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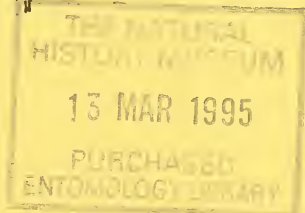
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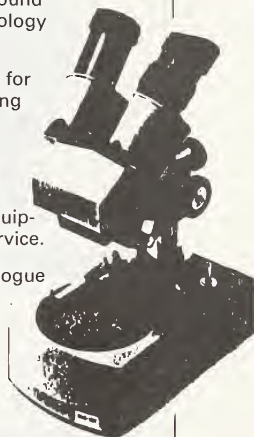
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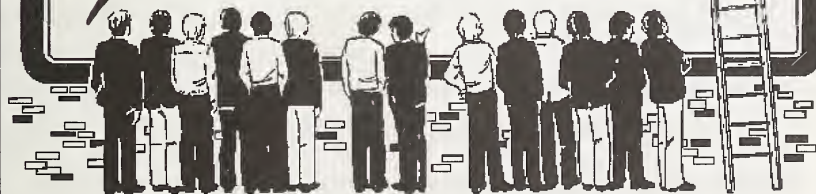
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No. 398



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EDITORIAL

The New Year is upon us, and with it comes the Society's 60th Anniversary. It was hoped that the new look *Bulletin* would be ready for this issue, but unfortunately we have had some problems in producing it, and have therefore decided to shelve the plan for this volume. We have, however, introduced some changes in the format as you will notice as you read on. The major addition to this volume is the start of our diary section, to keep you informed of the goings on in the entomological world. Any dates of meetings, exhibitions *etc.* are gratefully received. Also included in this issue is *ICN* number 16, and, to celebrate our anniversary, a look back at just a few of the many articles received during the first decade of the Society.

I expect that most members are aware that the first prosecution has been brought in the UK in respect of possession for sale of butterflies protected under Schedule 5 of the Wildlife and Countryside Act 1981. The prosecution, brought by the Leicestershire police after a visit to the 1993 Christmas Entomological Fair in Leicester resulted in fines totalling £490 plus costs of £80 for possession for sale of 14 Chequered skipper butterflies (*Carterocephalus palaemon*). The interpretation of the Act is still a major cause of confusion amongst entomologists. It is therefore welcome news that David Sheppard of English Nature has agreed to keep

both the AES and the Entomological Livestock Group informed of any future changes in the Act. To simplify the Act as it stands, the AES and ELG are hoping to produce a booklet, in conjunction with English Nature, for members clearly explaining the Wildlife and Countryside Act with regard to insects. It is also hoped that members will submit questions to be answered by English Nature to clarify the legislation. Questions should be sent to me as soon as possible. We have also been promised an up to date copy of the Act and a current list of all species concerned, which I shall pass on to you as soon as it is received.

We have recently been contacted by Catherine Cribb who informs us that she is still receiving phone calls about Society matters, over a year after Peter's death. We would therefore, ask members who have Catherine's telephone number as a Society number, not to use it, but to forward all matters to a member of Council (shown on the inside front cover of all *Bulletins*). Your help with this matter would be greatly appreciated by all concerned.

The Society holds its Annual General Meeting on 22nd April at the Royal Entomological Society, 41 Queen's Gate, London. The format of the day will follow a similar format to that of last years event. Details of how to get to the meeting are given on the inside back cover of this *Bulletin*. The day will commence at 11am.

The AGM will see our Secretary, Simon Fraser, leave his position due to work commitments overseas. As yet we still have to find a replacement for him. Any member who is interested in the position should contact Simon as soon as possible for further details of what the job entails.

We have recently decided that the AES should include electronic mail addresses, wherever possible, for a faster contact of council members. Those addresses which are available are included on the inside front cover of the *Bulletin*. Finally, we have also decided that inserts will now be accepted into the *Bulletin*. This change in policy has been brought about for the simple reason that we have now been pushed into the next postage band, and therefore an extra 50g of weight can be used. Rates for inserts may be obtained from Rob Dyke our advertising secretary at the address on the inside front cover.

Best wishes for the 1995 season.

Wayne.

BUTTERFLIES IN KAKUM NATIONAL PARK, GHANA, PART I: PAPILIONIDAE, PIERIDAE & LYCAENIDAE

by *Torben B. Larsen*

358 Coldharbour Lane, London SW9 8PL.

As part of background research for my book, *The butterflies of West Africa – origins, natural history, diversity and conservation*, I decided to study the butterfly fauna of Kakum National Park in depth. Virtually no attempts have been made to compile complete lists of butterflies from single localities in West Africa, though such lists would be a useful aid to assessing total biodiversity. A further advantage of studying single localities in depth is the gradual development of an understanding of seasonality, the relative frequency of the various species and their habitat preferences, which is hard to obtain through flying visits to many localities.

Kakum National Park consists of about 350km² of tropical rainforest in good condition, though parts were selectively logged not that long ago. It is one of the most important conservation areas in West Africa, where rainforest has been lost at an alarming rate throughout this century. Perhaps the largest indicator of the continuing health of the forest is the presence of the small forest elephant, a well-differentiated subspecies of the savannah elephant, so shy that its habits and social organisation are still only poorly understood.

The park has become something of a “conservation flagship” in Ghana since it is readily accessible by tarmac road from Cape Coast, a town some 150km west of the capital, Accra. Cape Coast was for long a slaving centre and the coastline is dotted with forts (Portuguese, English, Dutch and Danish) which stand as living testimonials to one of the worst examples ever of the human capacity for inhumanity. The Park is being developed by the Ghana Wildlife Department with technical support from Conservation International and financial support from USAID.

The purpose of this paper is to give an impression of the butterfly fauna in a West African rainforest setting.

The biogeographical setting

The West African rainforest is one of four major forest regions in Africa, all of which are – or at various times were – in continued faunal contact. The Afrotropical region has some 3,700 butterfly species, more than two-thirds of which are forest species. About 900 forest species occur in western West Africa, *i.e.* the area west of the Dahomey Gap – a biogeographical barrier where a tongue of savannah breaks the forest

zone between Ghana and western Nigeria. North of the forest zone occur an additional 100 or so savannah species. So far 870 of the thousand West African species are known with certainty from Ghana.

Since all the forest zones in Africa are, or have been, in recent faunal contact, there is considerable similarity between the regions. Levels of regional endemism are relatively low. Thus, hardly any genera of butterflies are limited to West Africa, but about 120 species are – 15% of the forest fauna. The remainder are found in other forest regions as well, often ranging right through from Sierra Leone to western Kenya, and even to the East African coastal forests.

The butterflies of Kakum

I have spent some 60 days in the field (35 field days, defined as five hours' collecting a day in good weather conditions) at Kakum on numerous occasions over the past 18 months. In the course of this I have established the presence of almost 440 species of butterflies – half the Ghana total and nearly two-thirds of Ghana's forest butterflies. However, many remain to be discovered and I would expect the total to be somewhere between 550 and 600.

To place these figures in perspective, the highest published figures from elsewhere in West Africa are around 380 (Olokemeji, Gambari and Agege in Nigeria (Larsen, Riley & Cornes 1980, Riley & Cornes 1970, Hopkins 1970)). The most detailed faunistic study yet of butterflies in West Africa is the review of the Liberian fauna by Fox *et al.* (1965). At this point only 475 species were known with certainty from Liberia. During their many years of collecting, Fox and his wife caught far fewer species in Liberia than I have personally found at Kakum.

A short walk in Kakum National Park

A good day in the tropical forests is one that is partly cloudy, so that sun and shade alternate. This keeps down temperatures so that butterflies are active all day – and allows the collector to survive the whole day as well! On very sunny days heat shuts down much of the activity by noon-time, and many of the undergrowth species do not leave their hiding spots. A walk should be planned to take in both abandoned logging roads, open clearings, and the dark forest paths where the sun hardly penetrates. A well-planned walk on a good day can be very satisfying indeed. I regularly see as many as 150 species in a single day. My personal record is 225, on an absolutely perfect day in the Gambari Forest, near Ibadan in Nigeria, at the right time of the year, when my local experience was at its best.

Table 1. The butterflies of Ghana and of Kakum National Park (as of June 1994)

Family/Subfamily	Africa	Ghana	Kakum
Papilionidae	87	27	17
Pieridae	173	47	24
Lycaenidae	1473	285	115
Riodininae	14	2	0
Libytheinae	3	1	1
Danainae	19	6	6
Satyrinae	298	47	25
Apaturinae	2	1	0
Charaxinae	187	49	20
Nymphalinae	562	169	109
Acraeinae	199	39	25
Hesperiidae	478	191	91
TOTAL	3495*	864*	433*

* present totals about 3650, 870 and 441 respectively.

Papilionidae

There are at least 17 Swallowtails (Papilionidae) at Kakum. The Giant emperor swallowtail (*Papilio menestheus* Drury) is the most common, together with *Papilio cyproeofila* Butler; the males of both patrol along open paths. Occasionally, the huge *Papilio horribilis* Butler will swoop down from the canopy with wings held a third open. There are three of the brilliant Green-banded swallowtails of the *Papilio nireus* group, often joining the Long-tailed swordtail, *Graphium polices* Cramer, at damp patches. An occasional flash of emerald, hurtling along at prodigious speed, announces the rare *Graphium tynderaeus* Fabricius – one of the most beautiful of all African butterflies.

So far neither of Africa's largest and most spectacular butterflies (*Papilio zalmoxis* Hewitson and *Papilio antimachus* Drury) have been sighted at Kakum, but they may well be there. Both are remarkably scarce, local, and seasonal in West Africa.

Pieridae

The whites and yellows (Pieridae) of Africa are very similar to those of Asia and the Neotropics – indeed *Appias* and *Eurema* are pan-tropical genera, and *Belenois* is well represented in Asia. Among the most prominent is the Forest grass yellow (*Eurema senegalensis* Boisduval); on old logging roads, where the sensitive plant *Mimosa pudica* has penetrated, the Common grass yellow (*Eurema hecabe* Linné) of open habitats may also be found. The two normally never fly together. The most prominent of the whites are four members of the genus *Leptosia*, flying everywhere with what must be among the weakest flights of any butterflies. On warm days large numbers of *Belenois* and *Appias* come to damp sand (see plate 95A Fig. 1). Some of the Pierid females show a remarkable degree of dimorphism which has not yet been systematically studied; they seem to be mimics of *Mylothris*. Many of the African Pieridae (not least the *Colotis* and related genera) are savannah butterflies and these never penetrate the forest, though several of them invade cleared agricultural land. There are only 25 Pieridae at Kakum and few remain to be discovered.

Still missing is the Ghost (*Pseudopontia paradoxa* Felder), the only member of the subfamily Pseudopontiinae, with its transparent wings and amazing venation. Just possibly Kakum is not wet enough, but it seems to be generally rare in Ghana, and during my extensive collecting I have taken just two in Ankasa National Park.

Lycaenidae

The Lycaenidae are by far the largest group of African butterflies with about 40 per cent of the total fauna, but they are a very mixed lot indeed. The most unusual are the African subfamily Lipteninae. These are small white, yellow, red, orange or black butterflies – often with beautiful patterns – that are strictly limited to the proximity of *Crematogaster* ants which build large paper nests on tree-trunks. There seems to be no real symbiosis – the larvae have no honey glands – but no ants . . . no butterflies. The Lipteninae are so bizarre that many were originally described as Pieridae or Acraeinae. They are not at all numerous at Kakum and need looking for. They gather in little clusters on twigs or tendrils, especially those of Marantaceae which have extra-floral nectaries. They never visit flowers and their proboscis is reduced in length compared with flower-feeding Lycaenidae. My favourites are the almost clearwing *Ornipholidotos*; I was particularly pleased to find a colony of *Ornipholidotos larseni* Stempffer, which I never saw again since finding

one of the types in Nigeria in 1967! The largest of the Liptenines is *Mimacraea darwinia* Butler, a stunning mimic or co-mimic of *Acraea epaea* Cramer. Some 30 of these species have been recorded, but there must be many more.

The *Epitola* section of the Lipteninae are usually blue on the upperside, and therefore rather less unusual. The huge genus *Epitola* probably has some 30 Ghanaian species, but I have only taken three or four at Kakum. They seem to live high up, just below the canopy, and are only seen when they come down to display on their chosen parade ground. Each species has its own display time, lasting less than an hour. On three separate occasions, within a few minutes of 11.30, I have taken a single male *Epitola carcina* Hewitson in exactly the same spot. It will be a long time before all the *Epitola* and the related genera in Kakum have been recorded, but the largest of them (*Hewitsonia boisduvalii* Aurivillius) is fortunately there. Conservation International is planning to construct a canopy walkway which may help in pinning down the habits of these particular butterflies, I shall certainly spend many days on the walkway with a long-handled net. So far only ten members of the *Epitola* group have been found; there must be at least 20 more.

There are a few members of the subfamilies Miletinae and Liphyrinae, the truly carnivorous species, which feed on Homoptera or ants. Of these, only *Megalopalpus zymna* Hewitson is tolerably common. I took a single female of the Moth butterfly (*Euliphyra mirifica* Holland), which feeds on the early stages of the vicious tailor ants (*Oecophylla*); I had no idea what it was until I took it out of the net!

The Aphnaeinae and Theclinae are numerous and mostly rather similar to Oriental species, and many would not look out of place in the Neotropics. Most are quite scarce, however. For instance, there are some 25 of the beautiful *Iolus* in Ghana, but I have only taken four or five at Kakum. The rarest are members of the *Pseudalestis*, about which Denis Owen (1991) recently wrote; my total is a single battered male of *Pseudalestis leonis* Staudinger which dropped out of the canopy. One species that is common is the False-head butterfly, *Oxylides faunas*. Not only does it have the amazing false-head, but it has an extra twist – it turns 180° a fraction of a second before landing in order to improve the effect. I pointed out this phenomenon to a group of Wildlife Department staff during my first visit to Ghana and word has spread. Now I keep being told the story in other parks by staff who do not know me – an interesting example of how effective informal communication channels can be. I have about 30 members of this group so far, but there must be

almost twice as many. And there are new species to be found; I have just described *Diopetes kakumi*, a beautiful new Thecline.

Apart from *Anthene* and related genera, the Polyommatinae are poorly represented in the forest zone. The most evident are the snow-white members of the *Oboronia*, including by far the eastern-most colony of *Oboronia liberiana* Stempffer. The Polyommatine tally so far comes to 35.

Only two Riodininae of the genus *Abisara*, well represented also in Asia, are known from West Africa. They seem to be restricted to the very highest points of West Africa (700 metres plus) and may well be genuinely absent from Kakum.

The only African mainland Libytheine, *Libythea labdaca* Westwood is usually absent, but then occasionally turns up as a migrant by the million. Since it is found only in the forest zone, it is difficult to fathom why these large-scale movements take place.

(to be continued)

THE LADYBIRD, THE WEEVIL AND THE COLA BOTTLE

by Jan Koryszko (6089)

During September 1994, a student friend, Miss Sharon Parry-Thomas, told me of an observation she had had a few weeks before. This was a ladybird which appeared to be attracted to an empty, green, plastic cola bottle. She noticed the ladybird sitting on a small indentation on the bottle, which was almost the same shape and size as the ladybird.

Sharon thought it was trying to bite into the bottle – maybe there was already a very small perforation in the bottle, and the smell or taste of the cola, the colour of the bottle or a combination of the two attracted the ladybird.

On a few occasions at home in my pantry, I have noticed the odd weevil sitting on the neck of my two litre plastic pop bottles. They seem to be trying to find a way into the bottles. I have heard of ladybirds, but more so weevils, that can give a human a small bite or nip at times, but their jaws would find a plastic bottle quite hard going. I wonder if other members have had similar observations or can add to this subject.

RAJAH BROOKE FLITS TO THE BIG CITY

by Leigh Plester (2968)

Ylä-Muuratjärvi, FIN-41800 Korpilahti, Finland.

Given 15 hours to kill in a tropical city, my hero Captain Cook (Keith Floyd) would probably head for the nearest source of human nectar, but being an entomologist and having four people in tow (all female, aged from three to infinity), I naturally set out to enjoy myself still further. Taman Rama-Rama, Kuala Lumpur's Butterfly Park (or Butterfly Centre, if you believe the legend on the plastic carrier bags) is located in a quiet part of the city, amidst the sophisticated greenery of parks, including an orchid one, all well worth visiting. It's a bit out of the way, but if you stand looking stupid (no sweat for me) at the exit to K.L. airport, it takes all of ten seconds for a taxi driver to approach you, offering to "show you the sights". Depending on your bent, these can vary from the nefarious to the fairyous – and what more like a nymph than a butterfly (I *said* I was an entomologist)? Well, of course, we ended up at the flutterby one.

The butterflies (Lepidoptera) at Taman Rama-Rama are housed together with the visitors in a huge, landscaped net cage, liberally sprinkled with saplings, bushes, herbaceous plants, mounds of scarlet hibiscus flowers sprayed with honey, and meandering concrete paths. The splash of water comes from what can only be described as a "live stream". Animals ranging from rabbits to turtles and some lethal-looking lizards peer out of cages at the humans under netting and, to those with long sight, create the right jungle atmosphere. There is also a small python who looks at you as though contemplating what he'd do to you if only he'd been born an anaconda.

August 30th was a dull day, but hot for all that. A lot of the butterflies in the enclosure sat about on leaves, drooping in the tropical heat, while others flapped about from place to place looking exactly as they do in the rainforest. I and my entourage were a bit cynical at first, having just virtually stepped out of a North Borneo one, but we had to admit the resemblance to reality was pretty good. In other words, they had got it right. And for people from the big city, not to mention from as far away as cold old Europe, Taman Rama-Rama, like other butterfly parks, must be a revelation. Well worth visiting, in short.

Fitting some of the local names to the actual insects in the butterfly house is not recommended to those suffering from hunger pains: Chocolate pansy, Yam fly, Knight, Wizard, Baron, Snow flat, Palm fly, Saturn, the jolly old Plum Judy and the Atlas moth. Most spectacular in



Fig. 1. A live leaf butterfly (left) advertises itself on an information board for the species.

flight are the jet-black and gold Helena birdwings (Plate 96B Fig. 3) and the lamp-black and emerald Rajah Brooke's birdwings (Plate 95B Fig. 4) – taking me, at least, back to Sarawak and the era of the White Rajahs. A room in the entrance building harbours a fascinating collection of vivaria housing various kinds of Malaysian insects, other arthropods, and even a master-of-camouflage frog.

A slight fly (Diptera) in the ointment is the lack of early stages. Being naïve, I had expected to see caterpillars a-chobbling and chrysalids a-splitting, if not eggs actually being deposited. A young man in a shelter near the waterfall was busy glueing pupae to sticks and from him I learned that the butterflies are unfortunately bred elsewhere. Another, more serious, irritation was the lack of any kind of pamphlet in English. There was only a photocopied sheet in Bahasa saying “Welcome to the Butterfly Park”, explaining that the attraction had been opened on 4th February 1992. Most of the brochure was filled with such things as a puzzle, a crossword and a “Cari Perbezaannya” (find the odd-one-out) for the local children.

For all that, if you are left with a few hours in K.L., all-in-all a friendly and fascinating city, try to beetle (Coleoptera) off to the Kuala Lumpur Butterfly Park. Its modest entrance fee truly represents money well-spent.

THE RED-SPOTTED FORM OF THE POPLAR HAWKMOTH LARVA

by Hewett A. Ellis (1994)

16 Southlands, Tynemouth, Tyne & Wear NE30 2QS.

Over the last sixteen years it has been my good fortune to find several red-spotted larvae of the Poplar hawkmoth, *Laothoe populi*, Linn., the latest two on 10th September, 1994 in Preston Cemetery, North Shields. One of these is shown in the accompanying photographs (Plate 95D and Fig. 1).

These attractive-looking larvae have been recognised for over two hundred years (Sepp 1762), but the standard texts (Carter & Hargreaves 1986) refer to them only briefly. Until recently (Ellis 1993b) there was available little information concerning the possible variations in anatomical distribution of the spots, and it was not known whether the spotting affects one or both sexes, is inherited or acquired, is related to the larval ground colour or to the particular foodplant.

The colour photographs illustrate some of the main features of these larvae. The spots may be located along the subdorsal lines, the spiracular lines or in miscellaneous regions as follows:

Subdorsal line spots

These are arranged more or less symmetrically about the dorsal midline and occur on one or more of the three thoracic segments and the first to seventh abdominal segments. In a series of 207 red-spotted larvae I have found subdorsal spots in 166 (80.2%). Their distribution and size are not random. Subdorsal spots are most frequent and largest on the third abdominal (A3) segment and overall their order of diminishing frequency is:

$$A3 > T2 > A7 > A4 > A2 > A1 > A5 > T1 > T3 > A6$$

Some combinations of subdorsal spots are more frequent than others and the six commonest are:

$$T2, T3 \text{ \& } A7 > A3 > T2, A3, A4 \text{ \& } A7 > T1, T2, T3, A1 \text{ TO } A7 \\ = A3 \text{ \& } A7 > T2 \text{ \& } A3$$

Spiracular line spots

In a few (5.3%) spotted larvae there are subdorsal spots only, but commonly (77.3%) there are accompanying spots on the spiracular line. For the most part (74.9%) these are located anterior and/or posterior to the spiracles, but in a few larvae (2.4%) there are spots at the same level on segments T2 and T3 where there are no spiracles. Paraspicular spots



Fig. 1. Subdorsal line spots T1 to A7; spiracular line spots A1 to A8, dark red pigment of apex of head capsule and prolegs.

may be the only markings in about a sixth (17.4%) of spotted larvae. As with the subdorsal spots there is much individual variation between larvae, but in the commonest pattern (in 22% of larvae) there are anterior and posterior spots in relation to every abdominal spiracle on A1 to A8.

Miscellaneous red markings

In this category there are a number of locations for the red pigment which is most frequent on the head capsule at the apex and sides, and around the ocelli and the mouth parts. It may also occur on the sides of the thoracic legs and abdominal prolegs, and at the base of the tail-horn. These miscellaneous markings tend to occur in larvae with the most prominent and numerous subdorsal and paraspiracular types of red spots.

Rearing pupae and adults from these larvae has shown (Ellis 1993b) that both males and females may be of the red-spotted variety and interestingly one larva with symmetrical spots proved to be a bilateral gynandromorph (Ellis 1993a).

Since the larvae may be found in the wild feeding on various types of poplar and willow it seems unlikely that the red spots are related to the foodplant and this has been confirmed during the rearing and breeding studies. Some larvae are unspotted in their early instars and the full complement of spotting may be delayed until the fourth instar. The breeding studies have confirmed that the red-spotting is inherited but not by a simple Mendelian or sex-linked mechanism and the precise mode of inheritance has not been determined. The various types of spotting are not related to the larval ground colour.

It should be pointed out that the larvae of the Eyed hawkmoth (*Smerinthus ocellatus*) may be ornamented with similar red spots to those described here in the Poplar hawkmoth. Since these forms of the larvae have existed for at least two centuries, then presumably the spotting does not significantly adversely affect the well-being (or survival) of the larvae.

It has been suggested (Barrett 1895), that these red-spotted larvae occur more frequently in the north of the United Kingdom. I have found them in Lytham St Annes, on Lindisfarne (Holy Island) off the North-umberland coast, and locally in North Shields. I would be interested to hear from anyone with records of such larvae in order to ascertain whether or not Barrett's suggestion is correct.

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INDEX TO VOLUME 53 (1994)

Apologies are given for the non-inclusion of the index to Volume **53**. We will be including this with the next issue of the *Bulletin*.

THE GOOD, THE BAD AND THE INDIFFERENT - MOTH NUMBERS IN AVON 1989-1994

by Mike Bailey (9153)

Holly Cottage, Tynning, Timsbury, Bath, Avon BA3 1HG.

I have been running a small 18 watt fluorescent "blue-black" light trap in my garden in Timsbury, near Bath for the last six years. 1993 seemed to be the quietest season so far, with many species being present in unusually low numbers. I was interested to read that Dominic Rey (*Bulletin 52*: 256) found butterfly numbers were low in 1993 and that he described it as the worst for 20 years. This started me wondering whether or not AES members had had similar findings to mine. Looking in back copies of the *Bulletin*, I found that several members over the recent years have commented upon the abundance or, of late, the scarcity of Lepidoptera. Opinions, however, were sometimes divided, for example, Peggy Pittkin (*Bulletin 49*: 183) observed that 1989 was a poor year for both butterflies and moths although G.R. Smith (*Bulletin 49*: 212-215) found plenty of butterflies in the south-west of England and the Scottish Highlands. In 1991 Brian Gardiner (*Bulletin 51*: 29) found butterflies and moths abounding in Cambridge, whilst Roger Hayward (*Bulletin 52*: 82, 99, 173) definitely found it to be a poor year with "A late and poor season", which "continued", through to an "autumnal anticlimax"!

Table 1. Macro-moth totals. Tynning, Timsbury, Avon.

1st March 1989 to 15th October 1994.

Year	1989	1990	1991	1992	1993	1994
Total of individual moths	8887	21948	4981	8653	4401	13203
Trapping nights n =	200	217	175	199	201	220
Average per trapping night	44	101	29	44	22	60
Species tally per year	168	191	165	176	167	201
% of 6 years tally of 279 species	60	68	59	63	60	72

(Correlation between total of moths caught and species tally $r^2 = 0.59$, $t = 2.41$, 4 d.f., $P < 0.1$)

Table 2. The number of years in which each species of macro-moth was recorded 1989-1994. Tynning, Timsbury, Avon.

	No. species	%
Caught in all 6 years	89	32
Caught in 5 out of 6 years	40	14
Caught in 4 out of 6 years	28	10
Caught in 3 out of 6 years	34	12
Caught in 2 out of 6 years	30	11
Caught in 1 out of 6 years	58	21
Total	279	100

The total number of individual moths, the average daily catch and the annual species tally for the period 1st March to 15th October for '89-'94, caught in my garden is given in Table 1. The average daily catch and the species tally for each year is shown in the graph, Fig. 1.

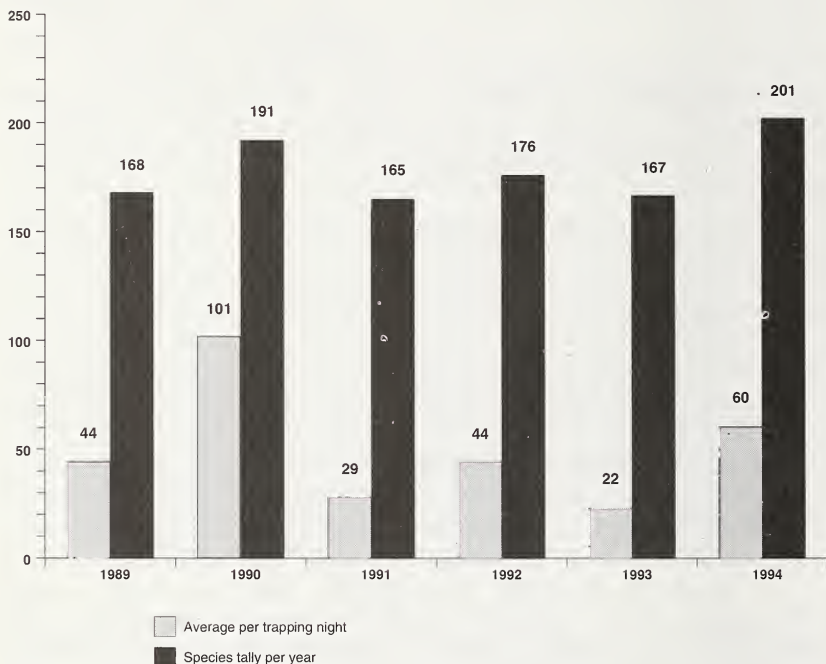
As can be seen this site produced its highest population total in 1990 which was approximately five times greater than the low total years of '91 and '93. On this scale one would presumably have to place '89, '92 and '94 as being closer to an intermediate/average level.

Being a relative newcomer to moth trapping, having been more involved in catching and ringing birds, I've been amazed at the large amplitude in the oscillations in the rise and fall of insect populations. It certainly makes for more spectacular graphs!

In Table 2, I've listed the number of species that were found in all six years, down to being recorded in only one of the years.

I was surprised by just how few species, 89 out of 279 (32%) were found in every year and indeed that 58 species (21%) occurred in one year only. Obviously the rate at which new species get added to the list will slow down but I can quite see that this has implications for atlas and

Fig. 1. Macro-moth totals. Tynning, Timsbury, Avon.
1989 – 1994 (1st March – 15th October)



censusing work. In any one year the best I would have achieved was 72% and the worst 60% of the total found in all six years.

I would be very interested to hear from other members who run traps on a regular basis to see just how their totals vary from year to year. Has anyone had fluctuations in numbers that are similar to, or different from mine? I certainly get the impression from talking to a few "old-hands" that the last six years have not been remarkable in terms of high numbers, if anything the opposite seems to be true. It would, therefore, be very informative to hear not only of recent totals and/or average nightly catches but of trap totals over a longer period too.

There does seem to be some correlation between the yearly total of all moths caught and the number of species identified although in this small sample it is barely statistically significant. Nevertheless, a record of the total of species caught each year from regularly trapped sites could also reflect differences in annual abundance and would be of great interest.

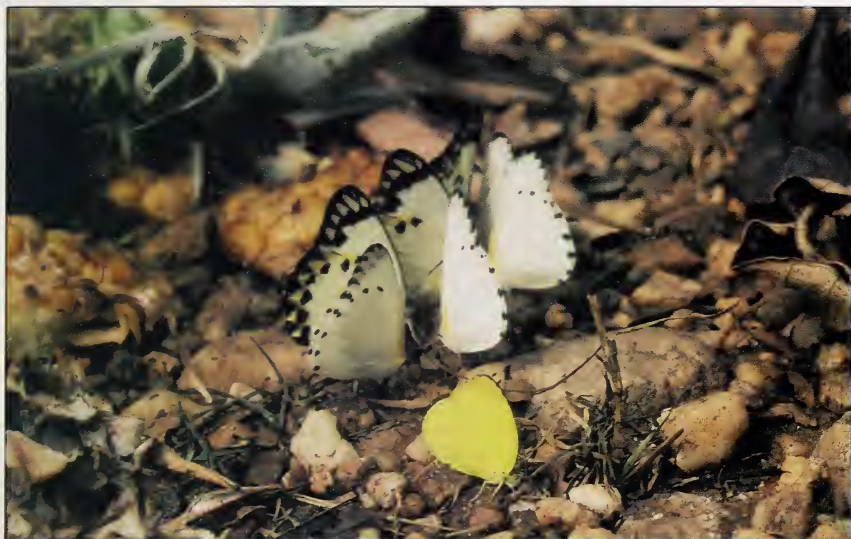


Fig. 1. Pierids visiting a deliberately created "urine patch" – three *Belenois theora*, four *Appias sabina*, and one *Eurema senegalensis*. All are males.

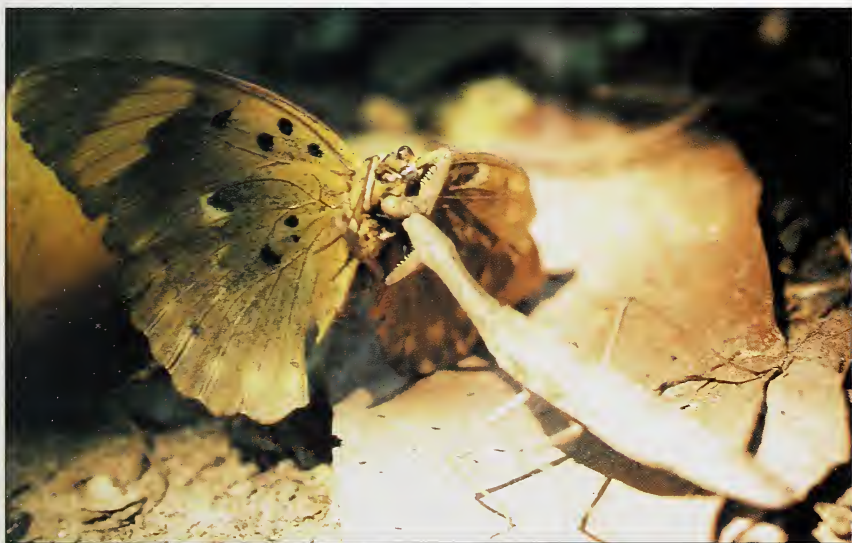


Fig. 2. A praying mantis eating *Euphaedra francina*, one of the largest butterflies of the forest floor, having picked it off a rotting fruit.

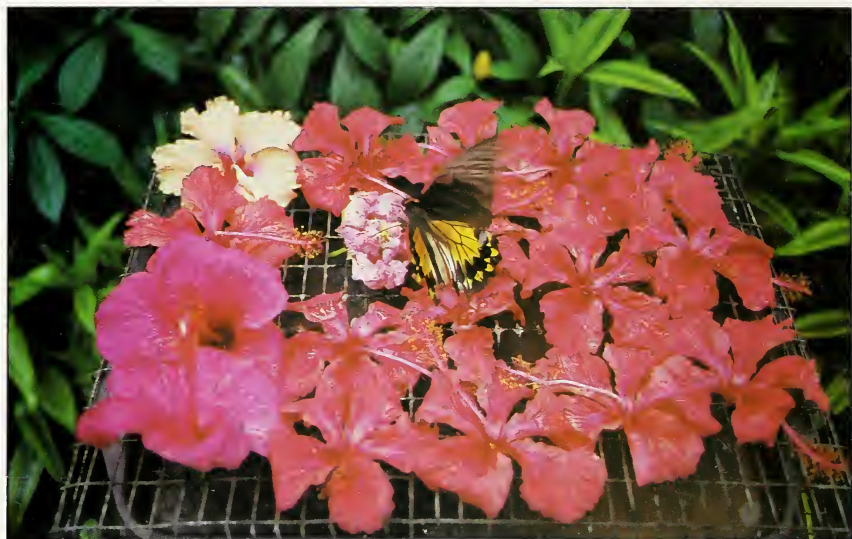


Fig. 3. A female Helena birdwing imbibes nectar from hibiscus blossoms.

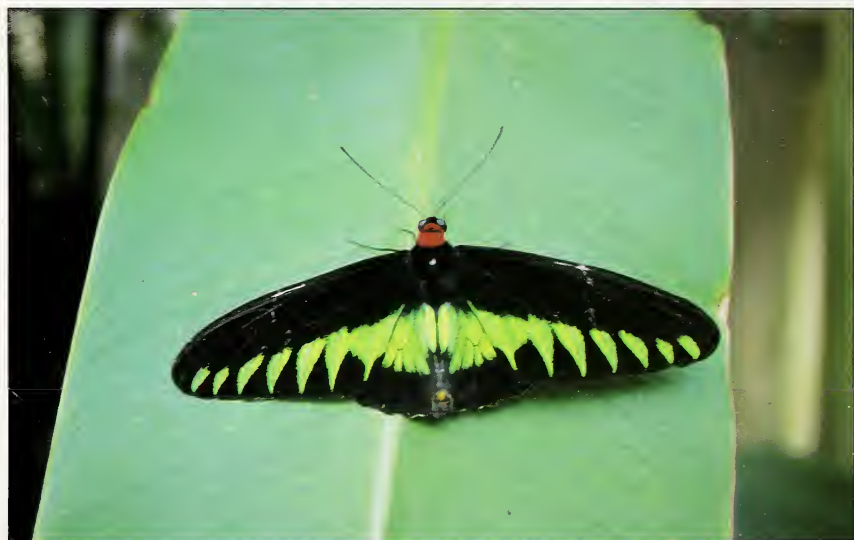


Fig. 4. The park's emblem, a Rajah Brooke birdwing rests on a banana leaf.

Number 16

February 1995

INVERTEBRATE CONSERVATION NEWS



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NOTICE

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INVERTEBRATE CONSERVATION NEWS



No. 16, February, 1995

Editorial

It is just over a quarter of a century since *ICN* first appeared under its original title as the *AES Conservation Group Bulletin*, and the next few editorials will ask how much success has there been in tackling the problems that were then being highlighted. Then, as now, we were pointing out that habitat destruction was the main problem causing the decline and extinction of invertebrate populations. We also tried to discourage unscrupulous activities by a minority of field naturalists, in particular "over-collecting". Both messages were – and remain – valid, but experience now proves that governments and international agencies find it much easier to target unscrupulous naturalists than to control habitat destruction.

The criminal law can certainly help to conserve populations of many vertebrates, on which collecting or hunting can have a major impact. For terrestrial invertebrates, however, collecting usually involves a very much smaller proportion of their populations, which consist of relatively large numbers of individuals with high rates of both fecundity and mortality. Even so, for species brought to the brink of extinction through habitat destruction and isolation, the precautionary principle suggests that there must be situations where collecting could be the last straw. There is no scientific evidence to support the arguments of those who think that legal protection of invertebrate species ought to be as wide-ranging, for example, as that applying to birds in the UK. Nevertheless, the laws in some other countries are applied to many invertebrates for which collecting is not a credible threat; for example Mark Collins revealed in *AES Pamphlet No. 13 (1987)* that it is an offence to collect any species of ladybird in the Flemish region of Belgium.

It would be hard to prove whether the criminalisation of collecting endangered species has helped their populations "on the ground", but it has been accepted by a wide range of entomologists who would not in any case wish to collect such species. In Britain, the voluntary code for collectors, published by the Joint Committee for the Conservation of British Invertebrates (JCCBI), is widely respected by naturalists. However, most serious field entomologists seem firmly against the idea of legal protection for long lists of species, not only because collecting is necessary for the study and identification of most taxa, but also because they value their personal freedom. Even in Britain, however, the current law raises anxieties over the possession or sale of legally acquired specimens of scheduled species, since possessors of fully protected species can be found guilty unless they can prove otherwise.

The increasing attention paid to invertebrate conservation in nature is a very welcome development, but it is also becoming a source of disagreement over the need for legal restrictions on the individual. Those who have responsibility for reserves have a very understandable desire to control things that happen "on their patch". More seriously, unauthorised activities can interfere with specific conservation management objectives. The JCCBI has recently discussed these issues, and one suggestion that it considered – and rejected – was that collecting any invertebrate on a nature reserve without authorisation should be made punishable by law. This discussion took place within the context of the JCCBI's drafting of a policy document on the role of law in invertebrate conservation. This document, now finalised, sets out clear criteria for deciding when a species could qualify for full legal protection. This document will be published in a later issue of *ICN*, once the list of signatories has been announced.

The JCCBI document on legislation also deals with the control of introductions or re-introductions. The document states that:

"Introductions or re-introductions should normally be controlled by law only when they involve species or genetic forms not native to the state concerned. Exceptions may be necessary for economic reasons as well as in the interests of wildlife conservation."

Perhaps with this last point in mind, Butterfly Conservation is now arguing for legal controls on the release of any of the rarer British butterfly species, since such releases can undermine conservation management objectives. This could be done by adding these species to Schedule 9 of the Wildlife and Countryside Act, as explained by Alan Stubbs on behalf of Butterfly Conservation in this issue of *ICN*. The proposal deserves

careful consideration, since field naturalists should not condone activities which threaten valid conservation programmes. However, as in all activities not directly harming other human beings or their property, the criminal law should be invoked only with good reason.

News, Views and General Information

Quinquennial review of 1981 Wildlife & Countryside Act

In Britain, the lists of legally protected plant and animal species are reviewed every five years. We learned in November that proposed changes in the next review were to be sent to the Joint Committee for Nature Conservation by mid-February, but this gave no chance to invite suggested proposals via *ICN*. However, we hope that *ICN* readers will have an opportunity to comment on any proposals that are made; this might help to prevent any unsuitable proposals being "given the nod" by those of us who sit on committees. We do not yet know of any proposed additions of invertebrate species to Schedule 5, which relates to collecting, disturbance and trade. However, there will be a proposal from Butterfly Conservation that certain butterflies should be added to Schedule 9, which relates to the release of species into the wild.

The proposal, drafted by Alan Stubbs, reads as follows:-

Proposal

All British Red Data Book and Notable Butterflies should be added to Schedule 9, making it illegal to release these species except under licence.

Notable = Nationally Scarce = Pink Species (species currently occurring in no more than one hundred 10km squares in Great Britain).

At present, these butterflies are listed under Schedule 5. Some species are fully protected; the rest require a licence for trading of wild-caught specimens (under Section 9[5]).

Schedule 9, Part 1, is subject to Section 14. It is 14 (1) which controls release of non-native "kinds" of animal, even those not listed in the Act [14 (1) (a)]. However, there is also provision to list species which are established or otherwise resident [14 (1) (b)]. This reads:-

14. – (1) Subject to the provisions of this Part, if any person releases or allows to escape into the wild any animal which –

(a) is of a kind which is not normally resident in and is not a regular visitor to Great Britain in a wild state;

or

(b) is included in Part 1 of Schedule 9, he shall be guilty of an offence.

History of Proposal

The concept and its reasons were floated at the 58th meeting of the JCCBI held on 20th October 1994, allowing some discussion of the implications. On 30th October the Conservation Committee of Butterfly Conservation (BC) further reviewed the implications and decided that the proposal was necessary and should be forwarded to the Joint Nature Conservation Committee (JNCC), the government agency handling the Quinquennial Review consultation. The JNCC observer at that meeting considered that Schedule 9 was an appropriate means of achieving the objective. At the JCCBI Executive Committee meeting on 12th December, the proposal was discussed, and a statement from BC was requested by representatives of two of the national entomological societies (BENHS and AES).

No-one welcomes having to use legal measures. However, if there are problems that can be best resolved using legislation provided by Parliament, then that is the route that has to be faced.

In making this proposal, BC is aware that it is a sensitive issue, both for those who oppose controls and those who support them, but BC feels that action must be taken in the best interests of conservation.

Proposals have to be received by JNCC by mid-February 1995. JNCC will be issuing a consultation document incorporating all submissions, thus giving societies and other interested parties a chance to comment. It is open to anyone to counter this proposal. However, it will need to be shown that the problem does not exist or – if it does exist – that the reasoning is wrong and that alternative equally effective measures can be adopted.

Reasons for the proposal

1. There is widespread concern that butterflies are being released surreptitiously, rather than with consultation and co-operation with the conservation bodies.
2. The voluntary principle does not work; indeed there are strong adherents of private release who are unlikely to relinquish their freedom of action.
3. The JCCBI has published a code of practice, *Insect Re-establishment – a Code of Conservation Practice*, which is widely ignored. Procedures to encourage people to submit notice of releases, let alone seek consultation over proposed releases, have met with almost zero co-operation from the general fraternity of those who are effecting private releases.
4. Now the conservation movement has taken butterfly conservation on board, increasingly treating butterflies as high profile flagship species, there is little excuse for individuals to act alone. Entomologists should be able to achieve far more for butterflies by encouraging the conservation bodies by working with them, rather than against them.

5. Increasingly, the future of butterflies depends on a more detailed understanding of their ecology and response to management. Surreptitious or other unofficial releases can be disruptive and lead to the wrong measures being adopted by the conservation bodies.
6. There are already examples of research being ruined by unannounced releases, and this can happen one, two or three years into a project. After all the time, effort and finance, how would you feel as the person doing the research or responsible for the site? In one such classic case the research had been funded by a conservation body. What message does that send? What confidence can funding and grant-giving bodies have in their continued support of butterfly research?
7. Many butterfly sites have their populations monitored. Very often one of the objectives is to monitor the ability of the site to support butterflies. It is essential to know the natural population levels and carrying capacity and, if numbers are falling, to respond by adjusting the management. If someone is quietly releasing butterflies, all may appear well until those releases stop. Then suddenly, and too late, it is revealed that the habitat has become unsuitable to support the resident population.
8. Uncontrolled releases could be of stock from anywhere. The conservation movement is concerned that local stock should be used. There is an increasing awareness that there are local genetic differences, at a physiological level even if not in appearance. New techniques such as genetic fingerprinting are likely to highlight further the desirability of avoiding further confusion and uncertainty over the origin and nature of populations.
9. Furthermore, it is a moot point whether Section 14 (1) (a) prohibits release of foreign stock of species that are resident in Great Britain; it would need a test court case to decide whether "animals of a kind" means not only species, but also genetic forms (eg the release of foreign races of the Swallowtail). Listing in Schedule 9 would close this loophole and would be quite explicit under 14 (10) (b).
10. A great deal of effort goes into recording schemes at county and national levels. Part of the objective is to repeat such activity at intervals in order to understand the wildlife health of the countryside and the changes which are occurring for better or for worse. There is little point if one is recording the unnatural status of species resulting from unadmitted releases, sometimes on sites that cannot naturally support the species anyway. Any conservation message that action is necessary to prevent further decline of butterfly habitat in the countryside is obscured, weakened and perhaps lost.
11. Most of the Red Data Book and Notable Species occur predominantly on reserves and other sites owned or managed by conservation bodies, or are Sites of Special Scientific Interest (SSSIs) where the statutory conservation

agencies have a responsibility. The concern is to protect and manage the flora and fauna that naturally occur in such places. The presence of species implies success in managing sites to maintain those species. Special butterflies often require special management objectives and it is grossly unfair if surreptitious release is giving the wrong messages about priorities and management.

12. With freedom goes responsibility. The freedom or "right" to release butterflies wherever one wishes has to be set against the freedom of the conservation bodies to be free from the disruptive activities considered above. What right has anyone to release butterflies on to someone else's land without permission? If people are using freedom irresponsibly, then it must be no surprise if legal controls become necessary.
13. The focus is on butterflies, since that is where the problem lies. If similar concerns should arise with other taxa, the Schedule 9 mechanism can be adopted.

Operation of licensing

1. The licensing authority would be the Department of the Environment (DoE), acting on the advice of the statutory conservation agencies.
2. A licence would be considered only if it were supported by one or more of the conservation bodies (eg county wildlife trust, National Trust etc.) and indeed a leading society (or JCCBI) may also be appropriate backers. As a matter of course, it would help to have the backing of the local officer for the statutory agency, indeed essential if an SSSI were concerned.
3. It would need to be clear that the principles laid down in the JCCBI code (or similar required code) were met. Key statements would need to include what was to be released, how it would be done, habitat management implications, the likelihood of success and plans for monitoring.
4. This proposal upholds the principle that release has a valid purpose, in appropriate circumstances, and does not diminish the role of the amateur. The means is offered to provide a legitimate route, working with the conservation movement, whilst prohibiting irresponsible independent action.
5. Research workers face additional bureaucracy in obtaining all the permissions required, but this has to be offset against the current risk that their research effort could be negated by a single unplanned release. Providing that the statutory agencies are properly informed, as they should be anyway, the mechanisms at office level ought to be easy to arrange.
6. There will be concern that there are too many inconsistencies and uncertainties in the operation of Schedule 5 licences at DoE. There are inherent problems from the wording of the Act. The Schedule 9 situation is different, clear-cut rather than ambiguous, and easier to handle.

Comments on this proposal are invited from all ICN readers, and will be taken fully into account by the AES Conservation Committee and by the Society's Representatives on the JCCBI when the time comes to vote on the issue. The apparent failure of voluntary controls is particularly worth examining.

AES Area Conservation Representatives in Britain

Martin Harvey, Habitat Conservation Officer

12 Cater Road, Lane End, High Wycombe, Buckinghamshire HP14 3JD.

At the time of writing we have five AES Area Conservation Representatives, and their names are given below. If you have a local conservation issue you wish to raise with an Area Representative, or if you could offer him or her any help, please write to him or her enclosing a SAE and giving your AES membership number. If you are interested in becoming an Area Conservation Rep yourself please contact me for further details.

Dave Hemingway

13 Ashdene Garth, Crofton, Wakefield, West Yorkshire WF4 1PH.

Neil Jones

31 Drummau Road, Birchgrove, Swansea SA7 9QA.

Dr Helen Marcan

49 Red House Road, Bodicote, Banbury, Oxfordshire OX15 4AZ.

Robert Partridge

11 New Road, Mepal, Ely, Cambridgeshire CB6 2AP.

Geoff Trevis

14 Old Coach Road, Droitwich, Worcestershire WR9 8BB.

Sites and Species of Interest

A specialised moth in Cornwall?

Dr F.N.H. Smith, writing in the Ministry of Defence conservation magazine *Sanctuary* (No. 23, 1994), asks some interesting questions about the very local pyralid moth, *Apomyelois bistratiella neophanes*, which was found at the Penhale MoD training area, Cornwall in 1991. In *A Field Guide to the smaller British Lepidoptera*, edited by A.M. Emmet, the larval food source of this micro-moth is recorded as the fungus *Daldinia concentrica*, growing on "dead birch, less often on gorse or other plants, especially on burnt stems".

Following the appearance of the moth in a light trap, Dr Smith investigated the hillside above the trap site, where all the gorse had been burnt two years earlier. On many of the larger charred stumps, he found numerous fruit bodies of *D. concentrica* which, as its common name King Alfred's cakes implies, look like balls of charcoal, several centimetres in diameter. He found larval frass around many of the fruiting bodies and verified the presence of the moth by rearing some adults from one of the stumps.

Dr Smith's observation at Penhale suggests that the moth's presence there is dependent upon the availability of burnt gorse, which is of course restricted to relatively infrequent periods. Birch, the other typical "host" tree for the moth, is virtually absent at the site. The moth could not be found at Penhale by 1992, by which time fruit bodies of *D. concentrica* had become hard to find. Dr Smith wonders whether the moth might be able to follow the scent of burning gorse many miles distant, but this question perhaps presumes too firmly that a burnt substrate is needed by either the larvae or adults. This supposition is perhaps ruled out by the fact that the host fungus is also used by the larvae when it fruits on unburnt birch and other plants. The fungus is actually found most commonly on ash trees, but it could be that ash tends to occur in biotopes which are not suitable for some stage in the moth's life cycle. Alternatively, perhaps, the species of host tree affects the quality of the fungus as a larval food source.

Road schemes in Bedfordshire, Cambridgeshire and Northamptonshire

The Bedfordshire, Cambridgeshire and Northamptonshire Wildlife Trust has drawn attention to the many sites in its area that are threatened by planned road building and widening schemes. Its September 1994 issue shows a map of the region concerned, annotated with a summary of potential damage at each site. Of the twenty-one sites, seventeen are designated as nature reserves, SSSIs or county wildlife sites. Some of the main biotopes that would be affected are wetlands, chalk grassland and woodlands, all of which are important for threatened invertebrate species. Particular species mentioned by the Trust are the Black hairstreak at sites along the M1, for which widening is planned through Bedfordshire and Northamptonshire, and the Small blue and Grizzled skipper at Badgers Hill County Wildlife Site, which stands in the way of the proposed Luton East Circular Road, North.

Book Review

Insect Conservation Biology by M.J. Samways, Chapman & Hall, 1994, xvi+358pp, ISBN 0 412 45440 8, hardback, £37.50.

The growing popularity of conservation in western countries has not been matched by a public awareness of the nature and relative scale of the damage that human activities inflict on different forms of wildlife. Vertebrate taxa receive most of the attention, but this book assembles a body of compelling evidence to show that the risk of extinction is greater for insect species, not only because there are immensely more of them, but also by virtue of their often exacting habitat requirements. The first chapter illustrates the evolutionary adaptation of insects to almost every terrestrial ecosystem. The author draws on some interesting data; for example in a survey of Seram rain forest, over half the estimated 43.3 million individual arthropods in one hectare were Collembola, reflecting the importance of habitats in the soil. The very success of insects, which has produced perhaps 10 million extant species, belies the vulnerability of many species which are so closely adapted to geographically restricted biotopes that even a slight change can wipe them out, often to the point of total extinction. In the tropics, both the diversity of species and the threats to them may seem to make British conservation issues pale into insignificance. However, despite our relatively small insect fauna, our ratio of species to land area appears to be surprisingly high by world standards.

