Butterflies*, plate 34 figs. 15 and 16.

We have all lost a sincere friend.

R.W.W.

The Lepidoptera of the Cairngorms National Nature Reserve

By E. A. M. MACALPINE *

(Continued from page 70)

SATYRIDAE

Erebia epiphron (Knoch). — seen only around Loch an Eilein though previously recorded over a wide area. *E. aethiops* (Esper). — K; common from the Lairig round to Achlean but not seen above 360 m. *Maniola jurtina* (L.). — K; Loch an Eilein, Lochan Gorm and Achlean. *Coenonympha pamphilus* (L.). — K; Cairngorm Club Footbridge, Loch an Eilein, Loch Gamhna, Achlean, Carn Ban Mor — 950 m. — and Glen Feshie to the Eidart. *C. tullia* (Müll.). — common over suitable areas from the Lairig round to Glen Feshie and the Eidart; strangely, none was found in the Lairig in 1976 but good numbers in 1977.

LASIOCAMPIDAE

Trichiura crataegi (L.). — A; B; C; E; F; H; K; larvae at A. *Lasiocampa quercus callunae* (Palmer). — larvae found almost everywhere in the heather from the Lairig right round to Glen Feshie and the Eidart; strangely none was found in Gleann Einich south of Einich Gate. *Macrothylacia rubi* (L.). — K; a few larvae at Loch an Eilein and one at Achlean.

SATURNIIDAE

Saturnia pavonia (L.). — K; day-flying round Loch an Eilein and Loch Gamhna; larvae at E, the Sinclair Hut and in Glen Feshie to the Eidart; Glen Derry in 1970 and '71, E.C.P-C.

ENDROMIDAE

Endromis versicolora (L.). — K.

DREPANIDAE

Falcaria lacertinaria (L.). — A. *Drepana falcataria* L.). — A; K.

THYATIRIDAE

Tethea or (D. & S.). — K; larvae on aspen at A, E and in Glen Feshie NN/8888. *Ochropacha duplaris* (L.). — A; B; C; G; K. *Achlya flavicornis* (Tutt). — A; H; K.

GEOMETRIDAE

Archiearis parthenias (L.). — day-flying at Loch an Eilein. *Geometra papilionaria* (L.). — A; K. *Cyclophora albipunctata* (Hufn.). — K; *Scopula ternata* (Schränk). — A; B; E; H; day-flying at A, B, at Achlean, Gleann Einich to 500 m and in the Lairig; Glen Derry in 1970, E.C.P-C. *Idaea aversata* (L.). — A; C; K. *I. straminata* (Borkh.). — four individuals at C, A, E, H on 5, 10, 13, 16.viii.77 respectively and one day-flying above Loch an Eilein, 13.vii.76. *Orthonama vittata* (Borkh.). — K; *Xanthorhoe designata* (Hufn.). — A; B; C; K. *X. munitata* (Hübner). — B; C; D; E; F; G; day-flying at Achlean/Coire Garbhach. *X. spadicearia* (D. & S.). — A; B; C; E; H; K; day-flying at A and Achlean. *X. montanata* (D. & S.). — A;

* Hawkins', St. Cross Road, Winchester SO23 9HX.

B; C; D; E; F; G; H; K; day-flying from the Lairig round to Achlean. *X. fluctata* (L.). — A; B; F; H; K. *Scotopteryx chenopodiata* (L.). — H. *S. mucronata scotica* (Cock.). — K; day-flying in Gleann Einich to 500 m and at Achlean. *S. luridata plumbaria* (Fab.). — F; day-flying in the Lairig. *Epirrhoe tristata* (L.). — recorded by Harper, ? date. *E. alternata* (Müller) — C; H; K; day-flying in the Lairig; Glen Derry in 1970, E.C.P.-C. *Camptogramma bilineata* (L.). — G. *Entephria flavicinctata* (Hübner). — one day-flying by waterfall in Glen Feshie, NN/8889, on 9.ix.77. *E. caesiata* (D. & S.). — A; B; C; D; E; F; G; H; K; larvae on bilberry at E and H; seen day-flying in nearly all areas, including Loch Avon, Loch Etchachan and Glen Luibeg; maximum altitude: 1,030 m above Loch Etchachan. *Anticlea badiata* (D. & S.). — A; H; K. *A. derivata* (D. & S.). — K; *Lampropteryx suffumata* (D. & S.). — A; B; C; D; E; G; H; day-flying around Loch Einich at 500 m. *Cosmorhoe ocellata* (L.). — A; C; E; G; H; K. *Coenoteophria salicata* (Curtis). — day-flying at the Sinclair Hut and in Coire Garbhach. *Eulithis testata* (L.). — A; B; C; E; F; G; H; K; larvae on ling at E and Coire Garbhach; day-flying records at E and Achlean. *E. populata* (L.). — A; B; C; D; E; F; G; H; K; larvae on bilberry at D, E and Coire Garbhach; day-flying records from nearly everywhere including Glen Luibeg; maximum altitude: 900 m plus above Loch Einich and at the edge of Coire Garbhach; Glen Derry in 1970 and '71, E.C.P.-C. *E. pyraliata* (D. & S.). — K. *Ecliptopera silaceata* (D. & S.). — K. *Chloroclysta miata* (L.). — A; B; C; F; G; H; larvae on willow at B. *C. citrata* (L.). — A; B; C; D; E; F; G; H; K; day-flying records from B and E. *C. truncata* (Hufn.). — A; B; C; D; E; F; G; H; K; day-flying records from A, B, E, in the Lairig and from Glen Feshie; Glen Derry in 1970, E.C.P.-C. *Plemyria rubiginata* (D. & S.). — B; K; larva on birch at A. *Thera firmata* (Hübner). — A; B; C; E; F; G; K; larva on pine at Allt Ruadh; day-flying at A. *T. cognata* (Thun.). — A; B; C; E; F; H; K. *T. juniperata* (L.). — recorded by Harper, ? date. *Electrophaes corylata* (Thun.). — C; F; G; K; larvae on alder at Loch an Eilein; day-flying at A, B and in Coire Garbhach. *Colostygia olivata* (D. & S.). — A; C. *C. multistrigaria* (Haw.). — A; B; H; K. *C. pectinataria* (Knoch). — A; B; C; E; F; G; H; K; day-flying at A and in Coire Garbhach. *Hydriomena furcata* (Thun.). — A; B; C; E; F; G; H; K; larvae on bilberry and ling at A, C, E; day-flying in the Lairig at tree-line. *H. impluviata* (D. & S.). — A; C; K. *Epirrita autumnata* (Bork.). — B; K; *E. filigrammaria* (H.-S.). — two at K; 23 and 24.viii.76; one at B, 26.viii.76; one at A, 26.viii.77; larvae on bilberry at E, 22.v.76. *Operophtera brumata* (L.). — larvae on birch at E. *O. fagata* (Scharf.). — day-flying below Creag Follais; larvae at A on cherry. *Perizome minorata* (Steph.). — only one specimen: day-flying between Achlean and Coire Garbhach, 12.vii.76. *P. blandiata* (D. & S.). — K. *P. albulata* (D. & S.). — K; day-flying at H. *P. didymata* (L.). — A; B; C; D; E; F; G; H; K; recorded from nearly

everywhere to the tree-line and above, including Loch Avon; larvae in bilberry at E, F; E.C.P-C. found a pupa on Braeriach summit in 1955 and also recorded it from Glen Derry in 1971. *Eupithecia tenuiata* (Hübner). — K. *E. pulchellata* (Steph.). — A; C; K. *E. intricata* (Wnuk.). — A; B; C; E; K. *E. satyrata* (Hübner). — B; C; D; E; F; K; day-flying at B, D, E, F and at Loch Avon; seen quite commonly up to 900 m; larvae at A on ling. *E. absinthiata* (Clerck). — F; K. *E. goossensiata* (Mabille). — A; C. *E. vulgata* (Haw.). — A; B; C; E; G; H; K; day-flying records from Achlean and above on Eilein. *E. tripunctaria* (H.-S.). — A. *E. subfuscata* (Haw.). — K. *E. icterata* (Haw.). — K. *E. indigata* (Hübner). — A; B; C; E; F; H; day-flying records from B and Achlean. *E. nanata* (Hübner). — A; B; C; D; E; F; G; H; K; day-flying records from nearly all areas including Loch Avon and at 1,150 on the south side of Cairn Gorm. *E. abbreviata* (Steph.). — K. *E. pusillata* (D. & S.). — A; B; C; D; E; F; G; H; K; day-flying records from D and in the Lairig. *E. tantillaria* (Bois.). — K. *Chloroclystis rectangulata* (L.). — K. *Gymnoscelis rufifasciata* (Haw.). — day-flying at F and in Coire Garbhloch. *Carsia sororiata anglica* (Prout). — a few at K, 15th to 20.vii.76; one at A, 19.viii.77; one at F, 21.viii.77; Glen Derry in 1971, E.C.P-C. *Aplocera plagiata* (L.). — A; G. *Odezia atrata* (L.). — day-flying at Loch an Eilein and in Glen Feshie. *Venusia cambrica* (Curtis). — A; K. *Lobophora halterata* (Hufn.). — Larva on aspen at Loch an Eilein. *Trichopteryx carpinata* (Bork.). — B; C; G; H; K. *Semiothisa notata* (L.). — A; B; S. *liturata* (Clerck). — A; B; C; F; G; H; K; day-flying records from E, the Lairig and Achlean. *S. carbonaria* (Clerck). — only found between Achlean and Carn Ban Mor in a band at altitude 530 m-620 m. *S. brunneata* (Thun.). — 1976, in good numbers from 5.vii to 22.vii in Gleann Einich and the Lairig; 1977, in vast numbers in those two localities from 27.vii to 31.vii, n.b. I was not in the area in '77 until the 27th; isolated individuals at A and Sinclair Hut. *Opisthograptis luteolata* (L.). — A; K; day-flying at A. *Ennomos erosaria* (D. & S.). — K. *S. tetralunaria* (Hufn.). — A; B; K. *Odontopera bidentata* (Clerck). — A; B; K. *Crocallis elinguaris* (L.). — A; B; C; E; F; G; H; K; larvae on ling at A and C. *Apocheima pilosaria* (D. & S.). — K; larvae on cherry at A. *Lycia hirtaria* (Clerck). — A; H; K. *Biston betularia* (L.). — A; K. *Agriopsis aurantiaria* (Hübner). — larvae on birch at A and C. *A. marginaria* (Fab.). — larvae on cherry at A. *Erannis defoliaria* (Clerck). — K; larvae on cherry at A. *Alcis repandata* (L.). — A; B; C; D; E; F; G; H; K; day-flying at E, in the Lairig and in Coire Garbhloch. *Ectropis bistortata* (Goeze). — A; C; K. *Ematurga atomaria* (L.). — B; E; G; K; day-flying records from all heath land; found to 1,000 m at times; larvae at A on ling. *Bupalus piniaria* (L.). — A; B; C; E; F; G; H; K; found throughout the pines by day. *Cabera pusaria* (L.). — A; B; C; K. *C. exanthemata* (Scop.). — K. *Campaea margaritata* (L.). — A; C; E; F; G; K. *Hyaea fasciaria* (L.). — A; B; C; E; F; H; K; larva at H on pine. *Gnophos obfuscata*

(D. & S.). — A; B; E; F; G; H; K. *G. obscuratus* (D. & S.). — one at H on 9.viii.76. *Psodos coracina* (Esper). — in 1976 — 'wrong' year — the moth was out in good numbers on the Eastern Plateau but none was seen on the Braeriach side; in 1977 there were very good numbers on both plateaux; one isolated specimen seen at A by Sterling & Godfrey in 1977. *Dyscia fagaria* (Thun.). — A; B; G; K.

SPHINGIDAE

Laothoe populi (L.). — A; C; G; K; larvae on willow at A and on aspen at E. *Deilephila elpenor* (L.). — K.

NOTODONTIDAE

Cerura vinula (L.). — K; larvae on willow by Loch Gamhna. *Harpyia furcula* (Clerck). — A; K; larvae on willow at E and near Loch an Eilein. *Notodonta dromedarius* (L.). — A; C; F; G; K; larvae on alder at B and F. *Eligmodonta ziczac* (L.). — K; larvae on willow at B and E. *Pheosia gnoma* (Fab.). — A; B; C; E; F; G; K. *P. tremula* (Clerck). — K. *Ptilodon capucina* (L.). — A; C; F; G; K. *Odontesia carmelita* (Esper). — A; C; E; K.

LYMANTRIIDAE

Dasychira fascelina (L.). — A; C; K; larvae at C, E, G, in the Lairig, by the Allt Ruadh, at Achlean/Coire Garbhlach and in Glen Feshie to the Eidart. A very large percentage — 70% or more — of the larvae were parasitised.

ARCTIIDAE

Parasemia plantaginis (L.). — day-flying at B, in Glen Einich to 500 m, on the south side of Cairn Gorm at 1,150 m, in Coire Garbhlach and by the Allt Fhearnagan (between Achlean and Carn Ban Mor). *Arctia caja* (L.). — K. *Spilosoma luteum* (Hufn.) — K. *Phragmatobia fuliginosa* (L.). — E; F; larvae at A, by Allt Raudh and at Achlean; a pupa in Coire Garbhlach.

(To be continued)

PRACTICAL HINTS — SEPTEMBER

Hibernating butterflies. — During the autumn, butterflies such as the Comma, Large and Small Tortoiseshell and Peacock may be captured and bred and kept through the winter months in a state of hibernation. To do this successfully they should be confined in a wooden half tub with a piece of gauze fastened securely over it. At first it should be kept in a sunny position and the butterflies fed daily with a weak solution of honey, sugar and water on a wad of cotton wool placed on top of the gauze. As the days shorten they will gradually stop feeding. The tub should then be tilted over on its side and positioned with the gauze close up to a north facing wall where it can be left undisturbed till the following spring (LIPSCOMB).

September is a fine time for the moth hunter. Larvae abound, plenty of choice endemic species are on the wing and round every corner lurks the chance of a rare migrant. Early in the month should not be too late to attract the Heath Rustic (*Xestia agathina*) to the lamp and blank moments may

be spent sweeping heather for larvae of the Beautiful Yellow Underwing (*Anarta myrtilli*). Care should be taken not to enclose the larvae in a plastic box if the foodplant is at all damp. Later in the month, the same terrain should produce larvae of two Pugs: *Eupithecia nanata* and *E. goosensiata* (CHATELAIN).

Full-fed larvae of some hawkmoths, as *Agrius convolvuli* and *Hyles lineata livornica*, are inclined to wander extravagantly before pupation. To curb this I confine them in two-pound jam-jars which just hold sufficient compost (RICHARDSON).

Sugar on the coast should produce plenty of moths, including the Feathered Brindle (*Aporophyla australis*) and the Feathered Ranunculus (*Eumichtis lichenea*). Both come to light although the males of the latter species are late arrivals. On the Isle of Portland, imagines of the Beautiful Gothic (*Leucochlaena odites*) may usually be found in some numbers (CHATELAIN).

Coenocalpe lapidata will fly towards 5 p.m. in its haunts at Kinloch Rannoch and elsewhere, but was more easily found with a Tilley lamp at night, sitting on grass and herbage. Some noctuid larvae, as *Hyppa rectilinea* and *Iodia croceago* are inclined to eat through muslin sleeves. A second sleeve appears to check this. *H. rectilinea* larvae, treated thus, overwinter successfully on sallow. Larvae of *Meganola albula* winter successfully sleeved on raspberry (RICHARDSON).

During September, the larvae of the Greater Wax Moth (*Galleria mellonella* L.) may be found in bee hives. These must be obtained through co-operation with bee keepers who usually destroy any that they may find. If persuaded they may keep some back on the promise that they will not be allowed to escape, a tendency which is most marked in this species. The Lesser Wax Moth (*Achroia grisella* F.) is usually to be found only on the older combs, often in vacated hives (WATKINSON).

Robert Adkin described his method for rearing *Cydia funebrana* Treitschke as follows: He used a round tongue glass (but in these days a round or rectangular plastic box should serve equally well) and two pieces of thin wood as wide as the vessel is deep, and as long as the diameter, if round, or the diagonal if rectangular. With these he made a sandwich with about half an inch of sphagnum moss and tied them together with raffia. This was placed across the vessel, edge-ways up, and the infested plums placed in the side spaces. The rotting fruit should be removed after the larvae have passed into the moss for pupation, thus saving them from drowning in the plum juice. The vessel is covered with a piece of nylon stocking, and the adult moths awaited in the following June (JACOBS).

Brightly coloured larvae of the attractive local Pyralid *Evergestis extimalis* Scop. may be found in September feeding on the flowerheads and seeds of Wall Rocket (*Diplotaxis tenui-*

folia). The waste ground along the Thames estuary in Essex and Kent are good areas. The larvae hibernate in one cocoon and then appear to wander elsewhere early in the spring to pupate. Soon after hibernation, the material bearing their cocoons must therefore be placed in a stout container.

In late September and early October, the mines of *Phyllonorycter comparella* Dup. and the recently discovered *P. sagitella* Bjerk. may be found on white poplar and aspen respectively. The former species also feeds on black poplar. Unlike other species of *Phyllonorycter*, these two must be collected now since the adults emerge in early October and then hibernate (WATKINSON).

To those who propose to collect second brood *Nepticula* mines, I would suggest that they overhaul their breeding apparatus in good time, cleaning used tubes and preparing a supply of mixed sand and peat or of chopped sphagnum moss, sterilised by heating in a vessel suspended in a saucepan of boiling water.

Nepticula larvae as a general rule, spend a very short time in the mine, and they may have left and wandered away if time has to be spent in preparing quarters for them on return from a collecting trip. Before setting out, I have my breeding tubes standing ready with a supply of sand and peat mixed in a plastic bag.

More larvae may be accommodated in a tube if the unwanted part of the leaf be cut away with scissors. The mined portions being arranged round the side of the tube with the midrib end buried in the peat mixture. Keep the tubes corked until the larvae have left the mines, then cover tubes with a piece of nylon stocking, kept in place by a copper wire ring made by turning the wire once round the tube and twisting the ends together. When emergence time is near, replace the nylon with a square of glass. Be moderate with moistening, and stop at once should any mildew appear.

When imagines appear, open the tube by a closed window, and when the moth flies on to the window towards the light, cover it with a tube or pillbox into which a drop of ethyl acetate has been placed. When dead, it is ready for immediate setting with no rigor to contend with. September onwards should provide many species (JACOBS).

NOTES AND OBSERVATIONS

SEXUAL DIMORPHISM IN *CARTEROCEPHALUS PALAEMON* L.
— Last year whilst examining this skipper in its Scottish localities, I was surprised to note a difference in the sexes to which I can find no reference in the literature. The underside of the club of the antenna at its base is bright yellow in male and black in the female. The same distinction, so I have found subsequently, extends to English examples of this insect. Besides being rather striking, the difference appears to be quite constant and permits unequivocal sexual identification. — T. W. C. TOLMAN, 1 Clanfield Drive, Chandler's Ford, Hants. SO5 2HJ.

AN ALBINO MANIOLA JURTINA L. AND OTHER CURIOSITIES.

— On July 14th 1979, I noticed a conspicuously pale female Meadow Brown flying on a down near Magpie Bottom, West Kent. On netting it I found it to be a freshly emerged albino, and was particularly struck by its overall paleness, so different from the pathological examples with irregular pale patches that one frequently sees in this species. At the same place that afternoon, I was astonished at seeing a *Maniola jurtina* apparently *in cop.* with an *Aphantopus hyperantus* L., the pair being carried by the latter in flight, but on closer inspection observed that both were males! I placed the pair in a box, and an hour later they were still joined, but separated shortly after when I released them. I also noticed there on that date, a *Pyrgus malvae* L. in perfect condition, presumably either a very late example or one of a second generation. — J. M. CHALMERS-HUNT.

THE ORANGE-TIP IN MIDLOTHIAN. — A male Orange-tip (*Anthocharis cardamines* L.) was seen by my daughter Miss M. J. Long on 13th May 1979. It was flying near the R. Esk between Whitecraig and Inveresk near Musselburgh (VC 83, Grid ref. NT 345713). An attempt was made to photograph it but it proved too camera shy and disappeared over a hedge. — A. G. LONG, Deputy Curator, Hancock Museum, Newcastle-upon-Tyne.

A GYNANDROMORPH OF SATURNIA PAVONIA L.: THE EMPEROR MOTH. — On 8th June 1978 a small colony of larvae of this species was discovered feeding on hawthorn scrub, growing on Bison Hill, near Whipsnade, Bedfordshire. I collected twelve and continued feeding them on hawthorn until they pupated in early August 1978.

Four moths emerged on the 7th May 1979, but on the 8th May there emerged a splendid example of a gynandromorph. This was split half and half down its abdomen, the left side being completely female and the right side completely male. As I believe this is a most unusual occurrence, a number of photographs were taken before the specimen was set. — V. W. ARNOLD (Moth Recorder for the Bedfordshire Natural History Society), 96 St. Augustine Avenue, Luton, Beds. [Although there is a number of halved gynandromorphs of this species on record as having occurred abroad, only two other examples appear to have been seen in Britain, and one is without data. Tutt (*Br. Lep.*, 3: 311) refers to one with left side ♀, right side ♂, recorded by Douglas (in *Proc. ent. Soc. Lond.*, 3rd. ser., i, p. xi); and another (also left side ♀, right side ♂) bred from Lincoln and recorded by Mason (in *Proc. ent. Soc. Lond.*, 1888, p. xv). The latter specimen is evidently that finely depicted in colour in Barrett, *Lep. Br. Isles*, 3, plt. 98, fig. 1b. — J.M.C-H.]

BLAIR'S SHOULDER-KNOT (LITHOPHANE LEAUTIERI BOISD.). This has now reached Northamptonshire, a specimen taken at light at Ecton on the 14.x.1978 by Mr. A. Fountain was indenti-

fied by him and brought to me for confirmation. It is a male and must represent a first time county record. It would be most interesting to plot the spread of this species from the first British record in 1951 in the Isle of Wight. — P. J. GENT, 3 Irthlingborough Road, Wellingborough, Northants.

THE CLOAKED PUG (*EUPITHECIA ABIETARIA* GOEZE: *PINI RETZIUS*: *TOGATA* HBN.) IN SOUTH WESTMORLAND (VC 69) IN 1978. — On 5th July 1978, a female of this species was netted by Mr. Arthur Watson of St. Annes-on-Sea, while we were collecting on the Mosses near Witherslack. The insect was resting on top of a large clump of moss, in a damp wood consisting mainly of old Scots pines and birch. Not recognising the species, we pill-boxed it to be photographed later, and being somewhat damaged in the process it was returned to me, whereby I killed and set it. Afterwards I sent it to Mr. D. S. Fletcher of the British Museum (Nat. Hist.) who kindly identified it as *Eupithecia abietaria*. Enquiries at the local Forestry Commission office revealed there are no spruces in the vicinity, the nearest being two miles away, and then only immature trees. Dr. N. L. Birkett informs me that there are no records of this species for Cumbria since 1889. — J. BRIGGS, 5 Deepdale Close, Slackhead, Beetham, nr. Milnthorpe, Cumbria. [There have been very few other confirmed captures it seems of the Cloaked Pug in Britain since the war, and the only ones known to me are: Corylum Bridge, Aviemore, Inverness-shire, three beaten out by day, June 10 1946 (A. Richardson *pers. comm.*); Scremerston, Northumberland, female at light, July 4 1959 (E. C. Pelham-Clinton *pers. comm.*); Dorking, Surrey, one, July 1951 (R. F. Haynes, *pers. comm.*); Boat of Garten, Inverness-shire, one at light, July 11th 1978 (Stewart Taylor *pers. comm.*). — J.M.C.H.]

LITHOPHANE ORNITOPUS HUFN. AT WOKING. — It was indeed with surprise that on the morning of March 27th 1979 I found a very unusual visitor to my m.v. trap here in the form of a hibernated example of the Grey Shoulder-knot which is apparently a very rare inhabitant of this region. In fact, the last specimen I saw here was in 1956, and the only previous one in March 1954. Mr. R. F. Bretherton tells me he only recorded three during his living at Ottershaw from 1946 till 1963, while Mr. J. A. C. Greenwood says he only saw a single specimen during his residence in this district covering 24 years from 1953 till 1977. Its absence from this area is remarkable in that it used to be quite frequent at Egham, in Swinley Forest, near Ascot; and also in the vicinity of Pirbright, only seven miles from here. It is however becoming commoner at Bramley, and in the Chiddingfold area, which may account for its reappearance here, as it is evidently now on the up-grade. It is to be hoped we shall see more of this attractive autumn and spring species in the coming years. — C. G. M. DE WORMS, Three Oaks, Shores Road, Woking, Surrey.

HAZARDS OF BUTTERFLY COLLECTING, COLOMBO, SRI LANKA. — I recently had a morning free in Colombo, Sri Lanka, which I wished to use for a quick round of collecting in the entomologically well-known Victoria Park. This is a rambling, untidy place which manages to hang on to its name despite official efforts to replace it with a blander but less colonial one. Although you may reach it from anywhere in Colombo by taxi for a few rupees it is a good habitat. On a fine day thirty or forty species may be chalked up in an afternoon, including swallowtails such as the giant *Papilio polymnestor* and the polymorphic mimic *Chilasa clytia*. Well over half the total Sri Lankan butterfly fauna of 140 species or so may be captured here over time. But Victoria Park has a rather unique hazard for entomologists, or at least for the more sensitive and discreet members of the breed.

A high level of education and relatively poor social conditions coupled with high aspirations have combined to push up the average age at marriage to 27 for men and 25 for women, this in what is a somewhat puritanical society. Victoria Park is one of the safety valves; every nook and cranny appears to be filled with young lovers in various stages of sartorial disarray ranging from the merely touching, via the risqué, to the (at least in Sri Lankan terms) scandalous. For instance, I am not certain that whether the girl with the ample and amply exposed breasts near the gardeners depot really accepted as a valid excuse my claim that this seemed a likely spot for some of the rarer crepuscular skippers. For my part, I certainly still fail to understand what she saw in the distinctly unprepossessing man. Queen Victoria would not have been amused at what goes on in her park!

However, puritanism will be unable to withstand average ages of marriage in the mid-twenties, public morals will relax, secrecy will be less of a premium, and we may safely predict that in twenty years time the main hazard to the entomologist will once again be dogs and their detritus. — TORBEN B. LARSEN, 23 Jackson's Lane, London, N.6.

AN ARTIFICIAL COLONY OF THE SCARLET TIGER, PANAXIA DOMINULA L. F. BIMACULA COCKAYNE.—*Panaxia dominula* occurs very locally in many places throughout southern England, but only at Cothill, Berkshire did f. *bimacula* and its heterozygote *medionigra* originally occur. F. *bimacula* is an incomplete dominant. Since then it has been introduced into many colonies and I must admit by myself as well as others. We have attempted to track the frequency changes that have occurred subsequently, and to find out the advantages and disadvantages of the *medionigra-bimacula* gene.

About 25 years ago we founded a colony of pure red *bimacula* at Steeple Barton in the Vicarage garden and this has since flourished.

In 1962 the Revd. Anthony Harbottle obtained three specimens of yellow *dominula* f. *lutea* from a colony I had discovered near Boscastle at an earlier date. He obtained pairings between f. *lutea* ♂♂ and red *medionigra* ♀♀ which I had

sent him. Subsequently I succeeded in getting pure strains of yellow f. *bimacula*, and since 1965 we have bred these strains in large numbers, and we now have (amongst other places) a colony of both red and yellow *bimacula* in the Vicarage garden which is thriving. In July each year we have large numbers of both yellow and red *bimacula* flying round the garden, along the hedgerows and over a nearby marsh. I had planted here, 25 years ago a large number of comfrey plants throughout the area. I am putting this on record because I am anticipating that we shall have to vacate the Vicarage in the next 2/3 years and I am hoping that the Berkshire, Buckinghamshire and Oxfordshire Naturalists Trust (who have been notified) will keep their eye on conserving this rather interesting experiment. The father of the present owner, Mr. Robin Fleming had previously agreed to have a liaison with B.B.O.N.T.

Amongst many interesting observations which we have noted in this colony of pure f. *bimacula* is one of considerable importance. Each year, we have taken some numbers of an entirely new form of *dominula* (which I have recorded as f. *pseudojuncta* nov. ab.): nor have I been able to elucidate the origins of this form because I have never been able to breed out any offspring of this form from it (including a healthy brood from *pseudojuncta* x *pseudojuncta* which I bred in 1973). All were f. *bimacula*. This form is so very different from f. *bimacula* and f. *typica* that it is worthy of study. I have figured it in my book 'The Evolution of Melanism' and have suggested that it may be the result of some as yet undiscovered environmental condition imposed on a particular genetic background.

It is particularly requested that individual collectors do not attempt to collect specimens from this colony without having previously contacted Mr. Robin Fleming, of Steeple Barton Abbey, Oxfordshire. — H. B. D. KETTLEWELL (deceased).

PANAGAEUS BIPUSTULATUS FABRICIUS (COL.: CARABIDAE) IN SUFFOLK. — As I am only aware of three published records of the occurrence in Suffolk of this local and usually rare species, it would seem of interest to summarise details of these and other records which I possess.

The insect was first noted by Claude Morley (1899, *Coleoptera of Suffolk*, p.4) from Tattingstone, near Ipswich, on the authority of Harwood. I have been unable to discover any further published records of the beetle until it was reported from grass tufts in the Breck at Tuddenham on 14.iv.63 (MacNulty, 1963, *Proc. S. Lond. ent. Nat. Hist. Soc.* p.6). The following year — 5.iv.64 — the late A. E. Gardner recorded it in the same journal from the same locality and microhabitat together with *Platyderus ruficollis* Marsh and *Anisodactylus nemorivagus* Duftschmid ab. *atricornis* Stephens (1964, *loc. cit. supra*, p.4). The *Anisodactylus* is an addition to the county list — vide Nash, 1978, *Suffolk Nat. Hist.* 17: 397.

Examination of Morley's annotated copy of his 1899 work held at the Ipswich Museum has yielded the following record

which was probably not published: "Aldeburgh in 1912 (Dr. Nicholson". There are two specimens in the Morley collection labelled as follows: "5.vi.1921 in glacial-gravel pit, Creting Hills, Suffolk" and "24.v.1922 under log, fir wood glacial gravel on chalk, Brandon High Field". The first of the localities is close to Ipswich near Needham Market. These appear to be the only specimens which Morley took in the county, and there are no Suffolk examples in the Doughty collection.

On May 26th 1963, my friend Mr. C. S. Barham took a single example on Barnham Heath (TL 8879). My first specimen of the beetle was taken on April 25th 1976 under a piece of paper near other dumped rubbish at Kesgrave near Ipswich (TM 2344), quite close to the remains of Martlesham Heath. A second specimen was noted but not captured. A week later on May 1st, I took a second example under a stone on the sandy beach/dune area near Thorpeness (TM 4759). This capture is of particular interest as it is adjacent to the coastal village of Aldeburgh where Nicholson took the beetle over half a century ago.

Returning to the Kesgrave locality on May 15th, I took a further example under a stone. On June 4th, I collected in the Breck on Icklingham Plains (TL 7473) and took a single specimen by grubbing in the sand at roots of low plants around the rabbit burrows. It is likely that other collectors have found *Panagaeus bipustulatus* in the Suffolk Breck but have not published details.

I thank Mr. C. Barham for allowing me to include his record and Mr. H. Mendel of Ipswich Museum for providing details from the Morley collection/diaries and the C. G. Doughty collection; also Mr. W. Sloane for kindly issuing a permit for me to study on the Elveden Estate at Icklingham. — D. R. NASH, 266 Colchester Road, Lawford, Manningtree, Essex CO11 2BU.

CURRENT LITERATURE

Record of my Life Work in Entomology by C. R. Osten Sacken. Pp. viii plus 240 (4 pl. including 3 portraits). Facsimile reprint with an appreciation and introductory preface by K. G. V. Smith. E. W. Classey Ltd., Faringdon, 1978. Price £7.50.

This work, reprinted at the instigation of F. Christian Thompson, provides a valuable insight into the progress of dipterology in the latter two thirds of the 19th century. A summary of Osten Sacken's own life and work is given in the Introduction and in Part 3 where an itinerary is interpolated in a complete list of his publications.

This is, however, principally a critical account of the work of others. It deals mainly with that of Dr. Hermann Loew and his relations, often strained, with his contemporaries. Osten Sacken's association with Loew was founded on his provision over 21 years' residence in the U.S.A. of

material for Loew's monographs. He states that Loew was superior to him in ability but deals at length with the flaws in Loew's work such as his inability to discern supraspecific relationships and his avoidance of biological studies. His thoroughness was praised except in respect of fossil Diptera, which he dealt with superficially; he had drafted a more detailed work included plates and it is unfortunate that Osten Sacken felt "neither right nor duty" to discover the fate of Loew's manuscripts after his death.

When other dipterists are discussed, it is their relations with Loew which are foremost even when Osten Sacken had met or corresponded with them. Loew evidently resented and did not co-operate with others who worked on groups he was studying, e.g. Winnertz (Cecidomyiidae), Rondani (Otitidae) or Schiner (Tepritidae) and Osten Sacken sought justice for those who had suffered from Loew's treatment. He believed Loew had caused Schiner to give up his studies; he could not find an obituary of Schiner (apart from Brauer's mention) but two notices are cited in the Bibliography of Deceased Entomologists.

Loew's contact with Haliday is of interest in the development of British dipterology and it is fortunate that their correspondence survives intact for study. In the brief account of Winnertz, his collecting and drawing techniques are of interest. Loew had no contact with Zetterstedt, who is thus covered briefly, or with Robineau-Desvoidy, whose achievements Osten Sacken illuminates in his discussion of the Academy of Sciences report on his first work.

Osten Sacken's stated endeavour to overcome egotism is least successful in respect of his relations with Brauer; their feud is treated fully to the detriment of Brauer and his ally Mik. Their chief contention was the primary division of the Diptera into sub-orders but both views were a step towards more recent phylogenetic studies.

As K. G. V. Smith indicates in his appreciation, in which he gives important details of Osten Sacken's life, his main achievements were his recognition of the importance of chaetotaxy, his ground work in tipulid classification and his stimulation of others. In his survey of holopticism and adaptation to the aerial habit, he introduced a subject perhaps still insufficiently considered. It is unclear why he terms the Muscidae as pseudoholoptic unless he considered their holopticism a secondary development.

There are very few printing errors in the main text, these largely being covered by two lists of errata, but minor errors are numerous in Part 3. On p. 153 Devonshire is an error for Downshire in the title of Haliday's paper. The text is amply cross-referenced but repetitious in parts especially where Osten Sacken seeks to explain his own actions or views. It is a pity that his projected work on his correspondence with American workers was not realised in view of the apparent loss of his effects. — P. J. CHANDLER.

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THE MICROLEPIDOPTERA OF ESSEX. — I am currently engaged on compiling a list of the microlepidoptera of the county on behalf of the Essex Naturalists' Trust and the Essex Field Club; it is proposed to publish the list in 1979. I should therefore be grateful if collectors who have not already done so will send me their records. Localities even for the common species help to complete distribution patterns. Entomologists who are planning their season's collecting should bear in mind that Essex is rich in microlepidoptera (over 1,000 species of "micro" are already in the list) but almost devoid of microlepidopterists and hence seriously underrecorded. They could profitably make 1978 their "Essex year". — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex. CB11 3AF, 30.iv.1978.

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WEALDEN AREA — Records wanted of all groups of insects, especially Lepidoptera, Coleoptera, Hymenoptera and Orthoptera from East Sussex and Kent, for inclusion in the publications of the Wealden Entomology Group. All records duly acknowledged and information supplied on request. — MARK HADLEY, 7 Beverington Close, Eastbourne, East Sussex BN21 2SB.

EXCHANGES AND WANTS

Wanted. — I am preparing a one-volume edition of the entomological works of Vladimir Nabokov, and would greatly appreciate information about papers, notes, or other works by Nabokov, with any entomological content, which were published in Great Britain or Europe. His papers in *The Entomologist* 53(1920): 29-33; 64(1931): 255-257, 268-271; and 81(1948): 273-280 have already been recorded. For the introduction, I should be grateful for correspondence with persons (other than the family) who were acquainted with Nabokov in this aspect of his work. — R. S. Wilkinson, 228 Ninth Street, N.E./Washington D.C. 2000 2, U.S.A.

Help Wanted — with records of British Gelechiidae for publication in Vol. 4 of "Moths and Butterflies of Great Britain and Ireland". Vice-County records only wanted at this stage. A complete check-list will be supplied to those willing to help. If you have any records for this group, please write to: Paul Sokoloff, 4 Steep Close, Orpington, Kent BR6 6DS.

For Sale — Ex British Museum insect cabinet. 48in. wide x 42in. high x 20in. deep. 26 drawers each 20in x 18in. x 2½in. Glass top and bottom. At present containing small English Butterfly collection and some tropical. — Offers to J. Shapland, Solitude, Rawlings Lane, Seer Green, Beaconsfield, Bucks. HP9 2RQ.

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

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

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SPECIAL NOTICE

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

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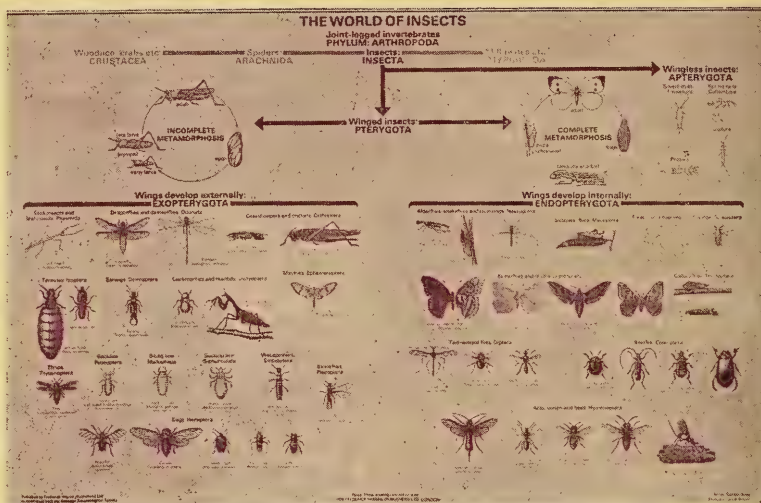
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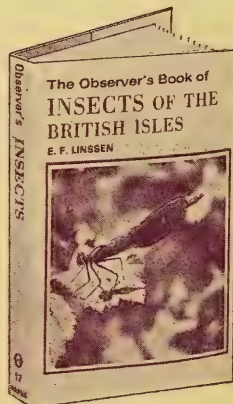
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Memoirs of an Aurelian

By NIGEL WYKES *

Any keen young student and lover of butterflies would do well to take my advice and live almost anywhere in the South or centre of England rather than Essex. For, with the possible exception of the Greater London area, no county has a smaller range or a more limited supply of our scanty portion of European species than this part of Britain. The reasons for this, in my opinion, are the work partly of Nature and partly of Man. In natural resources Essex consists largely of a vast mass of stiff and intractable clay, which brought prosperity to the native farmers in the form of abundant cereal crops and luxuriant grazing, and subsequently attracted large numbers of competitors from other less fortunate parts of the Kingdom, with the result that by the beginning of this century there was hardly an open acre left uncultivated or ungrazed. Most of the woodlands (e.g. Hatfield Forest, Hainault Forest, etc.) had long since been sacrificed to ship-building, charcoal-burning, and hunger for arable land; and only Epping Forest remains, together with some sporadic woodlands in the Northern part of the county.