The remaining introductory chapters describe the many ways in which insect habitats have been damaged, while also outlining the aims and responsibilities of national and international organisations which seek to ameliorate this loss. A central problem, which has a chapter of its own later in the book, is the fragmentation of biotopes. This is less serious for the relatively mobile animals, especially birds, whose requirements often seem uppermost in the minds of those who influence conservation policy. Fragmentation prevents species from re-colonising suitable sites following chance local extinctions. In the longer term it could also prevent species from keeping pace geographically with climatic change or other large-scale events (as many did during past glaciations). When fragmentation and other problems are viewed in the context of tropical ecosystems, current conservation efforts seem inadequate in scale and often inappropriate in emphasis.

The author goes on to examine ways in which conservation could become more effective by taking proper account of insect population ecology. The ability of species to disperse in a fragmented landscape must

be understood in order to determine the optimum size and shape of reserves and the value of different types of "corridor" between otherwise isolated habitats. He stresses the need to think about very small-scale "micro-sites" within biotopes, which are essential for survival. Studies on single species show that their different developmental stages and sometimes the two sexes have greatly different micro-site requirements. This does not necessarily mean that we must tinker with sites to help favoured species, since a broader-brush management of the landscape can achieve diversity in a way that is compatible with the economic use of the land.

Although there are still places where the protection of natural ecosystems is the main objective of conservation, there are many other parts of the world where the sympathetic management of agricultural and other "disturbed" land is important. The author describes systems of "adversity agriculture" in which populations of vulnerable species can often fall below a "minimum viable level", leading to local or even total extinctions. This has happened even to former pest species such as the Rocky Mountain grasshopper (*Melanoplus spretus*) in North America. The risk of extinction is lower in "agroecology" systems, in which areas of natural vegetation can support a high proportion of the local insect fauna while serving as refugia for natural enemies of crop pests. There are, however, no absolute rights and wrongs in agricultural methods. Burning, for example, is very harmful to many species, but others depend upon it. Similarly, although biological control is often a "green" alternative to the use of chemical pesticides, it can be disastrous when the agents released are able to persist and to attack non-target species.

The author looks at the pros and cons of "restoration ecology" and concludes that it is worthwhile in some cases, as when trees are planted for agroforestry in deforested tropical areas, or when herb-rich grassland is re-established in temperate farmlands. Restoration strategies can be helped by knowing the specific requirements of individual species, but the most vulnerable species are usually less able to recolonise the restored sites than widespread ones with greater tolerance of varied conditions. Some of the vulnerable species get special attention and can be artificially re-established, but the author sees this as the last resort.

The rate at which insect species are being lost worldwide, according to one estimate quoted by the author, could be nineteen per hour over the next thirty years. Such figures serve both to stimulate concern about individual species and to emphasise that attempts to save a favoured few cannot address a problem of such proportions. The need is for an "umbrella" approach which can take account of both small-scale and

large-scale elements of the landscape. To the extent that individual species can be helped, there is a need to improve methods of assessing their status; for example by recording the number of habitat sites per 10km square; not just mapping a dot for the entire square. Attention also needs to be focused on species which are good indicators of diversity and which can be recorded efficiently in site surveys, rather than on taxa which happen to enjoy the most popularity. On a global scale, it is important to identify the regions of “mega-diversity” and endemism where efforts should be concentrated.

By concentrating on the biology behind conservation, this book helps to identify the most urgent uses to which time and money should be devoted. However, the author admits that such an analysis is not supported by human attitudes towards insects, which often involve taxonomic favouritism or hypocrisy, as exemplified by those who are less aware of their own daily mass slaughter of insects than of the sadism of pulling the wings off a fly. Governments that ignore the wider conservation issues may pass laws to protect species against collecting or trade, but the result is often a high black market price.

The book's extensive bibliography testifies to the great deal of work that has gone into producing it. Its emphasis on fundamental issues and on scientific evidence will complement other recent works which have concentrated more on practical conservation. A subject like this is intrinsically hard to divide into distinct sections, but there could perhaps have been less overlap and repetition of ideas. It required a good index, and the one provided here is certainly comprehensive, although it fails to list all the entries for some important topics. The author's commitment to the cause makes this much more than a dry academic treatise, but it will perhaps be more useful to students, research workers and policy makers than to the amateur conservationist. (Thanks are due to the British Journal of Entomology and Natural History for permission to reproduce this review here.)

Future Meetings

6-7th April 1995, London.

Conference on “Conserving Europe's Bees”, Linnean Society of London/
International Bee Research Association.

The four sessions are: (1) Habitat for bees, (2) Grappling with bee diversity, (3) Do plants need bees? and (4) Competition in bee-plant and bee-bee interactions. For further information contact:-

CONSERVING EUROPE'S BEES,

THE LINNEAN SOCIETY OF LONDON, BURLINGTON HOUSE, PICCADILLY, LONDON W1V 0LQ.

22nd April 1995, Royal Entomological Society of London, 41 Queen's Gate, SW7.

Amateur Entomologists' Society AGM and Members Day. Starting at 11am. All welcome. Talks and practical demonstrations will accompany the meeting. Guests are invited to bring along an exhibit. Please contact Wayne Jarvis, 9a Brook Street, Luton, Bedfordshire LU3 1DS to book space or for further information.

Letters

It should be noted that we received the following letter six years ago! It is still topical, despite having been "held over" while *ICN* was in the doldrums, and so we are happy to publish it. The *ICN* item that sparked it off expressed concern over the practice of removing dead trees to make woodlands safer for the public . . .

Woodland Trust deadwood policy

from Pamela Harding,

Woodland Trust Legal & Information Officer.

I would like to respond to your item in the May 1988 issue of *ICN* concerning the Woodland Trust and its approach to dead wood habitats.

Almost all Woodland Trust properties are open to the public and the Trust takes seriously its responsibilities towards visitors, which includes the necessity of some tree safety work. This aspect of the Trust's management tends to be stressed in publicity material, perhaps wrongly so, since in most Trust properties there will be many areas left as non-intervention areas. In some woods dead wood habitats are being created and extended by management work.

The item in question has picked up a few rather isolated examples from the Trust's literature. I could quote to you an item on the back page of the Trust's *Newsletter 26* on the [1987] storm. "Fallen, damaged or dead trees that are not actually dangerous have been left, as rotting wood is a valuable habitat for fungi and insects".

In *Newsletter 25*, which reported on the storm on the front page, there was a sub-heading "Dead Wood is Valuable" with a brief explanation. These are just two examples.

The Woodland Trust aims to strike a balance between several objectives, including conservation, in the management of its properties. It also aims to educate the public about the need for woodland management. The Trust believes that it is fulfilling these roles more successfully than many other landowners and deserves credit for doing so.

Adding species for legal protection

from Peter Tebbutt,

Abingdon, Northamptonshire.

ICN 15 somewhat surprised me with its statement (on page 5) that the AES provides information *etc* that the JCCBI uses in its recommendations on the quinquennial review of species protected by law. If that is the case, then how come EVERYONE was astonished that the High brown fritillary was added to the fully protected list and that many of the restricted species are there only because of the pressure that Butterfly Conservation now exerts. One of its recent publications now makes it perfectly clear that it would like at least 25 species of butterfly to be totally protected. Unless we want to return to our childhood days, when we kept just a few Large white caterpillars in a jam jar, then the JCCBI with its representatives from the AES and BENHS will have to bring in a better line of reasoning than they are presently using, or the fanatical (and usually ill-informed) will succeed in outlawing everything that most AES members enjoy doing (*ie* collecting and breeding butterflies), with fines being dished out in all directions. I do not wish to get really into this subject but I sincerely hope that a good dose of common-sense prevails before our hobby is completely ruined by unnecessary regulations.

Editor's note: The AES and most other member-organisations of JCCBI give authority to their councils to represent their interests. A more democratic arrangement might be desirable, but would usually not be feasible, since in most instances, votes could not be taken in time to respond to the issues in question. All we can do is to try harder to publicise proposals to which society members may wish to respond. In the case of the High brown fritillary, the JCCBI accepted evidence for serious decline. No-one submitted evidence to the contrary, but perhaps too few people knew what was going on around committee tables.

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Woodland Trust deadwood policy. Adding species for legal protection.	

NOTICE

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Fig. 5. Selection of cigarette cards from Wills (1938) "Butterflies & Moths".



Fig. 6. Selection of cards from Shell (Australia) (1962) "Beetle Series" and Wills (1914) "Garden Life".



Fig. 7. Subdorsal spots similar to Fig. 1 (Ellis) but none on A6. Spiracular line spots anterior and posterior to spiracles on A1 to A8 and T2 and T3. Pigment around ocelli and at base of tail-horn.



Fig. 8. Details of shapes and locations of subdorsal line spots (to rear of each segment) and spiracular line spots (anterior and posterior to spiracle).

RAMBLINGS OF AN AGED CARTOPHILIC ENTOMOLOGIST

by D.O. King (9094)

Reproduced with permission of "Cigarette Card News".

As a small schoolboy in the early 1920s, a favourite way of passing break-time (except of course in the conker season) was the game known as "Flick", played with cigarette cards. Standing a given distance from a wall, a contestant would lightly hold a card flat between fore and middle fingers, and by a flick of the wrist launch it in flight towards the wall. The player whose card ended up nearest the wall won the cards of all his less adept (lucky?) competitors. The game did not do a lot for the corners of the cards, nor for their general cleanliness, but no-one seemed to consider this aspect – we did not realise what future treasures we were vandalising.

From an early age it was clear that I had inherited the trait of invertebrate collector so prevalent in my mother's family, so it was inevitable that I should latch on to cigarette cards as a suitable sphere of activity. "Flick" was not much of a way to form a collection, not only because of the sad state of most of the cards acquired, but also since, like winnings at the gaming table, they could all be snatched away again when you hit a losing streak. I began, then, cadging clean cards from smoker relatives and friends (my father was tactless enough to prefer a pipe and had to be cajoled into occasionally buying a packet of cigarettes), and my collection was launched in earnest.

Another interest that made an early appearance was natural history, though it did not embrace my father's love of wild flowers, a subject on which he was very knowledgeable. I was encouraged in this by much browsing through the six admirably illustrated volumes of *The Royal Natural History* among my father's books, backed up by our regular Sundays two or three times a year at the London Zoo, which never failed to include a visit to the Insect House. (In those days it seemed quite natural to go and stare at creatures behind bars; one felt a fleeting sympathy for them, especially the larger animals, in their restricted space, but we were very far from developing the properly tender conscience of today about the justification for zoos.)

My strong inborn collecting urge was difficult to apply to living things, though for a year or two I did my best with a room full of tanks and cages housing lizards, amphibians, fish and all sorts of life gathered from the local ponds – there was one in a secluded corner of Sheen Common that had a particularly rich community. Coming home from an early spring expedition there, a school-fellow chanced to be at the far end of the

crowded bus, and I recall causing some embarrassment to the other passengers by loudly recounting to him my captures, and describing how the female toads all carried a male tightly clasped on their backs. I suppose I was about 11, and in the 1920s children were still innocent at that age, and adults more easily shockable than today.

Butterflies and moths, however, were another matter – one could kill and set them for permanent display in a cabinet, making them eminently collectable. By the summer of 1922, my tenth year, butterfly net and killing bottle were my constant companions, and my first junior six-drawer cabinet was overflowing its contents into a second, rather superior if second-hand, model. I can still remember the excitement during our Swanage holiday that year of spotting, through the haze of white dust thrown up by the pony and trap carrying us from Wool to visit Lulworth Cove, a Clouded yellow flying by; the trap was halted and I jumped out in pursuit – which ended in three quarters success, my over eager swipe with the net having deprived the capture of one wing. So I had to set it in the “at rest” position, showing the underside in my collection.

About the time I myself started, I discovered that an uncle was also a collector. By great good fortune he lived in East Sheen, only a couple of miles from my home in Putney (a tuppence bus ride, or penny half for me – those were the days!) and we became regular companions in pursuit of our hobby. He would often come over on a summer evening and we would walk up Putney Park Lane – an unmade private road lined with big elm and lime trees – to Putney Heath, scanning fences and tree trunks for resting moths, for whose capture we carried a supply of pill-boxes. Sometimes I would go to Sheen and we would take the towpath by the river from Mortlake to Kew railway bridge; in September this was an excellent place for Red underwings, at rest on willow trunks or the stonework of the bridge. At other times we would go to Richmond Park or Sheen Common, where I remember netting Ghost swifts in the twilight, including one giant female with a wingspan half as big again as normal.

There were other outings besides the collecting ones. On one occasion we took a train to Bexley to visit Newman's butterfly farm, and spent a fascinating time being shown round by him. I believe his establishment was then the only one of its kind. In the slack winter months we would often go to the Natural History Museum in South Kensington, wandering through its many galleries and inevitably ending up poring over its collections of butterflies and moths. My postcard collection contains sets of exotic moths and exotic dragonflies bought there to remind me of those visits.

When items of equipment were wanted, be it pins, setting boards or anything up to a new cabinet, it was always a joy to visit Watkins and Doncaster's shop in the Strand. Guided by the sign of a Swallowtail butterfly hanging out high up on the building, you would go through a small doorway and up two narrow flights of stairs before pushing open another door to find yourself in a collector's wonderland of cabinets and specimens and all needful equipment great and small. It was impossible just to buy what you had gone there for and leave – you simply had to stay a while to look round this treasury, so much crammed into so little space there was scarcely room to move.

My school from 1926 to 1930 was in Wimbledon, to which I cycled by the road that skirted the Common on the right, the left side being lined by large houses, giving two miles or more of fences on which with luck I could spot in passing moths that were not well camouflaged, like the Peppered, Mottled umber, Scarce umber, Spring usher and Dotted border. Sometimes I would go home across the common itself, illegally using the footpaths most of the way, and stopping to look for caterpillars on the many young birch trees. In my last three summers there I looked forward eagerly to the time of General School and Higher School Certificate exams, when free days always cropped up, and my uncle and I would set off with packed lunches for a full day out. On one such occasion we went to Petworth, where we found the Wood white, Pearl-bordered fritillary and White admiral. Most often we went by train to Oxshott, where we explored heathland and pine woods rich in insects, including the Bordered white, Latticed heath, Pine beauty and scores of other species.

In 1927 my father, who was an architect, had a house built at Swanage, where from 1928 we spent our holidays until his death in November 1935. This meant that until I left school my mother and I were able to spend all the Easter and long summer holidays there, my father joining us at weekends and for such time as he could spare from work. It was a splendid centre from which to explore the varied types of country in the Isle of Purbeck, with all their differing insect life, and I never tired of tramping around it, either on my own or with my parents, or best of all with my uncle, who always came for a couple of weeks. Amongst many others there were Graylings on the quarry land above the cliffs; Dark green fritillaries, Chalkhill and Adonis blues on the Ballard Down; Lulworth skippers in a grassy gully on Anvil Point; and Silver-studded blues and Emperor moths on the heath behind Studland Bay with its scattered pine trees (on one of which we once found a Pine hawk). As well as these resident species, Purbeck provided a good landfall for

immigrants, which in some years appeared in great numbers. I remember clover fields alive with Clouded yellows and Painted ladies; ghostly *Convolvulus* hawks dimly seen hovering in the dusk to feed from the tobacco plants in our garden; and a Vestal, a Small mottled willow and a few Bordered straws among dozens of species that came to my bedroom light. These were times of nostalgically happy memory, though I should except one year, the first after I had started work, when I chose to break away from the former August and September restriction, and went in June. This was a foolish move, because at that time (and until life in the army cured me!) I was prone to hay fever, and would stand helplessly and miserably sneezing uncontrollably in the dusty lanes lined by pollen-laden hedges and verges.

In the early 1930s I twice spent a week at Wicken Fen. It was a delight to see the Swallowtails around the flowers in the village gardens as well as on the fen itself, and glimpse the brilliant flash of a Large copper darting by. At night, the fen-keeper set up a floodlit sheet, to which swarms of moths came. He knew his moths well, speaking of them all by their Latin names, and eager to explain how to tell *affinis* from *diffinis*. It was a wonderful experience.

As with the attitude towards zoos, collecting for mere pleasure in this way was not frowned upon as it would be in these more enlightened and conservation-conscious times. However, I had to discipline myself to a non-hunting season in 1935 in order to concentrate on final accountancy exams; this gave me thinking time to see the error of my ways, and my cabinets received no further specimens thereafter. I kept the static collection for another twenty-odd years, then regretfully decided its room was more useful than its company and sold it. This was a pity as it turned out, but I could not foresee that in the fullness of time there would be a naturalist grandson who would have been glad to take it over.

Collecting was over but my interest in insects, and wildlife in general, continued. So when during the war the anti-aircraft regiment I had joined was posted to Ceylon, I was delighted to find myself on a gunsite in a jungle clearing near Trincomalee, where we stayed about nine months. Insect life was abundant – not least the malaria-carrying mosquitoes against which we fought a losing battle – observing and listing it all, and trying my hand at sketching such as would remain still long enough was a continual pastime. The listing was pretty useless as my ignorance prevented identification of all these strange species; I bought a couple of books when in Colombo, but they were of minimal help. My fellow gunners all thought of me as mad, and one in particular, with no faith in my judgement of what was safe, was always warning me with a worried air that if I persisted in handling these creatures I should one day receive

a nasty sting or bite; in fact the worst I suffered was an occasional squirt of noxious-smelling liquid from a plant bug. Maybe I was lucky!

After Ceylon we had a stint in North Africa, arriving in Egypt a few days after the last of the Germans had been pushed out of the continent – no complaint from me on that score! Our now mobile unit wandered rather aimlessly to and fro across Libya for some time. We had a sort of base camp by the ruins of Tobruk, of which I have two abiding memories: the ecstatic welcome of a myriad of fleas awaiting us in the tents we were to use, and the novel flavour of some of the cookhouse dishes, including the revolting tea – the Germans having as their parting shot salted the water supply. We finally settled on a gunsite on the beach east of Port Said, where we stayed four months before our obvious superfluity as an anti-aircraft unit resulted in our being broken-up for retraining as infantry at the beginning of 1945. I myself ended up in Palestine, where I very pleasantly saw out the last months of my war service. Those parts of the Eastern Mediterranean I saw were a poor exchange from Ceylon for nature study, but I continued to list, and occasionally draw, whatever turned up, until in October I took ship for England and demobilisation.

But to return to the 1920s, my collection of butterflies and moths and of cigarette cards were growing steadily side by side, each independent of the other and I had no thought of their ever doing otherwise. New series of cards I welcomed whatever the subject, from railway engines or ships to film stars or even cricketers (“even” because I was in no way a sporting child and my presence in my prep school XI could only be accounted for by there being so few boys to pick from). As may be imagined, there was an added warmth in my greeting of Players 50 “Natural History” in 1924; these were mainly of animals, with a few birds. Real delight, however, came with the link-up of my two interests in 1927, when my first series of butterfly cards began to appear and were avidly collected; this was Wills 50 “British Butterflies” boldly drawn and well coloured specimens in the “set” position on pale plain backgrounds.

In 1932 Players came up with 50 “Butterflies” (20 of which were British), the fully spread specimens extremely well painted and set on a white background that included delicate small sketches of foodplant and sometimes a butterfly in natural pose. Two years later a set of 25 large cards entitled “British Butterflies” was issued, consisting of the twenty British from the small set (with part of the background sketches cut off because of the squarer shape of the cards) and five other species added, in the same style.

In 1938 Wills produced a series of 40 large cards entitled “Butterflies and Moths”, another excellent production of set specimens photographed against plain pale backgrounds (Plate 95C Fig. 5).

Players and Wills were so overwhelmingly the most widely smoked cigarettes (among the people known to me) that I rarely saw cards from other brands. Two series I did not acquire until many years later were Godfrey Phillips's 1923 set of 25 "British Butterflies", photographs on black backgrounds (re-issued by Abdulla in 1935 for export), and Lea's untitled set of 30 butterflies and moths, mostly British, of c. 1924, printed on silk backed with paper and consisting of 12 slightly larger than standard small size, 12 large and 6 extra-large cards.

All the sets so far mentioned had the perhaps inevitable drawback that in order to fill the card space each species was depicted in the same size; so a Small blue, for instance, was blown up to equal a sadly shrunken Purple emperor. This can be confusing to the non-expert, especially as the card text often fails to mention the natural size. Lea's three-size issue went some way towards overcoming this, but for some odd reason one of the extra-large layout was picked for the Jersey tiger, giving it an even greater wingspan than the Death's head hawk!

One of two other series missed by me at the time was issued in 1924 by Adkin (of whom I had never heard); this was 50 "Butterflies and Moths", an excellent set that differed from the rest in that in addition to the perfect insect each card showed the caterpillar and foodplant as part of a well illustrated background. Sadly, I still only have about two-thirds of the set. The other missed series did not appear until 1938, a set of 48 "Butterflies and Moths" from Gallaher. The insects are shown against a background of appropriate flowers or leaves, but the overall effect to me falls short of excellence; however, the set has the merit of giving moths, at half the cards, a better than usual share of coverage, including species usually neglected. One odd thing is that the card for the Wood white bears the picture of a Green-veined!

The coming of the 1939-45 war put a stop to the issue of cigarette cards for the duration, and though the tobacco companies intended to resume when it was over, this hope was not fulfilled in any general way. Players and Wills now only pack cards (larger than of old) with their cigars. In 1983 Players issued in Grandees a set of 32 "British Butterflies" – nature photographs taken from "The Complete Guide to British Butterflies" by Margaret Brooks and Charles Knight.

The tradition of the standard small card was continued by several tea and other trading companies. Brooke Bond issued their first series in 1954, and have since kept up a flow of generally well produced sets. In the present context one may note 50 "British Butterflies" (1963) and 50 "Butterflies of the World" (1964).

Insects of orders other than Lepidoptera have received little card coverage. They are definitely the poor relations, losing out to the more general appeal of the others. (In my insect-collecting days it was rather the same story; in course of time I did extend my field beyond Lepidoptera to include the other orders, but they only mustered a small representation.) In 1962 Shell (Australia) issued a set of 60 medium sized cards entitled "Beetle Series" (Plate 95C Fig. 6) – the only one I know of to deal with one particular order. For the rest they are only to be found in ones and twos in a number of more general series, which usually also include some butterflies and moths. The fullest selection I know is in Wills's 1914 set of 50 "Garden Life" (Plate 95C Fig. 6), which deals exclusively with invertebrates (mostly those the gardener would prefer not to have). This is a good series, showing the various stages of metamorphosis of the subjects. As well as the Large white and nine species of moths, 27 other insects appear; most of the moths have the merit of being species not often pictured – like the Cabbage moth and "micros" whose larvae feed on fruit.

In 1924 Lambert and Butler produced 25 "Wonders of Nature", which showed antlion, leaf-rolling beetle, scarab, leaf insect, praying mantis, stick insect, spider-hunting wasp, mason wasp, and army worm fly. In 1930 Churchman issued 25 "Nature's Architects", amongst which were depicted leaf-cutting bee, Lackey moth larva, psyche moth, termite, and tree wasp. Wills's admirable four general knowledge series of 50 "Do You Know" all contained cards on insects of some sort: honey bee, butterfly/moth distinction, field cricket, and great green grasshopper (1922); privet hawk and house fly (1924); bookworm beetle, clothes moth and woodworm beetle (1926); and dragonfly (1933).

In recent years Brooke Bond have issued a number of nature series, four including some insects. So have Players and their successor Winterman in Grandees; the larger format of these cards allowed better use of nature photography by such experts as Heather Angel, while the texts placed increasing emphasis on conservation needs – non-existent on pre-war cards. Again, four series included insects, with Lepidoptera as usual perhaps holding rather more than its own in what is still a good range of other orders. The relevant details from the sets of both issuers are listed below.

Brooke Bond

1980 – 40 "Woodland Wildlife"

Stag beetle, damselfly, Lobster moth larva, Privet hawk larva, Buff-tip larva, Bordered white, Small tortoiseshell.

1981 – 40 “Small Wonders”

Honey bee pollen baskets, butterfly proboscis, Emperor moth antenna, crane fly balancers, tree hopper, fritillary butterfly wing scales, Privet hawk larva prolegs, cuckoo spit, horse fly, Silkworm, wasp, aphid.

1985 – 40 “Incredible Creatures”

Leaf-cutting ant. atlas moth, false-headed butterfly.

1990 – 25 “A Journey Downstream”

Emperor dragonfly.

Players/Winterman (Grandeas)

1987 – 30 “Britain's Nocturnal Wildlife”

Lacewing, Elephant hawk, White plume moth, caddisfly, stag beetle, cockchafer, mosquito, oak bush cricket.

1988 – 30 “Britain's Wayside Wildlife”

Yellow-tail larva, Figure-of-eight larva, Oak eggar, Magpie, Small tortoiseshell and larvae, common scorpionfly, great green bush cricket, meadow grasshopper, Brimstone butterfly and larva, Orange-tip, Hedge brown (Gatekeeper), hoverflies, black-tipped soldier beetle, variable long-horn beetle, thick-legged flower beetle.

1991 – 30 “Disappearing Rain Forest”

Leaf-cutting ant, termites, various butterflies drinking from a damp patch of ground, clearwing butterfly, stick insect, katydid.

1992 – 30 “Wonders of Nature”

Monarch, Australian plague locust, Puss moth larva, wasp beetle.

Note: The pre-war sets mentioned are of course far from exhaustive, being only those that have come to my notice.

NEWS

NATIONAL PYRALID RECORDING SCHEME LAUNCHED

A National Pyralid Recording Scheme has recently been launched. The first newsletter, which contains full details of how to contribute to the scheme, is available from Tony Davis, The Rangers House, Cricket Hill Lane, Yateley, Camberley, Surrey GU17 7BB. A SAE would be greatly appreciated.



60 YEARS OF THE AMATEUR ENTOMOLOGISTS' SOCIETY

Part I: 1935-44

by Wayne Jarvis (9899)

Over the next six issues of the *Bulletin* I intend to take a brief look back at just a small number of the articles which we have received over the years. This first part looks at the first ten years of the Society, during which time the *Bulletin* took many forms.

In August 1935, the Society, then known as the Entomological Exchange and Correspondence Club, six members strong, produced its first publication, *The Journal of the Entomological Exchange and Correspondence Club* Vol. **1** which consisted of 13 duplicated parts issued over a period of 18 months. By the end of the Society's first year, membership had grown to 44, at which time our founder, L.R. Tesch, was forced to relinquish his part in the affairs. His resignation letter may be found in Volume **1**, Number 9 (June 1936) (reproduced in the Golden Jubilee reprint of *The Journal of the Entomological Exchange and Correspondence Club* Volume **1** (1985)). The editorship and general running of the Society was then taken over by Beowulf Cooper and A.N. Brangham. Mr Cooper remained with the Society as Editor well into the second decade of the Society. Under them, Volumes **2** and **3** saw the Society's journal produced as *The Entomologists' Bulletin* by the renamed Amateur Entomologists' Society. These volumes were enlarged and enclosed with a tinted cover. A further change occurred for Volume **4** (1939). This volume appeared under the name *The Amateur Entomologist* and was commercially printed. Initially, this contained short articles, queries and such like, but it soon became the practice that a whole volume of the journal was devoted to a particular subject area, thus giving birth to the Society's *Handbooks*. At this time the *Bulletin* was separated, and also commenced, somewhat confusingly with Volume **4** issue 32.

The outbreak of the Second World War obviously had an enormous effect upon the Society. In September 1939, the Society formed the temporary Wartime Organisation with £5 from the Society's funds. The Society would remain quiescent until such time as all hostilities ceased and a Special General Meeting of all pre-war council members could be held. The production of all journals stopped, but contact with members was maintained by the production of *Wartime Exchange Sheets*, which comprised Volume **5** (1940-44).

All of these issues were duplicated, almost all being done by one or two members of the Society's Committee, on the Society's own machine. Membership by this time had reached 256 (*Wartime Exchange Sheet* No. 16). The first commercially printed *Bulletin* was produced in August 1944, with Volume **6** number 64. These issues were printed without covers, and to allow for permanent storage, each volume was issued with a wrap-around cover in thicker paper. This practice continued until Volume **21** (1962) after which the *Bulletin* was issued quarterly, without an annual wrapper. Membership by end of 1944 had risen to 394.

There follows a very small selection of the articles printed from Volumes **1** to **6**.

From Volume 1, Number 1, August 1935. Page 2.

NOTES

It is not expected that this number can contain very much under this heading, but the following have come to hand:

The common elder has, at night been found to attract moths in considerable numbers, even when adjacent honeysuckle and gardens have been comparatively untenanted. Those who use any acetylene lamp might bear this in mind.

The Lulworth skipper is reported to be unusually frequent in the Weymouth district, while the Clouded yellow, occasionally moderately common there, has not been seen. A scarcity of Clifden [Adonis] and Chalkhill blues from the same locality is also reported.

Near Bridgwater, Privet hawk and Eyed hawk larvae have been found.

One member was fortunate in finding four Pine hawks a month or so ago, a red letter day indeed. Incidentally, he is very anxious to track down the Purple emperor, and would be grateful for any news of his majesty's present, or reputed headquarters.

Graylings are very abundant on the hills behind Cranleigh, Surrey, flying round the many gravel and sand pits there.

From Volume 1, Number 11, September 1936. Page 7.

A NEW FOODPLANT OF THE HOLLY BLUE (*CELASTRINA ARGIOLUS*)?

Mr Capener sends the following note on the Holly blue butterfly:-

"I have just seen (17th August, 1936) a female ovipositing on the calyces of a shrub in the gardens here [Weymouth]. The name sounds like "Clewtia" (but the gardener didn't know how to spell it). I am enclosing a seed-pod and flower – perhaps you know it? The leaves are very much like laburnum. A new foodplant? The shrub grows well and would be an ornament to any garden, so perhaps it will come into favour amongst those who bred this species instead of the usual holly-ivy combination."

Mr Cooper [Hon. Secretary at the time] has established the identity of this plant as undoubtedly being a species of *Cassia*, commonly known as the bladder senna. Since there are one or two plants of this in Mr Capener's district, he will be pleased to send ripe seed pods of this to anyone desirous of growing this shrub as an experiment. Meanwhile, we hope Mr Capener will breed the ova he saw laid, and in due course report to us whether he considers this pabulum suitable, or merely a chance mistake on the part of the parent butterfly.

From Volume 2, Number 16, May 1937. Page 42.

THE EFFECT OF COLD ON THE HABITS OF ANTS

by D.J. Billes

A few experiments have indicated that cold dulls the warlike activities of ants. This is particularly noticeable in their attitude towards other individuals of the same species.

A queenless colony of *Lasius (Acanthomyops) flavus* was introduced into a nest containing a single fertile female. There was no brood present. To my great surprise the workers clustered around the queen and she was accepted. Previously in the summer I had tried to introduce a queen with no success, all being killed, although they had been isolated for some time. The colony is now living in warmer quarters, but the workers have not changed their attitude towards the queen.

Similarly with *Lasius niger*, when two workers with the brood of a dead queen were joined with a queen and one worker with no brood from another nest. In the summer the two workers attacked any queen I placed with them. The new queen now helps to look after the brood and the three workers do likewise, showing no signs of animosity.

To test this still further, I obtained a single worker of *Formica rufa* and placed it in a colony containing two females and a few workers. The single worker, very annoyed, attacked the workers of the colony at first, but later settled down and now cannot be distinguished from the others. This conduct is certainly very unusual as the colony and the worker were obtained from nests widely separated. This experiment could be extended by placing a worker of the same nest among the colony in summer to see what effect it might have. Experience has shown, however, that they will attack members of their own colony as well as from other nests.

From Volume 3, Number 24, March 1938. Page 19.

IMPORTED BEETLE

by S.C. Wincott

On Friday, 23rd July, [1937] in the Charing Cross Road, London, I saw two ladies examining a large beetle which was crawling across the pavement. From a distance, the creature looked like a large stag beetle, but on close examination it proved to be a foreign species of a type which I could not recollect seeing before. I pocketed the insect and took it home wrapped in a handkerchief. The beetle fed on sugar and water and lived just two days. I later took it to the Natural History Museum, and Mr Arrow identified it as one of the rhinoceros beetles from Jamaica, *Strategus titanus*, specimens of which are not infrequently brought into this country in consignments of bananas. The insect in question had probably strayed from Covent Garden market.

The September 1939 *Bulletin* (Vol. 4 No. 38) began with an editorial thus:

Dear Fellow Members,

Owing to this country having become engaged in war, further journals, *Bulletins*, and other AES communications will be suspended until such times as members of the Committee are again free to give their services to the Society. Funds will remain untouched until the cessation of hostilities, and the Society property will be stored as securely as possible. It is hoped that members will carefully preserve their membership lists and keep in contact with one another so that, on the resumption of our activities, the tracing of members who may have moved may be accomplished satisfactorily. We wish all members the best that fortune can provide, and hope that they will be able to keep their interest in amateur entomology alive wherever they may be. May it be soon that our next *Bulletin* be published!

From Volume 5, Number 61. (Wartime Exchange Sheet No. 21.)
February 1944.

S.M. Hanson (320), at present serving with the RAF in North Africa, writes as follows of a spot at which he was stationed in the desert in Tunisia:

“*Vanessa cardui* (Painted lady). Quite rare until 29.9.43, when the first thunderstorm broke: immediately after this fresh males emerged everywhere, but it was not until 5.10.43, when another thunderstorm occurred, that females were on the wing. Specimens before the above dates were very worn and only found locally as odd ones, and gave the appearance of having been on the wing for a considerable period. There was no sign of the habit one sees in England of patrolling over a certain stretch of ground, and they would only linger about one place if a crushed pomegranate was put on the ground, whereon the butterflies become stupid and can be picked off with ease. So far I have found no trace of either nettle or burdock – perhaps these plants appear during the winter months (November – March), as the ground the rest of the time is hard, sandy and parched. Rain, which usually occurs with great suddenness, always causes the specimens to seek immediate shelter, but owing to lack of houses, trees or shrubs, they generally fly round and round in the thunderstorm without any prospect of finding cover. After 5th October, numbers increased with great rapidity and by the 10th specimens were everywhere, apparently assembling for migration. By the 13th very few remained, and, at the time of writing (1st November), the scarcity of the species compares with the numbers before 28th September. The appearance and size differs in no way from English specimens and they are equally bright on the upperside, with a generous orange flush which appears to be lost after a few days' flight.”

From Volume 6, Number 64, August 1944. Page 3.

PUDDLE ATTRACTION

by S.M. Hanson (320)

During the first week of July 1941, when a dry spell of weather was in progress, a favourite wood of mine in Surrey was swarming with White admirals (*Limeintis camilla*) and it was possible to see as many as six or more at a time, all flying low. The interesting thing was that on the side of a small road which went through the wood a puddle had remained throughout the dry season; this was alive with butterflies flying around the puddle and apparently drinking from it. Many specimens were settling on

Umbelliferous flowers, especially *Angelica sylvestris*, and it was possible to see three or four at one flower-head, while other White admirals were settled on the tarred road. The following week, however, there were many showers; as a result, all the White admirals flew high in the normal way and were distributed all over the wood and no longer in the immediate vicinity of the road near the puddle.



Breaking up turf on a groundsheet in search of beetle larvae –
a bug-hunter never lacks companionship.

Cartoon taken from Volume 6 Number 64, August 1944.

CORRECTION TO BULLETIN 53 NUMBER 397

Between submission and publication, the address of the Hampshire Wildlife Trust given in Justin Evans's article on page 226 has changed. The address in the last paragraph should now read: The Hampshire Wildlife Trust, 8 Romsey Road, Eastleigh, Hampshire SO50 9AL. Tel: (01703) 613636.

DIARY DATES

Abbreviations

BEHNS	British Entomological and Nature History Society.
LCES	Lancashire and Cheshire Entomological Society.
RES	Royal Entomological Society of London.
RES(QG)	RES Rooms, 41 Queen's Gate, London SW7.
I:	Information from:

To make the diary effective contributions are needed from members. Any relevant items should be sent to the *Bulletin* Editor. No charge is made for entries. Please allow three months advance notice.

MARCH

- 1st** *Inventoring the World's Insect Fauna.*
RES(QG) Tea 16.30hrs. Meeting 17.00hrs. Talk by Dr Nigel Stork about how much, or how little, progress has been made in the last few hundred years to describe the insect fauna, and its distribution, of Britain and the rest of the world.
I: RES 0171 584 8361.
- 3rd** *AES Council Meeting.*
Westminster Central Halls. 18.30hrs.
- 4th** *Biology and Information of Spider Wasps with Particular Reference to the British Fauna.*
RES North Region and LCES meeting. Museum Information Centre, Liverpool Museum, William Brown Street, Liverpool.
I: Stephen Judd 0151 207 0001.
- 5th** *Reptila '95.*
Reptile and Insect Fair at Stockport Town Hall, Cheshire.
10.00hrs – 17.00hrs. Admission £2.
I: Steve Howard 0161 429 7794 (or 0161 430 2631 after 7pm).
- 18th** *LCES 118th Annual Exhibition.*
Woolston Leisure Centre, Warrington, Cheshire. 13.00hrs. – 17.00hrs.
I: Steve McWilliam 01928 573697.
- An Introduction to Hymenopteran Families with Special Reference to the Aculeates.*
· BEHNS (Workshop) Dinton Pastures Country Park, Davis Street, Hurst, Reading. 10.30hrs. – 16.00hrs.
I: Dr Ian Mclean, Indoor Meetings Secretary, 109 Miller Way, Brampton, Huntingdon PE18 8TZ.

- 21st *Medically Important Insects.*
LECS. Liverpool Museum. 19.00hrs.
- 26th *Leicestershire Spring Entomological Fair.*
Granby Halls Leisure Centre, Aylestone Road, Leicester.
10.30hrs. – 16.30hrs. Admission £1 & 50p.
I: Jack Harris 01455 846310.

APRIL

- 5th *How Insects Taste their Food.*
RES(QG) Tea 17.00hrs. Meeting 17.30hrs. I: RES 0171 581 8505.
- 6th-7th *Conserving Europe's Bees.*
Symposium to be held in London, organised by the IBRA and Linnean Society.
I: International Bee Research Association, 18 North Road, Cardiff CF1 3DY.
- 8th *The National Network for Recording Britain's Moths: The Way Forward.*
BENHS (Workshop) Dinton Pastures Country Park, Davis Street, Hurst, Reading. 10.30hrs. – 16.00hrs.
I: Dr Ian Mclean, Indoor Meetings Secretary, 109 Miller Way, Brampton, Huntingdon PE18 8TZ.
- Early Butterflies and Moths at Homefield Wood, near Marlow, Buckinghamshire.*
Joint AES/Butterfly Conservation/BBONT meeting. Meet at entrance to Homefield Wood (SU814867) at 11am for approximately 2 hours.
I: Martin Harvey 01635 550380 (work) or 01491 628364 (home - may change prior to April). N.B. This meeting will not go ahead if the weather is bad, please contact Martin in advance.
- 11th *The Species Recovery Programme Field Cricket Project.*
Tea 16.00hrs. meeting 16.30hrs.
I: Dr Ian Mclean, Indoor Meetings Secretary, 109 Miller Way, Brampton, Huntingdon PE18 8TZ.
- 18th *A Day in the Life of a Curator.*
LCES meeting presented by Liverpool Museum Entomological Staff.
Liverpool Museum 19.00hrs.
- 22nd *AES Annual General Meeting.*
At the RES, 41 Queen's Gate, London.
I: Wayne Jarvis 01582 485820.

- 24th ***Save our Bugs!***
Wycombe Urban Wildlife Group. Illustrated talk by Martin Harvey on conserving butterflies, moths and other invertebrates. Follows WUWH AGM, Bassetsbury Manor Countryside Centre, High Wycombe, Buckinghamshire.
I: WUWG 01494 536930.
- 29th ***Identifying Ants.***
BENHS (Workshop) Dinton Pastures Country Park, Davis Street, Hurst, Reading. 10.30hrs. – 16.00hrs.
I: Dr Ian Mclean, Indoor Meetings Secretary, 109 Miller Way, Brampton, Huntingdon PE18 8TZ.

MAY

- 3rd ***Medical and Veterinary Special Interest Group lecture.***
Title to be arranged. RES(QG) Tea 17.00hrs. Meeting 17.30hrs.
I: RES 0171 581 8505.
- 7th ***Durham Entomological Fair.***
Equestrian Centre, Stag Lane, Newton Aycliffe, Darlington. 10.00hrs. – 16.00hrs. Admission 50p all.
I: James Houlihan 01388 721449 or 720503.
- 10th ***RES East Region Meeting.***
Broom's Barn Experimental Station.
I: Dr R.C. Welsch, ITE, Monk's Wood Experimental Station, Abbots Ripton, Huntingdon, Cambridgeshire PE17 2LS.
- 14th ***Entomological Livestock Group Spring Entomological Fair.***
Pattishall Parish Hall, Pattishall, Towcester. 11.00hrs. – 16.00hrs. Admission £1 & 50p.
I: Paul Batty 01909 550272.

JUNE

- 4th ***Creepy Crawly Show IV.***
Queen Elizabeth Hall, Oldham. 12.00hrs – 17.00hrs.
Admission £1 & 50p.
I: Oldham Museum 0161 678 4649.
- 7th ***RES Annual Meeting and President's Invitation Lecture.***
RES(QG). Tea 17.00hrs. Meeting 17.30hrs.
I: RES 0171 581 8505.

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The Society publishes *British Journal of Entomology and Natural History*, a quarterly journal of entomological articles, short communications, meeting reports, book reviews, etc. The Journal is free to BENHS members. For a sample copy contact: the Editor, Richard A. Jones, 13 Bellwood Road, Nunhead, London SE15 3DE. Tel: 0171-732 2440. Fax: 0171-277 8725.

The Society has published several books including: *A field guide to the smaller British Lepidoptera*, edited by A.M. Emmet (288pp, paperback £18, hardback £22.50, + £1.80 p.&p.); *British hoverflies: an illustrated identification guide*, by A.E. Stubbs and S.J. Falk (270pp, 12 col. plates, hardback, recently reprinted, £26 + £2.80 p.&p.). BENHS members qualify for special discounted prices.

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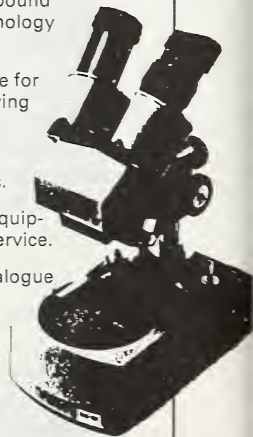
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Saturday 22nd April 1995

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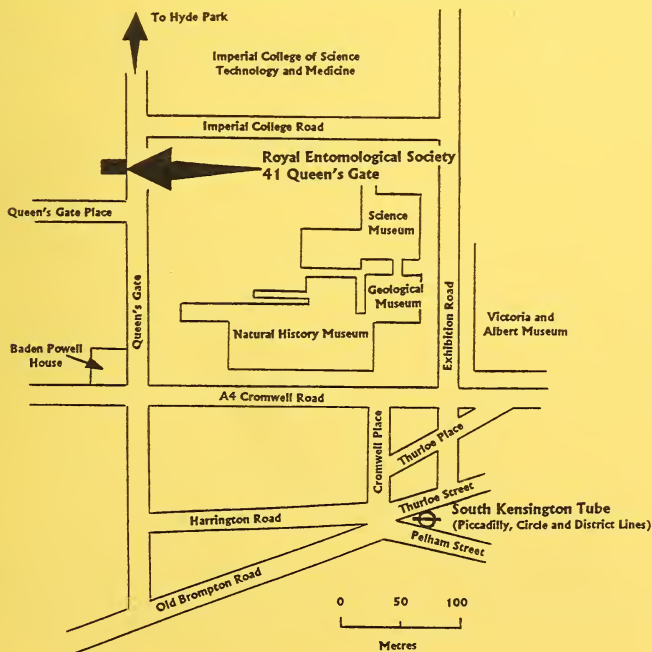
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NOTICE

It is to be distinctly understood that all views, opinions, or theories, expressed in the pages of this Journal are solely those of the author(s) concerned. All announcements of meetings, financial grants offered or sought, requests for help or information, are accepted as bona fide. Neither the Editor, the Officers and Council of the Society, nor its Trustees, can be held responsible for any loss, embarrassment or injury that might be sustained by reliance thereon.

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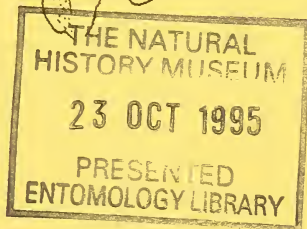
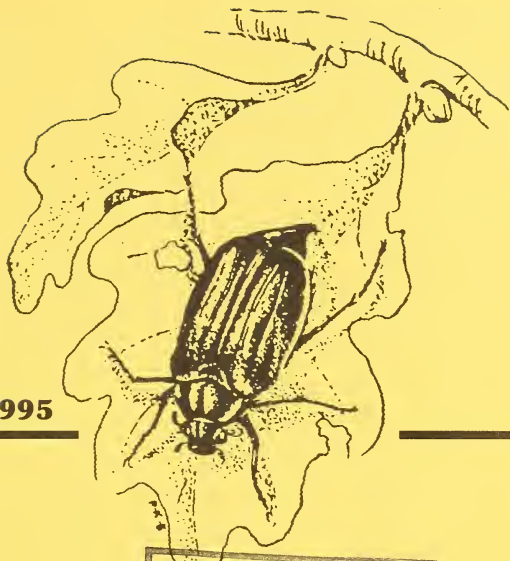
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The Bulletin of the Amateur Entomologists' Society

EDITOR

WAYNE JARVIS BSc.

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Founded in 1935

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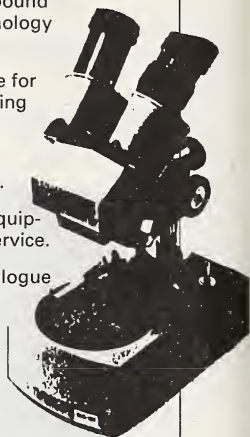
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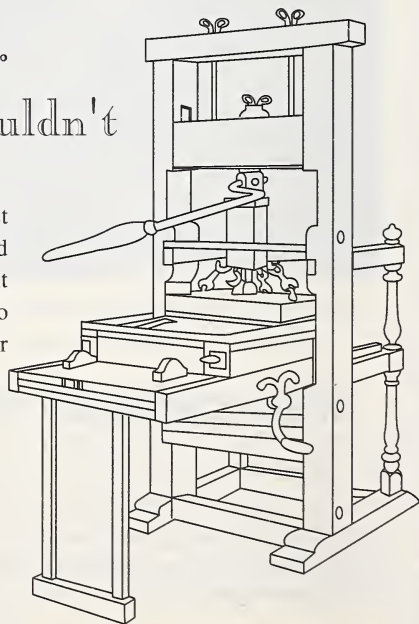
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AES BULLETIN

No. 399



CANNIBAL LADYBIRDS

by Roy Goff

82 Cliffe Road, Gonerby Hill Foot, Grantham, Lincolnshire NG31 8HP.

On the 13th July I noticed some pupae of the Two-spotted ladybird *Adalia bipunctata* on the upperside of a leaf of a small silver birch (approx. 8ft.). The first group were of five pupae closely attached about the centre of the leaf. Further searching of the tree revealed several more groups with a maximum of six pupae on a leaf. What I was surprised to see was a fully grown larva eating one of the original group of pupae found. Looking closely I then noticed that several pupae were being consumed by their fellow larvae. In most instances there was only a single ladybird larva on a leaf but one pupa had the misfortune of being sucked dry by two which had attacked from opposite sides. I also observed one instance of a larva being attacked by a second. All the larvae bar one were full grown and some were about to pupate themselves. I have several similar silver birches in the garden quite close together but only the one by the pond had any ladybirds upon it. There was no trace of greenfly on the tree and no indication that there had been.

The weather had been very hot and dry for several days which I suspect had some bearing upon the behaviour of the larvae. It is impossible to prove anything but I wonder if during the cooler weather the ladybirds had been "water fat" and able to pupate easily and in harmony with their neighbours. Once the dry conditions had gained a hold, larvae moving onto the tree were short of water and therefore chose to have one last feed before pupating themselves. I wonder if similar behaviour is frequent in these beetles or if anyone can offer a better explanation.

HANDKERCHIEFS IN TRINIDAD AND TOBAGO (LEPIDOPTERA: NYMPHALIDAE)

by E. Geoffrey Hancock (3485)

Glasgow Museums, Kelvingrove, Glasgow G3 8AG.

A small number of nymphalids found in Trinidad and Tobago have been given the local name of "handkerchiefs" as described in Barcant (1970). Having just returned from a visit to these islands as part of an expedition from Glasgow University during July 1994, I found a copy of the *AES Bulletin* with Leigh Plester's account of his observations in Tobago in the large pile of mail in the in-tray. Two days later, when I found time to read it, I was intrigued by the mention of a small unidentified black and white butterfly he had found in Arnos Vale, 23rd May 1990 (Plester, 1994). Its description seemed to be similar to some I had collected from Arima in Trinidad where it was common. These were *Phyciodes leucodesma* (Fldr), the Common handkerchief, but it is not supposed to occur in Tobago. The term handkerchief is derived possibly from the name given by Felder to this species *leucodesma* (*leucus* – white; *desme* – bundle or package). Leigh Plester kindly sent the specimen to examine when it became apparent that it was the Blue-tinted handkerchief, *Dynamine theseus* (Fldr), a similar but smaller and more distinctively marked species. It is known to occur in Tobago so the mystery would appear to be solved.

D'Abrera (1987) has excellent illustrations showing the undersides also but the book is well beyond the pocket of most people. Of additional interest is the reference by D'Abrera to the occurrence of dry season forms in Mexico, characterised by smaller size. The Tobago specimen, collected at the end of the dry season, has a wing length of 15mm whereas that illustrated is 20mm. However, it is consistent with other local examples according to the measurements given by Barcant (1970) and geographical variation may cloud the issue. Perhaps access to larger samples would demonstrate any seasonal changes in Trinidad and Tobago populations within species of this genus.

Other species of *Dynamine* found in Trinidad and Tobago include *arenae* (Hübner), which is illustrated by D'Abrera using an example labelled Trinidad. He queries the locality for some reason but local naturalists appear to have no doubts about this species, where it is known by them to be widespread but decreasing in numbers (Barcant, 1970).

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- Barcant, M. (1970). *Butterflies of Trinidad and Tobago*, London.
- Plester, L. (1994). De fus' time in Tobago. *Bull. Amat. Ent. Soc.*, **53**(395): 151-156.

MOTH SIGHTINGS IN 1994

by Chris Raper (7540)

22 Beech Road, Purley-on-Thames, Reading, Berkshire RG8 8DS.

Species: *Meganola albula* (Denis & Schiffermüller) "Kent black arches"

Location: Hartslock Nature Reserve, Goring, Oxfordshire.
SU 618795

Date: 29.6.94

Recorder: Mr C.M. Raper, 22 Beech Road, Purley-on-Thames, Reading, Berkshire

Species: *Heliothis peltigera* (Denis & Schiffermüller) "Bordered straw"

Location: Beech Road, Purley-on-Thames, Reading, Berkshire
SU 655762

Date: 7.9.94

Recorder: (as above)

The first was taken using a Heath trap and the second at a kitchen window. Specimens were taken and the identifications have been confirmed by Brian Baker (25 Matlock Road, Caversham, Reading).

The above records will be forwarded to the *Entomologist's Record*, John Campbell at the Oxford Natural History Museum, Brian Baker, BBONT and Paul Waring.

It seems to have been a good year for migrants – several Clouded yellows were seen on the Downs this year and I have caught more migratory moths than I would normally. Other species new to me were the Cloaked minor and Rush veneer. Have other recorders noticed the same?

MATE-GUARDING IN *CLUSIA FLAVA* (MEIGEN) (DIPTERA: CLUSIIDAE)

by Richard A. Jones

13 Bellwood Road, Nunhead, London SE15 3DE.

Mate-guarding is a widespread behaviour in insects. To prevent promiscuity in his chosen mate and to counter the attentions of interlopers, the male stands guard over the fertilised female while she lays her (and his) eggs without interruption or removal of his sperm.

The behaviour is perhaps best known and most often observed in dragonflies where mated pairs remain in tandem, the male clinging to the neck of the female with his anal claspers, while they bob over the water intermittently dipping the female's abdomen into the pool to release eggs. In many damselflies the couple both descend down a plant stem beneath the water's surface, remaining out of sight for several minutes while egg-laying takes place. In others, while the female oviposits, the male hovers nearby, driving off any inquisitive intruders.

Some flies also engage in mate-guarding, but the behaviour is not often observed and less frequently reported. A few obvious species are well known mate-guarders. For example, males of the dungfly *Scathophaga stercoraria* (Linnaeus) sit in wait for females on a fresh pat, and after successfully mating, the male keeps a firm hold while the female lays eggs (Ridsdill-Smith, 1991 and references therein). Conopids are frequently seen in threes, as an intruding male attempts to interrupt a couple for his own ends. I have found *Sicus ferrugineus* (Linnaeus) and *Conops ceriaeformis* Meigen so entangled. In my experience, conopid pairs are seldom attached in coitus and more often than not the male appears to be present solely to guard the female against other amorous attentions.

Several mate-guarding observations have been of small and secretive species (eg McLean, 1991), observed through the viewfinder of a camera and macro lens. So it was when I came across a pair of tiny pink flies on a rotten log in Leigh Woods near Bristol (part of the Avon Valley National Nature Reserve), on 2nd June 1994. I was able to take several pictures of the flies as they walked across the log. Unfortunately, I did not collect the specimens, but Peter Chandler has very kindly identified them from a photograph as *Clusia falva* (Meigen) (Plate 95E, Fig. 2).

As they moved, the female probed from side to side with her extended abdomen. Although I could not see any eggs being laid, this is what I imagined must be taking place. Meanwhile the male remained on her back, sitting motionless apart from the odd flick of his wings.

From the photograph it is clear that the male has a vice-like hold on his mate. Her wings are clamped by his legs; the front leg grips the base of the wing while the middle leg clamps across the centre. Dyte (1988) describes how the front legs of a mate-guarding dolichopodid fly, *Hydrophorus oceanus* (Macquart), grip the thorax near the bases of the female's wings. Unlike in *Clusia*, however, the female dolichopodid's wings were free to move and couples flew about quite actively.

In many insects, sperm from a mating can be removed by a subsequent pairing. In dragonflies, part of the male's genitalia is specially shaped to scoop out any previous sperm. In other insects where a female mates many times it is the last male to mate that fathers most of the offspring, suggesting that sperm displacement has taken place (eg Parker, 1970). It is therefore in the male's interests to guard his mate against further copulation and prevent any new suitor removing or diluting the sperm he has already invested.

Mate-guarding is also thought to take place where males significantly outnumber females. This is so with male dungflies which congregate on the fresh dung before the females arrive. Similarly Dyte (1988) found a larger number of males than females when studying the mate-guarding of *Hydrophorus oceanus*. Whether or not males of *Clusia flava* outnumber females is unknown.

Unusually, the male *Clusia* in the photograph is much larger than the female carrying him. In the Diptera, males are normally slightly smaller than the females. In answer to my initial query, Peter Chandler replied that he has a pair of *Clusia flava* taken in cop where the male is very diminutive compared to the female. Dyte (1988) suggested that smaller male size might evolve as a response to mate-guarding, because small males are less of a burden to the females carting them about. This would be particularly important in dolichopodids (Dyte, 1988) and ephydrids (McLean, 1991) because they walk on water.

Mating insects make interesting and sometimes willing photographic subjects; so engrossed are they in the activity of copulation that they seem not to notice the approaching entomologist laden down with copious quantities of Japanese optical gear, associated wiring and bits of ironmongery. Despite the fact that these photographs can raise more questions than they solve, capturing snap-shots of such activity is the first stage in understanding many aspects of insect behaviour, a field in which the amateur entomologist can still make advances.

Acknowledgements

My thanks to Peter Chandler for identifying the flies from a photograph and his helpful comments on the species, and to Tony Robinson, warden of the Avon Valley NNR who provided me with a permit to collect insects in the reserve.

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A MIGRATION PUZZLE

by Humphrey Kay (9627)

Airports can be good places to watch butterflies on migration, and I remember a tedious wait at Chicago airport being enlivened by the sight of hundreds of Monarchs flying southwards on their autumn migration some years ago. On 16th October this year I witnessed a similar migration at Charleston (South Carolina) airport of Large clouded yellow-like butterflies, all flying south at about 8mph in an almost continuous stream.

Monarchs seemed to be scarce this year but on 12th October I had witnessed four in the Blue Ridge Mountains above Charlottesville, Virginia. The peculiarity of these four was that they all seemed to be flying in the wrong direction. To get them from Virginia to the wintering sites in Mexico the general direction is south-west but these butterflies were all going slightly north of east. The place was the Beagle Gap in the Blue Ridge Mountain range (height about 2000ft.), so they were leaving the Shenandoah valley to reach the wide plains of eastern Virginia. This is a sensible way to go to ensure a journey with plenty of nectar-bearing flowers along the way, but how did they have the wisdom to take two right-angle turns, first left, then right, to reach this easier route? To pass through the Beagle Gap they had to fly head on into a brisk easterly wind, and I could only assume that it was the wind which informed them of the presence of more flowers ahead in that direction than there would have been on the more direct route along the Appalachians. Is there any other explanation?

FEIGNED DEATH IN THE WOLF SPIDER *PISAURA MIRABILIS* (CLERK)

by Richard A. Jones

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The large wolf spider, *Pisaura mirabilis* (Clerk) is a common sight in early summer. It frequently sits on bramble leaves in wait for some unwary prey to come too close. Its typical pose is one in which its front two pairs of legs are held outstretched, as if sensing vibration in the leaf, and its hind two pairs are arched, as if ready to launch an attack.

In Nunhead Cemetery, London SE15, *Pisaura* is very common and I have photographed it on many occasions. However, on 11th May 1994 my eye was drawn to what I took to be a dead specimen, or the empty skin of a recently moulted individual. At first I ignored what I took to be an inanimate shell, but thinking it might have succumbed to a fungal disease or parasite I took a closer look. As I drew forward, to my surprise, it suddenly sat up and adopted the usual alert stance of the species – legs outstretched, tensed and ready to make a move. I withdrew slightly to switch on the flash guns to my camera, and the spider again adopted the crumpled appearance of a shed skin.

On a second approach, camera in hand, I moved extremely slowly and was able to get within inches of the animal to photograph it (Plate 95F, Fig. 3). The flashes immediately startled the spider and it again took up the standard *Pisaura* position (Plate 95F, Fig. 4). A few moments later it was shrivelled again, only to jump to attention if disturbed by the flash guns, camera or my enquiring face.

Feigning death, or thanatosis as it is sometimes called, is a common response to danger; an insect (or spider) draws in all its legs, drops to the ground and remains motionless in the hope that it has become invisible against the background. Animals and birds (and also entomologists sometimes) that hunt by detecting movement are easily foiled by this trick. After a suitable period of stillness, the creature gets up and walks away, its attacker having long ago become bored and moved off.

Quite what this *Pisaura* aimed to achieve, I do not know. Perhaps it saw me before I saw it and, fearing I was a predator, curled up to deceive me into thinking it was not a tasty snack, but just a dead and dry husk. My close approach may have convinced it that the tactic had failed and it then adopted an alert pose ready to dash off into hiding. But why should it revert to a rumpled appearance when I moved away? Maybe it intended to fool flies into landing perilously close to what no longer

resembled their spider enemy. Maybe it was preparing to moult, or perhaps it was simply ill or tired and hunched on its haunches to conserve energy and rest.

Whatever its motives for feigning death, the spider's initial behaviour really did convince me that it was dead; its limbs took on the exact appearance of moulted skin, held loosely and irregularly curled under its body. I can find no published report of this behaviour and wonder whether it is novel.

Acknowledgements

Frances Murphy kindly commented on a draft of this paper.

A VISIT TO WHIXALL MOSS

by Jan Koryszko (6089)

On 23rd June 1994, a sunny and hot day, I visited Whixall Moss, Shropshire with Kate Flannagan, Steve Chapman and Derek Heath. It had been a couple of years since I last visited this area, so we were looking forward to finding some interesting species to photograph and record. We were not disappointed.

There were a number of Large heath (*Coenonympha tullia*) and Brimstone butterflies (*Gonepteryx rhamni*) along with Green hairstreaks (*Callophrys rubi*) and Holly blues (*Celastrina argiolus*). We also noted single specimens of the Triple-spotted clay (*Xestia ditrapezium*), the Suspected (*Parastichtis suspecta*), the Round-winged muslin (*Thumatha senex*) and the Marsh oblique-banded (*Hypenodes humidalis*) which were disturbed when we walked through the grass.

Steve Chapman netted a possible Plain wave (*Idaea straminata*) but it was too worn to make a reliable positive identification. A few Grass waves (*Perconia strigillaria*) were also disturbed, and Steve pointed out a shrub on which settled a moth I had been looking for in this area but which had until now eluded me, the Manchester treble-bar (*Carsia sororiata anglica*).

A number of Tiger beetles (*Cicindela campestris*) were also seen running across the ground along with some beautiful black and yellow Longhorn beetles.

At the end of the day we had an interesting talk with Dr Joan Daniels, the English Nature Site Manager, about our findings.

BUTTERFLIES IN KAKUM NATIONAL PARK, GHANA PART II. NYMPHALIDAE & HESPERIIDAE

by Torben B. Larsen

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(continued from page 8)

Nymphalidae

The Danainae are poorly represented in Africa, but all six Ghanaian species have been recorded. However, *Danaus chrysippus* Linné only occurs as a stray in the forest proper and always looks distinctly uncomfortable; it is very common in the open agricultural lands surrounding Kakum.

About 30 Satyrinae have so far been found, and they behave just as Satyrinae usually do in the tropics. More than half belong to the genus *Bicyclus* and I am beginning to be able to guess which species are where. Many live only in dense undergrowth and are best lured out by fruit bait – this is especially true for the huge blue-banded *B. hewitsoni*. Other



Fig. 1. Tending a *Charaxes* trap.

species frequent more open forest, some are on swampy ground, and a few are found only along paths and in clearings.

The Charaxinae are among the jewels of African butterflies and can nearly only be caught by the use of traps (see Fig. 1). I have not been overly diligent in this respect, and have taken only 20 so far. Now that I have a vehicle it will be easier to set traps and procure bait, so the total will rise to over 30 – perhaps including the rare *Charaxes hadrianus* Ward which I have taken further down the coast.

Now come the African forest butterflies par excellence, the genera *Euryphura* (two in Kakum), *Euriphene* (twelve in Kakum), *Bebearia* (sixteen), *Euphaedra* (sixteen), and related genera (six). They are all hooked on fermenting fruit, and where monkeys and hornbills have dislodged lots of figs, the forest floor is carpeted with these spectacular butterflies (see Plate 95A Fig. 2). The *Euphaedra* are among the most beautiful in Africa. My favourite is the rare and very shy *Euphaedra perseis* Drury which is a phenomenal mimic of a day-flying moth, and which had adapted its flight pattern accordingly. They may not look that similar in a box, but I am hard put to tell them apart in nature.

The beautiful *Cymothoe* have seven representatives in Kakum. They are also fruit-feeders, but less tied to the forest floor. I found a lovely new species there, only to discover that it had already been described as *Cymothoe aubergeri* Plantrou from Côte d'Ivoire as recently as 1977 and never referred to since. There should be six of the related *Euptera* and *Pseudathyma* in Kakum, but they are extremely scarce, and I have only one.

Four or five *Pseudacraea* are found in the park, and as the name implies, they are among the finest mimics of *Acraea* that can be imagined. There is disagreement over whether some species are polymorphic and breeding experiments are called for. I believe them to be strongly polymorphic and under the same sort of genetic control as Swallowtails such as *Papilio memnon* Linné and the female of *P. dardanus* Brown, but it could be that several species are involved. Here is a splendid topic for a postgraduate thesis.

So far no less than sixteen of at most twenty species of *Neptis* have turned up – as many as twelve species in a single day. How males and females in this genus establish their respective *bona fides* I cannot say – several are almost impossible to tell apart under the microscope, but they obviously manage well in the field! *Neptis nysiades* Hewitson is perhaps the world's most variable butterfly – or perhaps not, since I suspect it may be a complex of six to ten distinct species.

The remaining Nymphalinae (some 25 species) tend to be species of clearings and paths, often large and very visible. The African oakleaf (*Kallimoides rumia* Doubleday) dive-bombs any passing butterfly. The Mother-of-pearl (*Salamis parhassus* Drury) circles lazily overhead, occasionally picking a fight with a neighbouring male. The beautiful Diadem (*Hypolimnias salmacis* Drury) adds a splash of blue of almost morpho-like intensity. Finally, two of the few African Argynnini (*Phalanta eurytis* Doubleday & Hewitson and *Lachnoptera anticlia* Hübner) add their bright cinnamon to the scene.

The Acraeinae are rarely much in evidence, though there may be a time during the dry season when they are more common than I have yet seen them. Several species do have sudden population explosions at odd times of the year. Nonetheless, more than 25 species have already been recorded and there are probably no more than another five to be found. The subfamily is rather poorly represented in West Africa. The most interesting and complex species and groups are from the montane forests and the denser Zambesian savannahs. There are only 40 in all of West Africa, but twice as many in Kenya.

Hesperiidae

Some 90 skippers have so far been recorded, and there are more to come, since getting a complete representation of skippers depends on a lot of trudging along forest paths catching large numbers of the common species to check for the scarcer ones. Few skippers are common and many are exceedingly rare. Thus, I have seen but one *Celaenorrhinus rutilans* Mabille, a large and most evident species, and three rare *Celaenorrhinus* that should be present have not yet been seen. Members of the *Katreus* and *Calleagris* are almost “once-in-a-lifetime” events – on my last trip I saw *Calleagris lacteus* Mabille for the first time after spending more than a hundred days in suitable forests. The Paradise skippers of the genus *Abantis* are almost impossible to come across in West Africa; one of the most characteristic (*Abantis eltringhami* Jordan) is still known only from the holotype.

The most spectacular skipper in Africa is the Giant skipper (*Pyrrhocalcia iphis* Drury), the archetype of a forest butterfly. Its slow, buzzing – but far from clumsy – flight in the semi-twilight of the dense forest is a familiar sight. It came as a real surprise to me that it was common right in the centre of Cape Coast township as well. That kind of ecological tolerance is genuinely rare among forest butterflies.

I find the skippers a most exciting group and it is sad that they are all too often ignored or relegated to secondary status. Several of the recent major books on African butterflies exclude them completely.

Conclusion

There are probably nearly 600 butterfly species in Kakum, and up to 150 of them can be seen on a good day's walk. This is interesting and important on its own. I shall have more to say about the composition, ecology, and biodiversity of Kakum butterflies when I have studied them further. But butterflies, being relatively well known, can be looked at as a

proxy for wider arthropod biodiversity. Only about one per cent of all described arthropods are butterflies, so the 600 butterflies probably act as proxy for an absolute minimum of 60,000 other arthropod species. But most other arthropods are much less studied than butterflies, where 90% or more are known (I have only found a dozen new species in Ghana so far). Only between 15 and 35% have been formally described, so it is a safe bet that the Kakum butterflies are a proxy for 200,000 to 400,000 other arthropods.

That is the treasure-house which Kakum National Park protects. The Ghana Wildlife Department, with support of outside donors like the IUCN, Conservation International, and bilateral donors, is doing a good job with a minimum of resources, conserving the last remaining patches of unspoilt habitats. And while Ghana does have a genuine self-interest in ensuring the conservation of its original biodiversity and natural resources, the rest of the world does as well.

So, please join me in three cheers for Kakum National Park. It is one crucial link in an all too fragile chain of nature reserves that protect the last remnants of the forest ecosystems of West Africa, the study of which has hardly begun.

Acknowledgements

This is paper no. 11 resulting from my initial research for the book *Butterflies of West Africa – origins, natural history, diversity and conservation (1993-1998)*. The field work has been generously supported by the Carlsberg Foundation in Denmark. The Ghana Wildlife Department has supported the project throughout; their field staff are extremely helpful, and their large veranda tents are wonderful when it rains for days on end. Few places in Africa are as welcoming, safe, and decent as rural parts of Ghana. At a time when most news out of Africa is bad, let Ghana get credit where credit is due.

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DISCOVERING NEWNHAM-ON-SEVERN: THE SCARLET TIGER (*CALLIMORPHA DOMINULA* L.)

by Don McNamara (5573)

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Having taken-over my late parents' house and very large garden, about a quarter of an acre, in Newnham-on-Severn, Gloucestershire, the first of several busy tasks of refurbishment and reorganisation was to start-off the garden. I intended to plant as many plants, shrubs and trees as possible, that would be useful to butterflies and moths; reinforce the hawthorn hedge that separated the west side of the garden from a newly-sprouted housing estate, and create from the formerly immaculate and well manicured lawn, a small meadow of approximately 400 square metres – to be gently “managed” with the minimum of disturbance, in the hope that some Satyrids would colonise it. All this could grow while the DIY indoors proceeded.

A couple of ponds in the old garden and allotment areas, one for amphibians and one for some carp *etc.*, would lay the foundations of what I hope to be a decent butterfly garden and, if I don't run out of money, a conservatory and two greenhouses would enable me to do some controlled breeding and research.

My association with Newnham goes back to my National Service days and when I was drafted into the Gloucestershire regiment (I'll never understand the logic of this), my parents moved from West London to Newnham and I became a “forestman” overnight. A couple of years studying the language and I was free to explore. Although working in London, I used every opportunity to head west and generally tramp the countryside in the area clutching the usual paraphernalia. Nooks and crannies along the main railway line were (and still are) a rich source of discovery where undisturbed colonies of the Dingy skipper, *Erynnis tages tages* (L.), and the Grizzled skipper, *Pyrgus malvae* (L.), were found as well as a host of curious moths, most of which I am still sorting out.

The Cotswolds, a former home of the Large blue, *Maculinea arion eutyphron*, revealed hairstreaks, most of the satyrs – a healthy colony of the Marsh fritillary, *Eurodryas aurinia* (Rott) and lots of other goodies. In the Forest of Dean, itself a treasure trove, the Silver-washed fritillary *Argynnis paphia* (L.) flies, and the dragonflies around Soudley Ponds have to be seen to be believed. The bird and plant life, needless to say, is stunning. Professors Challenger and Sumerlee would be well-pleased. No pterodactyls as yet.

On the advice of another AES-man, Peter Howard, I planted out a bed of comfrey, *Symphytum* spp., I'm not sure whether these plants are hybrids or cultivars but they are certainly prolific – on the offchance of

attracting some Scarlet tigers, a long-time favourite of mine. This was planted in 1989 and in April 1993 fifteen larvae were found sunning themselves on the comfrey leaves. From these, I obtained several dozen offspring, most of which I returned to the garden and some to another wild patch about a mile from here. Although I've never seen this moth in the area, I'm told that it is recorded here and is quite common – so nothing extraordinary.

However, one of the adults showed a golden suffusion over the usual creamy patches of white on the forewings, to my knowledge not a named aberration, so while I have a healthy stock of these under “protective custody” I'll try to keep them going for as long as possible to see what appears. It is possible that abs. *bimacula* or *medionigra*, darker forms, will turn up and there is an outside chance that ab. *rossica* could appear, a yellow form, but literature would suggest that this is more likely to happen from continental livestock – although I have four specimens in my collection (recycled from old collections), three from “Hants 1906, JHF” and one from “Ringwood 1898 A.J. Hodges ex J.H. Fowler”, so you never know!

ANOTHER MIDLANDS MONARCH

by Roy A. Frost (10011)

Leigh Plester recorded a Monarch butterfly (*Danaus plexippus*) in the West Midlands in June 1992 (*Bulletin* **53**: 48). On 22nd September 1994 at Arkwright, Derbyshire I had unmistakable views of a Monarch which flew slowly across a main road in a northerly direction, some two metres from me. I am familiar with the species from visits to Canada and the Canary Isles. Pleasing though it was to see, it seems more probable from the date and locality that it was an escapee or release, rather than a genuine vagrant from overseas.

LATE EMERGENCE

by Jan Koryszko (6089)

During 1994 the Silver Y (*Autographa gamma*), was one of the most common migrants in Staffordshire and no doubt also in other counties.

During October and November 1994 I found quite a few freshly emerged moths drying their wings on my south-facing garden wall with their empty pupal cases lying nearby. The larvae may well have fed on *Arabis* and other low plants in my garden.

On 8th November I found a crippled moth which was quite small. These are known as Ab. *gammina* Staudinger (*Colour Identification Guide to Moths of the British Isles* by Bernard Skinner, Fig. 23). No doubt the mild autumn weather produced a number of these late emergences during 1994.

TWO MORE GYNANDROMORPHS OF THE MALAYAN JUNGLE NYMPH, *HETEROPTERYX DILATATA* (PHASMIDA) WITH NOTES ON CAPTIVE BEHAVIOUR

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Introduction

Gynandromorphism in the phasmids is rarely recorded, but examples in the Malayan jungle nymph, *Heteropteryx dilatata* (Family Bacillidae, subfamily Heteropteryginae) has been described on several occasions. In June and November 1994 respectively, I bought two wild caught adult gynandromorphs of the Malayan jungle nymph from Mr Michael Yeh. These insects were found by aboriginal collectors from the Tapah Hills in Perak in Peninsular Malaysia.

Description

The first insect (Plate 95E, Fig. 1 and Fig. 1) is 110mm long (excluding antennae) and male characteristics predominate and the general shape of the insect is male. The cephalic and right side of the insect tend to be female whereas the left and abdominal half of the insect tend to be male. The mesothorax is female. Both the right elytron and hind wing are shorter than the left elytra and hind wing respectively. The right elytron

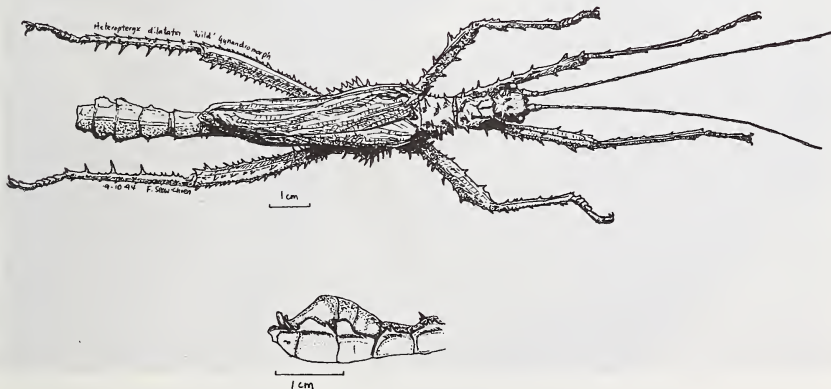


Fig. 1. Scale drawing of the first *Heteropteryx dilatata* gynandromorph and its genitalia.

(35mm) is almost typically female but with a brown lateral stripe. The left elytron (52mm) is green with several brown stripes and has a white margin typical of normal males. Legs on the right side are slightly thicker than those on the left. All legs are green however. The abdomen is brown and typically male. The genitalia are male.

The second insect (Fig. 2) is 129mm long (excluding antennae) and whilst the general shape is male again, there are more female features in this specimen. The legs tend to be female. The head, mesothorax and metathorax are female. The hind wings are fully developed as in the male but the elytra are short and do not fully cover the hind wings. Colourwise the insect is generally green, with patches of brown. The fifth and sixth abdominal segments bear a central spine and the seventh and eighth abdominal segments bear a pair of typically female spines. The genitalia of this specimen are very unusual and do not entirely resemble either sex.

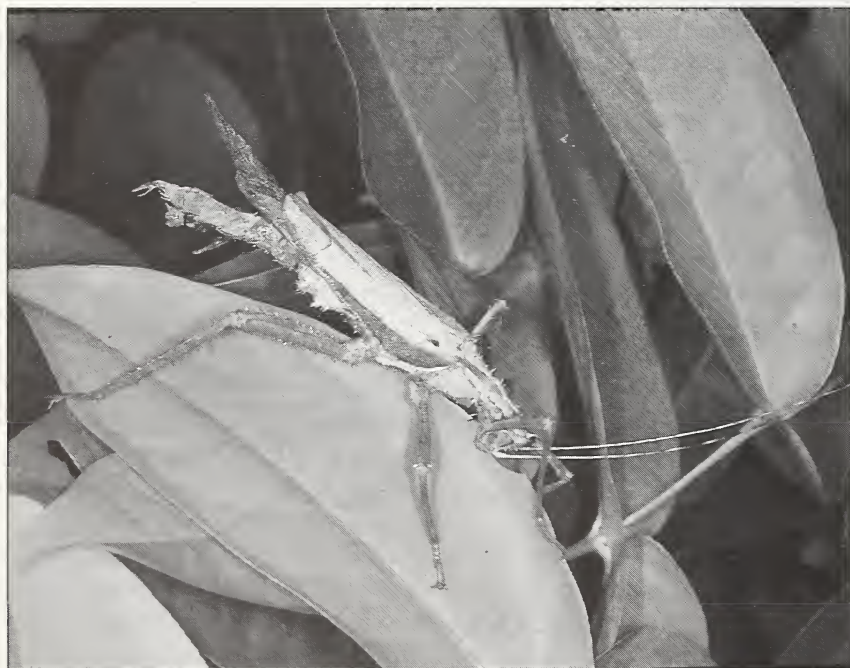


Fig. 2. A photograph of the second gynandromorph of *Heteropteryx dilatata*.

Captive behaviour

The first specimen was reared in a mixed cage with *Haaniella echinata* (Family Bacillidae, subfamily Heteropteryginae) and fed on guava leaves (*Psidium guajava*) and local bramble (*Rubus moluccanas*). The gynandromorph was very active but no attempts at flight were observed although it was kept in a cage 8 feet by 7 feet by 4 feet in size. This was possibly as a result of the very short "female" wings. The insect made no attempt to mate with female *Heteropteryx dilatata* or female *Haaniella echinata* present in the cage. Interestingly however, male *Haaniella echinata* were often seen mounting the gynandromorph and attempts at mating were observed. Unfortunately, there was no other male *Heteropteryx dilatata* in the cage at that time. The gynandromorph died in September 1994 and a drawing of it was made in the freshly dead state.

The second insect was reared in a 3 feet by 3 feet cage with *Haaniella grayi* (Family Bacillidae, subfamily Heteropteryginae) and female specimens of *Heteropteryx dilatata* and fed on guava, local bramble and leaves of a local fruit tree (*Eugenia javanica*). Both male and female *Haaniella grayi* were present in the cage. This second gynandromorph made no sexual attempts on any other insect present and no mountings were attempted on it by any of the male *Haaniella grayi*.

Conclusion

Gynandromorphs of insects are probably not as uncommon as is commonly thought. However, the sexual behaviour of these gynandromorphs is unknown and the first "male" gynandromorph seems to take no interest in females of the same species, although males of a closely related species were often observed attempting sexual liaison with it. Might female pheromones therefore not be produced by this male abdomen and genitalia? It was disappointing that no sexual activity was observed in the second specimen but this might be a result of the fact that in such a thoroughly mixed sexual specimen, hormones of either sex might be lacking resulting in an insect "eunuch".

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HILLTOPPING BEHAVIOUR OF THE SWALLOWTAIL BUTTERFLY (*PAPILIO MACHAON*) IN THE LECHTALER ALPS, AUSTRIA

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During an Austrian holiday in July 1992, I spent six days on a hut-to-hut walking tour in the Lechtaler Alps between 2200m and 2900m. In this period I only saw the Swallowtail butterfly (*Papilio machaon*) on two occasions.

The first time was on reaching the top of the Hirschpleisskopf (2549m). The butterfly was clearly defending a territory of about 30m in diameter centred on the summit cairn. Numerous other (unidentified) white and brown butterflies were repelled from this area with vigour. My surprise at seeing a Swallowtail in this location was compounded when another approached the summit of the mountain and was summarily repelled by the incumbent.

The second, similar, sighting was at the summit of the Samspitze (2625m), some 8km away, where a Swallowtail was seen nectar-feeding and engaging in territorial activity. On both occasions the weather was hot and sunny. Although I subsequently saw a few Swallowtails at a valley location near Ischgl (approx. 1350m), I am convinced that the two summit sightings were not "by chance" and the butterflies were displaying "hilltopping" behaviour.

Several species of butterfly are known to engage in hilltopping, where males establish territories on hilltops and females visit these locations to be mated. This strategy is almost certainly used to assist mate location in populations, such as these alpine Swallowtails, where the density is low. It may also be used by species for which cryptic colours reduce the apparency of mates for each other, such as the Wall brown (*Lasiommata megera*), as described by Dennis (1987). Dennis extends the literal meaning of hilltopping to any behaviour in which topographic vantage points are used to aid mate location. Thus territories may be selected on patches of bare ground, walls, fences, stones, piles of gravel and other landmarks.

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ERECTION OF A NEW GENUS FOR THE “*DUBERNARDI-GROUP*” AND A NEW SPECIES OF PIERIDAE (LEPIDOPTERA: RHOPALOCERA) IN CHINA

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In this paper, a new species of Pieridae is described under a new generic classification for it and the “*dubernardi-group*”. The butterflies here dealt with were collected by the author during 1992 and 1993 from Sichuan, Yunnan and Tibet. All type specimens are preserved in the author's collection.

The “*dubernardi-group*” comprises a group of Asian Pierids belonging to the genus *Pontia* Fabricius or the genus *Synchlœ* Hübner. The latter is often merged into *Pontia* in most recent taxonomic treatments. The “*dubernardi-group*” incorporates *Pontia dubernardi* Oberthur, *P. d. gyantensis* Verity, *P. d. rothschildi* Verity, *P. d. bromkampfi* O.Bang-Haas, *Pontia chumbiensis* de Nicéville, *Pontia kozlovi* Alpheraky, *P. k. aljinensis* (R.X.) Huang and Murayama, in China, and *Pontia sherpae* Epstein in Nepal.

The “*dubernardi-group*” was initially classified as *Pieris* due to the similar wing-shape, wing-venation and the presence of postdiscal black markings in forewing space 3 and hindwing space 6. De Nicéville placed *P. chumbiensis* in *Parapieris*, a genus he proposed “for *Papilio callidice* Esper (the type)”. Röber, in Seitz, followed this lead, placing *P. dubernardi*, *P. chumbiensis* and *P. kozlovi* in *Synchlœ* Hübner and alongside *Pontia callidice* due to the presence of a black discoidal spot on the upperside of the forewing, the configuration of the genitalia and the flight-pattern and behaviour of the living insect *etc.*

It is most likely that the “*dubernardi-group*” has a taxonomic position between *Pieris* or *Artogeia* and *Pontia* or *Synchlœ*. Its true taxonomy is decided by judgement on which is the main structure in generic classification. Here I state most of the important morphological features of the “*dubernardi-group*”.

- (a) Wing shape rather narrow as in *Aporia*
- (b) Discoidal cell slightly longer than 1/2 costa
- (c) All veins slightly marked with black
- (d) Black discoidal bar of forewings conspicuous
- (e) Both sexes bear an apical marking on the hindwing space 6

(f) Female upperside has postdiscal blackish markings in at least forewing spaces 1 to 3, and sometimes also in the hindwing postdiscal area.

The features outlined above occur more readily in *Pieris* than in *Pontia*. *Pieris* shares features a, b and e wholly and feature c partially within the group. *Pontia* only shares feature d as does *P. callidice*. Although *P. callidice* also has well developed blackish submarginal marking on both wings, it cannot be said to share feature f for the following reasons. The markings are much narrower and are more interrupted in space 2 of the forewing and are much closer to the outer margin than to cell-end on the hindwing. Moreover, there is an undescribed taxon (described in this paper) closely resembling the "dubernardi-group", from Mount Gongga, Sichuan which indicates that feature d is not an important feature in the classification of the "dubernardi-group". As virtually all the veins are marked with black, the discoidal bar of the forewing within the group is connected to the black lines or streaks on the nearby veins, unlike *Pontia* where it is distinct. This feature is most apparent in the new taxon. I consider therefore, that feature d is only a specific systematic structure.

The "dubernardi-group" is very sharply different from *Pieris* in features c and f. Therefore, a new genus needs to be erected for the entire "dubernardi-group" and the new taxon from Sichuan, as follows:

Sinopieris gen.nov.

Type species *Sinopieris gongaensis* Huang

Wing-shape: Generally as in *Aporia*. Both wings are rather narrow with a smoothly rounded outer margin.

Wing-venation: Forewing: R4 originating near the end of R3, very short or disappeared as in *Pieris* and *Pontia*. R2 originating before and near the upper angle of the cell. Discoidal cell slightly longer than 1/2 costa.

Wing-pattern: Both sexes, both sides, both wings: All veins are broadly or thinly lined with black.

Upperside: Forewing: Almost all veins are broadly pencilled with black from the apex to vein 2 or 3.

Underside: Hindwing: Ground colour yellowish, matching the colour of the forewing apex. Black lines or streaks on or around the veins are very conspicuous, often broad and strong.

Male upperside: Submarginal blackish markings present in at least forewing space 3 and hindwing space 6.

Female upperside: Both wings are dusted with more blackish scales than in the male. Postdiscal black band occurs in at least forewing spaces 1-3 and hindwing space 6, and is more extensive than in the male.

Female underside: Postdiscal band of the upperside is partially repeated but is sometimes absent.

Male genitalia: Valva is more or less squarish. Saccus is very thick, at least two or three times thicker than its length.

The new genus *Sinopieris* can be distinguished from *Pontia* (including *P. callidice*) by the structure of the male genitalia. The valva is somewhat squarish, whilst in *Pontia* it is triangular with a much longer ventral margin. The saccus is very thin in *Pontia*, very unlike the thick structures seen in *Sinopieris* (see figure 1 A-F).

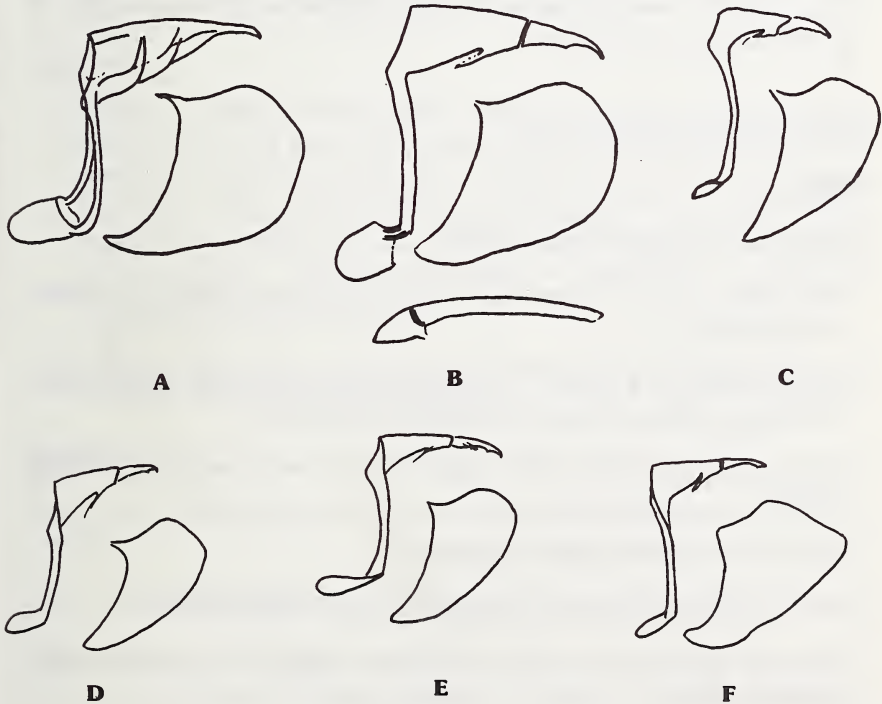


Fig. 1. Male genitalia: Ring and valva.

(A) *Sinopieris dubernardi* (B) *Sinopieris gongaensis* sp. nov. (C) *Pontia chlorodice gongdisica* ssp. n. (D) *Pontia callidice halasia* (E) *Pontia callidice kalora* (F) *Pontia daplidice*.

In addition, two other species, *Aporia venata* Leech and *Aporia davidis* Obërthür can probably be placed in *Sinopieris*. They show a curious resemblance to the new taxon and the "dubernardi-group" in features a, b, c, e and f listed above. The greatest disparities are that their ground colour of the underside is pale yellow and not canary yellow, and that the black vein markings are much thinner than those of the "dubernardi-group". However, this contrast is also found between *Aporia hippia* Bremer and *Aporia bieti* Obërthür, which are homogeneous. Therefore, I consider that the canary yellow ground colour and the width of the black streaks on veins are not generic systematic structures. There is another doubt that both *A. venata* and *A. davidis* pose, this being that the forewing submarginal band is greyish and less brilliant on the upperside and has disappeared completely on the underside. This, however, is also seen in the female of the new taxon *S. gongaensis*. Therefore, I feel that more detailed examinations will demonstrate that *A. venata* and *A. davidis* belong to *Sinopieris*.

Sinopieris gongaensis sp. nov.

Male:

Head black, eyes brown and smooth.

Labial palpus porrect, striped black and white, clothed with long blackish hairs beneath.

Antennae about 0.4 length of forewing costa, superficially ringed white. Club well marked, abrupt, black-tipped, oar-shaped.

Thorax above and below black, densely clothed with long black and grey hairs.

Legs black and white striped lengthways.

Femora densely clothed with long grey and white hairs beneath.

Cilia white on both wing surfaces and inner margins, black outer margins to both wings.

Forewing length 25.5 – 27mm.

Both wings ground colour chalk white.

Upperside: Wing-base thinly powdered with black scales.

Forewing: All veins heavily marked in black streaks except for veins 1 to 3 which are only thinly lined with black, so costal margin is narrowly marked with black. Vein-tips from apex to tornus are broadly marked with black, so marginal portions of spaces 2 to 6 in ground colour are narrower. Submarginal black band strong and extensive, invariably connected with marginal black markings which are well continued in spaces 2 and 3, becoming narrow and sometimes interrupted in spaces 1, 4, 5 and 6.

Hindwing: All veins remarkably thinly lined with black except for 2a and 3a, appearing broadly darkened where the underside's much broader streaks shine through. Costal margin lined in black. Outer margin marked with triangular black spots on vein ends. A black spot, somewhat smudged, appears in space 6.

Underside:

Forewing: White ground colour. Apex narrowly coloured canary yellow, matching hindwing ground colour. All veins evenly broadly marked with black with vein tips as upperside. Submarginal band of upperside often disappeared, at most appearing as black scales dusting the middle of veins. However, submarginal area invariably appears darker – slightly blueish-grey in appearance – where the upperside band shows through.

Hindwing: The same in both sexes. Ground colour canary yellow. All veins stand out in very heavy black.

Female:

Head, eyes, labial palpus, antennae, thorax, abdomen, legs and cilia as in male.

Forewing length 26mm

Upperside:

Forewing: Ground colour yellowish, heavily powdered with black scales, appears somewhat brownish. Maculation of male repeated but in a more brownish, less brilliant black. Apex more coloured yellow, matching the ground colour of hindwing upperside.

Hindwing: Ground colour in shade of light yellow as in forewing apex. Basal and discal areas sparsely dusted with black scales except for space 7. All veins marked with broad black streaks of the same width as in male hindwing underside, except for 2a and 3a. Spot in space 6 brownish, beginning a postdiscal line of discontinuous blots in spaces 3 to 5.

Underside: As in male.

Sinopieris gongaensis

Distribution: Mount Gongga of Sichuan, China.

Holotype: Male

Allotype: Female

Paratypes: 2 Males. Muoxi, Luding, Sichuan. 3400-3800m. 18 July 1992.

This new species closely resembles *Sinopieris dubernardi rothschildi* (Verity), but can be easily distinguished from the latter as well as other members of the "dubernardi-group" in having its forewing submarginal band extended into spaces 4-6. It also has an apex with a white line in the marginal portion of space 6. In fact, this new species looks like a smaller and darker version of *A. venata* Leech which may belong to *Sinopieris*. Both species fly rapidly with *Sinopieris dubernardi* in the grassland near forest zones at heights above 3400 metres. I have noticed that all of them have a similar flight pattern.

LATTICED HEATH IN STAFFORDSHIRE

by Jan Koryszko (6089)

On 17th July 1994, at Park Hall Country Park, Staffordshire while in the sandstone quarries collecting moths, I noticed approximately a dozen Latticed heaths (*Semiothisa clathrata*) flying in the warm sunshine.

I have been expecting this species to turn up here for some years. Before 1979 it was found only in the extreme south and east of the county, on waste-ground and railway embankments at Wigginton, Walsall and Hanbury. But since then it has spread in the county northward, reaching Meaford, Apedale and Barlaston Rough Close Common where I saw a single specimen on 18th July 1994. This species is a newcomer to north Staffordshire in recent years.

A REQUEST FOR FROGHOPPER RECORDS

by John Badmin (3406)

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Members will no doubt be familiar with the spittle-like masses or "cuckoo spit" produced by froghoppers in early summer, yet few have studied these insects in detail. Froghoppers are members of the order Hemiptera or tree bugs and belong to the family Cercopidae. There are ten species of froghopper in the British Isles ranging in size from the minute, ground-dwelling *Neophilaenus exclamationis* (Thunberg), a mere 3mm, to large tree-dwelling *Aphrophora* species over a centimetre in length.

I have been studying the population biology of one froghopper, *Cercopis vulnerata* Illiger for more than ten years. This froghopper is very brightly-coloured with red and black forewings and is unlikely to be confused with any other British insect apart from a large ladybird or Burnet moth. Body length is approximately one centimetre. If the insect jumps you can be sure that is a froghopper! If you are still unsure, check to see if it has the sucking mouthparts characteristic of the bug group. The insect is illustrated on the front cover of the AES Leaflet No. 32 on Leafhoppers (Le Quesne, 1969).

I would be particularly interested to hear from members of any sites (name, grid reference) where unusual colour forms of this species exist. The most dramatic variants are those where the red wing patches have been replaced by patches of yellow or pink (Badmin 1988, *Auchenorrhyncha Recording Scheme Newsletter No. 10*). Very occasionally "colourless" morphs are found where the red pigment has completely failed to develop. Some individuals also vary considerably in the extent of the black markings on the wings. These variants are more difficult to detect, and because they lack bright warning colours, may be predated by birds. They usually constitute less than 5% of the population.

Adult *Cercopis* are most frequently seen basking on grass and flower stems, within a metre of the ground, but occasionally they may be found higher up on leaves and stems of low-growing branches of shrubs and trees.

Adults begin to appear at the very end of April, through May and June with a few stragglers occurring as late as July. *Cercopis* colonies are frequently found in or near woods and along hedgerow margins. There are recent records of the froghopper adapting to motorway margins and I have observed one colony on an exposed grass-covered sea wall far away from any woodland.

C. vulnerata is fairly widely distributed in south and central England with records extending as far north as Newcastle. However, there are few records from the west country, East Anglia and Wales. There is a pre-1970 record from near Carlisle indicating that it may occur considerably further north than current records suggest. Any records from northern England and Scotland would be much appreciated.

An indication of colony size would be useful. This varies from a few to over 200 individuals. Numbers have been on the increase over the past two years following a long period of decline so that populations may be easier to find this year. Adults are very sedentary by nature and rarely fly or jump more than a metre at a time, even when provoked. This suggests that groups of individuals separated by only a relatively short distance may exist as separate colonies. Even a wide footpath may be a considerable barrier to these insects depending on the surrounding habitat.

BOOK REVIEWS

Die Tagfalter Nordwestasiens (Butterflies of North-west Asia) (Lepidoptera: Diurna) by Vladimir Lukhtanov & Alexander Lukhtanov. 440 pages, 56 colour plates, coloured frontispiece, compact bound, size A/4 (21x30cm), price DM248.

The book can be ordered from: Verlag Dr Ulf Eitschberger, Humboldtstrasse 13, D-95168 Markt-leuthen. Fax: 0049 9285 8238

In this book, for the first time, the butterflies of one of the most interesting areas of the Palaerctic are comprehensively reviewed.

Dr V. Lukhtanov writes in great detail about 400 species and numerous subspecies, which have been shown to exist in north-west Asia. Beginning with the original descriptions (including synonyms and disputed taxa), the places of discovery, ecology and distribution (with a distribution map of each species) to the differential diagnosis between similar species are covered. The book is a marvellous publication, and an almost unlimited source of previously unpublished information. Some new descriptions (partim with Dr A. Dantchenko) also found their way into the book, and they are almost revisionist in character (for example *Oeneis*). The 561 pictures (enlarged 1.33 to 1.5 times) on the 51 plates are after water-colour originals of A. Lukhtanov, and are supported by a further five



Fig. 1. Gynandromorph of *Heteropteryx dilatata*.



Fig. 2. Mate guarding in *Clusia flava*. The (unusually) large male has gripped the female around the wings and stands guard while she probes the rotten wood with her ovipositor.



Fig. 3. *Pisaura mirabilis* (Wolf spider) feigning death.



Fig. 4. *Pisaura mirabilis* in an alert stance.



Fig. 5. Limestone valley in the Mala Fatra National Park, Slovenia.

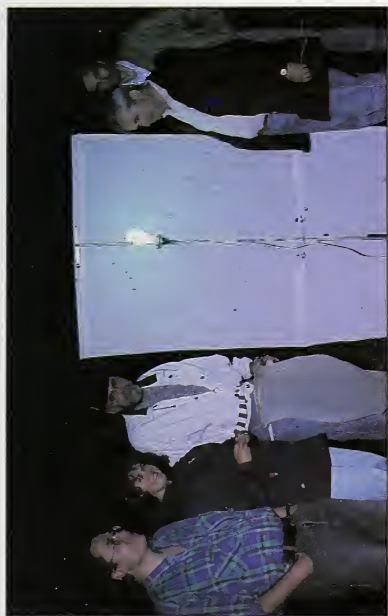


Fig. 6. Light and sheet in the Palava Hills.
Karel Spitzer second from right.



Fig. 7. *Cherosotis margaritacea* in the Palava Hills.



Fig. 8. *Arctona euonymaria*.



Fig. 10. *Therapis flavicaria* from riverine woodland near Lednice.



Fig. 9. *Rhodostrophia vibicaria* from riverine scrub near Lednice.

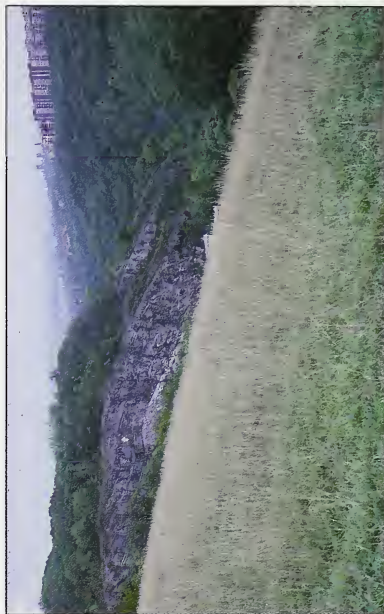


Fig. 12. Prokop's Valley, Prague. Type locality for *Luperina nickerliti*.



Fig. 11. Palava Hills, Czech Republic.

plates. To show distinction between difficult species, a further 51 pictures of genitalia preparations are presented. Genera where these come in useful are *Erebia*, *Oeneis*, and *Mellicta*.

What is extremely interesting, for those interested in this particular area, is the information about the geography and climate of this heterogenous area.

The Bibliography and detailed species index also make this publication a "must". It is a unique work.

The text in general is written in German, but the main parts of the systematic part are also translated into English.

Ulf Eitschberger

The Butterflies' Fly-past by Clive Simson, 9 x 5¹/₂. pp 127. Illustrated with 8 colour plates by Mandy Shepherd. ISBN 0 9520268 2 1. Peregrine Books 1994. Hardback. Price £19.00 incl. P&P from Peregrine Books, 27 Hunger Hills Avenue, Horsforth, Leeds LS18 5JS. (Tel: 0113 2585495)

Almost 30 thirty years since Clive Simson last put pen to paper with *A Bird Overhead*, this life-long naturalist has now put his 80 years of experience of butterflies into print. Not a reference book, but a collection of reminiscences, ramblings and adventures that will entrance the reader. The memories are roughly grouped into chapters, covering the various families, but digression is the order of the day with this book, which makes a very interesting read. It was refreshing to sit down again with a new non-reference butterfly book, James Birdsall's *The Boys and the Butterflies* being the last I enjoyed – this book is written in a similar vein. I don't suppose today's bug-hunters will have such fond memories of sunny days and plenty, in forty years time. Then they will write . . . "Thursday 2nd: saw 2 io, got arrested; Friday 3rd: viciously attacked by old ladies who saw me with a net . . ."

The price, however, is a little high for my liking at £19, but with the book being published in a single lot of 500 which is unlikely to be repeated, it can be considered as a limited edition and will no doubt be much sought after in the next century. It certainly ranks well alongside Allan, Stockley, Heslop, Newman, Birdsall and Fountaine on my "enjoyment" shelf.

Paul Batty

Scuttle Flies: The Phoridae by R.H.L. Disney. Hbk. 467pp. ISBN 0 412 56520 X. Chapman and Hall 1994. £67.50.

This specialist book looks at the vast diversity of this Dipteran family. It is an attractive book which contains extensive information on the biology of these flies. The introduction tells the reader just what a scuttle fly is, before launching into the book's major chapters on the egg, larval, pupal and adult stages of the insects. The book then goes on to outline the family ecology.

The book then outlines the practical aspects of the family. An easy to use key of the 229 genera begins the section and deals with the identification comprehensively. Methods of collecting, slide mounting and marking are also covered as is the rearing and culturing of these insects.

It is an interesting book, which is well set out. Whether it is worthy of its specialist book price is open to question, but if you can find a copy it is well worth having a look between the covers. Wayne Jarvis

British Butterflies: Vernacular Names including forms, subspecies and aberrations by William A. McCall. 62pp. 1994. Printed by Dolphin Press, 96 Whitehill Road, Glenrothes, Fife, Scotland. Tel: (01592) 771652.

This book is a useful aid to deciphering those common names used in foreign texts, which we editors receive. This compilation is well researched and easy to use, giving an at-a-glance translation of the butterfly species found within the British Isles. As well as Scandinavian, Portuguese, Italian, German, Dutch, Spanish, French, Gaelic and Czech common names to name a few, the author has also included some Old English names, often found in those early entomological books. Aberrations are also well covered. The book is a useful addition to the library. Wayne Jarvis

SMALL YELLOW WAVE RECORD

by Jan Koryszko (6089)

On 26th June 1994 while beating on Millford Common, Staffordshire. I caught a Small yellow wave (*Hydrelia flammeolaria*). It has been recorded in the nearby Cannock Chase, but is very local. Other Staffordshire records are, Burnt Wood, Belmont, Madeley, Balterley Heath, Chartley Moss, and Loynton Moss, where I saw it in 1986.

**A NEW SUBSPECIES OF *DABASA HERCULES*
(LEPIDOPTERA: PAPILIONIDAE) FROM
WUYI MOUNTAINS, CHINA**

by Huang Hao

Qingdao Education College, China 266071.

Dabasa hercules splendens ssp. nov.