I was born within a few miles of Epping Forest, but from an early age was warned to keep clear of it, since it was noted more as a refuge for undesirable characters from the East End of London than for the wealth of its butterfly population. Thus no collectors, at any rate in my lifetime, have come to Essex to look for our woodland species. Nor has there been any other type of terrain to attract them: for there are no chalk Downs, no sand-dunes, no heaths, and hardly a rough and untended field, likely to produce anything but the commonest butterflies. But I was luckier than some, since, when I was about eight years old, and living at Leigh-on-Sea, I was very kindly given by a friend of the family (a man most suitably called Heaven) a round green collapsible net, a killing-bottle, two setting-boards, and a small store-box. Armed with this gift of 'Manna' I was taken (in my father's 1912 Crossley motor-car, in those days something of a curiosity, which today would be worth a vintage fortune), to the sea-wall at Wakering, not far from Canewdon (where King Canute fought the battle recorded in our history books) in order to find some Common Blues and Small and Essex Skippers, which abounded there in company with Adders and the larvae of the Cream-spot Tiger moth. The marsh land in this area was famous for its numerous and plump Partridges, its Blackberries the size of Cherries, and its Horse mushrooms as big as dinner-plates, but was not noted for the variety of its butterflies, except in the autumn when large colonies of Sea Aster attracted quantities of Small Tortoiseshells, Peacocks, Red Admirals, and in most years a fair number of Painted Ladies. But otherwise, in the immediate neighbourhood where I spent my early boyhood, there was

* Uploders House, near Bridport, Dorset.

hardly a butterfly to excite interest, though I do remember a wild and successful chase after a Clouded Yellow in some fields long since hideously smothered by the claims of suburban humanity.

So things went on until, some years later, I had a most fortunate experience which, literally, has affected my life even to the present day. My father was a member of a syndicate which leased the shooting rights over various farms on the excellent soil of the South Farnbridge marshes leading down to the river Crouch (obviously at one time a notorious smuggling area, since one of the farms was called 'Brandy Hole'). One day he came back from shooting and said that one of the guns had brought as a guest a man named Frohawk, who had impressed them greatly with his knowledge of Natural History. Moreover he was an authority on butterflies and was currently engaged in completing an exhaustive work on the British species. On hearing that I, then eleven years old, was keenly interested in the subject, he shortly afterwards invited me to call on him at Thundersley, where he was living at the time. When I arrived, I found him putting the finishing touches to one of the illustrations for his book. These, as all the entomological world now knows, were most beautifully executed both in the accuracy of detail and in the quality of texture, and this was all the more remarkable since he had the effective sight of only one eye and worked with the aid of a very powerful magnifying glass mounted on a stand so that both hands were free. He gave me some invaluable hints about the materials and methods he used in his figures and though it was forty years before I reached anything approaching his standard of workmanship, I was sufficiently stimulated to decide there and then to make a start on teaching myself to make pictures of butterflies. Later I showed him some early and very poor efforts, and he could not have been more kind and encouraging. When Frohawk's book was published shortly afterwards, all his drawings were reproduced on magnificent colour-plates which appeared in full in the large edition of the work, and in part later in the shorter edition. I was greatly privileged to have seen the Great Man at work, and I was much distressed to learn that some thirty years later all the originals and printing-plates had been destroyed in an air-raid. So only the printed editions remain as a tribute to his skill, and these are now becoming increasingly scarce on the second-hand book market. On subsequent visits to Thundersley I was shown Frohawk's own collection of British butterflies, almost all of which were bred or caught by himself and now form part of the National collection at South Kensington. Naturally enough, I was deeply impressed by the enormous range of skill, knowledge, and industry which had enabled him to breed *all* the British species from the egg and to illustrate every stage in their metamorphosis, and the examination of the long series of each species made me look forward with the greatest eagerness to the time when I might be able to make a collection myself,

though I could never hope to emulate the Master's in its completeness and perfection. But this venture lay in the future; for, when the 1914-18 War was drawing to a close, I was necessarily sent to Boarding-school, and for the next six years or more there was little time or opportunity for anything but some desultory collecting during the summer holidays in the barren and uninspiring environment of S.E. Essex.

When I was at school at Oundle, I was within a few miles of the Northants woods inhabited by such rarities as the Purple Emperor, the Chequered Skipper, and the Black Hairstreak, but it would have been impossible to reach them without transport, even if my spare time had not been more than fully occupied by the demands of the cricket field. So it was not until I had left school at the end of 1924 that there was a breathing-space before I went on to the University the following October. During the summer of 1925 there was some respite from cricket owing to a serious attack of virus pneumonia in the Spring; but I acquired an adequate equipment of collecting gear, and, with a car at my disposal, did manage to explore some of the less unproductive areas of the county. In this way I built up good series of the commonest species, but, speaking from memory, as my collection has long since been dispersed, I find that in all my expeditions in Essex I discovered only twenty-three indigenous species (i.e. excluding migrants), which is not a large number, since in my six years in Dorset, where I now live, I have already found thirty-five within five miles of my house. But, wondering how the meagre number of species found in Essex in 1925 compared with the butterfly population fifty years previously, I consulted Edward Newman's book of 1869, which contains detailed records county-by-county of all the more local species. In this book I find that my 1925 list is increased by twenty, but it must be remembered that of these at least half a dozen represent very sparse and perhaps dubious sightings, often relating back to the early 19th century, when identification frequently relied more on conjecture than fact and was accepted without adequate experience and confirmation. For instance, it is hard to believe that the Dark Green and High Brown Fritillaries ever occurred at Southend (more often associated more with mussels, merry-go-rounds, and malodorous mud); or that the Chalkhill Blue was found in the woods round Colchester. On the other hand, I have no difficulty in believing a story (told me, I think, by Frohawk himself) that in the 1880s he met a collector in these woods who had three Purple Emperors pinned inside the crown of his tall-hat; or that Large Tortoiseshell larvae were abundant in Epping Forest and round Colchester in 1860 (unless, of course some of them turned into Buff Tips or Lackeys), but undoubtedly this species, now very scarce in Britain, was once much less of a rarity than it is today. From all this one concludes that Essex was a better place for collecting butterflies 150 years ago, but this is not surprising in view of the fact that large areas of the county (particularly in the S.W.

and S.E.) have become either extensions of London or dormitories for commuters. Even so, I do not think that Essex can ever have competed with Suffolk or Kent in the variety and quantity of its butterflies. I cannot recall having read much in its praise in the early authors or heard anything in its favour from more recent sources; but I remember reading in the work of a distinguished historian that in the mid-17th century, when the Dutch had the effrontery to sail up the lower reaches of the Thames estuary, King Charles the Second, evidently interested in all scientific subjects (was he not the Founder of the Royal Society?), went down to Essex to inspect such operations as were being carried out to repel what he thought, probably rightly, was only a token invasion, and payed much more attention to the Lepidoptera of Canvey Island than to the defence of his country. But, unfortunately, there is no record of what he found there, though it was possibly more than the odd Clouded Yellow or larva of the Essex Emerald, which, I believe are almost all that survives today amid the unromantic myriads of oil-storage tanks. But here we must leave the county of my birth, which still has a sure place in my memory and affection despite its lamentable lack of butterflies, and pass on to fields more productive for observers and collectors.

At the end of 1925 I went up to Cambridge for three years, but there was not much chance of collecting during the Summer Terms, since I was more closely engaged at Fenners than in fenland. But one day in early June of 1927 a kind friend gave me a lift to Wicken, where I had the unforgettable experience of seeing my first Swallowtail. My first impression was of disappointment at the rather ordinary appearance of the insect in flight over the inaccessible areas of Sedge; but it was not long before a perfect specimen settled on a flower of Yellow Flag growing on the edge of the Ride, and it presented such an incomparably brilliant picture that I can see it as vividly as on that day fifty-two years ago. At that time there were plenty of these splendid butterflies about, and it was not until the disastrous fire of comparatively recent years that they were virtually exterminated, though attempts (not very successful, I am told) are being made to re-establish it. Just how devastating these fen fires can be I know from personal experience, since a few years after my first visit I was motor-ing to Wicken after a very dry summer for a mothing expedition, and, when we reached Newmarket, we noticed an ominous column of black smoke away to the North-east. Sure enough, when we arrived, the Fen was ablaze, and it was only through the efficiency of the local Fire Brigades that the village was saved. Fortunately only about half the fen was burnt, and enough Swallowtails escaped destruction to enable the colony to survive. But, of course, compared with the Norfolk Broads, where it is often relatively common, Wicken is a small and isolated area, and thus very vulnerable to such hazards. Such is the sum of my experience with this magnifi-

cent insect, but I always hoped one day to come across one of the Continental form in East Kent, especially in such a good year for migrants as 1945, but I never saw one, though a friend of mine caught a specimen a few years later, and I knew of a genuine example taken on the terrace of a Hampshire garden in 1938.

Mention of 1945 takes my mind back to what was one of the luckiest and most exciting events of my collecting years. In late August I was staying in Folkestone in search of aberrations of the Adonis Blue, and I heard from Baron de Worms that one or two Bath Whites had recently been seen in Thanet. As I had no car, and in any case petrol was still strictly rationed. I set off by bus and, having changed at Canterbury, reached the fields behind Herne Bay about noon. It was a dull day with little flying, but at five o'clock the sun came out, and I was walking along the edge of a Lucerne field when a male Bath White suddenly settled on the ground close to me. After a bit of a chase I caught it, and not long afterwards found a female sitting on a flower head. Well content with my pair, as well I might be, on my return to Folkestone I got in touch with Arthur Morley, who immediately suggested that we should use some of the petrol he had saved and make a visit the next day. This we accordingly did, and soon after we arrived I took a male (in the same field) which I gave to my companion. Half an hour later I saw a white butterfly moving at speed over a different field, and it turned out to be a female Bath White. Then at the end of the day we were walking up the old field when I spotted another at rest on a flower head about twenty yards ahead of Morley; I warned him to take precautions, which he did and caught a perfect male. So that was five specimens in all (four of them from the same field) and I was virtually certain that they had bred there, since they were all in mint condition; also, on searching among the Lucerne plants. I found a low-growing Cruciferous plant (probably the Eastern Rocket) with the seed-capsules much eaten away, and this may well have been the food-plant. However, that may be, it was an intensely exciting episode for me, and it was delightful to be able to share it with such a charming friend.

In the course of the adventure mentioned above, I had found one or two Pale Clouded Yellows, and it is appropriate that I should now recount my memories of this beautiful and elusive insect. In early August 1945 I was collecting on the Downs to the South of Salisbury when a pale yellow butterfly flew past and was hotly pursued for two hundred yards up the valley: but going at a tremendous pace it eluded my net, and all I could do was to wait hopefully for its return. Ten minutes later it came back (as the *Colias* genus often do) and I made no mistake this time. Soon after another appeared and was taken without difficulty. It occurred to me at the time that a chalk Down, with no Clover or Lucerne field within miles of the place, was an odd locality for this species; but

at that time no specimen of the closely related *Colias australis* had yet been identified in Britain; in fact, I doubt whether the two species had yet been separated. Later, when the distinction was recognised, I found that both these specimens were undoubtedly *australis*, and later in the year I caught another on the Folkestone Downs which obviously belonged to the same species. Two years later, while exploring the area between Hastings and Rye, I caught about a dozen Pale Clouded Yellows, and found two or three of them to be *australis*, though there were no chalk Downs in the neighbourhood. From this I conclude that a migration of *C. hyale*, together with some *C. australis*, had come into the area from the Continent, and had not yet sorted themselves out in search of their very different haunts. The separation of the two species (except in the larval stage) is certainly not easy, but the differences are clearly set out in Higgins and Riley's admirable book on the European butterflies. Apart from the two rare migrant species just mentioned, I have taken only one other, namely a rather worn specimen of the Long-tailed Blue, which I found in a Clover field in the Sussex Ouse valley in 1955 (I think). This was probably part of a migration of which at least one found its way further inland and was, so I believe, the parent of a number of specimens bred from eggs found on a plant of Everlasting Pea. Another specimen, a female in perfect condition, was picked up in a Dorchester street and is now in the County Museum. Otherwise I have searched in vain for Queen of Spain Fritillaries, Camberwell Beauties, Short-tailed Blues, and any other rarities which from time to time pay us the compliment of a visit, but, alas, fail to establish themselves here. Although I have long given up collecting, I kept a sharp look-out for the Camberwell Beauty in 1976, but I am afraid it did not penetrate as far West as my part of Dorset.

After coming down from Cambridge I was appointed a master at Eton, where I stayed for the next thirty-eight years. A move from the Thames Estuary to the Thames Valley seemed to offer more promising opportunities for collecting, since there were a number of good localities within twenty-five miles; but, in fact, except for the Easter holidays (too early for any but a few common butterflies) and the Summer holidays (too late for most species and in any case much taken up with cricket during August, and now at county level which could hardly be refused), it was rarely possible to get away for more than a few hours at a time even at weekends. But in the summer there were always a few days when there were no restrictive duties. Such breaks were invaluable and enabled me over the years to acquire most of the scarce and local species in England. But the obstacles in the way of finding such prizes lent a welcome relish to these expeditions. For instance, I recall the immense pleasure felt over the capture of a few specimens of the Chequered Skipper in a Rutland wood (now cut down like most of the old haunts of this fast disappearing species); or the exciting quest for the larvae of the Black Hairstreak in Huntingdonshire woods (a remote

locality long since obliterated in the interests of so-called Progress) which was in such abundance that at dinner that evening I noticed one at rest on the neck-tie of my companion — apparently, and reasonably, not thinking much of the pabulum. Many years later I found this elusive insect settled on Privet flowers in an Oxfordshire locality, but by 1960 it had virtually been exterminated, since all the tall Sloe bushes, in order to make the woods more productive commercially, had been cut down, and the small bushes on the fringe of the enclosed area grubbed up to give another few square yards of extremely poor pasture, thus wiping out the Brown Hairstreak also. To complete this orgy of wanton destruction all the large Sallows were also rooted out, so that the Purple Emperor went the same way. I wrote to the owners asking them to spare what might be left of these three species, but they neither answered nor did anything about it. As for the White-letter Hairstreak, I have found it in various places (even in the Dorset valley where I live), but never commonly either as larva or imago, and I am afraid that Dutch Elm disease, which is now attacking Wych-elms also, will inevitably reduce its numbers drastically. But of all our native Theclas (now tiresomely called by all sorts of peculiar generic names) the Green Hairstreak has always attracted me most, not only because of its astonishingly brilliant underside, but also for its uncanny gift for rendering itself almost invisible when in flight. As I found that most specimens caught on the wing were far from perfect (the upperside in particular being very easily marked), I hoped to breed a series, but was not able to do this until I came across a hill covered with large clumps of the rather local plant Dyer's Greenweed. Feeding on this were a number of full-grown larvae (not all that easy to find), but even when I did, I did not get much for my trouble, since their voracious cannibalistic tendencies left only three or four to emerge.

Passing on to the Fritillaries, I did not have much difficulty in making up decent series of all our indigenous species. A short visit to the Isle of Wight during the Easter holidays provided plenty of larvae of the Glanville Fritillary; in fact, they were so conspicuous as they fed in the April sunshine that I wonder how they can have survived so long in their only remaining British habitat; but I suppose that they must breed also in the less accessible parts of the Undercliff, though the Sea Plantain seemed much less common higher up the slopes. Attempts have been made to establish it in other parts of Southern England, and I knew of a planted colony in Hampshire some forty years ago, which did well for a couple of seasons and then disappeared. On the other hand, better fortune attended the introduction of the Heath Fritillary to Essex. In the early 1920s a friend of mine brought some females from the Canterbury area (as mentioned by Frohawk) and released them in suitable woodland where there was plenty of Common Cow-wheat. For at least fifteen years the colony

flourished, but then the construction of a golf-course much reduced their numbers, and, as far as I know, their extinction was completed by the all-consuming tentacles of the Greater Southend Octopus. In other parts of the country it still retains a firm foothold; apparently it is still as plentiful in the Kentish woods as it was in the 1930s, when inside an hour I had the modest series that I needed, and was then ejected summarily by an irate landowner armed with a shot-gun and I thought, a suspiciously itching trigger-finger. By now it has probably disappeared from its old haunts in Sussex, but in its Devon localities it still prospers and occasionally turns up remarkable melanic aberrations. The Marsh Fritillary I always found very elusive, perhaps because I was unable to go far enough afield to look for it; but it is comforting to know in the evening of my life that it occurs in good numbers not far from home. It has always puzzled me that its food-plant, the Devil's-bit Scabious, which is primarily a damp-loving calcifuge, none the less in a few places (chiefly in or near ancient earthworks) grows well in dry ground heavily impregnated with chalk; but this happy caprice of nature has enabled the species to thrive far from any acid or wet soil. Of the three large Fritillaries the Silver-washed has inevitably suffered a good deal in many localities from the commercialisation of woodlands, not only through the cutting down of hard-wood trees which it uses for shelter, but also through the senseless and needless destruction of the large Bramble bushes which provide shade and protection for the larvae and the Dog-violet, and in flower are also the main attraction for the imago. Fifty years ago the Rides in the New Forest were usually flanked with these bushes, and it was possible to see hundreds of these splendid insects, including numbers of the *valezina* form, any sunny day in July. Now, all you see in most places is a forest of Bracken, which is no use to butterflies or, for that matter, to any other form of wild life. This sad state of affairs has also affected many other species, particularly the White Admiral, which has disappeared from some of its former haunts because the hanging curtains of Honeysuckle which its larvae almost invariably prefer are now thought to be harmful to the trees on which it grows. But, in spite of such harassment, both these species remain fairly plentiful (though relatively scarce compared with their former numbers); in fact, there were two Silver-washed Fritillaries in my garden in 1976, though there is no substantial piece of woodland within twenty miles. The Dark Green Fritillary, (fortunately, since it is surely one of our most handsome native butterflies) has been subject to no such threat as mentioned above, as it frequents a variety of terrain, none of it likely to excite the greed of commercial exploiters. From recent experience I should say that in the counties lucky enough to own a stretch of the North or South Downs or an extensive area of sand-dunes it is the commonest fritillary. Here in Dorset at the present day it is abundant all over the central chalk plateau, and literally swarms in a very

different type of locality, where an isolated piece of acid heath-land of perhaps only ten acres will show the observer some hundreds of these insects fighting for possession of the flower-heads of the Meadow Thistle (a local plant apparently preferred to the Dwarf Thistle which is normally the chief attraction as this fritillary careers over the Downs). Of the third member of this group, the High Brown Fritillary, I can say little except to regret, from what I hear and read, that it has become much scarcer in recent years and has certainly died out in many of its former localities. Personally, I have not seen it for many years, but, while I was at Eton, all that was necessary was a bicycle ride to Windsor Great Park, where it was always to be found in numbers gliding over the Bracken, almost impossible to catch until it found a wet spot with a good stand of Marsh Thistles. It is difficult to conclude what are the ecological reasons for its present decline, but I suspect that, as it is essentially a butterfly of extensive woodland clearings, it is now deprived of much of its former habitat through the planting of quick-profit Conifers. So possibly yet another of our finest species is in process of being sacrificed to the god of greed.

(To be continued)

UNUSUAL FOODPLANT OF *MELITAEA CINXIA* L. — On April 6th 1976, while visiting a strong colony of *M. cinxia* in West Wight started by my husband several years ago, I found a number of half grown larvae feeding on the grasses *Dactylis glomeratus* and *Bromus erectus*. The colony is on a cliff top in an exposed position and extends over an area of 50 yards x 800 yards approximately. In the same year some of the permanent stock of larvae in our flight cages were also feeding on a grass — *Poa pratensis*, and this occurred again in 1977. The only other reference to this species feeding on grass that I know of is Wilkes' *English Moths and Butterflies* (1747-50) wherein it is stated the "Caterpillar hereof feeds on Plantain Clover, and Grass, changes to a Chrysalis, within a Web of its own spinning, upon the surface of the Ground, at the beginning of May and the Fly appears fourteen days after. The Caterpillars are sociable, and feed together. They appear of a very timorous Nature for if you move the food on which they are, they immediately quit their hold and fall to the ground, and there remain in a curled up form still such time as they think the danger over. The Butterfly is swift in flight but may be taken if diligently attended to in fields of Hay Grass at the time above mentioned". Wilkes obviously observed *cinxia* thoroughly through its complete life cycle, as his illustration shows the larvae on grass, the pupa on plantain and the adult in flight. Incidentally, his dating is wrong in as much as the calender was changed a few years after the book was published. — AMANDA WATSON, F.R.E.S., F.R.H.S., Watson Trust for Entomology, Porcorum, Sandy Down, Boldre, Lymington, Hants.

Notes on the Coleophoridae

By J. NEWTON *

Kloet and Hincks (1972) list no fewer than 102 British species in this group, a formidable number for an amateur to tackle, although a less daunting task since the discovery of genitalia determination. So many species look alike in the imago stage that collectors, before this discovery, must have had many problems of identification, and many errors must have been made and recorded. It is almost impossible to identify with certainty many species which have just been netted in the field, often in worn condition. We know now that to achieve success we must collect larval cases rather than moths, and breed. The foodplant upon which the cases are found, the angle of posture which the case makes with the leaf or stem, and the structure and shape of the case itself all help to track down the species. Then, having bred your moths, and if there is still uncertainty about the species, it is essential to examine the genitalia. Unfortunately there is often no other alternative. Although time consuming, I found it not so difficult as I once thought, but the sparsity of reliable references published in English, is frustrating. Here then are some of my findings during the past three years.

Metriotes lutarea Haw. (*modestella* Dup.). — A species which is apparently not so common now as in former years, and until 1978, not recorded for Gloucestershire since 1914. The foodplant is still unknown, I found several specimens on flowers of *Stellaria holostea* near Coleford, Forest-of-Dean, on 22nd May 1978.

Coleophora caespititiella Zell. (*agrammella* Wood). — In September 1977 I collected in the Forest-of-Dean, a bag of seed-heads of *Juncus* spp. which had many coleophorid cases on them. My plan was to sort out the species when moths emerged in 1978 by genitalia examination. This I did and found most to be *C. alticolella* Zell., and also several *C. glaucicolella* Wood. However, among these were two appreciably smaller and paler moths (7-8 mm.), a male and female. The genitalia of these showed them to be *C. caespititiella* Zell.

C. sylvaticella Wood. — Mr. L. Price and I found moths numerous on *Luzula sylvatica* in June 1978 near Coleford. Cases were collected later in August. These were placed on potted plants of *L. sylvatica* for the winter, and I was interested to note that besides several full-sized cases there were several much smaller cases. This species has been known in Monmouthshire for several years, but at Coleford constitutes a new record for Gloucestershire.

C. flavipennella Dup. — Cases common on oak near Tetbury, Glos., on June 26th 1978. Several moths emerged in July. As this species has been confused with *C. lutipennella* Zell., and I have specimens of the latter bred from oak in Hertfordshire in 1977, I examined both. This revealed the Tetbury specimens to be *flavipennella*. I also examined two

* 11 Oxleaze Close, Tetbury, Glos.

specimens, collected some years ago in the Forest-of-Dean, by Mr. Price, and found these to be *flavipennella*. Fletcher and Clutterbuck (1938-45) record *lutipennella* from Durdham Down; Gloucester City; and Longhope; the most recent recent being in 1921, but *flavipennella* is not mentioned. It may be that these old records should really be for *flavipennella*, but in the absence of the actual specimens this cannot now be proved. The two species are similar both as moths and cases. My specimens of *lutipennella* are more ochreous than *flavipennella*.

C. atriplicis Meyr. — In September 1977, Mr. Price and I collected many cases from *Atriplex patula* on the tidal shores of the R. Severn, most of which produced moths in July 1978. At first we believed them to be cases of *C. annulatella* Tengst., but, having three specimens of the latter from Tetbury, one of which was determined by Dr. J. Bradley, I prepared a few slides of the genitalia. A difference, particularly in the male, was strikingly apparent. Thanks to the figures in Patzak (1974), I was able to determine the species as *atriplicis*, thus giving Gloucestershire another new record.

One group I have found difficult is the troublesome trio *limosipennella*, *alnifoliae* and *milvipennis*.

C. alnifoliae Barasch. — Ellerton (1970) has: "there appears to be doubt as to whether this is distinct from *C. milvipennis* Zell. The larvae of *alnifoliae* begin feeding on birch and alder in autumn, and feed up in the spring, producing moths in July-August, or over-wintering again". Chalmers-Hunt (1975): "cases on alder and birch, Sussex in June 1971. One of these on birch producing a female in July 1971". Also, "three cases on birch, June 1972, and a male bred from these in May 1973". Mr. S. E. Whitebread informs me that normally *alnifoliae* has a one-year cycle in Switzerland, but a few individuals carry over to the following year. He has never found cases on birch, always alder, and this has also been my experience. So far as I know there has not yet been published in English a description of the imago of either *milvipennis* or *alnifoliae*, and I am grateful to Mr. Whitebread for supplying me with a translation for both from Toll (1962). In 1977 I found two cases on alder at Tetbury in July and a third in the Forest-of-Dean in September. I bred only one moth from these on June 6th 1978 from a Tetbury case.

In 1978, Mr. Price and I collected several cases in the Forest-of-Dean on *Alnus glutinosa* and *A. incana*. Nearly all were full-sized cases, but two were quite small and untidily constructed. At first from the appearance of the one moth bred, I believed these to be *limosipennella*, but Mr. Whitebread assures me that this species is confined to elm, and this is supported by Mr. Chalmers-Hunt's findings in Kent in 1971-72. This being so then my specimens on alder must either be *milvipennis* or *alnifoliae*. One factor which tends to make me settle for mine being *alnifoliae* is that in June

1978 I collected a number of cases on birch in Surrey and bred two moths from these in July. Some of the remaining cases still contained live larvae on September 19th and were sleeved out on birch, hopefully to produce moths in 1979. Comparing my two Surrey bred moths from birch with the Gloucestershire moth bred from alder, the birch specimens are light brown in colour, whereas the alder specimen is ferruginous brown. Also, the birch cases average 2 mm. shorter than the alder cases, and are inclined at a steeper angle to the leaf. I have examined the genitalia of the birch specimens, both females, and they compare favourably with Patzak's figure for *milvipennis*. I have several cases on alder sleeved out for the winter and look forward to the possibility of being able to examine the genitalia of moths in 1979. According to Patzak's figures the two species can be distinguished by the genitalia, but so far as identification in the field is concerned it would appear that the key lies in their to hear from anyone who has bred a specimen of *alnifoliae* cases have been found on birch and alder. I would be pleased to hear from anyone who has bred a specimen of *alnifolia* from birch and had it confirmed by genitalia examination.

Acknowledgments

I am indebted to Dr. J. D. Bradley for confirming my slides of the genitalia of *C. caespititiella*, *C. flavipennella*, *C. lutipennella* and *C. atriplicis*; and to Mr. S. E. Whitebread for his help.

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SENDING MATURE INSECTS ALIVE BY POST. — To overcome the problem of dehydration in sending insect imagines, especially of butterflies and moths, by post, the use of the flower arranger's "Wet Oasis" has proved to be the answer.

A metal or plastic box about 2in. x 2in. x 4in. is adequate to transport one or two medium sized butterflies. The Wet Oasis is held to the bottom of the container by a piece of perforated zinc or similar gauge and wetted in the same way as a relaxing box. The lid should be perforated with a few holes and the box, by preference, sent by first class post.

Over the years, this simple transit box has proved such a great boon to the conveyance of butterflies and moths for photography that I think other insect photographers should be made aware of it. — T. W. JEFFERSON, 20 Mill Lane, Redworth, Darlington, Co. Durham.

Butterflies of the Cols of the Cévennes

By JOHN FELTWELL *

Introduction

This is the second and penultimate part of an entomological assessment of all the cols within the inner boundary of the National Park of the Cévennes (cf. Feltwell, 1977a). The reasons for undertaking such a venture are threefold; first, that the Cévennes are comparatively rich in species (Feltwell, 1977b), second, that the cols are often very rich in numbers of butterflies, particularly *Hipparchia semele* (Linnaeus) (Feltwell, 1976), and third, that the cols have not been assessed entomologically in view of the fact that it is now exactly a decade since the National Park of the Cévennes was set up to protect its own flora and fauna.

The second point raises certain questions such as why does it appear that there are often more butterflies seen at the cols than in the valleys; is it because the climate is more favourable, that the butterflies tend to fly up there from the valleys and stay there, or that there are more foodplants at the cols? Discussion will be reserved on these and other issues in the final part of this appraisal of the cols.

Ten further cols are described here (Table I) bringing the total so far visited to 21. The first five cols are on the massif of Mt. Lozère (1,699 m) in the northeast of the Park, while the remainder are on the massif of Mt. Aigoual (1,565 m) in the west and on the Causse Noir.

TABLE I
COLS IN THE NATIONAL PARK OF THE CEVENNES

	Col	Size of collecting area around Col	Altitude	Date visited
		(h)	(m)	
1	Col de la Loubière	5	1181	11.8.78
2	Col de la Croix de Berthel	10	1030	11.8.78
3	Col de Malpertus	5	900	11.8.78
4	Col de la Barraquette	2	996	11.8.78
5	Col de Jalcrest	<1	930	11.8.78
6	Col de Montjardin	30+	1005	21.8.78
7	Col de Perjuret	5	1028	21.8.78
8	Col de Bes	5	1215	21.8.78
9	Col de Salides	10	1014	21.8.78
10	Col de l'Estrade	3	1205	21.8.78

Results

Col de Finiels, which was last visited on the 3rd September 1977, (Feltwell, 1977a), was revisited on the way to the following cols and provided a few more species, notably several *Erebia meolans* Fruhstorfer, *Brenthis daphne* Schiffermüller and *Mellicta athalia* (Rottemburg). There were also a few *Argynnis lathonia* (Linnaeus), *Pieris rapae* (Linnaeus), *Coenonympha arcania* Linnaeus and a single *Autographa gamma* (Linnaeus). On the way up to the col from the north-west several *Heodes virgaureae* (Linnaeus) were seen feeding at the roadside.

* 35 Fishers Road, Staplehurst, Kent TN12 0DD.

1. Col de la Loubière

This is one of the richer areas for butterflies. The col has two tracks leading away from it and was partially cultivated with a small crop of potatoes and a small paddock where hay had been taken. There were also areas of long grass and scrub where there was a marked abundance of *Melanargia galathea* (Linnaeus) and *Zygaena filipendulae* (Linnaeus) although there were also lesser numbers of *C. arcania* Linnaeus, *Hipparchia semele* (Linnaeus), *Maniola jurtina* (Linnaeus), *Hesperia comma* (Linnaeus), *Thymelicus sylvestris* (Poda) and *Lysandra coridon* (Poda). One *E. meolans* Fruhstorfer, *Zygaena trifolii* (Esper) and a *Procris* sp. were seen. Of the Pierids, *Pieris brassicae* (Linnaeus), *P. rapae* (Linnaeus), *Colias crocea* (Geoffrey) and a *Colias hyale* (Linnaeus) were seen on the wing, and of the Nymphalids *Aglais urticae* (Linnaeus), *Vanessa atalanta* (Linnaeus), *Cynthia cardui* (Linnaeus) and *A. lathonia* (Linnaeus) were seen.

2. Col de la Croix de Berthel

This is a junction of three made up roads and a track with a summit just to the south. The area had been burnt over about 2-3 years ago and there was a new growth of a very squat broom species (*Cytisus* sp.) as well as plenty of long grass. There was also heather (*Calluna vulgaris* Linnaeus), Purple loosestrife (*Lythrum salicaria* Linnaeus) and wild Raspberries (*Rubus ideaus* Linnaeus). In a field of lucerne (*Medicago sativa* Linnaeus) *P. brassicae* (L.), *P. rapae* (L.), *C. crocea* (Geoffrey), *T. sylvestris* (Poda) and *Coenonympha pamphilus* (Linnaeus) and *M. jurtina* (Linnaeus) were present. A single *Erebia* sp. was seen on the wing but was not caught for identification. Other butterflies which passed through were *M. galathea* (Linnaeus), *A. urticae* (Linnaeus), *V. atalanta* (Linnaeus) and *Argynnis paphia* (Linnaeus).

3. Col de Malpertus

A very exposed, high col which had been completely burnt off some years previously and had regenerated with a very limited flora consisting only of broom, heather and grasses. Noticeable was the incessant hum of bees on the heather. Very few butterflies were present although it was a fine day and single specimens of *T. sylvestris* (Poda), *P. rapae* (L.), *Hipparchia stratonice* Hufnagel and the diurnal moth, the Straw Belle (*Aspitates gilvaria* (Denis & Schiffermüller)), were seen.

4. Col de Baraquette

This col is situated along a roughly east-west ridge with views to the north and south. There is a small track which leads off to the north. Along the roadside verges and long grass were found *P. rapae* (L.), *Polyommatus icarus* (Rottemberg), *C. hyale* (Linnaeus) and *A. paphia* (Linnaeus) as well as a male Oak Eggar (*Lasiocampa quercus* (Linnaeus)). It is perhaps worth noting that along the roads leading to and away from the col there were the Wood White (*Leptidea sinapis* (Linnaeus)), Swallowtail (*Papilio machaon* Linnaeus) and the Great-banded Grayling (*Brintesia circe* Fabricius).

5. *Col de Jalcrest*

Not a very exciting col entomologically as it comprises the intersection of five roads which had been recently widened; the gravel verges were supporting a collection of ephemerals on which were *P. rapae* (Linnaeus), *C. crocea* (Geoffroy) and *C. pamphilus* (Linnaeus). At one edge there was a source of water and feeding on the flowers of the prolific brambles were Peacocks (*Inachis io* (Linnaeus)) and a small unidentified Fritillary. The col was surrounded by chestnut woods.

6. *Col de Montjardin*

An unmarked col (without the customary sign) which lies on the corner of a hill overlooking the barren-looking Causse Noir. The col is made up of grass pasture, with patches of broom (*Cytisus* sp.) and sloe (*Prunus spinosa* Linnaeus). There were two fields of lucerne which had collected some butterflies.

The grass pasture adjacent to the road was studded with an amazing variety of wild flowers and here over twenty-five species of butterfly were noted in the space of twenty minutes or so within a few square metres. In abundance everywhere were *C. hyale* (Linnaeus) — ten to fifteen could be counted at any one time — and *G. rhamni* (Linnaeus). There were few *G. cleopatra* Linnaeus and *C. crocea* (Geoffroy). In the grass were *M. jurtina* (Linnaeus), *C. pamphilus* (Linnaeus), *H. semele* (Linnaeus), *Pyronia tithonus* (Linnaeus), *M. galathea* (Linnaeus), *Arethusana arethusana* Schiffermüller and *Chazara briseis* Linnaeus. Of the blues and coppers, those present were *P. icarus* (Rottemburg), *Agrodiaetus dolus* Hübner, *Lysandra coridon* (Poda) and *Lycaena phlaeus* (Linnaeus). Skippers were represented by *T. sylvestris* (Poda), *Ochlodes venata* Turati, *H. comma* (Linnaeus) and *Muschampa proto* Ochsenheimer; and Nymphalids which were generally feeding from thistle flowers were *A. urticae* (Linnaeus), *C. cardui* (Linnaeus), *A. lathonia* (Linnaeus) (Common) and *Argynnis aglaja* Linnaeus. In the lucerne were *P. brassicae* (Linnaeus) and *P. rapae* (Linnaeus).

7. *Col de Perjuret*

This is situated around a small hamlet which had a cabbage patch, a plot of corn, grassy meadow and some areas of wild stony grassland with tall thistles. This was not a particularly rich area for butterflies and small numbers of each species were encountered. Crossing the meadow from time to time were *M. galathea* (Linnaeus), *M. jurtina* (Linnaeus), *P. tithonus* (Linnaeus), *P. icarus* (Rottemburg), *L. coridon* (Poda), *C. crocea* (Geoffroy), *C. hyale* (Linnaeus), *L. phlaeas* (Linnaeus) and *T. sylvestris* (Poda). Towards some trees were found several *B. circe* Fabricius. On the thistles were *C. cardui* (Linnaeus), *V. atalanta* (Linnaeus) and *G. rhamni* (Linnaeus) and in the cabbages were *P. rapae* (Linnaeus) and *P. brassicae* (Linnaeus).

A more profitable spot for entomology may be had at the Col de Fourges (1,040 m) which is about one kilometre away from the Col de Perjuret along the D18 road, but as

this is not mentioned on the official Cévennes map, it does not fulfil one of the purposes of this study (see Feltwell, 1977a).

8. *Col de Bes*

This is situated a little way off the crossroads at Cabrillac and insects were studied around its base. In exceptional abundance were *H. virgaureae* Linnaeus which seemed to be on every flower. There were also plenty of whites, *P. brassicae* (Linnaeus), *P. rapae* (Linnaeus), *P. napi* (Linnaeus), *G. rhamni* (Linnaeus), *G. cleopatra* (Linnaeus), *C. crocea* (Geoffroy) and *C. hyale* (Linnaeus). Browns were represented by *M. jurtina* (Linnaeus), *C. pamphilus* (Linnaeus), *C. arcania* Linnaeus, *M. galathea* (Linnaeus) and *H. semele* (Linnaeus). *Nymphalids* were represented by *A. lathonia* (Linnaeus), *A. aglaja* (Linnaeus) and other smaller fritillaries which were not captured for identification. On the thistle flowers were *V. atalanta* (Linnaeus), *T. sylvestris* (Poda), *P. icarus* (Rottemburg) and *Ochlodes venatus* (Turati). A particularly fine specimen of the diurnal *Lythria purpuraria* (Linnaeus) was photographed on grass, this specimen being very poorly represented in Great Britain. On Broom a parasitised larva of the Grass Emerald (*Pseudoterpna pruinata* (Hufnagel)) was found; the parasites turning out to be *Apanteles triangulator* (Wesmael).

9. *Col de Salides*

The very exposed col has many grassy slopes with small growth of broom. There are Pine plantations nearby and a large part of this had been burnt two days previously. Butterflies were fairly difficult to find because of the lack of flowers but small numbers of *H. semele* (Linnaeus), *M. jurtina* (Linnaeus), *C. pamphilus* (Linnaeus), *H. comma* (Linnaeus), *P. icarus* (Rottemburg) and *T. sylvestris* (Linnaeus) were present. Quite noticeable was the abundance of *B. circe* Fabricius which were patrolling a wooded area and around some ruins. Single specimens of *M. galathea* (Linnaeus), *H. virgaurea* Linnaeus, *V. io* (Linnaeus), *C. hyale* (Linnaeus) and *P. rapae* (Linnaeus) were seen.

10. *Col de l'Estrade*

This is more of an inaccessible col than the others described in this paper. It lies along a track which leads up from the Tarnon and is surrounded by pine. Fortunately there were many clearings where wild raspberries and brambles grew in profusion and here *A. aglaja* (Linnaeus), *A. lathonia* (Linnaeus) and *Argynnis adippe* Schiffermüller were plentiful. Other visitors to these clearings were *P. rapae* (Linnaeus), *P. napi* (Linnaeus), *V. io* (Linnaeus), *H. virgaurea* Linnaeus and *A. urticae* Linnaeus. In the long grass were *Erebia meolans* Fruhstorfer, *M. jurtina* (Linnaeus) and *T. sylvestris* (Poda).

Comment

A noticeable feature of the butterflies of the Cévennes is the summer of 1978 was that Clouded Yellow (*Colias* sp.) were unusually abundant and were seen throughout the Park during most of August. In many years, Clouded Yellows are fairly infrequent. They were recorded from eight of the cols described here.

The greater number of butterflies at the Col de Montjardin near Lanuejols in the west of the Park is worthy of special mention; so too was the abundance of *H. virgaureae* Linnaeus at Col de Bes near Mt. Aigoual. In both cases many flowers were present. The year of 1978 will no doubt be remembered in the Cévennes for both the hot and dry summer and the unusually great profusion of butterflies.

Acknowledgements

I would like to thank Dr. M. Shaw (Reading) for kindly identifying the *Apanteles* parasites and Geoffrey Burton for commenting on the manuscript.