The nominotypical race was described by Blanchard (1871) from Tibet. Hitherto it has also been recorded from Sichuan, Yunnan, Some authors have treated it as a subspecies of *Dabasa gyas* Westwood in Burma, Assam and east Himalaya. I have found a new subspecies of *Dabasa hercules* in the Wuyi Mountains, east of China. It differs in the following characters.



Fig. 1. *Dabasa hercules splendens* Huang.

Male

Both wings are a little broader than those of *hercules*, especially the forewing, which has a somewhat longer posterior margin. The discal yellow band is much brighter in colour and conspicuously broader especially on the hindwing where it is inclined towards the wing-base at the posterior margin. It does not run parallel with the row of submarginal yellow spots as in *hercules*. Veins across the hindwing are not strongly marked with black and the upperside submarginal yellow markings are larger and closer to the outer margin. Space 2 contains a spot which is absent in *hercules*.

The genitalia of the males shows a remarkably broader valva and a larger and longer saccus. The uncus is pointed towards the apical margin of the valva and is not folded downwards with vinculum, as in *hercules*.

Subspecies: *Dabasa hercules splendens*

Distribution: Wuyi Mountains, east of China

Holotype: Male. Forewing length 50mm. Dazhulan, Jianyang, Fujian Prov. of China, 1000m. 13th July 1990.



Fig. 2.

Male genitalia consisting of lateral view of genital capsule with left valva. 8th tergum and aedeagus removed: of posterior view and lateral view of juxta.

A. ssp. *splendens* Huang B. ssp. *hercules* Blanchard

NESTS TOO DRY FOR FLEAS?

by Freda Rayment (10305)

5 Chaudos Road, Staines, Middlesex TW18 3AT.

I have been interested in Siphonaptera for many years but only recently after retirement have I been able to indulge my hobby of making microslides of these creatures. (Funny how people look askance at me when I mention fleas, I can't think why?)

At the end of September 1994 I decided to see if I could find any old reed-warbler nests in an area of reed-beds, as nests can be a good source of fleas.

However, the first thing I did find was a Harvest mouse (*Micromys minutus*) nest, the first ever, for me, a beautifully woven nest the size of a tennis ball and full of pink naked babies. I found two nests that were in use, from which I hastily retired. Of the following seven I found, three were derelict and 4 unoccupied, but in good shape and full of fleas! One nest held 160 specimens, 57% of which were males (I may have missed one or two in the counting!).

The fleas I identified were *Megabothris turbidus* and just one specimen of *Hystrichopsylla talpae* T. This is a large flea (5mm long mounted) and to a tiny Harvest mouse must seem a fearsome parasite indeed.

Now according to F.G.A.M. Smut's excellent handbook on identification of British Siphonaptera, he says that only a few specimens of the very common mouse-flea *Ctenophthalmus nobiles* have been collected from this host due to the fact that the nests tend to be too dry for fleas to breed in.

That certainly hasn't been my experience. I would be very glad to hear from anyone else interested in the subject.

I have also recently seen (15th November) in the same swampy area A good many dragonflies (*Aeshna grandis*) mated up. I watched a pair in tandem laying eggs in the shallows, somewhat late. I thought, no doubt, to the mild weather.

AES ANNUAL GENERAL MEETING

To be held at the Royal Entomological Society of London, 41 Queen's Gate, London on Saturday 22nd April 1995 commencing at 11.00am. Details of how to get there are printed on the inside back cover of this *Bulletin*.

MOTH RECORDING IN THE CZECH AND SLOVAK REPUBLICS, 4th - 11th SEPTEMBER 1994

by Paul Waring (4220) and Rachel C. Thomas

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The 9th European Congress of Lepidopterology was organised for the Societas Europaea Lepidopterologica (SEL) by the Department of Zoology and Bee Keeping, University of Agriculture, Brno, and was held at the Faculty of Horticulture in Lednice in the Czech Republic from 5th - 9th September 1994. During the course of the Congress we had the opportunity to visit a number of Czech localities with lepidopterists of many nationalities and to operate light traps at some of these. Afterwards we drove through the Slovak Republic to the High Tatra Mountains, encountering a variety of habitats and a few more moths in the process. This article summarises our results and reports on the local moth recording work to which we were introduced.

About 30 people are actively involved in recording moths in the Czech Republic, and somewhat fewer in Slovakia, according to Drs Ivo Novak and Karel Spitzer, two of the most active recorders of all, both of whom have published widely. Both men are members of SEL and attended the Congress. Ivo is perhaps best known in the UK as the author of the widely available book *A field guide in colour to butterflies and moths*, published in Britain by Octopus Books in 1980. Ivo works as a Senior Entomologist at the Research Institute of Crop Production in Prague. Karel is an Associate Professor at the Institute of Entomology, Czech Academy of Sciences. He has published a number of papers, often in collaboration with Ivo, in Czech and international journals on a range of subjects including the use of moths as indicators in polluted or degraded environments, ecological studies of grassland Lepidoptera and seasonal patterns in moth abundance. He has a long-standing interest in the ecology and conservation of the Rosy marsh moth *Eugraphe subrosea* which has two sites in the Czech Republic, one on a pristine raised bog in one of the state nature reserves in south Bohemia and the other in the district of Ceska Lipa in north Bohemia. The moth has not been recorded from Slovakia (I. Novak, pers. comm.). In 1982 the two men co-authored *The endangered world of insects*, published in Czech, and they wrote the species accounts included in the *Czech Red Data Book of Insects* (published in 1992).

On the evening of 4th September Karel kindly took a party of congress delegates, including ourselves, with light traps, to the Palava Hills, 11km to the west of Lednice. The following night we light-trapped with Ivo in a

riverside location just north of Lednice and later we visited the type locality of the Sandhill rustic *Luperina nickerlii*, in Prokop's Valley near Prague. On 9th September we returned to the riverine woodland north of Lednice with a light trap and wine ropes and on 10th September some moths came to an actinic light at a campsite by the Mala Fatra National Park near the Tatra Mountains in Slovakia. The results of these trips are given in the accompanying table, and the habitats and the more interesting species we encountered are described below.

Palava Hills

The Palava Hills are a system of limestone outcrops, part of which is administered and managed as a state nature reserve within the Palava Protected Landscape Area, in the Czech province of Moravia. Such limestone areas are very restricted in Moravia but are better represented in the Tatra area of Slovakia where we saw some spectacular formations (Plate 95G, Fig. 5). The Palava Hills have been known and worked by entomologists for nearly a hundred years and the butterfly and moth fauna is comparatively well known. A full list of the species, with accompanying notes and reference list, has just been compiled by Zdenek Lastuvka (1994) who accompanied us on the light-trapping session and identified the moths as they arrived. On this visit our group set up three mercury vapour lights just before dusk and ran them until 23.45hrs.



Map 1. Sites within the Czech & Slovak Republics

These comprised our Skinner trap and two lights operated in front of vertical white sheets (Plate 95G, Fig. 6), all amongst grassland in the shelter of limestone rocks. The evening was calm, warm, dry and star-lit after a sunny day. Moths began to arrive as soon as the lights were switched on and by the end of the evening we had about 200 moths in our Skinner trap. Species not represented in Britain but characteristic of this habitat were the sleek grey noctuid moth *Cherosotis margaritacea* (Plate 95G, Fig. 7) and the small fawn geometrid *Cataclisma riguata*. We saw several of the former at each light but only one of the latter. The larvae of *C. margaritacea*, a moth of south-central and eastern Europe, have been reported feeding in flowers of hawkweeds *Hieracium* spp. while those of *C. riguata* feed on various members of the Rubiaceae (bedstraws) (Kirby, 1903). Also present were the distinctive geometrids *Artiora euonymaria* (Plate 95G, Fig. 8) and the Bordered grey *Selidosema brunnearia*. The larvae of *A. euonymaria* feed on Spindle-tree *Euonymus europaeus*, upon which we saw a couple of adults at rest.

It was interesting to see the Spotted sulphur *Emmelia trabealis* which is quite a numerous species in this warm dry site. This moth was formerly a Breckland speciality in Britain but it has not been seen there since 1960 and is presumed extinct. Good species of calcareous grassland, also found in Britain, included the Straw belle *Aspitates gilvaria* and the Royal mantle *Catarhoe cuculata*. We recorded both the Scarce bordered straw *Heliolithis armigera* and "Dewick's plusia" *Macdunnoughia confusa* which have occurred as migrants in Britain. The latter is resident in the Czech Republic but the former is only a migrant, as in Britain (I. Novak, pers. comm.). A couple of the Pale stigma *Mesogona acetosellae* were seen. A single specimen was recorded in Britain in 1895, during a period of much migrant activity. The Centre-barred sallow *Atethmia centrago* (formerly *xerampilina*) caused some excitement among the Scandinavian delegates for they seldom see this species, which evidently is rare or absent as far north as Finland and Sweden. Many of the other species are also common in similar habitats in Britain (Table 1).

Riverine habitats on the banks of the River Dyje north of Lednice

These woods and woodland edge habitats proved surprisingly unproductive in terms of numbers of moths in comparison to the limestone grassland habitats of the Palava Hills at the time of our visit. This is a seasonal difference (I. Novak, pers. comm.). On the first of our two nights at this site we operated our trap on rough herb-rich grassland

by a shrubby field boundary and mixed broadleaved woodland adjacent to the river. The field boundaries were dominated by various sallow *Salix* species and the main tree in the woodland was ash *Fraxinus excelsior*. Other trees and shrubs present in these woods included hornbeam *Carpinus betulus*, a lime *Tilia* sp., pedunculate oak *Quercus robur*, field maple *Acer campestre*, common hawthorn *Crataegus monogyna*, elder *Sambucus nigra*, and hazel *Corylus avellana*. We also set up seven wine-ropes on the sallows by the river. One of these wine-ropes attracted our only *Agrochola nitida*. Other species absent from Britain encountered by us here included *Rhodostrophia vibicaria*, a central and southern European geometrid, the larvae of which are reported to feed on broom *Cytisus scoparius* and sloe *Prunus spinosa*. This moth has a delicate pink band running over its otherwise fawn wings (Plate 95H, Fig. 9). There were also several Hyphenines or "Snouts". These included the Shaded fan-foot *Herminia tarsicrinalis* and the related *Polypogon tentacularius*, another small fawn "Fan-foot". The latter has not been recorded in Britain but is common in much of Europe, except the north-west, and extends into Asia. The Shaded fan-foot was first discovered in Britain in 1965 in Suffolk, where it is closely associated with bramble thickets *Rubus fruticosus* agg.. It was interesting to see the Scarce dagger *Acrionicta auricoma* in this habitat. We took one at light. This species was found in woodlands in East Kent and East Sussex in the nineteenth century and has occurred as occasional suspected immigrants in these counties since. The Cream-bordered green pea *Earias clorana* was present, just as might be expected in similar habitat in eastern England. *Nycteola asiatica* and *Eucarta virgo* were two more species not present in Britain but seen here. Both are south-eastern in distribution and the latter may be a migrant here from Hungary (Z. Lastuvka, pers. comm.). Ivo Novak had a number of additional species not seen by us to his light on an embankment by the river, including the Four-spotted moth *Tyta luctuosa*, the Spotted sulphur *E. trabealis*, the Buttoned snout *Hypena rostralis*, the Kent black arches *Meganola albula* and *Athetis lepigone*, an interesting local species related to our Marsh moth *A. pallustris*.

The night was also memorable for the hornets *Vespa crabro* which came to the lights. One of these usually docile insects stung PW in the throat when it got caught up in his collar. The following few hours were spent wondering if the throat would swell up until breathing became difficult. Fortunately the injured party does not react badly to wasp stings and the like and, in the event only a slight red swelling developed though it felt like fire had been injected!

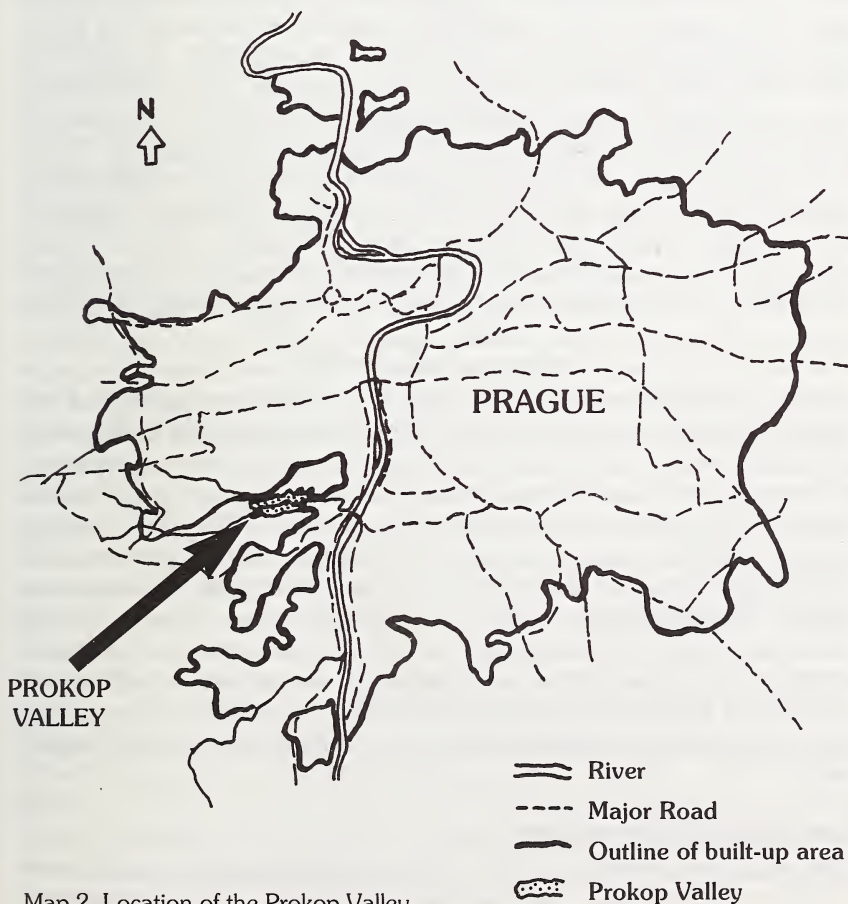
The evening of 9th September saw us back in the above woodlands. This time we set up the trap on a track at the main entrance to the wood and put up three wine-ropes along the wood edge, several hundred metres from the river. The weather conditions seemed favourable. It was calm, dry, muggy and dark. On the same night some other delegates from the Congress saw many moths on the Palava Hills but once again the woodlands proved quiet in terms of moth activity. The night was notable for the appearance soon after dark of a single specimen of the yellow and black geometrid moth *Therapis (Epione) flavicaria* (D. & S.) (Plate 95H, Fig. 10) which is a speciality of south-eastern Europe, where the larvae are said to feed on white dead-nettle *Lamium album*. Barry Goater informs us that he has never seen this moth in his numerous trips around western Europe and did not see it at the Czech sites he visited during the Congress. Ivo Novak informs us that this species is a rarity in Moravia, has not yet been recorded from Bohemia and that according to Hruby's *Prodromus Lepidopterorum Slovaciae*, the normal flight period is from June to August. The individual we saw was in fresh condition so it was either a very late emergence or an unusual second generation specimen.

Mala Fatra National Park and High Tatra Mountains

At the end of the Congress we drove 250km east to see the High Tatra Mountains, which are the western end of the Carpathian mountain range. The scenery was certainly spectacular in the region of the High Tatras, which are acid, granitic rocks, with conifer plantations in the foot-hills. We chose to spend both the nights before and after our day-time drive through the Tatras in the limestone formations of the Mala Fatra National Park. The nights were cold. On 10th September three moths came to an actinic light we were using for illumination by our tent on the campsite at Trusalova on the edge of the Park. These moths comprised a Large thorn *Ennomos autumnaria* and two Feathered gothics *Tholera decimalis*. A Dark chestnut moth *Conistra ligula* came to a wine-rope, accompanied by two Angle shades *Phlogophora meticulosa*. The temperature was 10°C at dusk, falling to a minimum of 7°C during the night and there were clearskies and a heavy dew. We were camped by a stream, amongst birch saplings *Betula* sp. with ash, hornbeam, elder and spruce (*Picea*) present. The evening of 11th September was spent searching unsuccessfully for the Butterbur moth *Hydraecia petasitis* among the huge beds of butterbur *Petasites hybridus* which we found growing along the riverbanks of the valley running south from Terchova to Vratna. This valley has been described as the most beautiful in Slovakia and the limestone pillars were impressive (Plate 95G, Fig. 5).

Prokop's Valley, Prague

We stopped off in Prague on our return drive back to the UK. The first of two entomological sites we visited was the Research Institute of Crop Production where Ivo Novak has operated a light trap consistently for 26 years since 1967 and has recorded the effects of the increased urbanisation of the surrounding land (Novak, in press). 680 species of macro-lepidoptera have been recorded in the trap during this time. The trap consists of a high voltage grid mounted behind a 200w mercury vapour bulb. Any moths flying past the light are electrocuted instantly and fall into a big funnel leading to a large jar with a chemical killing agent. The trap is operated on the balcony of an upper storey of the main



Map 2. Location of the Prokop Valley

building complex and is a one-off design. The catch is recorded every day and a collection of reference specimens has been accumulated at the Institute for teaching purposes.

From the Institute we went with Ivo to see Prokop's Valley, the site where the Sandhill rustic *L. nickerlii* was first described. This is an extensive limestone gorge on the south-west edge of Prague (Plate 95H, Fig. 12 and Map 2). Ivo had brought Barry Goater to this site about two weeks previously and the moth was seen in numbers. A series of about thirty specimens had been collected for comparison with the four British subspecies of this moth and some of these were exhibited at the annual exhibition of the British Entomological and Natural History Society the following month. The site is well-known among Czech lepidopterists and is frequently visited by light-trappers from Prague, consequently the fauna is well-monitored. A list of the Lepidoptera has just been compiled by Mares and Skyva (1993). In addition to *L. nickerlii*, many noteworthy species have been recorded. These include no less than four of the moths which are protected in Britain by the Wildlife and Countryside Act (1981 and amendments) – the Viper's bugloss *Hadena irregularis*, the Essex emerald *Thetidia smaragdaria*, the Barberry carpet *Pareulype berberata* and the Black-veined moth *Siona lineata*. Of special note in a Czech context are *Polia serratilinea*, *Euxoa vitta* and Ashworth's rustic *Xestia ashworthii*. *C. margaritacea*, which we saw in the Palva Hills, is also in Prokop's Valley and other resident species of this warm dry habitat include the Silky wave *Idaea dilutaria*, the Tawny wave *Scopula rubiginata*, the Bordered gothic *Heliophobus reticulata* and various of the Sharks *Cucullia* spp. On our visit the Carthusian pink *Dianthus carthusiana* was in flower amongst the grasses, along with the common blue chicory *Cichorium intybus*. The site is currently open to public access and is much used and valued for informal recreation. The natural history interest of the site is appreciated locally – at least in general terms and it is sincerely hoped that the site will be spared from the building development which is already taking place on the surrounding land. Copies of this article are being distributed to the relevant national conservation authorities as a record of the conservation value of this site, which has an international interest in the case of *L. nickerlii* and which is every bit as important as the fine buildings we had the pleasure of visiting in Prague itself.

Concluding observations:

Although we saw evidence of the environmental pollution for which parts of eastern Europe have an unenviable reputation, such as factories

belching out choking vapours, and we experienced thick smog on leaving Prague, there are many attractive natural features and traditionally managed landscapes supporting much wildlife in the Czech and Slovak Republics. Efforts are evidently being made to conserve these and to raise awareness of their special interest. This paper is a small contribution and a memento of a most enjoyable visit. Motoring is a joy in these countries because the roads are good, but not crowded with traffic. We drove round in our Skoda, overland from Britain, and got waves from the public and caused much amusement when the right-hand-drive and British number-plates were noticed! The people are friendly and we had no difficulty obtaining fuel for the car, good food and accommodation. There are many ways in which foreign tourists can help in the survey and monitoring of wildlife in eastern Europe, from bears and birds to butterflies, moths and other insects. SEL delegates were supplied with the necessary permits and the good relationship established between SEL and the conservation authorities is encouraging for the future. British moth recorders will find that a good proportion of the species are familiar. This was evident not only from our own experience but also from examining year-round site lists such as those produced by Ivo Novak. But each night's work is likely to be spiced up with a few species you will not see in Britain, and some of the species of the south-eastern European fauna which you will not encounter nearer to home.

Acknowledgements

We would like to thank the Congress organisers Professors Dalibor Povolny and Zdenek Lastuvka and all their helpers at the Lednice Faculty of Horticulture and from the Department of Zoology and Beekeeping, University of Agriculture, Brno; also Dr Ivo Novak of the Research Institute of Crop Production, Prague and Dr Karel Spitzer of the Institute of Entomology, Czech Academy of Sciences and all the SEL delegates who made the Congress such an interesting and rewarding experience. We would also like to thank Professor E. Klimo of the Faculty of Forestry, University of Agriculture, Brno, who organised and led us on a guided tour of the riverine forest on the banks of the River Dyje just north of Lednice and Dr Josef Chytil of the Czech Institute of Nature Conservation, Mikulov office, for taking the time to explain to us the current programme of nature conservation in Czechia. Paul Waring received a Travel Grant from the Royal Society to help meet his travel costs in attending the Congress to deliver a paper entitled *Strategic moth recording for conservation purposes*, to be published in the Congress proceedings.

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Table 1

Species list for visit to the Czech and Slovak Republics, 4th - 11th September, 1994

Vernacular name	Scientific name	Sept. 4 5 9 10			
		Sites	P	R	W M
Orange swift	<i>Hepialus sylvina</i> (Linnaeus)		P	R	
	<i>Celypha striana</i> (D. & S.)			R	
	<i>Pyrausta purpuralis</i> (Linnaeus)			R	
Wax moth	<i>Galleria mellonella</i> (Linnaeus)			R	
	<i>Oncocera semirubella</i> (Scopoli)		P	R	
Oak hook-tip	<i>Drepana binaria</i> (Hufnagel)		P		W
Buff arches	<i>Habrosyne pyritoides</i> (Hufnagel)			R	
False mocha	<i>Cyclophora porata</i> (Linnaeus)			R	
Blood-vein	<i>Timandra griseata</i> (Petersen)		P	R	
Tawny wave	<i>Scopula rubiginata</i> (Hufnagel)			R	
Mullein wave	<i>Scopula marginepunctata</i> (Goeze)		P		
Riband wave	<i>Idaea aversata</i> (Linnaeus)			R	W
	<i>Rhodostrophia vibicaria</i> (Clerck)			R	
	<i>Cataclysmes riguata</i> (Hübner)		P		
Garden carpet	<i>Xanthorhoe fluctuata</i> (Linnaeus)		P		
Royal mantle	<i>Catarhoe cuculata</i> (Hufnagel)		P		
Common carpet	<i>Epirrhoe alternata</i> (Muller)		P		W
Yellow shell	<i>Camptogramma bilineata</i> (Linnaeus)		P	R	
Lime-speck pug	<i>Eupithecia centaureata</i> (D. & S.)		P	R	
Treble bar	<i>Aplocera plagiata</i> (Linnaeus)		P		
Scorched carpet	<i>Ligdia adustata</i> (D. & S.)		P		
Latticed heath	<i>Semiothisa clathrata</i> (Linnaeus)		P		
	<i>Therapis (Epione) flavicaria</i> (D. & S.)				W
Large thorn	<i>Ennomos autumnaria</i> (Werneburg)			R	W M
	<i>Artiora euonymaria</i> (D. & S.)		P		
Willow beauty	<i>Peribatodes rhomboidaria</i> (D. & S.)		P	R	
Bordered grey	<i>Selidosema brunnearia</i> (Villers)		P		
Light emerald	<i>Campaea margaritata</i> (Linnaeus)		P		
Annulet	<i>Gnophos obscuratus</i> (D. & S.)		P		
Straw belle	<i>Aspitates gilvaria</i> (D. & S.)		P		
Convolvulus hawk	<i>Agrius convolvuli</i> (Linnaeus)		P		
Ruby tiger	<i>Phragmatobia fuliginosa</i> (Linnaeus)			R	W
Square-spot dart	<i>Euxoa obelisca</i> (D. & S.)		P		

Vernacular name	Scientific name	Sept. 4 5 9 10			
		Sites	P	R	W M
Turnip moth	<i>Agrotis segetum</i> (D. & S.)			R	
Dark swordgrass	<i>Agrotis ipsilon</i> (Hufnagel)			R	
Plain clay	<i>Eugnorisma depuncta</i> (Linnaeus)	P		R	
	<i>Chersotis margaritacea</i> (Villers)	P			
Large yellow underwing	<i>Noctua pronuba</i> (Linnaeus)	P	R	W	
Lesser yellow underwing	<i>Noctua comes</i> (Hübner)	P	R	W	
Broad-bordered yellow underwing	<i>Noctua fimbriata</i> (Schreber)			R	
Lesser broad bordered yellow u. grp.	<i>Noctua janthina</i> (D. & S.)†			R	
Setaceous hebrew character	<i>Xestia c-nigrum</i> (Linnaeus)	P	R	W	
Square-spot rustic	<i>Xestia xanthographa</i> (D. & S.)	P	R		
	<i>Eucarta virgo</i> (Tr.)			R	
Pale stigma	<i>Mesogona acetosellae</i> (D. & S.)	P			
Nutmeg	<i>Discestra trifolii</i> (Hufnagel)	P	R	W	
Campion	<i>Hadena rivularis</i> (Fabricius)	P			
Hedge rustic	<i>Tholera cespitis</i> (D. & S.)			W	
Feathered gothic	<i>Tholera decimalis</i> (Poda)	P	R	W M	
White-point	<i>Mythimna albipuncta</i> (D. & S.)	P	R		
Common wainscot	<i>Mythimna pallens</i> (Linnaeus)	P			
L-album wainscot	<i>Mythimna l-album</i> (Linnaeus)	P			
Beautiful arches	<i>Blepharita satura</i> (D. & S.)	P			
Dark chestnut	<i>Conistra ligula</i> (Esper)				M
Brick	<i>Agrochola circellaris</i> (Hufnagel)			W	
	<i>Agrochola nitida</i> (D. & S.)			R	
Centre-barred sallow	<i>Aethmia centrago</i> (Haworth)	P	R		
Pink-barred sallow	<i>Xanthia togata</i> (Esper)			R	
Scarce dagger	<i>Acronicta auricoma</i> (D. & S.)			R	
Copper underwing	<i>Amphipyra pyramidea</i> (Linnaeus)			R	
Svensson's copper underwing	<i>Amphipyra berbera</i> Rungs	P			
Angle shades	<i>Phlogophora meticulosa</i> (Linnaeus)	P	R		M
Frosted orange	<i>Gortyna flavago</i> (D. & S.)			R	
Vine's rustic	<i>Hoplodrina ambigua</i> (D. & S.)			R	
Bordered sallow	<i>Pyrrhia umbra</i> (Hufnagel)			R	
Scarce bordered straw	<i>Heliothis armigera</i> (Hübner)	P			
Spotted sulphur	<i>Emmelia trabealis</i> (Scopoli)	P			
	<i>Pseudeustrotia candidula</i> (D. & S.)			R	
Cream-bordered green pea	<i>Earias clorana</i> (Linnaeus)			R	
	<i>Nycteola asiatica</i> (Krul.)			R	
Dewick's plusia	<i>Macdunnoughia confusa</i> (Stephens)	P			
Silver Y	<i>Autographa gamma</i> (Linnaeus)	P	R		
Snout	<i>Hypena proboscidalis</i> (Linnaeus)			R	
Shaded fan-foot	<i>Herminia tarsicrinalis</i> (Knoch)			R	
	<i>Polypogon tentacularius</i> (Linnaeus)			R	

† Of the three possible *janthina*-like spp. this was definitely *janthina* (det. Lastuvka)

Key to sites: P = Palava Hills; R = Riverine scrub north of Lednice; W = Riverine woodland north of Lednice; M = Mala Fatra campsite

See text for further details.

Footnote

The Societas Europaea Lepidopterologica (SEL) organises a Congress on a biennial basis and the next will be held near Madrid, Spain, in 1996. SEL is the society for all lepidopterists interested in the butterflies and moths of Europe in its widest sense. SEL publishes a journal and an address list of its members. One of the primary objectives of the organisation is to promote the recording and conservation of the Lepidoptera on an international basis. Details of membership rates *etc.* can be obtained from Barry Goater, 27 Hiltngbury Road, Chandlers Ford, Hampshire SO5 1SR.

A FURTHER NOTE ON THE PIGGY-BACK FLY

by Jan Koryszko (6089)

Since my note in *Bulletin* **53**: 33, of a fly piggy-back riding on a Narrow-bordered five-spot burnet (*Zygaena lonicerae latomarginata*), Mr Steven Falk of the Herbert Art Gallery and Museum, Coventry, informed me that the fly appears to be a species of *Bellardia* (*Onesia* of the Kloet and Hincks checklist). It is a member of the Blowfly family (Calliphoridae). These flies are apparently predators or parasites of earthworms (see *Fauna Ent. Scand.* **24**).

It is a fairly common fly in rough grassland, woodland and marshes, where they are found sitting on foliage and flowers, looking like rather dull greenbottles, the abdomen being a dull metallic green.

I guess the fly felt that a Burnet moth on a thistle was a good perch from which to survey its surroundings; such flies are often loyal to perches.

I would like to thank Mr Steven Falk for writing to me with this most useful and interesting information.

1994 - A VAPOURER MOTH YEAR IN STAFFORDSHIRE

by Jan Koryszko (6089)

On the evening of 5th September 1994, after heavy rain, I found a male Vapourer moth (*Orgyia antiqua*) on my window-sill.

It has been some years since I have encountered this species in the Meir area. Mr R.G. Warren, the county Lepidoptera Recorder tells me he has had reports from all over the county during 1994 and that it has not been this common for many years in the county.

I also recorded this species at Park Hall Country Park, Weston Sprink and Barlaston Rough Close Common. Other sightings came from Trentham and Moddershall.



60 YEARS OF THE AMATEUR ENTOMOLOGISTS' SOCIETY Part II. 1945-54

by Wayne Jarvis (9899)

With the war close to an end, the activities of the Society began to increase. The first *Bulletin* under the Temporary Wartime Organisation was published in December 1944 (Volume 6 Number 66) under the editorship of Beowulf Cooper. The first Wartime General Meeting took place in London on 3th December 1944 and the first exhibition since 1939 was held in the capital on 5th May 1945. The Society continued to grow at a fast rate with membership reaching 562 by July 1945. However, with this growth came an increase in workload, particularly in producing *Bulletins*, and the Society appealed to its members for help.

With the end of the War, the Society could then begin to wind up the temporary organisation. To do this, all pre-war members of the Society had to be informed of a Special General Meeting to "reform" the Society. This meeting was held at Buckingham Palace Gate Central Schools, Wilfred Street, London on 1st December 1945. Here it was decided to amalgamate the two organisations' funds with the Society reverting to its peacetime formation. The new Council was elected and the Society's constitution amended.

The first "peacetime" *Bulletin* was published in February 1946 (Volume 7 No. 73). The editor Beowulf Cooper was finding it increasingly difficult to find time to edit all Society matters, and so he appealed for an assistant. In July 1946 (Volume 7 No. 76) this help was forthcoming in the form of Brian Gardiner. Brian joined Beowulf as an assistant editor, and his job was to edit the *Bulletin*. Meanwhile, Beowulf would concentrate on more general editorial matters. The job of editor was an arduous task (and still is!) and the Society was always on the look out for helpers to type copy *etc.* At the 1947 AGM Trevor Trought agreed to take over the editorship of the *Bulletin*, and he duly did with Volume 7 No. 92, July 1948. Membership by now had reached the 1000 mark (1071 Vol. 7 No. 90).

Volume **8** was published during 1949, and in this year came the 100th edition of the *Bulletin*. Trevor Trought wrote thus:

We feel that something has been accomplished, but even more, that something has been well begun. The Society and its Bulletin are now firmly established and we hope, on their way to a greater and expanding usefulness.

Membership of the Society had, however, fallen slightly to 904 (Vol. **7** No. 107), the reason for which was given as officers of the Society not having time to carry out their tasks effectively.

Finance became a worry for the Society in the 1950s. The monthly *Bulletin* was absorbing the whole of the Society's income and, therefore, it was decided at the 1950 AGM to stop publishing the Society's *Journal*. Longer items, usually published in the latter, would now be incorporated into the *Bulletin*. The size of the eight-page *Bulletin* would also now be limited by the funds which were available to produce it. To end 1950 on a poor note, the exhibition was poorly attended, perhaps due to a late change in date, but the lack of support that it received put the event's future in doubt.

Trevor Trought continued his editorship into Volume **10** (1951) but his appointment to an overseas post as Scientific Adviser to Jordan meant that he was compelled to relinquish his duties. The April 1951 issue was his last. His replacement was W.J.B. Crotch. Unlike the 1950 exhibition, the 1951 event was a resounding success, being "perhaps the most successful in the Society's history" (Vol. **10** No. 132 December 1951). Attendance was very good and the day's highlights were talks given by Major Maxwell Knight on *Entomology in relation to other branches of natural history*, Cynthia Longfield on *Dragonflies* (a synopsis of which can be found in Vol. **10** No. 132) and by Mr E.E. Syms on *Entomology and the camera*. Membership by the end of 1952 was 943.

Financial concerns were a major problem for the Society, but *Bulletins* were continued to be published monthly. The exhibition was once again a resounding success being "better than ever" (Vol. **11** No. 144). The main attractions were the overseas exhibits, the silk moth group, the new mercury vapour trap and latest breeding cages and lectures on *Uses and abuses of entomological names and terms*, *Burying beetles* and *Insect migration*. Membership levels still hovered disappointingly around the 900 mark and hence the financial concerns of the Society did not diminish.

The groups of the Society formed over the previous few years were going strong. There were ten in all by 1952: the Diapause study group,

the Elephant hawkmoth group, the microscopy group, the Silkmoth group, the pupal emergence group, the blues (*Lycaenidae*) group, the insect galls group, the larval colours group, the Orthoptera group and the weevil group. Two other groups, the ecology of ponds and the cockroach groups, were not supported fully enough for them to exist.

Volume **13** of the *Bulletin* saw another change in editorship. W.J.B. Crotch persuaded Mr B.R. Stallwood to take over the reins, whilst Mr Crotch became general editor of handbooks and leaflets. Practical hints for the month of *Bulletin* publication became a regular feature. During 1954 with a few exceptions the groups began to falter. The Orthoptera group became defunct and the weevil group obtained no support. However, a new group – the London meetings group – was formed during the year and held regular meetings.

The 1954 exhibition drew tremendous support in September, but membership still only hovered around the 900 mark to the disappointment of many.

Articles from the second decade of the Society follow:

From Volume 6, Number 68, April 1945. Page 47.

THE BLACK HAIRSTREAK

by Victor Bascombe (574)

24th June, 1944, was a beautiful day and I thought I would try for late *palaemon* (Chequered skipper) and possibly for *pruni* (Black hairstreak) in a favourite collecting ground in Northants. After half-an-hour's walking, I reached what seemed to be a likely spot, and whilst waiting, primarily for *palaemon*, I thought I detected a hairstreak flying round an oak tree. I watched for some time and saw several obvious hairstreaks on the wing, away out of reach. Eventually, I moved away to a cross-ride some forty yards away, and after watching there for some five minutes saw a small butterfly alight on a guelder rose. It turned out to be a male *pruni* in poorish condition.

I returned in the afternoon and waited at this spot. By then the sun was pouring on to one side of the ride and all along the top of the sloe hedges *pruni* were flying. They were in very great quantity. I had to await my chance to take them at low levels, but in the space of three and a half hours I caught 21 – the majority of them in excellent condition. A fortnight previously I took two albino Wood whites (*L. sinapis*) in perfect condition. One had rather ill-defined wing tip markings, but in the other they were very well defined.

From Volume 7, Number 91, March - May 1948. Page 192.

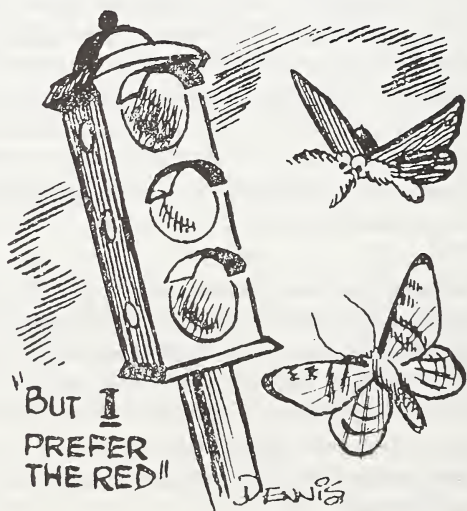
COLOURED LIGHTS IN A LIGHT TRAP

by A.L. Capener (6)

In order to see if lights of different colours had different powers of attraction for insects I attempted a simple experiment with my light trap here at Cleveland, Johannesburg, South Africa. Although the results are too few to be statistically significant, I feel, after about seven weeks (in the summer) of changing the colours in sequence each night, that results are so definite it is unnecessary to carry on any longer. Here is a summary of the totals caught:-

	Watt	Nights	Catch
Red	40	7	4
Green	40	8	56
Orange	40	7	11
Blue	40	7	57
Ordinary	60	10	289

One night about 100 ants were caught, which are included in this latter total. Of course all the bulbs used were the incandescent filament type, which means that the colours were obtained by the coloured glass filtering out the colours not seen (but in fact still being radiated by the filament



within). The result, of course, was that, although all the tinted bulbs were rated as 40 watt bulbs, the actual candle-power emitted by the red bulb was a mere fraction of that emitted by any other colour, and the other colours were much less than a "white" bulb of equivalent wattage.

From Volume 9, Number 118, October 1950. Page 91.

PET MANTIS

by W.J.B. Crotch (1181)

Why not keep a mantis for a pet? An American businessman who brought a parcel of wild woodland for the sole purpose of studying and photographing its insect population found that a female mantis became an amusing companion. She would walk over his desk and watch him typing with all the appearance of absorbed interest and would practically sit up and beg when feeding time came round!

A mantis will eat any other insect of whatever size and is a good gardener's friend. When the supply of live prey is reduced in autumn it can be given (*pace* Mr Webb) corned beef or breakfast sausage to prolong its life until perhaps November.

From Volume 10, Number 122, February 1951. Page 14.

AN UNCOMMON GRASSHOPPER

by T.B. Poole (1681)

On 14th September [1950] I was looking for grasshoppers at St. Ives, Bingley, Yorkshire, in a marshy field, and I found a fully-winged female of *Chorthippus parallelus* Zetterstedt. The macropterous form of this species appears to be rare in Great Britain, as, according to M. Burr (1936) in his *British Grasshoppers and their Allies*, only one British specimen has been recorded at that time, and I should be interested to know if any more have been recorded since.

From Volume 11, Number 144, November 1951. Page 115.

A CHIRPING BEETLE

by C.M. Idle (2118)

I have not seen or heard it mentioned before that *Cychrus rostratus* Linn. has the ability to chirp; however, while "bug-hunting" in Fisher's Wood, Bromley, I came across one chirping in a manner not unlike that of a

grasshopper in sound. It had only about half the volume of the grasshopper chirping, was of a higher pitch, and of a smoother quality. The beetle was lying still under a rotting log. I could not see from what organ the chirping was coming, but it was not any of the legs. I would like to hear other members' experiences of this and in what circumstances the beetle does "chirp".

From Volume 12, Number 161, July 1953. Page 59.

A WASP NEST IN JANUARY

by B.R. Stallwood (1547)

A note in *Bee Craft* **36**: 39 (1954) describes the finding of a "wasp nest the size of a football, complete with queen, workers and brood in all stages of development from eggs to young wasps ready to emerge from their cells" on 17th January 1954.

The nest was found in the vicinity of the apiary of the Enfield (Middx.) Beekeepers' Association. The exceptionally mild winter coupled with easy access to food from beehives evidently encouraged the queen to continue laying.

From Volume 12, Number 168, December 1953. Page 115.

NEW ZEALAND STICK INSECT IN DEVON

by Peter G. Taylor (719)

I should like to suggest a possible means whereby the New Zealand Stick Insect (*Bull. Amat. Ent. Soc.* **12**: 92-94) could have reached the Scilly Isles. It is quite possible that a single parthenogenetic female could start a whole colony of these insects, so that numbers do not really enter into the problem. Also, stick insects as a group are noted for their longevity, and are moderately cryptic in form. It would be quite easy, therefore, for an adult female to have been brought to the Scilly Isles with the New Zealand plants, and even for the Paignton colony to have been started in a similar manner by one of her offspring.

As the members of both colonies would be nearly, or quite, all females able to produce parthenogenetic female offspring, their numbers would increase as a geometrical progression, especially in the absence of natural enemies. Available food and adverse weather conditions would, therefore, be the controlling factors.

Diary Dates

Abbreviations

BEHNS	British Entomological and Natural History Society.
LCES	Lancashire and Cheshire Entomological Society.
RES	Royal Entomological Society of London.
RES(QG)	RES Rooms, 41 Queen's Gate, London SW7.
BBONT	Berks, Bucks and Oxon Naturalists' Society.
BC	Butterfly Conservation.
I:	Information from:

To make the diary effective contributions are needed from members. Any relevant items should be sent to the *Bulletin* Editor. No charge is made for entries. Please allow three months advance notice.

APRIL

22nd *AES Annual General Meeting.*
At the RES, 41 Queen's Gate, London.
I: Wayne Jarvis 01582 485820.

LCES Field Meeting

Lytham St. Annes Nature Reserve, Lancs. (SD 310305). Meet at 11.00hrs by the Information Centre.
I: Simon Hayhow 01253 876621 (work).

BEHNS and Somerset Moth Group Field Meeting.

Prior's Park, and Adcombe Wood SSSI, Somerset. Meet at 10.30hrs and 19.00hrs at Forest Enterprise car park (ST 228163) off the B3170. Ancient woodland, mainly Ash. One aim is to record the White-marked moth. Please book if you wish to attend.
I: Keith Brown 01963 32763.

29th *Identifying Ants.*

BEHNS (Workshop) Dinton Pastures Country Park, Davis Street, Hurst, Reading. 10.30hrs – 16.00hrs.
I: Dr Ian McLean, Indoor Meetings Secretary, 109 Miller Way, Brampton, Huntingdon PE18 8TZ.

MAY

- 3rd ***Medical and Veterinary Special Interest Group lecture.***
Title to be arranged. RES(QG). Tea 17.00hrs. Meeting 17.30hrs.
I: RES 0171 581 8505.
- 6th ***BEHNS Field Meeting – Hampshire.***
Rye Common. (SU 784503). Meet at 11.00hrs and 21.00hrs. Turn right at east end, sign-posted to electricity sub-station and park on roadside. Mainly Oak, Ash and Beech woodland. Sparse invertebrate data.
I: Tony Davis 01252 874346.
- 7th ***Durham Entomological Fair.***
Equestrian Centre, Stag Lane, Newton Aycliffe, Darlington. 10.00hrs – 16.00hrs. Admission 50p all.
I: James Houlihan 01388 721449 or 720503.
- 10th ***RES East Region Meeting – Sugar Beet Pests.***
Broom's Barn Experimental Station.
I: Dr R.C. Welsch, ITE, Monk's Wood Experimental Station, Abbots Ripton, Huntingdon, Cambs PE17 2LS.
- 13th ***BEHNS Field Meeting – Berkshire.***
Several Wokingham District Council Reserves. Meet 10.30hrs at Dinton Pastures Pelham Clinton Building (SU 784718) or 11.00hrs at car park entrance to Aldermoor (SU 773738).
I: Peter Chandler 01628 664111.
- 14th ***Entomological Livestock Group Spring Entomological Fair.***
Pattishall Parish Hall, Pattishall, Towcester. 11.00hrs – 16.00hrs. Admission £1 & 50p.
I: Paul Batty 01909 550272.
- 20th ***LCES Field Meeting.***
Ainsdale National Nature Reserve, Lancs. (SD 302111). Meet at car park in Pinfold Lane at 11.00hrs.
I: Steve Cross 0151 920 5718 (home) 0151 207 0001 (work).
- BEHNS Field Meeting – Dunbartonshire/Strathclyde.***
Blackhill Mire, Helensburgh. Meet 14.30hrs and 20.00hrs at car park by reservoir (NS 305838). Mire with cotton-grass, heather, bilberry, gorse and birch.
I: Richard Sutcliffe 0141 3052660.

- 27th ***BEHNS Field Meeting – Berkshire.***
Dinton Pastures. Meet at 11.00hrs and 20.00hrs at the Pelham Clinton building (SU 784718). Range of terrestrial and aquatic habitats and chance to see the Loddon lily in flower.
I: Andrew Halstead 01483 489581.
- 29th ***Butterfly Walk.***
Walk around Neumann's and Ashton's Flashes and Marbury No. 1 Tank, Northwich, Cheshire to see early summer butterflies. Meet Marston entrance along Ollershaw Lane at 11.00hrs. Bring packed lunch. Witton Conservation Group meeting.
I: Paul Hill 01565 722928.

JUNE

- 3rd ***BEHNS Field Meeting – Hampshire.***
Alice Holt Forest. Meet at 10.40hrs at the Lodge Enclosure car park on Gravel Hill Road (SU 802435). Beetles (incl. aquatic spp.) will be main interest of the day but rich site for Lepidoptera and other orders.
I: David Lonsdale 01420 83742 (home) 01420 22255 (work).
- BEHNS Field Meeting – Dorset.***
Yellow Ham Wood, Dorchester. Meet at 10.30hrs and 20.00hrs at lay-by on minor road signposted Troytown (SY 730934). Rare Diptera.
I: Mick Parker 01305 788380.
- 4th ***Creepy Crawly Show IV.***
Queen Elizabeth Hall, Oldham. 12.00hrs – 17.00hrs.
Admission £1 & 50p.
I: Oldham Museum 0161 678 4649.
- 7th ***RES Annual Meeting and President's Invitation Lecture.***
RES(QG). Tea 17.00hrs. Meeting 17.30hrs.
I: RES 0171 581 8505.
- 10th ***Joint LCES and Underwings Field Meeting.***
Millers Dale, Derbyshire. Meet at car park (SK 139733) at 11.00hrs.
I: Jon Delf 01829 250411.
- 23rd ***BEHNS Field Meeting – South London.***
Nunhead Cemetery. Meet 11.00hrs at the cemetery gate in Linden Grove (2 mins from Nunhead Station) (TQ 353737). MV Session at 21.00hrs.
I: Richard Jones 0171 732 2440. Please contact if wishing to attend MV session.

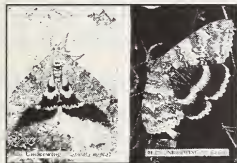
- 24th *The West of England Creepy Crawly Show.*
Newton Abbot Racecourse, Devon. Major Herpetological and Entomological Show for captive breeders and conservationists in the West Country.
To book space or I: 01626 332775.

JULY

- 1st *LCES Field Meeting*
Little Budworth Common, Oulton, Cheshire (SJ 588655). Meet 11.00hrs in car park (with toilets) near to the Lodge Corner gates of Oulton Park race track.
I: Bill Hardwick 01606 594778.
- 5th *RES Annual Meeting and the President's Invitation Lecture.*
RES Queen's Gate (QG).
I: RES 0171 584 8361.
- 15th *LCES Field Meeting.*
Whixall Moss, Shropshire (SJ 496365). Chance to visit this famous entomological site, now taken over by English Nature. Meet 11.00hrs at grid reference, just over the canal swing bridge.
I: David Poynton 01625 829189.
- 21st/22nd *Grand Moth and Butterfly Event.*
Warburg Reserve, Henley-on-Thames, Oxfordshire. Moth trapping overnight on Friday 21st – meet at Warburg Reserve car park (SU 720880) at 22.30hrs. Saturday meet at 10.30hrs at car park to see the catch from the previous night, followed by a guided walk led by the reserve warden to look for butterflies and day-flying moths. Joint meeting with BC and BBONT.
I: Martin Harvey 01635 550380 (work).
- 28th *Moth trapping at Thatcham, Berkshire.*
Looking for the Scarce burnished brass and others at Thatcham reedbeds. Meet at Thatcham Nature Discovery Centre at 20.30hrs. Joint BC and BBONT meeting. Please book in advance.
I: Thatcham Discovery Centre 01635 874381.



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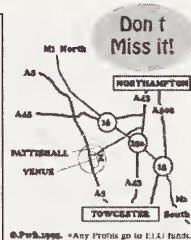
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The Society maintains a library and collections at its headquarters at Dinton Pastures, which is open to BENHS members at various times each fortnight. Frequent field meetings are held at weekends in the summer. **Visitors are welcome at all meetings.**

The current programme card can be had on application to: the Secretary: R.F. McCormick, 36 Paradise Road, Teignmouth Devon TQ14 8NR.

The Society publishes **British Journal of Entomology and Natural History**, a quarterly journal of entomological articles, short communications, meeting reports, book reviews, etc. The Journal is free to BENHS members. For a sample copy contact: the Editor, Richard A. Jones, 13 Bellwood Road, Nunhead, London SE15 3DE. Tel: 0171-732 2440. Fax: 0171-277 8725.

The Society has published several books including: *A field guide to the smaller British Lepidoptera*, edited by A.M. Emmet (288pp, paperback £18, hardback £22.50, + £1.80 p.&p.); *British hoverflies: an illustrated identification guide*, by A.E. Stubbs and S.J. Falk (270pp, 12 col. plates, hardback, recently reprinted, £26 + £2.80 p.&p.). BENHS

For further details contact:

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Saturday 22nd April 1995

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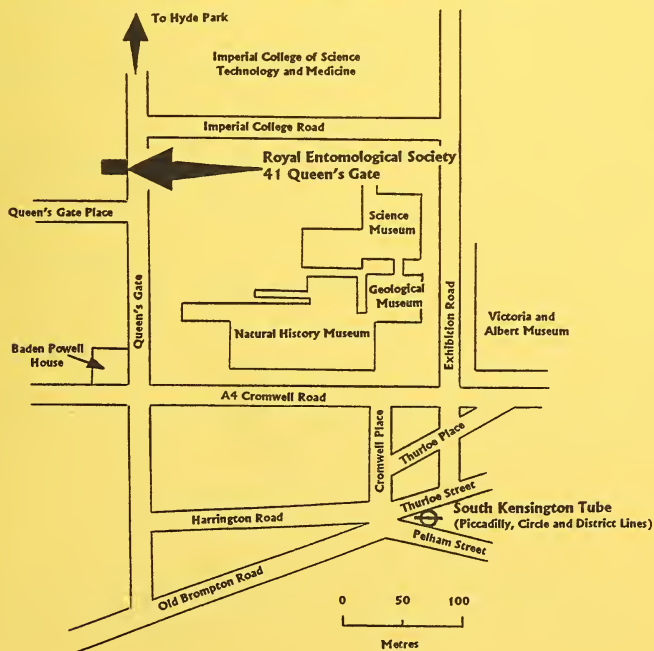
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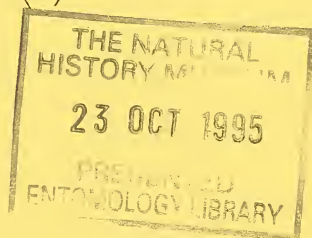
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The Bulletin of the Amateur Entomologists' Society



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WAYNE JARVIS BSc.

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Founded in 1935

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The Society maintains a library and collections at its headquarters at Dinton Pastures, which is open to BENHS members at various times each fortnight. Frequent field meetings are held at weekends in the summer. *Visitors are welcome at all meetings.*

The current programme card can be had on application to: the Secretary: R.F. McCormick, 36 Paradise Road, Teignmouth Devon TQ14 8NR.

The Society publishes *British Journal of Entomology and Natural History*, a quarterly journal of entomological articles, short communications, meeting reports, book reviews, etc. The Journal is free to BENHS members. For a sample copy contact: the Editor, Richard A. Jones, 13 Belwood Road, Nunhead, London SE15 3DE. Tel: 0171-732 2440. Fax: 0171-277 8725.

The Society has published several books including: *A field guide to the smaller British Lepidoptera*, edited by A.M. Emmet (288pp, paperback £18, hardback £22.50, + £1.80 p.&p.); *British hoverflies: an illustrated identification guide*, by A.E. Stubbs and S.J. Falk (270pp, 12 col. plates, hardback, recently reprinted, £26 + £2.80 p.&p.). BENHS members qualify for special discounted prices.

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AES BULLETIN

No. 400



EDITORIAL

The AES reaches its first milestone of the year with this issue of the *Bulletin*, the 400th edition. Over the years the *Bulletin* has played a major rôle in the Society's history, and hopefully, will continue to do so in years to come.

The AGM was once again a very enjoyable event, and thanks must go to Colin Hart for his organisation as well as our two speakers Richard Jones and Michael Majerus who gave us an amusing and fascinating insight into their work! It was disappointing that so few members attended, this will hopefully be rectified next year!

Of course the AGM saw the departure of Brian Gardiner and Simon Fraser from Council. Both have contributed substantially to the Society and we thank them for their hard work over the years. The Secretary position is temporarily held by myself and all correspondence should be forwarded to me at the address on the inside front cover.

Best wishes for the bug-hunting season!

Wayne Jarvis

AES
Annual Exhibition
Saturday, 7th October, 1995
at Kempston Park Racecourse
Open 11.00hrs to 16.30hrs.

GREY SAND-COVERED BUG: A REQUEST FOR HELP WITH IDENTIFICATION

by Michael G. Guye (10024)

1 route du Gat Mort, Villagrains, 33650 Cabanac et Villagrains, France.

Plate 95I. Fig. 1, depicts a grey-coloured insect, resembling a bug, which is occasionally found here during the summer months. It is approximately one centimetre long and its body (including legs and antennae) is covered with very fine sand grains and other minute particles of debris. Some of these particles appear to rub off if the insect gets wet. It moves in short rapid bursts of one to two centimetres in length and is found amongst the roofing tiles (old Roman tiles made of baked clay) of a dilapidated barn which adjoins our house.

The "roof habitat", where the above is found, heats up considerably in summer. It contains an abundance of humus and unrotted material, composed mainly of oak leaf litter, twigs and acorns, due to the presence of nearby pedunculate oak trees. During the wetter periods of the year this humus supports a "lawn" of short green vegetation, though it dries up completely in summer. Other invertebrates in this habitat include an abundance of woodlice (two species), springtails, centipedes, and a small snail species with a cone-shaped shell. The common wall lizard (*Podarcis muralis*) and the western whip snake (*Coluber viridiflavus*) also frequent this habitat.

Jones (1983) illustrates the harvestman, *Anelasma cephalus cambridgei* (Arachnida: Opiliones: Trogludidae), which has a similar habit of covering its body with particulate matter. I assume that the function of this behaviour is either to provide camouflage against predators and/or to conceal itself more efficiently from potential prey. The latter interpretation assumes that my find may be a type of assassin bug (Heteroptera: Reduviidae). I look forward to hearing from any readers who may be able to identify this insect. Any additional details would also be greatly appreciated.

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SOME CRICKET SPECIES (ORTHOPTERA: TETTIGONIIDAE, GRYLLIDAE AND GRYLLOTALPIDAE) FOUND IN SOUTH-WESTERN FRANCE: OBSERVATIONS UNDER FIELD AND CAPTIVE CONDITIONS

by Michael G. Guye (10024)

1 route du Gat Mort, Villagrains, 33650 Cabanac et Villagrains, France.

Warm summer nights, here in the village of Villagrains, are often associated with the enchanting hypnotic sound of churring crickets. For a while it is easy to forget the surrounding monotony of maritime pine plantations and to imagine that I am in some far-off exotic tropical location. If one listens carefully several different "signatures" may be discerned. The experience led me to investigate this insect order which resulted in some rather unexpected observations.

Species identification

Most of the observations reported here were made during the period 1993-94, though some casual unrecorded observations began back in 1991. Species were identified with the aid of the field guides of Bellmann (1985) and Chinery (1993). In cases where identification was not straightforward, reference was made to a much more comprehensive guide on orthopteran taxonomy (Chopard, 1951). Three different families were identified, *i.e.* the Tettigoniidae (bush-crickets and cone-heads), the Gryllidae (true-crickets) and the Gryllotalpidae (mole-crickets). I found all species in my garden with the exception of a field-cricket and two mole-crickets which were brought to me by children from the village. The species identified were as follows:

TETTIGONIIDAE

<i>Conocephalus discolor</i> (Thunberg)	long-winged cone-head
<i>Leptophyes punctatissima</i> (Bosc)	speckled bush-cricket
<i>Meconema thalassinum</i> (De Geer)	oak bush-cricket
<i>Phaneroptera falcata</i> (Scopoli)	sickle-bearing bush-cricket
<i>Pholidoptera griseoaptera</i> (De Geer)	dark bush-cricket
<i>Platycleis</i> sp. (Fieber)	grey bush-cricket group
<i>Ruspolia nitidula</i> (Scopoli)	large cone-head
<i>Tettigonia viridissima</i> (L.)	great green bush-cricket

GRYLLIDAE

<i>Gryllus campestris</i> (L.)	field-cricket
<i>Nemobius sylvestris</i> (Bosc)	wood-cricket

GRYLLOTALPIDAE

<i>Gryllotalpa gryllotalpa</i> (L.)	mole-cricket
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FRENCH COMMON NAMES

The bush-cricket and cone-head family are rather confusingly translated into French as "les sauterelles" which means "grasshoppers". French common names, where they occur, are as follows (in parentheses): *R. nitidula* (le conocéphale gracieux), *T. viridissima* (la grande sauterelle verte), *G. campestris* (le gril, riqueu or cricri) and *G. gryllotalpa* (la courtilière or le grillon taupe).

Brief description of habitats where captures were made

The habitats where the species were found may be divided into three broad categories and reference has been made to these under the discussion of individual cricket species. The habitats are as follows:

- (a) shrub/hedge habitat – composed of rose, bramble, elm (*Ulmus carpinifolia*), laurel, and yew hedge mixtures which are shaded or semi-shaded by pedunculate oak (*Quercus robur*), sweet chestnut and some coniferous trees (spruce and cedar). This habitat is located, along with the house, at street level at a crossroad junction.
- (b) dry-slope habitat – represented by dry south-west and west facing sunny banks at the back of the house. Characteristic plant species are white campion (*Silene alba*), greater celandine (*Chelidonium majus*), dwarf mallow (*Malva neglecta*) and bracken (*Pteridium aquilinum*). Following the removal of several large false acacia trees (*Robinia pseudoacacia*), the stumps, which in most cases are hollow, have been left in the ground to increase habitat diversity. The sunny banks have moderate to steep gradients and slope down to the damp meadow habitat.
- (c) damp-meadow habitat – represented by an open sunny to shaded damp/marshy meadow located on a slight gradient of about 25 metres in length. The lowermost part is located approximately five metres below street level. Characteristic plant species are great horsetail (*Equisetum telmateia*), sedges (*Carex* spp.), buttercup (*Ranunculus* spp.), and a mint species (possibly *Mentha suaveolens*).

One of the sunniest areas contains a carpet of bugle (*Ajuga reptans*) in association with cuckoo flower (*Cardamine pratensis*) and ragged robin (*Lychnis flos-cuculi*). A small stream, known locally as La Gravette, traverses the lowermost part of the damp-meadow habitat alongside of which is a dominant mixture of willow (*Salix aurita* and *S. cinerea*), elder (*Sambucus nigra*) and alder (*Alnus* sp.).

Both the dry-slope and damp-meadow habitats are managed by occasional scything to prevent the more invasive species (*i.e.* bracken, brambles, false acacia, horsetails and nettles) becoming predominant, thereby encouraging plant (and consequently insect) diversity. Nettles (*Urtica dioica*) are abundant in all three habitats. A wide range of grass species is found in both the dry-slope and damp-meadow habitats.

Climate and soil

The regional climate is predominately oceanic with an annual precipitation of around 800 to 900mm. Snow is very rare, occurring perhaps once every ten years (*e.g.* the last time was winter 1985/86). Summers can be very hot (30° to 35°C) and a drought occurs most years during July and August: during this period the damp-meadow habitat generally remains moist and the stream stops flowing, though the latter may dry up completely some years (*e.g.* Summer 1991). Winter frosts are common in the Bordeaux area, though the microclimate peculiar to Villagrains (located, as the crow flies, approximately 30km south of Bordeaux and 50km east of the Atlantic coast) means that such frosts can be both later (*i.e.* mid-May) and more severe (*i.e.* some nights at -6° to -8°C every winter) than neighbouring areas. However it is extremely rare that winter daytime temperatures descend below 0°C, with the result that the activity of some insect species can be observed throughout winter during sunny weather.

The soil is predominately a sandy acidic type (podsol). However outcrops of clay or limestone do occur in the region. Though a podsol is, in agricultural terms, an extremely poor soil, maritime pine (*Pinus pinaster*) grows well here. In south-western France this forestry crop occupies an area of 900,000 hectares extending over the departments of the Gironde, Landes and Lot-et-Garonne. This represents the largest area of artificial forest in Europe. The "poor" soil is however host to a relatively rich variety of plant-life in the few relatively undisturbed areas which are not over-managed by man, and this may in turn be expected to support a relatively rich insect fauna.

Climate and species distribution

The eleven cricket species I found appear to occur throughout France (Chinery, 1993; Chopard, 1951). In Britain *R. nitidula* and *P. falcata* appear to be absent, while the others listed above are generally rare and restricted to the coastal areas of southern England (Bellmann, 1985) suggesting a requirement for a mild climate. However *P. griseoptera* appears to be an exception being found as far north as southern Scotland (Bellmann, 1985).

Despite the occurrence of late spring frosts in Villagrains, the species I found are generally common here. Chinery (1993) catalogues 36 species of Tettigoniidae and ten species of Gryllidae for France and Western Europe. Since ten of these species were found with relative ease it is suggested that a more comprehensive search, particularly in milder neighbouring areas (i.e. areas without regular late spring frosts), such as the dune areas of the Atlantic coast, may reveal the presence of further species.

In France, *R. nitidula* is now protected in the Ile-de-France region (Anon, 1994), while in Britain *G. campestris* and *G. gryllotalpa* are protected (Fry, 1991).

Observations under field and captive conditions

Conocephalus discolor

C. discolor is found occasionally in the damp-meadow habitat associated with sedges. The nymph is easily recognisable by a black dorsal stripe.

Leptophyes punctatissima (Plate 95I, Fig. 2)

I often observe *L. punctatissima* on rose or bramble in the bush/hedge habitat. Armed with a torch one summer night at around 11pm, I discovered a group (more than six) feasting on the green unripe seeds of nettle plants growing around a rose bush. On two occasions I saw a female feeding on the reproductive organs (stamens and stigmas) of flowers of some cultivated ornamentals of the Compositae family (see Fig. 1). It may be that the high protein content of these plant organs provides an important source of nutrition for egg production? Comments please.

I have particularly enjoyed keeping *L. punctatissima* in captivity, partly because it is not overactive (unlike *T. viridissima*) and its food requirements are simple, feeding readily on bramble and rolled oats. Two males and two females were placed in an aquarium which already contained a culture of local stick insects (*Clonopsis gallica*), the latter also

being fed on bramble. Both insect species appeared to cohabit without any problems.

In captivity the mating behaviour of *L. punctatissima* was easily observed, being particularly amusing to watch. The female always appeared to make the initial move, and could be very insistent in the case of a non-obliging male, who either simply ignored the female or turned away in the case of excessive "sexual harassment".

L. punctatissima has an extremely faint chirp, whose song can only really be heard if you are standing within very close range and in the absence of other interfering background sounds. In captivity this species survived long after the last sightings were observed outdoors.

Meconema thalassinum

M. thalassinum was found by chance in the shrub/hedge habitat resting on the underside of leaves of an old elm hedge growing near a pedunculate oak tree. Another time, late at night, one flew through an open kitchen window, no doubt attracted by light. Attraction to light at night has also been reported by Chinery (1993).

Phaneroptera falcata

P. falcata was seen less frequently than most of the other species. Found on taller vegetable cover (e.g. false acacia re-growth) in the slope habitat.

Pholidoptera griseoptera

P. griseoptera was found mainly amongst low-growing vegetation in the damp-meadow habitat. I found this species easy to keep in captivity, though a word of warning – don't keep it the bedroom: its monotonous chirping will keep you awake all night! Fed readily on rolled oats though also preyed on small grasshoppers in its aquarium. Stridulates both day and night, males often replying in alternation with each other.

During late July, a captive *P. griseoptera* was observed attempting to oviposit into a thin covering of bark on a small branch of false acacia. It was obviously having difficulties and after several attempts gave up. False acacia bark from large trunks is a thick and fairly soft corky type of material and so I thought that this might provide a more suitable substrate for egg-laying. Indeed ovipositor insertion into a small thick piece of false acacia bark (approximately 2cm³) was subsequently observed. The ovipositor was inserted and then withdrawn either partially or completely, and then immediately re-inserted, the process being repeated several times over a period of approximately five minutes. Insertion of the ovipositor occurred in an orientation which was parallel to the natural

plane of cleavage of the bark. Following ovipositor insertion the base of the abdomen was seen to make rhythmic pumping movements, presumably to aid egg deposition into the bark. The bark sample was later cut open and an oval flat-shaped egg was found measuring 4.8mm (length) x 1.4mm (width) x 0.7mm (thickness). It had a colour best described as pale (somewhere between white and a light sandy-brown colour).

Platycleis sp. – possibly *P. intermedia* (Plate 95J, Fig. 3)

A *Platycleis* species was found only once in the four years that I have been living here. It was a female with one hindleg missing (Plate 95J, Fig. 3) found on the south-east-by-east facing wall of the house in dappled morning sunlight (14th August 1994) near the bush/hedge habitat. Exact species identification was uncertain. It fed on rolled oats in captivity. From head to abdominal tip (excluding ovipositor) my find measured 27mm, the ovipositor an additional 14mm. The wings were 31mm long, extending beyond the ovipositor tip by approximately 5mm. The dorsal side of the head and pronotum were reddish-brown. Overall body coloration was brown.

Chinery (1993) identifies the female of three species of *Platycleis* by the shape and length of the ovipositor. Ovipositor lengths (in parentheses) of these species are as follows: *P. albopunctata* (8-11mm), *P. tessellata* (4-6mm) and *P. affinis* (13-16mm). Chinery also states that *P. affinis* (20-25mm body length) resembles a large *P. albopunctata*, the latter quoted elsewhere as having a body length of 18-22mm (Bellmann 1985), though with the difference that in the former the vein running along the sharp fold of the forewing, just behind the pronotum, is distinctly yellow. The large ovipositor (14mm) and body length (27mm) of my specimen suggest that it may have been a *P. affinis*. However an examination of the forewing, following mild sedation with diethyl-ether, did not reveal the yellow coloration mentioned by Chinery. Following release of the specimen I discovered a very detailed book on orthopteran taxonomy by Chopard (1951). He describes seven species and six sub-species of *Platycleis*. Unfortunately I no longer had the specimen for reference, though based on the measurements and photograph I had taken it appears that I may have possibly captured a *P. intermedia* (Serv.). Chopard (1951) cites this species as being found in south-western France.

Ruspolia nitidula

Both green and sandy-brown coloured forms of *R. nitidula* were found in the dry-slope habitat, each form corresponding with the colour of the background vegetation. Very abundant during summer 1994. I was

surprised to find a nymph of 20mm in length in September. Searches for this species on the 5th October, and thereafter during 1994, yielded no specimens.

R. nitidula appears to prefer an undisturbed relatively tall low-growing vegetation (i.e. 30-50cm in height) to a shorter managed cover. For example, a dry slope on the west-facing side of the house which had only been scythed in May showed an abundance of *R. nitidula* adults in August amongst a cover of bracken and tall grasses. Towards the end of August, a second scything was carried out. Within 24 hours of this scything, which reduced the cover to a height of approximately 50mm, *R. nitidula* had migrated to the surrounding uncut cover. In general I found this species by walking through low-growing vegetation in areas where they were known to be abundant, the disturbance causing them to jump and consequently be spotted with relative ease.

Tettigonia viridissima

A very impressive cricket owing to its large size. Appears to be very common and found in a wide range of habitats (damp-meadow and dry-slopes) on either low-growing vegetation, bushes or trees. Found by disturbing low-growing vegetation as described above for *R. nitidula*. Alternatively you can patiently stalk a chirping adult: I have succeeded in doing this on a few occasions and have managed observations from as close as 30cm without disturbing it.

During 1992 and 1994 adults of *T. viridissima* were noticed from the 8th July and the 26th June onwards, respectively. I was particularly surprised to find a nymph of this species on the 29th March 1994 on a grass stalk exposed to early evening sunshine on a south-west facing slope. Reference to the colour plates of Bellmann (1985), illustrating the life-cycle of *T. viridissima*, suggested that this nymph was either in its first or second instar. Bellmann depicts first and second instar nymphs, found during May in Pfullingen (Saxony, Germany). Pfullingen is at a latitude which is approximately 450km further north than Villagrains and, considering its geography, would be expected to have a typically continental climate. Nevertheless the difference of two months in the time of first appearance of the nymphs between Pfullingen and Villagrains would appear to be considerable. However, I should add that there were only two nights of frost in Villagrains during spring 1994, both being about -2°C (early March and again in mid-April). In addition, winter 1993/94 was particularly mild, e.g. during this period our wood-stove only consumed two-thirds of the normal winter fuel provision for domestic heating. Therefore the unusually mild weather of winter

1993/94 and spring 1994 may have accounted for the appearance of a *T. viridissima* nymph in March.

In general I found this species too difficult to keep in captivity. Two males and two females were captured during July 1993 and placed in a relatively large cage (an aquarium of about 50cm height x 50cm length and 25cm width, with netting as a cover) which contained branches and some potted plants. However, the species proved to be too active for confinement. Its incessant and rapid walking movements would be interrupted by random jumps which would frequently result in collisions with the glass sides. The only time I had some success was with a female found in late autumn. This specimen was relatively slow-moving as it was probably near the end of its life. For the few days it was kept in captivity, prior to its release, it showed none of the "hyper-activity" observed in the previous specimens captured in July and appeared to settle down quietly. It fed readily on rolled oats and white "fishing" maggots (bluebottle larvae), the latter bought from a local fishing tackle suppliers.

Gryllus campestris

A dead *G. campestris* was bought to me for identification by local children.

Nemobius sylvestris

N. sylvestris was very common, found moving in short rapid bursts across the surface of leaf litter around pedunculate oak and sweet chestnut trees in open sunny, dappled and shaded dry areas. Kept in captivity for a short while where it was supplied with oak litter (a mixture of leaf, bark and acorn litter) and fed on rolled oats. However, it was rarely seen in captivity since it hid most of the time within the litter though its continuous gentle "purring" could be heard both day and night.

Gryllotalpa gryllotalpa

G. gryllotalpa was found and brought to me on two occasions by local children. In captivity it refused to feed on rolled oats. The first specimen died within 24 hours of capture and was subsequently preserved in a jar containing 70% ethanol. Its death was not due to desiccation since a damp tissue was placed in its plastic container to maintain a relatively high humidity, since it was assumed that a soil-dwelling cricket would need this environmental condition to survive. While in its plastic container it made digging movements with its large mole-like front legs despite the absence of soil. The second specimen was released within an hour of capture since I did not want a repeat of the previous unfortunate incident!

Unexpected observations

(a) An "albino" *L. punctatissima*?

One evening a female cricket was found feeding on unripe green seeds of nettle plants in the shrub/hedge habitat. However, I was unable to make an identification based on either general body colour or form. It had all the general external characteristics of *L. punctatissima* except for two things: first, the mottled green colour was replaced with a mottled pale-white coloration; and second, the base of the ovipositor was not located at the abdominal tip but arose from slightly beneath the abdomen. The result was that walking for this individual looked an awkward and clumsy affair with the outer lower curve of the ovipositor dragging on the surface on which the insect was walking. Could this be a mutant of *L. punctatissima*? Since its colour did not reflect that of its foodplant or general background it would appear to have been fortunate to have survived to adulthood since its light coloration would make it conspicuous to potential predators. In addition its slow and clumsy walking movements, due to the dragging of its ovipositor, would make it an easy target. It was kept in captivity from September to February of the following year. It fed on brambles. My one regret was that no photograph was taken of this oddity!

(b) Stick-insect eggs – an unusual food source?

M. thalassinum and *R. nitidula* were kept for a few days in the cage containing both the stick-insects and *L. punctatissima* (including the "albino" form) and then released. During cleaning and removal of the frass and stick-insect eggs the following year a curious observation was made. The majority of stick-insect eggs had been eaten into from one side and the contents removed. On noting this I searched the cage for an invertebrate, that may have been introduced inadvertently, which might have been responsible for this egg predation. In the absence of any such intruder I can only conclude that either *M. thalassinum*, *R. nitidula* or *L. punctatissima*, or any combination of these species, predated the eggs. Bellmann (1985) mentions that *L. punctatissima* feeds almost entirely on plants while *M. thalassinum* is entirely predaceous, feeding nocturnally on small insects, suggesting that this cricket is a possible candidate. Neither Bellmann (1985) nor Chinery (1986) mention the food source of *R. nitidula*: I did not observe this species feeding in captivity. Do any readers know of any cases of stick-insect egg predation by crickets or by any other insect species?

(c) Unusual egg-laying behaviour

Under captive conditions curious egg-laying behaviour was found for three cricket species, though this was only observed directly in one of these, namely *P. griseoptera*.

(i) Attempted oviposition into silicone rubber

A female *P. griseoptera* was seen walking up and down a length of the silicone rubber sealant (a transparent type of adhesive used for constructing aquariums) on the inside of the aquarium attempting to oviposit into the sealant! The mechanical resistance of the sealant would foil its efforts and, in apparent frustration, the cricket would repeatedly bite and attempt to pull chunks out of the sealant with its mandibles. The elastic sealant would make a "pinging" sound as it resisted the tugging. Though this failed it would repeat this cycle of attempting oviposition and biting/tugging.

(ii) Egg-laying in paper-towel (Plate 95J, Fig. 4)

At the time of cleaning out the aquarium (used also for the stick-insects) a further unusual observation awaited me. I routinely use kitchen paper-towel (the highly absorbent double-thickness type) to line the bottom of the cage to facilitate cleaning operations since frass and stick-insect eggs can simply be removed with the towel. Inserted into the paper-towel were several eggs of which there were two different types. The most numerous (62 eggs counted) were oval flat-shaped brown eggs of about 3.6mm (length) x 1.7mm (largest width) x 0.2mm (thickness). The second type was smaller, best described as a cigar-shaped egg (19 eggs counted) of 2.8mm (length) x 0.9mm (largest diameter). These two egg types are illustrated in Plate 95J, Fig. 4. An examination of the egg-laying patterns revealed two types of egg-laying behaviour, and, together with the shape and size of the eggs, may provide a clue to the possible species which were involved given that the inhabitants that cohabited with the stick-insects over time were *L. punctatissima*, the "albino" *L. punctatissima*, *M. thalassnium* and *R. nitidula*. The oval flat-shaped eggs were inserted laterally into the paper-towel with the flat side horizontal. They were distributed in a circle which corresponded to the peripheral point of contact of the bottom of the water-filled jar (containing the foodplant) with the paper-towel. The eggs appeared to have been laid preferentially in this location since no eggs were found outside this circular area. In contrast, most of the cigar-shaped eggs were laid away from this circular area and were inserted at random orientations into the paper-towel.

The eggs were not given an artificial diapause during winter 1993/94 though the room temperatures where they were stored did fall to 10°C during mid-winter. The eggs did not hatch in spring 1994. However, a "late diapause" was given in May 1994 by placing the eggs in a refrigerator at 5°C for one month, though no hatching was subsequently observed for the rest of 1994. Squashing one of the cigar-shaped eggs between thumbnail and forefinger revealed a yellow/orange internal fluid suggesting that failure of this egg type to hatch was not due to desiccation under indoor incubation conditions. The eggs will be kept until the end of 1995 to see whether any hatching occurs, following a second diapause at 5°C during winter 1994/95.

Other details

The rolled oats given as a food-source was of the type commonly known as the brand name of "Quaker Oats". It was used in its dry uncooked form. The photographs were taken under natural daylight conditions (without flash) with a hand-held Nikon EM camera fitted with a 35-70mm zoom lens set at 70mm (f3.3; 1/60 to 1/125 s) at the minimum focussing distance (22cm approx.). A standard 100 ASA film was used.

Request to readers

I am particularly interested to hear from any readers who may have identified other Tettigoniidae or Gryllidae in south-western France (please indicate approximate location of find). I would welcome any comments concerning the "albino" *L. punctatissima*, unusual food sources and egg-laying behaviour, or indeed any other matters concerning this article.

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MEADOWS, MOUNTAINS AND BUTTERFLIES: AUSTRIAN TYROL, AUGUST 1993

by *Ted Benton*

13 Priory Street, Colchester, Essex CO1 2PY.

On 5th August 1993, I set off with my wife and two sons for our much-anticipated holiday in the Austrian Tyrol. Our destination was the village of Westendorf (Plate 95K, Fig. 5), a few kilometres to the west of the busy resort of Kirchberg. We had chosen Westendorf as a convenient location for a gentle walking holiday, and not for any entomological attractions it might have. Nevertheless I had managed to secrete a small selection of field guides and my camera into our luggage, "just in case". In fact, having already visited some of the well-known Alpine "hotspots" for butterflies, I was hoping this area would yield some comparable delights.

In fact, recurring heavy rain and generally cool and overcast weather precluded much in the way of entomological activity over the first few days of the holiday. However, we did manage a few local walks, and I was able to do a little "botanising", and "prospecting" for likely-looking habitats. Westendorf is situated in the valley of the Brixentaler river, and is connected by a network of pleasant footpaths and cycle tracks to the nearby settlements of Brixen (about 3km) and Lirchberg (about 8km) to the east along the valley. About 6km to the west lies Hopfgarten, along the same valley. Around and between these settlements are fine, flower-rich sub-alpine meadows. To the north the ground rises to a series of minor peaks, the highest of which is the Hohe Salve, accessible by ski-lift from Hopfgarten. The valley levels are at altitudes of 750 to 800 metres, whilst the Hohe Salve rises to a little over 1,800 metres. To the south of the valley lie some more impressive mountains, the most accessible of which is the Brechorn, at 2,032 metres. This is a fairly easy walk from the top of the Alpenrose gondola lift out of Westendorf.

Fortunately the weather did eventually clear up and we were treated to a prolonged spell of fine, warm weather. My first surprise, on searching the local meadows in perfect weather conditions, was how few butterflies were on the wing – such a contrast with my earlier experiences in the Alps. True, it was relatively late in the season, and the altitudes relatively low, so that many of the early summer species could well have finished their flight periods. Set against this as an explanation was the fact that even those common species that were present were in very small numbers. Over the course of our two weeks, repeated searches of these lower meadows, and the patchwork of light conifer woodland and

meadows along the nearby Windau valley (up to Rettenbach, at 800 metres), gradually yielded sightings of only nineteen species:

<i>Papilio machaon</i>	<i>Polyommatus icarus</i>
<i>Pieris brassicae</i>	<i>Aglais urticae</i>
<i>Pieris napi</i>	<i>Araschnia levana</i>
<i>Pieris rapae</i>	<i>Argynnis paphia</i>
<i>Leptidea sinapis</i>	<i>Maniola jurtina</i>
<i>Gonepteryx rhamni</i>	<i>Coenonympha pamphilus</i>
<i>Colias croceus</i>	<i>Lasiommata maera</i>
<i>Colias hyale</i>	<i>Ochlodes venata</i>
<i>Lycaena phlaeas</i>	<i>Hesperia comma</i>
<i>Lycaeides idas</i> (Plate 95K, Fig. 6)	

Of these species only *M. jurtina* could be said to be common, though, *C. hyale* was widespread in the meadows, and breeding *A. levana* and *A. paphia* were found at these lower altitudes, but generally confined to woodland clearings and edges, where they were both found nectaring on the abundant blossoms of the Umbellifer, *Angelica sylvestris*, along with the familiar longhorn beetle, *S. maculata*, numerous *Eristalis* hoverflies and solitary bees. For me, perhaps the most significant find was a strong colony of *L. idas* along the edge of a culvert bordering hay meadows at Westendorf. Some of these were in fine condition, and they were flying together with (much smaller numbers of) *P. icarus*.

Some of the meadows were pink with bistort flowers, whilst others had the more typical mix of common meadow plants – several species of plantains, hawkbits, knapweeds, thistles, clovers, cranebills, champions and vetches. Among the most striking plants here were the tall yellow cabbage thistles (*Cirsium oleracium*). Given this floristic richness, the paucity of the butterfly fauna was really puzzling. I was reminded of my searches for dragonflies in the arable deserts of north-west Essex during the 1980s. My friends and I had maintained morale through days of fruitless searching by telling ourselves that recording the absence of species was just as scientifically important as recording their presence! In this case, however, there was no obvious explanation. Moreover, other insect orders, so far as I was competent to tell, seemed to be doing well. Most noticeably, the meadows teemed with Orthoptera. There were several species of grasshoppers, including *Gomphocerus rufus*, the rufous grasshopper, with their long, clubbed antennae. But, most inescapably, the large, loud bush cricket, *Tettigonia cantans* (Plate 95K, Fig. 2). This species is very similar to our own *T. viridissima* but it has shorter wings.

So, the puzzle deepened. I set about getting information about the local agricultural methods. Cattle were grazed on the higher meadows during the summer months, while hay was grown and cut for winter feed on the lower meadows in the Brixentaler valley. Many of the meadows were cut when we arrived in the area and cutting continued throughout our stay. I presume two or more crops are taken from each meadow in a season, and apparently no artificial fertilisers are used. The level meadows were invariably cut mechanically, using a tractor with trailer. After a day or so of dry weather, the cut hay was turned over by means of a trailer with downward-pointing prongs on a rotating horizontal arm. Subsequently the cuttings were aligned into discrete strips along the field, using the same machine, presumably in a different setting. Finally, a tractor with a rear container and a vacuum device sucked up the cuttings, and they were transferred to field barns for storage.

My speculation was that this highly mechanised method of harvesting might explain the poverty of the butterfly fauna in the meadows. Intuitively it seems likely that the much less mobile early stages of the butterflies would suffer high mortality rates compared with the Orthoptera, which generally lay their eggs below the ground surface, and have much more active nymphs. It would be interesting to know if there is "hard" evidence on this or whether other AES members have relevant experiences.

Since my main interest was in the *Erebia* genus of "ringlet" butterflies, I spent the majority of the time available for fieldwork at the higher altitudes, up 2,000 metres or so. Even here, however, the area was somewhat disappointing. To the north of the valley, we explored the areas between the top of the ski-lift above Brixen (1,240m) and Holzalmjoch (1,680m), and on the slopes of the Hohe Salve. In the former area we found a few rather worn specimens of *E. ligea* nectaring at scabious along the track through conifer woodland. On more open grassy slopes were many *E. euryale*, feeding on marsh thistles and scabious. Though they can be easily confused with each other (especially the females) these two *Erebia* species are distinctive in having chequered outer margins to the wings. Also in these grassy areas were several *Mesoacidalia aglaja* (Plate 95K, Fig. 8) in fine condition, *H. comma*, *A. urticae*, and *C. croceus* (including one female *helice*). Among the more interesting plants were globeflower (*Trollius europaeus*), dark red helleborine (*Epipactis atrorubens*), and sticky sage (*Salvia glutinosa*). The fine flowery meadows on the slopes of the Hohe Salve yielded the same butterfly species as the lower meadows, with the addition of *Thymelicus sylvestris*. The striking bush cricket, *Decticus verrucivorus*, the "wart-biter" was also present.

The higher pastures to the south of Westendorf yielded more species. Several routes between the top station of the Alpenrose gondola lift at 1,766 metres and the Brechorn, at 2,032 metres were explored between the 10th and the 15th August. Two colonies of *Erebia manto* (Plate 95L, Fig. 9) were located at altitudes between 1,600 and 1,700 metres. They were quite worn, and as is usual for this species, were flying close to boggy ground on the mountain slopes. *E. euryale* (Plate 95L, Fig. 10) was common here, as it had been at similar altitudes to the north of Westendorf. Other species noted on these sorties were *M. aglaja*, *A. urticae*, *Mellicta athalia*, and *Pyrgus (alveus?)*. The presence of *Sphagnum* moss in the wet areas, and Ericaceous shrubs suggested predominantly acidic conditions, but a route which took us down the mountain to Brixen, a few kilometres to the east, cut through limestone outcrops, and the pastures here were noticeably richer in flowers and insects. *Lysandra coridon* was added to a meagre total of “blue” species here. A length of track below the Wiege Gasthof (between 1,350 and 1,500 metres) harboured another two *Erebia* species – *pronoe* (Plate 95L, Fig. 11) and *meolans*. The former species, many examples of which appeared to be freshly emerged, was abundant, the males imbibing salts and moisture from damp spots on the track. As we sat among them, they transferred their attention to the sweat on our skin and clothes. As we descended towards the Brixenbachalm Gasthof (at just over 1,000 metres) we encountered many of the species of the lower meadows, including *M. jurtina* and *L. idas*. On one occasion a fine male *Apatura iris* was observed imbibing spilt beer on one of the Gasthof tables! Also in this area we noticed the bright red “flashes” of the red-winged grasshopper (*Oedipoda germanica*).

A little further to the east, above Kirchberg, we were able to search another area of calcareous grassland, with rocky outcrops. This was much the most entomologically interesting site of the holiday, but, unfortunately I was only able to spend a couple of hours there. In open patches in light woodland were numerous specimens of yet another *Erebia* – *aethiops*. The skippers *Pyrgus alveus* and *P. carlinae* (the only sighting of this species on the trip), also *L. sinapis*, *L. coridon* and *Cupido minimus* were also seen. The altitude was a little below 1,500 metres.

An interesting comparison with the area around Westendorf was provided by an organised coach excursion to the Grossglockner. Predictably enough this was quite a frustrating experience: about 20 minutes out of the coach on the long haul up the high alpine road, and then a lunch stop at the dramatic view-point above the glacier. The coffee

stop at about 1900 metres yielded *H. comma*, *Pyrgus (alveus?)*, *C. minimus*, *E. manto*, and the splendid "copper" *Heodes virgaureae*, on the roadside verge. Much higher up, near the car park and the foot of the glacier, were many more characteristic alpine species. In the very brief time available I noted the Shepherd's fritillary, *Boloria pales* (Plate 95L, Fig. 12), and the "Alpine argus" *Albulina orbitulus*. Interestingly, the specimens of *E. manto* which were abundant here were quite different in appearance from those seen lower down on the same mountain and back at Westendorf. The latter were referable to the nominate "*manto*" subspecies, with red post-discal bands on the uppersides and yellow spots on the undersides. The form flying at high altitude on the Grossglockner had much-reduced markings, and a very dark appearance, especially in the males (*E. manto pyrrhula*).

Thus ended a very enjoyable, if somewhat frustrating, alpine holiday. For me, it was a reminder that, despite appearances, changing farming methods and other threats to wildlife habitat persist even in the seemingly inexhaustible Alps. Perhaps if we confined ourselves to the noted butterfly localities we might be less aware of how special they are, and so take for granted the continued existence of the very localised rarities. Still, there was plenty to keep me occupied for much longer than the two weeks allowed by our package holiday!

RARE SYRPHID FOUND IN GWYNEDD, WALES

by M.O. Hughes (3612)

I have been recently sorting out some of the more "difficult" species of Diptera and after checking and double checking Coe and Stubbs & Falk have come to the following conclusion:

Female *Parasyrphus malinellus* taken on 16th May 1992 in Bodysgallen Woods, Deganwy, Llandudno, Gwynedd, Wales. The area is mixed coniferous and deciduous woodland. This is the first time in over thirty years of collecting that I have encountered this species and it may well prove to be a new record for the area if not for the whole of North Wales.

REFERENCES

- Coe, R.L. (1953). *Handbooks for the Identification of British Insects* Vol. X, Part 1.
Stubbs, A.E. & Falk, S.J. (1983). *British Hoverflies*.



Fig. 1. An unidentified bug covered in particulate debris.
Villagrains (Gironde, France).



Fig. 2. *Leptophyes punctatissima* eating the reproductive parts of an ornamental plant of the Compositae family. Villagrains (Gironde, France).



Fig. 3. A *Platycleis* species, possibly *P. intermedia*, found in Villagrains (Gironde, France).



Fig. 4. Eggs (oval flat-shaped and cigar-shaped) laid in kitchen paper towel by two different cricket species (Tettigoniidae). The cigar-shaped eggs are indicated by arrows. Villagrains (Gironde, France).



Fig. 6. Male *L. idas*.



Fig. 8. *M. aglaja*.

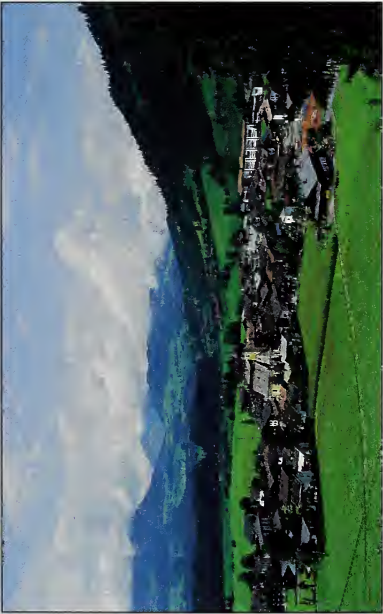


Fig. 5. View of Westendorf, Austria



Fig. 7. The male bush cricket *Tettigonia cantans*.



Fig. 9. Male *Erebia manto*.



Fig. 10. Female *Erebia euryale*.

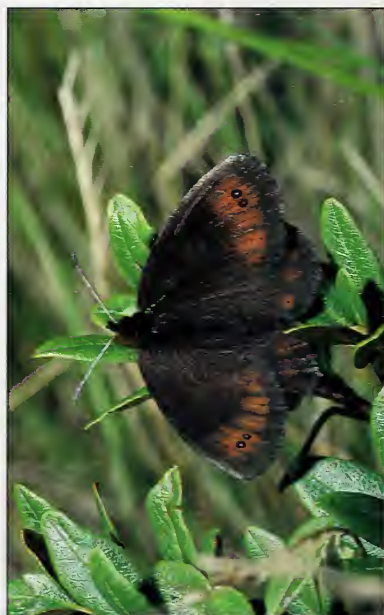


Fig. 11. Male *Erebia pronoe*.

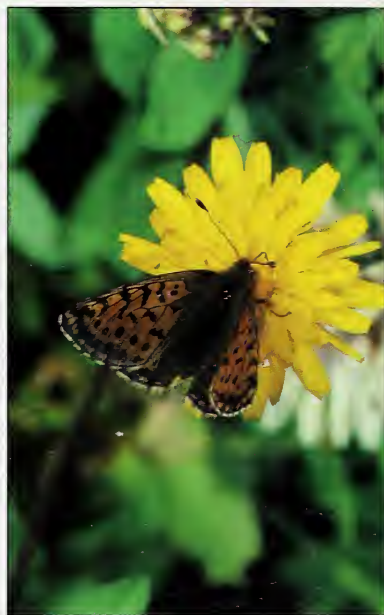


Fig. 12. Female *Bolonia pales*.

BRITISH DRAGONFLY SOCIETY NATIONAL SURVEY

by Stuart Irons (10299)

69 Glington Road, Helpston, Peterborough PE6 7DG.

The British Dragonfly Society is currently collating as much information as possible about British dragonflies and damselflies, with an aim to understanding more about the ecology and behaviour of these insects. I have volunteered to collate information on *Aeshna grandis* (Brown hawker) and have outlined a number of ideas which may be worth pursuing.

Distribution – *A. grandis* is widespread and common in central and southern England, but it would be interesting to know whether this range is expanding or contracting. Any records from south-west England, Wales, north England and Scotland would be valuable, especially proven breeding sites, also any sites where breeding has not been observed previously, or indeed absence from former breeding sites.

Larvae – I would be interested to know of any larvae discovered when pond-dipping, along with as much information as possible concerning the site (e.g. still or flowing water, any aquatic or emergent plants or waterside trees; the substrate, gravel, mud, dead leaves *etc*; water chemistry, pH, hardness, turbidity, oxygen content, *etc*; density of larvae, i.e. the number found per square metre).

Egg-laying – The females are known to oviposit alone, often into dead wood in the water. Details of these egg-laying sites would be very useful (e.g. height above or below the water line; approximate size of wood, conditions of wood *etc*). Using this information ovipositing habitat may be constructed to try to attract *A. grandis* to new breeding sites. Occasions where wood is not used as an egg-laying site would be equally interesting.

Flight times – Dates of early- and late-flying adults are always worth noting. *A. grandis* has also been recorded as frequently flying after sunset, so times (in relation to sunset if possible) and dates when observed on the wing and activity (feeding, holding territory, mating, *etc.*). This information will help to build up a picture of the habits of the adult dragonfly.

These are just a few ideas of interesting lines of enquiry for *A. grandis* but I would love to hear of any other observations, theories or discoveries concerning this insect. Any information relating to other species of Odonata may also be sent to me and I will pass them on to the relevant collator.

Book Review

The Butterflies and Moths of Berkshire by B.R. Baker. xxxi + 368pp. Hedera Press, Uffington, Oxfordshire, 1994. Price £25.00.

In his introduction Brian Baker pays tribute to William Holland and his collaborator Albert Hamm for their listing, in 1906, of 1260 species of Lepidoptera in the Victoria County History of Berkshire, until now the only list of the county's butterflies and moths.

The chapter on early collectors shows vividly how those early workers were prepared to walk 12 miles to favourite grounds, eat their sandwiches whilst examining tree trunks, and take the long slog home.

Because of his activities Holland had the distinction of having a notice erected by an irate landowner stating that anyone found disfiguring trees (sugaring) for the purpose of taking moths would be prosecuted. (Runge, 1944, *J. Amat. Ent. Soc.* **8**: 21.)

There follows a chapter on the surface geology, vegetation and habits before the main part of the book, a list of both the Micro- and Macro-Lepidoptera.

Each species has a list of recorded localities arranged chronologically, larvae foodplants in some cases, and relative frequency on a scale from very scarce to dominant. There is also an index to place names, with four-figure grid references, that are mentioned in the text.

The author is to be congratulated on producing a very comprehensive survey of Berkshire Lepidoptera which I am sure will encourage us all to add new records in the future.

Rob Dyke

HELP WANTED CURING A PROBLEM WITH A CABINET

by *Dave Norris (9175)*

91 Shanakill, Tralee, County Kerry, Eire.

I have noticed a small problem in one of the drawers in my cabinet. One of my specimens has a growth of fungus or a similar looking furry substance growing on its antenna. This alarms me as I do not know what has caused it or how to cure it. The cabinet is sealed tightly and the specimens have been in it for about three years. My fear is that the furry growth will spread to other more uncommon specimens.

If there is anyone out there who has had a similar problem in the past or suspects they know what the problem might be, I would be grateful for some advice.



60 YEARS OF THE AMATEUR ENTOMOLOGISTS' SOCIETY Part III. 1955-64

by Wayne Jarvis (9899)

Membership at the beginning of 1955 was 929, where it seemed to have stabilised. B.R. Stallwood was editor of the *Bulletin* which was now in its 14th volume. The *Bulletin* began to take on a slightly different look with longer articles, which would previously have appeared in the Society's *Journal*, beginning to be included much more. One such article, by K.C. Side (2140), A study of insects living on the Wayfaring tree (*Viburnum lantana*) appeared in numbers 169-174 (Volume **14** January to June). Many other articles appeared in subsequent issues, some of which were made into leaflets and sold by the Society.

The *Silkmoth Rearer's Handbook* was published in 1956 and sold very well. The *Bulletin* however, began to find itself with a lack of copy, and as a result the October issue was reduced in size. The problem was encountered again in 1957 when the September issue suffered similarly. It was therefore decided that from Volume **17** (1958) there would be only eleven issues of the *Bulletin* per year, the August and September issues being combined. The exhibition of 1957 was, as had come to be expected, a success. There was a great interest at this time in Silkmoths and this was reflected in the exhibits. In 1958 membership fell alarmingly to 737, causing the society some concern.

The editorial of the January 1959 *Bulletin* (Volume **18** Number 217) gave an indication that the publication was to change. The General Secretary, D. Ollevant, took on the Assistant *Bulletin* editor role as well, and B.F. Skinner was appointed as an Assistant General Secretary to help with clerical matters. The Junior newsletter which had been published for the previous eleven years ceased but was replaced with Junior sections in the *Bulletin*. A printing dispute caused the amalgamation of the August/September and October *Bulletins* (Volume **18** Numbers 224-226). Despite a necessary increase in the Society's subscriptions in 1959, membership levels rose slightly, to 786.

W.N. Lawfield took over as *Bulletin* editor in 1960 (Volume **19**) which was the Silver Jubilee of the Society. A special issue of the *Bulletin* in August (Number 236) celebrated by publishing six articles: *On the First 25 years of the Society* by the Society's founder L.R. Tesch, *Studying the commoner insects* by C.B. Williams, *Butterfly botany* by H.K. Airy Shaw, *Communicating amongst social insects* by A.N. Brangham, *Some observations on taxonomy* by W.H.T. Tams and *Distribution, range and the British fauna* by R.W.J. Uffen. The exhibition held at Buckingham Gate Schools was a success, but traders were now beginning to dominate the event, and as a result Council decided that some changes were needed. Membership continued to recover slowly, with 815 paid-up members by the end of the year. From September 1960, the *Bulletin* consisted of twelve pages rather than eight as had been the case for many years.

The 1961 exhibition venue was changed to the Hugh Myddleton School where more space was available. The event was a much greater success as a result. The *Bulletin* also changed in 1962, under the new editor, P.G. Taylor. W.N. Lawfield resigned due to ill health and subsequently died in June. Mr Taylor gave the publication a new structure and new typeface. The new-look *Bulletin*, however, faced numerous problems in its production. Royal van Gorcum in Assen, Holland took over from T. Bunclie and Co. Ltd. as the *Bulletin* printers, but survived for only the January issue before their services were dispensed with. They were replaced by a Croydon firm, Roffey and Clark Ltd. The January, February and March issues were all very late in arriving on members' door mats due to bad weather and as a result the April and May issues were combined as a 16 page rather than 12 page issue, and the June to October issues were similarly combined to give a 28 page *Bulletin*. The December issue was the production of the third printing company of the year. Ellis and Phillips Ltd from Bishop's Stortford, who continued to publish the *Bulletin* for several years.

After so many troubles, the *Bulletin* went to a quarterly format for 1963, consisting of 32 pages per issue. May 1963 saw Peter Taylor edit his last issue and he handed over to H.V. Danks. Peter Cribb became President of the Society. Membership was, however, still lower than it had been previously, with only 790 members enrolled at the end of 1964.

A few articles follow from the decade and in particular an item from the 1960 Silver Jubilee *Bulletin*.

From Volume **15**, Number 191, November 1956, Page 107.

OVIPOSITION AFTER DEATH

by W.J. Tilsbury (2717)

With reference to the letter by R.H. Benson (*antea* p.100) concerning oviposition after death of the White ermine moth (*Spilosoma lubricipeda* Linn.), on 25th July I found two imagines of *S. lubricipeda* "in cop.", the female being a fresh specimen, the male a very worn one. The female was stunned in the killing bottle with ethyl acetate and then killed with oxalic acid. (This, incidentally, is my usual method of killing when circumstances allow, as it dispenses with the relaxing box.)

The moth was then laid on its back in a small tin box to await setting. Five hours later I opened the box to pin the specimen, and found it had laid fifteen eggs. I immediately checked up, but found the moth was quite dead, and so set it. The ova were left in the tin and hatched ten days later. The ethyl acetate certainly had no effect on the ova, and the oxalic acid may not have reached the abdomen as it was injected into the thorax.

I frequently stuff the abdomens of large moths, and prefer to slit the underside of the abdomen in order to remove contents. This gives a good opportunity of studying the internal organs. On opening the abdomen of the female moth the ova will be found to occupy the majority of the space. Each egg is connected to its fellow by a thin transparent thread which, I presume, is the means of distributing the male sperm necessary to fertilise each egg. The ova are hard and semi-transparent and with the exception of a few small ones near the thorax wall, are full size. In addition, there is a dark reddish bladder-like organ in the centre of the mass of ova, and near the thorax wall a transparent bladder of membrane. I cannot explain the function of these two organs as I have no idea of their use or purpose, but doubtless a more experienced lepidopterist will be able to help. Also it may be as well to add that the above observations refer to *Actias selene* Huebn. (Indian moon moth), this being a large species and comparatively easy to dissect. Ova have been present, however, in every female moth I have opened, and, apart from colour, fully formed.

Finally, the question as to why a moth can oviposit after death. My theory is that the purpose of life of the imago is to ensure a further generation and the female sexual organs appear to be capable of involuntary action even after death. An injection of oxalic acid in the thorax kills instantly and even the sensitive antennae will be incapable of

movement. The rear of the abdomen will, however, continue to move for some time afterwards, and in the case of a fertile female oviposition can take place.

From Volume 17, Number 214, October 1958, Page 59.

CYANIRIS SEMIARGUS ROTT. IN SUSSEX

by A.D. Barker (2379J) and G.M.A. Barker (2380J)

It may be of interest to members to know that a male Mazarine blue (*Cyaniris semiargus*) was caught in our orchard (near Rogate, Sussex) by A.D. Barker (2379J) on 30th July. This specimen presumably was a migrant, probably an unwilling one, carried over by the recent winds.

When it was captured we thought immediately that it was a Mazarine blue but almost in the same instant dismissed it as a variation of a Holly blue. However, examination left no room for doubt as to its real identity, as it conformed in every way with the descriptions of Kirby, South and E. Newman.

From Volume 18, Numbers 224-226, August/October 1959, Page 71.

PAIRING BRIMSTONES

by John H. Drake (2967)

Although this event occurred quite a few years ago, the nature of it seemed to me so unusual that I decided an account of the incident might be of interest to other members.

One day in the middle of May I was wandering through a small wood near my home when I saw what I thought was a Brimstone (*Gonepteryx rhamni* Linn.) butterfly settled on the ground. I crept closer to investigate and discovered to my surprise a pair of Brimstones sitting there *in cop*. They were not at all disturbed by my presence, the sky being overcast at the time. I took out a small box and closed it around the two insects and they walked in without fuss to be transported safely home. The weather continued to be dreary for several days: cold, rainy, and without sun.

I always thought that the pairing time for most species of butterfly was quite short compared with that of moths, say several hours at the most, yet although you may not believe this, it is the absolute truth: those two butterflies paired continuously and immobile not for one day, not for two days, but for *five days*! On the sixth day of observation the weather brightened considerably and then only did the couple part. Have any other members records such as this?

From Volume **19**, Number 229, January 1960, Page 3.