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PURPLE EMPERORS AT PLAY. — During the afternoon of July 21st I led a party round the Wiltshire Trust for Nature Conservation's reserve at Blackmoor Copse. It was a poor day for butterflies, sunless and with a cold N.W. wind, so few insects showed up as we walked round the rides. As we left the Copse at about 4 o'clock the sun suddenly put in an appearance and transformed what had hitherto been a rather dull afternoon into something quite different. First one then another ♂ Purple Emperor appeared and chased each other round an oak tree by the roadside. Presently two more joined them and all four engaged in a sort of aerial battle the contestants being joined periodically by Purple Hairstreaks which darted into the fray. At lower levels White Admirals and Silver-washed Fritillaries sought refreshment from the bramble blossom in the hedgerow while on the road itself some twenty excited spectators stood glued to the tarmac with their binoculars trained on the battling Emperors. After a few minutes clouds again blotted out the sun and the actors vanished leaving the spectators to make their way back to their cars with the memory of a most unexpected spectacle to take away with them. — MAJOR GENERAL C. G. LIPSCOMB, The Riding, Knook, Near Warminster, Wiltshire, 27.vii.79.

PROLONGED HATCHING OF ENNOMOS ALNIARIA L. — Some long ribbons of eggs of this species were laid on the same night by the same female. Come next year however the eggs started hatching on 14 May and continued right through until 17 June. We are very familiar with pupae lying over for more than one year and of course of varying growth rates of larvae depending on food and location, as well as staggered emergence of moths from the same brood. Variation in date of egg hatching adds a further variable to the device used by insects to spread their survival chances. — G. M. HAGGETT.

The Lepidoptera of the Cairngorms National Nature Reserve

(Concluded from page 216)

By EUAN A. M. MACALPINE *

NOCTUIDAE

Euxoa tritici (L.). — A; B; C; E; F; G; H; K. *E. nigricans* (L.). — A; E; H; K. *Agrotis vestigialis* (Hufn.). — K; two on 9.viii.76 and two on 10.viii.76. *Ochropleura praecox* (L.). — K; one on 18.viii.76. *O. plecta* (L.). — C; G; K. *Standfussiana lucernea* (L.). — G. *Noctua pronuba* (L.). — A; C; E; F; H; K. *N. comes* (Hübner). — A; B; C; E; F; G; H; K. *N. fimbriata* (Schreber). — K. *N. janthina* (D. & S.). — E; G; K. *Graphiphora augur* (Fab.). — A; G; K. *Paradiarsia sobrina* (Dup.). — A; B; C; E; F; G; H; K. *P. glareosa* (Esper.). — A; B; C; E; F; G; H; K. *Lycophotia prophyrea* (D. & S.). — A; B; C; D; E; F; G; H; K; day-flying at Einich Gate. *Diarsia mendica* (Fab.). — A; B; C; D; E; F; G; H; K; day-flying in Gleann Einich at 370 m and at Einich Gate. *D. dahlui* (Hübner). — C; G; K. *D. brunnea* (D. & S.). — C; G; K. *D. rubi* (Vieweg). — no specimen was positively identified and all records are under *D. florida*. *D. florida* (Schmidt). — A; B; G; K; records running from 26.vi to 2.viii. *Xestia alpicola* (H. & W.). — only record: Harper reported one near the summit of Carn Ban Mor, ? date. *X. c-nigrum* (L.). — G. K. *X. triangulum* (Hufn.). — E; H; K. *X. baja* (D. & S.). — A; B; C; E; F; G; H; K. *X. castanea* (Esper.). — A; B; C; E; F; G; H; K; larvae on heather at E and Achlean. *X. sexstrigata* (Haw.). — A; B; C; K. *X. xanthographa* (D. & S.). — A; C; E; F; H; K. *X. agathina* (Dup.). — C; F; larva on heather. *Eurois occulta* (L.). — A; B; C; E; F; G; H; K; a few of these records from '76 and '78 but large numbers in '77 of the pale form suggesting a significant migration from the continent. *Anaplectoides prasina* (D. & S.). — A; F; K. *Cerastis rubricosa* (D. & S.). — A; B; C; G; H; K. *Anarta myrtilli* (L.). — day-flying at A, Einich Gate, between Achlean and Coire Garbhlach; larva near the tree-line in the Lairig on heather. *A. cordigera* (Thun.). — day-flying near Loch Gamhna and just above the tree-line in the Lairig. *A. melanopa* (Thun.). — day-flying near the summit of Carn Ban Mor, above Coire Odar and Coire Dhondail, near Lochan Buidhe (north of Ben Macdui), over Coire Raibert and the back of Cairngorm, almost to Fords of Avon; on 9.ix.77, I found a larva forming a pupal chamber in lichen and about to pupate, from just below the summit of Bynack More. Altitude range of area: 750 m-1,140 m. *Hada nana* (Hufn.). — A; G; H; K; one at light in Coire Garbhlach—510 m. *Polia hepatica* (Clerck). — A; G; K. *Lacanobia contigua* (D. & S.). — A; B; C; H; K; *L. thalassina* (Hufn.). — K. *L. oleracea* (L.). — K. *L. biren* (Goeze). — K; day-flying above Achlean, by the path to Carn Ban Mor, and in Coire Garbhlach; larvae on the paths at E and in the Lairig. *Ceramica pisi* (L.). — A; K. *Hadena confusa* (Hufn.). — K.

* Hawkins', St. Cross Road, Winchester SO23 9HX.

Cerapteryx graminis (L.). — A; B; C; E; F; G; H; K; at light on the Moine Mor at 980 m. *Panolis flammea* (D. & S.). — K; larvae on young pine at A and in the Lairig. *Orthosia cruda* (D. & S.). — K. *O. populeti* (Fab.). — A. *O. gracilis* (D. & S.). — H; K; larvae at A and in Coire Garbhach, found on heather. *O. stabilis* (D. & S.). — C; H; K. *O. incerta* (Hufn.). — A; B; C; H; K; *O. gothica* (L.). — A; B; C; H; K; larva on heather at A. *Mythima conigera* (D. & S.). — K. *M. ferrago* (Fab.). — A; K. *M. impura* (Hübner). — A; B; E; G; K. *M. pallens* (L.). — C; E; K. *M. comma* (L.). — K. *Cleoceris viminalis* (Fab.). — C; K. *Brachionycha nubeculosa* (Esper). — K. *Aporophyla lutulenta* (D. & S.). — K; Harper recorded it from Loch an Eilein, ? date. *A. nigra* (Haw.). — A; B; C; E; F; H; K. *Xylena vetusta* (Hübner). — K. *X. exsoleta* (L.). — A. *Allophytes oxyacanthae* (L.). — K; Harper recorded it from Lochan Eilein, ? date. *Dichona aprilinea* (L.). — K. *Dryobotodes eremita* (Fab.). — E; K. *Blepharita adusta* (Esper). — A; C; F; G; H; K. *Amtitype chi* (L.). — K. *Eupsilia transversa* (Hufn.). — K. *Conistra vaccinii* (L.). — A; B; E; F; H; K. *Agrochola helvola* (L.). — A; C; E; G; H. *A. litura* (L.). — K. *Parastichtis suspecta* (Hübner). — A; B; C; F; G; K; larva at E. *Xanthina citrigo* (L.). — K. *X. togata* (Esper). — B; C; F; K. *X. icteritia* (Hufn.). — E; F; K. *Acronicta megacephala* (D. & S.). — A; E; larvae on aspen at Loch an Eilein. *A. leporina* (L.). — A; K. *A. psi* (L.). — A; K; larva on elm at Loch an Eilein. *Acronycta menyanthidis* (Esper). — A; G; K. *A. rumicis* (L.). — K. *Amphipyra tragopoginis* (Clerck). — A; C; E; F; G; H; K. *Rusina ferruginea* (Esper). — A; K. *Euplexia lucipara* (L.). — A; G; K. *Enargia paleacea* (Esper). — A; C; K. *Cosmia trapezina* (L.). — A; C; K. *Hyppa rectilinea* (Esper). — A; day-flying in the Lairig at 450 m. *Apamea lithoxylaea* (D. & S.). — K. *A. monoglypha* (Hufn.). — A; B; C; E; F; G; H; K; at light on the rim of Coire Garbhach, 900 m. *A. exulis assimilis* (Double.). — A; B; C; F; K; at light on the rim of Coire Garbhach and on the Moine Mor at 980 m. *A. crenata* (Hufn.). — A; H; K. *A. furva britannica* (Cock.). — F; G; K; in 1976, records from 26.vi to 9.vii, a few every other night or so; in '77 just the one record at F on 30.vii. *A. remissa* (Hübner). — A; C; F; H; K. *Oligia strigilis* (L.). — K. *O. fasciuncula* (Haw.). — A; B; K. *Mesapamea secalis* (L.). — A; B; C; F; G; K. *Photedes minima* (Haw.). — A; E; K. *P. pygma* (Haw.). — A; K. *Amphipoea lucens* (Frey.). — F; K. *A. crinanensis* (Burrows). — E; K. *A. oculea* (L.). — B; C; F; K. *Hydraecia micacea* (Esper). — K. *Celaena haworthii* (Curtis). — A; B; G; H; K; day-flying at B. *C. leocostigma* (Hübner). — K. *Caradrina clavipalpis* (Scop.). — K. *Stilbia anomala* (Haw.). — A; B; C; D; E; F; G; H; K. *Colocasia coryli* (L.). — K. *Diachrysia chrysitis* (L.). — K. *Plusia festucae* (L.). — K. *Authographa gamma* (L.). — K; previously recorded from Loch an Eilein by Harper, ? date. *A. pulchrinna* (Haw.). — A; C; F; G; H; K. *A. bractea* (D. & S.). — K. *Syngrapha interrogationis* (L.). — A; C; D; E; F; H;

K; day-flying in Coire Garbhlach, near Achlean and in Glen Feshie NN/8888; Glen Derry and in the Lairig in 1971, E.C.P.C. *Abrostola triplasia* (L.). — A; K. *Scoliopteryx libatrix* (L.). — A; G; K; recorded both before and after hibernation. *Phytometra viridaria* (Clerck). — K; day-flying near Achlean and above Loch Einich at 1,030 m. *Hypena proboscidalis* (L.). — K.

Addendum

TORTRICIDAE

Olethreutes palustrana (L. & Z.). — A; B; C; E; F; H; day-flying at Loch Einich, above Loch an Eilein, in the Lairig and on the south face of Cairn Gorm, 1,150-1,220 m. *Epagoge grotiana* (Fab.). — A.

GEOMETRIDAE

Thera obeliscata (Hubn.). — A; B; C; E; F; H; K; day-flying at A; larva by Allt Ruadh. *Eupithecia assimilata* (Doubl.). — A; K. *Selenia dentaria* (Fab.). — A; B; C; G; K.

NOCTUIDAE

Eugnorisma depuncta (L.). — B; C; E; F; G; H; K. *Lithomoia solidaginis* (Hübner). — A; B; C; E; F; G; H; K.

NOTES ON THE DEAL COLONY OF PANAXIA DOMINULA L.—The famous colony of the Scarlet Tiger on the undercliff at Walmer has aroused much interest since this species has been seriously studied. Until the 1950's, it existed in vast numbers until the road to the Rifle Butts was "improved", the spoil being bulldozed to the base of the cliff destroying the vegetation. I did not have the inclination to visit the colony after this unfortunate happening having heard from various sources that it was completely exterminated.

In May 1973 while attending a conference I had a few hours to spare. I took the train from Victoria to Walmer and there ordered a taxi. I had exactly one hour to walk to the Rifle Butts and back before meeting my taxi for the return journey. I had often wondered if a few could have survived but on the walk to the end of the road not a single larva was found. Descending the steps past the Rifle Butts there was a few hundred yards of original bramble left and here I was delighted to see that *dominula* was in profusion exactly as in the old days. I wish now that I had collected a few to keep this interesting strain in captivity, but at that time it seemed safe enough with the road completed.

It was not possible to visit Walmer again until May 1978, alas high tides had covered all the vegetation which was dead and brown with the action of the salt. An untimely end indeed as this year we were organized to have taken a few pairings and hopefully bred and returned large numbers. Perhaps a few have survived but I think it doubtful. — R. W. WATSON, F.R.E.S., Watson Trust for Entomology, Porcorum, Sandy Down, Boldre, Lymington, Hants.

The Papers of John Obadiah Westwood in the Smithsonian Institution Archives

By DR. RONALD S. WILKINSON *

John O. Westwood (1805-1893), first Hope Professor at Oxford, naturalist, illustrator, palaeographer and antiquarian, needs no introduction here, as he was one of the chief figures of nineteenth-century British entomology. The major accumulation of Westwood's papers is located at the Hope Department, Oxford. However, it is not generally known that for some years the Smithsonian Institution, Washington, D.C., has held a significant collection of Westwood's correspondence, as well as other materials from his papers.

Some of the individual museums which are part of the Smithsonian collect and retain manuscript holdings appropriate to their fields. Other collections have been transferred to the central Smithsonian Archives. The "Westwood Collection" was conveyed to the Archives by the Department of Entomology, U.S. National Museum (USNM) in 1973, but little information remains about its earlier history. It had long been supposed that the papers were acquired by Charles Valentine Riley (1843-1895), second U.S. Entomologist, but a further search in the Smithsonian's internal records seems to indicate that the collection came to Washington through the efforts of William H. Ashmead (1855-1908), a hymenopterist who became Assistant Curator of Insects in the USNM (1895-1908). I have not yet determined how Ashmead acquired the papers.

The collection is not large (less than two shelf feet), but its contents are choice. For example, there are letters from such figures as Louis A. A. Chevrolat, Richard Owen, Edward Newman, James F. Stephens, Francis Walker, William Yarrell, John Curtis, Adrian H. Haworth, William Kirby, William Spence, Pierre A. Latreille, William E. Leach, William Macleay, Jean Boisduval, William Swainson, Leonhard Gyllenhal, William Wood and many others. (Some of the letters are not addressed to Westwood, so it would appear that he acquired correspondence of his more significant scientific contemporaries when possible.) There are long series from Sidney Smith Saunders and George Thwaites about fig insects, and a number of letters from C. R. Osten-Sacken concerning the Diptera.

Among many interesting individual items is a letter from the pioneer American entomologist Thomas Say to C. R. W. Wiedemann, 10th December, 1830, listing a substantial collection of insects which Say was sending to Europe and describing his library at New Harmony, Indiana. (The letter will be summarized elsewhere.) Another such letter, from Gyllenhal to P. F. M. A. Dejean, 14th June, 1820, conveys and lists a collection of several hundred species of Coleoptera. There are two leaves (four pages) of the manuscript of Haworth's *Lepidoptera Britannica* (1803-28), with emendations also in

* The American Museum of Natural History, New York City, New York 10024.

Haworth's hand. It is uncertain how Westwood acquired these interesting pages, as the only letter from Haworth to Westwood in the papers is one of the 22nd January, 1828, inviting him to tea with other entomologists, but it is possible that he sought a sample of Haworth's famous work because of the predilection for manuscript collecting demonstrated elsewhere in the collection. Similarly, a considerable portion of the MS. of James F. Stephens' *A Systematic Catalogue of British Insects* (1839) is among the papers, with no indication of its provenance from the Stephens correspondence.

Much of the remainder of the "Westwood Collection" consists of production materials for the entomologist's own publications. There are notes on various orders; original manuscripts of Westwood's articles; corrected proofs; and a wealth of rough sketches and final drawings of insects, many coloured. These are supplemented by plate proofs, and letters from West, Newman & Co. about the printing of Westwood's illustrations.

For some time the Westwood papers were closed to investigators while awaiting organization, but the collection is now housed in manuscript boxes and may be consulted by persons who have a reasonable scholarly purpose.

APORIA CRATAEGI L. (BLACK-VEINED WHITE) IN BOURNEMOUTH: AN EARLY RECORD. — On June 1st 1831, J. C. Dale and J. Curtis were collecting on the heathland between Christchurch and Poole, on which now stands Bournemouth Dale (1831) records taking near Decoy Pond, *Pieris crataegi*, *Melitaea selene* and *Hamearis lucina* (I have not altered the original nomenclature). An MS. map, dated 1761 of the district, shows the pond at the head of the Bourne stream. It was situated in the centre of a small area of cultivation of about 7 acres, which included a "Bee garden". The pond is still in existence, and forms a part of the Upper Pleasure Gardens. A little earlier on, on May 19th, he was at Lynhurst, where he found a pupa of *A. crataegi*. This appears to be the first record of the species in the New Forest, and probably relates to the record by Dale in Newman (1871). References: Dale, J. C. 1831. Captures of Insects during Part of 1830 and Part of 1831, *Loudon's Mag. Nat. Hist.*, 5: 249-252. Newman, E. 1871. *An Illustrated Natural History of British Butterflies*, London. — S. C. S. BROWN, 158 Harewood Avenue, Bournemouth, Dorset.

THE ORANGE-TIP (ANTHOCHARIS CARDAMINES L.) IN EAST LOTHIAN VC82. — The following records have been communicated by Mr. R. W. Barker of Rose Cottage, Pencaitland. (1) One male on 21.v.1978 and two on 28.v. 1978, seen at confluence of the R. Tyne and Burns Water near Pencaitland. (2) One male seen on 29.v.1977 by a lady, on viaduct near Saltoun Station disused railway line near Pencaitland. These appear to be the only records known (as vet) since 1861. — A. G. LONG, Deputy Curator, Hancock Museum, Newcastle-upon-Tyne.

Collecting in Sicily in the Spring of 1977 and 1978

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

I arrived at the airport of Catania on the 23rd April at 1.15 a.m.; not a very convenient time, and had to spend the rest of the night in an hotel, and the morning in Catania. After lunch my friend Sig. Sebastiano Distefano drove me to my favourite hotel at Zafferana on the slopes of Mount Etna at 800m. As the weather was not very encouraging, nothing could be done that afternoon.

Sunday 24th: After breakfast we collected until noon close to the hotel, where the first butterflies to come my way were *Anthocharis cardamines turriferens* Vty., *Pieris napi meridionalis* Heyne, *Leptidea sinapis sartha* Ruhl. and *Glauropsyche alexis* Poda, all males. I understood from the people at the hotel that the previous week was quite cold and wet.

On the 25th, I went lower down, hoping to find a warmer locality, but still very few butterflies were on the wing, mostly *P. rapae* L., *Coenonympha pamhilus* L., *Pararge aegeria sardoa* Vty. and *P. megera australis* Vty.

The 26th was a warmer morning with a clear sky. I went up to 1,000m and kept on the sunny side of the road, which was a mass of flowers, mostly *Vicia cracca*, *Geranium sanguineum*, *Isatis tinctoria*, *Lupinus hirsutus*, *Valeriana officinalis* and *Turritis glabra*. Quite a selection of butterflies were visiting these flowers: *A. cardamines*, *A. damone* Boisd., *Euchloe ausonia romana* Cal., *P. mannii todaroana* Pincit, *C. crocea* Fourc., *A. agestis calida* Bell, *P. icarus* Rott. and *G. alexis* Poda. The following day I collected in the same area, finding species of the previous day on the increase, and also *Iphiclides podalirius* L. and *Lycaena phlaeas* L. In the afternoon, I left Zafferana and drove down to Catania, where I stayed in an hotel until the 3rd May.

On the 28th, I decided to take the coach which passes the hotel on its way to Mt. Etna, and stop at an altitude of about 800m beyond Nicolosi, to try an area where I had not collected before. The conductor was obliging by letting me pay at my destination, as he could not understand where I wanted to go. At a crossroad, a gentleman stopped the coach to get down and I decided to do the same. This kind person, thinking that I was somewhat confused and upset, asked me where I wanted to go, and on hearing that I had no particular place in mind, but that I wanted to take a few butterflies, smiled, introduced himself, and asked me to join him. He was spending the day at his summer villa where, he said, there were many butterflies, and that I could take a rest in the villa when I wanted to, and then go back with him at 3.00 p.m. to catch the coach back to Catania. "Birds of a feather flock together" the saying goes. I discovered that he was an educationalist too, so we found a topic for conversation on the way.

It was about 9.00 a.m. and most of the insects were still resting at that height, but taking a short cut through a rough

* 257 Msida Street, B'Kara, Malta.

meadow I disturbed a couple of Owlflies, *Ascalaphus coccajus* D. & S. (Neuroptera: Ascalaphidae), which settled down again. As we walked on, I noticed more and more of this insect, still resting with wings held over the body like a roof and wrapped round the body below with the abdomen sticking up in a peculiar manner. It seems that this area was their favourite habitat, for when the day got warmer, I came across large numbers flying about with a characteristic rapidity and combination of whirring and gliding. I also noticed that they ascended vertically, and when tired, dropped parachute-like to settle with wings outspread on the vegetation; it is then that one can approach them, which is very difficult when they are on the wing owing to their rapid and zig-zag flight.

As my companion had said, the locality was a very good one, as nowhere had I come across 15 species of butterflies in so small an area. The most common species was *Melitea phoebe* D. & S. followed by *Cyaniris semiargus* Rott.; other species were *Zerynthia polyxena latevittata* Vrtý., rather worn for this time of the year, *P. icarus* Rott., *L. phlaeas* L., *G. alexis* Poda, *C. pamphilus* L., *P. megera australis* Vrtý., *P. aegeria sardoa* Vrtý., *V. cardui* L., *V. atalanta* L., *P. rapae* L. *E. ausonia romana* Pinckt, *A. damone*, *A. cardamines turritiferens* Vrtý. and *P. malvoides modestior* Vrtý.; *Arctia villica* L., *Lithostege duponcheli* Prout, *Chiasma clathrata* L. subsp. *aurata* Turati and a *Procris* sp. were also seen. It was in this area that I took for the first time, quite accidentally, a Snakefly, *Raphida notata* Fabr. (Neuroptera: Raphididae) when I netted a *M. phoebe* that was resting.

On the 29th, I stayed at Catania for a rest and at the same time visited my friends at the Instituto di Biologia Animale of Catania. On the 30th, I again took the coach to Mt. Etna and stopped at an altitude of 1,180m at a place called Mount St. Leo, and walked down to a height of 850m collecting on the way. Other species not taken on the 28th were: *P. machaon* L., *L. boeticus* L., *Lycenopsis argiolus* L., *C. rubi* L., and the colourful Arctiid *Hiporita jacobaeae* L. which was very common. On Sunday, 1st May, I collected on the outskirts of Belpasso at a height of 700-800m. Very few butterflies were on the wing, but I managed to take *I. podalirius* L., *Philotes baton* Bergstr. and *Adoepa lineola clara* Tutt. On May 2nd, I worked with another collector, Sig. Gino Gulli, whom I had met in the summer of 1976. On the outskirts of Belpasso 800m not far from the area I visited on the 28th April, I saw *I. podalirius* L., *Limenitis reducta* Stgr., *P. napi* L., and *L. lavatherae* Esp. The *Ascalaphus* were still on parade, chasing the myriads of mosquitoes which were infesting the atmosphere. I was so pleased because for the first time, I found several fully fed larvae of *E. ausonia* on *Isatis tinctoria*; these pupated while I was still in Sicily, and the butterflies emerged just a year later.

On the 3rd, I stayed at Catania, as I had to meet Mr. H. G. Allcard at the air port on his arrival from England to join

me for a week. On the 4th, he and I went to the hotel at Zafferana and collected at a height of 1,000m. *A. damone*, especially females were on the wing together with *L. sinapis*, *A. cardamines* and *G. alexis* among other species already mentioned.

On the 5th we drove down to Valle San Giacomo 350m. Here *C. pamphilus*, *P. icarus* and *A. agestis* were the most common species, but we also came across *P. napi* and *P. malvoides*. On Friday 6th we collected at 1,100m towards Mt. Etna, where *E. ausonia*, *C. rubi*, *C. crocea* and a single *A. damone* were seen. On the 7th we drove to Randazzo 765m on the west side of Mt. Etna, so we had to pass through Lingua-glossa, a rather long way along large plantations of hazel nuts. The locality is a very good one for *A. damone*, and in fact we saw it flying while we were still in the car. There also, we came across *I. podalirius*, *Heodes alciphron gordius* Sulzer and *V. cardui*, as well as most of the other species already seen in other localities. On the 8th, we did very little collecting, as the weather was not encouraging.

On the 9th we left early for Randazzo, where we stayed until 2.00 p.m. It was a really good day with no less than 25 species on the wing, including *Aporia crataegi* var., *augusta* Trti. *Pararge maera* L. (which I had not taken before), *M. phoebe*, *P. daplidice*, *P. machaon*, *Z. polyxena*, *I. podalirius*, *C. semiargus* and *Aglais urticae*. We again saw *A. coccaius* but both males and females were mostly of the white form. On the 10th, we drove to Nicolosi, 698m to the west of Zafferana: 14 species were seen, but nothing new; however, we noticed that the two arctiids, *A. villica* and *H. jacobaeae* were very common there.

Every evening after supper, while the waiters were still clearing the tables, we sampled the moths that came to the windows of the dining room. In this way, we collected the following: *Stauropus fagi* L., *Notodonta trepida* Esp. (*anceps* Goeze), *Agrotis nigricans* L., *Chloridea dipsacea* L., *Synthymia monogramma* Hübn., *Bafia illunaris* Hübn., *Phragmatobia fuliginosa* L., *Plusia chrysitis* L., *Hadena lutea* D. & S., *Xylomyges conspicillaris* L., *Grammodes stolidus* Feb., *Gnophos onustaria* H.Sch., *Eupithecia centaureata* D. & S., *E. venosata* Fab., *Anaitis plagiata* L., *Idaea seriata* Schrk., *Crocallis elinguaris* L., *Rhodostrophia vibicaria* Cl., *Metrocampa honoraria* D. & S., *Selenia lunaria* D. & S., *Aspitates ochrearia* Rossi., *Boarmia gemmaria* Brahm., *Epirrhoe rivata* Hübn. and *Itame spodiaria* Lefeb.

SPRING 1978

February and March in Malta were very mild and sunny, so much so that by the 20th February 16 out of the 19 species of butterflies found on the island were already on the wing, and the only hibernating species, *G. cleopatra*, was seen laying in my garden on its favourite, *Rhamnus alaternus*. Later, a collector friend told me that Sicily was also enjoying this glorious weather, and that on the 26th March *A. cardamines*,

A. damone, *E. ausonia* and *Z. polyxena* were already flying. Unfortunately, April proved to be otherwise. For more than three weeks, the central Mediterranean was in a continuous low pressure belt, with strong winds and overcast sky, and very cold for the time of year. Notwithstanding, I decided to go to Sicily for my annual trip there, and hoping for the best, took the boat, this time to Catania. In fact, the day was quite promising, with sun all the time and a calm sea for this seven hour crossing. I was delighted to see a tired migratory greenfinch join the group on board when out at sea, and a bit later, another bird crossed the deck, but this one seemed fit enough to make the trip unaided. I was earlier joined by an English entomologist friend, Dr. P. Willcox, and just after 7p.m. continental time, we entered the port of Catania, where we drove straight to the hotel at Zafferana, ready for a good supper and a night's rest.

On the 27th, a clear day, but with some gusts of wind, we tried our luck and collected up to 900m on the slope above the hotel. The first butterfly we saw was *G. cleopatra*, followed by an *E. ausonia* and a couple of *C. pamphilus*. We went to a sheltered lane and disturbed several *Z. polyxena*. As the day warmed up, the wind became stronger and no butterflies dared to fly, so we went back to the hotel.

Friday 28th, an exceptionally fine day, sunny and warm, and no breeze; we tried a higher place up to 1,100m. Here *Z. polyxena* was flying in the shade of almond trees, and *A. cardamines* of both sexes flew from flower to flower. The lycaenids, *P. icarus*, *A. agestis* and *L. phlaeas* were quite common. On our way back, we saw *A. damone* laying on *Isatis tinctoria*, its favourite plant.

After breakfast on the 29th my friend Sig. S. Distefano called at the hotel and drove us to the Monti Peloritani in the province of Messina. We went through Linguaglossa, Castiglione di Sicila, Francavilla di Sicilia, crossed the River Alcantra several times and collected at different heights from 310m, 480m to 1,105m, always keeping by the road V.V. No. 185. The mountains were a mass of trees, mostly pines, "Oasi di Pini". The commonest butterfly was *P. napi*, mostly males, and without the black discoidal spot showing. *I. podalirius* was seen several times, but was difficult to take; also on the wing were *A. damone*, *A. cardamines*, *Z. polyxena* and *P. aegeria*. It has been said that *A. damone* is only found on the slopes of Mt. Etna in Sicily, so that the appearance of this species so many kilometres away in a different province indicated that it may have extended its range. By 2.00 p.m. we reached Novara di Sicilia, a small picturesque town. There was not a soul in the streets, but hundreds of swallows were seeing to their nests. We managed to find a small restaurant there where we had lunch and a rest while sipping the local wine. On the way to Messina, we saw *G. cleopatra*, *C. crocea*, and its var. *helice*, also several *V. cardui*. Again we stopped at a small town, San Biagio, and went to a bar to have a cup of coffee. The lady who

served us told us that the people in that locality were still sleeping outside, after the earthquake tremors they had recently experienced; and that 52 bottles of spirits were shaken down from the shelves in her bar when they had the first shaking. Arriving at Messina, we took the autostrada to Taormina and then to Giarre, when, to our surprise, we noted that Etna was in eruption again, through a new opening 2,950m above. As it was getting dark, we could see some large flames coming out, and two streams of red lava flowing down the Valle del Bove. This eruption kept increasing, and up to the 3rd, whilst we were still at Zafferana, we could hear rumbles now and again, and every morning we walked on black sand as we came out from the hotel.

On Sunday the 30th, owing to the eruption, there was too much traffic on the road to Etna, so we stayed close to the hotel and collected at some 900 metres in different enclosures, wherever wild flowers were blooming. Again *Z. polyxena* was seen flying very near to the ground; an additional species turned out to be *L. argiolus*. Monday the 1st of May was a public holiday — as elsewhere, it is customary for families to go out for the day. The roads were packed with all sorts of vehicles, and it took us four hours in a Land Rover from Zafferana to Necropoli di Pantalica in the province of Syracuse. We tried to collect at a height of 425m at a place called “Il Palazzo del Principe” where the vegetation was mostly *Asphodelus fistulosus*, *A. lutea*, *Ornithogalum nutans* and a variety of vetches and thistles. Hardly had we arrived at this locality when the sky became overcast, and a sudden shower made us return to our car. Later, we disturbed a few *C. pamphilus*, *L. phlaeas* and *P. icarus*, also one *C. crocea*. The only two moths were *N. noctuella* and *A. efformata*. The return journey was quicker as we drove along an old road, but the bumping was awful in places owing to potholes which could not be avoided in the dark.

Tuesday the 2nd was rather windy day with some thick clouds. We drove to a favourite spot some 42km away towards Adrano, 560m on the west coast of Etna, and in a sheltered lane full of wild flowers, we came across *A. damone*, *E. ausonia*, *P. rapae* and *P. brassicae*, *A. agestis* and *A. cardamines*. As it became colder the wind grew stronger, we drove back to the hotel. In the past we had taken some 15 species from this locality, including *A. crataegi*, *G. cleopatra*, *I. podalirius*, *P. manni* and other blues, but this time we could only find six species.

The 3rd was a very hot day. We collected in a small wood at a height of 700m close to the hotel as we had to leave that afternoon to return to Catania. Still, we took a couple of *A. damone* and two very tiny specimens of *A. cardamines*, and saw *Inachis io* L. We spent the 4th visiting some interesting places in Catania and at the Institute, and left the following day at noon, reaching Malta at 11.00 p.m. after a long stop at Syracuse.

Our thanks are due to Sig. S. Distefano and to his cousin Franco, who were very helpful companions, and to the Director of the institute for providing transport when it was required.

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PRACTICAL HINTS — OCTOBER AND NOVEMBER

In October, pupae of the Red-necked Footman (*Atolmis rubricollis* L.) occur in great abundance on the Scilly Isles in flimsy silken cocoons under the bark of old pines and cypresses; towards the end of the month some larvae are still around (GOATER).

Imagines of the very variable *Nycteola revayana* Scop. may be beaten out of thick cover — Yew, Spruce, Ivy or dead oak branches — in oak woods throughout the winter, November and December being my favourite months. If the weather is warm they may fly a short distance and a companion may be helpful. (To quote Fassnidge "A wife is useful because you can curse her if she misses them".) If it is cold they either sit on the tray or, in very cold weather, drop straight into it (A. RICHARDSON).

November is a good time to find larvae of *Aethes smeathmanniana* F. in the dead seed-heads of *Achillea millefolium* (Yarrow) growing on roadside verges, rough grassland, the borders of fields, etc. The larvae live in a silk tube the outline of which is usually quite easy to see. Put collected material in a flower-pot, cover securely with fine netting such as an old nylon stocking and leave out of doors throughout the winter. Examine periodically for the presence of spiders. Bring indoors in the second half of May and moths should appear from the first week in June onwards (W. A. C. CARTER).

In early November and late October, mines of most of the *Phyllonorycter* species may be gathered on a variety of foodplants. The leaves are best kept out of doors all winter, but some species which pass the winter as larvae within the mine, are particularly prone to drying out and to mechanical damage such as leaf folding. For this reason, I find that if the leaves are placed within plastic cups to give physical protection, and these latter are tied into stockings so that they may be hung in the garden or outhouse, high success rates are achieved with all species. The leaves may be brought in at any time after the New Year to give one something to do at a time when little else is on the wing (WATKINSON).

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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by J. M. CHALMERS-HUNT, F.R.E.S.

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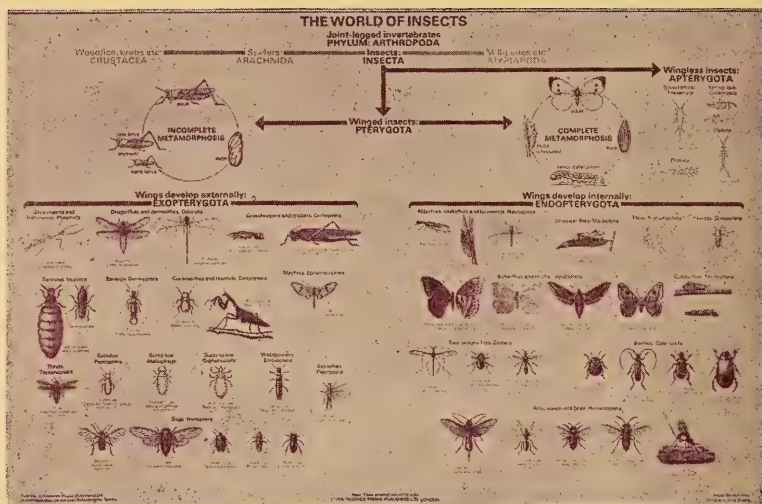
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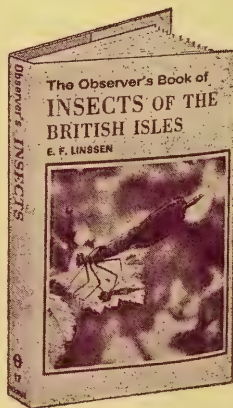
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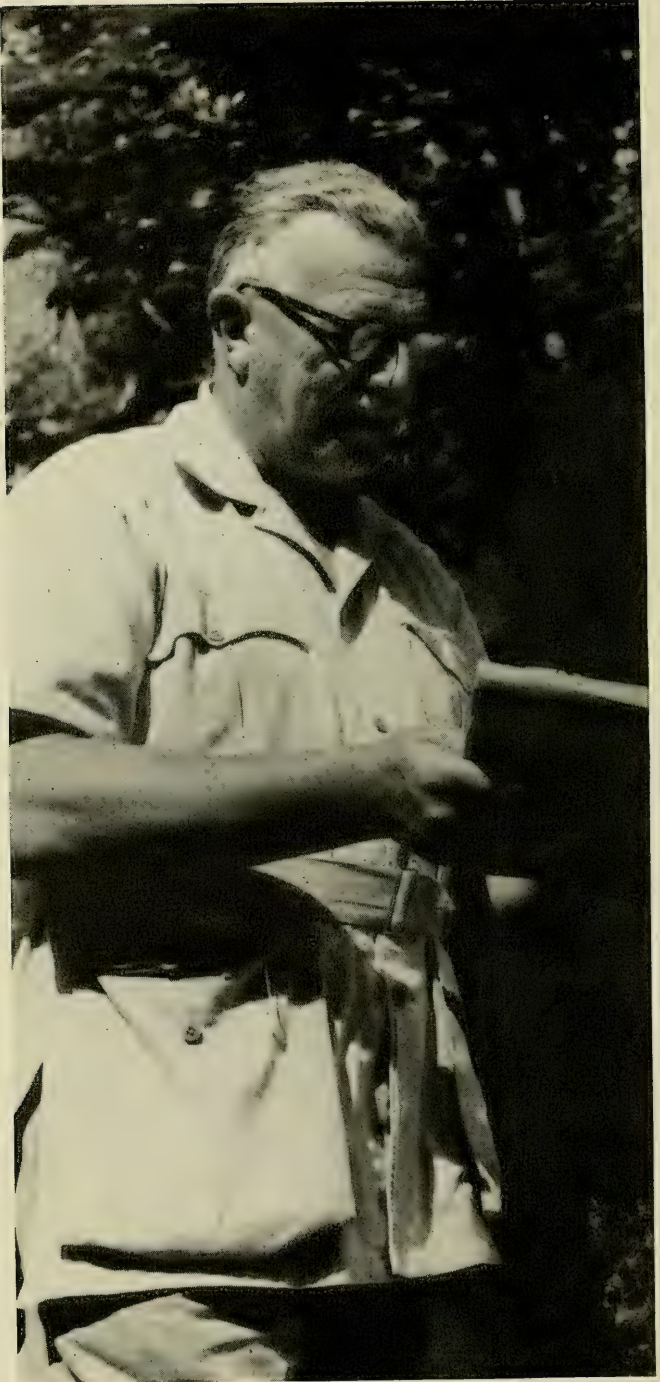
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Dr. H. B. D. Kettlewell

OBITUARY

Dr. Henry Bernard Davis Kettlewell (1907-1979),

M.A., D.Sc. (Oxon), M.B., B.Chir. (Cantab), M.R.C.S., L.R.C.P. Darwin Medal U.S.S.R. 1959. Mendel Medal 1965. Fellow of Iffley College, Oxford, 1965-1966. Fellow of Wolfson College, Oxford, 1966-1974 (Emeritus, 1974-1979). Research Officer, Department of Zoology, University of Oxford, 1959-1974. An Assistant Editor, *Entomologist's Record*, 1972-1979.

By SIR CYRIL A. CLARKE *

Bernard Kettlewell died at his home near Oxford on May 11th 1979, aged 72. He was a household name to everyone interested in natural history, and known to thousands of entomologists throughout the world for his research on industrial melanism.

Born in Birmingham, his interest in Lepidoptera began as a small child, but it was at Charterhouse that he was channelled into his future career. Being of an unruly nature, he was always trying to find ways of breaking bounds, and the Biology moth trap (at some distance from the school) provided an excellent excuse. Soon, however, the light attracted him as well as the moths, and he was off to a flying start.

He and I were exact contemporaries at Caius (1926- 1929) and because he was as wild as any of us at a party we only regarded him as mildly eccentric with his butterfly net, rucksack and bicycle — little did we realise that he already knew where he was going whereas we did not. Much later as his and my interests converged we saw increasingly more of each other, and our houses and gardens, with their cages and sleeves, bore strong similarities.

After Cambridge he qualified at Bart's and in 1935 went into general practice at Cranleigh. The next important event was his marriage in 1936 to Hazel, daughter of Sir Frank Wiltshire, the Town Clerk of Birmingham. They had one daughter who died young, and one son. David and Hazel survive him, and no account of Bernard is complete without recording how much he owed to his devoted Hazel. She not only helped him greatly in all his work but had to contend with more than the usual ups and downs of married life, living as she did with such a brilliant but volatile character.

Kettlewell will always be remembered as the "K" in the National (RCK) Collection, and he made a most important contribution by presenting to it his research collection of bred broods which beautifully demonstrated in many species the genetics of melanism. He showed some of the living moths at the Royal Society Conversazione in 1955 and many will remember their sensational escape and flutterings round the august chandeliers.