CRICKETS AT LARGE

by R.W.J. Uffen (1660)

The house cricket, *Gryllus domesticus* (Linn.), is a domesticated alien from a warmer climate than our own, and as such lives out of doors only in areas such as rubbish dumps which have other sources of heat than the sun. Burr (*British Grasshoppers and their Allies*, London, 1936) remarked that crickets do however venture out of doors in particularly warm seasons. In the second week of September 1959 I found three such specimens. The first spent the whole of one night sitting on the top of a lamp standard outside my home in London stridulating. It sounded as though the lamp had reverted to being an old gas lantern swinging and creaking in a non-existent wind. Two nights later the insect reappeared on a fence across the road, whence it was plainly audible inside my home with the windows shut. After chasing it around the gate-post several times I succeeded in trapping it. The other two examples were heard in St. Helens, Lancashire. One was stridulating after dusk in a public garden, the other doing likewise in a deep crack between the pavement and garden wall of a house.

From the Silver Jubilee issue, Volume **19**, Number 236,
August 1960, Page 66.

COMMUNICATION AMONG SOCIAL INSECTS

by A.N. Brangham

Fully social insects are confined to bees, wasps and ants among the Hymenoptera and termites (Isoptera). According to O.W. Richards, "a truly social insect may be defined as one in which the female tends or helps to construct a brood-chamber for an egg (or larva) laid by another female".

Hymenopterous social insects may have emerged from solitary Scoliid wasps which burrowed or built cells and supplied their eggs with food to last through the growing stages. At some phase in evolutionary time it must have happened that females of these solitary species came into collective association. The transition from solitariness to complete social integration is illustrated by the primitive social European wasps of the genus *Polistes*.

In southern Europe a number of fertile females may come together (whereas in the north this is not the case) to found a nest. By virtue of

those slight differences in genetic inheritance common to all living organisms, one female emerges from among her peers as a more robust, more aggressively constituted dominant. This superiority is shown in her pre-eminence as the egg-layer, spending most of her time on the carton nest; her ovaries remain active and well developed. Those of the others degenerate, and they become auxiliaries, using up energy in flying off for food, building, feeding the dominant queen and the brood. Yet at the outset they had all shared the tasks of laying, building and feeding. The superior aggression of one emerges gradually; she sustains her authority as queen by butting and buzzing at the others from time to time. She intimidates them to the extent of inhibiting them from laying eggs, and reduces them to the status of workers.

Between themselves the auxiliaries develop a "pecking order" in which a senior accepts food from a subordinate. After the true workers have hatched, the auxiliaries leave the nest to lead a solitary existence for the rest of the summer. Workers are also inhibited from egg-laying by the presence of the queen until she leaves the nest, when the workers lay eggs which become males.

Here is a rudimentary type of communication, all the more so since it seems to be largely a psychological influence, that is, the pattern appears to be a function of behaviour and neither of selective feeding nor of glandular excretion as in higher social organisations among insects. This behaviour not only controls that of the other wasps, it governs the reproductive rate and sex-determination of offspring.

This kind of communication is made possible by the relatively simple social structure and small size of a *Polistes* colony.

Social complexity increases in proportion to the numerical size of the community, and there arises a need to evolve a more efficient means of communication. This is particularly the case in insects able, through flight mobility, to travel considerable distances from the nest. A distinctive nest-aroma binds a colony together in mutual recognition, and distinguishes it from others of the same and other species, a primary mode of communication through a physiological agency.

Ants possess the most flexible social organisms when compared with bees or wasps, but their methods of communication are probably less refined than those of the hive-bees. The ants are earth-bound, covering comparatively short distances from their nest in search of food or slaves, or else they are entirely nomadic. They are thus able to rely on the methods ants use to find their way about – through laying scent trails, by sun-compass reaction, by memory and sight, or orientation by polarised light.

How these forms of orientation dovetail into the ants' ability to communicate information about supplies of food to their fellows is not really known. That they do so is obvious, and it seems likely that the tapping of antennae holds the key to the sign language employed. The speed with which a raid is organised by workers of the slave-making ant, *Formica sanguinea* Latreille, on colonies of *F. fusca* Linnaeus, demonstrates the efficiency of their co-ordination.

The special sense in which the term communication has been used in connection with the special organisation of *Polistes* may be used to understand some of the complexities of termite communities. Termites have the most involved caste system of all social insects, in spite of their lowly place in the evolutionary scale. As there is no helpless grub stage all individuals in the colony are almost immediately available for duties. Unlike other social insects, males are always present in the colony and play a fuller part in its life.

Changes from one caste to another occur. Whether these are brought about by special feeding, by ecto- or social-hormones, or by what P.-P. Grassé calls "group effect", is still in debate.

The group effect hypothesis is full of interesting possibilities to account for the multiplicity of phenomena manifested by termites. Its application need not be confined to them, nor merely to the social insects. It is a theory which may be valid for explaining behaviour in other gregarious but non-social (in the sense that Richards has defined the word) insects such as grasshoppers and cicadas, and to all other animals showing some degree of sustained communal cohesion. The group effect, in all probability, operates to its greatest intensity among locusts in their mass migratory phase.

The idea of the group effect is based on the belief that the sensory system of an individual is stimulated through the proximity of others of its kind, and plays some part in determining behaviour and physical development in all insects living, at some stage of their existence, in crowds. Precisely what visual, tactile, or olfactory principles are involved is not known, nor is it always easy to distinguish between physiological effects of proximity, but experiments by Grassé and others supply evidence in support of the hypothesis. Removal of a given number of sexual castes in termites brings about the production of the same number of substitutes, unless the egg-laying capacity of these substitutes is lower than that of the original sexual forms. In such an event, enough substitutes are permitted to maintain the optimal supply of eggs. Removal of a single soldier gives rise to one other soldier to replace it.

In a now celebrated experiment, Grassé and Noirot found that if two fourth-stage nymphs of the same sex of *Calotermes* were isolated, only one became sexually mature after the next moult. If both were of different sexes, both matured after the following moult.

Of the way in which termites pass messages little is known, although the antennal play and "nuptial promenade", in which the female searches for a suitable nesting site after swarming, closely followed by the male she has accepted, has been observed in many species. This, too, is a special aspect of communication. But the kind of communication demanded among hunting and foraging social insects is needed to a far smaller degree by termites. There is little individual initiative; most termites subsist on ample food supplies not eaten by other creatures, notably wood, for the digestion of which parasitic protozoa in the intestines are essential.

The discoveries of K. von Frisch have revealed methods of communication among hive-bees that represent the most intricate way of passing complicated information among any of the social insects. The language of the "dancing bees" has been largely written about, and the basic findings of von Frisch are confirmed by others, so that only the briefest resumé is necessary here.

When a foraging bee discovers a source of food, she emits a scent from abdominal glands, on or around it. On returning to the hive, the bee performs ritual motions which have been described as a dance, either at the entrance to the hive or within it. Food found at a short distance from the hive is indicated by the round dance, while that found at distances greater than about 100 yards radius is communicated by a tail-wagging dance in the rough form of two joined loops. Distance is indicated by the speed with which the movement is executed, together with the number of times the abdomen is wagged along the straight line before she performs the looping movements.

When this dance is performed outside the hive in full daylight, the bee's straight course points to the source of the food. But when the dance is carried out on a vertical comb within the darkness of the hive – as is most commonly the case – the straight run is executed at an angle to the sun, this angle corresponding to the angle at which the food lies from the sun. An upward run along the straight indicates that the food is to be found in the direction of the sun's position, and a downward run indicates the reverse. If the sky is totally obscured, bees do not dance. As long as there is some blue patch of sky, the bee's response to polarised light allows the direction to be indicated in relation to the actual position of the invisible

sun. Thus, both distance and direction are indicated to the bees in the performer's proximity.

The efficiency of their language is not absolute. Bees which have received the communication from the forager fly off in the general direction of the food, and only a minority of them fly unerringly to it. The rest will have deviated in their angle of flight, and proceed to fly in increasing circular sweeps, making use of their sense of smell, vision, and topographical memory to find the correct place.

Slight variations in the dance pattern – dialects, as it were – have been detected in Asian races closely allied to the European honey-bee.

Maternal care plays no part in the lives of grasshoppers (Acrididae), yet these members of the Orthoptera deserve consideration in a special category of social insects. The same may be said of crickets (Gryllidae) and bush-crickets (Tettigoniidae). Their aggregation in smaller or larger communities reflects more than a haphazard coming together of a number of insects in a favourable ecological locality, and more than a mere assemblage of males and females for mating. This applies also to the cicadas (Cicadidae).

The complicated song patterns of the grasshoppers are a form of expression and a means of communication sustained throughout adult life. Females have some powers of stridulation, but these are insignificant compared with those of their males. In the past, this fact has been interrupted as having purely sexual significance, but this does not account adequately for the whole behaviour of those Orthoptera leading some kind of communal existence.

Male acridians stridulate as soon as the last moult has been completed, but larvae occasionally execute soundless stridulatory movements in response to the adults surrounding them, such is the deeply ingrained phylogenetic urge to stridulate.

Stridulation is simultaneously an expression of sexual maturity, of social cohesion within an appropriate biotope, and of individual well-being. The evidence to support these contentions may be briefly presented.

Provided general environmental conditions of warmth, moisture, and suitable herbage are available, male grasshoppers stridulate for most of the day-light hours (many bush-crickets and crickets perform at night), vigorously when these conditions are optimal, feebly when less so. The basic song pattern of the male is the ordinary song, a kind of generalised range-finder, a way of informing the world at large of his presence. This song is modified through a rich variety of phrasing and intensity,

modulated through transitions to the rivalry song when males meet, or to the courtship song when females approach within range of sight and hearing. Males stridulate in varying degrees of harmony while moving backwards and forwards in endless ritual. A little evidence has been produced to suggest that young adults need to learn the specific song. If this can be further substantiated the importance of social solidarity is emphasised still more.

Sexual selectivity is involved in stridulation, but the fact that copulation results less frequently than might be expected suggests strongly that aggression, usually associated with sexual rivalry, is displaced, or toned down to an amicable contest. Rudiments of sociability are implied in such behaviour, in which crude impulses have been deflected into compromise.

Social cohesion is made necessary by virtue of the grasshopper's leaping or flying potential, which exceeds the range of sight and hearing. Without restraint, the colony is threatened with disintegration through scattering. The song helps to inhibit dispersal of individuals at various stages of development, and allows favourable biotopes to be exploited as feeding grounds and places for cryptic protection against predators.

An analogy between grasshoppers and bees can be drawn. Bees possess the means for dispersal to great distances from the hive. They have evolved complex methods of communicating to the nest what has been found outside it. Grasshoppers, too, are able to wander from the centre of their mobile community, which has no constructed fixed point. They also require a method of communication to preserve it, though what has to be imparted is essentially of a defensive or conserving nature.

It is significant that grasshoppers are unwilling to leap or fly unless disturbed; they try to make their way back when this happens, aided by a recognition of the species song, and guided by sight to a lesser extent. A biological balance between immobility and diffusion is maintained partly by the general behavioural characteristics of the species, partly by fecund females who show a tendency to wander in search of egg-laying sites, and partly by the immature forms, which are much more addicted to spontaneous leaping than are the adults.

REFERENCES

- von Frisch, K. (1954). *The Dancing Bees*. Methuen & Co., London.
Grassé, P.-P. (1949). *Traité de Zoologie*, 9. Masson & Cie., Paris.
Richards, O.W. (1953). *The Social Insects*. Macdonald, London.

Diary Dates

Abbreviations

BBONT	Berks, Bucks and Oxon Naturalists' Society.
BC	Butterfly Conservation.
BEHNS	British Entomological and Natural History Society.
I:	Information from:
LCES	Lancashire and Cheshire Entomological Society.
LNU	Lincolnshire Naturalists' Society.
LSL	Linnean Society of London.
RES	Royal Entomological Society of London.
RES(QG)	RES Rooms, 41 Queen's Gate, London SW7.

To make the diary effective contributions are needed from members. Any relevant items should be sent to the *Bulletin* Editor. No charge is made for entries. Please allow three months advance notice.

JUNE

from *Dragonfly Mill*

8th The only dragonfly museum outside of Japan opens its doors at Ashton, near Oundle, Northamptonshire. Its central theme will be the conservation of dragonflies. Exhibition panels, information, videos and live larvae in tanks will be some of the many attractions. Outside there are observation platforms and a dragonfly trail. Open from 8th June to 1st October on Thursdays and Fridays (14.00hrs to 17.00hrs) and on Saturdays, Sundays and Bank Holidays (10.30hrs to 17.00hrs).
I: British Dragonfly Society.

24th *The West of England Creepy Crawly Show.*

Newton Abbot Racecourse, Devon. Major Herpetological and Entomological Show for captive breeders and conservationists in the West Country.
I: 01626 332775.

BEHNS Field Meeting.

Dawlish Warren, Devon. Evening meeting for light trapping. Meet 20.30hrs at car park.
I: Roy McCormick 01626 779543.

JULY

- 1st** ***LCES Field Meeting.***
Little Budworth Common, Oulton, Cheshire (SJ 588655). Meet 11.00hrs in car park (with toilets) near to the Lodge Corner gates of Oulton Park race track.
I: Bill Hardwick 01606 594778.
- BEHNS/Dyfed Invertebrate Group Field Meeting.***
Dinefwr Deer park, Llandeilo, Dyfed. Meet at 14.00hrs and 20.00hrs at the car park (SN 615225). One of the most important sites in Wales for dead wood invertebrates, with a range of rare beetles and flies recorded.
I: Ian Morgan 01558 882111 (am only).
- BENHS/Yorkshire Naturalists' Union Field Meeting.***
Hatfield Moors, Yorkshire. Meet at 14.00hrs and 20.00hrs. Contact leader for further details.
I: Brian Eversham 01487 3381 ext. 229 (work); 01480 411376 (home).
- 5th** ***The Knapweed Gall Fly Revisited:***
New evidence on the population dynamics of this famous insect.
RES (QG) Tea 17.00hrs, Meeting 17.30hrs. Dr J.P. Dempster (University of Cambridge).
I: RES 0171 584 8361.
- 8th** ***BEHNS/BC Field Meeting.***
Pretsbury Hill, Gloucestershire. Meet at 11.00hrs and 20.00 hrs at SO 993245 opposite Upper Hill farm buildings. Records of moths and other invertebrates needed to help guide management on this Butterfly Conservation reserve.
I: John Brock 01242 675890.
- BEHNS/BC/LNU Field Meeting.***
Southrey Wood, Lincolnshire. Meet at 14.30hrs and 20.00hrs at TF 132685 at the entrance off the Bardney to Horncastle road. Records of moths and their larvae needed in particular.
I: Rex Johnson 01724 763349.
- 11th** ***Changes in the flora and fauna of Broadland dykes.***
BEHNS indoor meeting. Rob Driscoll from Norwich Castle Museum talks of his work on the Broads and how this has revealed more changes in both flora and fauna due to the development of more intensive agriculture.
I: Dr Ian McLean, 109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.

15th *LCES Field Meeting.*

Whixall Moss, Shropshire (SJ 496365). Chance to visit this famous entomological site, now taken over by English Nature. Meet 11.00hrs at grid reference, just over the canal swing bridge.

I: Dave Poynton 01625 829189.

BEHNS Field Meeting.

Maidscross Hill, Suffolk. Meet at 14.30hrs and 20.00hrs at TL 725826 on track from road to site.

I: David Young 01734 415520.

m

BEHNS Field Meeting.

Castle Bottom SSSI, Eversley, Hampshire. Meet at 11.00hrs and 20.00hrs on the B3016 at the entrance to Redlands quarry (SU 788594).

I: Tony Davis 01252 874346.

16th *Entomological Livestock Group Summer Livestock Fair.*

At Pattishall Parish Hall, Pattishall, Towcester. 12.00hrs to 15.00hrs. Admission £1 & 50p.

I: Paul Batty 01909 550272 or Mike Bailey 01327 830853.

21st/ *Grand Moth and Butterfly Event.*

22nd Warburg Reserve, Henley-on-Thames, Oxfordshire. Moth trapping overnight on Friday 21st – meet at Warburg Reserve car park (SU 720880) at 22.30hrs. Saturday meet at 10.30hrs at car park to see the catch from the previous night, followed by a guided walk led by the reserve warden to look for butterflies and day-flying moths. Joint meeting with BC and BBONT.

I: Martin Harvey 01635 550380 (work).

BEHNS Field Meeting.

Richmond Park, Surrey. Meet at 14.00hrs and 20.00hrs at Pembroke Lodge car park (TQ 187729).

I: Mark Parsons 0181 947 2250.

BEHNS Field Meeting.

Dungeness, Kent. Meet at 20.00hrs at the Britannia pub car park (TQ 187729).

I: Sean Clancy 01797 321458.

22nd/ *Dragonfly Sanctuary Open Day.*

23rd At Ashton, near Oundle, Northamptonshire. From 10.30hrs until 16.00hrs with a guided tour at 14.15hrs.

I: British Dragonfly Society.

- 28th *Moth trapping at Thatcham, Berkshire.*
Looking for the Scarce burnished brass and others at Thatcham reedbeds. Meet at Thatcham Nature Discovery Centre at 20.30hrs. Joint BC and BBONT meeting. Please book in advance.
I: Thatcham Discovery Centre 01635 874381.
- 29th *BEHNS Field Meeting.*
Dinton Pastures, Berkshire. Meet at 11.00hrs and 20.00hrs at the Pelham Clinton building. A range of habitats and particularly interesting for coleopterists.
I: John Muggleton 01784 464537.
- BEHNS Field Meeting.*
Shortheath Common SSSI, Oakhanger, Hampshire. Meet at 11.00hrs and 20.00hrs at SU 775369.
I: Tony Davis 01252 874346.
- 29th/ *Dragonfly Sanctuary Open Day.*
30th At Ashton, near Oundle, Northamptonshire. From 10.30hrs until 16.00hrs with a guided tour at 14.15hrs.
I: British Dragonfly Society.

AUGUST

- 3rd/ *Natural enemies of whiteflies; collection and identification.*
5th Short course at International Institute of Entomology.
I: IIE 0171 584 0067 or Fax 0171 581 1676.
- 5th *BEHNS Field Meeting.*
Snelsmore Common, Berkshire. Meet at 14.00hrs and 20.00hrs at the main car park off the B4494 (SU 463708).
I: Brian Baker 01734 477809 or Martin Harvey 01635 550380 (work).
- 12th *JCCBI Field Meeting.*
New Forest, Hampshire. Meet at 11.00hrs and 19.30hrs at car park by woodland through Furzey Lodge (SU 366027). At this meeting the Nature Conservation Bureau plan to demonstrate an infra-red illumination system which allows moths to be observed without disturbance.
I: Paul Waring 01733 571917.
- 12th/ *Dragonfly Sanctuary Open Day.*
13th At Ashton, near Oundle, Northamptonshire. From 10.30hrs until 16.00hrs with a guided tour at 14.15hrs.
I: British Dragonfly Society.

AES BULLETIN

No. 400



EDITORIAL

The AES reaches its first milestone of the year with this issue of the *Bulletin*, the 400th edition. Over the years the *Bulletin* has played a major rôle in the Society's history, and hopefully, will continue to do so in years to come.

The AGM was once again a very enjoyable event, and thanks must go to Colin Hart for his organisation as well as our two speakers Richard Jones and Michael Majerus who gave us an amusing and fascinating insight into their work! It was disappointing that so few members attended, this will hopefully be rectified next year!

Of course the AGM saw the departure of Brian Gardiner and Simon Fraser from Council. Both have contributed substantially to the Society and we thank them for their hard work over the years. The Secretary position is temporarily held by myself and all correspondence should be forwarded to me at the address on the inside front cover.

Best wishes for the bug-hunting season!

Wayne Jarvis

AES
Annual Exhibition
Saturday, 7th October, 1995
at Kempston Park Racecourse
Open 11.00hrs to 16.30hrs.

GREY SAND-COVERED BUG: A REQUEST FOR HELP WITH IDENTIFICATION

by Michael G. Guye (10024)

1 route du Gat Mort, Villagrains, 33650 Cabanac et Villagrains, France.

Plate 95I, Fig. 1, depicts a grey-coloured insect, resembling a bug, which is occasionally found here during the summer months. It is approximately one centimetre long and its body (including legs and antennae) is covered with very fine sand grains and other minute particles of debris. Some of these particles appear to rub off if the insect gets wet. It moves in short rapid bursts of one to two centimetres in length and is found amongst the roofing tiles (old Roman tiles made of baked clay) of a dilapidated barn which adjoins our house.

The "roof habitat", where the above is found, heats up considerably in summer. It contains an abundance of humus and unrotted material, composed mainly of oak leaf litter, twigs and acorns, due to the presence of nearby pedunculate oak trees. During the wetter periods of the year this humus supports a "lawn" of short green vegetation, though it dries up completely in summer. Other invertebrates in this habitat include an abundance of woodlice (two species), springtails, centipedes, and a small snail species with a cone-shaped shell. The common wall lizard (*Podarcis muralis*) and the western whip snake (*Coluber viridiflavus*) also frequent this habitat.

Jones (1983) illustrates the harvestman, *Anelasmacephalus cambridgei* (Arachnida: Opiliones: Trogulidae), which has a similar habit of covering its body with particulate matter. I assume that the function of this behaviour is either to provide camouflage against predators and/or to conceal itself more efficiently from potential prey. The latter interpretation assumes that my find may be a type of assassin bug (Heteroptera: Reduviidae). I look forward to hearing from any readers who may be able to identify this insect. Any additional details would also be greatly appreciated.

REFERENCE

- Jones, D. (1983). *Spiders of Britain and Northern Europe*, Country Life Books, Hamlyn, Middlesex, England 1994. 320pp.

19th *LCES Field Meeting.*

Brown Moss, Shropshire. Meet 11.00hrs at the car park (SJ 562398).

I: Carl Clee 0151 356 1050 (home) 0151 207 0001 (work).

BEHNS Field Meeting.

Decoy Heath SSSI, and Silchester Common SSSI, Berkshire. Meet at 11.00hrs and 20.00hrs at SU 614635 at Decoy Heath and at 14.00hrs at SU 626622 at Silchester Common.

I: Stephen Miles 01784 252274

or Martin Harvey 01635 550380 (work).

BEHNS Field Meeting.

Mission MOD Training Area, Nottinghamshire. Meet at 14.30hrs and 19.30hrs at access point (SK 701972). Limited moth trapping indicates a rich moth fauna.

I: Sheila Wright 01602 281333.

19th/ *Dragonfly Sanctuary Open Day.*

20th At Ashton, near Oundle, Northamptonshire. From 10.30hrs until 16.00hrs with a guided tour at 14.15hrs.

I: British Dragonfly Society.

26th *BEHNS Field Meeting.*

Wandsworth Common, London. Meet at 14.30hrs and 19.30hrs at car park at Wandsworth Common Nature Study Centre. Please contact leader in advance.

I: Colin Plant 01279 507697.

SEPTEMBER**2nd** *BEHNS Field Meeting*

Snettisham RSPB Reserve, Norfolk. Meet at 12.00hrs and 18.00hrs at car park (TF 647335).

I: Ken Saul 01493 369021.

9th *BEHNS Field Meeting*

Dungeness, Kent. Meet at 18.00hrs at Britannia pub car park (TR 092168).

I: Sean Clancy 01797 321458.

13th *Some contributions towards a Red Data list of Lepidoptera and other invertebrates in the London area.*

Joint BEHNS and LSL meeting. Colin Plant, well known for his detailed reviews mapping the distribution of invertebrates in the London area

threatened. At Linnean Society's rooms, Burlington House, Piccadilly from 18.00hrs.

I: Dr Ian McLean, 109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.

14th/ *Forests and Insects.*

15th Symposium of the Royal Entomological Society of London to be held at the Natural History Museum, London.

To Register or for I: Mr G.G. Bentley at RES 0171 584 8361.

16th *LCES Field Meeting.*

Cil-Y-Groeslwyd, Clwyd. Daytime meeting in conjunction with the Clwyd Entomological Society. Meet at grid reference (SJ 126553) at 11.00hrs.

I: Rob Whitehead 01824 704507.

Leafhopper Workshop.

BEHNS Workshop at Dinton Pastures Country Park, Davis Street, Hurst Reading. (SU 784718). Starting at 10.30hrs. Please book places prior to event.

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Natural History Museum Gardens, London. Day to be split between insect survey and tuition in the preparation and drawing of the genitalia of Lepidoptera. Contact leader in advance please.

I: Malcolm Scoble 0171 9389200.

17th *LCES Indoor Meeting.*

Review of the 1995 season. At Liverpool Museum , 19.00hrs.

19th *LCES Field Meeting*

Talk to be held at Liverpool Museum 19.00hrs – subject and speaker to be finalised.

I: Ken Saul 01493 369021.

OCTOBER

7th *AES Annual Exhibition.*

Kempton Park Racecourse. Doors open 11.00hrs until 16.00hrs.

I: Roy McCormick,

36 Paradise Road, Teignmouth, Devon TQ14 8WR.

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BEE RESEARCH ASSOCIATION

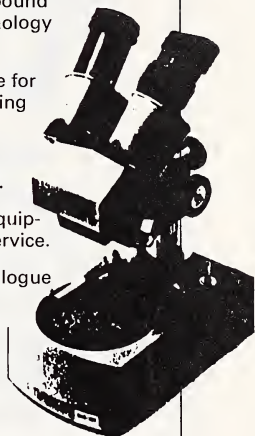
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E.L.G. SUMMER ENTOMOLOGICAL FAIR

16th JULY 1995

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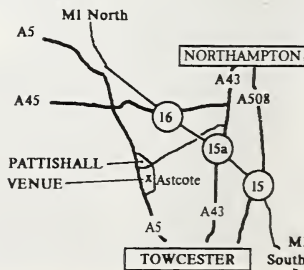
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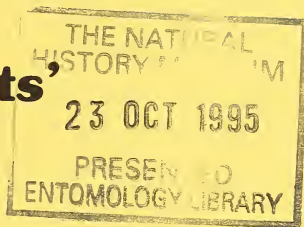
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Antique books come into another category, although their loss will often be brought to mind for most of them were in the nature of gifts from old friends over many years.

Whereas these books have been very carefully selected by the miscreants the same cannot be said of the cabinet drawers. Those containing my British hawkmoths could be deemed attractive to anybody, but why take five small drawers from a W & D six drawer deal cabinet with specimens going back to schooldays? The same might be said for two drawers of Nymphalids compared with fourteen drawers of micros containing predominantly Gelechiids which are of extreme interest to a smaller number of entomologists. Unless, and this is possible, a clean sweep had been intended for 24 drawers containing a mixture of families were still stacked up the centre of our sitting room and gratefully found there by ourselves upon return.

This is not the kind of article I ever dreamt of writing, but the attention of all fellow entomologists must be drawn to the dire things which can happen these days! Lock up your larvae and check your insurance policies!

For subsequent sighting of any of the undermentioned items please contact your local police station referring them to WPC Roberts of Reading Police (01734 536000).

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Distant, W.L.	<i>Rhopalocera Malyana</i>	Inscribed L.M. Parlett
Frohawk, F.W.	<i>Complete Book of British Butterflies 1934</i>	Inscribed "To Bri from Dad Xmas 1936"
Frohawk, F.W.	<i>Natural History of British Butterflies 2 vols. 1924</i>	Inscribed with Reading Museum Acc. Nos.
Banett, C.G.	<i>Lepidoptera of the British Islands 1893-1907 11 vols.</i>	Inscribed Craške and separately WLR
Buckler, W.	<i>Larvae of the British Butterflies and Moths 8 of the 9 vols</i>	No markings
Lang, H.C.	<i>Butterflies of Europe 2 vols</i>	Inscribed L.M. Parlett
Morris, F.O.	<i>A History of British Butterflies 1865</i>	Inscribed L.M. Parlett
Morris, F.O.	<i>A Natural History of British Moths 1872 4 vols</i>	Inscribed L.M. Parlett
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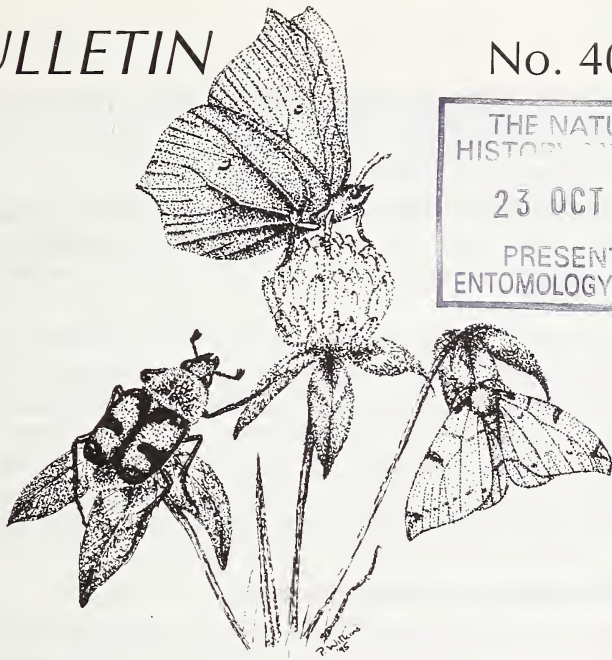
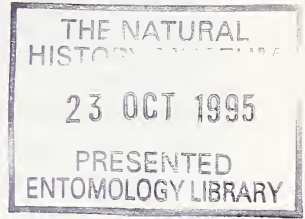
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Editorial

The AES reaches its 60th Anniversary this month, and I am sure that the six original members of the Society, in 1935, never thought that it would grow and flourish as it has. Over the years many people have given their free time to the Society, all having played their part in the Society's history. I feel that it would be wrong to name people individually, as I would most probably leave some names out. The Society has provided its members with publications, the *Bulletin*, field meetings, and of course the exhibition. All have been successful and will hopefully continue to be so in the future.

The Annual Exhibition takes place at Kempton Park racecourse this year on Saturday 7th October. Doors open at 11am and entrance is only 50p. Further details can be obtained from the advert in this *Bulletin*. At the exhibition, there will be a Special General Meeting to propose some amendments in the Society's constitution, relating to conservation issues. The time for this meeting still has to be finalised, but can be obtained by ringing me nearer the event or by looking for the notices at the exhibition.

Wayne Jarvis

MOTHS AND BUTTERFLIES OF THE FRENCH PYRENEES, 22nd – 31st JULY 1994

by Paul Waring (4220) and Rachael Thomas

From 22nd to 31st July 1994 we were fortunate enough to have the use of a farmhouse, or gîte, in the foothills of the French Pyrenees, from which we operated a Robinson pattern light trap most nights, recording over 150 species of larger moths. "Wine ropes" (Goater 1986, Waring 1995) were also used with success in the woodland around the gîte and at campsites on the return journey from the gîte to the Channel ferry. We also made several trips from the gîte further into the mountains, recording the moths and butterflies seen along the way. This article reports the list of species recorded and the more memorable events and observations which took place. A major aim was to encounter some of the Crimson underwing moths (Catocalinae) and in this we were successful.

The habitat around the gîte

Our gîte was situated among a small cluster of similar buildings at Les Abères (42°57'16"N, 1°16'11"E, altitude 760 metres) just above the village of Rivièrenert, near St. Giron in the Department of Ariège. The buildings of Les Abères were all formerly occupied by members of an agricultural community who farmed the surrounding hillsides. Some of the buildings are still in use for this purpose and our neighbour was a cheese maker of local renown who continues to tend a small herd of cattle on hillside meadows by the gîte. Some of the other buildings are second homes of French families or are let as holiday cottages. Immediately around the buildings were several vegetable gardens with potatoes, french beans, beetroot and various Brassicas, others were overgrown with wild plants. There were scattered pear trees *Pyrus* and the boundary hedges contained hazel *Corylus avellana*, blackthorn *Prunus spinosa*, alder *Alnus glutinosa*, elder *Sambucus nigra*, ash *Fraxinus excelsior*, medlar *Mespilus germanica*, goat willow *Salix capraea*, common hawthorn *Crataegus monogyna*, broom *Cytisus scoparius*, gorse *Ulex* sp., holly *Ilex aquifolium*, bramble *Rubus fruticosus* and ivy *Hedera helix*.

The open grassy meadows by the gardens and down the slopes from the houses were herb-rich. Some of the herbs they contained were dark mullein *Verbascum nigrum*, scabiouses *Knautia/Scabiosa* spp., plantains *Plantago* spp., buttercups *Ranunculus* sp., stinging nettles *Urtica dioica*, docks *Rumex* spp., angelica *Angelica sylvestris*, fen bedstraw *Galium uliginosum*, mallow *Malva sylvestris*, musk mallow *Malva moschata*,

wood sage *Teucrium scorodonia*, yarrow *Achillea millefolium*, red clover *Trifolium pratense*, imperforate St. John's-wort *Hypericum maculatum*, hemp agrimony *Eupatorium cannabinum*, bird's-foot trefoil *Lotus corniculatus*, mignonette *Reseda lutea*, vetches including *Vicia cracca*, basil *Clinopodium vulgare*, dandelion *Taraxacum* agg., pale toadflax *Linaria repens*, starry saxifrage *Saxifraga stellaris* and a wild barley *Hordeum* sp.

The major part of the surrounding hillsides were covered in woodland extending down to Rivièrenert. Trees, shrubs and the woody perennials noted included oaks *Quercus* spp., ash, hazel, false acacia *Robina pseudacacia*, Norway spruce *Picea abies*, sweet chestnut *Castanea sativa*, elders *S. nigra* and *S. racemosa*, silver birch *Betula pendula*, aspen *Populus tremula*, alder, beech *Fagus sylvatica*, dewberry *Rubus caesius*, alder buckthorn *Frangula alnus*, willows *Salix* spp., holly, blackthorn, gean *Prunus avium*, ling heather *Calluna vulgaris* and traveller's joy *Clematis vitalba*. The non-woody climbing black bryony *Tamus communis* was also common.

The moths at the gîte

The light trap was operated in the garden of our gîte overlooking the woodland (Plate 95M, Fig. 1). It was operated from before dusk until after dawn on eight nights (22nd to 27th, 29th and 30th July) and produced the accompanying list of moths. The majority of species turned up on several nights and as several individuals per night. The list is divided into two parts – those species which are also resident in Britain and those which have only been recorded as migrants or which are unknown to the British Isles. Of the 155 species of moths we recorded at this site, 132 species (85%) are resident in Great Britain.

Of particular interest to the visitor from Britain are such British rarities as the Olive crescent *Trisateles emortualis*, several of which turned up most nights, the Clay fan-foot *Paracolax derivalis* and the Lace border *Scopula ornata*, which was frequent. There was a good selection of species which we associate with the larger semi-natural broad-leaved woodlands of Britain, such as the Festoon *Apoda limacodes*, Cloaked carpet *Euphyia biangulata* and August thorn *Ennomos quercinaria* and it was interesting to see the Gold spangle *Autographa bractea*, which is a species of northern Britain and evidently equally at home at the altitudes provided by the foothills of the Pyrenees. The Four-spotted footman *Lithosia quadra* was frequent, with as many as half a dozen in the trap per night. On several occasions mating pairs of this large, sexually dimorphic species were found in the trap in the morning.

Of the species not resident in Britain, some are on the British list as migrants, ranging from annual visitors such as the Silver Y *Autographa gamma* (practically a resident, could well breed continuously in some places) and Hummingbird hawk-moth *Macroglossum stellatarum* to rarities which once bred here like the Black V moth *Arctornis l-nigrum* and rare vagrants such as the Latin *Callopostria juventina*.

Only *Odonestis pruni* (Plate 95M, Fig. 2), *Paida murina*, *Ephesia fulminea* and *Deltotes candidula* appear never to have been recorded in Britain. *P. murina* is a southern European species, where it is widespread, *D. candidula* appears to be more widespread but somewhat local. *O. pruni* has been recorded widely in central and southern Europe but is reported to be rare in numbers. Five were seen at Les Abères, all in the light trap, the first on 24th July, two more on 25th July and two on 27th July. The larvae are reported to feed on various species of *Prunus*, and the foliage of other trees including oak, birch, alder and elm *Ulmus* spp.

Light trapping and wine-roping for Crimson underwings

The light trapping got off to an exciting start with the discovery on the first morning of a single *Ephesia fulminea* in perfect condition in the trap. This moth is closely related to the Crimson underwings but has yellow and black hindwings instead of red and black. Reichholf-Riehm (1991) reports that the species is declining or has been lost from some parts of Europe so it was pleasing to record it here. However, this individual proved to be the only one we saw during our visit. The larva is recorded to feed on *Prunus* spp. and Kirby (1903) specifies that old bushes are favoured. As there were *Prunus* species around the gîte, perhaps the moth is breeding here.

We were greatly encouraged to see the above member of the Catocalinae so soon during our visit and hoped for others because the last week in July and early part of August is a good time to encounter this group. This was the main reason for using wine-ropes as extensively as we did. It is widely known that the Crimson underwings are more likely to come to food bait than to light traps – particularly in the early part of the flight season. The traditional method of bating for the group is “sugaring” which involves painting a potion based on black treacle in strips on tree trunks, fence posts and other objects and which can be quite successful. The method works best if the same trees are “sugared” night after night on a regular beat. It becomes quite expensive if one wants to “sugar” in a different place each night and one can find oneself getting through several tins of black treacle in a week. “Wine-roping” is a technique introduced to Britain from Sweden (Goater 1986) and involves soaking

cotton string or washing line in a saturated solution of white granulated sugar in cheap red wine and hanging up convenient one metre lengths on bushes and the lower branches of trees (Plate 95M, Fig. 3). The "wine-ropes" are stored in a tub of the solution when not in use and can be used over and over again. We used ten such ropes and a single eight franc (90p) bottle of red wine for the week.

The first night (23rd July) we put the wine-ropes on bushes along the farm track by the gîte and attracted a few moths but no *Catocala* spp. The moths comprised several White specks *Mythimna unipuncta*, two Buff arches *Habrosyne pyritoides*, one Copper underwing *Amphipyra pyramidea*, one Common lutestring *Ochropacha duplaris* and one Dark arches *Apamea monoglypha*. The temperature was 16°C. The second night (24th July) we repeated the operation along a forestry track (Route Forestière des Embalisses) through the oak-dominated woodland lower down the hill side, just above Rivièrèneret. We hung the ropes on the low branches of oaks, beeches, birches and willows along the track. The temperature was 20°C, the air was dead calm. Most of the moths arrived between dusk (21.45 hrs) and one hour later. Moths on this second night included an Old lady *Mormo maura* at 22.20 hrs (Plate 95M, Fig. 4) but no *Catocala* spp. The other moths were much as on previous nights including several *M. unipuncta* and *A. pyramidea*, singletons of all the other species seen on the previous night and one Dun-bar *Cosmia trapezina*. We took the ropes away at 23.30 hrs by which time the temperature was 19°C. The third night we set some wine-ropes up in a small copse of oaks before moving on to dine at a restaurant in Foix. We returned to inspect the wine-ropes after our meal and found an Old lady moth feeding along with other smaller moths and a large *Catocala*. Unfortunately we fumbled our attempt to box the latter for identification and it flitted off into the darkness, not to be seen again, in spite of our waiting around for half an hour afterwards. At least this result proved that *Catocala* moths were on the wing.

On the morning of 28th July there was great excitement because a Crimson underwing was seen in the light trap at the gîte as we approached to inspect the catch. The morning was mild and some of the moths were skittish, so the trap was brought indoors for emptying. We opened up the trap to find not one but three Crimson underwings. These all proved to be the Light crimson underwing *C. promissa*, despite some individual variation in markings. Spurred on by this result we returned to the forest track baited on 24th July. This time four *Catocala* moths came to the wine-ropes and again all proved to be *C. promissa* (Plate 95N, Fig. 5). The first of these arrived at 22.15 hrs, which was just after it was properly dark, and the last arrived nearly an hour later.

Light trapping at Les Esquirottes

On 30th July we recorded Crimson underwings at Les Esquirottes (42°55'N 0°57'30"E, altitude approximately 1000 metres). We visited this site with Terry Hollingsworth, who is currently based at Toulouse and runs light traps in the area. On this occasion we set up a 125W mercury vapour light on a tripod over a sheet on a forest track running through oak scrub and regenerating woodland (Plate 95N, Fig. 6). We chose a spot near mature oak trees and noted that there were more than one species of oak present, finding several *Quercus pubescens* along the track. There were also lots of herbs and forbs among the scrubby trees and bushes that covered most of the area in view but, because we arrived near dusk, left in the middle of the night and were fully occupied recording moths, it was not possible to make a plant list for the site.

The first *Catocala* arrived soon after dusk and the last we saw was at 23.30 hrs, just before we packed up at midnight. We actually saw this one arrive from out of the darkness and settle on a wine-rope, completely undistracted by the torch beam we used to view it. It is of interest to report that the nearest of the "wine-ropes" was only 25 metres from the mercury vapour light over a sheet and the furthest wine-rope was only 50 metres away. The Crimson underwings came to both of these wine-ropes but none came to the light over the sheet, even though it was operated continuously, in view of the wine-ropes throughout the session.

Other moths we were particularly pleased to see at Les Esquirottes included the Dark bordered beauty *Epione paralellaria* and Netted carpet *Eustroma reticulata*, the pyrale *Uresiphita polygonalis*, and the very large grey geometrid *Gnophos fulvata*.

Other records from the St. Girons area

The Great banded grayling *Brintesia circe* was seen frequently along the track to the gîte at Les Abères. The Piedmont ringlet *Erebia meolans*, Wood white *Leptidea sinapis*, Provençal short-tailed blue *Everes alcetus* and the Holly blue *Celastrina argiolus* were also recorded here. Hummingbird hawk-moths *Macroglossum stellatarum* were seen every day visiting flowers around the entrance of the gîte. While walking on the bracken-covered (*Pteridium aquilinum*) ridge above the gîte, we saw a very worn Queen of Spain fritillary *Argynnis lathonia*. Along the forest track between the ridge and the gîte we saw male Oak eggars moths *Lasiocampa quercus* frantically searching for females in the sunshine. Driving down from the gîte we encountered a group of butterflies feeding at the flowers of a large white umbel by a roadside ditch just before we

reached Rivièrenert. These included a Map butterfly *Araschnia levana*, a Scarce swallowtail *Iphiclides podalirius* and several Small copper *Lycaena phlaeas*.

On the way from the gîte to Les Esquirottes with Terry Hollingsworth we stopped to inspect a small bridge, really only a culvert, where the road crossed a stream (Plate 95N, Fig. 7). A contact of Terry's had reported a "roost of *Catocala* moths" which he had found while searching the culvert for bats. We climbed down from the road and waded under the low culvert, crouching over the water to do so. There, crammed into crevices in the masonry, we found a communal roost of Old lady moths *Mormo maura* (Plate 95N, Fig. 8), as we suspected and as one sometimes finds along canals and in tunnels in Britain.

(to be continued)

ROESEL'S BUSH-CRICKET IN SURREY

by C. Martin (7962)

While taking a walk around Hedgecourt Lake (Grid ref: 51/354405) on 19th August 1994 I heard a loud and penetrating cricket song. There at the edge of a wheatfield I found a male *Metrioptera roeselii* F. *diluta*. I have not found any Roesel's bush crickets there before, although I often take this walk. As I had my camera I managed to take a photograph as illustrated in figure 1.



Fig. 1. Roesel's bush cricket, *Metrioptera roeselii*.

OBSERVING BUTTERFLIES IN AUSTRIA, JULY 1994

by Tony Steele (4106)

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This is an account of the butterflies observed in Austria, with a short excursion into Germany, over a two week period. Base was in the lakeside resort of Zell am See, in the province of Salzburg. This busy little lakeside town, backed by the impressive 1965-metre high Schmittenhöhe mountain, is ideally situated with regular train and bus services, and several cable-ways, thereby giving access to some very good butterfly habitats. One point to note is that the conservation laws in Austria are very strict, and nearly all species (except some pierids) are strongly protected. I applied to the government for a permit to use a net for recording purposes, but was refused. I have omitted the common species to be found in Britain.

Mittelstation to Zell am See

This walk started at an altitude of 1362 metres, and passed through several habitat types including coniferous woodland and alpine meadow. First species encountered was the Scarce copper (*Lycaena virgaureae*) which was very abundant, five seen on a flower head of Alpine ragwort (*Senecio alpinus*), and amongst them was a single Blue-spot hairstreak (*Strymonidia spini*). At this altitude were several specimens of the mountain form of the Green-veined white (*Pieris napi bryoniae*). Despite the sunny and hot weather, there was a distinct scarcity of the Satyrinae family, only singletons of the Arran brown (*Erebia ligea*) and Large wall brown (*Lasiommata maera*). The woodland edges were rich in flora and provided some of the best places to observe such species as the Queen of Spain fritillary (*Argynnis lathonia*), Black-veined white (*Aporia crataegi*) and Mountain argus (*Aricia artaxerxes*).

Schmittenhöhe to Zell am See via Sonalm

The first part of this three-and-a-half hour walk was through herb-rich alpine grassland, then into coniferous woodland which gradually changed to mixed woodland. The first species seen was a single Heath fritillary (*Mellicta athalia*) (Plate 950, Fig. 9) which settled on my camera bag as I admired the view! Several Titania's fritillaries (*Clossiana titania*) were noted, as well as an abundance of Scarce coppers. Five species of the Satyrinae were recorded, some in large numbers. They were the Arran

brown, Eriphyle ringlet (*Erebia eriphyle*), Large wall brown and the Lesser mountain ringlet (*Erebia melampus*). The only member of the Pieridae identified, from many seen, was a specimen of the Southern small white (*Pieris manni*).

Krimml Gorge

This tourist spot, with the highest waterfalls in Europe, was a disappointment. Only 14 imagines of six species were seen the whole afternoon, which could have been due to the large volume of people visiting this attraction daily. The “commonest” butterfly was the Arran brown with just six specimens noted, and it was at this location that I had my first sighting of the Large ringlet (*Erebia euryale*).

Grossglockner (Plate 950, Fig. 10)

This was the highest point visited at 2136 metres, and another disappointing locality. To say that it was commercialised is an understatement, it had a multi-storey car park, supermarket and several gift shops. I had anticipated finding some interesting *Erebias* at this altitude, but it was not to be. The only example seen of this genus was the Lesser mountain ringlet. Other species recorded were the Green-veined white, form *bryoniae*, and a profusion of the Shepherd's fritillary (*Boloria pales*). This was the easiest place to observe Marmots (*Marmota marmota*) though – they had a particular liking for bread and chocolate!

Hotel Garden

A very lazy afternoon was had one day relaxing by the hotel pool, with an occasional swim. I was not giving much attention to the butterflies settling on the plants but one made me take note. It was large and orange-brown in colour, and on further investigation it proved to be a Large tortoiseshell (*Nymphalis polychloros*), the only one seen over the two weeks.

Kaprun, Upper Dam (Plate 950, Fig. 11)

Set at 2040 metres and another major tourist spot, nevertheless it was quite good for Lepidoptera. The first species encountered was a couple of Bath whites (*Pontia daplidice*), these were followed by some Southern small white's. Three of the *Erebias* came next, the Blind ringlet (*Erebia pharte*), Lesser mountain ringlet and Eriphyle ringlet. The only member of the Lycaenidae recorded was a single specimen of the Alpine argus (*Albulina orbitulus*). There was a surprise sighting of a Brimstone (*Gonepteryx rhamni*), as they are rarely seen above 1800 metres.

Berchtesgaden

This was the excursion into Germany referred to earlier, to visit "the Eagle's Nest", a restaurant and viewpoint, set upon the Kehlstein mountain at 1834 metres. The paths were so well trodden, they consisted of bare rock, consequently butterflies were few in number. I recorded just nine Arran browns and a Large wall brown. A Painted lady (*Cynthia cardui*) paused briefly to feed, before flying off in a northerly direction.

Kitzbuhelerhorn

A pleasant and gentle walk starting at the cable car station at 1996 metres, down to Kitzbuhel, passing through the Alpine garden. Three species of *Erebia* were identified, the Blind ringlet, Eriphyle ringlet and Large ringlet. Some of the other species noted were the Alpine heath and Mazarine blue (*Cyaniris semiargus*). The Alpine garden is well worth a visit. It covered an extensive area of the mountain, with several habitat types and clearly labelled plants, which included Edelweiss (*Leontopodium alpinum*), many Gentian species and the Turks-cap lily (*Lilium martagon*).

Zeller Moos Nature Reserve

Situated on the southern shore of Lake Zell and consisting of mainly marshland, with some rough grassland and scrub on the drier parts. Being a reserve for ornithology, it was poor for Lepidoptera. The only species seen were several of the common Pierids, a single Clouded yellow (*Colias crocea*) and feeding on a Bramble bush a Silver-washed fritillary (*Argynnis paphia*).

Schmittenhöhe to Mittelstation

This was undoubtedly the finest walk of my stay, 21 species in two hours! Starting from the summit at 1965 metres, the first section was through some recently grazed meadows, which were totally devoid of any butterflies. Then the habitat changed, with the path passing through uncut hay meadows, then woodland with particularly wide rides. The leading species was the Arran brown which was very abundant, then came the common Scarce copper and several Eriphyle ringlets. Along the herb-rich woodland rides were to be found the Niobe fritillary (*Argynnis niobe*), Dark green fritillary (*Argynnis aglaja*) and Silver-spotted skipper (*Hesperia comma*). A large dark butterfly was observed drinking at a mountain-side spring, and as I approached its wings opened to reveal the purple and cream colours of a Camberwell beauty (*Nymphalis antiopa*), and on a flower nearby was a Queen of Spain fritillary.

Conclusion

The Zell am See district is an excellent area in which to observe butterflies, with such a comprehensive range of habitat types, and excellent transport facilities. My total count was a surprising 43 species, and this would surely have been much more, but for the reluctance of the Austrian authorities to grant a permit to use a net for identification purposes. If you would like a full locality/species list, please forward a 9x7 SAE, marked Austria, to the above address.

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GLASGOW OBSERVATIONS

by Frank McGann (6291)

On a nice sunny autumn day a group of us went beyond Easterhouse towards Bargeddie Parish Church. We went along a road bordering the now filled-in Monkland canal, and leading to Hamilton's coal-yard. I was hoping to find a larva or two, especially Grey daggers which are common on the hawthorn hedges further along the road beyond the coal-yard. Before we got there, however, I found a White ermine caterpillar. It was on a thistle plant at the edge of the pavement. It was resting low down on the stem and was feeding on the leaves. Thistles were growing in profusion on the bank where the larva was found. I also pursued a moth which looked like a Silver Y, but it eluded me.

Later on, we found a good number of Grey dagger larvae on the hawthorn hedges. They were of varying sizes – from second or third instar to almost full-grown specimens. I also searched the twigs of the hawthorn for Coxcomb prominent larvae but none were noticed.

Meanwhile at home I am feeding the White ermine larva on leaves of thistle, sow-thistle, plantain and dandelion. It hasn't pupated yet, but I'm sure it is about full-grown.

We didn't quite make the journey to Bargeddie Parish Church that day, but turned north towards Commonhead housing estate. The church lies to the south of that area. Nevertheless it was a good day out, and I've added another species to my collection. I released two Grey dagger caterpillars onto the birch tree in my garden.

EXHIBITION REPORT AND LIST OF EXHIBITORS AT THE 1994 EXHIBITION, HELD AT KEMPTON PARK RACECOURSE ON 8TH OCTOBER 1994

The day started dry for a change, with sunshine and clouds; a good queue formed about an hour before opening time and a couple of the committee members sold programmes to ease the rush when the doors were opened. It is certainly much better when the weather is on our side but this factor did not seem to make any difference to the numbers attending; only 1134 door receipts were collected which is 94 less than last year.

There were 31 applications on the booking form for exhibit table space, with a further five verbal applications making a total of 36. I had 31 exhibits and reports; a further six applications did not have a report and I had one exhibitor who did not send me the booking form but did hand in a report; if all the people who booked tables, verbally or otherwise, turned up with an exhibit (counting the ones who did not send me a booking form) we would have had a total of 37 exhibits. I know 1994 was not a good year but there were some good things about that were worthy of an exhibit.