In 1946, saddened by the approach of the National Health Service, Bernard decided to forsake medicine and he emigrated with his family to South Africa to carry out research in locust

* Department of Genetics, University of Liverpool.

(We are grateful to Mr. Eric Bradford for preparing the photo of Dr. Kettlewell — EDITOR.)

control at Cape Town University. During his time there he amassed a superb collection of South African Lepidoptera (particularly moths) which he later presented to the British Museum.

In 1952 he returned to England, having been offered a Nuffield Research post in the genetics laboratories at Oxford University, working under E. B. Ford, and this was his base until retirement. During these years, in addition to innumerable field studies in this country, he lectured extensively in the U.S.A. and Canada and also visited Brazil. I personally recall his splendid one-man trip to Corsica in 1955 to bring back living *Papilio hospiton* for our hybrid studies with *machaon*. No problem then of "If only I'd come three weeks earlier" or "It was an exceptionally bad season" — back came the butterflies, efficiently despatched and all eventualities considered.

Bernard's fame rests on his explanation of the phenomenon of industrial melanism, and *Biston betularia* was the chief object of his study. In 1955 he proved by observation that there was superior viability of f. *carbonaria* in industrial areas, and that those moths which did not effectively match their backgrounds were in fact destroyed by birds. This was done in a series of painstaking experiments, in which he placed different forms of *betularia* on tree trunks in polluted and unpolluted areas. In 1958 there followed the *betularia* distribution paper, with the explanation of why *carbonaria* was not only high in industrial centres but also on the east coast, and the proof that *insularia* was the "melanic" of semi-industrial areas. In 1965 a follow-up of this great work was published — a 12-year survey which included 37,000 records of *betularia* made by over 80 observers from many different parts of the country.

He also showed that the frequencies of the different phenotypes of *betularia* were to some extent influenced by the background on which the moths rested — they shifted their position so as to make the best of the local cryptic advantages offered.

Bernard was also very interested in non-industrial melanism and, with R. J. Berry, did some superb research in the Shetland Isles on *Amathes glariosa*. Using the mark-release-recapture technique on populations exchanged between the north and south of the islands, he was able to show that the melanic form *edda* was protected in the north from bird predation, where it was camouflaged. More generally, he appreciated that melanism of this type might be "pre-adaptive" so that black forms were ready for the favourable conditions of the industrial revolution.

His life's work was brought together in "The Evolution of Melanism", published in 1973. It is a classic, with its splendid subtitle "The Study of a Recurring Necessity".

Another species with which he worked was *Panaxia dominula*, and he made an important survey of the insect in 1942-43, reported in the *Proceedings and Transactions of the*

South London Entomological and Natural History Society. At the time of his death he was investigating the effects of natural selection on an Italian x British strain of the yellow form of the moth, breeding happily in his garden.

Another example of the excellence of his field work was his discovery, with A. L. Goodson, that the Marsh Mallow (*Althaea officinalis*) was the foodplant of *Hydraecia hucherardi* Mab. This was published in 1955 in the *Entomologist's Gazette*.

He was also fascinated by the problem of the distribution of the Vapourers with their usually wingless females, and he was particularly intrigued by the Japanese species *Orgyia thyellina* with its alternating broods of winged and wingless females.

Bernard in some ways belonged to the last century, when field work by first-class amateur naturalists, some of them like him truants from medicine, built up the taxonomy of the Lepidoptera. He it was, however, who showed by his genetic studies how right these amateurs were. Bernard also belonged to this earlier generation because then people were not afraid to enter into full-blooded controversy (his outspoken answer to J. W. Heslop-Harrison on melanism is a good example of this) but there was never anything underhand or scheming in his attacks, he just said what he thought. In character he was touchy, argumentative and often maddening, but he could laugh at himself and was extremely good company. He had one particular edge on us all — everyone loved him.

H. B. D. Kettlewell, D.Sc., M.A., M.B., F.R.E.S., etc.

By R. F. DEMUTH *

I would like to write about Bernard Kettlewell who died so tragically this May. He was my oldest friend; we were contemporaries at Charterhouse, lived on adjoining staircases at Caius College, Cambridge and shared digs in Holland Park, London until he married Hazel. Subsequently when he had settled into his practice at Cranleigh, I was a frequent visitor and being myself then unmarried, relished the family life which he enjoyed with Hazel and their two young children.

Bernard never did things by half. Fast sports cars were driven at excessive speed. When looking for larvae with me, he would consider it a failure if he did not find twice the number that I did. Furious quarrels were provoked but any party was a success from the moment Bernard entered the room. I first came across him at a school natural history outing at Hydon Ball in Surrey in 1922. He had seen a moth on a tree trunk and it had flown off and I had caught it and he demanded its return and I had refused and we did not speak for a long time. However, while we were still school boys we had spent a holiday together in the New Forest. This gave me my first insight into his acumen which subsequently made him famous. We spent days beating for larvae and at last had

* Watercombe House, Oakridge, Stroud, Gloucestershire GL6 7PN.

taken an *Apatele alni* in its last but one instar when it mimics a bird dropping. Bernard at once asked "Why does it mimic a bird dropping?" "Because it sits exposed on the top surface of leaves". We proceeded to bend down the numerous saplings which grew along the edges of the rides (but which thanks to the Forestry Commission grow no more) and Bernard was right for on the upper leaves in full sun we must have collected a dozen *alni* larvae in both penultimate and final instars. That night we sugared in Hurst Hill and came across an old and well known collector, obviously annoyed because we had forestalled him on the best trees. "What have you boys been collecting?" "We have got a lot *alni* larvae." "You must be mistaken. I have collected in The Forest for twenty years and have never seen one yet." (*Alni* was then considered a great rarity.) Next morning we visited him in his digs. He was having breakfast. "Ah boys, what can I do for you?" "We have come to show you the *alni* larvae" and we wipped off the lid of the biscuit tin and spoilt his breakfast.

At Cambridge Bernards collecting instincts had full rein. As a medical student he was up during the summer months and he soon had most of the rareties of the Fens and Brecks. We drove madly from place to place in his open Alvis. At high speed the breaks would go on with a squeal. "What on earth is the matter?" "Plover nest!" The car would violently reverse and Bernard would get out and stride a surprisingly long way across an adjoining field, uneringly to the nest and returned with the eggs. They will do for *my* breakfast". The Brecks were his particular favourite. Sometimes he would return excited with tales of eagles seen (to Bernard all his buzzards were eagles and some actually might have been). This led to inevitable clashes with keepers. I have seen him abruptly orderd off but within five minutes he had so won the keepers heart that he was being invited "to take a look at a stone curlews nest with unusually speckled eggs".

In his maturity his collecting drive wained and he entered into the period of scientific research which was so much to his credit. I remember when *Hydraecia hucherardi* was first discovered, I joined a large party in Romney Marsh which included such good entomologists as Robin Mere. We spent four nights on it, littering the Marsh with m.v. traps and spending the evenings in local pubs. We caught two *hucherardi* and returned to London none the wiser. Bernard, alone, followed us a few days later and in three days had the foodplant, the best locality, the pupae, the perfect insect and (I think) fertile eggs.

While he was still a keen collector, Bernard had helped to form the R.C.K. Collection of British Lepidoptera. Cockayne, who was the driving force, had groomed Bernard as his heir but Bernard was unable to sustain his interest in the collection which now bore his name and with his family left England to live in South Africa, an action which rather naturally led to a breach with Cockayne which was never firmly mended. On

Cockayne's death, we, with others, became trustees of the Cockayne trust fund and failed to see eye to eye on how the income should be expended but the breach here we happily healed.

Bernard was a clever man with a vigorous personality. He taught well (my daughter was one of his Oxford pupils), lectured well and wrote well. His "Evolution of Melanism", in spite of its scientific content, is remarkably readable but his book on Darwin, jointly written with Julian Huxley, in spite of the popular appeal of the subject, falls flatter. He was also a good shot and was a frequent guest at fashionable shoots. Throughout his married life he was sustained by his splendid wife. After nearly sixty years I shall miss him, both the rough and the smooth!

IDEA VULPINARIA ATROSIGNARIA LEMPKE (LEAST CARPET IN STREATHAM.— To add to other recent records of this moth in the Greater London area, I collected an example which flew into a house on Tankerville Road, Streatham on the night of the 12th July 1979. As this species has been recorded as feeding quite happily on *Alyssum saxatile* L., a common garden plant, there would appear to be no limit on its spread through the whole of the south east of England, if not further. — E. GEOFFREY HANCOCK, Bolton Museum and Art Gallery, Le Mans Crescent, Bolton, Greater Manchester.

THE LARGE EMERALD (GEOMETRA PAPILIONARIA L.) IN SCOTLAND. — Whilst travelling down the West coast of Scotland, a single specimen of *Geometra papilionaria*, was collected at light on August 4th 1979 at Ardfarn, Craignish; grid reference NM 805044. Apparently this moth is described as not occurring in Scotland, according to Midwinter, H. J. (ed.) (1976) *Moths in Colour*, Blandford Press. The specimen, although badly damaged in transit has been retained.— DAVID C. HOCKIN, 3 Western Avenue, Ellon, Aberdeenshire. [This species has long been known to inhabit Scotland, and moreover has been recorded from there over a wide area. — EDITOR.]

EUPITHECIA MILLEFOLIATA ROSSL. IN S.E. LONDON. — On the night of 4th July 1976 I took a large and conspicuous 'pug' at my m.v. lamp here, which was unknown to me. When shown recently to my friend Mr. J. M. Chalmers-Hunt, he at once recognized it as the above species, and was surprised on learning the locality. Dr. de Worms was with him at the time and agreed with his determination.

This appears to be the first capture in the London area of *E. millefoliata*, which I am told is hitherto recorded only from some of the more maritime parts of Kent, Sussex and Hants. Like certain other insects taken here during that phenomenally hot and dry spell in 1976, my specimen may have migrated from a considerable distance; but whether it represents a true extension of range inland from the known breeding-centres can only be decided by future experience. — A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Legal protection for the Essex Emerald Moth, *Thetidia smaragdaria* (Fabricius)

By ALAN STUBBS * and JOHN RUDGE *

On March 26th 1979, the Secretary of State for the Environment issued an order which adds the Essex Emerald moth to Schedule 1 of The Conservation of Wild Creatures and Wild Plants Act, 1975. This action was taken on the advice of the Nature Conservancy Council, and after formal consultation by the Department of the Environment with two national entomological societies and Essex Naturalists' Trust.

During September and October 1978 the NCC gave a contract for a full time survey of all known historic sites for the moth in Essex. An inspection has also been made of additional sites where the foodplant, sea wormwood (*Artemisia maritima*) is well established and considerable adjacent sections of the coastline checked. This survey has revealed only a single scarcely viable site containing the species, centred on a total of about 5 square metres of foodplant with an estimated autumn population of 100 larvae. Search of an adjacent area of foodplant at this site revealed only two further larvae. An exact count has not been attempted for fear of causing undue disturbance but there is not the slightest doubt that in terms of adult population levels this moth is in a very precarious position.

Consideration has also been given to the possible occurrence of the moth beyond the Essex county boundary. Results of field investigation have been negative and it is therefore necessary to act upon the known status of the moth in Essex.

The Essex Emerald has seemingly always been highly localised and is an exceptionally vulnerable species. Sea wormwood is widely distributed on the Essex coast, but generally as a diffuse scattering of plants, rarely occurring in significant stands. The plant has a narrow zone of occurrence relative to the tide line and the moth may be even more fussy in its requirements since the species is absent even from localities with large quantities of available foodplant.

One of the causes for the decline of the moth has been man's destruction of the habitat, in particular the sea walls constructed after the 1953 floods are believed to have obliterated much of the sea wormwood in Essex. With smaller sites, the trampling and grazing by domestic stock has mutilated and possibly destroyed sea wormwood in some of the localities where this farming activity is prevalent. Some sites have been subject to development for various land uses.

Restriction of the habitat has in consequence made the moth vulnerable to the collector. The larvae are easy to find once the technique is learnt and on sites with only a little foodplant it is possible for the diligent entomologist to find a high percentage of the population. A small site cannot possibly

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

withstand collecting year after year by an unrestricted number of entomologists. It is known that numbers of larvae have been removed from certain sites and it is suspiciously more than coincidence that the insect is now absent from all except one site where it is on the brink of extinction.

The 1975 Act prohibits the taking of the Essex Emerald at any stage in its life cycle and carries the maximum fine of £200 for possession of each egg, larva, pupa or imago. The selling, barter or exchange of specimens carries similar penalties. There is provision for NCC to issue licenses for approved purposes. These terms are identical with those applying to the Large Blue.

It is not without the deepest consideration that the Nature Conservancy Council has advised the use of legislation to protect this species. The move will be seen by some as an entirely negative action which has little meaning to anyone to whom the risk of a fine is no deterrent. Further, this may be seen as a step down the slippery slope leading to the total prohibition of insect collecting. It is hoped, however, that any fair minded person who considers the facts set out above would reach exactly the same conclusion as NCC — that is would be irresponsible not to take every action possible to reduce the chances that the narrow motives of a few people might deprive future generations of entomologists of the opportunity of seeing this fine insect.

The salvation of the insect requires positive action. The survey itself was a positive move. A major publicity drive has been undertaken to recruit Essex naturalists to survey all poorly known sections of coast to see if further good stands of sea wormwood are available. Measures are being undertaken which should help build up the population level of the moth to a point where stock may be transferred to other sites. The aim must be to get the species out of its critically endangered status and into a safe category.

Let it be admitted at this stage that there are substantial difficulties to be faced, but if failure comes it will be through not having realised the critical status of the moth soon enough and perhaps not having brought the species onto the Act earlier. With a larger population or with several extant localities, one could have considerably increased the chances of success with a conservation management programme.

The present policy of the Nature Conservancy Council is to avoid as far as possible the addition of insects to protective legislation. It is accepted that collecting has to remain a necessary activity in many branches of entomology and, even where in strict terms it is not necessary to take specimens, the motivation towards fieldwork often entails some collecting of reference material. The conservation movement needs recording to be encouraged rather than stifled.

However, entomologists themselves need conservation if they and future generations are to be able to gain the pleasure of seeing our rarer insects. Times are changing fast because

the amount of 'wild' land is decreasing fast, and this puts a great onus of responsibility on all entomologists to show restraint in collecting where their actions may endanger the survival of localised populations of species.

The choice is ultimately yours. Please learn from the Essex Emerald story, where the quiet assumptions that the moth would be wherever there is foodplant and just another collecting visit would do no harm have proven unfounded. The ultimate question is not so much about rarity as vulnerability to efficient collecting. No one wants the cumbersome force of law to be used and indeed it need not be if responsible attitudes to collecting prevail. It is accepted that the major need is for habitat conservation but in a few cases there will be additional considerations. The last thing that the entomological community needs is to be accused, let alone proven, to have caused the extinction of an insect by collecting.

In advising that the Essex Emerald should be added to the 1975 Act, the Nature Conservancy Council is saying in the loudest possible voice that this species cannot withstand *any* further collecting whilst its population level remains so low. Should anyone discover further populations of this moth, it is hoped they will advise NCC so that measures to safeguard the habitat can be instigated.

A STRIKING FORM OF DRYMONIA DODONAEA D. & S. (TRIMACULA ESP.). — On May 28th and June 4th 1979 I had examples of a distinctly melanic form of the Marbled Brown in my m.v. trap here at Horsell, Surrey. This form of this variable species first visited me in 1954, since when I have recorded ten other specimens here and single ones on Chobham Common and in my sister's garden at Virginia Water. I originally showed this form to the late Dr. E. A. Cockayne and have given specimens to the National Collection, but the insects have never been described. However, the recent publication of volume ix of the *Moths and Butterflies of Great Britain and Ireland* depicts this variety on plate 3, figure 33. Though not nearly so dark as f. *purpurescens* Cockayne, the chief feature of this form is the deep brown thorax and abdomen, together with the black half of the forewing adjoining the body and the pale grey or, in extreme instances almost white outer portion of the forewing, which might well earn it the name of *bicolor*. So far I have not heard of any other examples being recorded outside this immediate area in Surrey so that it would be of interest to learn if it has appeared elsewhere or even abroad. — C. G. M. DE WORMS, Three Oaks, Horsell, Woking, Surrey.

RHYACIA SIMULANS HUFNAGEL: DOTTED RUSTIC IN HUNTINGDONSHIRE. — A worn specimen of this local species came to my kitchen light here at St. Neots early on the night of 27th August 1979. I understand this is the first record of this species for the old county of Huntingdon. — R. E. SCOTT, 5 Beech Grove, St. Neots, Cambs.

Memoirs of an Aurelian

By NIGEL WYKES *

(Concluded from page 233)

To strike a more cheerful note, I turn now to two species which, when the chance offered (and would still offer), provided a most welcome treat on the rare occasions when scholastic duties did not keep me chained to the classroom. For the Wood White and the Duke of Burgundy were both to be found within reasonable distance, and the only doubt was if the weather would match the opportunity. Between the Wars the Wood White was not uncommon in lightly wooded areas on either side of the Surrey-Sussex border, flying slowly and gracefully along paths and damp wayside verges and appearing in the last stages of exhaustion, though this impression was deceptive, since, in the large and often thinly populated districts where it occurs, it often has to fly great distances before it meets its mate. One year I caught a Spring Female which layed a number of eggs on the Meadow Pea (*Lathyrus pratensis*) and bred a few of the Summer brood. I note that Frohawk gives the Tuberous Pea (*Orobis tuberosus*) as the usual foodplant, but this can hardly be the case, since it is an extremely rare plant in Britain found only in one locality. In recent years the Pea family has engaged the attention of the botanists, and now seems all to come under the genus *Lathyrus* (unless they have lately decided otherwise), but the Wood White will almost certainly accept any member of the family for breeding purposes. The other butterfly mentioned as a possible quarry on a spare half-holiday, namely the Duke of Burgundy, is apt to be found in much the same type of habitat as the Wood White, but is more difficult to collect. The sombre colouring of the upperside makes its short rapid flight almost impossible to follow, and the variegated pattern of the underside provides a most effective camouflage when it is at rest. For these reasons the species may well be established in many places where it is seldom reported, but inevitably it has to move its quarters when the light woodland grows up and chokes the Primrose and Cowslip on which the larva feeds. Personally I have not been able to make any reliable estimate of its distribution, but I would say that it may still be found in most large woodland areas of Southern Britain, certainly as far North as the Midlands. Here in Dorset it occurs today sporadically but not in large numbers within three miles of my house, but I seldom see it, perhaps because at my age bi-focal spectacles do not readily bridge the gap between close and more distant moving objects.

In addition to the two species mentioned above, there were others which could not be found in the Thames Valley but were available in numbers not far away. I can recall many happy hours on various heathlands where the Silver-studded Blue was common. First introduced to it while in O.T.C. camp at Aldershot. I noticed the tendency of the females towards the

* Uploders House, near Bridport, Dorset.

form known as 'sagittata', in which the marginal black and orange crescents of the hindwing are extended inwards; and many years later, much nearer home, I found what I had been looking for in the form of an ultra-radiata aberration as extreme as any that I have seen in British collections. Later I took a good series of the larger and more brilliant chalk race in some Kentish woods where there was a small clearing which, I imagine, was once part of the Downs; but unfortunately was never able to penetrate as far as North Wales for the var. *caernensis*, and searched the Northern Mosses in vain for the apparently extinct var. *masseyi*. But the Silver-studded Blue is still common in many places, and I was pleased to see a thriving colony in East Dorset last summer while in search of a glimpse of the Dartford Warbler. Quite close to the same area the Lulworth Skipper is still locally plentiful, though I have not looked for it since the day when it swarmed on the precipitous slopes of Corfe Castle; but I expect there are a good many places between Bridport and Swanage where it may be found. While on the subject of Skippers, it seems that the Silver-spotted has recently been on the decrease, and I suspect that this may be due to some extent to the reduction in the Rabbit population, which kept the grass down to the level that this Skipper seems to prefer. I first came across it at Royston in 1925, shortly after the Coridon Gold Rush had ended, and there was no longer a hungry dealer hovering round every large clump of Horseshoe Vetch. There were plenty of Skippers there then in late August, and it is still widely distributed over the chalk Downs, though curiously absent from many suitable localities. I wish I could say the same about the Adonis Blue which, surely one of the most brilliant of the European Lycaenidae, has disappeared from many places where it used to be common. Fifty years ago it was abundant on a number of Downs to which I was occasionally able to pay a fleeting Spring visit in search of the 'ceronus' form of the female, which seemed to me brightest and most common in the Cotswolds. The second brood attracted many collectors, especially to the Kentish localities, where some remarkable aberrations, including most curious colour variations of the male uppersides, used to occur, though it was never my good fortune to find one. Here in Dorset it still persists locally in fair numbers in the East of the county, and I have seen the odd specimen at the extreme West end of the chalk plateau only two miles from my house. Let us hope that by careful conservation its decline will be arrested. Of the Holly Blue, on the other hand, I can report a most welcome regeneration, after a long period of inexplicable rarity; in fact, I had not seen it for at least ten years, but in 1976 a friend in this village told me, to my great surprise, that she had seen a blue butterfly in early April, and shortly afterwards I found quite a large number flying round our numerous Holly trees. In July I watched a female depositing on Ivy buds, and next year there were again plenty about. I only hope that the recent

very cold winter, which has brought severe and prolonged frost to Dorset, will not prove too much of a set-back. The Small Copper too has caused some anxiety over the past ten years, and my impression is that it is much less common than it used to be. In the past it was worth while to search for the aberration with no orange on the hindwing and for those with blue spots inside the orange hindwing border, but nowadays one hardly finds it in sufficient quantity. I only once found a striking aberration, a radiated form illustrated on Plate 3 of Baron de Worms' book on the butterflies of Wiltshire. Except for the Common Blue which is as abundant everywhere as it always was, and for the Chalkhill Blue which is discussed at length later, the only Lycaenid left for consideration is the Large Blue. Here, as almost everyone interested in butterflies will know, there is a sad story to tell, since it must be not far from extinction in Britain. Twenty-five years ago it was still comparatively plentiful in a few places along the North Devon coast, but several disastrous fires, probably much more damaging than excessive collecting, are said practically to have wiped it out, and attempts at recolonisation so far are not meeting with much success. Perhaps it still occurs in small numbers in the Cotswolds (where I took half a dozen of the large dark form in the 1930s), and apparently there is an inland Devon locality where it has a secure foothold. One would like to think that, now it is a protected species, it will be safe from further reduction, but personally I am doubtful, since there are almost certainly natural factors outside our control which threaten its survival. It is, of course, a curious insect, not only for its symbiosis with ants, but also for its odd habits of flight, which seem to be confined to short periods during the day, while at other times not a single specimen may be seen. But perhaps some encouragement may be taken from the fact that it has been known to shift its quarters from time to time and turn up in some new locality, not necessarily in the same neighbourhood, provided that there are anthills with Thyme growing over them, as it appears to have done, according to Edward Newman, in Gloucestershire, Devon, and even Northamptonshire in the mid-19th century. It would seem that all four European species of *Maculinea* are somewhat capricious and unpredictable in their distribution and appearance, and for this reason I would not presume to suggest that our own 'arion' is doomed for ever.

Another of our species which during my lifetime has behaved in an oddly irregular way is the Comma. A hundred years ago it was reported to occur in at least twenty-five counties of England and Wales, but by the time I started serious collecting it was hardly known outside the Wye Valley. I first came across it most unexpectedly while visiting a house in Bedfordshire whose owner, knowing something of butterflies, said that it regularly came to his Buddleias and might be there that July day. So I went to look and found two specimens. Ten years later it had spread across South England, and I remem-

ber particularly a day in the New Forest when we found some newly emerged males sunning themselves on the Bracken (as there was nothing else to sit on) and sparkling like jewels in their brilliant orange dress. It is still widely distributed today, though I fancy it is less common than it was, perhaps because extensive beds of Nettles are now so summarily dealt with by modern pesticides and weed-killers. This no doubt is also the reason for the reduction in numbers of other Nymphalines which have the same foodplant; and I found another similar example two years ago, when a fine brood of Painted Lady larvae was wiped out by a farmer who, reasonably enough, was trying to eradicate Spear-plume Thistles from his land.

No mention has yet been made in this paper of our Satyrids, and, to tell the truth, they have never interested me greatly. But I have a few memories which may rouse the reader to a feeling of protest at my indifference. The Northern species were normally outside my range, though I spent two days climbing up and down the Langdale Pikes in incessant rain (naturally seeing no sign of the Mountain Ringlet), and by the time I went to live in Cumberland for six years I had given up collecting. However, I had better luck with the Scotch Argus, visiting its Westmorland locality early one August and finding it in abundance and newly emerged. Otherwise my experience has been confined to the Southern species, all of which have not been difficult to obtain. There were successful searches for the 'blind' variety of the Ringlet, and a short time ago I was walking down a Dorset lane and saw an extreme specimen of the very rare *ab. lanceolata* sitting on a Bramble flower; but, as I had no net with me it flew away perhaps to be parent to other such freaks of nature. In this part of Dorset the Marbled White is often the commonest butterfly in July both on the Downs and, to my surprise, in woodland clearings; but I have never seen the faintest semblance of variation in any of its localities, even when it has occurred in vast numbers. I always used to find pleasure in watching the Grayling, both the chalk and the heath races, and would have liked to go in search of the special Northern forms. The Gatekeeper is often abundant flying along the high hedges which flank our lanes and swarms in our woodlands, but I have only rarely seen a specimen with extra spots on the forewing, which are a regular feature in some places in Devon. The Speckled Wood is found everywhere in the West country, even in my garden, and usually is on the wing throughout the season in successive broods; but the Small Heath is apparently not so ubiquitous as it used to be, but it is such an inconspicuous insect that one often does not even notice it.

I have left to the last in this paper my experiences with three species that have made an indelible mark on my memory. The first is the Large Tortoiseshell. Though apparently common enough in many places last century, it became increasingly rare, and I did not see a single specimen until after the Second World War, though collections made before about 1910 had

drawers full of them. But in 1946 I heard that, perhaps because woodlands were often neglected during the War, quite a large number had been seen in the Suffolk woods, and, despite the appalling winter we had that year, I decided to make an attack on this elusive quarry. Not having a car. I bicycled to Slough station, took a train to London, rode on my two good wheels from Paddington to Liverpool Street, and set off for Suffolk. I had been given detailed instructions on how to find the woods, and find them I did with a carpet of the rather rare Oxlip in full flower — a sight worth the journey, even if no butterflies appeared. After only a brief search I saw a large ochreous-brown object fluttering round a tree-trunk and settling now and then to have a sun-bath, and it turned out to be a female Large Tortoiseshell with its body clearly bursting with eggs. This was a most fortunate chance, since the difficulty with these species that only pair after hibernation and then usually lay their eggs in one large cluster is to find a female at just the right moment. I put her in a pill-box, and spent the rest of the day pursuing some ten specimens (all males, I think) which had to be stalked cunningly when they settled on the warm ground; but none was worth collecting, as the rough winter had left them worn and chipped. On returning home the next day, having spent a night sleeping on a mattress *on top* of a bath (the only accommodation that the village could provide — an interesting but hardly comfortable experience), I constructed a large cylindrical cage of stout wire and covered it with muslin. The insect had been given several good feeds of sugar and water, and I put the cage over a clump of Elm suckers in my garden. Despite regular feeding she died after a fortnight apparently without laying. Accordingly the cage was removed, but a week or two later I was astounded and delighted to see a large family of newly hatched larvae on the top of a branch. The eggs had been laid in rings round the main stem concealed by the leaves and extremely difficult to see. The cage was put back at once, before any predators could get at them, and fed up quickly and without accident. When about the end of June they started leaving the web, they were removed to suitable cages indoors where there was sufficient roof-space for them to hang up for pupation. They began to emerge in mid-July, about eighty in all, of which I released a fair number in the hope that they would breed on the numerous old Elms (all now dead) in the Eton playing-fields. But nothing came of this experiment, and I never saw any of them again. None the less it was an exciting adventure and most satisfactory to have a large series of specimens, all perfect but not varying in the smallest detail.

The second species to engage my attention over some twenty years was the Purple Emperor. Realising the extreme unlikelihood of taking the imago in good condition (if indeed at all), I first tried beating for the larvae, but soon abandoned this method, since I found that they were not at all easy to dislodge except while moulting, and if disturbed during this

process they almost invariably died. So recourse was had to searching the Sallows in May — a long and difficult business — long, because one often examined dozens of bushes and trees without result, and difficult, because the larvae concealed themselves carefully by lying along the mid-rib of the leaf in such a way that their light green lateral lines exactly corresponded with the side-veins of the leaf. But with patience and practice I got better at the job, and recommend the following points to the collector who is prepared to try his hand and eye. First, I have found that the ova are normally laid at about eye-level on leaves near the outer edge of the bush and protected from hot sunshine and enemies by overhanging branches, and that the larvae, until almost full-fed, do not stray far from their hibernating position. Secondly, the best way to find them is to look for signs of feeding where the outer edges of the leaves are eaten away, sometimes with only the mid-rib left. Thirdly, the larva must never be disturbed, but, when they are located, the whole twig should be put into a collecting tin (not box) and later placed intact in the breeding cage. Further, when a fresh supply of food is needed, the leaf on which the larva is resting should be detached and tied on the new branch, so that it can move when it feels like it; it should never in any circumstances be pulled off its silken pad. For pupation the larva turns a light bluish-green and becomes restless, usually spinning itself on to the roof of the cage but sometimes on the back of a leaf, where it is very hard to see; in fact, I only once found a pupa in the wild. About twelve hours before emergence it begins to turn dark, and, if you wish to be present at the birth, you will be well-advised to get up at dawn to witness a fascinating and rewarding event. In the course of hundreds of hours spent searching Sallows, chiefly and most profitably in West Sussex, Oxfordshire, and Northants, I must have found at least fifty larvae, mostly singly but once eight on one bush, which emerged in the proportion of about three males to one female. On the wing I caught only two males and two females, none in perfect condition, and only possible by the use of a net on a fifteen-foot Bamboo, a very clumsy and usually ineffective contraption. Sometimes the imago may be taken settled on wet mud or muck or decomposing matter, but I was never fortunate enough to find one. But, if you are lucky enough to live near suitable woodlands, the insects may be attracted by almost anything that reflects the sun, such as a window or a greenhouse or even a tea-cup (as a friend of mine found last summer). In general, I think we may say that this royal and splendid insect has more than held its own against the threats of encroaching civilisation (so-called), and my impression is that it has become increasingly less rare than it was fifty years ago.

I come finally to the species which has attracted enormous numbers of collectors and has given endless pleasure in the search for aberrations. I refer, of course, to the Chalkhill Blue, which without question varies more than any other

species. As a harmless pastime during the latter part of July and through August there is everything to be said for it, since it does not materially affect the numbers of the butterflies; it does no damage to property, and it takes the collector to the most beautiful Downland in Southern England, carpeted (when not grazed, as alas, it often is nowadays) with a rich assortment of wild flowers such as Scabious, Clustered Bellflower, Pyramidal Orchis, Betony, Hawkbit, Salad Burnet, Thyme, Dwarf Thistle, and many others. The butterfly is widely distributed over such areas, provided that there are extensive mats of Horseshoe Vetch for the larvae to feed on; but, abundant though it often is, for some curious reason it is only in certain restricted localities that it is subject to more than very occasional and then only slight variation. Nobody can be sure why this should be so, and I can think of many places on the South Downs where in the huge colonies the individuals are virtually identical. But in the opinion of many experts, variation is associated with decadence (due perhaps to disease or interbreeding), and, when a colony, such as at Royston in the 1920s and the Downs behind Brighton ten years later, loses its virility and begins to decline, startling aberrations may appear. The subject is too large to be discussed in detail in this paper, and in any case it has already been dealt with in special monographs. But, when I say that I myself produced a series of illustrations running to 250 aberrations and had not then by any means come to the end of them, it clearly constitutes a vast field of inquiry. To give a rough outline of the range of variation, one may say that the male uppersides have been known to differ in colour from almost totally black, through various shades of green and blue, to a pale silvery bluish-white, and the undersides show marked difference of ground-colour from brown, grey, ochreous, to dead white, together with almost every combination of spots joined to form streaks of black, or alternately an absence of spots leading to the disappearance of all but the discoidal mark on both wings. The female uppersides are typically reddish-brown with faint orange lunules round the border, but they may be partly or almost wholly suffused with blue scales; and the undersides are subject to the same variations as in the males, except that the ground-colour is normally reddish-brown with white-ringed black spots and conspicuous orange border lunules. During some twenty-five years of exploration of most of the prolific colonies on the South Downs I did manage to find a number of striking aberrations (a few of them unique), most of which are now at South Kensington, but, in order to achieve this modest result, I must have examined hundreds of thousands of specimens. There can be no question that certain forms of aberration have been principally, if not exclusively, confined to particular localities; for instance, the most wholly melanic form of the male (ab. *pulla*), in which not only all the upper wings, including the fringes, are a dark smoky grey, but also the body, legs, and antennae, was only taken (and then

sparingly) at Shoreham and (very rarely) at Folkestone and in one place on the Salisbury Downs. The other wholly or partly black male form (ab. *melaina*), resulting from the inward extension of the typical black border, was never found, as far as I know, except at Shoreham. Again, the form of the male in which the black outer border is replaced by white (ab. *fowleri*) was first found near Swanage, and is still seen not uncommonly in Dorset, but hardly anywhere else. Similarly, in the female the uppersides in which the blue scales extend from the base to the apex of the cell (ab. *semi-syngrapha*) was practically confined to Royston, and the completely blue form (ab. *syngrapha*) has rarely been taken outside the Wiltshire Downs, one locality in Gloucestershire, and one in the Chilterns. On the other hand the aberrations of the underside in both sexes, common enough almost everywhere in their minor forms such as *arcuata*, *costajuncta*, *basi-juncta*, etc., are exceedingly rare in their extreme forms such as *radiata*, *sagittata*, *digitata*, *striata*, *extrema*, and *alba-caeca*, but they very occasionally turn up in almost any locality which supports a large population and tends towards variation. At the present day many of the colonies formerly well-known for their aberrations have disappeared either under the plough (especially the troughs between the slopes, where the butterflies used to congregate in vast numbers to feed on the flowers or roost for the night), or through grazing and the use of pesticides and fertilisers, or through the decrease of rabbits which prevented the long grass from choking out the Horeshoe Vetch, or through the encroachment of buildings right up to, or even on, the Downs. But it would be idle to maintain that the species is seriously threatened, since there are still many thriving colonies to be seen (among them one not a mile from my house), and one may still watch the males dancing in their hundreds round the flower-heads, and in the later afternoon marvel at the brilliant iridescence of their wings as they catch the last rays of the sun before settling down for the night. Perhaps we are lucky still to be able to enjoy such simple but rewarding pleasures, though for how much longer I would not dare to prophesy.

In this account I have tried to give some impression of what the study and pursuit of British butterflies may mean to an amateur in such spare time as may have been allowed over a period of some sixty years. During this time I amassed a substantial number of specimens, but in 1960, when I had to move to a smaller house in an unpromising locality with little prospect of adding anything but the occasional aberration, I thought it best to dispose of the entire collection and concentrate in future on recording my observations in the form of pictures. The purely scientific reproduction of insects set out like museum specimens did not satisfy my aesthetic sense; so I turned to the idea of depicting wild flowers with insects as far as possible in a natural setting. Since then I must have produced at least five hundred of such studies, but it is still

easy to walk along the Dorset lanes and grassland and heath, and bring back material for a picture. The small and simple subjects can be done in a couple of days, but the larger composite pieces showing several different wild flowers and insects (e.g. butterflies, moths, bees, dragonflies, etc.) often will need up to a fortnight's work. I shall go on doing this as long as my faculties and senses permit, and I look back with unfailing gratitude to the day when I first saw Frohawk occupied with the incomparable illustrations for his great work. Between us we have spanned more than a century of devotion to our British butterflies, and I do not think our time has been wasted.

DIGITIVALVA PERLEPIDELLA (STANTON) IN EAST KENT. — On the 19th May 1979 at St. Margarets, Kent I was delighted to find a larval mine of *D. perlepidella* (St.) on *Inula conyzae*. This very local species has been recorded from several new localities in recent years (e.g. *Ent. Record*, **88**: 212 and *Ent. Record* **90**: 125), but I think that it has not previously been recorded from East Kent. — J. ROCHE, 2 Longtye Drive, Chestfield, Whitstable, Kent.

A CORRECTION. — This Volume 91, p. 126, line 17 from top, read: He (Dr. Jeremy Holloway) has recorded no less than almost 100 species, not "almost 200 species" as stated. — C. G. M. DE WORMS.

GLYPHIPTERYX LATHAMELLA FLETCHER IN KENT. — On July 7th 1979, in Faggs Wood, Orlestone Forest, Kent, I swept from among mixed low herbage at the edge of a ride, a specimen in fair condition of this beautiful moth. I am indebted to Dr. J. D. Bradley for kindly confirming the identification. — N. F. HEAL, 'Fosters', Detling Hill, near Maidstone, Kent. [I am unaware of any previous record for Kent of this local and scarce species. — J.M.C-H.]

THE GOLDEN TWIN-SPOT: CHRYSODEIXIS CHALCITES (ESPER) IN ESSEX. — On the night of 6th/7th October 1979, I had a specimen of this rare immigrant here in my light trap. It is a female in far from fresh condition, and has laid 24 eggs, a few on the leaves of a tomato plant but mostly on the plastic cover of the container. — A. J. DEWICK, Curry Farm, Bradwell-on-Sea, Essex.

CHRYSODEIXIS CHALCITES (ESPER) IN SOUTH GLAMORGAN. — On the 8th October 1979, I took a single female specimen of this exceedingly rare moth in my M.V. trap located in my garden. The moth was kept alive in a breeding cage for a day during which time it deposited approximately 120 eggs. Owing to the fact that little information is evidently available on this species, I would describe the ovum as pale green, inclining to white, and shiny in appearance. It is dome-shaped with ribs radiating from the micropyle at the top down to the base, and reticulated. The ova were laid singly around the cage. — D. R. STEPHENSON, "The Haven", St. Mary Church, Cowbridge, South Glamorgan, South Wales.

Further Observations on the Species of *Utetheisa* Hübner (Lep.: Arctiidae) in the Western and Central Pacific with the Description of a new Species from Niue Island

By GADEN S. ROBINSON¹ and HUGH S. ROBINSON²

Introduction

In two previous papers (Robinson, 1971; Robinson & Robinson, 1974) we reviewed the distribution and biology of the species of *Utetheisa* inhabiting the western Pacific: we paid particular attention to those species found in Fiji and the New Hebrides and illustrated the adults and larvae of all the species then known to us. Since our earlier notes were published, many more specimens of *Utetheisa* have been made available to us and we have carried out further field-work. We are thus able here to amplify our observations on the distribution of Pacific *Utetheisa* and to describe a new species from the central Pacific.

There are now five species of *Utetheisa* known from the western and central Pacific. Two species, *U. lotrix stigmata* Rothschild and *U. pulchelloides marshallorum* Rothschild, are widespread. Larvae of the former feed on species of Papilionaceae, and those of the latter on Boraginaceae, notably *Messerschmidia argentea* (Linn. f.) Johnston. The remaining three species, *salomonis* Rothschild, *clareae* Robinson and *maddisoni* sp. n. (described below), are of more limited distribution and their larvae feed also on *Messerschmidia*. A sixth species, *U. pulchelloides vaga* Jordan, is an occasional migrant to the Pacific islands (Robinson & Robinson, 1974; Holloway, 1977).

The specimens described here were in or have now been placed in the collection of the British Museum (Natural History), London ('BMNH') unless stated otherwise.

We are most grateful to Mr. J. S. Dugdale, Dr. H. Grossmann, Mrs. K. Maddison, Dr. P. A. Maddison, Mr. M. E. H. Vickers, Dr. P. Viette and Mr. K. A. J. Wise for the loan or donation of specimens.

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PLATE IX

Figs. 1-12, 15, 16. *Utetheisa pulchelloides marshallorum* Rothschild. (1) ♀, Tonga, Tongatapu. (2) ♀, Tokelau Is., Atafu. (3) ♂, Tuvalu, Funafuti. (4) ♂, Marshall Is., LECTOTYPE. (5) ♀, Marshall Is., PARALECTOTYPE. (6) ♀, Cook Is., Aitutaki. (7) ♀, Cook Is., Rarotonga. (8) ♂, Cook Is., Mitiaro. (9) ♂, Caroline I. (10) ♂, Caroline I. (11) ♀, Tuamotu Arch., Napuka. (12) ♂, Henderson I. (15) Larva, Caroline I., lateral view. (16) Larva, Caroline I., dorsal view.

Fig. 13. *Utetheisa salomonis* Rothschild, ♂, New Hebrides, Efate. Figs. 14, 17, 18. *Utetheisa maddisoni* sp. n. (14) ♂, Niue I., HOLOTYPE. (17) Larva, Niue I., PARATYPE, lateral view. (18) Larva, Niue I., PARATYPE, dorsal view.



Key to the males of Pacific Utetheisa species

- 1 Antennal segments cylindrical *lotrix stigmata* Rothschild
- Antennal segments dentate or with short pectinations 2
- 2 Hind wing without line of yellow scent-scales in anal fold *salomonis* Rothschild
- Hind wing with line of yellow scent-scales in anal fold 3
- 3 Fore wing heavily marked with black; vertex with red scales but no black spot (Niue I. only) *maddisoni* sp. n.
- Forewing lightly marked with black; vertex lacking red scales and either with or without black spot 4
- 4 Hind wing with broad black band; antennal segments pectinate; posterior margin of valve straight; one group of vesical cornuti *clareae* Robinson
- Hind wing with narrow black band; antennal segments shallowly dentate; posterior margin of valve concave; two groups of vesical cornuti *pulchelloides* subsp. 5
- 5 Distal markings of antennal segments angled at 140°; maximum width of segments twice (or less) width of segment base [migrant — specimens often faded] *pulchelloides vaga* Jordan
- Distal margin of antennal segments straight; maximum width of segments more than twice width of segment base [resident species] *pulchelloides marshallorum* Rothschild

Distribution**Solomon Is., New Hebrides, New Caledonia, Loyalty Is.:**

Only two species of *Utetheisa* are found in this area, *salomonis* and *lotrix stigmata*. Both appear to be widespread, occurring wherever their foodplants occur. We have observed little variation in these species throughout their range. A typical example of *salomonis* is figured here (Plate IX, fig. 13): *stigmata* has been figured earlier (Robinson, 1971: pl. V, fig. 2; Robinson, 1975: pl. fig. 5). There is a single record of *U. pulchelloides vaga* from the New Hebrides (Robinson & Robinson, 1974); this specimen was a migrant from eastern Australia.

Norfolk Island:

Holloway (1977: 59, pl. 20, fig 1) has recorded *pulchelloides vaga* as a migrant to Norfolk I. from Australia and discussed it (1977: 142) as one of a number of vagrant species which regularly cross the Tasman Sea.

Fiji:

U. l. stigmata was recorded from the islands of Viti Levu, Vanua Levu, Yasawa, Nanuya Lailai and Vomo (Robinson, 1975: 104, pl. fig. 5) and is here recorded from Wakaya I. (1 ♂, 13-15.viii.1974, G. S. Robinson). It is a common species

wherever its foodplants (*Crotalaria*, *Desmodium* and *Vigna*) occur.

Substantial colonies of *marshallorum* are found on the south coast of Viti Levu at Singatoka. Our series of 35 specimens, collected or bred from *Messerschmidia*, contains several individuals which exhibit reduction of the black markings of the fore and hind wings. This variation is, however, very slight. We have also collected eight specimens from the Yasawa Group, north-west of Viti Levu. These specimens are indistinguishable from examples of the Viti Levu population (Robinson, 1975: pl. fig. 6) and two individuals show slight reduction of the fore and hind wing black pattern similar to that observed in some specimens from the Singatoka colonies.

Four specimens of *marshallorum* were collected near Savusavu, south Vanua Levu, in 1970 (Robinson, 1971: pl. V, fig. 3) but, despite assiduous searching each following year until 1975, no further specimens have been found at this locality. On the south coast of Vanua Levu *Messerschmidia* is monopolized by *U. clareae*. The *marshallorum* specimens were found flying around and ovipositing on *Heliotropium amplexicaule* Vahl (Boraginaceae) in a garden less than 100 metres from the beach and from colonies of *clareae* on *Messerschmidia* and we believe that *marshallorum* may have formed a temporary colony on the *Heliotropium*. *U. p. vaga* Jordan feeds on *Heliotropium* in Australia (Culvenor & Edgar, 1972) and Mr. D. Paul reported (*pers. comm.*) larvae (the description of which matched *marshallorum*) on *Heliotropium* on Viti Levu. The Vanua Levu specimens of *marshallorum* are all slightly worn but do not appear to differ from the Viti Levu population. It should be noted that *Heliotropium* is an introduction in the Pacific.

In August 1974 Mrs. K. Maddison collected five specimens of *marshallorum* from a colony on *Messerschmidia* on Yanutha I. (178° 00' E., 18° 23' S.), about 15 km off the south coast of Viti Levu. These specimens have a darker fore wing ground-colour than other Fijian *marshallorum*; the red markings are crimson rather than dark scarlet, and the black markings are more extensive.

U. clareae was described from the south coast of Vanua Levu where it forms colonies on *Messerschmidia* (Robinson, 1971, 1975). We have received two specimens from Dr. P. A. Maddison collected on Taveuni Island (south east of Vanua Levu) which are indistinguishable from examples from the Vanua Levu colonies (Robinson, 1971: pl. V, fig. 1; 1975: pl. fig. 4).

Western Samoa:

In 1972 H. S. Robinson was able to examine all specimens of *Utetheisa* in the collections of the W. Samoa Department of Agriculture. All were identified as *stigmata* and they were all from the island of Upolu. Despite both of us searching *Messerschmidia* on Upolu during visits in 1972 and 1974, we were unable to find *marshallorum* on this island. In 1974 G. S.

Robinson visited Savaii, the largest and westernmost island of the Samoa group and found a colony of *marshallorum* on *Messerschmidia* at Falelima on the south coast. The five specimens collected are similarly marked to those from Viti Levu, Fiji.

The locality of collection of the specimens recorded from Samoa by Tams (1935) is not known. The male is similar to specimens from the Falelima colony but the female is large and has reduced black markings.

American Samoa and Swain's Island:

U. p. marshallorum is recorded from Tutuila, American Samoa, by Comstock (1966) and we have examined one of his specimens. It is of identical pattern to specimens from Western Samoa and Fiji. Comstock (1966) recorded large and brightly marked specimens of *Utetheisa* from Swain's Island and *marshallorum* is recorded from this island as *U. idae* Clarke (Robinson & Robinson, 1974). We have seen two specimens of *marshallorum* from Swain's I. (BMNH — collected by Lister, c. 1910). These are larger and slightly more heavily marked than Samoan examples and resemble specimens from the Tokelau Islands. The male has a fore wing length of 17 mm and the female fore wing is 20 mm long. The large female from Samoa recorded by Tams (see above) has a wing length of 19 mm but none of the other specimens from Fiji, Samoa and Tonga (90 examples) have a fore wing length of over 18 mm. Swain's Island is nearly 300 km north of Samoa and slightly nearer to the Tokelau Group.

(To be continued)

A BRIEF NOTE ON THE HISTORY OF THE LEOPARD MOTH (*ZEUZERA PYRINA* L.) IN THE EASTBOURNE AREA.— In the publication *The Butterflies and Moths of Eastbourne*, Part 2 (1931), the late Robert Adkin refers to the only record of this species from the Eastbourne area, one taken in Upperton Road by Mr. S. A. Chartres, although no date is given. Later, in a supplement to the said volume, Adkin notes the capture of a male specimen upon the Parades on the seafront upon the 15th July 1932, and alluded to a number of specimens that Mr. Chartres took in the intervening years between the publication of the original volumes and the supplement in 1934, and suggested that the increasing number of records might be due to the increasing size of the Town.

In the present day context, the species although infrequent is now firmly established in the area. The writer took five specimens between 1976 and 1979 at a static Robinson Light Trap in the Town: 4.vii.76, 27.vii.78, and upon the 3rd, 4th and 5th of August 1979.

This species comes freely to Mercury Vapour lights and these may be responsible for the increased number of records for this species. Adkin was experimenting with the use of light as an attractant from the late 1930s onwards (*Entomologist*, 66: 123-129) and we can perhaps assume that other local collectors were conversant with this type of collecting. — M. HADLEY, 7 Beverington Close, Eastbourne.

The Early History of *Pancalia latreillella* Curtis, 1830 (Lep.: Cosmopteriginae) in Britain

By S. C. S. BROWN*

Meyrick (1928) wrote in respect of this species: "Locality of Curtis' example unrecorded, other records doubtful; C. and S. Europe; 5, 6". Curtis (1824-40), after describing the type in 1830, added: "I forget its locality". Stainton (1854) said: "A specimen is in Mr. Curtis's collection; and I have seen a few others". Later, Stainton (1859) stated that it had occurred at Lewes, Pembury, Epping, and near Edinburgh.

After the death of Curtis in 1862, his collection was purchased from his widow and went to Australia, where it is now housed in the National Museum of Victoria, Melbourne. Recently I wrote to the Curator of Insects, Dr. A. Neboiss, of the Entomology Department, and enquired if he could give me any information concerning *latreillella*. His reply was that there is one specimen, labelled the lectotype, in the Curtis collection. The Notebook entry is as follows: "18 June 1842 nr. Mickleham J. W. Douglas; June 1827 over " —"? Mountain, Ambleside J.C. and J.C.D." Curtis and Dale had visited Ambleside between the middle and the end of June 1827, especially to look for *Erebia epiphron*, which had been discovered there in 1810. Among the mountains visited was the "Red Skrees", and it is possible that the type of *latreillella* was taken there.

The record for Epping probably relates to the Doubleday collection, but owing to the fact that nearly all the specimens are entirely without data, this cannot be checked with any degree of satisfaction. The Douglas collection is now in the British Museum (Nat. Hist.). I enquired from Dr. Bradley whether any *latreillella* were there. His reply was that there are six specimens under this name, all labelled "Douglas Coll. (Mason 1906)". There is one doubtful record for Hayling Island, Hants., prior to 1900. In recent years the species has been found in some numbers in the Stroud district of Gloucestershire, and in Eire.

Acknowledgements

I wish to thank Dr. Neboiss of the National Museum of Victoria, Melbourne, and Dr. Bradley of the Commonwealth Institute of Entomology, London, for their assistance.

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Tenerife and Gomera, July 1978

By N. J. and A. C. DERRY *

(1) Tenerife

Tenerife is a small but, in parts, a very picturesque island, its outline being dominated by the towering pyramidal peak of Mount Teide (3,715 m). The Island supports areas of notable contrast, huge expanses of eastern, southern and western Tenerife being barren and entomologically unproductive, while much of the north and north-east has a more humid climate and so supports a comparatively diverse flora and fauna. Because of the dry atmosphere, the mountainous slopes of the central 'massif' are largely shrouded by pine woodland and relatively devoid of life; however, the northern slopes are more moist, affording a proliferation of understorey vegetation. The Island's biota has also been enriched by artificial influences such as the naturalization of plants and the provision of irrigation by which man has had a profound effect on the status of certain Lepidoptera, a good example being the recent colonisation by *Catopsilia florella* Fabricius of the environs of some of the major settlements in the north, north-east and south-west.

Based at Playa de las Americas in the south-west, the family spent an idyllic two weeks on Tenerife (July 19th to August 2nd). Having hired a Seat 133 for ten days, we urged it relentlessly along the web of roads covering the Island; however, it soon became apparent that large areas were entomologically destitute, the richest hunting grounds lying in the north (especially in the Orotava valley), the north-east, localized areas surrounding Pico de Teide, and the immediate neighbourhood of Playa de las Americas.

Below are brief accounts of observations made on the Rhopalocera encountered during our sojourn on Tenerife.

Pieris brassicae cheiranthi Hbn. Only met with in north and north-eastern Tenerife, especially in the Orotava valley, where leaves of *Tropaeolum majus* littered with larvae were commonly found and newly-formed pupae were also discovered. On July 25th a female imago was seen at 1,000 m, and on July 23rd three males and one female were encountered at a height of 1,500 m, both localities being in the mountains above La Orotava. Although it is likely that these specimens were quasi-migratory as no *Cruciferae* appeared to be present at either location, they occurred at somewhat higher altitudes than the limit specified by Higgins and Riley (1975, p. 43) ³.

Pieris rapae L. Widespread and common, primarily near human habitations, larvae being found in the Orotava valley both on *Tropaeolum majus* and *Brassica oleracea*. A few migratory specimens were seen at Las Canadas (2,100 m) on 22nd July.

Pontia daplidice L. Although present over a wide area, sightings were sporadic only, and mostly over rough, rocky ground.

* Limeburners, Iron Bridge, Shropshire.

Catopsilia florella L. Particularly abundant at Playa de las Americas, *Cassia didymobatyra* bushes in the area being literally smothered in ova and larvae. Indeed, it is no exaggeration to state that it was exceptional to find *Cassia* leaves that had not been spattered with the whitish, bottle-shaped ova. Although female *C. florella* are dimorphic, of the vast number seen only a few were of the yellow form, the latter bearing a particularly close resemblance to male *Gonepteryx rhamni* L. when on the wing. The larvae of *C. florella* also appear to be dimorphic, having a 'green' and a 'yellow' form, but the colour may be imparted by a substance in the larva's diet as, in our experience, the 'yellow' larvae tended to feed on the buds and petals of *Cassia* flowerheads, whereas the 'green' ones seemed to feed almost exclusively on the leaves. Both 'green' and 'yellow' larvae were reared and it appeared that the latter grew to a greater size, formed larger pupae and gave rise to female imagines, while predominantly male specimens emerged from the 'green' larvae. However, only a small number of adults were bred and the results obtained are thus by no means conclusive.

Colias crocea Geoff. Widely distributed and reasonably common in a number of different habitats. A small proportion of *C. crocea* f. *helice* were observed.

Gonepteryx cleopatra cleobule Hbn. Fresh and worn imagines were encountered in small numbers, both in the north-eastern tip of the Island and in the Orotava valley, from 600 to 1,500 m.

Danaus plexippus L. A predominantly low-altitude species which we came across in south-western and northern parts of the Island, especially in the vicinity of hotel gardens. From observing males at Playa de las Americas it was noticeable that each one seemed to have a regular flightpath, with flights sometimes continuing late into the evening, evidenced by sightings at 8 p.m. on July 20th and at 7 p.m. on July 22nd.

Danaus chrysippus L. There is a strong possibility that in the case of this species we were 'between broods', as repeated visits to favoured localities proved fruitless.

Vanessa atalanta L. Three scattered sightings only, in the mountains above La Orotava.

Vanessa indica vulcania Godart. Not uncommon, mainly in the Orotava valley and the north-eastern tip of Tenerife, most imagines being observed in mountainous areas (up to a height of 1,500 m), where they were invariably flying strongly.

Vanessa cardui L. Widespread; often locally common around flowers of the genus *Carduus* or *Cirsium*, especially at the head of the Orotava valley and on the Las Canadas plateau (at 2,100 m).

Vanessa virginiensis Drury. This proved to be a notable absentee, notwithstanding an intensive search of likely habitats, both on Tenerife and Gomera, and we would be interested to hear from anyone who has recently come across this species in the Canary Isles.

Pandoriana pandora D. & S. A few specimens only were seen: one north of Santa Cruz and six others in the mountains above La Orotava.

Pseudotergumia wyssii wyssii Christ. Several were 'put up' amongst light pine woodland at Las Canadas on July 22nd and, during the late afternoon of the same day, the species was found to be abundant in pine woodland at 1,500 m, on a south-facing mountain-side, some of the larger pines harbouring three or more imagines. It must be emphasised that very few *P. wyssii* were seen in flight, apart from those disturbed, except in the late afternoon of July 22nd when adults were flying freely, in complete shade, at 6 p.m.; this gives weight to the theory expounded by Guichard (Manley and Allcard, 1970, p. 132)⁴ that *P. wyssii* "flies chiefly before 9.30 p.m. and after 4.30 p.m., which we further corroborated by observations of *P. wyssii bacchus* on Gomera, although we did not witness any early morning flights.

Maniola jurtina hispulla Esp. Common in the north and north-eastern parts of the Island.

Pararge xiphioides Stdgr. A shade-loving species, of widespread occurrence, found to be most plentiful within banana groves to the north of Playa de las Americas.

Lycaena phlaeas L., *Aricia cramera* Eschscholtz and *Thymelicus acteon christi* Rebel. These three species have been grouped together as their distributions displayed remarkable similarity, being confined largely to the north and north-eastern tip of Tenerife, especially in the mountains above La Orotava.

Lampides boeticus L. Encountered widely, ranging from sea level to over 2,000 m (at Las Canadas).

Cyclyrius webbianus Brullé. Similar to *L. boeticus* in its distribution (implying that it too has a leguminous larval food-plant) and nowhere more abundant than at Las Canadas, where 'clouds' of the insect were disturbed. Here males seemingly outnumbered females, while at some sites at lower elevations there appeared to be a preponderance of females.

Zizeeria knysna Trimen. Locally very numerous in the vicinity of Playa de las Americas, but a longer stay on Tenerife might well have revealed colonies around Puerto de la Cruz and elsewhere.

(2) Gomera

Although based on Tenerife, we did venture beyond its shores, making two day-trips to the nearby Island of Gomera. These excursions, however, were not totally successful as we were hampered both by strong winds and low cloud; thus, while Gomera's coast was bathed in warm sunshine, the hills of the interior were enveloped by swirling fog. (A similar phenomenon was probably experienced by H. G. Allcard and A. Valletta when visiting the Mercedes mountains in September 1977).¹

We were thankful that such adverse conditions did not persist indefinitely during our visits to Gomera and in a temporary reprieve from the vindictive weather we noted the following species: *Pieris rapae* L.; *Pontia daplidice* L.; *Colias crocea* Geoff.; *Vanessa indica vulcania* Godart; *Vanessa cardui* L.; *Pandoriana pandora* D. & S.; *Maniola jurtina hispulla* Esp.; *Pararge xiphoides* Stdgr.; *Lampides boeticus* L.; *Cyclirius webbianus* Brullé; *Aricia cramera* Eschscholtz; *Thymelicus acteon christi* Rebel.

Gonepteryx cleopatra cleobule Hbn. Four males and two females were seen on Gomera, prompting a search of *Rhamnus* bushes in the vicinity, which proved unprofitable. The female specimens were certainly paler than their counterparts on Tenerife, virtually lacking the pale orange flush on the forewing.

Pseudotergumia wyssii bacchus Higgins. Seen commonly on rocky slopes and in vineyards over the northern part of Gomera. The imagines were surprisingly active in dull weather and tended to fly exceptionally late in the day, over twenty specimens being flushed from one particular hillside between 6 p.m. and 8 p.m., while nothing else stirred.

Unfortunately, during our time on Gomera we failed to acquire a glimpse of either of our main quarries, *V. virginiensis* and *D. chrysippus*, and the absence of these species occasioned the only regrets of an immensely enjoyable holiday. We were, nevertheless, somewhat surprised by the wealth and abundance of Tenerife's Rhopalocera; indeed, we were so successful early on that only one additional species (*V. atalanta*) was procured after July 23rd; thus the bulk of our time thereafter was concentrated on our quest for *V. virginiensis* and *D. chrysippus*. Does the fact that we failed in this particular venture necessitate a second expedition to gratify our entomological appetites?

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OLIGIA VERSICOLOR (BORKH.) IN CO. DUBLIN. — On July 26th 1973 I caught an *Oligia* ♂ at M.V. trap at Lispopple, Co. Dublin. The specimen was determined by D. S. Fletcher of the British Museum (Natural History) as *Oligia versicolor* (Borkh.). In his "Revised Catalogue of Irish Macrolepidoptera" (1964), Baynes refers to only one other Irish record of this species, dating from 1903. I am not aware of any more recent record of this species in Ireland. — K. G. M. BOND, Lützowstrasse 4, 32 Hildesheim, West Germany.

Bradycellus csikii Laczó (Col.: Carabidae) discovered in Suffolk

By DAVID R. NASH*

Originally described as a colour variety of *Bradycellus harpalinus* (Serville) by Laczó (1912), *Bradycellus csikii* Laczó was later raised to specific rank by Schauburger (1933). The beetle remained undetected in this country until Lindroth (1971) reported his discovery of a single male taken by G. C. Champion at Woking, Surrey, among the long series standing as *B. harpalinus* in the British Museum (Nat. Hist.). Although there appear to be fairly constant external differences between *csikii* and *harpalinus* which seem to be useful when taken in conjunction, the only reliable characters to facilitate the separation of the two species seem to be those of the male genitalia — *vide* Lindroth (1971, 1974).

As far as I can ascertain, no further British specimens of *csikii* have been detected since Lindroth's unique discovery. Dr. M. L. Luff who has over one hundred contributors to his British Carabidae Distribution Scheme informs me — *in litt.* 18.12.78 — that he too is unaware of further records of *csikii* in this country.

On May 8th 1977, I took a single dark *Bradycellus* while sifting moss on the edge of a chalk pit at Little Blakenham, near Ipswich, Suffolk (TM 14). Subsequent examination showed that, using external characters, the insect appeared to agree perfectly with Lindroth's descriptions of *csikii* (1971, 1974). Fortunately, the beetle was a male, and dissection of the aedeagus appeared to lend further support to my determination. Not having any comparative material, however I submitted the specimen to Mr. P. M. Hammond who confirmed my provisional determination, stating (*in litt.*), that it agreed on every point with their material at the British Museum.

This record provides interesting confirmation of the continued presence with us, of what we can only tentatively label at the present time, as an *apparently* rare and very local species. I know that many Coleopterists have looked, in vain, at innumerable *harpalinus* in the hope of turning up *csikii*. Only by continuing to do so, will we be able to clarify the status and distribution of *csikii* within this country. It is fortunate that there are many workers who specialise in the British Carabidae, and it is to be hoped that, before long, further records may be forthcoming.

In view of our present sparse knowledge of *csikii* in this country, it may be of value to conclude by listing the other Carabidae taken from moss on the heavy chalky soil where *csikii* was found: — *Calathus fuscipes* (Goeze), *Amara aenea* (Degeer), *A. plebeja* (Gyllenhal), *Harpalus* (*O.*) *schaubergerianus* Puel, *H. rubripes* (Duftschmid), *Badister bipustulatus* (Fabricius), *Bradycellus verbasci* (Duftschmid), *Metabletus foveatus* (Fourcroy). According to Lindroth (1974), *csikii* occurs mostly on clayish soil on the continent.

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Acknowledgements

I thank Mr. P. M. Hammond, British Museum (Nat. Hist.) for kindly confirming my determination of *B. csikii* and Dr. L. Luff for information arising from his British Carabidae Mapping Scheme.

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Notes and Observations

BOOK TALK TWO. — Described as handy, comprehensive yet succinct, H. T. Stainton's *A Manual of British Butterflies and Moths* was, a century or more ago, probably the most popular and without doubt the least expensive book of its kind on the subject. Indeed, until fairly recently, one could still buy the two volumes for a few shillings, but having now become a collector's piece it seems, a current bookseller's catalogue lists it at £15, and in another it is priced at £16.50.

Published by Van Voorst, the work originally came out in 33 parts with printed wrappers, each part consisting of about 24 pages, the first part appearing in 1856 and the last in 1859. However, the book is seldom found in that state. In the usual edition, which is relatively common, there is no indication that the work was issued in parts, and the title page of volume 1 bears the date 1857 and that of volume 2, 1859. Details of the parts in volume 2 and their exact dates of publication, will be found in a Note by T. Bainbrigge Fletcher in *Entomologist*, 1930, **63**: 187-188.

An interesting feature of the *Manual*, is the number of interleaved annotated copies in existence. One such example bought from E. W. Classey for 10s at an A.E.S. show, belonged to V. R. Perkins (1831-1922) and contains numerous early manuscript entries relating to Gloucestershire lepidoptera. Another annotated copy from the same source for which a mere 5s was paid, belonged to Sydney Webb (1837-1919) of Dover, who possessed one of the finest collections of British lepidoptera ever formed.

Most of the localities cited in the *Manual* are apparently of lists of lepidoptera that Stainton received from correspondents, whose names curiously enough he fails to mention or their help even to acknowledge. I happen to know though that Messrs. Sircom of Brislington and P. H. Vaughan of Redland contributed the Bristol records, and am almost certain the Rev. S. C. Tress Beale furnished the records for Tenterden and Alkham, and J. Jenner Weir those for Pembury, but one can only guess at the names of the contributors for the other localities. — J. M. CHALMERS-HUNT.

¹ Book Talk One appeared in *Ent. Rec.*, **90**: 186.

A THIRD SPECIMEN OF THE SMALL DOTTED FOOTMAN: *PELOSIA OBTUSA* H.-S. IN BRITAIN. — Fine warm weather at the end of July brought some unusual moths to M.V. light at Hickling, Norfolk, where I was pleased to take the third English specimen of *Pelusia obtusa* H.-S. on the 27th July 1979. Other unusual insects the same night included *Cucullia asteris* D. & S., *Eilema pygmaeola* Doubl. and *Abraxas sylvata* D. & S. *P. obtusa* is noticeably different from *P. muscerda* Hufn., with brownish rather than pinkish wings, and at rest its more squat appearance resembles *Miltochrista miniata* Forster rather than the rolled-wing appearance of *muscerda*. The two footmen were well described and illustrated and the literature reviewed, by C. J. Cadbury in *Ent. Rec.*, 1964: **76**: 181-185.

Is *obtusa* resident, or does it travel? The evidence in Cadbury's paper suggests that it is resident, but does not come readily to light. Of the other insects noted on the same night, *C. asteris* is undoubtedly wind-blown from the salt marshes of north Norfolk, as *Aster tripolium* L. is common there, and there is no golden-rod locally. *E. pygmaeola* is also windblown from coastal sand hills three miles away, and has been taken once before. *A. sylvata* was a new record for Hickling, elms of all species are scarce in this area of Norfolk, and many are dying. Perhaps it will be another 15 years before *obtusa* appears again. — T. N. D. PEET, F.R.C.S., Le Chene, Forest, Guernsey.

PHENOMENAL SWARM OF THE RUBY TIGER: PHRAGMATOBIA FULIGINOSA L. — One day in late August 1972, when I was working on a nursery near Swanley, W. Kent, several of this moth appeared at about 4.30 p.m. Their numbers increased until after about half an hour, there were probably some 200 individuals in the immediate area. By 5.30, they had all disappeared. It was interesting to note considerable variation in the extent of the red colouration. I had not seen this species in the district before, and did not see it again. — B. WHEELER-HOLOHAN, 38 Oregon Square, Orpington, Kent BR6 8BQ.

REARING THE BROWN HAIRSTREAK (THECLA BETULAE L.). — In Dr. T. W. C. Tolman's excellent article on rearing the Brown Hairstreak (in *Ent. Rec.*, **91**: 154-156) he states that from numerous reports he has received from collectors who "sleeve" out their livestock, there seems to be a high failure rate. This has not been my experience, and last year's brood is fairly typical of what I have achieved in the past when breeding this species.

Last winter I collected 20 *betulae* ova from the roadside blackthorn bushes in north Oxfordshire. I cut the twigs bearing the ova so they were about 3 inches long, and placed them in a small net bag to keep out predators, and hung the bag from a branch of a blackcurrent bush growing in my garden. Thus the ova were exposed to all the weather conditions throughout the remainder of the winter. In early March I took the twigs bearing the ova out of the bag and tied

them to branches of plum; they were then netted over and left uninspected until the end of June.

When I opened up the netting, I found that several had gone "in set" for pupation in the folds of the net. As the other larvae were all about full grown, I decided to collect them up and keep them in a plastic box with cut plum leaves, until they also went to pupa. Using this method, I bred through 14 imagos, which considering I gave them no attention from the time of collecting the ova until the larvae were full grown (other than tying the ova-bearing twigs onto the plum), I regard as quite an acceptable percentage.

I also found 16 Purple Hairstreak (*Quercusia quercus*) ova last winter, and using the same method as above, but sleeving them on Oak branches, I succeeded in rearing 13 imagos, which I consider a very good percentage.

I cannot say where other breeders have gone wrong, but for me this is an easy way to rear these butterflies. — RICHARD REVELS, F.R.E.S., Top Field Farm, Dunton Lane, Biggleswade, Bedfordshire SG18 8QU.

EXCEPTIONAL NUMBER OF *PIERIS* BUTTERFLIES. — At approximately 14.00 hours on 11th August 1979, I was walking along the cliff tops on the south coast of the Gower peninsula, West Glamorgan, when I came across very large numbers of *Pieris* butterflies flying over one particular field. The field measured approximately 250 x 200 metres and contained a rather thin crop of barley undersown with a variety of pea (*Pisus* sp.), which was in full flower. All three common *Pieris* species (*P. napi*, *P. rapae* and *P. brassicae*) were present, about 80% of which were *P. brassicae*, with approximately equal proportions of the other two. Small numbers of *Pyronia tithonus* were also seen, but no other species. The whites were feeding on the pea flowers and they were so numerous that there was an almost continuous 'carpet' of butterflies over the field. By estimating the average number of butterflies in flight along several one meter wide strips across the field, I calculated that there were approximately 20,000 in flight over the field as a whole. There appeared to be nearly as many again settled on the pea flowers so a minimum of 30,000 *Pieris* butterflies must have been present, probably 24,000 of which were *P. brassicae*. Although this figure is very approximate, it does give an indication of the very large numbers present.

On 8th August, I had carried out a weekly butterfly census at the nearby Oxwich National Nature Reserve, and noted that the numbers of *P. brassicae* had increased sharply. It seems likely that large numbers of this species had arrived along the south coast of Gower during the first ten days of August and as most plants had finished flowering along the cliffs, they concentrated at the one major nectar source adjacent to the coast. The rest of the afternoon of the 11th was spent walking along the cliffs and other than in the immediate vicinity of the pea field, no more than five *Pieris* butterflies were seen. — DAVID O. ELIAS, Nature Conservancy Council, Oxwich Reserve Centre, Oxwich, Gower, Swansea SA3 1LS.

THE CLOUDED YELLOW: *COLIAS CROCEUS* GEOFFR. AT PORTLAND IN 1979. — Whilst on a field meeting with the North Kent Wildlife Preservation Society on 23rd September, we managed to get one photograph of a male Clouded Yellow on Portland Bill, flying round Golden Samphire and feeding occasionally from the flowers. It also settled several times on bare earth, but was always alert. After about ten minutes it moved off in the direction of the lighthouse.

With two *Pyrameis cardui* also seen and several *Pieris brassicae*, it seemed there was a small northward migration. One of the *cardui* was in very bad condition, virtually devoid of wing contour and colouring. Incidentally, the last time that I saw *C. croceus* was in 1970 at London Airport, Heathrow, where it was flying along the edge of one of the perimeter roads. — J. PLATTS, 11 Maydowns Road, Chestfield, Whitstable, Kent.

COLIAS CROCEUS GEOFFR. IN SHROPSHIRE. — Two specimens of this migrant butterfly were seen in August 1979 to the west of Shrewsbury. The first, on August 3, was noted in the grounds of the Field Studies Centre, Preston Montford (NGR SJ432144) and the second, a male, was taken near Shrawardine (NGR SJ385162) on August 4. The possibility that these two sightings were of the same individual cannot, of course, be ruled out as the two localities are only some three miles apart. — J. HEATH, 104 Needingworth Road, St. Ives, Huntingdon, Cambs. PE17 4JY.

AGONOPTERIX BIPUNCTOSA (CURTIS): LARVAL FOODPLANT. — In June 1977 I spent four days near the Lizard, Cornwall on a Survey for the Nature Conservancy Council. On the first day, 15th June, I collected four *Agonopterix* larvae feeding in rolled leaves of *Serratula tinctoria* growing on a cliff edge. At the time the foodplant did not strike me as unusual. There were cases of *Coleophora paripennella* Z. on the plants, therefore I assumed that the larvae were either *A. liturella* (D. & S.) or *A. pallorella* (Z.) and that *Serratula* was an acceptable foodplant. At that stage I failed to make a description of the larvae.

On 15th July, the first specimen emerged which was a male; the other three specimens emerged between 16th and 21st July and were all females. I wrongly determined them as *A. pallorella*. Fortunately Mr. E. C. Pelham-Clinton saw them and thought they were *A. bipunctosa* (Curtis). As a result Dr. J. R. Langmaid kindly made a genitalia preparation of the male and one of the females, confirming they were indeed *A. bipunctosa*. I do not believe that *A. bipunctosa* has previously been recorded as having been bred in Britain from *Serratula*. In fact it does not appear clear from what it has been bred in the past.

On 9th June 1979 I returned to the same locality and took three half-grown larvae feeding on *Serratula*. Two were brown, the other black. On moulting the two brown larvae turned black. All three then seemed to me to be indistinguishable

from the larvae of *A. liturella*. However, the moths which emerged subsequently were all *A. bipunctosa*.

At the moment, the species has apparently been recorded only from Hampshire, Isle of Wight, Dorset and now Cornwall. Doubtless it will be found elsewhere if *Serratula* is searched for larvae. Dr. Langmaid informs me that he has found the larvae quite commonly in 1979 on *Serratula* at various localities.

My thanks are due to the Nature Conservancy Council for asking me to join their survey, and to Mr. E. C. Pelham-Clinton and Dr. J. R. Langmaid for bringing my misidentification to light. — R. J. HECKFORD, 67 Newnham Road, Plympton, Plymouth.

CASSIDA MURRAEA (COL.: CHRYSOMELIDAE) ABUNDANT IN WILTSHIRE. — Whilst collecting in a damp meadow near Langley Wood, Hamptworth, Wilts. (SU 2318), on May 28th 1974, I found over half a dozen adults of the very local and usually scarce *Cassida murraea* L. feeding on leaves of *Pulicaria dysenterica* Gaert. which were just emerging from the grass. I cannot recall looking at Fleabane again in the county until the summer of, I believe, 1977 (precise data not to hand), when larvae of this species were found commonly near Home Farm, Hamptworth (SU 2220), on a patch of the plant growing by a track near a stream. Adults reared from some of these larvae were all of the green form. In 1978, the larvae were common on *Pulicaria* at Lower Woodford, near Salisbury (SU 1234) on July 28th, and also on August 3rd by a stream near Tisbury (ST 9330). Adults reared from Tisbury larvae were also of the green form. It seems interesting that all larvae reared have produced green individuals, whilst the spring adults found, presumably after hibernating in that stage, were brown. — D. R. NASH, 266 Colchester Road, Lawford, Essex, CO11 2BU. [I strongly suspect that the two so-called colour-forms of *C. murraea* are simply the result of a seasonal change: green before hibernation, brown after. My own field experience of the species is insufficient to prove anything, but Mr. Nash's observations above render it highly probable. One is forcibly reminded of the same colour-change in certain grass-bugs (*Stenodema*, Miridae); while a somewhat similar phenomenon — affecting the scales, not the body pigments — is known among the weevils, e.g. in *Tapinotus* (v. Allen, 1972, *Ent. mon. Mag.*, 108:209). — A.A.A.]

THE SCARCE CHOCOLATE-TIP: CLOSTERA ANACHORETA D. & S. IN ESSEX. — I wish rather belatedly to record two males of this moth in my m.v. trap here at Bradwell-on-Sea in 1976. The first appeared on 9th May, and the second on the 16th July; both were in good condition. — A. J. DEWICK, Curry Farm, Bradwell-on-Sea, Essex. [This May capture is exceptional it seems, as being the first recorded occurrence ever of the appearance in this country of a first generation *anachoreta* in the wild. There are two previous Essex records: Clacton-on-Sea, a female at light, August 8 1908 (Kitchener, *Entomologist*,

41: 250), and two larvae in a wood near Dovercourt, September 26 1907, bred May 1908 (Mathew, *ibid*: 310), both cited by Bretherton (*Ent. Gaz.*, 2: 231-2). These records were evidently overlooked, as the species is not included in Firmin et al., *A Guide to the Butterflies and Larger Moths of Essex* (1975); nor is there any mention of *anachoreta* having occurred in Essex, in Heath et al., *The Moths and Butterflies of Great Britain and Ireland*, Volume 9 (1979). — J.M.C.-H.]

THE VESTAL: RHODOMETRA SACRARIA L. AT EASTBOURNE. — On the 1st September 1979, whilst collecting in Holywell, Eastbourne with Messrs. M. Hadley and P. Walley, I secured a male specimen of this species at about 2 a.m. as it fluttered in over the cliff edge. — M. PARSONS, The Forge, Russells Green, Ninfeld, Battle, East Sussex.

THE TAWNY PINION: LITHOPHANE SEMIBRUNNEA HAWORTH IN NORTH-WEST KENT. — While cleaning out the roof gutters of my house this morning, I was agreeably surprised to see a female of this scarce noctuid at rest on the woodwork below. — J. M. CHALMERS-HUNT, West Wickham, 7.x.1979.

DREPANEPTERYX PHALAEONIDES L. (NEUROPTERA: HEMEROBIIDAE) IN SURREY. — I took two specimens of this very rare and beautiful neuropteran at rest here on the window frame near my light trap on the nights of 27th/28th September and October 8th/9th 1979. This is the largest of the Hemerobiidae and only one with falcate wings. At rest it looks like *Drepana harpagula* Esp. in the posture of *Cilix glaucata* Scop.

Killington (1937) says "rare throughout Europe" and apart from two Sussex records, most of the British sightings are from Yorks, Cumberland and Westmorland or from Scotland. I do not know of more recent finds, but this may probably be a new county record. — E. H. WILD, 112 Foxearth Road, Selsdon, Croydon, Surrey.

A RARE FORM OF CERCOPIS VULNERATA ILL. (HEMIPTERA-HOMOPTERA: CICADOIDEA). — On the 7th July 1979 at Hildenborough, Kent (TQ54) I found on nettle by a stream, a fawn and black form of *Cercops vulnerata* Ill. Regarding this as most unusual, I contacted Dr. W. J. LeQuesne, who has informed me that to the best of his knowledge, the only previous record of this rarity was for Cranleigh, Surrey around 1975-76, by Miss D. Gibson, of Wirral, Merseyside. Could the form have arisen in Surrey and to have now spread to this part of Kent? — A. V. MEASDAY, "Khorrassan", 68 Brookmead, Hildenborough, Tonbridge, Kent TN11 9DP.

LAMPRONIA PRAELATELLA D. & S. IN ABERDEENSHIRE. — On July 3rd 1979, a single specimen of *Lampronia praelatella* was collected from a farm lane 2 kilometres south-west of Newburgh, Aberdeenshire: grid reference NJ 985242. This moth has not been recorded from Aberdeenshire according to the maps presented in Heath, J. (ed.) (1976) *The Moths and Butterflies of Great Britain and Ireland*, Volume 1. — DAVID C. HOCKIN, 3 Western Avenue, Ellon, Aberdeenshire, 6.viii.79.

PSAMATHOCRITA ARGENTELLA P. & M. (LEP.: GELECHIIDAE) IN HAMPSHIRE. — This species had not been seen in Britain since its Hampshire site was destroyed, until the late Denzil Ffennell discovered it at St. Helen's on the Isle of Wight (*Ent. Gaz.* **25**: p. 302).

On 1st July 1978 I found it in large numbers flying over the presumed foodplant *Agropyron pungens* (Pers.), at Titchfield Haven, Hampshire, between 04.43 B.S.T. and 05.25 when I returned to my bed. A couple of days later, John Walters found small pale moths flying over sea couch grass near his home on Hayling Island. These were flying at early dusk. Specimens he sent me unfortunately arrived eaten by mites, but two hind-wings had the correct venation. I returned to Titchfield Haven on 1st July 1979, and again found the species in fair numbers although fewer than in 1978, perhaps reflecting a later season and chillier morning. — REVD. R. J. DICKSON, M.B., B.Chir., St. Michael's Vicarage, Hempsted Road, Paulsgrove, Portsmouth, Hants.