Forty-seven dealers attended selling a variety of goods including a much restricted trade in live- and dead-stock; also exhibiting were thirteen other Natural History Societies including the usual AES stands. A total of sixty stands were in operation.

I found that the catering this year was not good; I had hoped that we had this side of our Exhibition sorted out but when I went for lunch the bar was staffed by an under-manager and one other and only one food counter was open; the food here was reasonable but the (frozen) vegetables had not been cooked properly. A large queue formed early on and I understand that certain items of food and drink ran out early in the afternoon; a sad state of affairs and one that engendered a letter of complaint from yours truly. I hope that the situation is resolved for this year.

I would like to thank the following members for helping me to set up on Friday 7th October 1994: Sid and Jill Painter, Colin Hart, Bernard Skinner, Martin Love, Pat Cordell, John Muggleton, Andrew Halstead, Dennis O'Keefe, Peter Baker, Graham Collins and David Young.

My thanks go to Andrew Halstead, David Young and Pat Cordell for helping me to clear up after the Exhibition; this is not forgetting the helpers who gave up their free time throughout the day. The Exhibition

would not run without this valuable source of assistance. Carry on the good work. Just a small note, the helpers on the evening before and the people who help to clear up after are invited for a *free pint* in the local hostelry. Anybody who wishes to help please contact me nearer the date, which for this year is 6th October for setting up and 7th October 1995 for the Exhibition. I do hope that I did not leave anybody out of the helpers; if I have, I can only apologise for the omission.



Member's exhibits:

Paul Brock (4792). Exhibited two drawers of spectacular Australian Stick and Leaf Insects, as follows: *Acrophylla titan* (Macleay), *Eurycnema goliath* (Gray), *E. cercata* Redtenbacher, *Tropidoderus childrenii* (Gray), *Didymuria violescens* (Leach), *Extatosoma tiaratum* (Macleay), *Mesaner sarpedon* (Westwood), *Megacrana batesii* (Kirby), *Anophelepis* sp., *Pachymorpha pasithoe* (Westwood), *Sipyloidea filiformis* Redtenbacher and *Phyllium* sp.

Livestock exhibited included adults of *Ctenomorphodes tessulata* (Gray), a *Eucalyptus* feeding species, sometimes a pest in south-east Australia and large nymphs of *E. goliath*. From other countries – adults of the leaf-insect *Phyllium bioculatum* from Java, feeding on bramble and adult females of *Datames oileus* (Westwood) from Singapore feeding on *Tradescantia* sp.

Alan Bulter (7903). This exhibit comprised natural examples of dwarfs and giants amongst British and European butterflies. Twelve species were shown along with typical examples for comparison. Wing dimensions, measured using callipers following the definition of Higgins & Riley (forewing tip to point of attachment of abdomen) are tabulated below. Note that insects are referred to as dwarfs or giants when the dimensions fall well outside the typical range given by Higgins & Riley.

Of particular interest is the example of a male Clouded yellow showing assymetry, with the left-hand side being of typical dimensions and the right-hand side dwarf.

Table 1. Natural examples of dwarfs and giants amongst European butterflies.

SPECIES	SEX	SPAN	H & R	COMMENTS
Clouded yellow <i>C. croceus</i>	Male Male Male	27 25-21 lh-rh 21	23-27 23-27 23-27	Typical (large) lfw - typical rfw - dwarf Dwarf
Clouded yellow <i>C. croceus</i>	Female Female	26 19	23-27 23-27	Typical Dwarf
Clouded yellow <i>C. croceus</i> var <i>helice</i>	Female Female	27.5 19	23-27 23-27	Large Dwarf
Orange tip <i>A. cardamines</i>	Male Male Male	21 17 17	19-24 19-24 19-24	Typical Dwarf Dwarf
Green-veined white <i>P. napi</i>	Male Male	24 20		Typical Dwarf
Small white <i>P. rapae</i>	Female Female	25 20	23-27 23-27	Typical Dwarf
Speckled wood <i>P. aegeria aegeria</i>	Male Male	21 16	19-22 19-22	Typical Dwarf
Southern gatekeeper <i>P. cecilia</i>	Female Female	15 20	15-16 15-16	Typical Giant
Gatekeeper <i>P. tithonus</i>	Male Male	19.5 14	17-19 17-19	Typical (large) Dwarf
Small heath <i>C. pamphilus</i>	Female Female	14 20	14-16 14-16	Typical Giant
Comma <i>P. c-album</i>		26.5 19	22-24 22-24	Giant Dwarf
Purple emperor <i>A. iris</i>	Male Male	37 29.5	31-37 31-37	Typical (large) Dwarf
Small tortoiseshell <i>A. urticae</i>		22 27.5	22-25 22-25	Typical (small) Giant
May <i>A. levana</i>		18.5 21.5	16-19 16-19	Typical Giant

Key: Span in mm. measured fw tip to attachment to abdomen.

H & R = Higgins, L.R. & Riley, N.D. *Butterflies of Britain & Europe*. Typical spans.

Steve Button (7649). Exhibited a few of the more interesting butterflies collected during 1994; the exhibit showed *A. paphia* ab. *ocellata* (Frings.) from Wiltshire – the only interesting *paphia* observed in three days of searching. *Boloria selene* ab. *pallida* (Spuler) from Perthshire – *selene* was very common this year in the Highlands. *Lysandra corridon* ab. *tithonus* (Meigen) collected on the north Wiltshire Downs in August; 38 eggs were obtained from this specimen but it was eight years ago that he saw the last one. An unnamed ab. of female *L. corridon* and also the lightest and darkest forms seen in Wiltshire this year with a male and female type for comparison.

Pat Cordall (8782). Local resident and vagrant Macro lepidoptera of a landfill site within the London area at Nutfield, Surrey.

History

Nutfield lies on a ridge of Lower Greensand, 20 miles south of London, below the escarpment of the North Downs. The whole area, except close to the village, has been quarried over the past 40 years for Fullers Earth and landfill, including domestic waste, which ceased in 1990. The legacy for the village has been three quarters of a square mile of waste ground left, at our request, to natural regeneration.

The site

The site falls in a northern direction and incorporates water areas and dried-up lagoons. There are tracts of improved grassland used for grazing cattle and sheep, rough uncut grass, mature hedges, recent plantations of Norway spruce and larch and mature woodland around the perimeter of the site.

The future

Although the whole site is designated “Green Belt” there have been applications to develop the area in various ways. There has been one public inquiry which was won by the village but the owners Laporte Industries have other options in the pipeline. Hopefully, it will remain undeveloped and eventually return to the woodland that it was before quarrying started.

Flora

Although the site appears sandy many plants are typical of the chalk downs two miles to the north. On the bare earth early arrivals like weld and thistles have given way to bird's-foot trefoil and perforated St. Johns wort. The water areas include well-grown tracts of common reed and bulrush and other wetland plants. All over the area are young trees: mainly birch, willow and aspen but also oak, hawthorn, ash, beech, yew,

sycamore, lime, maple, alder, willow and poplar, all seeded from the mature trees around the edge of the site. The woods are becoming very dense in places and fallen trees are being left to rot, or are cut up and stacked in piles for winter fuel. A good population of rabbits is preventing the site becoming too overgrown by long grass and young trees.

Macro lepidoptera

Over the past 39 years, 28 species of butterfly and 467 species of the larger moths have been recorded. Most records have been from my garden trap 100 yards from the edge of the area.

Table 2 – Macro lepidoptera from Nutfield, Surrey displayed at Kempton Park.

Orange underwing <i>A. parthenias</i> Linn.	Resident. Common every year.
Cypress carpet <i>T. cupressata</i> Gey.	Vagrant. 1 record 13.10.90.
Red-green carpet <i>C. siterata</i> Hufn.	Resident. 3 records 2.10.91, 28.10.91, 19.9.92.
Brussels lace <i>C. lichenaria</i> Hufn.	Vagrant. 1 record 3.7.94.
Ruddy carpet <i>C. rubidata</i> D.&S.	Resident. 5 records 11.6.77, 21.6.77, 20.7.89, 4.7.91, 5.7.91.
Golden-rod pug <i>E. virgaureata</i> Doub.	Resident. 1 larva on Ragwort in August, 1993.
Royal mantle <i>C. cuculata</i> Hufn.	Vagrant. 5 records 20.7.69 (2), 23.7.69, 5.6.81, 25.7.89.
Waved carpet <i>H. sylvata</i> D.&S.	Resident. 4 records 28.6.71, 25.6.90, 20.7.90 (2).
Waved black <i>P. fuliginaria</i> Linn.	Resident. Recorded every year. Larvae in Birch log stacks.
Scallop shell <i>R. undulata</i> Linn.	Resident. Records every year.
Scarce tissue <i>R. cervinalis</i> Scop.	Resident. Regular records. Larvae on <i>Berberis</i> ssp.
Double kidney <i>I. retusa</i> Linn.	Vagrant. 1 record 29.7.93.
Neglected rustic <i>X. castanea</i> Esp.	Vagrant. 3 records. 23.8.68., 6.9.77., 29.8.89.
Pale pinion <i>L. socia</i> Hufn.	Resident and increasing.
Alder kitten <i>F. bicuspis</i> Bork.	Resident. Regular recordings.
Olive <i>I. subtusa</i> Schif.	Resident. Larvae on Aspen.
Dusky sallow <i>E. ochroleuca</i> D.&S.	Resident and increasing. Larvae found.
Green arches <i>A. prasina</i> D.&S.	Resident. Records every year.
Bordered sallow <i>P. umbra</i> Hufn.	Resident and increasing. Larvae found.
Dark spectacle <i>A. trigemina</i> Warn.	Vagrant. 2 records. 25.6.89., 5.7.91.

Tony Davis (8931). The application stated that the launch of the Pyralid recording scheme with attendant newsletter would be shown but no exhibit note was handed in.

J.L. Dyer (2319). The application stated that British macros (*N. janthe*/*N. janthina*) would be shown but no exhibit note was handed in.

Chris Gardiner (5249). Exhibited was a selection from the collection of the late G.S. Kloet, purchased from a second-hand record shop in Stockport. Several orders including Hymenoptera, Hemiptera and Microlepidoptera were shown; they were arranged according to the taxonomic order in Kloet & Hincks with the labels typed and handwritten

(in his own hand) or cut from the pages of the K.&H. book. Also shown were examples of his eclectic approach to collecting and meticulous setting technique.

M. Gascoign-Pees (7468). Exhibited a case of butterflies collected on the Italian island of Sardinia between 1st and 15th June 1985. Apart from one day collecting in the Gennargentu Mountains, most collecting was carried out in the vicinity of Baia Sardinia. Butterflies seen included *Pseudophilotes barbargiae*, *Hipparchia aristaeus sardona*, *Aglais urticae ichnusa*, *Lasiommata megera paramegaera*, *Maniola nurag*, *Coenonympha corinna* and *Plebejus argus corsicus*. Several larvae of *Papilio hospiton* were observed and photographed feeding on *Ferula communis* in the Gennargentu Mountains.

D. Hall (5239). Exhibited a form of the Large white butterfly found on the Canary Island of La Palma. This form has been named *Pieris cheiranthi benchoavensis* (Pinker 1968). Specimens showed that it is more lightly marked than the nominate form from Tenerife, with a more broken dark forewing band. Photographs showed the habitat in the laurel forests in the north-west of the island and also of the eggs and young larvae on the foodplant – a large endemic Cruciferae, *Crambe gigantefolia*.

A. Halstead (6346). Exhibited two boxes displaying the good and bad side of beetles. One box contained 23 species of beetle pests likely to be found in gardens, plus a specimen of the foreign potato pest, the Colorado beetle (*Leptinotarsa decimlineata*). The other box contained examples of beneficial beetles such as ladybirds, Carabid or ground beetles and *Staphylinid* or rove beetles.

James Hereward (9928J). The application stated that South African Arachnids and scorpions would be shown but no exhibition note was handed in.

Andrew Hinit (9093). Showed a small exhibit of specimens from northern Greece collected in April, June and July 1994. Included were local and rare species such as *Pontia chloridice*, *Colias balcanica*, *Syrictus tessellum*, *Polyommatus eroides* and *Heodes ottomanus*.

Robin James (5005). Exhibited specimens of Long-tailed blue butterflies *Lampides boeticus* Linn. These were bred from larvae found in the Algarve in April 1994. Subsequent pairings proved to be easy with the butterflies housed in a 14-inch diameter black netting cage inside a greenhouse. Eggs were laid on the flowers and leaves of various leguminous plants but the preferred plant was *Colutea arborescens*; eggs were also laid on thistles provided for Painted lady butterflies. The eggs

were removed to plastic boxes as they hatched, the larvae were placed individually inside sugar-snap pea pods through a dorsoventral slit. The pods were then placed in a propagator at 25°C, the larvae feeding up in just over two weeks with a 70% success rate being obtained.

Neil Jones (8037). The application stated that a series of photographs and computer-processed images demonstrating variation in the Marsh fritillary and related species; also a series of photographs and newspaper cuttings illustrating the problems of conservation would be shown. No exhibit note was handed in.

Mark Johnson (3464J). Exhibited fossil insects from the Pleistocene (38 million years ago) to the Tertiary period (80,000 years ago). The exhibit also had a short description of all the insect orders, including spiders, and how they all evolved.

Gareth King (8585). Exhibited set specimens and live imagines of *Estigmere perotteti* (Everin) which were originally identified by the British Museum (Natural History) as *E. nigricans* (Mare 1872). Progeny from the original female; F¹ and F² show remarkable variation with four forms identified. The exhibit also showed notes on the various larval foodplants for this Indian Arctiid.

Alex Kolaj (9141). Exhibited variation in moth species which included the Mottled umber, *E. defoliaria*; Dotted border, *A. marginaria*, type and ab. *fusca*; Spring usher, *A. leucophaearia*; Garden carpet, *X. fluctuata*; Northern spinach, *E. populata*; Scalloped oak, *C. elinguaris*; Pale tussock, *C. pudibunda*, type and ab. *obscura*; Bulrush wainscot, *N. typhae*, type and ab. *friaterna*; Heart and club, *A. clavis*; Fenn's wainscot, *P. brevilinea*, type and ab. *sinelinea* and Nut-tree tussock, *C. coryli*, type and ab. *melanotica*. Also shown were moths reared from larvae taken in and around Aviemore, Scotland, which included the Yellow-ringed carpet, *E. flavicinctata*, beaten from saxifrage; Grey mountain carpet, *E. caesiata*, beaten from bilberry and Chestnut-coloured carpet, *T. cognata*, beaten from juniper. Two migrants from Warwickshire were exhibited, these were a Hummingbird hawkmoth, *M. stellatarum*, taken at Charlecote on 27.8.94 and a Bordered straw, *H. peltigera* taken at Tile Hill on 26.8.94. The final two parts of Mr Kolaj's exhibit showed comparison of a Fisher's estuarine moth, *G. borelii* and the Frosted orange, *G. flavago*; (since the Victorian County History until 1968 *borelii* was thought to be a form of *flavago*); and a comparison of the Dotted footman, *P. muscerda* and the Small dotted footman, *P. obtusa* both taken on the Norfolk Broads on 24.7.94.

Keith C. Lewis (3680). Showed examples of the longhorn beetle *Arhophalus rusticus*, some bred from larvae. This insect was confined to Scotland about the turn of the last century but with the planting of

conifers by the Forestry Commission in the 1950s it spread southwards. Before this time Mr Lewis had only found the odd record from the south of England and he now needs records of this beetle, especially from museums.

R.F. McCormick (3375).

New species bred or captured in 1993/94.

- 0376 *Synanthedon scoliaeformis* (Borkh). Welsh clearwing.
Bred from a larva dug out of birch at Loch Rannoch.
- 0383 *Bembecia muscaeformis* (Esp.). Thrift clearwing.
Bred from larvae collected at Start Point, Devon.
- 1774 *Colostygia olivata* (D. & S.). Beech-green carpet.
One caught at Babbacombe, Devon.
- 1780 *Coenocalpe lapidata* (Hb.). Slender-striped rufous.
Found commonly, despite the weather, at Trinafour, Tayside, Scotland.
- 1833 *Eupithecia expallidata* (Doubl.). Bleached pug.
Caught at light at Holne Chase, Devon, and also seen at Dawlish Warren.
- 1863 *Anticollix sparsata* (Triet.). Dentated pug.
Bred from larvae collected at Farnborough, Hampshire.
- 1942 *Alcis jubata* (Thunb.). Dotted carpet.
Caught at light at Holne Chase, Devon.
- 2346 *Photedes morrisii* (Dale). Morris's wainscot.
Several seen at light at Charmouth, Dorset; none seen on the tall fescue grass.
- 2478 *Hypena obsitalis* (Hb.). Bloxworth snout.
Three specimens bred from larvae collected from three different sites; the species now occurs from Dartmouth through to Watcombe, Devon and is probably colonising new sites in this area.

Unusual species captured in Devon or near borders.

- 1323 *Pediasia contaminella* (Hb.).
Found commonly on Dawlish Warren.
- 1399 *Dolicharthria punctalis* (D. & S.).
One caught at a garden in Teignmouth.
- 1441 *Oncocera semirubella* (Scop.).
One caught at Charmouth, Dorset and probably resident in Devon.
- 1779 *Hydriomena ruberata* (Freyer). Ruddy highflyer.
One caught in a garden in Teignmouth and another seen at Dawlish Warren.
- 1781 *Horisme vitalbata* (D. & S.). Small waved umber.
Several seen at Dawlish Warren, Devon.
- 2043 *Eilema sororcula* (Hufn.). Orange footman.
One caught in a garden in Teignmouth, Devon.
- 2076 *Meganola albula* (D. & S.). Kent black arches.
Seen commonly at Dawlish Warren, Devon.
- 2204 *Mythimna obsoleta* (Hb.). Obscure wainscot.
Found at Exminster Marshes, Devon. Recorded previously in 1973 by Dr B. Henwood at Colyton, Devon; a new county record as yet unpublished.
- 2350 *Photedes pygmina* (Haw.). Small wainscot.
A striated specimen caught at Holne Chase, Devon.

- 2352 *Eremobia ochroleuca* (D. & S.). Dusky swallow.
A female caught at Dawlish Warren, Devon; a few eggs were laid.
- 2377 *Arenostola phragmitidis* (Hb.). Fen wainscot.
A pair taken from several seen at Dawlish Warren, Devon; an earlier specimen was caught by friends in Teignmouth around the 1980s but was not published.
- 2391 *Chilodes maritimus* (Tausch.). Silky wainscot.
Specimens taken from Dawlish Warren and Exminster Marshes, Devon; including an ab. *nigristriata* and an ab. *bipunctata*.
- 2452 *Catocala nupta* (Linn.). Red underwing.
One specimen caught at Dawlish Warren, Devon.
- 2418 *Earias clorana* Cream-bordered green pea.
Found commonly at Dawlish Warren and found at other localities in south Devon; odd records have also been noted from Cornwall.

The poor number of migrants that came to my garden in Teignmouth, Devon.

- 1395 *Udea ferrugalis* (Hb.).
Several seen throughout the year and are still appearing.
- 1398 *Nomophila noctuella* (D. & S.). Rush veneer.
A common species which started to appear from June.
- 1716 *Rhodometra sacraria* (Linn.). Vestal.
A singleton to my trap but they have been common on Dawlish Warren.
- 2385 *Spodoptera exigua* (Hb.). Small mottled willow.
A pair taken from several seen throughout the area.
- 2403 *Heliothis peltigera* (D. & S.). Bordered straw.
The best one of two that came to my garden trap.
- 2441 *Autographa gamma* (Linn.). Silver Y.
An ab. *gamma* and a normal specimen that was taken in March this year.

Species, in the main, bred this year from various localities.

- 1764 *Chloroclysta truncata* (Hufn.). Common marbled carpet.
Bred from larvae swept at Feshiebridge, Scotland.
- 1777 *Hydriomena furcata* (Thunb.). July highflyer.
Bred from larvae swept at Feshiebridge, Scotland.
- 1921 *Crocallis elinguaris* (Linn.). Scalloped oak.
An ab. *unicolor* bred from a larva swept at Feshiebridge, Scotland.
- 2010 *Odontosis carmelita* (Esp.). Scarce prominent.
A Scottish dark form of this species caught at light at Feshiebridge, Scotland.
- 2132 *Xestia castanea* (Esp.). Neglected rustic.
A pair of dark red specimens bred from larvae swept at Mooremore, Aviemore, Scotland.
- 2181 *Egira conspicillaris* (Linn.). Silver cloud.
Part of a series of typical specimens bred from a female caught at light at Kynaston, Hereford; kindly bred for me by Dennis O'Keefe.

The extensive variety of *Agrotis puta* and *A. clavis* found in south Devon.

- 2092 *Agrotis puta* (Hb.) ssp. *puta* (Hb.). Shuttle-shaped dart.
I have tried to name the various forms from Tutt's *The British Noctuae and their varieties* and as far as I can tell the red forms, which are predominant, are called "erythroxylea" and the rest of the forms correspond to the position in the row; 4th=radius, 5th & 7th=lignosa and 9th=radiola. A pair of south-east specimens were included for comparison.
- 2088 *Agrotis clavis* (Hufn.). Heart and club.
Some of the obscure forms of *Agrotis clavis*, mostly from my garden in Teignmouth.

Adam Muncer (1006J). The application stated that a giant snail, orchid mantis and whip scorpion would be shown but no exhibit note was handed in.

J.W. Ogilvie. Exhibited the Monarch or Milkweed butterfly. He had trouble with the Customs when he tried to get a larva of this species into England from Canada but after it had been examined by them he was allowed to keep it. After this larva had eaten all the Milkweed leaves, Mr Ogilvie obtained a plant of *Asclepias incarnata* from his local gardening centre; the larva took to the new leaves and then pupated. He put the pupa into the refrigerator while he awaited further stock from Worldwide Butterflies; these came as larvae which took to the plant of *Asclepias incarnata* but the leaves of this turned yellow in the autumn; he tried to get further supplies of Milkweed from Canada but on arrival these were damaged so he tried his larvae on chopped stems and leaves from these plants. All but one had pupated by this time. On 6.10.94 the first pupa hatched, the cooled-down one emerging as a perfect female on 7.10.94. The exhibit showed one larva, two pupae and eight butterflies; he is hoping that the stock will survive hibernation.

David Oram (7127) along with Rebecca (aged 10) and Richard (aged 14). Exhibited some butterflies and moths caught while on holiday on Sanibel Island, Florida, USA during August 1987 to 1988. Species exhibited were: Gulf fritillary, *Agraulis vanillae*; Zebra longwing, *Heliconius charitonius*; White peacock, *Anartia jatrophae*; Cassius blue, *Leptotes cassius*; Mangrove skipper, *Phocides pigmalion*; Dwarf yellow, *Nathalis iole*; Orange sulphur, *Colias eurytheme*; Orange giant sulphur, *Phoebis agarithe* and an unidentified hawkmoth.

J.H. Payne (9002J). Stated on his application that Arachnida would be shown but did not hand in an exhibit report.

Joe Parker. Exhibited examples of temperature experiments with butterflies. Species shown were ab. *semiicchrusoides* the Small tortoiseshell and the Silver-washed fritillary ab. *ocellata* and ab. *valesina*.

Joe Rogers. Exhibited three spiders and one scorpion. The spiders shown were Chili rose, *Grammastola cala*; a medium-sized tarantula with beautiful brown hairs; this spider is docile and his female is about five or six years old. Red rump, *Brachypelma vagas*; a rich velvety black spider with rusty red hairs on its abdomen; when adult, females exceed 60mm in length. Salmon-pink bird eater, *Lasiadora parahyhana*; this is a species second in size to the largest of all Theraphoside spiders – *Theraphosa leblondi*.

The scorpion was an Emperor, *Panthrobetius impurtus*: Joe's is an adult male which has been mated once. Some scorpions have the ability to change colour in ultra-violet light. Also shown was a cross-bred rat snake, everglade yellow, which feeds on mice.

P.J.C. Russell (8977). A case of butterflies from the Canary Islands of Tenerife and La Palma was shown. *Gonepteryx cleopatra cleobule* and *G.c. palmae*, endemic to Tenerife and La Palma respectively were compared, as were the two Large whites, *Pieris cheiranthi cheiranthi* and *P. cheiranthi benchoavensis* which are similarly endemic. Some species which are restricted to the Canaries, *Thymelicus christi*, *Cyclurius webbianus* and *Pararge xiphioides* were included with some endemic subspecies such as *Maniola jurtina fortunata* and *Euchloe belemia hesperidium*.

Two cases of butterflies from the south-eastern Aegean islands of Simi, Rhodes and Karpathos were shown. The display included examples of *Gonepteryx cleopatra fiorii*, *Hipparchia syriaca ghigii* (the two subspecies endemic to Rhodes) and *Hipparchia christenseni*, which is endemic to Karpathos. Some examples of *Allancastria cerisyi* demonstrated the different morphs found on Rhodes, the form *martini* having the normal red spots replaced by yellow spots on both upper and lower surfaces of the wings. Other species of interest were *Carcharodus stauderi ambiguus*, *Maniola telmessia*, *Pseudochazara anthelea anthelea* and *Plebejus loewii* all of which are at the western limits of their Middle-Eastern distribution in the Aegean islands. Some large *Papilio machaon syriacus* reared from ova taken on Karpathos, *Charaxes jasius* from ova taken on Rhodes and *Lampides boeticus* from larvae taken on Rhodes were included in the display.

John Sloggett (9638) & **Michael Majerus** (4027). The exhibit concentrated on the Scarce 7-spot ladybird, *Coccinella magnifica* (Coleoptera: Coccinellidae). This shows an unusual habit preference: this 7-spot ladybird can only be found in the immediate vicinity of the nests of wood ants, *Formica rufa*. Other species of ladybird, including the closely-related 7-spot, *C. septempunctata*, are attacked by these ants if they stray close to the nests. Scarce 7-spots are not molested by the ants, which ignore them. The exhibit considered the reasons why these ladybirds choose this lifestyle and how they are adapted to it. The display rounded off with a request for information on the Scarce 7-spot and other *Coccinella* ladybird species and went on to ask for samples of all ladybird species from around the world for research. The exhibitors also wanted information and samples of Brimstone (*Gonepteryx* spp.) and Clouded yellow (*Colias* spp.) butterfly species for other work being carried out.

St Ivo School Entomological & Natural History Society. The usual engaging menagerie exhibited by this enthusiastic group. All things furry, scaly and slimy were shown with great keenness by the juvenile *Homo sapiens* present.

Bernard Skinner. On display were:

Micro-lepidoptera

Udea fulvalis (Hübner): Three bred specimens ex-female Highcliffe, Hampshire, July 1993 together with photographs illustrating life history.

Salebriopsis albicilla (Herrich-Schäffer): Caught male specimens from Welshbury Hill, Gloucestershire, June 1994 together with photographs illustrating life history.

Melissoblyptus zelleri (de Joannis): Male with discal spots united, Greatstone, Kent, 14.7.94.

Homoiosoma sinuella (Fabricius): Male with banding on forewing, Stoke Saltings, Kent, 24.7.94.

Acrobasis repandana (Fabricius): Melanistic male, Hamstreet, Kent, 13.7.94.

Sciota adelphella (Fischer von Röslerstamm): Short series bred from south-east Kent.

Schoenobius gigantella (Denis & Schiffermüller): Melanistic male, Stoke Saltings, 24.7.94.

Perinephela lancealis (Denis & Schiffermüller): Albino male, Hamstreet, 13.7.94.

Macro-lepidoptera

Pelosia obtusa (Herrich-Schäffer): Two males and two females, Catfield, Norfolk. July 1994.

Hoplodrina alsines (Brahm): Albino male, Dungeness, Kent, 8.7.94.

Nola aerugula (Hübner): Male from Greatstone, Kent, 12.7.94 (fifteenth Kentish record this century).

Agrotis crassa (Hübner): Portland Bird Observatory, Dorset, 4.8.94 (sixth English record this century).

Paul Sokoloff. Exhibited a photograph of an unusual aberration of the Red admiral, *Vanessa atalanta* (L.). The butterfly was characterised by bright orange suffusion from the fore- and hind-wing bands, covering the basal areas of all wings, and extending to the thorax and abdomen. The coloration resembled that of *ab. eos* (Fritsch), but was much more extensive. The marginal white spots on the fore- and hind-wings were also much enlarged.

The insect was photographed at Hinksey Top, Oxfordshire on 27th August 1994.

Peter Tebutt (7941). A selection of aberrations taken or reared during 1994.

The more major aberrations consisted of several melanic specimens and these were: Duke of Burgundy fritillary, *Hemearis lucina ab. semibrunnea* (Osthelder), an almost black male Large skipper *Ochlodes venata ab. fuscus* (Frohawk), and three White admirals, *Ladoga camilla*, two female *ab. oblitterae* (Robson & Gardner) (one very extreme) and a small male *nigrina* (Weymer). I had been hoping to take these for over eight years and took the first two within one and a half hours of each other, the third being taken three days later.

Several female Silver-studded blues, *Plebejus argus argus*, were shown with varying amounts of blue scaling similar to the extinct race *masseyi*. The best of these had no trace of any lunules, almost the whole of the hindwings and base of the forewings distinctly blue, and a series of four black spots around the discoidal spot on the upperside forewings - a really striking specimen.

Also exhibited was a female Clouded yellow, *Colias croceus* ab. nov. This had a large teardrop - shaped discoidal spot on each hindwing with the forewing black bands devoid of any spotting but dusted with yellow scales.

A very unusual Brown argus, *Aricia agestis*, had a reduced number of underside spots and those that remained were drawn inwards to form an arc around the discoidal spot, ab. *obsoleta* (Tutt) + ab. *glomerata* (Tutt).

A male Essex skipper, *Thymelicus lineola* ab. *antiardens* (Lempke) with the blackish marking replaced by pale brownish and believed to be an albino form was also shown together with several minor aberrations of the Large heath, Small heath, Chalkhill blue and Orange tip.

A single moth was included. This was a smoky Garden tiger, *Arctia caja* ab. *fumosa* (Horhammer), and this was the last to emerge from only five larvae that were reared, the other four having already produced typical-looking specimens.

W.J. Tennant (7756). The genus *Plebejus* (Kluk) in north-west Africa.

Eleven pairs each of the these three described forms of *Plebejus martini* and of the closely related *P. allardi*, all endemic to north-west Africa, were shown to illustrate external differences: *P. martini martini* (Allard), flies in several areas in Algeria, from the Djurdjura Massif to the Aures mountains; *P. martini ungemachi* (Rothschild), flies in the Moroccan High Atlas and Middle mountains; *P. martini regularis* (Tennant), flies in the Moroccan Rif mountains; *P. allardi* (Oberthür), flies, without significant variation, from the Anti-Atlas mountains in the south-west of Morocco, through Algeria, to eastern Tunisia and western Libya. All forms are restricted but may be locally common.

Raymond Thompson (9301). This exhibitor, along with Kay Medlock, again produced an excellent exhibit promoting the British Dragonfly Society. Five panels of very large colour photographs taken by Kay Medlock were the highlight of the stand. Running at the same time was a continuous slide show of British and European species; some exciting video films of dragonflies, butterflies and other insects taken by Ray Thompson were enjoyed by the many people who came to the stand.

Paul Waring (4220). Some interesting moths from the Palava landscape area in the Czech Republic, 4th-9th September 1994.

Rhodostrophia vibicaria (Clerck) – a central and southern European geometrid, the larvae of which are reported to feed on broom *Cytisus scoparius* and sloe *Prunus spinosa*. This individual came to m.v. light on the edge of riverine woodland just north of Lednice on 5th September and was the only one we saw.

Cataclysmes riguada (Hübner) – Associated with warm, dry, open habitats where the larvae feed on various members of the Rubiaceae (bedstraws). Known to be well established on the Palava Hills just west of Lednice, where this singleton came to our m.v. light among the limestone stacks on 4th September.

Therapis (Epione) flavicaria (D. & S.) – A geometrid of south-eastern Europe, where the larvae feed on white dead-nettle *Lamium album*. This individual came to m.v. light on the edge of riverine woodland just north of Lednice on 9th September and was the only one we saw.

Artiora euonymaria (D. & S.) – Regarded as a local species, known from parts of Germany, Austria and Hungary but not apparently from France, Belgium or Corsica, the larvae feeding on spindle-tree *Euonymus europaeus*. Well established on the Palava Hills just west of Lednice, where several came to our m.v. lights and others were seen at rest on the larval foodplant on 4th September.

Chersotis margaritacea (de Villiers) – A noctuid moth of south-central and eastern Europe, the larvae feeding in flowers of hawkweeds *Hieracium* spp. Several came to our lights on the Palava Hills on 4th September.

Agrochola nitida (Scop.) – Formerly resident in the Breckland of East Anglia but no evidence of breeding since 1960. Widespread in warm dry habitats in Europe, the larvae feeding on field bindweed *Convolvulus arvensis*. An abundant species in the Palava Hills. This one came to light there on 4th September.

A paper containing further details of the visit to the Czech Republic can be read in *Bulletin* **54** (399): 66-76.

National Moth Conservation Project with Butterfly Conservation and Joint Nature Conservation Committee.

A display of photographs showing different aspects of the project, including survey and monitoring of the rarer British species, captive breeding of endangered species for ecological and behavioural observations to help with field work, and for established trials. Also shown were the new generation of national distribution maps with 1980 onwards as the most recent of date class, and a map of Britain showing the approximate location of a selection of target species which require urgent work.

David Young (5547).

Macro-lepidoptera:

Lymantria dispar (Linn.) Gypsy moth.

New Forest 5.8.94. Probable migrant specimen recorded on the same night as several specimens of *Nomophila noctuella*, *Rhodometra sacraria* and other common migrant species.

Drymonia ruficornis (Hufn.) Lunar marbled brown.

Ladycross, New Forest, Hampshire 25.4.93 m.v. light.

Area between ante- and postmedian lines whitish yellow as illustrated in *MBGBI* 9: plate 4:4.

Sesia apiformis (Clerck) Hornet clearwing.

Boxed from trunk of black poplar at Reading around 7.15 to 7.30am 27.6 to 1.7.94.

Hydraecia osseola hucherardi (Mabille) Marsh mallow moth.

Kent 7.9.94, reasonably common at m.v. or sitting on foodplant.

Catocala promissa (D. & S.) Light crimson underwing.

Repeated visits to favoured localities over the past two years suggest that both *sponsa* and *promissa* are at a low ebb at the moment. Some of the mature oaks in these localities are thought to be suffering from the effects of "acid rain" which is unlikely to be helpful to either species.

Agrotis ripae (Hübner) Sand dart.

Short series bred from larvae collected at Wittering, West Sussex and raised on Sainsbury's finest carrots.

Gortyna borelii lunata (Freyer) Fisher's estuarine moth.

From the usual Essex locality where it was reasonably common in October 1993.

Heliothis virescens Marbled clover.

Tilshead, Wiltshire 2.8.94 m.v. probably breeding in this area.

Polia bombycina (Hufn.) Pale shining brown.

Tilshead, Wiltshire. Common at m.v. light, June 1993.

Senta flammea (Curtis) Flame wainscot.

Cambridgeshire. Fairly common at m.v. light, June 1994.

Cabera pusaria (Linn.) Common white wave.

Aberration. Wales, July 1994.

Abraxas sylvata (Scop.) Clouded magpie.

Fairly common at m.v. light, Wales, July 1994.

Micro-lepidoptera

Elophila nymphaeata (Linn.) Brown china-mark.

A heavily-suffused specimen from the New Forest, 21.8.94, m.v. light.

Aglossa pinguinalis (Linn.) Large tabby.

Boxed from the walls of a Royal Artillery bunker on the Great Orme, North Wales. The moth seems to breed well on rabbit dung.

The compiler of these notes is not responsible for claims made by the exhibitors; however an effort has been made to be as accurate as possible.



Fig. 1. Light trap site and view from the gîte at Les Abèères, French Pyrenees, July 1994.



Fig. 2. *Odonestis pruni* from the French Pyrenees.



Fig. 3. "Wine-roping" for moths.

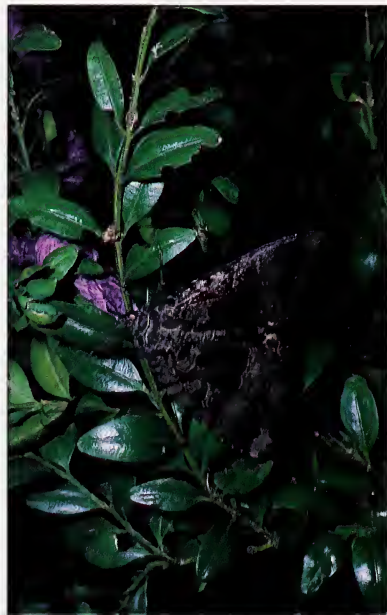


Fig. 4. Old lady moth *Mormo maura* on wine-ropes.

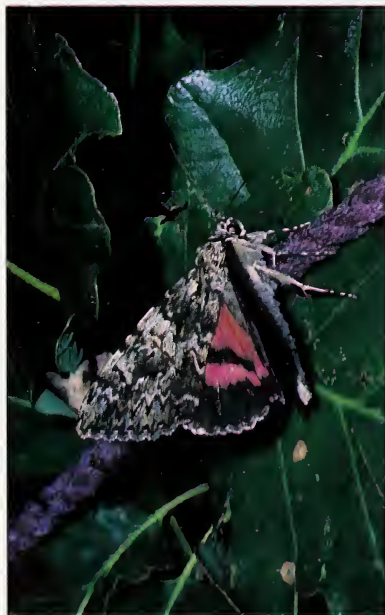


Fig. 5. Light crimson underwing *Catocala promissa* on wine-ropes.



Fig. 6. Terry Hollingsworth and Paul Waring using light with sheet at Les Esquirottes, 30th July 1994.



Fig. 7. Terry Hollingsworth and Rchael Thomas by culvert containing communal roost of Old lady moths, 30th July 1994.

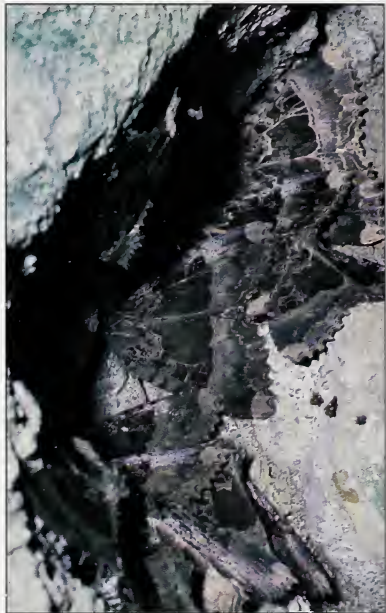


Fig. 8. Old lady moths at roost.

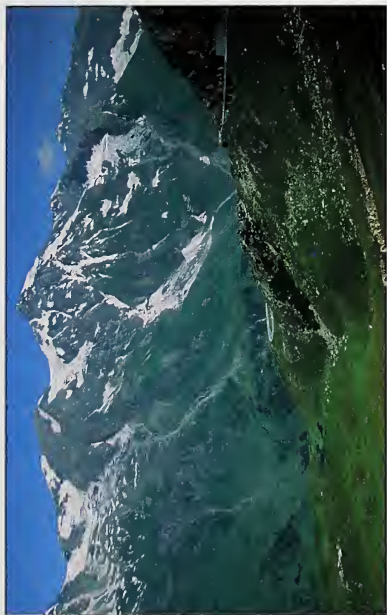


Fig. 10. Glossglockner Mountain Pass, Austria.

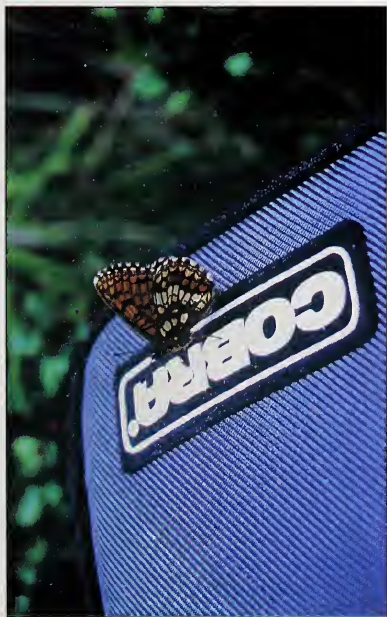


Fig. 9. *Mellicta athalia*.

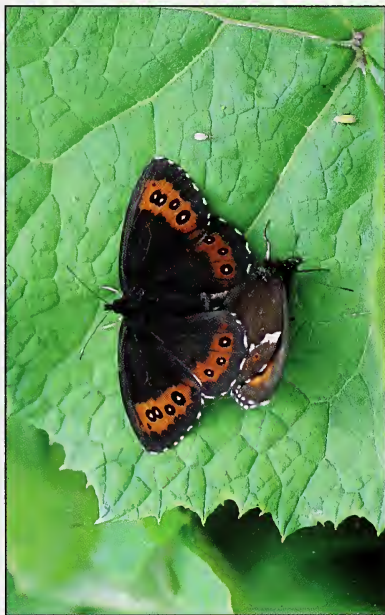


Fig. 12. *Erebia ligea* copulating in Schmittenhöhe, Austria.

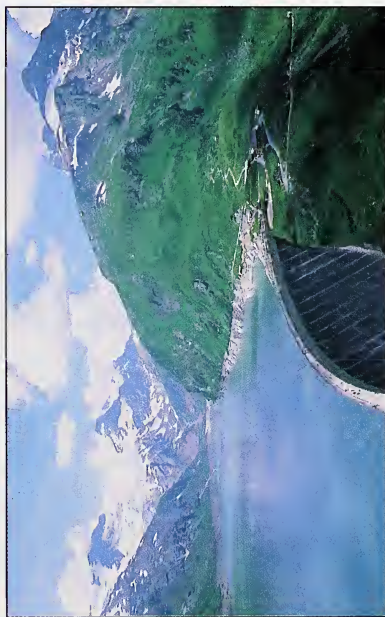


Fig. 11. Kaprin – the Upper dam, Austria.



Fig. 13. Dickerson's Lake, Milton Country Park, Cambridgeshire.



Fig. 14. Exuvia of *Enallagma cyathigerum*.

A FURTHER STUDY OF THE ODONATA OF MILTON COUNTRY PARK (SOUTH CAMBRIDGESHIRE)

by *D.F. Madin (10023)*

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An earlier report (Madin, 1994) was the result of incidental observations made during a comprehensive survey of the birds of the park. As anticipated in that paper, a more detailed study of the Odonata has increased the number of recorded species to 16 which is probably close to the maximum number to be expected at this site.

Study Area

The park is on the site of former gravel pits, in total about 35 ha. with two main lakes, the larger (Dickerson's Lake) being about 8 ha, with a well indented shore-line and a gently shelving bottom. The other pool (Todd's Lake; about 6 ha.) is rectangular, steeper-sided and rather deeper. Between the two is a small shallow pond and there is a fourth water area, where succession is well advanced, being mainly reed and willow scrub. During preparatory landscaping work in 1991-92 the amount of shallow water on both of the larger lakes was increased and some planting of emergent vegetation took place. For coarse fishing on the main lakes 47 platforms were constructed with a further four round the central pond to make them accessible for pond dipping by school groups. In addition, a public drain running across the full width of the park divides it into a northern section of two-thirds of the total area which includes most of the water and a drier southern section. Flow rate in this drain is directly proportional to recent rainfall. The wetland section of the park is completed by a seasonal pool which, being dry from late spring until mid-autumn, does not have a direct effect on Odonata ecology. Some grassland is mown as an amenity area while the remainder is not cut until the end of the summer.

Methods

Larvae were collected by pond dipping and exuviae (Plate 95P, Fig. 14) from emergent vegetation, while for adults identification was mainly by 8x20 close focus-monocular, with netting (followed by release) to allow closer examination if necessary. At times a x8 hand lens was used at this stage while for larvae and exuviae microscopic examination was often necessary. Keys in Hammond (1983) and McGeeney (1986) were used to confirm identification.



last updated 4.07.94

Fig. 1. Milton Country Park.

Accurate counts of species populations were not attempted, but estimates were made using the scale of the Cambridgeshire Dragonfly Survey (Perrin & Johnson) as shown in table 2.

The Odonata recorded fell into three groups, the first with a high number of individuals or confirmed breeding, the second in lesser numbers where breeding was not confirmed though there is suitable habitat on the site and the third group occurring in very low numbers and no optimum habitat with the park.

The variants *infuscans* and *rufescens* female *Ischnura elegans* were both recorded in small numbers.

Results

Table 1. Species recorded in the park.

Breeding confirmed	Possible Breeding	Probable Visitor ^a
<i>Ischnura elegans</i>	<i>Brachytron pratense</i>	<i>Calopteryx splendens</i>
<i>Enallagma cyathigerum</i>	<i>Aeshna mixta</i>	<i>Lestes sponsa</i>
<i>Erythromma najas</i>	<i>Anax imperator</i>	
<i>Coenagrion puella</i>	<i>Libellula quadrimaculata</i>	
<i>Pyrhosoma nymphula</i>		
<i>Aeshna cyanea</i>		
<i>Aeshna grandis</i>		
<i>Orthetrum cancellatum</i>		
<i>Libellula depressa</i>		
<i>Sympetrum striolatum</i>		

^aThe two species shown as "Probable visitor" both occur in field drains and the nearby river, as does *Sympetrum sanguineum* which is, therefore, a strong contender for future inclusion in the park list.

Table 2. Estimated populations.

Species	Scale ^b	Cambs ^c %	Species	Scale ^b	Cambs ^c %
<i>Ischnura elegans</i>	E	73	<i>Aeshna cyanea</i>	C	29
<i>Enallagma cyathigerum</i>	E	62	<i>Aeshna grandis</i>	D	48
<i>Erythromma najas</i>	D	30	<i>Orthetrum cancellatum</i>	D	33
<i>Coenagrion puella</i>	E	37	<i>Libellula depressa</i>	B	8
<i>Pyrhosoma nymphula</i>	D	9	<i>Sympetrum striolatum</i>	E	61

^bScale: A = 1 only seen; B = 2-9; C = 10-29; D = 30-99; E = 100 or more.

^cCambs %: From Perrin, V. and Johnson, I. (in press). Number of tetrads in which the species was found, expressed as a percentage of 275 tetrads surveyed.

pH values

The confirmed breeders are all species showing a preference for alkaline waters, while of the "possibles" *Brachytron pratense* is found in neutral to acid habitats. In the case of *Libellula quadrimaculata*, the British Dragonfly Society list it under non-acid, while Gibbons (1994) gives it as acidophilic. In view of these associations, pH value was checked at a number of points on the two main lakes, the central pond and the public drain, using a meter with a sensitivity of 0.01 pH.

Table 3. pH values.

	Dickerson's		Todd's		Drain		Pond	
	Aug	Nov	Aug	Nov	Aug	Nov	Aug	Nov
Number of reading points	10		7		4 ^d	5	1	
Mean pH	8.6	7.08	8.07	7.10	7.68	6.99	8.03	6.96
S.D.	0.38	0.04	0.47	0.12	0.12	0.20		

^dAt one position in August the drain was dry; water temperature 20°C. November water temperature 11°C.

All summer readings were above 7.0. Although both lakes showed variation at different points, the readings for Todd's were within 1 S.D. of the mean while those on Dickerson's were within 2 S.D. The only species showing close association with pH value was *Orthetrum cancellatum* which occurred in areas with the highest levels (8.8-9.1) but this area also had a firm, gravel bottom with abundant floating and emergent vegetation. On the bank at this point are a path and areas of bare earth and it is these factors which were the probable reason for the distribution of this species. As would be expected, after rain and wind the late autumn values were much more uniform throughout the study area. The photosynthesis of weed beds, algae and slimes on the substrate would account for the differential between the summer and autumn values (Jefferies, M. and Mills, D., 1990).

Habitat preferences

Like all insects Odonata require some warmth before they can become active and this was provided by the paths, fences, long grasses and other plants throughout the park. *Ischnura elegans* and *Enallagma cyathigerum* made some use of the paths and bridge railings, but in general preferred

close proximity to water and emergent vegetation. Within two clumps of nettles, *Urtica dioica*, the surface temperature of leaves was 5-8°C above ambient at 09.00 hrs, these sites being especially favoured by *Coenagrion puella* in early spring. *Aeshna grandis* favoured fences and vegetation, a notable feature being that where woodwork had been treated with preservative to give a brown coloration, *A. grandis* appeared to have a marked preference for these sections. At a different site (Roswell Pits, Ely), a four metre section of treated fencing held 17 *A. grandis* at 09.30 hrs on a fairly dull morning. More records are needed as this treatment was carried out on new or repaired fencing, the work involving cutting back of vegetation and therefore greater exposure to sunlight. *Sympetrum striolatum* also used fences (though not showing any colour preference) and vegetation, often long grasses, whilst *Orthetrum cancellatum* showed a strong tendency to use paths and bare earth. In mid-afternoon in summer an ambient temperature of 30°C resulted in a surface temperature of 43°C on the gravel of the footpaths and fishing platforms, but at this level most insects were seeking cooler positions.

As the insects reached maturity, the Zygoptera and *O. cancellatum* continued to remain near water; *A. grandis* was frequently seen over hedges, long grasses and an adjoining wheat field, while *S. striolatum* also favoured long grass as a feeding habitat.

Predation

Fishing in the lakes is managed by the Histon Angling Society with the park rangers as bailiffs and is operated on a "catch and return" basis with no (official) re-stocking. Under these conditions, it has been shown in the Lake District that a balance is achieved, resulting in a stable Odonata population (Fryer, G. 1991). Fish in the lakes are mainly pike and Cyprinids while other principal predators would be larger dragonflies preying on immature animals.

For adults, birds are the main enemies and it was observed that the two areas of nettle noted above were close to high concentrations of nesting insectivorous warblers. Towards the end of the flight period numbers of *C. puella* fell much more rapidly here than in other areas of the park.

Spider webs trapped several individuals on most days, the majority being Zygoptera. Little interaction was seen between dragonfly species, apart from the 13th public drain, where there were several encounters between *A. grandis* and *S. striolatum*, but these appeared to be territorial rather than predatory.

Management

It was fortunate that the method of mineral extraction between the late 1930s and 1960 was such that there were extensive areas of shallow water where a muddy substrate has developed in the intervening years. Natural succession and selective planting has extended areas of reed (*Phragmites australis*) and would encourage *S. sanguineum*. The regime of leaving grasses and other plants uncut until the end of the summer provided sunning perches for the dragonflies and optimal habitat for their prey species. The public drain is cleared annually to maintain an unobstructed water flow.

Acknowledgements

I would like to thank Malcolm Bushby, the head ranger, for permission to carry out netting and pond dipping and for his interest in the survey.

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AN OBSERVATION OF *PREPONA DEXAMENUS* (HOPFFER)

by J.A.D. Smith (5438)

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On my latest visit to Costa Rica in January 1995, residing at Hacienda Solimar in the south of Guanacaste Province, near to the Palo Verde Biological Station, I saw a specimen of this butterfly alight on a tree and was able to photograph it. This species is easily identified on account of its small size for the genus *Prepona* and the straight line interface between the basal and distal halves of the wings on the underside.

De Vries states in his excellent book *The Butterflies of Costa Rica* that it has not been recorded in that country although it does occur in Panama in lowland rain forest on the Atlantic slope. This sighting was in the north, quite near to Nicaragua, on the Pacific side, where the climate is quite different, and in the dry forest in the dry season. Little seems to be known of this pretty species although the genus is much prized by collectors. neither has the foodplant been documented.