MARUCA TESTULALIS GEYER (LEP.: PYRALIDAE) IN THE LONDON AREA. — Towards the end of July, Mr. Colin Plant of the Passmore Edwards Museum, sent me for identification some moths he had taken in his m.v. trap both at his home in Plaistow and also run in Wanstead Park, Essex. Among them was a most striking large pyrale with yellow hindwings and a distinctly exotic appearance. It was taken in the latter locality on June 23rd 1979. This insect was eventually expertly determined as the species indicated above and known as the Bean Pod Borer. It is a well-known pest in some tropical regions, both in the Old and the New World, where I took the species myself in Jamaica in 1974.

In 1968 (this journal **80**: 242) Mr. Chalmers-Hunt reported that Dr. H. L. Dicker had bred two specimens of *M. testulalis* from French beans imported from Malawi and investigated at the East Malling Research Station. A very good photograph of the bred insects accompanies the short paper. Apparently the larvae feed also in various other types of beans, as well as peas and even in some bulbs. Since that date, according to Mr. R. F. Bretherton, larvae have been found in chora pods imported into Heathrow from Kenya in 1976 (reported in a paper entitled "Insects and other invertebrates intercepted in check inspections of imported plant material in England and Wales during 1976 and 1977", p. 48 published by ADAS, October 1978). From the above evidence it would seem that the insect taken at Wanstead Park was the first live imago of *M. testulalis* to be taken in the British Isles. Its appearance there is of course a matter of much speculation. It seems most likely it emerged from some produce imported from the tropics and stored locally or at the Thames docks which are not far away. — C. G. M. DE WORMS, Three Oaks, Working.

SAPERDA POPULNEA (L.) (COL.: CERAMBYCIDAE) AND ITS TACHINID PARASITE IN WILTSHIRE. — On March 30th 1978, I cut a number of twigs bearing the characteristic swellings of

Saperda populnea (L.) from self-sown saplings of *Populus tremula* L. at Hamptworth, near Redlynch, Wilts. (SU 2318). Adult beetles began to emerge from the twigs in late May and early June. At the same time, a single example of *Billaea irrorata* (Meigen) appeared in the rearing box. This Tachinid is a specific parasite of the *Saperda*, and its distribution is obviously governed by the distribution of its host. Dr. A. G. Irwin of The Castle Museum, Norwich suggests (*in litt.*) that the status of this fly is uncertain, but that it should probably be considered uncommon to rare.

I thank Dr. Irwin for determining the fly for me, and Mr. N. Anderson for allowing me to study on his estate at Hamptworth. — D. R. NASH, 266 Colchester Road, Lawford, Essex, CO11 2BU.

THE PROBABLE IDENTITY OF THE REPUTED BRITISH *EUSOMUS OVULUM* ILL. (COL.: CURCULIONIDAE). — This is one of several species of weevil whose inclusion in our list is based on a single 19th-Century record never, apparently, repeated; others are *Coniocleonus hollbergi* Fahr. (= *Cleonus glaucus* F.), *Lixus iridis* Ol., *Lixus elongatus* Gze., *Cionus olens* F., *Sibinia pellucens* Scop., and *Baris chlorizans* Germ. — the first of which, be it noted, is supported by specimens in excellent preservation still extant in the BMNH. The case for *E. ovulum* as British seems to rest on a scarcely adequate notice by Dr. D. Sharp (1871, *Ent. mon. Mag.*, 8: 83): "Taken by Mr. Edleston, at Grange". The place referred to is Grange-over-Sands on the Lancashire coast, one of Edleston's collecting-grounds. There is no indication of whether Sharp himself or any other authority saw any of the specimens, if indeed there was more than one; and none, I believe, survives. Fowler's remark, therefore (1871, *Col. Brit. Isl.*, 5: 194), that "*E. ovulum* appears to require further confirmation as British" is as true now as it was then.

Significantly, this insect bears a decided resemblance to certain forms of the variable maritime species *Polydrusus chrysomela* Ol., which has occurred at Grange (cf. F. H. Day, 1913, *Ent. mon. Mag.*, 49: 255). That being so, one is tempted to suggest that it was on a form of the last-named weevil that *Eusomus* was recorded in error. Since *P. chrysomela* seems to have been rare in the area — Day thought his example apparently a new record for Lancashire, though in fact Fowler (*op. cit.*, 5: 202) had noted it from Preston — the captor may well have been unfamiliar with that insect and its variation. That *E. ovulum* is a species for which others could be mistaken is shown by Bennett's spurious record from Guestling, Sussex (corrected in Fowler, p. 194).

I have a distinct impression of having seen somewhere in print that the error here suggested had in fact been found to have occurred, but, if so, I cannot now trace its source. Even if such a correction was published, the fact that *Eusomus* remains in our list (though as doubtful) shows that it is not amiss to advert once more to the matter. — A. A. ALLEN.

THE BROWN-TAIL (*EUPROCTIS CHRYSORRHOEA* L.) AT WOKING, SURREY. — On the morning of July 15th 1979 I noticed a very white moth at the bottom of my m.v. trap. On closer inspection and to my astonishment it proved to be a Brown-tail, never before recorded in this region of Surrey. Perhaps its appearance here is not so surprising since it seems to have had quite an "explosion" along the Sussex coast and has been in pest proportions from Brighton to Worthing and as far as Chichester. It also seems to be returning to the London Area. Mr. R. I. Lorimer reports it regularly from Totteridge, while Prof. Sir John Dacie has again seen it this year at Wimbledon. Mr. Charles Harbottle says he saw one on his window at Putney, and even found a larva parading down Cannon Street in the City, so that it is hoped it will not be invading the Metropolis as it did in huge numbers some 200 years ago at the end of the 18th century, when special measures had to be taken to combat the incursions of its most irritating larvae. — C. G. M. DE WORMS, Three Oaks, Woking.

SOME IMPORTANT NEW RECORDS FOR THE EASTBOURNE AREA. — Upon the 4th of June 1979 I had the good fortune to take a worn female specimen of *Selenia lunularia* Hüb., at Arlington, about six miles outside Eastbourne. This is the first record for this species in the Eastbourne area since the 1930s, when it occurred sparingly.

A worn specimen of *Apamea scolopacina* Esp., was recorded at a static Robinson pattern trap in my garden at Eastbourne, upon the 3rd of August 1979. This constitutes the first recorded occurrence of this species within the confines of the Eastbourne area.

Later that month, upon the 6th of August a very worn and exhausted *Hyloicus pinastri* Linn., arrived in the garden trap, an extraordinarily late date for this species which usually occurs in late June and early July. This is the only record for this species within the area, since the capture of a female, by the late E. P. Sharp upon the 15th June 1919. — M. HADLEY, 7 Beverington Close, Eastbourne, Sussex.

PSYLLIODES WEBERI LOHSE (COL.: CHRYSOMELIDAE) IN WILTSHIRE. — Since the addition of this species to our list by Mr. A. A. Allen (*Ent. Rec.*, 1976, 88: 296-297), there appear to have been no further records of the beetle published in our major entomological journals. Mr. Allen (*loc. cit.*) suggested that the beetle might prove at least as widespread in the British Isles as *P. napi* F., the species with which *weberi* was formerly confused, and reported it from Flint and several southern counties, including Hants. I was not surprised, therefore, to discover that I had swept a single example from aquatic vegetation (including Watercress — *Nasturtium* sp.) beside a stream running into the River Avon at Stratford sub Castle, near Salisbury, Wilts. (SU 126332) on May 26th 1974.

I thank Mr. Allen for kindly confirming my determination. — DAVID R. NASH, 266 Colchester Road, Lawford, Essex, CO11 2BU.

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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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

The following gentlemen act as Honorary Consultants to the magazine.
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SPECIAL NOTICE

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

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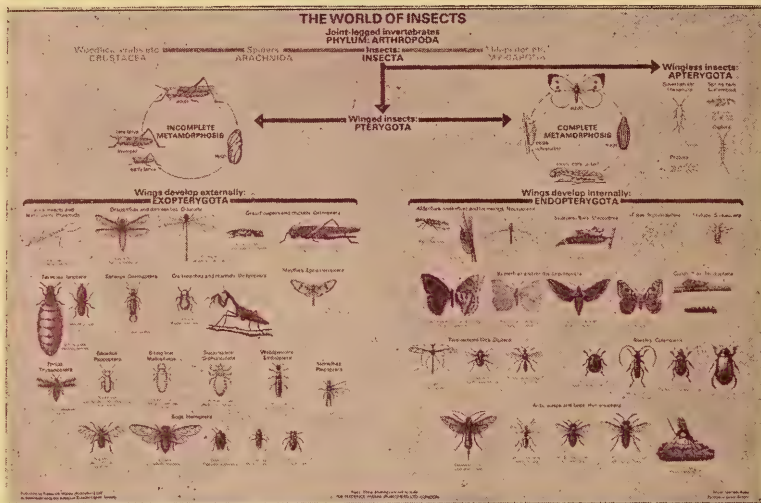
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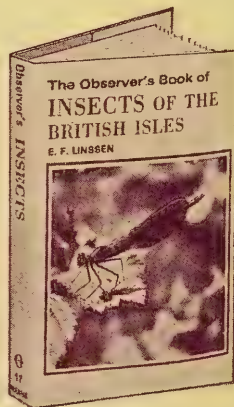
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On being "Stared and Grinned at by the Vulgar"

By DR. RONALD S. WILKINSON *

Is there such a person as a timid field entomologist? I think so, for most of us will admit that at times, when pursuing our quarry with net or camera, we have encountered situations in which we have been "stared and grinned at by the vulgar". I choose these words carefully, for they are from an actual quotation of 1826, and despite the considerably amended modern usage of the word 'vulgar' from its original and more innocent meaning, William Spence's phrase must stir at least some memories. Who among us has not felt, at least momentarily, in the field that discretion might be the better part of valour? Of course, we have all overcome such thoughts . . .

Well, perhaps not. From the very beginning of entomological investigation, we have had to face those who have believed that a student of insects must be eccentric, or worse. In fact, if we read the laments of some of our predecessors, we must think that once almost all of the world was 'the player on the other side', and the current cartoon stereotype of the entomologist as a rotund man in khaki shorts and pith helmet pursuing a gaudy lepidopteron at full tilt has had frequent precedents in history.

From many possible choices, a few examples will suffice. Jezreel Jones, when collecting at Cadiz for one of the founders of scientific entomology, James Petiver, wrote to his mentor in 1701 that he had been "suspected for one that study's witchcraft, necromancy and a madman" (Sloane MS. 4063, f. 76r). Among early entomologists Jones was hardly alone, and counter-measures had to be devised. Early clap-nets (Wilkinson, 1978) were jointed so that they could be taken apart and carried in a small compass, not only for convenience but for the purpose of concealment; eventually they could fit within the ample greatcoats of the time. In 1826 Kirby and Spence warned fellow entomologists in the very popular *Introduction to Entomology* that "with all your implements about you, you will perhaps at first be stared and grinned at by the vulgar . . . Things that are unusual are too often termed ridiculous; and the philosopher . . . is too often regarded by the ignorant plebeian as little short of a madman".

Kirby and Spence's arguments to the philosophical temperament must have been cold comfort to many entomologists, who continued to resort to ruses of concealment. For example, the internal cavity of the hat had been used as a pinning surface while collecting insects in the field since Petiver's time (Sloane MS. 3332, f. 2r-v), and that method was still

* The American Museum of Natural History, New York City, New York 10024

recommended in the nineteenth century. Kirby and Spence suggested it, and it was certainly preferable to the practice of pinning insects to the *outside* of the hat, used by William Swainson, who was following in the tradition of Linnaeus' pupil Andre Sparrmann. But Sparrmann's collections were made at the Cape, and Swainson's triumphs were accomplished far from the inquiring eyes of his fellow Englishmen. Indeed, despite the new wave of interest in natural history, when writing of the climate of opinion in 1835 Edward Newman had to admit that "ninety-nine persons out of a hundred, even at the present day, [think] that a person who could take an interest in pursuing a butterfly is a madman. [Still that suggestion of lunacy!] The collector of insects must, therefore, make up his mind to sink in the opinion of his friends; to be the object of the undisguised pity and ridicule of the mass of mankind, from the moment in which he commences such a pursuit" (Newman, 1835).

Social historians, take note, for from the viewpoint of the historian of biology, this was the 'golden age' of British entomology. Haworth and Donovan had ushered in a new century of scientific endeavour; Stephens and Curtis had been publishing their grand surveys in parts for some years; the completion of Kirby and Spence's work, which had a wide influence in promoting popular awareness of entomology, was almost a decade in the past. Newman's highly literate *Entomological Magazine* had been initiated in 1832 as the voice of the Entomological Club, and the Entomological Society, later to be chartered as the Royal Entomological Society of London, had been founded in 1833. Yet, if we can accept the words of those who lived through the time, on the popular level entomologists were still considered to be very strange persons, no matter how their numbers were swelling in village and city. We cannot escape the fact that entomologists were less tolerated by the populace than were those participants in other aspects of the natural history movement which swept Victorian Britain. While seeking his lichen and fern, the botanist was relatively ignored; those who with Charles Kingsley sought 'the wonders of the shore' were comparatively unmolested; but entomologists were hooted by small boys, as well as older gentlemen who ought to have known better.

This attitude was softened somewhat as the century wore on, but later Victorians continued to mention popular slight, and the continued use of devices obviously designed for concealment as well as utility demonstrates that abuse was taken seriously. The clever umbrella net design appeared in various forms in various countries, for British entomologists were hardly alone in their problem. An umbrella net in its cover could be carried on a public vehicle or along a public road without notice, and in many cases actual umbrellas were used for entomological purposes. The renowned American herpetologist Raymond L. Ditmars, who was originally an entomolo-

gical assistant to William Beutenmüller at the American Museum of Natural History, described a late Victorian gentleman who utilized an umbrella and a most unobtrusive costume for collecting (Ditmars, 1932): "I recognized Otto Dientz, a prominent [New York] business man. He was attired in a gray summer suit and looked as well tailored as if he had stepped from a bandbox . . . On all his trips he carried a tan silk umbrella, slipped into a cover which made it look like a cane. Arriving at the area of operation he would open his umbrella, stroll leisurely along a wood road, and coming to certain bushes invert the umbrella, and then tap the branches with a stick". Deception had come a long way from the days of Jezreel Jones.

Specialized entomological variations of the umbrella ranged from a beating net in which the handle was jointed at a right angle to the axis of the bumbershoot for convenience in collecting (an excellent line engraving is reproduced by Banks, 1909, p. 42) to the net with an umbrella handle which was frequently sold well into this century. My collection of historical entomological equipment includes several of these, equipped with a jointed spring steel net ring which collapses flat against the rod. Such nets could be used for sweeping, beating and aerial work, and yet could be folded and wound into a form which looked superficially like an umbrella. Many contemporary entomologists recall using this sort of net, and the design may still be in active service. The 'hidden net' has had several other variations, and perhaps its most modern development has been the pocket net. Ditmars (1932) recalled well-dressed entomologists on an American field outing whisking nets from their rear pockets to collect Microlepidoptera. That tradition still survives, due to the small spring steel net sold by Watkins and Doncaster, which can be coiled within the pocket and carried for any emergency. (I have been thankful for mine on many an occasion when a more conspicuous net would have invited unwanted attention.)

Quite frankly, we all do not have the courage of such heroes as the American lepidopterist and museum director William J. Holland, who in his youth in North Carolina was determined to capture a specimen of the magnificent sexually dimorphic fritillary *Speyeria diana* (Cramer), to the remarkable extent of pursuing it past the onlooking students of a girls' school. He later recalled (Holland, 1898) that he "would rather have faced a cannonade in those days than a bevy of boarding-school misses, but there was no alternative". Greater love hath no man! Holland displayed similar fortitude many years later, when, as a well-known guest in an elegant hotel in Rio, he was faced with another 'moment of truth': "At the dinner table the attention of the throng of fashionably dressed ladies and gentlemen was attracted to a large moth, brilliantly colored, which came fluttering about the tables. I slipped into the hall and seized my net, and as the gay insect came by, with a quick stroke captured it; I was greeted with a salvo of

applause from the assembled guests" (Holland, 1913). But what would the reaction have been had the moth evaded Holland's net? No, few of us have such *panache*.

When recalling historical precedents to illustrate an argument, we are all tempted to add improvements of our own. As a hopeful young collector in the early and mid-1940s, I was forced to conceal my net and other regalia as well as I could to escape the ridicule of the local boys and (I regret to say) some of my less philosophical neighbours. Once in the field I was in my glory until an 'intruder' entered the meadow or forest path, whereupon I hid behind a tree until the unwelcome interloper passed and I could return to the solitary pleasure of the chase. College days brought no improvement; how could I explain to a favoured girl that I had to leave her suddenly to pursue a moth which had just fluttered by?

All that was many years ago, and one might think that experience resulted in callousness. No. When I was teaching at a large American university I found that one of the very best situations for collecting moths was a local restaurant illuminated by huge incandescant lamps, but unfortunately frequented by as many students as Lepidoptera. The reaction to my acrobatics there is best forgotten, as are the encounters with police, farmers, inebriates, mere passers-by, and various categories of others whose comments cannot really have been much different from those which prompted Newman to write his observations in 1835.

Human nature changes slowly, and entomologists must relegate such reminiscences to sherry-parties and not allow painful memories to dampen their enthusiasm. In fact, we can sometimes recall the occasional opposite reaction to balance the account. Several years ago a colleague called attention to a large and conspicuous moth resting at a considerable height near one of the lamps flanking the entrance to the Library of Congress in Washington, D.C. Even at that distance I could recognize the moth as *Catocala marmorata* Edw., one of the rarest of its genus in the United States, only captured once before (in the nineteenth century) in the District of Columbia, and a moth which I had not taken in thirty years as a specialist in the *Catocala*. Like Alfred Russel Wallace at Batchian, my heart began to beat violently, and I quickly jogged to my nearby home for net and bottle. Returning at the noon hour, I found a scene more populous than Holland's girls' school and Rio banquet combined. Scores of persons stood about the entrance, but the unperturbed moth was still there. It was resting in a position higher than my reach, so I requisitioned the tallest person I could find. He willingly placed my net over the moth and drew it down until I could bottle it. To my great surprise there was applause from the audience. The unexpected result reminded me of Holland, and I have since been heartened by the reminiscence. However, I sometimes wonder, as I have about Holland in Rio: what if I had missed the moth? I don't wish to think about that . . .

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LYONETIA CLERKELLA L. (LEP.: LYONETIIDAE) IN LARGE NUMBERS. — This year I have noted a very large number of leaves of my apple trees to have been mined by larvae of this species, some leaves carrying as many as four mines, and their characteristic hammock-like cocoons.

At the same time, there has been an almost complete disappearance of *Phyllonorycter blancardella* F. (which species has absorbed *P. concommitella* Bankes, to which form the majority of those inhabiting my apple trees belonged) and I have seen less than a dozen mines this year where the species was in considerable numbers in previous years. *Callisto guttea* Haworth is present in its customary numbers.

It would be interesting to know whether the abundance of *clerkella* and the scarcity of *blancardella* are general; of so, these phenomena could be ascribed to climatic conditions, but if not, some other reasons must be found. — S. N. A. JACOBS, 54 Hayes Lane, Bromley BR2 9EE.

MACROGLOSSUM STELLATARUM L. IN S. DEVON, 1979. — At the north end of Slapton Sands one was seen on 6th July, two on 10th and 11th July, one on 12th and 13th July and finally, one on 26th July. — H. L. O'HEFFERNAN, c/o 15 Green Park Way, Chillington, Kingsbridge, South Devon TQ7 2HY.

AUTOGRAPHA GAMMA L. AND NOMOPHILA NOCTUELLA D. & S. IN S. DEVON. — *A. gamma* numbers in the M.V. trap from 14th May to 11th September 1979 were: — May (6 nights) nil, June (22) 9; July (22) 10; August (22) 150; September (9) 16. Total 185. *N. noctuella* numbers were: — May, nil; June, nil; July, 7; August, 12; September, 1. Total 20. — H. L. O'HEFFERNAN, c/o 15 Green Park Way, Chillington, Kingsbridge, South Devon, TQ7 2HY.

THE CRESCENT-STRIPED: APAMEA OBLONGA HAW. AND SLENDER BRINDLE: A. SCOLOPACINA ESP. IN E. SUSSEX. — Two fine *A. oblonga* were taken this year near the banks of the River Cuckmere, about seven miles west of Eastbourne, and at a spot about a mile inland where the river is still tidal. They were captured just after dusk had fallen.

On the 6th August 1979, two examples of *A. scolopacina* were taken at light at Ninfield; and on 10th August, two more. This moth appears to be of infrequent occurrence in this part of Sussex. — M. PARSONS, The Forge, Russells Green, Ninfield, Battle, East Sussex.

The Essex Skipper (*Thymelicus lineola* Ochs.) at Blackheath and Elsewhere in South-east London

By J. F. BURTON *

Mr. A. A. Allen's note (1978) on the presence of *Thymelicus lineola* Ochs. at Blackheath in 1977 prompts me to place on record my notes on the distribution of this butterfly during my residence in the adjacent suburb of Charlton which lasted until 1959; although in the 1950s much of my time was spent away from home and therefore restricted my observations.

Far from being a scarce species, *lineola* was well established and locally common in the late 1940s and early 1950s in several parts of suburban Blackheath, both on the rough parts of the heath and in the neglected gardens of bombed houses. These Blackheath bombed-sites, especially where Buddleia grew in profusion, were rich in butterflies in those years, and one regularly encountered such species as *Thymelicus sylvestris* Poda, *Ochlodes venata* Br. and Grey, *Colias crocea* Geoff., *Gonepteryx rhamni* L., *Pieris napi* L., *Anthocharis cardamines* L., *Lycaena phlaeas* L., *Polyommatus icarus* Rott., *Celastrina argiolus* L., *Vanessa atalanta* L., *Vanessa cardui* L., *Aglais urticae* L., *Inachis io* L., *Polygonia c-album* L., *Lasiommata megera* L., *Maniola jurtina* L., and *Coenonympha pamphilus* L. I even caught a male *Hipparchia semele* Hbn. flying across Blackheath itself on 26th August 1947; presumably a stray from one of the nearest known haunts of the species in north-west Kent, such as Sundridge Park or Dartford Heath.

During the war years and for a few years afterwards several areas of grassland on Blackheath were allowed to grow unchecked and became well endowed with wild flowers. Moreover, some of the old gravel-pits were filled with debris from bombed areas and soon became covered with a lush growth of Oxford Ragwort, Wall Rocket, melilot, thistles, and many other flowering plants typical of bomb-sites and disturbed ground. Thus these parts of Blackheath became an attractive environment for butterflies, including *lineola*. Mr. Allen will be interested to learn that off the heath it was common in July 1947 in the overgrown garden of a bombed house in Mycenae Road and on another bombed-site opposite the pond near the Prince of Wales public house. On 4th August 1957 I captured and released after examination a single individual on a bombed site in Vanbrugh Park, adjacent to the open heath. However, by the mid-1950s *lineola* was very much scarcer in the Blackheath area. It also used to occur in small numbers in the relatively wild south-east corner of Greenwich Park, but as mentioned by D. F. Owen and J. E. Owen (1950) it was declining here too by 1949.

Now that he has moved house to the neighbouring suburb of Charlton, Mr. Allen may also be interested to know that

* 11 Rockside Drive, Henleaze, Bristol BS9 4NW.

on 19th July 1959 I saw an Essex Skipper in my garden in Eversley Road in a heavily built-up area, and that the species used to be particularly abundant at Charlton Sandpit in the 1940s. Elsewhere in south-east London I encountered *lineola* flying in numbers, especially in 1946-47, at Greenwich Marshes, New Charlton, Kidbrooke, Lee Green (Roan School sports ground), Woolwich Common, Eltham Common, Shooter's Hill (in the open parts of the woods and especially on the golf course towards Woolwich), and in the valley bottom of East Wood in Lessness Abbey Wood. I even saw some flying along streets in Deptford during the hot summer of 1947. On the Thames Marshes it was abundant from Plumstead eastwards to Swancombe and Northfleet until the severe flooding of early 1953. Subsequently, it was less common (Burton, 1955) although plentiful enough at Abbey Wood Marshes and Dartford Marshes at least as recently as 1957.

Although Allen may be correct in suggesting that the Essex Skipper has been spreading west in recent years, I think it is likely that small isolated colonies have survived all the time in the Blackheath area and may now be expanding to recolonise former sites after many years of comparative scarcity. I believe that it probably colonised south-east London during the years of its expansion between 1930 and 1945 when the recently-ended long-term climatic amelioration reached its final peak.

Incidentally, I would be interested to know if it is still common at Charlton Sandpit. This site, protected as an S.S.S.I. for its geological importance, used to be a favourite boyhood haunt of mine and would probably still repay investigation by an entomologist. Known locally as Cox's Mount, much of the thick bed of Thanet sand has been excavated to reveal the chalk beneath. Here, as well as an interesting variety of butterflies, I found isolated, but flourishing colonies of *Zygaena lonicerae* Scheven and *Ematurga atomaria* L. in the late 1940s. *Atomaria* was reported from this district in the 18th Century by Moses Harris (1775) assuming his reference to the 'Pale Heath' in 'chalk pits by Charlton' refers to the chalk form of this moth. Other old chalk-pits in the area are nowadays occupied by houses and the Charlton Athletic Football Club Stadium.

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CORRECTION. — *Tyria jacobaeae* L. ab. *pallidula* Watson. On p. 153, line 5 down of this Note, for "pallens" read pallida.
 — EDITOR.

Hyles dahlia Geyer (Lep.: Sphingidae) — A Local Species of Mediterranean Hawkmoth found in Sardinia (June 1976)

By NIGEL F. GOSSLING *

Whilst spending a family holiday at a hotel situated on the north coast of Sardinia, which had been built close to the sea about 4 kms to the east of Castelsardo, I encountered by chance ova and a number of larvae at different stages of growth of this species of hawkmoth on terminal shoots of sea spurge (*Euphorbia paralias* L.). I did not in fact discover this species until the afternoon of the last full day of my holiday, when I was strolling back to the hotel through an area of rough ground covered with patches of extended sea spurge growth lying close to the rocky foreshore. I first noticed a tiny black larva with a distinctive slim horn on its anal segment, which was lying motionless along an upper leaf, and upon examining this larva, I immediately noticed two opaque green, oval shaped ova attached to the upper side of an adjoining leaf. Thereafter I spent a little time examining the upper foilage of other sea spurge plants within a radius of ten metres or so and soon found further larvae in their first, second and third instars browsing amongst terminal leaves and flower bracts within large clumps of sea spurge. I also carried out a search amongst larger plants, which were growing close to the rocks and which had reached the height of a metre or so, and found two full grown larvae in their fifth instar feeding together near the top of a plant, having completely devoured most of the upper foliage. I was surprised to see such full grown larvae entirely exposed to the sun without the display of any signs of distress. Owing to the apparent similarity in the markings and general colouration of the young larvae found with those of the Spurge Hawk (*H. euphorbiae* L.) I was not immediately aware of the fact that I had stumbled upon a different species. I did notice, however, that full grown larvae did display markings and colouration which were distinctly different from those displayed by full grown Spurge Hawk larvae.

Only first instar larve remained black in general colour. Thereafter during the second, third and fourth instar stages the general colouration on the upper dorsal and ventral areas of each segment of the body was black or deep green with many minute white speckled spots all over the upper area of the segments. Within the upper ventral areas of each segment there were, however, two large irregular creamy-white spots lying within a black velvet patch. There was also a distinctive orange dorsal stripe along the full length of the body and a yellowish ventral stripe containing deepened orange patches in each segment on each side of the body. The underside area of each segment appeared to be universally greenish with small irregular white spots of similar character as those displayed on the upper parts of the body. The pro-legs were universally orange and the fore-legs were coral pink. The horn on the

* 24 Hill Crest, Southborough, Tunbridge Wells, Kent.

anal segment was also orange for approximately two-thirds of its length and the remainder was black. As a striking contrast the head and a cervical shield on the upper side of the first segment below the head were deep coral pink. In spite of this appearance, the larvae appeared to blend well with their habitat and only the pink head and cervical shield as well as the orange dorsal stripe appeared to be at odds with the general colouration displayed. Full grown larvae attained the length of approximately 10 cms with a body thickness of approximately 2 cms and their marking and colouration were generally the same as hitherto described, although the area of the belly was universally pale cream with a slight translucent greenish shade present with small irregular white spots as earlier mentioned.

Having first taken a series of photographs of ova and larvae at various stages of growth *in situ*, I duly collected a few young larvae and a further quantity were subsequently collected on the following day before our departure from the hotel. Upon return a dozen or so larvae were offered a supply of sea spurge, which I had brought back home with me, and such plant food was devoured in less than two days! Thereafter the larvae were fed with wood spurge (*E. amygdaloides* L.) and this was likewise devoured within a few days. As my local supply of wood spurge had by now been exhausted, I was obliged to hastily look around for an alternative food-plant to offer and I finally decided to offer the larvae which were by this time in third and fourth instars, rose bay willowherb (*Epilobium angustifolium* L.) and to my relief this substitute was accepted by most larvae, although three third instar larvae did reject this substitute and subsequently were found dead due to starvation. The remainder, however, completed their larval growth and appeared to be healthy and normal in size.

Because the summer weather was particularly warm after my return on 27th June, all surviving larvae reached their final instar within ten to fourteen days after arrival, and thereafter pupation occurred rapidly and by the first week of August all surviving larvae had pupated safely. The larvae made no attempt to burrow into damp peat which was provided for that purpose, and were content to construct cocoons on the surface with the aid of a few willowherb leaves as additional protection. The pupae appeared to be indistinguishable in character from those of the Spurge Hawk.

The imagines began to emerge on 17th August and continued to do so intermittently until the third week in September. The sexes appeared to be evenly matched, although the balance was slightly tipped in favour of the female sex. It was not until emergence occurred that I realised that this species was not *H. euphorbiae* and thanks to the kind assistance of Mr. Robert Goodden towards identification and my subsequent research at the Department of Entomology, British Museum (Natural History), I was able to have the identification of this species confirmed with certainty.

The noteworthy features of the imagines are perhaps the distinctive olive and grey markings on the forewings, which are in fact both variable in density and colour. There are four somewhat indistinct olive patches lying towards the costal region of the forewings with a more distinct olive wedge-shaped patch stretching from the apex to the dorsum. Within the discal area lying between the major olive patches as well as the submarginal area of the forewings the colouration was universally grey. A number of imagines also displayed intermittent black wavy lines within the grey discoidal region of the forewings. Furthermore, many of the main forewing veins were dusted with off-white scales, which gave the insect the superficial appearance of the Striped Hawkmoth (*H. lineata livornica* Esp.). The hindwings displayed a beautiful deep rose or madder pink central area with a white basal patch. The rest of the basal area was black and there was also a submarginal black band of irregular width present on the hindwings with an adjoining greyish pink outer marginal band. The head and thorax were clothed with olive hairs with one distinctive feature, which is not usually apparent amongst *H. euphorbiae* imagines; the shoulder lappets on each side of the thorax were bordered with white hairs which provided the insect with an attractive contrast in colour. The antennae were universally filiform in structure and were generally whitish along the upper sides with a slightly greyish underside area. The legs were also clothed with whitish hairs with the slightest touch of olive. The abdomen was also generally clothed with olive hairs on the upper dorsal region with three distinctive patches of black hairs on the upper ventral surfaces of the first three abdominal segments. The last pair of black patches furthest away from the thorax often were preceded by a smaller area of white hairs. The under sides of both the fore and hind wings were generally pinkish grey with fine mottled markings with a suffusion of blackish androconial hairlike scales within the discoidal region of the forewing undersides. The underside of the abdomen and thorax was also pinkish grey. In other general respects the size and shape of the fore and hind wings were similar to those displayed by *H. euphorbiae*. The freshly emerged imago is certainly an insect of much beauty.

Although the summer weather remained dry and hot until the end of September my attempts at achieving successful pairings failed due largely to my inability to induce the imagines to feed with the aid of wildflowers or artificial methods. Even the presence of a potted *Euphorbia characias* plant as an added stimulation placed inside the wooden shed in which the imagines were kept, did not produce any confirmed results. Two infertile ova were subsequently discovered as having been laid at the base of one shoot of the potted plant.

Resulting from my research and enquiries it would appear that this attractive species is probably confined to the Islands of Corsica, Sardinia and Sicily and may prove in fact to be not

HYLES DAHLII GEYER (LEP.: SPHINGIDAE — SARDINIA 299
uncommon along certain coastal regions of these islands
wherever sea spurge is abundant. There are a few late nine-
teenth century records in existence of the species having been
found in Majorca and Elba and it's existing presence on these
two islands would no doubt require confirmation. It is also
quite likely that this species may have established itself along
restricted coastal areas of Eastern Spain and Western Italy,
although this would require positive confirmation. I do not
personally know whether or not this species has been recorded
elsewhere in the Mediterranean coastal regions and it would
be interesting to hear of any other confirmed localities. In any
event I can but hope that some readers of this article will be
as fortunate as I in finding this species elsewhere and perhaps
be lucky enough to breed such handsome insects. Clearly more
up-to-date information regarding the general distribution and
life-style of this species, which is not well known or recorded
to date, is required.

As a postscript to this article I should perhaps mention
that one female imago failed to emerge with the others and
did not do so for two years and in fact emerged as a perfectly
healthy insect on 27th August 1978. I suspect, however, that
such an occurrence in the wild is somewhat unusual for this
species, as it appeared to be multi-brooded and is likely to
produce at least two to three broods each year and would not
therefore, spend more than two or three months in the winter
period in the pupal stage in view of the warm temperature
climate.

L. G. O. WOODHOUSE'S METHOD OF SCALE TRANSFER. —
The method of lepidopterous scale transfer recalled by D. G.
Sevastopulo ("Decorative Art in Butterflies", *Ent. Rec.* **91**:
133) as perhaps being published in a book on the butterflies of
Ceylon is L. G. O. Woodhouse's "wax-cum-gum" method, one
of the two described in his *The Butterfly Fauna of Ceylon*,
cited in my note on the subject in the same issue ("Scale
Transfers of Lepidoptera", **91**: 133). Actually this method was
first announced by Woodhouse in 1935 as "Notes on a Special
Method of Making Butterfly Pictures", *Proc. Roy. Ent. Soc.*
London **10**: 5-9, and the later account was only slightly
modified: Woodhouse used coloured illustrations of his "wax-
cum-gum" transfers for most of the plates of his book. How-
ever, the query in my note was meant to elicit information or
recollections about "another" method used for certain un-
published transfers of moths in my possession which "wax-
cum-gum" seems to have been surpassed. I am now convinced,
after 'dissecting' a tiny portion clipped from one of the *Attacus*
atlas transfers, that these are indeed of the same process, with
the "great improvements" which Woodhouse explained as
possible by experimenting with paper colouring. These trans-
fers are much superior to the appearance of the plates in his
book, but of course much of the brilliance of the actual trans-
fers must have been lost when they were subjected to the
illustration process. — R. S. WILKINSON, 228 Ninth Street,
N.E., Washington, D.C. 20002, U.S.A.

Six further new butterflies from Southern Africa

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

Nos. 45-50

SATYRIDAE

In February 1977, Messrs. V. L. and E. L. Pringle of Bedford, Cape, made the extraordinary discovery of a member of the *Torynesis* Butler group in the territory of Lesotho (formerly Basutoland). Previously the most easterly known locality for a species of this genus was the Golden Gates National Highlands Park in the Orange Free State (i.e., in South Africa proper), where the discovery of this other species by Messrs. J. H. Potgieter and R. Jones, in January 1968, occasioned very great surprise. This butterfly was duly described by Dr. L. Vari under the name of *Torynesis orangica*, in 1971, in *Ann. Transv. Mus.* **27** (10): 208-210. The habitat of the recently discovered insect lies roughly 70 miles S.E. of that of the earlier one. Up till 1968, no representative of *Torynesis* was known to occur beyond the boundaries of the Cape Province itself.

As would be expected from the relative distribution, it may be stated initially that the present butterfly shows greater affinity to *T. magna* (van Son) than to *T. mintha mintha* (Geyer). It can be separated at once from *magna* by (and amongst, other features) its smaller average size (at least, of the male); narrower white subapical marking of forewing, on both surfaces; the duller and more ferruginous rings surrounding the black ocellate spots on the hindwing upperside of the male; much more ferruginous, rather than yellowish, marking (where such marking does occur) on the upperside of the female; duller and less apparent ferruginous to fulvous colouring on the mainly inner half of the hindwing underside of the male; darker ground-colour (at least in the male) of the hindwing underside; and, in *both* sexes, generally less pronounced silvery marking, on the whole, and notwithstanding this marking always being definitely apparent, including that of the veining.

For the purpose of the following formal descriptive observations under the name concerned, comparisons are made with *T. orangica*, on account of the direct relationship in question, and also partly in view of the taxa occurring so comparatively close to one another as well as so far to the east. *Torynesis pringlei* spec. nov.

The average size of specimens is greater than that of *orangica* — especially that of the female.

Male (Upperside)

Subapical marking, or short band, of forewing narrower, and white, as against pale yellow; the downward extension of this marking, with only a faint yellowish tinge, and the three main constituent markings smaller and mostly more in the form of clear-cut triangles (but especially the first two), and with their margins straighter than in *orangica*. Rings of

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

the black ocellate spots of hindwing, parallel with distal-margin, generally finer and duller and of a more ferruginous colour. Hindwing only shows a trace of the ochreous to ferruginous postdiscal marking which is present in most specimens of *orangica*.

Underside

The short subapical band of forewing again narrower, and white, on this surface, instead of pale yellow as in *orangica*, and its downward continuation in the form of smaller markings than on the upperside, but more yellowish in tint and shading in lower part of series rather more consistently into ferruginous. Inner half (sometimes less) to two-thirds of wing only very dull ferruginous to fulvous, as against a conspicuous bright fulvous. Hindwing similar to that of *orangica*, but the brown colouration uniformly darker, mainly owing to the lack of partial scattered silvery scaling, as in this insect.

Length of forewing: 27.5 mm (including holotype).

Female (Upperside)

Brown ground-colour of all wings considerably darker than that of the female of *T. orangica* (but usually somewhat lighter than that of the male of present species), and the very extensive lightish ochreous to fulvous areas of female of above species, replaced, where and if this marking does occur, by richer fulvous. Markings parallel with distal-margin of forewing (continuing from subapical band) much smaller, while there is no conspicuous *ochreous* marking basad of rings of hindwing ocelli. In the forewing, a fulvous patch is present in, and beyond, middle of cell and less pronounced similarly coloured marking occurs below this, in area 1b. Markings parallel with distal-margin of forewing changing from light yellowish, initially, to ochreous or ferruginous-ochreous, finally. In the hindwing, fulvous colouring occurs in and beyond the middle of the cell and there is some development, to a variable degree, of similarly coloured marking basad of the rings of the ocelli.

Underside

General colour of all wings much darker than that of the female of *T. orangica*. Extensive fulvous or ferruginous colouring present in forewing — in place of the lighter and brighter ferruginous of above species. Subapical short band and markings extending downwards from it, narrower and reduced in size in comparison with those of *orangica*, in which all such marking is of an almost uniform light yellow tone. The marking parallel with the distal-margin is, in the present species, much as on the upperside, but may be reduced. In the allotype, there is a minute ocellate spot in area 4, below the second main ocellate spot, on the right forewing, and a slight trace of a similar spot is apparent on the left forewing.

Differences in the hindwing, in comparison with *T. orangica*, are as given for the male, but are perhaps relatively more pronounced.

Length of forewing: 28.75-32.5 mm (29.25 mm in allotype).

The characters given in the foregoing statements are essentially those which are observable in the holotype and allotype themselves, and allowance must be made for the degree of variation occurring in other specimens of the taxon, of the type that may be expected in members of this group: attention having in fact been drawn to some of this variation. The male genitalia have not been dissected as yet; but these organs do not show very clear-cut differences in the majority of the *Torynesis* even if they have been of some use in certain instances. It is believed that its distinctive external features provide sufficient proof of *T. pringlei* being specifically distinct from other members of the genus.

♂ Holotype, LESOTHO: Black Mountains, 4.ii.1977 (E. L. Pringle); British Museum Reg. No. Rh. 18680.

♀ Allotype, LESOTHO: Rafolatsane, 2.ii.1977 (E. L. Pringle); British Museum Reg. No. Rh. 18681.

Paratypes in Pringle Collection: data as for allotype, 3.ii.1977, one ♂, one ♀ (V. L. Pringle); 2.ii.1977, two ♀♀, 3.ii.1977, one ♀ (E. L. Pringle).

Three female paratypes possess a third ocellate spot or marking in area 4, in both forewings, on the upperside; in one specimen decidedly small, in another appreciably larger and in the third example much larger still and approximately half the size of the ocellate marking above it in area 5. In the second and third specimens mentioned, there is a minute ocellus, in area 7, in both forewings; and in the third a small but prominent ocellate spot in area 4, in both forewings, on the underside. The size attained by the last named female (total expanse 60 mm). is noteworthy.

(To be continued)

LITHOPHANE LEAUTIERI BOISD. (BLAIR'S SHOULDER-KNOT) IN N.W. KENT. — On the morning of 10th October 1979 I was surprised to find a specimen of *leautieri* in my garden moth trap. Although this moth is known to be extending its range, I can only trace two other records from Kent, these being Dover (1977) and Faversham (1978), both recorded in this Journal. — P. A. SOKOLOFF, 4 Steep Close, Orpington, Kent.

RHYACIA SIMULANS HUFN. (DOTTED RUSTIC) IN ESSEX. — On the 30th July 1978 I was pleasantly surprised to find a specimen of the above species in my m.v. trap. A second example occurred on 23rd August. This year 1979, a specimen occurred on the 28th June, followed by further single examples on July 12th, 14th, 15th, and 20th, with a final one just identifiable with reasonable certainty on 9th September. — A. J. DEWICK, Curry Farm, Bradwell-on-Sea, Essex.

LOZOTAENIODES FORMOSANUS (GEYER) (LEP.: TORTRICIDAE) IN GLAMORGAN. — On the 20th July 1979, I captured a good specimen of this little moth in my garden M.V. trap. I believe this to be the first capture of this species in Glamorgan. — D. R. Stephenson, "The Haven". St. Mary Church, Cowbridge, South Glamorgan, South Wales.

On Phoridae (Diptera) from Sawfly Cocoons (Hym.: Symphyta)

By ANDREW D. LISTON *

During the winter of 1977/78 I made several trips to collect cocoons of *Cimbex femoratus* (L.) from a birch wood known as the "Bell" in the upper Whitadder valley, East Lothian (OS map reference NT 6763).

The cocoons of *C. femoratus* are cylindrical, with bluntly rounded ends, a rough outer surface, sometimes with fragments of vegetable debris attached to the outside. The inner surface is smooth and glossy, the whole cocoon is brown in colour and has a mean length of 2.5 cm. They are almost always formed in soil, or leaf litter, not more than a few inches away from the base of the host tree and seldom very deeply. Only once have I found a cocoon in a crevice on the trunk of a tree. This cocoon was unusually thin so as to be slightly translucent, the outline of the prepupa could be clearly seen. Possibly the larva had been unhealthy and lethargic. This may have caused it to build its cocoon before reaching the foot of the trunk. The prepupa did in fact die several weeks later. The fabric and structure of a normally formed cocoon cause it to be extremely hard and strong. The adult makes use of its large and powerful mandibles to bite its way from the cocoon in late May or early June.

Fourteen cocoons, not including that which is mentioned above, were collected at the Whitadder locality. Six had been vacated by sawflies. Five bore roughly circular emergence holes near one end and contained the remains of thin, white silk cocoons which were almost certainly made by *Opheltes glaucopterosus* (L.), a solitary Scolobatine (Ichneumonidae) parasitoid often recorded in birch woods and noted as endoparasitic in the prepupae of *C. femoratus* (Gauld and Huddleston, 1976). Two cocoons produced adult sawflies. The last cocoon was completely intact and was found to contain nearly forty Diptera puparia of the cyclorrhaphous type. These were found adhering to the wall of the cocoon both singly and in small clusters. The remains of the *Cimbex* prepupa were lying flat against the wall of the cocoon. The head was complete, but presented a deformed and collapsed appearance. The skin was intact and still retained a green colour and signs of the black dorsal band to be found on the larvae of *C. femoratus*.

The Diptera puparia were identified by Mr. K. G. V. Smith as belonging to Phorids, almost certainly of the genus *Megaselia*. Unfortunately, all the puparia had been vacated. Mr. Smith was therefore unable to state definitely to which species the puparia belonged, but thought it most likely that they were puparia of *Megaselia giraudi* Egger. *M. giraudi* has been reared from a variety of moribund insects. Mr. Smith

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informs me (*pers. comm.*) that Lundbeck (1922: p. 205) records *giraudi* from a cocoon of *Cimbex variabilis* (= *femoratus*). Mr. Smith also informs me of the following published records. Aldrich (1892) describes *Megaselia setacea* and *Phora cimbicis* (the latter is in fact *Doplonévra funebris* (Meigen)) and records *M. agarici* Lintner all from *Cimbex americanus*. Hsin (1935) records *M. ruficornis* Meigen from a pupa of a *Diprion* species. Benson (1950) omits any mention of Phoridae.

Dr. Disney (*per. comm.*) has compared my empty puparia with specimen puparia of *M. giraudi* in his collection. He informs me that they are similar to those of *giraudi*, but probably belong to another related species of *Megaselia*. My specimens would appear to differ from those of *giraudi* in having the lateral processes a little larger and the postero-lateral processes set at a different angle.

I regard the presence of Phoridae in the cocoons of sawflies as merely fortuitous. It would seem most likely that the adult Phorid finds a sawfly burrowing in soil in order to pupate. The Phorid may then "mistake" the larva for being moribund and oviposit in it. It would appear to be significant that only sawflies pupating underground are affected, at least on present evidence. I have collected over a hundred and fifty cocoons of *Trichiosoma lucorum* (L.) (= *latreillei* Leach), from the branches of birches at the Whitadder and seventeen other similar localities and have found no evidence of Phoridae in any of these cocoons. *T. lucorum* is closely related to *C. femoratus* (both belonging to the Cimbicinae of the Cimbicidae) and the only major biological difference occurring between them in the cocoon stage is in the different sites chosen for the cocoon.

My objection to the sawfly larva having been moribund when attacked by the Phorid is that dying larvae seldom manage to produce an adequate cocoon. The development of the Phorid larvae after oviposition is presumably quite similar to that of certain parasitic Hymenoptera. But I consider it impossible that the adult flies could make an exit from an intact cocoon of the sort constructed by *Cimbex*, their mouthparts would be totally inadequate. The complete absence of dead flies was initially puzzling. I now feel that the dampness released from the dead sawfly prepupa was sufficient to decompose the bodies of the flies.

Further observations on Phorids bred from sawfly cocoons would obviously be of considerable interest on several counts, but to the present author it would seem an impossibility for these insects to develop an obligate parasitic habit (or even a successful fortuitous one) where the cocoons of sawflies are concerned. It should be noted that Dr. Disney considers (*pers. comm.*) that the flies may have emerged successfully, and that they were present as obligate parasitoids. Either opinion may be the correct interpretation of the situation.

Acknowledgements

I am most grateful to Dr. R. H. L. Disney of the Field Studies Council, Mr. E. C. Pelham-Clinton of the Royal

Scottish Museum and Mr. K. G. V. Smith of the British Museum (Natural History) for their invaluable help in the preparation of this article.

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EUPITHECIA PHOENICEATA RAMBUR IN EAST KENT. — A single specimen of this species was taken in my Robinson trap on the night of 15/16 August 1979 in Kingsdown, near Deal, Kent. A second specimen arrived on the night of 5/6 September, this unfortunately though escaped. The trap was run up to the 2/3 of October in the same locality, however no further specimens were seen, neither did a search of the *Cupressus macrocarpus* trees in the village yield any more individuals. — A. P. FOSTER, Ladn Vean, Grove Hill, Mawnan Smith, near Falmouth, Cornwall TR11 5ES.

THE GREY SHOULDER-KNOT: LITHOPHANE ORNITOPUS HUFNAGEL AT HAMPSTEAD. — I see our late colleague Baron de Worms regarded the occurrence of this moth at Woking to be worth a note (see *Ent. Rec.*, **91**: 220). Among the London records that I would have been sending to him is one of this species as the solitary catch in an actinic light trap at Hampstead on April 19th 1979. — A. A. SOFTLY, 12 Parliament Court, Parliament Hill, London NW3 2TS.

AUTUMN MIGRANTS, 1979. — Records of autumn migrants might find the following records at light at this address of interest: A male of the Four-spotted Footman (*Lithosia quadra* L.) came on 10th October and a male of the White-speck Wainscot (*L. unipuncta* Haw.) on the 20th of October. Both nights very mild and "mothy" and both species are new for the home list and relatively unusual for Essex. — J. B. FISHER, Beaumont House, Beaumont-cum-Moze, Thorpe-le-Soken.

SCYTHROPIA CRATAEGELLA L. IN S.E. LONDON. — On 6th July 1979 I took a good specimen of this distinctive moth, the first I had ever met with, at m.v. light here. The fact that *S. crataegella* is not included in the long list of 'micros' in 'Woolwich Surveys' (1909), and that I never saw it at Blackheath during my years there with the lamp (1959-73), suggests that the species may be a newcomer to the area. If not, it must surely be very scarce in these parts. I have no information regarding its occurrence elsewhere in Kent; but possess an example taken by my friend Dudley Collins at his m.v. lamp, at Carshalton Beeches, near Croydon, in 1955.— A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Contribution to the Knowledge of Phasmida II: Copulation with a spermatophore in *Baculum impigra* Brunner von Wattenwyl

By ULF CARLBERG *

Introduction

Baculum impigra was originally described as *Cuniculina impigra* by Brunner von Wattenwyl (1907). It belongs to the family Phasmatidae and the subfamily Phasmatinae and is distributed in Tonkin (North Vietnam). It is an apterous, sticklike species, the male is ca. 76 mm long and the female is ca. 104 mm long. A full description of the male is given by Carlberg (a). Eggs were obtained from Dr. Don Graham (University of Kaiserslautern, Federal Republic of Germany). The insects were reared in room-temperature (18-25°C) and fed with *Quercus robur* L., *Sorbus aucuparia* L., *Rosa canina* L., *Betula pubescens* Ehrh., *B. verrucosa* Ehrh., *Rubus fruticosus* s.l. and sprayed daily with luke-warm water.

Since Clark (1974a) gave species of this group "English" names, I suggest "The Tonkin Stick" as an English name for this species.

In this paper the copulation and the spermatophore are studied.

Copulation

The copulation in this species is a rather typical Phasmid-copulation, so I will just describe its duration. The copulation starts at dusk, ca. 21.00 hours, and they remain in copula during the night. In the morning at about 08.00 — 09.00 hours they separate. This makes a duration of 11-12 hours. It seems to be a rather short time since e.g. Foucher (1916) reported 12-14 hours for *Cyphocrania gigas* L. and I (Carlbergb) reported 15-19 hours for *Extatosoma tiaratum* MacLeay.

Spermatophore

Spermatophores have only been recorded in three species of the stick and leaf insects before. It was first reported in the walking leaf *Phyllium bioculatum* Gray by Chopard (1934) and figured by him later (Chopard 1938). Favrelle (1938) found it in the stick insect *Phalces longiscaphus* de Haan, and Le Feuvre (1939) nearly simultaneously described it for the same species. Then nothing happened for a long time until Clark (1974b) described it in the stick insect *Extatosoma tiaratum* MacLeay.

The spermatophore of *B. impigra* is white in colour and is a sphere with a diameter of ca. 1 mm. It could be seen in the terminal segment of the female during the copulation and shortly after it.

The spermatophores in Orthoptera *sensu stricto* have a different shape (Chopard 1938), but for the few species of Phasmida they seem to have the same shape. They are small spheres with a little tube. When it is attached to the female's

* Atlasvägen 53¹, S—131 34, Nacka, Sweden.

terminal segment, the sphere is only visible as a small white spot. Since they are so small (in diameter): 2 mm for *Phyllium*, 1 mm for *Phalces* and *Baculum*, 2-3 mm for *Extatosoma* it is surprising that they are noticed.

Both Chopard (1934) and Clark (1974b) suggested that it was likely that spermatophores were the normal method to transfer sperm in the Phasmida. Since *B. impigra* belongs to the same family as *E. tiaratum* I cannot add any new taxonomic range of the occurrence of spermatophores in this insect order — just give a new example that occurs. I believe that if we studied copulation in Phasmida more carefully, it is likely that spermatophores would be recorded in more species. At present it is only recorded in 0.16% of the species.

Postscript

Favrelle and Vichet in 1937 (*Comp. Rend. Acad. Sc.*, **204** (25): 1899-1900) published an account of the European stick insect *Bacillus rossius* (Rossius) where they mentioned the presence of the spermatophore during the copulation. This makes a total of five species of Phasmida with spermatophores.

Acknowledgements

I wish to thank Dr. D. Graham (University of Kaiserslautern, Federal Republic of Germany) for sending eggs of this interesting species.

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Entomological Cabinets

By R. L. E. FORD¹

Now that the craft of making fine entomological cabinets has virtually died out and future craftsmen will be prevented from making more cabinets by the cost, it might be as well to place on record a few details of past manufacturers.

I think without doubt the finest entomological cabinets that were ever produced were those made by Brady, father and son.

The main features which distinguish these beautiful products were:— All mahogany throughout, hidden bearer runners, lifting off frame lids with an extremely narrow frame, and these narrow frames, the thinnest made by anybody, closed down to a tongued and grooved base.

They were so airtight in fact that many think they are difficult to use, as great care is needed when lifting the lids. The camphor cells were concealed in the side of the drawer and closed by a small piece of the 'rail' holding the frame, sliding out. So well did these fit that they were almost invisible. I heard a remark at an auction that 'I didn't go for that cabinet, it has no camphor cells'. A fine investment opportunity lost!

The Bradys flourished around 1900. The cost was then ten shillings a drawer but you could not just go and order a cabinet, Brady worked for love as well. You had to get alongside him and remark that you had dined with a Mr. so and so and saw his wonderful cabinets and wished you were lucky enough to have one like it. All being well Brady might offer to make you one. When my father had one, Brady followed it up with two for birds eggs for one of my uncles, and they are still in the family².

Between the wars, John Jaques of that famous Sports Firm and a micro collector, made in his factory two very fine copies of a Brady cabinet, but these were in two tiers of ten. Using modern machinery they were very fine copies but just distinguishable from those made by the master. These two are now in a museum in the West Country.

Brady was closely followed by Gurney who went to the other extreme by being more robust. The frames on the

¹The Warren, Yarmouth, Isle of Wight.

²The Brady may be regarded as the Rolls Royce of cabinets. However, whereas the Rolls is still being manufactured. Brady ceased production some 60 years ago. According to an invoice in my possession dated the 1st of June 1909. Brady was a "Shop fitter and Entomological Cabinet Maker", of 368 Lower Fore Street, Edmonton. He appears to have begun making insect cabinets around 1870, and on the back cover of the *Entomologist* for April 1878 was advertising from 3 Bridport Cottages, Silver Street, Edmonton, London, E., mahogany cabinets at 10s per drawer. For sheer perfection of workmanship, the Brady cabinet has never been equalled, nor indeed is it ever likely to be — J.M.C.-H.

drawers were very much wider, often to conceal a continuous camphor cell which ran right round the drawer. The door was generally about $1\frac{1}{4}$ inches thick and the whole cabinet very thick. While Brady cabinets were mostly of 20 drawers each, in one tier, Gurney made cabinets of 40, 20, 12 and ten drawers but the smaller ones were rarer.

Before the 1914 war thin sheets of virgin cork were used, pieces being jig-sawed together and then sanded down. Both Brady and Gurney used this method and like Bradys, the Gurney cabinets were all of solid mahogany, even the bases of the drawers.

During and just after that war, cork became difficult and for a time odd makers (not the above) used cork lineoleum as a substitute. This was of course not as good. It can be distinguished by two features. The drawer feels very heavy, and when you withdraw a pin there is a very slight 'click' and a jerk as the pin is gripped by the lino (and off comes the body!).

Immediately after the war came Crockett. He introduced plywood for the bases of the drawers. He made sound and useful cabinets often in deal, sometimes with mahogany sides and doors and often using the rail principle to support the drawers instead of the concealed runners. This means the drawers looked deeper as there had to be a flange in front to conceal the rails on the insides of the cabinets. Towards the end of his career, Crockett did produce a few cabinets in mahogany. Unlike the two first makers, the drawers of Crockett's cabinets were not as well fitting and not always interchangeable with each other.

In the period between wars Watkins & Doncaster dominated the cabinet scene, the maker being Kendrew who, at his best produced cabinets almost as fine as any. The last one he made in the top bracket was purchased by the late John Spedan Lewis, and I think is still in his country house and preserved there.

W. & D. produced a very wide variety of cabinets, from deal with a dark varnish (which scratched easily) for the schoolboy trade, to the finest mahogany cabinets. At this time they could take advantage of two items, composition cork and mahogany plywood.

The joints of the sides of the drawers of the best of Kendrew's and all those made by Brady and Gurney were dovetailed.

Hills, father and son, introduced a new and very good system for cabinets. They produced a cabinet with a loose base and top and a unit of ten drawers so that you could stack 10, 20 or 30 drawers in a single tier. The units had a shutter to close them although later some were made with hinged doors. The reason for the shutter was that the cabinets were designed to be built into a continuous bank. They were made in oak or mahogany facings with, generally, whitewood sides to the drawers. The drawers had comb corners and a fairly generous tolerance so that they could be quite interchangeable with any unit. On the whole a good idea, but once committed to this

scheme one had to continue, and when prices advanced during and after the war some collectors felt they were trapped!

I once inspected the coleoptera collection formed by the late Nathaniel Lloyd. He had what looked like a huge collection of about twenty cabinets each in two units of ten. He did not like stooping however, and the bottom units were empty without even a pin hole in the drawers, and served to support the upper deck. They went to Manchester I think, and what a windfall for them.

The main manufacturers used a different design for the edging on the tops of their cabinets, so you can sometimes distinguish them by this. But over the years various amateur makers copied styles, possibly to match a cabinet they possessed or even by accident, so that this feature does not always serve as a reliable guide to the maker.

There must have been hundreds of cabinets of all shapes and sizes produced over the years. My own father, in the earlier days, even made about three, using walnut from a tree in the grounds of his father's estate. I once bought a beautiful cabinet, made at Osborne House by the then Queen's (Victoria) carpenter for one of the ground staff. Not only was it of solid mahogany, but the bases of the drawers were made from half inch thick mahogany.

I have even seen a cabinet with two secret drawers, one at the top and one at the bottom. So good was the top one that the owner passed on without knowing what he had. It contained blown larvae with a lot number from a sale. No doubt these were made for specimens on the 'protected list'!

LATE EMERGENCE OF COMMA BUTTERFLY. — Further to the article "Possible Overwintering of Pupae 1977/1978?" (1978, *Ent. Rec.*, 90: 271), I chanced to find a newly emerged Comma (*Polygonia c-album* L.) drying its wings on the morning of October 27th 1978. Had the weather been other than mild, perhaps emergence could have been delayed until the spring. Autumn roosting habits from observations vary greatly, individuals flying up to the underside of high boughs, fluttering deep into bushes as do red admirals, or just resting on the upperside of a leaf. In the latter case, the wings were closed from a basking position, and the insect did not awaken until strong sunlight had eventually reached and fallen upon it for several minutes on the following morning. — A. ARCHER-LOCK, 5 Windsor Villas, Lockyer Street, Plymouth, S. Devon.

RASPBERRY AS A NATURAL PABULUM OF THE HOLLY BLUE. — On July 11th 1979, when picking raspberries in the garden, I found an apparent Hairstreak larva which duly pupated. I concluded it was *C. rubi* as some years ago I found a larva of this species feeding on raspberry. In spite of careful searching no further larvae could be found. Much to my surprise, on 30th July, a male *L. argiolus* emerged from the pupa. Incidentally there is both Holly and Ivy in the garden. — DR. J. V. BANNER, Wykehurst, 41 Varndean Gardens, Brighton, Sussex.

Butterflies in Northern Greece: June-July 1978

By J. V. Dacie¹, Margaret K. V. Dacie¹, P. Grammaticos²,
L. G. Higgins³ and Nesta Higgins³

The following account is based upon the results of mainly roadside collecting in northern Greece between the 18th June and 8th July 1978. We revisited localities where we had collected on previous occasions (Dacie, J. V. and M. K. V. and Grammaticos, 1970, 1972, 1977) as well as venturing into several new areas. Based at Kallikratia in the Chalcidiki peninsula, we visited mountainous country near Florina (19th-20th June), explored several areas north of Drama (23rd-25th June; 27th June), collected en route from Drama to Alexandroupolis and back via Xanthi (28th June; 2nd July) and Komotini (29th June), explored an area north of Alexandroupolis (30th June; 1st July), and made a separate visit to mountains north of Serre (7th-8th July). In addition, we collected on Mt. Cholomon in the Chalcidiki peninsula on the 21st June and 5th July.

We identified 129 species, including ten species which we had not previously seen in the area. Several of these may be new records for Greece.

The following species we feel are of particular interest:—

Pieridae

Pontia chloridice Huebner. We were surprised to find a well-established colony of this species among the low hills inland from Alexandroupolis. On 30th June the second generation was flying freely at about 400 m. along the stony bed of a small stream, with low trees and bushy scrub covering the hillsides. *P. chloridice* is well known to occur in E. Bulgaria (Roumelis) and in N. Turkey; and we are told by Professor Lorkovic that single specimens have been recorded from Yugoslav Macedonia in the Vardar valley at Demi Kapija and near Gevgelija on the Grecian frontier. We are unaware of previous Grecian records.

Elphinstonia charltonia penia Freyer. When we stopped for lunch on a dry, inhospitable mountainside north of Drama, we were astonished to discover that we had chosen the site of a colony of this very local butterfly. The insects were flying over the rough scrub at about 800 m. The specimens collected resemble in every respect the form from Skopje. The species has a curious distribution, extending from the Canary Islands and N.W. Africa to W. Asia. In Europe it occurs only in scanty colonies in Yugoslav Macedonia and, as we have shown, also in N. Greece.

Gonepteryx cleopatra europaea Verity. On 5th July males of this butterfly were common on Mt. Cholomon on the Chal-

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³Dr. and Mrs. Lionel Higgins, Focklesbrook Farm, Chobham, Woking, Surrey.

cidiki peninsula, flying at an altitude of 900 m. or more. On the uppersides the specimens are not remarkable; on the undersides the hindwings of four of six specimens are form *italica* Gerhardt, with yellow ground-colour. *G. cleopatra* was not seen further north, i.e., near Florina or anywhere in the frontier mountains eastwards to Alexandroupolis. Thurner (1964) attributed its absence from Yugoslav Macedonia to lack of an acceptable foodplant.

Nymphalidae

Melitaea arduinna rhodopensis Freyer. We found this splendid subspecies fully out and in perfect condition on the 20th June, flying at 1,400 m. on a bushy mountainside near Florina, in a locality previously discovered by Dacie *et al.* (1977). This large and brilliant race was originally described by Freyer from "European Turkey", and the Florina area can be specified as the type locality. The specimens we collected there agree in every respect with Freyer's excellent figures, and it seems certain that the original specimen must have come from the same area. In Greece *M. a. rhodopensis* is certainly very local but rather widely distributed in the N.W. corner of the country. Thus it was taken by Dacie *et al.* (1977) near Lehovon, south of Florina between Kastoria and Amynteon, and by Koutsaftikis (1974) near Ioannina. Further east the race has been recorded by Rebel from Bulgaria and Romania, but a single female from Tulcea is small, forewing 21 mm.; specimens from Bulgaria have not been seen. The few specimens from Asiatic Turkey available for comparison are small and do not have the bold markings of the Grecian form.

Satyridae

Hipparchia fagi Scopoli. Specimens of this large species were taken by the roadside in several places near Drama, Xanthi and Serre.

Hipparchia syriaca Staudinger. A single female specimen was taken near Florina where the species had been caught earlier (Dacie *et al.* 1977). Further east, we did not encounter it until we reached Alexandroupolis; it was then found to be not uncommon at about 400 m., but very difficult to catch, along a road running through the low hills to the north of the town. Three males taken for identification were found to be all *H. syriaca*.

Hipparchia delattini Kudrna. This species was abundant in the locality between Florina and Edessa where it had been found flying over a barren, stony upland area (Dacie *et al.* 1977) and was present also in another colony a few miles distant. It was not found elsewhere by us. Its distribution is not well defined at present, but in addition to N.W. Greece it is known to occur in S. Bosnia (Yugoslav Macedonia) as far north as Kosovo and has been reported from Sebenike in Dalmatia.

Hipparchia aristaeus senthes Fruhstorfer. This species was seen frequently, e.g., near Serre, Drama, Xanthi and Alexandroupolis, and whenever possible specimens were taken

for examination. East of Florina all the specimens were confirmed as *H. a. senthes*. The species was not seen in the Florina area itself.

Erebia oeme Hübner. North of Drama we found an extensive colony flying at 1,300-1,650 m. among the fir trees which covered the mountains. The race can be placed as *E. o. vetulonia* Fruhstorfer, with upperside markings fully developed but scarcely sufficiently striking to rank as *E. o. spodia* Staudinger. This variable species is widely distributed in Bulgaria and Yugoslavia, but we believe it has not been recorded previously from Greece.

Coenonympha rhodopensis Elwes. A few worn specimens were taken near Florina and others north of Serre, flying at about 1,600 m. We were clearly too late for this interesting species, first recorded for Greece by Koutsaftikis in 1974. *C. rhodopensis* is a mountain species and in Greece it appears to be restricted to Macedonia, but it is widespread in Bulgaria and southern Yugoslavia. In Italy it is found on Monte Baldo and the central Abruzzi. Although known since 1900 as *C. tullia rhodopensis*, the taxon is usually given specific rank today.

Coenonympha leander Esper. Several worn males were taken in several localities in the mountains north of Florina at about 1,500 m. All appear to be of the typical form, *C. l. leander*, and correspond exactly with the Bulgarian race; the uppersides are rather dark. They clearly differ from *C. l. orientalis* Rebel which occurs in the Pindus Mts. north of Kalambarka.

Lasiommata petropolitana F. A single worn male was taken flying with *E. oeme* in the locality north of Drama.

Riodinidae

Hamearis lucina L. Worn specimens were seen flying at 1,600 m. near Florina and others north of Drama flying at 1,000 m.

Lycaenidae

Quercusia quercus L. Four males were taken in the hilly country north of Alexandroupolis. These are of large size, with forewing 19 mm.; the uppersides are dark with greenish reflections. In these respects they agree with a larger series from Tripolis (Peloponnesos) and are easily distinguished from central European specimens. The distribution of this race should be worth further investigation.

Heodes ottomanus Lefèbvre. A few males were taken near Xanthi and north of Alexandroupolis; they were not uncommon on Mt. Cholomon in one locality at about 1,000 m.

Tarucus balkanicus Freyer. A single specimen was caught north of Drama.

Everes decoloratus Staudinger. This species was not uncommon in several localities near Drama.

Glaucopsyche alexis Poda. A few males were seen north of Drama and near Xanthi and Serre. The uppersides of all the specimens taken had unusually broad black marginal borders.

Maculineaalcon D. & S. A small colony was found at an altitude of 1,200 m. on a subalpine meadow north of Drama. The specimens taken were not in any way remarkable. In the Balkans the species seems to occur as a mountain butterfly. It is very local and generally rare, but quite widely distributed in Bulgaria and Yugoslavia. Its presence in Greece was first recorded by Coutsis (1972) who took a single specimen in the southern Pindus near Kalambarka. Further records have not been found for Greece where it is clearly very uncommon.

Lycaeidea idas L. This is widely distributed and we found it almost everywhere we visited. In form it corresponds to the large, handsome race, *L. i. magnagraeca* Verity, and is very different from the smaller races flying in Greece further south. We had hoped to find *L. argyrognomon* among the various specimens examined but this species has not been identified.

Eumedonia eumedoa Esper. About six specimens were taken at the locality N. of Drama where we found *Erebia oeme* Hübner. All are referable to the large eastern form *E. e. rumeliensis* Eischberger.

Agrodiaetus admetus Freyer. This species was not uncommon in fresh condition in two localities N. of Drama and also N. of Serre.

Agrodiaetus aroanensis Brown. A few specimens were taken near Xanthi. Only males were seen.

Aricia agestis D. & S. This was common in many places. Many specimens were examined but forms of *A. artaxerxes* were not seen.

Hesperiidae

Carcharodus lavatherae Esper. This species is widely distributed and locally common. We found it near Florina, Xanthi, Drama and Alexandroupolis in hilly and mountainous places.

Gegenes nostrodamus F. Two specimens were taken on the coastal path at Kallikratia, on the west side of the Chalcidiki peninsula.

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Some observations on *Orgyia thyellina* Butler and *Orgyia antiqua* (L.)

By SIR CYRIL CLARKE, K.B.E., F.R.S.*

Dr. H. B. D. Kettlewell¹, when commenting that females of the Japanese Vapourer *Orgyia thyellina* (from pupae which I sent him) assembled males of *Orgyia antiqua*, does not mention that this fact has been known for many years^{2, 3}. The phenomenon is in accord with the finding of full reciprocity of pheromone activity in the genus *Orgyia*⁴.

Hybrids between *O. thyellina* female and *O. antiqua* male and the reciprocal are also well documented^{2, 3, 5, 6} and so far I have found little upset in the sex ratio in the broods I have bred, and this is of interest because the haploid chromosome number is different (*antiqua* 14, *thyellina* 11)^{3, 6}. The F1 insects (which are intermediate in character) are said to be sterile⁵ or to have very reduced fecundity⁶.

The chief interest in these hybrids concerns the females. In pure *O. thyellina* these are either winged or wingless and the former are more likely to result from those larvae which are bred when the hours of daylight are increasing⁷. There may however in addition be a genetic component, and this is testable in the hybrids. For example, in the cross female *antiqua* X male *thyellina* the male might come from a winged or wingless mother. I have fertile eggs from both these crosses and further details, including chromosome and sex chromatin findings, will be published later.

The distribution of *O. thyellina* is given as Korea, the islands of Japan and Taiwan⁵, but there is no mention of China. I was in the Republic for part of July and August 1978 and took with me female pupae of *O. thyellina*. These emerged when I was in the north of the country but they failed to assemble any species of *Orgyia*. This may be because *O. thyellina* does not occur there, but I found a full grown Vapourer-like caterpillar on the Great Wall, and it produced (in China) a wingless female which looked very much like *antiqua* (but not like wingless *thyellina*). No males were attracted to it.

On my return home I found like Dr. Kettlewell, that my garden was full of *antiqua* males, assembling to *thyellina*.

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* Department of Genetics, University of Liverpool.

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CAMBERWELL BEAUTIES: NYMPHALIS ANTIOPA L. ON THE SAME DATE. — My aunt and uncle, Mr. and Mrs. S. Smith, reported to me seeing a large chocolate brown butterfly with cream borders in their garden at Peterborough on August 29th 1979. The butterfly was immediately recognised as 'different' and was on Daphne Neapolitan Collis, whilst about 10-12 Peacocks (*Inachis io*) disported on Buddleja. On calling my aunt, the butterfly moved to a glass roof and thence to a wall. It was of special interest that the local 1.00 news mentioned that a rare warm air-stream was reaching East Anglia from Scandinavia (a stronghold of *antiopa*).

It is something of coincidence that this year I was lucky enough to see my first *antiopa* whilst walking the circular Tour du Mont Blanc near Chamonix. This was also on August 29th. — MICHAEL R. BRITTON, 27 Patricia Close, Slough, SL1 5HT, Berks.

A LATE DATE FOR THE OLD LADY: MORMO MAURA (L.).— On the 14th October at a light in a toilet block at Haywards Heath, Sussex I found a fresh specimen of this moth. On checking both my own and other records I cannot find a date for this species as late as this. — D. DEY, 9 Monmouth Close, Rainham, Gillingham, Kent.

THE DOTTED RUSTIC: RHYACIA SIMULANS (HUFNAGEL) IN KENT IN 1979. — In a wood at Wilmington, W. Kent, on 6th July 1979, I collected during the daytime a fine specimen of this moth which had flown up after being disturbed. — A. G. J. BUTCHER, The Fairway, Rochester, Kent [This is only the second record of this moth in Kent. I have seen the specimen which is paler than the rather dark example taken in 1978 by Dr. Watkinson at Boughton-under-Blean (cf. *Ent. Rec.*, **90**: 324). — J.M.C.-H.]

THE FIRST KENT RECORD OF JUDOLIA CERAMBYCIFORMIS SCHK. (COL.: CERAMBYCIDAE). — This attractive Lepturine longicorn is a typically western species in our islands, becoming increasingly local and sporadic towards the south-east. There are several scattered records for Sussex, mostly recent; for Surrey I know only of two (one old) both on the western side, and none (published) for Kent. That the beetle does reach into the west of this county, however, is shown by the capture of a specimen in a wooded part of Squerries Park, Westerham, in May or early June 1960 by my friend A. W. Gould. Here it probably attains its eastern limit in Britain. — A. A. ALLEN.

PLATE X

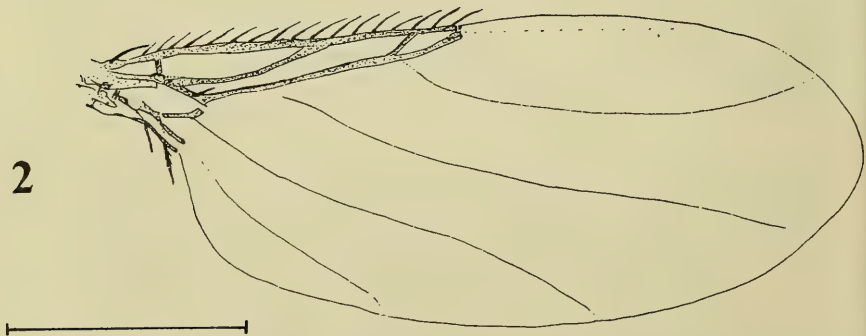
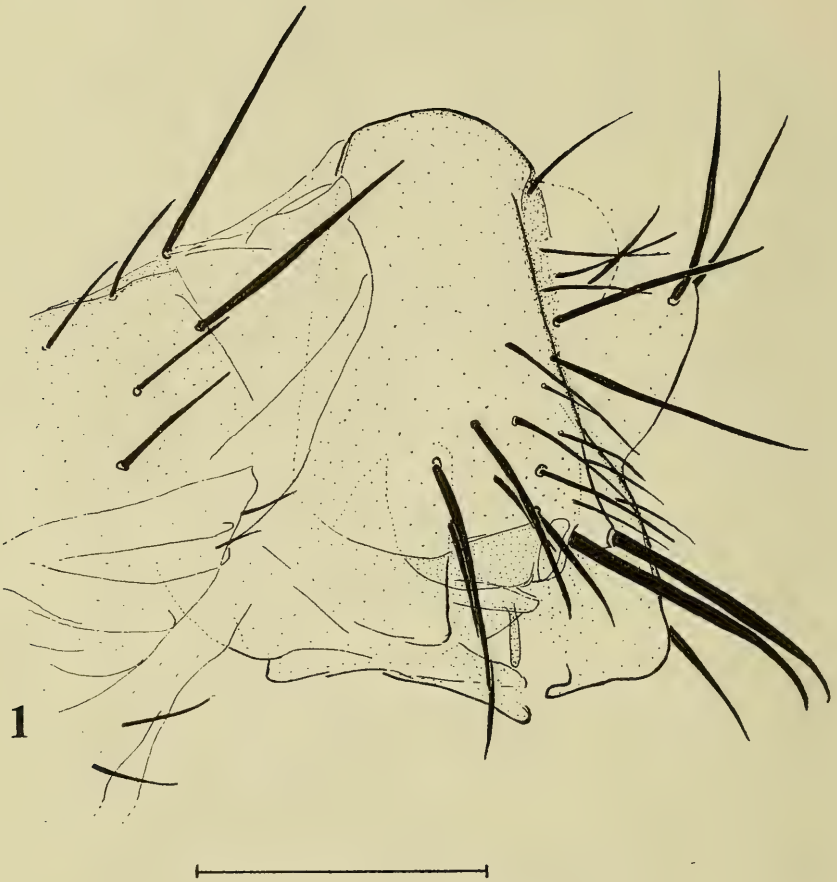


Fig. 1. *Megaselia hendersoni* sp. n. male terminalia viewed from left side. (Scale line = 0.1 mm.).

Fig. 2 *Megaselia hendersoni* sp. n. right wing of female. (Scale line = 0.5 mm.).

A New Species of *Megaselia* Rondani (Diptera: Phoridae) from Northamptonshire

By R. H. L. DISNEY*

Among some scuttle flies obtained in emergence traps set over soil in pastures by Dr. R. O. Clements and Dr. I. F. Henderson, are three specimens of a new species of *Megaselia* Rondani. The species is described below and named after Dr. Henderson.

Megaselia hendersoni sp. n.

♂ Frons broader than high at eye-margin (1.3-1.6 : 1) and dark brown to black in colour and with about 80 scattered hairs. Lower supra-antennals 0.03-0.04 mm apart and measuring only 0.07-0.08 mm in length. Upper S.A.'s situated 0.03-0.04 mm above the lower, placed 0.06-0.07 mm apart, and measuring 0.15 mm in length. The pre-ocellars are 0.08-0.11 mm apart. The antials are situated 0.05-0.06 mm from the upper S.A.'s and 0.05 mm from the antero-laterals, which are only 0.1-0.2 mm from the eye margin. The antials are very slightly below a line joining each antero-lateral to the upper S.A. Palps pale yellow with half-a-dozen bristles along the ventral distal margin. The longest bristle measures 0.11 mm. Antennae with third segment brown and greatest diameter only 0.12-0.13 mm. Arista also brown. Labellar lobes pale yellow.

Thorax dark brown dorsally but paler brown on sides. Mesopleuron bare. Scutellum with a pair of bristles and an anterior pair of short hairs. Haltere with dark stem and yellow knob with some darkened areas around apex. Abdomen with tergites dark brown to black, except for slightly paler fifth and sixth tergites, and with scattered hairs, which are more conspicuous along posterior borders. Those near the posterior border of the fifth tergite are longer, and those on the posterior border of the sixth are conspicuous and measure 0.09-0.10 mm in length. Belly dark with hairs, which are particularly conspicuous on the fifth and sixth segments. Terminalia (Fig. 1) distinctive, being short and tall, with a short anal tube. A pair of strong setae (clearly more robust than the posterior setae of the sixth tergite) situated near the posterior-ventral corner of the left side of the epandrium, just above the unusual ventral 'keel' of the latter, are distinctive. There is a single weaker, but still strong, seta in the same position on the right side. The epandrium is brownish with its 'keel' being yellowish. Ventral plate and anal tube dusky yellow.

Legs dusky yellow, with tarsi hind tibia and especially apex of hind femur being darker. Dorsal hair palisade of mid-tibia extends only threequarters of its length. Hind tibia with about 16 postero-dorsal setae, which are short but more robust in the distal two-thirds. 7-9 hairs on ventral face of basal half of hind femur. The longest measures 0.08-0.09 mm in length.

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

Wing. 1.81 mm in length in holotype, and 1.72 mm in paratype. Costal Index 0.46-0.47 in holotype and 0.45-0.46 paratype. Costal Ratios 2.81 : 1.79 : 1 in holotype and 3.09 : 1.9 : 1 in paratype. Costal cilia 0.08-0.10 mm long. A small hair at base of vein 3. Axillary ridge with two bristles. Veins yellowish, 7 being faint. Membrane slightly greyish.

♀ Head very similar to male but with third joint of antenna a little smaller (greatest diameter about 0.10 mm). Thorax as in male but a little paler. Haltere paler than in male. Abdomen with brown tergites and dark belly. Segments 7 and 8 well developed and the latter with a conspicuous posterior circle of setae measuring 0.08-0.09 mm in length. Legs a little paler than in male. Wing (Fig. 2) similar to male but length only 1.57 mm. Costal Index 0.47. Costal ratios 2.95 : 1.81 : 1.

Holotype ♂, Northamptonshire College of Agriculture, Moulton (Grid Ref. 42/777667), 29th July 1974, C. O. Clements and I. F. Henderson. Deposited in collection of author.

Paratypes. One ♂, 6th May 1974 and one ♀ 9th July 1974, same locality and other data as holotype.

In the keys of Lunbeck (1922) this species runs to Group VI couplet 22, and thus resembles *M. collini* (Wood).

The male hypopygium immediately distinguishes *M. hendersoni* from this and all species (described since Lundbeck's keys) that key out near *M. collini* (e.g. *M. incongruens* Schmitz, *M. phoenicura* Schmitz, and *M. intergeriva* Schmitz). Lundbeck's keys are in much need of revision so that while *M. hendersoni* can be readily recognised in the male sex the female is likely to be difficult to recognise with certainty. However, the development of segments 7 and 8 along with the prominent circle of posterior setae on the latter segment will readily distinguish it from species such as *M. rubella* Schmitz.

Acknowledgements

I am grateful to the Royal Society for grants to aid my investigations of Phoridae.

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THE BLACK RUSTIC: APOROPHYLA NIGRA HAWORTH IN KENT. — On the morning of 26th September 1979 I was pleasantly surprised to find a specimen of *nigra* in my garden trap, the first time I have seen this insect in N.W. Kent. Chalmers-Hunt (*Butterflies and Moths of Kent*, 2: 286) cites only three confirmed examples from Kent: East Malling, Dungeness and Folkestone. The moth has become more numerous in the adjacent County of Surrey in recent years, and it is perhaps of interest to quote Evans (*Survey of the Macrolepidoptera of Croydon and N.E. Surrey*: 374) who states "... the records for N.E. Surrey suggest that this insect is extending its range across the county from the west". — P. A. SOKOLOFF, 4 Steep Close, Orpington, Kent.

Further observations on the species of *Utetheisa* Huebner (Lepidoptera: Arctiidae) in the western and central Pacific with the description of a new species from Niue Island

(Continued from page 273)

By GADEN S. ROBINSON¹ and HUGH S. ROBINSON²

Tonga:

Both *marshallorum* and *stigmata* were collected on Tongatapu in 1975 by Dr. P. A. Maddison who also collected *marshallorum* larvae from *Messerschmidia*. The 30 Tongatapu specimens of *marshallorum* we have examined are of similar size to specimens from Fiji but the black forewing markings are more pronounced, particularly the band of postmedial spots (Plate IX, fig.1). We have examined two specimens from the Ha'apai Group in the BMNH collection and these are similar to the specimens from Tongatapu.

Tokelau Islands:

Only *marshallorum* is known from the Tokelau Islands. The six specimens in BMNH are large (forewing length 19-21 mm) and well-marked (Plate IX, fig. 2) resembling specimens from Swain's I. (see above).

Phoenix Islands:

There are two specimens of *marshallorum* in the BMNH collection from Canton I.: they are small (forewing length 14 mm) with very slightly reduced black markings.

Tuvalu (late Ellice Islands):

H. S. Robinson visited Funafuti in 1973 and 1974: on the first visit the island had been devastated by a severe hurricane and an immense tidal wave had swept across the entire atoll. This wave had destroyed all the above-ground vegetation of *Messerschmidia* and small suckers were beginning to sprout from the roots. These suckers were infested with larvae of *marshallorum* and one or two adults were taken. In 1974 the *Messerschmidia* bushes were found to have re-established themselves and all stages of *marshallorum* were abundant. The resistance of *marshallorum* on Funafuti to natural disasters demonstrates its resilience. Our five specimens of *marshallorum* from Funafuti are large (forewing length 18-21 mm) and the black markings are slightly reduced: red markings are rather more pronounced than in the Fijian population and some of the red spots are coalesced (Plate IX, fig. 3). In addition to Funafuti, *marshallorum* is known from Nui (1 ♀, 22.ix.1924, Buxton & Hopkins — BMNH), Nukufetau (Butler, 1885) and Niulakita (Manser, 1973). There are three specimens collected by Woodford and labelled 'Ellice Is.' in the BMNH collection and these are, presumably, the Nukufetau specimens listed by

¹Department of Entomology, British Museum (Nat. Hist.), London SW7 5BD.

²9 Tor-O-Moor Road, Woodhall Spa, Lincolnshire.

Butler. They are very similar to our specimens from Funafuti. Two other specimens in BMNH labelled 'Ellice Is.' have the registration numbers 78-2 and 87-50. The latter specimen was collected by Gervase Mathew, and the former may have been collected by Rev. J. S. Whitmee. Mathew's specimen is faded and has reduced black markings but Whitmee's specimen is heavily marked with black.

Gilbert Islands:

U. p. marshallorum is recorded from Onotoa (Moul, 1954), Tabiteuea (Butler, 1885), Abemama (Viette, 1954), Tarawa (Viette, 1954) and Makin/Butaritari (Moul, 1954). Searches of Tarawa, Butaritari and Abemama by H. S. Robinson in 1973 revealed *Messerschmidia* but not *Utetheisa* and a visit to Tarawa a year later was also unsuccessful. Woodford's specimens from Tabiteuea (labelled 'Gilbert Is.') are in BMNH — there are two males which are not as large as specimens from Tuvalu and which do not have such extensive red markings. We have examined the specimens (now in the Muséum national d'Histoire naturelle, Paris) collected on Abemama and Tarawa in 1951 by Catala and published by Viette (1954). The three specimens from Abemama are similar to those of our series from Funafuti but the female from Tarawa is large (forewing length 19.5 mm) with accentuated black markings and is very similar in pattern to Whitmee's 'Ellice Is.' specimen.

Marshall Islands:

Rothschild's syntype series of *marshallorum* contained nine specimens. We have found six of these in the BMNH collection and a further three specimens from the Marshall Is. collected by Mathew. These specimens were never part of Rothschild's collection and are unlikely to represent the missing three syntypes. The specimen bearing a pink label with '*Utetheisa pulchelloides marshallorum* Rothschild. Type' in blue-black ink and white labels reading 'Marshall Ids' and 'Rothschild Bequest B.M. 1939-1' is here designated as lectotype (Plate IX, fig. 4). The Marshall Islands specimens are large (forewing length 18-21 mm), have well-developed red and black markings (Plate IX, fig. 5) and are similar to specimens from Funafuti. Two specimens, however, including the lectotype, have reduced black markings and only a narrow apical black band in the hindwing.

Wake Island:

The three specimens of *marshallorum* from Wake I. in the BMNH collection are small (forewing length 16 mm) and are not as heavily marked with red as specimens from the Marshall Islands.

Niue Island:

In May and June 1975 Dr. P. A. Maddison collected a number of specimens of *stigmata* at light on Niue I. He also located a stand of *Messerschmidia* from which he collected a few specimens of a *Utetheisa* which appeared to him to be abnormal. These specimens unfortunately decayed in transit from Niue, but enough remained to suggest to us that they did

not represent *pulchelloides* in any of its known guises. In September 1975 Dr. Maddison returned to Niue and made a further attempt to obtain *Utetheisa* from the *Messerschmidia*. He returned to Fiji with a fine series of adults (Plate IX, fig. 14) and several larvae, one of which was reared to its final instar by H. S. Robinson and then preserved as a larval skin (Plate IX, figs. 17, 18). We consider Maddison's Niue *Utetheisa* to be a new species allied to *U. salomonis* Rothschild and (more distantly) to *U. clareae* Robinson. It is described below.

Specimens of *stigmata* from Niue are similar to *stigmata* from other localities in the Pacific: we have examined 22 specimens. Niue represents the easternmost limit of *stigmata*.

Cook Islands:

U. p. marshallorum is the only *Utetheisa* known from the Cook Islands. Dr. P. A. Maddison collected *marshallorum* on Aitutaki and Rarotonga in 1975 and we have also examined specimen from these atolls in the collections of the Auckland Institute and Museum and the Department of Scientific and Industrial Research, New Zealand. Specimens from the Cook Islands are large (forewing length 18-20 mm); individuals from Aitutaki have heavy black markings (Plate IX, fig. 6) but those from Rarotonga have the black markings of the forewing reduced and the size of the red markings increased with coalescence of many of the spots (Plate IX, fig. 7). We have also examined specimens from Mitiaro Atoll and these have heavier black markings in the forewing than specimens from Aitutaki (Plate IX, fig. 8).

Line Islands:

The Government of the Gilbert and Ellice Is. Colony mounted an expedition to the Line Islands in 1974 (Paeniu *et alii*, 1974). Ten islands were visited and the expedition returned to Tarawa shortly before H. S. Robinson's visit to the Gilbert Islands. Collections of entomological specimens were made by Dr. H. Grossmann and Mr. M. E. H. Vickers; the last named also recorded details of the vegetation of the islands visited. *Messerschmidia* was recorded from Flint I. and Caroline I. and Dr. Grossman and Mr. Vickers presented H.S.R. with a series of *marshallorum* collected from Caroline Island. The nine specimens from Caroline exhibit an unusual range of variation. They are smaller than specimens from the Cook Islands, having a forewing length of 16-18.5 mm. Two specimens have black markings of normal density (Plate IX, fig. 9) and resemble specimens from Fiji: in the remaining seven examples, the black forewing markings are reduced (as in Tuvalu specimens) and in two of these the black in the hindwing is also reduced. In four of the specimens with reduced black forewing markings the red spots are enlarged and coalesced; one of these specimens is extremely aberrant with red suffusing most of the postmedial fascia (Plate IX, fig. 10).

The Vickers-Grossmann collections from Caroline I. include a single larva of *marshallorum* preserved in alcohol. In lateral view (Plate IX, fig. 15) the specimen is almost typical (compare pl. X, fig. 2 in Robinson & Robinson, 1974) but in

dorsal view (Plate IX, fig. 16) it is similar to *clareae* or *madisoni*, the dorsal stripe being continuous. The black markings of this larva are generally reduced in comparison with examples from the western Pacific. Further larval material may provide evidence of consistent differences in larval pattern between populations of *marshallorum* similar to the pattern differences in adults.

Tuamotu Archipelago:

We have examined single specimens of *marshallorum* from Takapolo I. and Makemo I. in the BMNH collection: these have moderately heavy black markings and resemble specimens from Aitutaki (Cook Is.) as do two of the four BMNH specimens from Hikueru I. The other two specimens from Hikueru have reduced black markings and coalesced red spots like some examples of the Caroline and Funafuti populations. There is a series of 32 specimens from Napuka I. in BMNH: these have reduced black markings in both fore and hindwings and the red spots are coalesced (Plate IX, fig. 11). One example approaches the degree of red suffusion exhibited in the Caroline specimen but has a more heavily marked hindwing. A single example from Fakarava I. is similar to examples from the Napuka population. The Napuka specimens are of medium size with a forewing length of 17-19 mm.

Henderson Island:

Six specimens of *marshallorum* examined (BMNH) have heavy black markings (Plate IX, fig. 12) as in the two specimens from Hikueru: the red spots are enlarged and several are coalesced. The combination of heavy black and red markings is unusual. The forewing length of the specimens ranges from 17 to 20 mm.

(To be continued)

THE CLOAKED PUG: EUPITHECIA ABIETARIA GOEZE IN BEDFORDSHIRE. — The article by J. Briggs on the above named moth (1979, *Ent. Rec.*, **91**: 220), has prompted me to record the fact that this moth has also been found in Bedfordshire.

Whilst running a m.v. trap in a mainly coniferous part of Maulden Wood on the evening of 4th July 1977, several specimens of this moth were obtained — this, as far as my notes show, is the first time that this species has been recorded from Bedfordshire. — V. W. ARNOLD, Moth Recorder for the Bedfordshire Natural History Society, 96 St. Augustine Avenue, Luton, Beds.

BLAIR'S SHOULDER-KNOT: LITHOPHANE LEAUTIERI BOISD. IN WALES. — I captured in 1979, three males of this moth on 8th October, and one male on the 12th October. They were taken in my back garden here at m.v. light. — D. R. STEPHENSON, "The Haven", St. Mary Church, Cowbridge, S. Glamorgan, S. Wales. [This is an interesting extension of range of this species and perhaps the furthest west locality in Britain yet known. — J.M.C.-H.]

Notes on the Donaciini (Col.: Chrysomelidae), with a List of Recent East Kentish Localities known to the Author

By JOHN A. PARRY, M.P.S.*

The genera *Donacia*, *Plateumaris*, and *Macrolea*¹ together from a compact group or tribe, numbering 21 British species, of the section Eupoda of the Chrysomelidae, the larvae of which are aquatic, feeding upon the submerged stems of water plants, obtaining their oxygen supplies from the air-space of the plant tissues, and pupating in cocoons attached to the roots or other submerged parts. The adults are able to walk up and down through the air-water interface without any apparent respiratory difficulty². They cling with such strength as to survive the attacks of frogs and fish, such as the rudd which abound in their habitats and which live chiefly by sucking snails and insects from the reeds. When active in the hot sun, however, they will on the collector's approach readily drop from their perches (if in a vertical position) or take flight (if in a horizontal one).

Most of the species are very handsome. With such metallic colouring as the majority possess, it is at first surprising that they are not more often seen; but most are uncommon (or at any rate, very locally distributed even though widely), apt to blend with their surroundings to a remarkable degree, and easily confused with the blemishes on the host-plants caused by snails and by the beetles themselves. This incidental camouflage combines with the relative inaccessibility of their habitats, a certain resistance to sweeping, and the often extremely limited extent of their colonies, to render some of the species very elusive indeed.

Nearly all the species must be searched for by close examination of reeds, sedges, and the floating leaves of certain water plants, and only in good weather. In bad conditions they usually remain under water or otherwise hidden, for instance if there is not enough sunshine, or a cold wind. Sweeping is of little use; the reeds are too stiff, and many of the beetles fly or drop long before the net reaches them — usually making a characteristic short flight and then plummeting on to the water and taking refuge amongst the vegetation. When at rest they cling to the reeds with such tenacity that the net does not dislodge them. Indeed it may be difficult to pull them off by hand, and often necessary to slide them upwards off the tips of the leaves. The sweep-net can however be of service when used, for instance, on grasses, etc. among sphagnum for *P. discolor*; and sometimes on sedge, where the growth is not too strong, for such species as *D. obscura*.

Of our 21 species, only *Donacia simplex* is at all common — if that is not too strong a term — and is perhaps the first to be met with, followed probably by *D. marginata*³. Several

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others, namely *D. semicuprea*, *vulgaris*, *versicolorea*, *dentata*, *bicolora*, and *Plateumaris sericea* and *discolor*, may be found by assiduous searching in most districts where their foodplants grow and the environment is suitable; nevertheless the beetles are more often absent than present⁴. The remaining species, namely *Donacia obscura*, *thalassina*, *impressa*, *clavipes*, *cinerea*, *aquatica* (*dentipes*), *crassipes*, *sparganii*, *Plateumaris affinis* and *braccata*, and *Macroplea mutica* and *appendiculata*, require not only assiduous searching but also some considerable measure of good fortune before they are discovered. The chance of success of course varies from place to place, and is evidently greater in counties such as Kent, Norfolk, and Cambridgeshire where there are large areas of fens or marshes⁵, provided that they are not polluted in any way. *D. sparganii* for example, scarce elsewhere, I know to be common in the Wicken Fen area, and can be found there without much searching. The distribution of nearly all of them, though sparse, is very wide, and recently for instance I came across *D. crassipes*, *D. impressa*, *D. obscura*, and *P. affinis* and *discolor* in a lake high in the mountains of North Wales — a more inclement locality would be hard to find. I have met with *D. clavipes* in places as far apart as Sandwich in Kent and Loch Morlich in Scotland. *D. obscura* alone of Donaciæ seems to be limited geographically, and so far as I know is confined to mountainous districts of Scotland and Wales⁵. *M. appendiculata*, which lives in rivers, has a discontinuous range that does not appear to include Kent — unless, of course, it remains to be found there; whilst *M. mutica* is confined (with rare exceptions) to brackish water near the coast.

All the species appear in June and July⁷, except the last-named insect which I find in May. Apart from *Macroplea* again, which persists until much later, they are mostly over (but for stragglers) by 20th July. That is to say, they disappear then. Since I have found *D. simplex* in the winter it is probable that they hibernate as adults in some inaccessible place, perhaps bottom mud or underwater reed stems⁸.

It would appear that each species has a specific foodplant — though this must be said with reservations⁹. Although for example we find *D. versicolorea* only upon *Pontamogeton natans*, and never to my knowledge in its absence, that may be because *P. natans* has floating leaves upon which the beetles conveniently display themselves. On the one occasion when I have come across *D. crassipes* (in a Welsh mountain lake) it sat in profusion on the leaves of *Nuphar luteum*, and there were none at all on *Nymphaea alba* — the principal foodplant recorded in the literature — which was more abundant there. The import of this is not clear¹⁰. It would, also, be difficult to pin down any of the *Carex*-feeding Donaciini to a particular species of the host genus, though they are of course limited to the truly aquatic varieties. I do however associate our two clearest cases (*D. obscura* and *P. affinis*) with *Carex rostratus*, a sedge having long erect seed-heads. *D. sparganii* I find only

on *Sparganium emersum* (*simplex*) and never upon *S. erectum* (*ramosum*), the common bur-reed, while *D. impressa* seems restricted to *Scirpus lacustris*. Such clear preferences are of some significance to the collector, in that since the search for these beetles involves such a lot of methodical legwork over likely areas, it helps enormously in cutting down the time spent if one postulates at all events primary foodplants. If one asks a local botanist where to find *Carex rostratus*, it enables one to start looking with just that much more enthusiasm and hope of success, with the knowledge that at least one is not looking on the *wrong* foodplant even if there are others.

Although not generally common, most of the species live in well-populated colonies, and once the first specimen is found others can be expected in the immediate vicinity: though not necessarily on the same day, as the rest may be under water or otherwise out of sight¹¹. *D. crassipes*, *D. dentata*, and *D. versicolorea*, the three 'floating-leaf' species, I have found in great abundance in their localities — though this is far from being always the case — and the same applies to *P. affinis*, *P. braccata*, *D. clavipes*, *D. marginata*, *D. bicolora* and *D. sparganii*. I cannot speak for *D. aquatica*¹² and *D. thalassina*¹³, never having taken either; and *D. cinerea* once only — a single specimen. Of the remainder, *D. vulgaris* is often taken singly or in pairs, being the only species I find to be at all solitary in habit (but again this is by no means always so in others' experience); while *D. simplex*, *D. obscura*, *D. impressa*, *P. sericea* and *P. discolor* have far fewer individuals in their colonies, in my limited experience, than the several species listed above¹⁴.

There has been an evident decline in recent years in the incidence of these beetles, at least in Kent, and Mr. Allen has suggested to me that pollution may be the chief cause. Certainly the chemicals of cultivation, even if not causing pollution by herbicides, affect the pH of the water in drainage ditches on account of the lime and superphosphate they contain. I do not know if there is any correlation between the acid/alkaline reaction of the water and the distribution of the various species, except insofar as their foodplants are affected; but they do seem to be very particular as to their environment, and this may well be a factor¹⁵. Another and more obvious cause of their decline is the modern habit of scooping the bottom out of several miles of dike at a stretch with mechanical grabs, to clear the waterways. Certainly the best places to look for these beetles nowadays are in those fens and marshes which have been drained sufficiently for cattle and sheep pasture, but not for cultivation, and which suffer from neither of the above two evils. In the marshes of the Rother valley a few years ago I still found *D. versicolorea* and *D. dentata* in quantity.

*Localities in East Kent and the extreme South-East of Sussex*¹⁸. — In researching the local distribution of the Donaciini, the Canterbury area, with a radius of about twelve miles,

was particularly well covered, since for a considerable time my home was in that town. Only nine species were found within this limited area, and the number of localities discovered in all was, except for two or three species, pitifully small and quite out of proportion to the amount of work put in. A methodical attempt was made to cover at least a large representative part of each waterway system and its feeding ditches, using the Ordnance Survey maps; and most time was spent therefore in the large areas of low land around Westbere/Grove Ferry, Ash/Sandwich, Whitstable/Herne Bay, Faversham Creek, and Chislet/Reculver. The river Stour was followed for most of its length, and attention paid to the large lakes at Fordwich resulting from gravel workings; all this area proved particularly disappointing, but in this it was not unique, and more than once I nearly discontinued the project out of sheer frustration. As it was, I eventually extended the area of search to Romney Marsh and Winchelsea in Sussex. This produced a further four species before once again becoming unproductive. Even now that I have moved to Tenterden, no further species have turned up; yet so local are these creatures that it is impossible to say that others are not to be found.

(To be continued)

Notes and Observations

HEAT ABERRATIONS OF *AGLAIS URTICAE* L. — It is common knowledge that, if the pupae of butterflies such as *A. urticae* are placed in sub-zero temperatures at a certain stage of their development, there is a good chance that the resulting butterflies, when they emerge, will not be normal. My own experience this summer has been in the opposite direction and resulted from submitting both larvae and pupae of *urticae* to above normal temperatures in a somewhat unintentional manner, and I feel the results were sufficiently interesting to make them worth recording.

During the first week in September, I found an almost fullfed brood of *urticae* larvae feeding on nettles in a paddock adjoining my garden. I collected the larvae housing them in a large breeding cage which, for want of anything better, I placed amongst the tomato plants in my greenhouse. Roof and side ventilators were kept permanently open but there were occasions when I forgot to open the door and, when this happened, the inside temperature, if the sun came out, rose quickly to 95°-100°F.

I placed a sheet of black polythene over the cage to shield it from the direct sun's rays, apart from which the larvae and pupae were left to fend for themselves. I noticed that the pupation of the larvae coincided with several particularly warm days. Many of the pupae proved to have been ichneumonated but of the two dozen or so butterflies that eventually emerged, all were varieties the majority extreme. In all cases the ground colour was a very bright brick red and the

spots on the outer margin of the forewings had a marked tendency to coalesce while in the majority of cases the hindwing markings remained comparatively normal. — MAJ. GEN. C. G. LIPSCOMB, The Riding, Knook, Warminster, Wiltshire.

A GOOD YEAR FOR *LITHOSIA QUADRA* L. IN CORNWALL. — On the evening of 3rd August 1979 I spent two hours driving around the narrow lanes leading through the almost tropical looking woodland around the River Fal below Truro. Shortly before dark I found a suitable place for night operations, a sheltered clearing by a stream with overhanging oaks, thickly covered in lichens. 41 species of macros arrived at m.v. including 28 *Lithosia quadra* L., mainly in mint condition, also 22 *Alcis jubata* Thunb., 5 *Cloerodes lichenaria* Hufn., 50 *Lymantria monacha* L. and one *Unca triplasia* L.

The next three nights on the Lizard produced a further 45 *quadra* which was obviously enjoying a good year. — D. C. G. BROWN, Jacksons Farmhouse, 25 Charlecote, Near Warwick.

SOLENOBIA LICHENELLA (LEP.: PSYCHIDAE) — DISPERSAL BY WIND? — In south-east Scotland we have a parthenogenetic population of a *Solenobia* which I attribute to *Solenobia lichenella* (Linnaeus, 1761). The mechanisms employed by this population for dispersal have long been an enigma. P. J. Johnson (1978, *Ent. Rec.*, 90: 187) suggested three possible methods of dispersal, namely; (i) by wind, (ii) by adhesion to animals, (iii) by the eggs passing through the avian digestive tract unscathed. With regards to the first of these mechanisms the following recent observation may be relevant. On the 2nd October 1979 on Blackford Hill (O.S. NT/2570), Edinburgh, I came across a case of *S. lichenella* suspended by a silken thread some 4 feet above the ground in a rose-bush (*Rosa canina* L.). After carefully inspecting it *in situ*, I attempted to collect the case to check its occupant, however as soon as it was touched the silken thread extended rapidly and the case dropped to the ground. The rose-bush did not allow its retrieval but it seems certain that the case contained a living larva. The nearest colony of this species (and indeed suitable habitat for it) is some 100 yards to the south-east. As easterly winds are frequent at this time of year, it is tempting to suggest that wind dispersal may play a role in *S. lichenella* as it does in several species of spider. — K. P. BLAND, 35 Charterhall Road, Edinburgh, EH9 3HS.

MIGRANTS AT M.V. LIGHT ON THE 6TH OCTOBER 1979, AT STUDLAND, DORSET. — Having taken a couple of *Nomophila noctuella* D. & S. in the garden trap midweek and with the south westerly winds continuing to the weekend, David Brown and myself journeyed to the South Coast. Upon our arrival heavy rain greeted us and continued until 11.00 p.m. Inspection of the traps the following morning produced singletons of the following: *Agrius convolvuli* L., *Mythimna albipuncta* D. & S., *M. unipuncta* Haw., *M. vitellina* Hbn. and *Rhodometra sacraria* L. The commoner migrants were well represented by 60 *Autographa gamma* L., 30 *Agrotis ipsilon* Hufn.

and 12 *N. noctuella*. Amongst the residents were a single *Lithophane ornitopus* Hufn. and three *L. leautieri* Boisd. The favourable winds persisted and back home one worn *Orthonama obstipata* F. arrived in the garden trap on the 8th October. — ANDREW F. J. GARDNER, Willows End, 29 Charlecote, near Warwick.

CURIOUS BEHAVIOUR OF THE SMALL TORTOISESHELL. — The other day I found a Small Tortoiseshell butterfly caught in a cobweb with wings outspread. It appeared to be dead, but when I released it, it fluttered. I carefully removed all the web I could see and let it go, but it only fell to the ground where it flapped around in a very agitated manner falling over and over, apparently quite disorientated. I tried to place it on a lavender bush, but the same thing happened, it behaved in quite a drunken manner fluttering all over the ground. I then picked it up again, and on careful inspection found that the antennae were firmly fixed together by a strand of web just beneath the club ends. Getting a needle, I carefully inserted this between the antennae and worked it up to the ends and managed to break the web without pulling off the antennae. I then released the butterfly again and it flew perfectly normally and disappeared over the roof of the house.

I know that antennae are supposed to be for feel and sense of smell, but apparently they are also very necessary to the butterfly in flight. I wonder if they act as a sort of stabiliser. I mentioned the above circumstance to two or three people who are keen entomologists, who suggested I should write a Note for *The Record*, in case this had not been realised and as they themselves were unaware that this could happen. I would be interested to know what readers think about it. — H. R. JESSOP, 3 Motcomb Street, Belgrave Square, London SW1X 8JU, 28.x.79.

SPODOPTERA LITTORALIS BDV. AND OTHER INTERESTING MIGRANTS IN DORSET. — Following a week of continuous southerly winds I travelled to Studland, Dorset on 13th October 1979, with high hopes of migrants. On this particular night there was again a light S.E. breeze and a minimum temperature of 59°F. The following migrants were attracted to m.v.: *Spodoptera littoralis* Bdv. (1), *Mythimna unipuncta* Haw. (1), *M. vitellina* Hbn. (5), *Peridroma saucia* L. (8), *Rhodometra sacraria* L. (2), *Orthonama obstipata* L. (1), *Nomophila noctuella* D. & S. (40) and *Palpita unionalis* Hbn. — D. C. G. BROWN, Jacksons Farmhouse, 25 Charlecote, near Warwick.

APION SEMIVITTATUM GYLL. (COL.: APIONIDAE) IN S.E. LONDON. — Records of this very local *Apion* are, as far as I know, restricted to Kent and one or two localities in adjoining counties. First taken long ago at Margate, then early this century farther south along the coast (Deal and St. Margaret's Bay), it turned up much later, in the 1940s and 50s, at various places in the east of West Kent, especially the Maidstone district (East Mallings, etc.); also at Higham (Massees), near Canterbury

(Parry), and at Grays, Essex (Hammond). Dr. A. M. Easton discovered it at Birling Gap, Eastbourne (where I later took a series), and he also found a single specimen in Darenth Wood — this being, I believe, the nearest locality to London hitherto noted.

It is of interest therefore to record the species for the first time within the metropolitan area itself: on 5th August 1979, I swept a few examples from roadside herbage near here, between Charlton Station and the Thames — one flew out of my net in the hot sun — and one more at the same spot a week later. On 12th September I was there again, hoping to find the food-plant, *Mercurialis annua* L., well grown up and the beetle more numerous; instead of which the herbage at the place was sadly withered and reduced by drought, and not a trace of *M. annua* could be seen. I had equally failed to detect it on the earlier dates, when the *A. semivittatum* had seemed to come off a lush growth of *Polygonum persicaria* L. (which produced the weevil *Rhinoncus perpendicularis* Reich copiously and in fine fresh condition). In contrast, there are flourishing colonies of the annual mercury at the roadward edge of at least three front gardens not far off — one only a few houses from mine — which I have examined without finding a trace of the weevil*. In each instance the plant is growing on heaps of rubble and soil with lumps of building-stone or concrete where rockeries have been dug up, which clearly is its special habitat in this area, and recalls the site at Birling Gap where it was growing in a tank-trap recently dug in the chalk. The plant is stated to be uncommon in the south and rare farther north, and as it only appears in late summer and is of a fugitive and temporary nature (a typical annual) it is no wonder that the *Apion* is comparatively seldom met with. — A. A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

* It is worth remarking, that in my experience at least, one often fails to find a particular insect where its foodplant occurs in large masses; whereas, when discovered, it is often on isolated and poor little plants very liable to be overlooked.

ACRONICTA ALNI L. IN SEPTEMBER. — The Alder moth is reasonably common in this area during May and June. I was, however, surprised to find a fresh specimen at light on the night of 10th/11th September this year. — J. A. C. GREENWOOD, Hambledon House, Rogate, W. Sussex.

THE VOLTINISM OF TELEIOPSIS DIFFINIS (HAW.) (LEP.: GELECHIIDAE).—This large Gelechiid moth is widely distributed over the British Isles, being recorded from Kent and Cornwall to Inverness, as well as from Ireland. It is often locally common, and probably occurs wherever its foodplant, *Rumex acetosella* L., occurs. According to Meyrick and Ford, the flight period is May and June, although Michaelis gives July for North Wales (*Ent. Gaz.*, 28: 219), as does Birkett for Cumbria (*Ent. Rec.*, 64: 82), and Wakely for Dungeness (Notes on the Tineina, *Ent. Rec.* 70: 193).

Earlier this year, Mr. H. E. Beaumont commented to me on a *diffinis* he had taken in South Yorkshire on 6th October

1978. As the identification was correct, but the date "wrong", I examined specimens in my own collection. Apart from those taken in June, the labels recorded Dungeness (Kent) 10.9.77 and 21.9.78; Orpington (Kent) 3.9.75 and 11.9.77, which together with the Yorkshire record suggests a second brood for this species. The specimens from September are also slightly smaller than those taken in June and July. My only August record is for Llwyngwril (Merioneth) 14.8.76, which in view of the hot summer that year could be interpreted as an early second brood rather than a late emergence. It is interesting to note that Agassiz records *diffinis* from East Cork, Ireland, "... in the latter half of August ..." during 1976 (*Ent. Rec.*, 99: 73).

On 29th September this year I revisited Dungeness and was able to flush a few specimens of *diffinis* from the sorrel. On digging up the foodplant, small larvae of *diffinis* were found in their silken tubes around the upper portions of the roots. My conclusion from these observations is that this species produces a partial second brood each year. Whether or not moths from this generation breed, or attempt hibernation, is unknown at present but a single specimen in my possession bears the enigmatic data label "Orpington, 17.3.77". With such a common insect there should be sufficient data available to draw clear conclusions on the general biology of the species, and I would welcome any further information on the matter. — P. A. SOKOLOFF, 4 Steep Close, Orpington, Kent.

Practical Hints — Late Winter

The hard to find females of *Agriopis leucophaearia* D. & S. and *Apocheima hispidaria* D. & S. seem to crawl rapidly up the trunks at dusk and probably pair high as I have never found them *in cop*. If you can locate a breeding tree, perhaps by pupa digging, you want to watch it and neighbouring trees immediately at dusk (A. RICHARDSON).

Mines of the Orange-tailed Clearwing (*Conopia anthraciniformis* Esper) are to be obtained during the winter months on *Viburnum lantana* and *V. opulus*. Look first for old workings — in twigs up to 2 cm. diameter these are conspicuous swollen nodules up to twice the diameter of the twig, with a black exit hole in one side, surrounded by a circular depression from which the 'cap' has fallen. Tenanted galls are much less easy to spot: they can occur anywhere from the main trunk to the most slender twigs, but are perhaps most common in twigs about 1.5-2 cm. diameter; if a swelling is caused, it is slight, and it is necessary to examine every branch, twig by twig for the signs. A capped mine is the greatest triumph, and quite unmistakable — a slightly discoloured circle of bark about 1 cm. across. Quite often the caps seem to fall off naturally, and any mine in which the sides of the hole are reddish brown is worth keeping, even if the cap has gone. Black holes are old ones. A healthy larva seems to cease feeding before winter, and frass exuding from a hole in the new year usually indicates the presence of a parasite (GOATER).

The exit holes of the clearwing *Sesia apiformis* (Clerck) around the trunk bases of black poplars remain evident for many years, but these pencil-sized holes may indicate either viable or long extinct colonies. A rough and ready guide is the colour of the tunnel sides — the newer looking the wood the more recently has the occupant hatched. Precise evidence can be found in the winter months by rasping* away the intact bark surfaces near any of the holes. Success comes when a protective bark cap is sliced off and a newly-made cocoon is revealed just below the bark surface. The cocoon (which will contain a larva until April) is best left *in situ*. Having found a 'live' colony have patience and, if feasible, visit the trees in mid June from 7-8 a.m. and collect newly emerged moths on the trunks (B. R. BAKER).

When the weather is unfavourable, artificial environments can provide fertile pastures for the Microlepidopterist who has not time for such things in the height of summer. Stored food products can contain various species of *Phycitinae* despite modern packaging and pesticides. A certain find in a flour mill is *Ephestia kuehniella* Zeller; the first necessity is to obtain the permission and goodwill of the manager or owner — staff shortages may mean that this is sometimes refused. If this is obtained one walks around to find the warmest part of the mill, for in winter the moths are probably confined to a small area; it is advisable to wear overalls or old clothes to keep out the fine flour dust. Moths can usually be found at rest on walls and once located, there will often be a pile of grain in a corner nearby which contains larvae, these are easily bred out in an airing cupboard (AGASSIZ).

Teazle-heads may be collected as early as November but probably are better left until the spring. They are awkward to handle because of their bulk; this can be much reduced by snipping of the spiny corolla. Put them in a large linen bag, e.g. an old pillow-case, and keep out of doors or in a cool garage until the spring. In late May or early June, depending upon temperature, bring the teasles indoors and put in a large shallow plastic container such as a washing-up bowl and cover with a sheet of glass. The appearance of conspicuous whitish silken tubes indicates the presence of *Endothenia gentianaana*; *Cochylis roseana* is completely invisible. Watch out for lurking spiders. *Gentianaana* appears early in July and *roseana* two to three weeks later; both are apt to be very skittish and should be boxed with care (W. A. C. CARTER).

Seedheads of *Inula conyza* can be collected and hung up in linen bags outdoors until June. Many *Apodia bifraciella* Dup. should emerge in late July and August (LANGMAID).

By digging up roots of *Achillaea millefolia*, *Tanacetum vulgare* and *Chrysanthemum leucanthemum* a variety of species of *Dicrorampha* can easily be bred. The roots may be placed in a cardboard carton such as obtainable at any super-

* A wire brush is'n't strong enough for this job, a small spoke-shave or surform has been found effective.

market. The whole carton should be put into a very large polythene bag in order to protect the flooring from damp, and the bag should be kept open to prevent condensation. The growing plants must be pruned or you will grow a veritable forest, and then the polythene bag should be closed up towards the end of March. If the roots are dug in January or February the moths emerge in April (LANGMAID).

Last year's dead stems of *Stachys sylvatica* which have small holes in the sides, and contain frass, will harbour larvae of *Endothenia nigricostana* Haw. If the whole plant is dug up and allowed to grow indoors, and treated in the same manner as described for the *Dicrorampha* spp., moths will emerge in April. Very often the plant grows among stinging nettles, and the dead stems of *Stachys* can be differentiated from those of nettle, because they are square in cross-section whereas those of nettle are ribbed but rounded (LANGMAID).

Searching stems of *Daucus* (wild carrot), *Pastanica* (wild parsnip) and *Conium* (hemlock) may indicate signs of *Aethes francillana* Fab., *A. dilucidana* Steph. and *A. beatricella* Wal. respectively. The first mentioned species reveals its presence by small holes anywhere along the carrot stems, even in very thin sections. The other two species burrow more in the nodal sections of the stems of their foodplants. *A. dilucidana* often causes a small accumulation of frass between the stem and the small sideshoots, but the easiest way to spot *beatricella* is to cut some stems near a node and look for the frass within the hollow stem. Tenanted stems should be kept outside in a bag or stocking throughout all or most of the winter (WATKINSON).

Current Literature

Pupa Digging by the Rev. Joseph Green, M.A. Facsimile Reprint with a New Introduction by E. W. Classey. 24 pp., decorated stiff wrapper. Classey, 1979. Price £1.50.

This celebrated paper first appeared in the *Zoologist* of January 1857, whence it was re-issued by Edward Newman as a pamphlet the same year, but owing to its ephemeral nature or limited printing, has now become rare. Subsequently it was reprinted with other material, in a little book by the same author entitled *The Insect Hunter's Companion: being Instructions for Collecting and Preserving Butterflies and Moths, and comprising An Essay on Pupa Digging*, which ran to at least five editions, the most recent of which were revised and extended by A. B. Farn.

Though its chief interest lies in its value as a specialised guide for the working macrolepidopterist, *Pupa Digging* is so delightfully written and humorous that it must have a wider appeal. This facsimile is No. 5 in the series "Classica Entomologica" issued by the firm of E. W. Classey, and is printed on a good quality paper with an attractive cover. — J.M.C.-H.

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EXCHANGES AND WANTS

Wanted — Dated records of the Painted Lady Butterfly, larvae or imagines, seen during 1970-1980 in May, June or July. — Dr. L. G. Higgins, Focklesbrook Farm, Chobham, Woking, Surrey.

THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

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

The following gentlemen act as Honorary Consultants to the magazine.
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TO OUR CONTRIBUTORS

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SPECIAL NOTICE

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

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For British Lepidoptera this Index follows the nomenclature of "A Check List of British Insects", Part 2, 1972 by Kloet & Hincks. Where the contributor has used a synonym, a cross reference is given. Any newly described taxa (species, genera, etc.) are distinguished by bold (Clarendon) type, and taxa new to the British fauna by an asterisk. Moreover, (1) A *bracketed* asterisk denotes the reinstatement of a species long omitted from the British list, or the confirmation of one previously doubtful; (2) A formerly subspecific taxon raised to specific rank is treated as an addition to the fauna, but a correction of identity is not; and, finally (3) The "equals" sign indicates a *new* synonym, i.e. published for the first time; italics without this sign, recent synonymy that may be unfamiliar to many.

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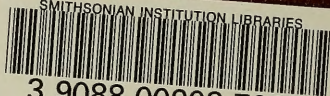
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