THE USE OF SILICA GEL FOR DRYING INSECTS IN THE TROPICS

by *Phil Bragg (8737)*

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Although my main interest lies with Phasmids, I do occasionally collect other material for people working on other insect groups. I received a letter from an acquaintance in Australia to whom I had sent some cicadas which I collected in Borneo. I was particularly pleased to read "Your specimens had retained excellent colour, especially the green ones which usually reach me yellow or even dark brown, so whatever you did looking after them was extra good." In case anyone else is interested in how to retain green coloration when collecting insects in the tropics either for themselves or for others, the following may be helpful.

Basically I kill the insects, paper them, and put them in a box of silica gel to dehydrate them. The specimens I have collected in this manner have included cicadas, dragonflies, cockroaches, mantid and bush crickets.

Specimens are killed by being placed in a plastic bag, and dropping a small piece of cotton wool or tissue paper which has been soaked in ethyl ethanoate (= ethyl acetate) into the bag. Alternatively, with large insects, they are injected with a small quantity (eg 0.2cm^3) of 40% formalin; injection into the thorax is most effective. If ethyl ethanoate is used it is vital to remove the insect as soon as possible as it destroys green coloration very quickly. Formalin kills instantly and does not affect the colour, however, it does make it very difficult to relax the insect for setting.

The dead specimens are placed in paper packets, with data written on the packets. The packets are closed and put into an air-tight plastic box, 21cm x 15cm x 10cm, containing 200g of dehydrated silica gel. The gel contains cobalt chloride indicator and I dehydrate the gel as soon as it begins to change colour. How often dehydration of the gel is necessary depends upon the number and sizes of the insects collected. It may be sufficient to do it every few days, or it may be necessary to do it two or even three times per day. Dehydration is easily done by heating the gel in a small pan on a cooking stove. If (as I often am), you are camping or self-catering, it is easy to get in to the habit of dehydrating the gel while waiting for your coffee to cool to a drinkable temperature; by the time you finish washing up, the gel has cooled enough to be put back into the

box. Tipping the gel onto the top of the packets means that some finds its way to the bottom of the box, and some is in close contact with all the specimens.

Once you are sure the specimens are totally dry they can be removed from the box and placed in an airtight container (eg plastic bag). If you are collecting on a continual basis it is best to have two or three boxes to ensure that the older material has time to dry completely.

I should point out that I have only used the above method for peripheral material, not the material I am particularly interested in collecting. Anyone intending to collect their main interest group(s) in this manner should bear this in mind; if I collected Orthoptera seriously, I would need perhaps as many as eight or ten such boxes to deal with the quantity collected. You can fill a box with specimens if they are in varying states of dehydration: it would be unwise, however, to fill a box with fresh material as it would be unlikely to dry fast enough to prevent some rotting. I only rarely use this method for phasmids (usually I eviscerate, stuff with cotton wool, and set them immediately) because they tend to be very large, and are too fragile to be papered successfully.

A FURTHER NOTE ON SWALLOWTAIL LARVAE EATING GROUND ELDER

by Leigh Plester (2968)

I was interested to read Trevor Sampson's note (*Bulletin* 53: 204) concerning *P. machaon* larvae feeding on ground elder (*Aegopodium podagraria*). During the 1970–1980s, when I used to breed fairly large numbers of the species at a time in Finland, I fed the larvae almost exclusively on ground elder growing profusely between my "garden" and a small birch wood. Ground elder tends to keep rather well in water, often up to a week, whereas both wild angelica (*Angelica sylvestris*) and milk parsley (*Peucedanum palustre*) wilt rapidly when cut. I once saw a female deposit an egg on some ground elder in my garden and also found a couple of larvae in another year, but locally the species seems to prefer angelica and milk parsley, possibly due to the fact that ground elder likes the shade and the butterflies normally lay their eggs on plants in sunny situations (especially where they overhang pools and ditches).

Book Review

Danmarks Svirrefluer by Ernst Torp. Large 8vo (24x17cm), 490pp of which 21 coloured, 482 figures, 270 distribution maps. Danmarks Dyreliv Vol. 6. Apollo Books, Kirkeby Sand 19, DK-5771 Stenstrup, Denmark, 1994. Price DKK 300.00 (c. £35 plus postage).

Coming shortly after the new edition of *British Hoverflies* by Stubbs & Falk, this book forms an extremely useful complementary volume to all those interested in this group of Diptera.

Although this is a Danish book and written in that language, after each species description there is a brief summary in English and the majority of the figures also have English captions. Those that do not are easy to understand, however. It is unfortunate that the keys are entirely in Danish as this is going to make their use limited to those who take the time and trouble to familiarise themselves with perhaps the 200 Danish words necessary to work through them. The many illustrative figures in this section are of course an immense help in following them through.

The distribution maps are printed on a large scale, half a page to each. Under each species there are separate headings, describing in turn its characteristics, distribution (worldwide, not just in Denmark), biotope preferred, flight-period, flowers it prefers to visit, biology of the larva (where known), then the English summary.

An interesting comparison with the English hoverfly book is in the presentation of the illustrations which in the English book have the wings (where these are shown – often only the body is shown) set rigidly at right-angles to the body whereas in the Danish one they are swept back, delta fashion. Perhaps one result of these colour photographs is that they show how markedly similar so many species are to one another and how essential, therefore, keys are to run down the true identity. Nine of the colour plates are, however, devoted to rather fine photographs of the living insects.

This book more than complements Stubbs & Falk, for it gives far more useful biological information on each species, including the larval stages where known; and, in a number of instances I directly compared, the flight period in Denmark was longer than that given for England – interesting perhaps in view of Denmark's more northerly latitude.

There is a checklist and I was surprised to find that all Danish hoverflies have colloquial names (red fire hoverfly, sea dune fly). There is an extensive bibliography and glossary, followed by the index.

Denmark has about the same number (270) of species as we do. Many are common to both countries and in view of the uncertainty over the identity of some hoverflies and the almost certainty of more species being eventually recorded, a consultation of both the English and the Danish books makes good sense.

Brian O.C. Gardiner

WAS 1994 A GREAT CLOUDED YELLOW YEAR?

by A.D. Dillon

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I wonder if 1994 will go down as another great Clouded yellow year? I ask the question because on the 28th August I once again came across this rather rare migrant in a small field adjacent to Southend Airport, in south-east Essex.

I had spent only fifteen minutes recording the various butterfly species present, when I noticed a yellowish butterfly in the distance, flying close to the ground. As I suspected it might be a Clouded yellow, it was with some excitement that I went off in pursuit, and with little difficulty succeeded in netting the insect which proved to be a female, although in poor condition.

The insect must have been attracted to the large quantities of lucerne and clover growing in the field, as this is rather a rare habitat in this area. However, I am pleased to say that this is the second time I have recorded the species at this locality, the last occasion being in 1983, which some authors (e.g. Thomas & Lewington, *Butterflies of Britain & Ireland*, 1991) claim to be a very good year for the Clouded yellow in this country.

After some thought I decided to try and breed from the captive insect. As I had no supplies of clover or lucerne at home, I decided to leave the specimen on-site, enclosing it with a growing clover plant under a cylindrical, plastic cage. The cage was placed at the edge of the field and a honey-pad was placed on the muslin roof as a nectar source. Unfortunately, when the site was visited some time later the cage had disappeared and the butterfly had escaped. Although the enclosed plant was searched for eggs, regrettably none were found.

As this locality seems particularly attractive to the Clouded yellow within my immediate area, I now intend to visit the locality every August and September, in the hope of making further sightings of this rare and beautiful migrant.

THE SEARCH FOR *CRENATA* - THE DUSKY-MARBLED BROWN

by Dr P.J. Edwards (6871)

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For many years, I have run a moth-trap in the Aylesbury area which is not far from Halton. All this time I have been haunted by the quote from South and many others, that Parson Greene beat a larva of *Gluphisia crenata* "from a poplar near Halton" in 1853. They then go on to say that previously Henry Doubleday took two females of this moth in Ongar Park Woods in 1839 and 1841. So the Halton moth was the last of these rather drab little Notodonts to have been seen in England. This must make it one of our rarest native moths.

In the Entomological section of the *Victoria County History of 1905*, Parson Greene's capture is recorded in detail. On the 18th August 1853 he beat a larva out of black poplar "between Halton and Weston Turville". The two villages are about a mile apart separated by a flat damp area, ideal for black poplar.

He realised that his larva was out of the ordinary and it pupated the next day. He consulted some friends in the Entomological Society of London, and found his larva in Hübner's book of European moths. His friend expressed doubt. He took the pupa with him to Dublin where he spent the winter, where it hatched in a greenhouse in March 1854. In April of that year it was shown at the Entomological Exhibition in London where it was commented on by most of the journals of the time. H.T. Stainton reports it in detail in his *Entomological Annual* for 1855. By 1905 Greene was reported to be "much stricken in years" and he died soon afterwards aged 82.

The Rev. Joseph Greene MA is best known entomologically for his paper "Pupa Digging" published in the *Zoologist* in 1857. The next year the paper was published by Newman as a separate leaflet, price two pence. It brought lasting fame to Parson Greene. A proposal was made to present him with a testimonial in the form of a silver trowel. E.W. Classey re-published "Pupa Digging" in 1957 and pondered on the fate of the trowel in the first volume of the *Entomologist's Gazette*. Greene also caught two Mazarine blues (*Cyaniris semiargus*) at Guiting Power, near Cheltenham, where he was working in 1850. *C. semiargus* was rare then and is now extinct as a British butterfly.

Poor Parson Greene. He has fallen under something of a cloud which I feel is not justified. P.B.M. Allan suggests he was exaggerating in his claims of the number of pupae he had dug. Certainly 60 pupae in an area the size of a dinner plate and a thousand *incerta* larvae in one year seem rather excessive. As a result there is a lingering doubt about his honesty, but I think his enthusiasm was more that of a fisherman describing his catch, rather than dishonesty.

So what happened to the famous moth? In the *Entomologist's Record* of 1906 (xviii pl192) there is a report of the sale of Greene's collection at Stephens's Saleroom. The *G. crenata* fetched £8.10, a great deal of money for the time (the two *C. semiargus* fetched £5.00). We were not told who bought it. However it now sits resplendent in the National Collection at South Kensington, with Greene's label underneath.

Above it in the same drawer are Henry Doubleday's moths. But it is of great interest that there are three moths, not two, as so often stated. Doubleday was guilty of not labelling his specimens on the pin. So where did the third moth come from? Edward Newman in his *British Butterflies and Moths* says "Three specimens were taken at Epping". James English, who was employed by Doubleday to collect for him claims to have taken *G. crenata* at Ongar. (*Essex Field Club Records* July 1884). He states quite clearly "In 1843 *Gluphysia crenata* was taken at Ongar Park woods and subsequently two others, both females. They are now in the Doubleday Collection."

In *Moths & Butterflies of Great Britain* (Heath *et al* Vol. 9 p.6) mention is made of three Dusky marbled browns being taken among aspens on the Isle of Man. Indeed, in the same drawer as the Greene and Doubleday moths there is a single *G. crenata*, the label of which reads "Isle of Man E.G.M. 1870 Bred." David Carter, the collections manager at South Kensington, kindly pointed out to me a reference in the *Entomologist* for July 1874 by Gregson who was in Man at the time, saw the moths on the setting-boards and very much doubted that they were genuine. E.G.M. stood for E.G. Meek, one of the Kentish Buccaneers so criticised by P.B.M. Allan as being dishonest importers of foreign insects. It seems, therefore, that the report of *G. crenata* from the Isle of Man is probably false.

So to summarise, I think there are four good records of *G. crenata* in Britain, not three as normally stated: one caught by English, two by Doubleday and one bred by Rev. J. Greene. The report of the moth from the Isle of Man must be discounted.

WILL BREEDING AND INSECT NETS BE BANNED?

by *Tony Steele (4106)*

With the impending review of the 1981 Wildlife & Countryside Act, it would seem almost certain that the Act will be amended to encompass most of the British butterfly species. One interesting possibility which could arise, is that the possession and breeding of these protected species, and the carrying and/or use of insect nets would be prohibited, unless a licence is granted.

One well-known conservation organisation, has already requested that butterfly nets are not to be used on field trips. That request could easily become an order, and they may even appeal to Parliament to include a ban or restriction in the amendment.

Then we must not forget the excellent work that breeders do, be it just for interest, for photographic purposes, or for the perfect cabinet specimen. A gravid female is collected, her progeny are then reared to maturity with virtually no losses because of protection from parasites etc, and the surplus released in the original location, thus reinforcing the donor colony. Much valuable information has been discovered by amateur breeders over the years, and to ban this pastime will be a deplorable loss to the entomological world.

We all know that it is not collecting that is the main cause of the decline of our butterflies and other insects, but simply loss of suitable habitat. The chief culprit being the "head in sand" attitude of the Government to build more and more roads, instead of investing in a decent public transport system. These days, a site that has been designed SSSI status, is almost totally meaningless. Just look what happened to Twyford Down in Hampshire.

BANANA BUTTERFLY

by *Geoff Ayres (8950)*

I have recently been given a dead butterfly which was found, apparently trapped, in a bunch of bananas (*Musa x Sapientum* spp. *Tescola*).

It is fully expanded so I suspect that it may have chosen a poor roosting site. I identified the insect as *Hamadryas guatemalena* (Bates) so presumably the source was Central America.

THE V8 4x4 MOBILE INSECT TRAP

by Leigh Plester (2968)

Ylä-Muuratjärvi, 41800 Korpilahti, Finland.

Those who have had enough of the conventional light trap for catching insects might like to consider adding a few extra lights, a V8 petrol engine, some dented aluminium mudguards, and high and low ratio gearing. If the resulting con(trap)tion looks a bit like a Land-Rover, that may be because an insect trap of this kind has already proved a highly marketable commodity due to its mobility.

“While tearing out the lining from the roof of our 1980 Land-Rover in the summer of 1993,” I wrote on 14th November 1993, “I came across a large number of dead insects, mainly lacewings but including one or two other specimens. The vehicle has had a somewhat unusual history, having been shipped new to Bahrain in 1980 where it remained (according to a still intact tax disc) until at least 1986, when it was apparently shipped back to the UK.

“It was purchased from there in 1990 by a Finnish Land-Rover dealer and was stuck out in the yard in Helsinki until September 1992, when I bought it off them. The vehicle is a LWB model, registered in Finland as a van, but it may originally have been a pick-up later fitted with a van top in the UK. Presumably the cab, from the roof lining of which I detached some of the specimens, is original, though.

“So, all in all we could be looking at some common insects from the UK or some ‘exotic’ from Bahrain. It is also possible that the insects could have crept into the lining in Helsinki. There is, incidentally, a sticker on the rear side window advertising the Breckland Land-Rover Club and another for the Camel trophy/UK and Baikal, USSR (as it then was). Since the vehicle has my headhunter’s monkey skull charm hanging from the rear view mirror, yet has never actually been driven in Borneo, these stickers may merely have been acquired by an eccentric owner like myself.”

On looking up Sherlock Holmes of Baker Street, I discovered he had given up sleuthing and gone into television, so I sent the letter (abridged above) and the appropriate specimens to three experts: Eric Bradford in Kent (Microlepidoptera), Colin Plant in Hertfordshire (Naturalist, Entomologist and lacewing specialist), and Dr Rauno Linnavuori of Somersoja, Finland (Hemiptera, including those of the Middle East).

Mr Bradford replied, "I have managed to identify one specimen. It goes by the name *Agonopteryx heracliana* L., a common micromoth in this country (UK) and on the continent, including Norway and Finland. The Land-Rover must have been in the damp at some time as the moth was slightly mouldy; similar to bread mould. I had to dissect the body out which more or less fell apart in the petri dish. However, there was enough to make the determination. The second moth, or three-quarters of a moth (there was one forewing and two hindwings, no body) was the same species, probably a female. Nothing remotely exotic about them.

"I do not know what to make of the empty pupal skin. It could be from which the second moth emerged. I am not a specialist when it comes to pupae. There was also a husk of grass or grain, a bit of the roof lining and that's about it. Shame it wasn't an exciting thing from Bahrain but that's how it goes."

After receiving my initial enquiry together with a monochrome print, and later the desiccated lacewings, Colin Plant duly reported that, "I rather suspected what they might be when I got your first letter, as there is really only one species of green lacewing that hibernates and is therefore likely to be found in odd places such as Land-Rovers! My suspicions were strengthened when I saw the photograph and confirmed when I saw the specimens! They are all examples of *Chrysoperla carnea* Stephens (Neuroptera: Chrysopidae) – probably the most numerically abundant and geographically widespread green lacewing in the Palaearctic Region. In the Nearctic (North America) it is replaced by *Chrysoperla plorabunda* which, say some, is the same species with an American accent. It is present in Finland."

He then went into more detail. "*Ch. carnea* may in fact be a species complex. French researcher, Dr Patrice Leraut, recently split off *Ch. renoni*, *Ch. lucasina* and *Ch. kolthoffi* as distinct species, raising the names from the vast list of synonyms available for *carnea*. His views are not universally agreed, but there is, nevertheless, an International *Chrysoperla carnea* Working Group, based in Switzerland and organised by Dr Peter Duelli. Not as loony as it may initially seem – *carnea* shows great geographic variation and there is a theory that it is actually evolving before our very eyes.

"Sorry this is a rather boring response to a potentially interesting question, but the insects could have got in anywhere along the route and there are no clues from their identity!"

Members might like to note Mr Plant's final comment, "I should be pleased to look at Finnish lacewings if you ever need any identifying; and

Members might like to note Mr Plant's final comment, "I should be pleased to look at Finnish lacewings if you ever need any identifying; and of course if you ever come across any interesting species I do have a few "gaps" in my reference collection!", as I feel this could apply universally. I have to take issue with his comment about "boring response", however!

In turn, Dr Linnavuori replied that the solitary bug I had sent him ". . . belongs to *Elasmotethus interstinctus* L. (Acanthosomatidae). It is definitely not from Bahrain, but since it is common in the UK, Finland or even Siberia, I cannot tell its origin."

E. interstinctus is the birch shieldbug found throughout the British Isles in mixed broadleaf woodlands. It hibernates as an adult under bark or in moss. To these details from Southwood and Leston, one is tempted to add, ". . . and in the roof lining of old Land-Rovers!"

I should like to express my sincere appreciation to the three experts for identifying the specimens with such enthusiasm and dedication. The only other insect of merit I can recollect having seen in a trap fitted with an internal combustion engine was my first Mazarine blue (*Cyaniris semiargus*). This was caught in the radiator of a car in northern France in July 1962. I wonder whether other members have made use of similar traps?

REFERENCE

Southwood & Leston. (1959). *Land and Water Bugs of the British Isles*.



PALE CLOUDED YELLOW (C. HYALE) – A REQUEST FOR RECORDS

by Michael Edmonds (3821)

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The Pale clouded yellow is a butterfly which is rarely seen in this country, but with an exceptionally warm summer and the recording of numerous sightings of migrant species such as the Queen of Spain fritillary and Camberwell beauty the possibility of the Pale clouded yellow being sighted is high. I would, therefore, be pleased to hear of any sightings with a location and grid reference.

PRESERVING ONE'S RECORDS

by R.A. Eades (9730)

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Peggie Pitkin's note (Vol. **53**: 256) is of great interest. Undoubtedly she is correct in wishing to avoid "twitching" entering entomology, though it surely cannot be denied that the urge to collect and classify is deep rooted in people, even entomologists. Indeed, our great museums are founded on this need.

May I suggest that one practical step which every naturalist should take is to ensure that one's notes and records are entered into a permanent archive for storage after one's death. The local museum or public record office would seem a sensible location. Time after time, the vultures and tidy-up brigade come along after the sad event, looking for pickings. That which is not financially valuable is thrown into the dustbin. How many priceless collections and diaries have been lost in this way, through ignorance and apathy? It really does not bear thinking about!

A further useful task would be to try and analyse one's records over the years. Probably the most productive way would be to look at each site that one has ever worked, and draw up a list of species found there, with details of abundance, changes in status, exceptional years of abundance or disappearance. The further back one can go, the better. A site-based approach would probably be the most useful for conservationists, especially in planning battles.

It is surprising how frequently it happens that when a planning application is put forward which will destroy a good insect habitat, almost invariably nothing is written up nor published about the location. Yet it has been worked by local naturalists and entomologists for years, if not generations. The knowledge resides in diaries, collections, or people's heads, but not in a form which can be presented to a planning inspector. With "motorway madness" still this country's only transport policy, nowhere can be assumed safe.

For those brave souls who have entered the computer age, the final solution would presumably be to enter all one's records onto a computer disc. This can then be lodged at a museum or data bank, copies can easily be made from it, and the storage problem of bulky notebooks can be reduced. English Nature have produced a software package called "Recorder" which the experts say is ideal to store and collate records for future use. Perhaps this will eventually create a "Domesday Book" for nature conservation?



60 YEARS OF THE AMATEUR ENTOMOLOGISTS' SOCIETY **Part IV. 1965-74**

by Wayne Jarvis (9899)

During the late 1960s, conservation became a common interest amongst entomologists and this was highlighted in *Bulletin* articles in particular. The 1940s reporting of insect collecting now gave way to observations and habitat reports.

The AES went into its fourth decade with a stable membership of just over 800 and the *Bulletin* in its 24th Volume. H.V. Danks continued his reign as editor, and in August 1965 produced a special issue (Volume **54**: Number 268) in which two articles were published, *A guide to, and local insects in north-west Cornwall* by D. Trebilcock and *Insect migration – a review* by C.B. Williams. 1965 was a good year for the Society, with production and sale of AES metal badges (still available today) for 3s 9d with 4d postage and packing, but the highlight of the year was undoubtedly the exhibition. This was again held at Hugh Myddleton School in October and attracted an enormous number of exceedingly high quality exhibits despite the summer being one of the worst ever for sun-loving insects, especially in the Home Counties.

A subscription increase greeted 1966, after heavy losses in the previous year, partly due to the large August *Bulletin* which cost £223 to produce compared with the normal *Bulletin's* cost of £143. A huge interest was shown by Junior members in stick-insects which were now readily available to those who wished to rear them. Field meetings were also regularly organised during the year.

A regular *Bulletin* feature over the years had been D. Ollevant's *Smaller moths – collecting notes*. With the August 1966 *Bulletin* (Volume **25**: Number 272) this was taken over by A.M. Emmet.

February 1968 saw the only remaining Study Group of the Society, the AES Breeding Group, become the AES Conservation Group, in light of the keen interest in conservation. The *Bulletin*, by this time had become dominated with the larger articles which prior to 1963 had been hard to

come by. Mr Danks resigned from the editorship with the May 1968 issue due to personal reasons, ending his six year association with the *Bulletin*. His successor was David Corke (who incidentally some 20 years later was my lecturer at University – and I never knew that he had edited the *Bulletin*!). The Royal Entomological Society called a special meeting on 21st June 1968 to set up an independent broadly-based committee for the conservation of insects, the JCCBI, in which the AES had, and still has, an active part. By the end of the year, the Society saw a second Study Group formed, this being the reformation of the Silkmoth Rearers' Group.

A new *Bulletin* format was seen in 1969, with a look more familiar with today's publication. The two-column structure adopted over the past 30 years was abolished, thus making it easier to publish longer articles as AES leaflets. The conservation group continued to thrive and the exhibition was a huge success, with a change in venue to Holland Park, Kensington, where space was more freely available.

David Corke resigned as *Bulletin* editor with the February 1970 edition (Volume **29**: Number 286) and was replaced by John Bocock. A third Study Group, the Midlands Group was formed during this year.

The first ever black and white photographs were included in the *Bulletin* in 1971, with two pictures of dark bush crickets being incorporated into an article in Volume **30**: Number 293, November 1971 pp118-9. However, the next photographs didn't appear for a couple of years. Over 2000 people attended the exhibition, but traders were beginning to dominate the event, far outweighing exhibitors, and Council decided to address this the following year.

John Bocock joined the list of retired editors in February 1972 (Volume **31**: Number 294) and was replaced by Paul Boswell. It was during this year that the membership passed the 1000 mark for only the second time in the Society's history.

An important year in the Society's history was 1973, the Society gained Charity Status. The *Bulletin* increased in size and the printer was changed. Ellis and Phillips Ltd were replaced by the Kettering-based V.B. Pike. During 1973 two official sub-committees of the Society were formed. The Conservation group was amalgamated into the Society as the Conservation Committee, and a Finance Committee was set up. The 300th *Bulletin* appeared during 1973 in August, which also saw the departure of Paul Boswell as editor. With no successor forthcoming, Peter Cribb stepped into the editor's shoes in a temporary capacity until a replacement could be found.

Only two *Bulletins* went by until that successor was found. Brian Gardiner stepped forward to begin a spell of 20 years of highly successful editorship. Brian had previously had a brief association with the *Bulletin* under Beowulf Cooper in 1947-8.

A selection of *Bulletin* articles from the decade follows.

From Volume 24, Number 267, May 1965, Page 68.

LETTER TO THE EDITOR

by Wendy Russ (3784J)

Sir,— Last year I found an old Song Thrush's nest, three feet up in a hedge. Later, when taking it to pieces to look for insects, I was surprised to find a moth pupa inside it. The pupa was kept and later produced a specimen of the Clouded-bordered brindle (*Apamea crenata* Hufn.). Surely this was a very unusual place for a caterpillar to pupate. Have any other members found pupae in birds' nests?

From Volume 25, Number 272, August 1966, Pages 82-83.

COLLECTING FLIES WITHOUT A NET

by R.M. Payne (2982)

Collecting flies without a net has at least two distinct advantages. The specimens are much less likely to be damaged than if they are caught on the wing, or swept off vegetation: and you can observe them beforehand and study their behaviour, either with the naked eye or under a weak lens with a suitably wide field.

I have spent many pleasant hours looking for and at flies in situations that lent themselves to this technique, for example on tree trunks, on the wet moss and rocks by waterfalls or on broad leaves in my garden. To give you an idea of the variety of flies that occur in such places I will describe two particular occasions.

One day in June 1964 I strolled down a broad ride in Epping Forest, and paused to examine the trunks of a few oak (*Quercus* sp.) and Hornbeam (*Carpinus betulus* Linn.) trees. My only equipment was a number of glass tubes, a hand lens and a notebook. If you have not looked closely at a trunk in summer before, it is surprising what a lot of insect life is to be seen on its surface. In a very short time I had tubed specimens of twelve species of flies in nine families.

By far the most abundant fly was the tiny Empidid *Tachypeza nubila* Meig., which was running about the trunk. The other species were: Tipulidae, *Ilisiaoccoecata* Edw. and *Molophilus ochraceus* Meig.; Culicidae, *Ades cantans* Meig.; Mycetophilidae, *Tetragoneura sylvatica* Curtis; Rhagionidae, *Rhagio scolopacea* Linn. and *R. lineola* Fab.; Dolichopodidae, *Medeterus tristis* Zett. and *Sciopus platypterus* Fab.; Muscidae, *Alloestylus diaphanus* Weid.; and undetermined species of Cecidomyiidae and Phoridae (two very difficult families for which keys are not available).

The other occasion was very different. At the end of June 1964 I was climbing up a shoulder of the Brecon Beacons, and stopped to have my sandwiches by a small waterfall about 2000 feet above sea level. After I had eaten I looked closely over the sheet of wet moss hanging at the sides of the waterfall, and found several males of the large *Rhagio scolopacea* Linn. sitting in their usual attitude face downwards. The other flies noted on this moss were all Tipulids – perhaps because this is the family I am most interested in! Species were *Tipula cheethami* Edw., *Dolichopeza albipes* Stroem., *Dicranomyia didyma* Meig., *D. aquosa* Verrall and *Tricyphona claripennis* Verrall. All these flies were captured simply by tubing them as they rested on the moss. In the case of one species – *Dolichopeza* – I was able to make some notes of their courtship behaviour while I watched them, subsequently capturing just one specimen to confirm their identity.

From Volume **26**, Number 275, May 1967, Page 54.

SKIN CHANGING IN THE INDIAN MOON MOTH

by D.J. Longman (4042J)

Last year (1966) I bred some *Actias selene* Huebn. (Indian moon moth). They were easy to breed, but turned out to be rather a problem in the winter, because the only food that they would take was Rhododendron and I had to keep getting fresh supplies, which were about ten miles away.

The small larvae hatched from fairly large ochreous coloured eggs and assumed a red colour with black warts with white hairs arising from them. This skin lasted for just under a week.

The second skin was much the same, although there was a black band running cross-ways over the body. This skin lasted for just under two weeks.

The third skin was considerably different from the previous two. Its main colour was a transparent green, but the warts had changed colour to

yellow. In this skin, and in the future skins. I saw the front four warts become more prominent. This skin lasted for approximately two and a half weeks.

The only difference in the fourth skin was the increase in size, and the time that the larvae kept the skin. I now expected the larvae to pupate, but instead they kept feeding. They changed three more skins before pupating in a thin, papery cocoon, which was made by bringing two or three leaves together with a few strands of brown silk. The larvae did not complete the cocoon straight away, but waited for about forty hours before commencing again. It took about three days' work by the larvae to complete the cocoon.

The pupae were about one and a half inches long, with a rich dark brown surface. There was no sign on the wing cases of the long tails that are present on the hindwings.

Would anyone who has had a larva change more than seven skins, please let me know?

From Volume 27, Number 278, February 1968, Pages 33-34.

GNATS WITH AN ANTENNA FOR MUSIC

by Leigh Plester (2968)

Quite often, while perusing literature outside my own immediate spheres of study, I discover an item which interests me not simply as another piece of scientific knowledge, but rather as a novel piece of information easily recalled to mind for a long time afterwards.

Such an item appears in *Annales Zoologici Fennici* (1966), in which Jaakko Syrjamaki reports his observations on dusk-swarming in *Chironomus pseudothummi* Strenzke. These observations were made at the Lammi Biological Station, south Finland (61°03'N; 25°03'E), during the late summer of 1965.

"One evening, when watching the swarm, I began to hum a Finnish folk-song. As I hummed the first note, the whole swarm abruptly moved down and the nearest swarmer flew very vigorously to the vicinity of my mouth. This led me to stop humming, whereupon the males immediately returned to the swarm. The tone sung proved to be G (i.e. about 200 vibrations per second) as determined with the aid of a piano-forte in the nearby home of the janitor of the Station."

I would be interested to know whether any of our members have met with similar experiences in the field. Syrjamaki records that the

phenomenon has been observed before (Nielsen and Grieve, 1940), but as neither of these observations was made in Britain, if one of our dipterists is sufficiently interested he could perhaps perform some original work in the field using, for example, a set of tuning forks. It might be possible to discover what vibrations attract the males of the various British species, hence to contribute to the knowledge respecting mate-attraction in the females.

References: Syrjamaki, J. (1966). *Annales Zoologici Fennici*, **3**(1): 20-8. Dusk swarming of *Chironomus pseudothummi* Strenzke. (Dipt. Chironomidae).
Nielsen, E.T. & Grieve, H. (1950). *Bull. Entom. Res.*, **41**: 227-28. Studies on the swarming habits of mosquitoes and other Nematocera.

From Volume 27, Number 278, February 1968, Pages 34-5.

THE GLOW-WORM IN KENT

by Brian Wurzell (3718)

Recently I heard that as this insect seems to be decreasing in numbers recent records were of special interest. In June 1967, I found Glow-worms (*Lampyrus noctiluca* Linn.) to be quite frequent in the Weald of Kent, just south of Knole Park, Sevenoaks. Any half an hour's walk after dark would certainly reveal two or three females on pathsides and verges, while males regularly came to electric lights, presumably confusing artificial light with the sexually-inviting light of the female. Perhaps the female's light renders her far more vulnerable to nocturnal predators, not to mention collectors, or even passers-by who cannot resist handling, or displaying to their friends, objects of unique interest. More publicity about the precarious status of the Glow-worm could do no harm.

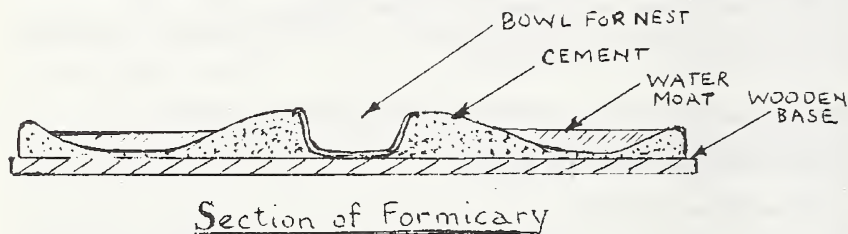
From Volume 32, Number 301, November 1973, Page 172.

KEEPING THOSE ANTS AT BAY (AND ALIVE)

by T.P. Payne (4688)

I refer to I. Scott's troubles with keeping his ants. I offer the following observations which he might find helpful. Insects flourish best in captivity when given as much space as possible so the Formicarium should be as big as is convenient. Ants can roam over any surface, even when upside down, within their foraging area. The ants' nests at the London Zoo are given about three feet in each direction but this may be too large for the average amateur. A moat of water is still the best way to confine the ants but the base of the "island" should slope gently towards the water and not end abruptly in a "cliff" over which the ants are sure to fall. They

need water and can get what they want from the water's edge of the sloping shore. Water will have to be added daily in hot weather to compensate for evaporation and a wide wall brush should be passed over the surface to remove debris and film which forms on the surface and enables the ants to cross over. Outdoor cages should be protected from birds and it is sufficient to form a frame of timber which is then covered with nylon netting of the type used to cover fruit bushes.



The making of the cage can be as follows. A plastic washing-up bowl is placed on an old table top or similar flat board of the dimensions suggested above, in the centre of the board with the bowl mouth upwards. A mould of cement/sand mixture is built up around the bowl to its lip and then dished away and down to be raised again at the periphery of the table so that a moat is formed around the central island (see sketch). The ants' nest is set in the bowl with soil and litter from the original site of the nest if possible. It is a heavy contraption so should be made in situ.

Do not use DDT to prevent roaming as the ants will bring it back into the nest with fatal results. Suitable food for the ants to collect can be placed in spots around the island.

SLOVENIA OR SLOVAKIA?

by Wg Cdr R. Parker (5247)

263 Back Row, Bury St. Edmunds, Suffolk IP28 8EX.

Readers wishing to see the limestone valley in the Mala Fatra National Park, pictured on Plate 95G in Vol. 54 No. 399, should be sure to visit the right country. It is not in Slovenia (former Yugoslavia) as suggested in the caption, but in Slovakia (former Czechoslovakia) – as correctly described in the map and article (p. 67).

UNLIKELY BUTTERFLY HABITAT IN THE PHILIPPINES

by Peter B. Hardy (9436) and Grace C. Abejuela

10 Dudley Road, Sale, Cheshire.

During three weeks of butterfly observation in the Philippines in December 1994 and January 1995, as well as visiting areas recognised as prime butterfly habitat, we carried out some studies on the extent to which some of the more successful species were able to utilise sites which would not normally be regarded as suitable habitat.

Such an area is Subic port, a former United States Navy base now developing as a large-scale hotel, recreational and duty-free shopping zone. Essentially it is an extensive complex of buildings and roads, interspersed by areas of mown lawns, flower beds and occasional planted trees. Although there is extensive primary rainforest about five miles away, virtually no natural vegetation exists in the port area.

Shortly inside the port entrance, beside the road, we came across a very large number of Common lineblues (*Prosotas nora*), centred on a single small leguminous tree (approximately 15 feet tall), identified by GCA as a "Camachile" (*Phitacelobium dulce*). Close to the tree were several small ornamental shrubs with red flowers ("Gumamela"), and some of the butterflies were straying over these; however, the Camachile tree was clearly their base and there were none on nearby Tamarind/Sampalok trees. The butterflies were very active; up to a hundred could be seen in a space of a few minutes constantly making short flights around the tree and adjacent vegetation, while others were resting with closed wings or dorsal-reflectance basking with wings three quarters open. Some were feeding from secretions on the leaves. We stayed four days in the area and each time we passed during daylight hours the butterflies were active, apparently without regard to whether the day was sunny or cloudy, even when it was quite windy. They appeared quite undeterred by the constant passage of pedestrians and vehicles. Also, electric lights which were hung around the tree and switched on at night presumably did not affect them.

We did not observe any dispersal away from the tree, and although no egg-laying was witnessed, we are confident that the colony was breeding on it. Elsewhere in the port area, although there were small numbers of the butterfly around other Camachile trees, we found no other colony comparable in size.

During previous tours of the Philippines we have come across this species similarly congregating around single trees; however we feel the present observation to be of exceptional interest because of its unlikely location.

Diary Dates

Abbreviations

BENHS	British Entomological and Natural History Society.
I:	Information from:
LCES	Lancashire and Cheshire Entomological Society.
LSL	Linnean Society of London.
RES	Royal Entomological Society of London.
RES(QG)	RES Rooms, 41 Queen's Gate, London SW7.
RSPB	Royal Society for the Protection of Birds.

To make the diary effective contributions are needed from members. Any relevant items should be sent to the *Bulletin* Editor. No charge is made for entries. Please allow three months advance notice.

SEPTEMBER

- 2nd ***BENHS Field Meeting***
 Snettisham RSPB Reserve, Norfolk. Meet at 12.00hrs and 18.00hrs at car park (TF 647335).
I: Ken Saul 01493 369021.
- 9th ***BENHS Field Meeting***
 Dungeness, Kent. Meet at 18.00hrs at Britannia pub car park (TR 092168).
I: Sean Clancy 01797 321458.
- 13th ***Some contributions towards a Red Data list of Lepidoptera and other invertebrates in the London area.***
 Joint BENHS and LSL meeting. Colin Plant, well known for his detailed reviews mapping the distribution of invertebrates in the London area talks about how his work helps to assess which species are declining and threatened. At Linnean Society's rooms. Burlington House, Piccadilly from 18.00hrs.
I: Dr Ian McLean, 109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.
- 14th/ ***Forests and Insects.***
 15th Symposium of the Royal Entomological Society of London to be held at the Natural History Museum, London.
To Register or for I: Mr G.G. Bentley at RES 0171 584 8361.

- 16th ***LCES Field Meeting.***
Cil-y-Groeslwyd, Clwyd. Daytime meeting in conjunction with the Clwyd Entomological Society. Meet at grid reference (SJ 126553) at 11.00hrs.
I: Rob Whitehead 01824 704507.

Leafhopper Workshop.

BENHS Workshop at Dinton Pastures Country Park, Davis Street, Hurst, Reading. (SU 784718). Starting at 10.30hrs. Please book places prior to event.

To book or for I: Dr Ian McLean, 109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.

BENHS Field Meeting and Genitalia Workshop.

Natural History Museum Gardens, London. Day to be split between insect survey and tuition in the preparation and drawing of the genitalia of Lepidoptera. Contact leader in advance please.

I: Malcolm Scoble 0171 938 9200.

- 19th ***LCES Indoor Meeting.***
Talk to be held at Liverpool Museum 19.00hrs – subject and speaker to be finalised.

OCTOBER

- 7th ***AES Annual Exhibition.***
Kempton Park Racecourse. Doors open 11.00hrs until 17.00hrs.
**I: Roy McCormick,
36 Paradise Road, Teignmouth, Devon TQ14 8WR.**
- 10th ***BENHS Indoor Meeting – British Hairstreaks and their Conservation.***
RES(QG) 18.00hrs. Ken Willmott gives a talk on these attractive and elusive butterflies which have distinctive conservation needs.
**I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.**
- 17th ***LCES Indoor Meeting.***
Review of the 1995 season. At Liverpool Museum, 19.00hrs.
- 28th ***BENHS Annual Exhibition and Annual Dinner.***
Exhibits are encouraged. Non-BENHS members please contact the organiser for details in advance.
**I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.**

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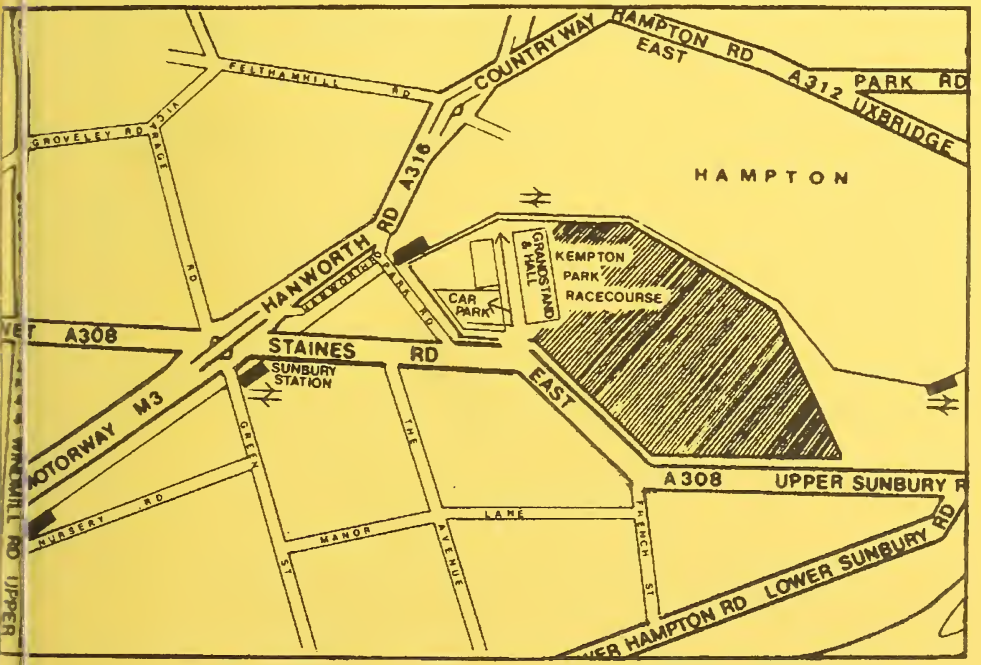
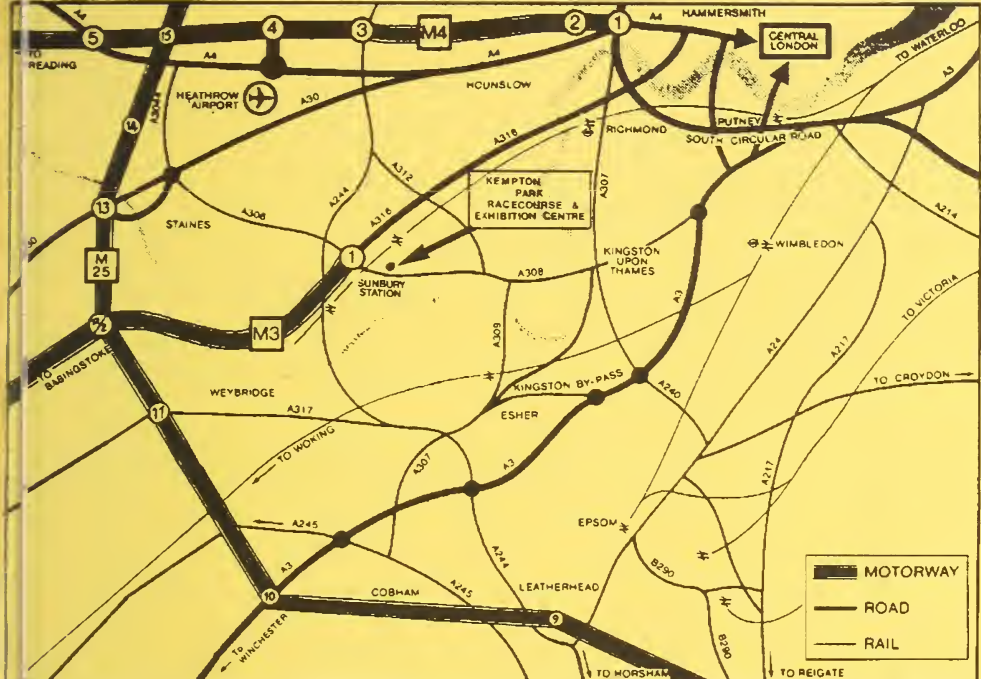
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ALL ENQUIRIES: *Roy McCormick,*
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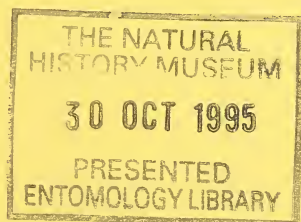
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The Bulletin of the Amateur Entomologists' Society

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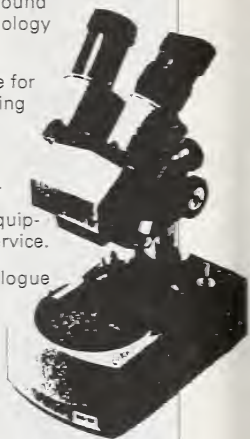
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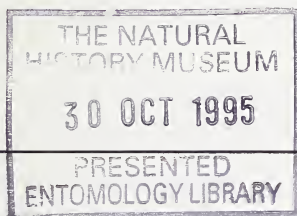
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AES BULLETIN

No. 402



EDITORIAL

It was with great sadness that the Society heard of the tragic death of Eric Bradford, who has been an integral part of the Society for many, many years. Eric's devotion and dedication to entomology in general was second to none, and we send his family our dearest sympathy.

I would like to apologise to all authors who have submitted a paper recently. Due to the inclusion of *ICN* within the *Bulletin* and the length of articles which have accompanied colour plates, it has meant that there has been a build up of articles on my desk. Please rest assured that if you have sent an article it will be published as soon as possible!

The new look *Bulletin* is now certain to be launched in February. I am still interested to hear of any features that you would like to see included in the future, after all it is your journal and we aim to include what you want to read. If you have any comments or suggestions, please feel free to drop me a line.

The 1995 exhibition was, once again, a success despite the inclement weather. It was Roy McCormick's last exhibition as the organiser, and on behalf of the Society, I would like to thank him for all his hard work, which has paid off year after year, making the event a very enjoyable occasion. Hopefully, his successor, Maxwell Barclay, will be able to continue where Roy has left off.

Finally, please note that subscriptions are due shortly, and it would help the registrar enormously if the membership forms are returned as soon as possible. We are also in the process of compiling a new membership list for 1996 and we would appreciate it if the accompanying interests form could also be returned.

Best wishes,
Wayne Jarvis.

HOW LONG-LEGGED WAS THAT ROMAN SOLDIER? – A CONTRIBUTION ON *ROMANUS LONGIPES*

by Neil A. Robinson (10002)

I enjoyed reading Richard Jones's article *How big is that bug?* in the October 1994 issue of the *Bulletin*, which prompted some mental meanderings on my own part.

I note that the mile (originally 1618 yards) for a Roman soldier was 1000 paces. Mighty long-legged these Romans, with paces of 1.6 yards! The explanation, I recollect from my schooldays, is that the Roman pace was a double stride *ie* the distance advanced by each foot, not the distance between feet, so the Roman *mille passuum* was 2000 of our paces. That makes their pace 0.8 yards or 28.8 inches which sounds about right for their reputedly smaller stature – they were in fact *Roman brevipes*.

I was intrigued to learn about the origin and size of that mysterious unit of length the “line” which I can remember encountering in old books when I was a boy without ever knowing what it meant, and why my word-processor gives Font sizes in “points”, but I thought that typesetters designed layout in “ems”. The *Concise O.E.D.* defines “em” as “the unit for measuring the amount of printed matter in a line”, without explaining the dimensions – so what on earth is an “em”?

On the subject of systems based on twelves, I think there are even older systems based on sixes and 60s. I remember vaguely from my schooldays that the reason why divisions of 60 are so prevalent in time-keeping and in geometry (6 x 60 degrees in the circle) is that arithmetic used by the Egyptians, the earliest Western astronomers, was based on these units (but I am not suggesting that it was because they had six digits). Perhaps someone can confirm this or correct me on this matter?

Finally, I dread the 25 millimetre worm (though not as much as the 25 metre Lampton Worm recorded in V.C. 66 near Penshaw Hill) which puts me in mind of the crooked man who walked a crooked 1.6 kilometres and found a crooked . . .

[Printer's note: Because we need some standard to work to, the good old-fashioned printer works still to the old printers' standard:

72 points to the inch (even *this* measurement is approximate!)

To make matters worse, the “em” is a variable measure too! It is a square unit for any size type you are using. For example: if you are using 12 point type, the em is 12 point x 12 point (=6 to the inch); if you are using 8 point type, the em is 8 point x 8 point (=9 to the inch); and so on with all sizes of type.

I think there is a shift-tendency towards the dreaded metric system, but well-trained printers still plump for the time-honoured system because, well . . . it does work for us at Cravitz!

**MOTHS AND BUTTERFLIES OF THE FRENCH PYRENEES,
22nd – 31st JULY 1994**

by Paul Waring (4220) and Rachael Thomas

continued from page 129

Up into the mountains

On 26th July we drove up into the mountains to Col de Portel (42°55'N 1°21'E) and spent two hours, from 12.00 - 14.00 hrs, enjoying the hot sun. Here we visited open hillsides covered in ling heather, bracken, bramble, broom and St. John's-worts *Hypericum* spp., with patches of betony *Betonica officinalis*, bird's-foot trefoil and thyme *Thymus* sp. Male Oak eggar moths were patrolling and we saw several of the purple and gold geometrid *Lythria purpurata* which can easily be confused with *Lythria purpuraria* which has only two major purple bands across the forewing rather than the three of *L. purpurata*. Six-spot burnet moths *Zygaena filipendulae* were frequent, feeding at Scabious flowers. This was a good place for butterflies and we saw several High brown fritillaries *Argynnis adippe* flying up and down amongst the patches of bracken. A specimen was netted to confirm that it was not a Dark green fritillary *A. aglaja* or a Niobe *A. niobe*. A couple of the Knapweed fritillary *Melitaea phoebe* were also noted. Several of the dark brown Piedmont ringlet *Erebia meolans* were seen feeding on flowers of a small scabious, a Swallowtail *Papilio machaon* was photographed sunbathing on a bracken frond, Small tortoiseshells *Aglais urticae*, Clouded yellows *Colias croceus* and Meadow browns *Maniola jurtina* were common, a Purple emperor *Apatura iris* was seen flying around scrub woodland fringing the hillside and a female Brimstone *Gonepteryx rhamni* and a male Pale-shot copper *Lycaena alciphron gordius* were also noted.

We moved on to a rocky limestone peak just above the lake at Etang de Lers (42°48'N 1°23'E). Here was a quite different habitat (altitude 1517 metres) comprising scattered bushes of juniper *Juniperus communis*, bramble, holly, hazel and red elder with carpets of harebells *Campanula rotundifolia*, the pale yellow flowering *Sideritis hyssopifolia* a small labiate, a Lady's mantle *Alchemilla* sp., a rock-rose *Helianthemum* sp., fringed pinks *Dianthus monspessulanus*, thyme, bird's-foot trefoil and St. John's-worts *Hypericum* spp. The Chalkhill blue *Lysandra coridon* was common, with males and females nectaring on the *Sideritis*. Several Large wall browns *Lasiommata maera* were flitting about and male Six-spot burnets were patrolling. A worn female Oak eggar was found and a small white geometrid which proved to be a female

Crocota peletieraria was noticed at rest on the bare rock. We sat enjoying the scenery and watching these insects from 16.00 - 17.00 hrs before driving on.

At 17.45 hrs just below Port de Lers (41°48'27"N 1°25'9"E, c.1500 metres) we pulled over at a series of hairpin bends to watch a female Apollo butterfly *Parnassius apollo* still feeding in the flower of spear thistle *Cirsium vulgare* even though the sun had gone in. We watched it for over half an hour and in the process disturbed what looked like a large grey Common carpet moth *Epirrhoe alternata* but which proved to be *E. molluginata*, which was at rest on the underside of a bramble leaf.

On 27th July we drove high up into the mountains to the French border adjoining Andorra. We followed the D108 road up from Videssos, via Marc, until it became an unsurfaced track up to the reservoir de Pla de Soulcem and beyond, negotiating steep hair-pin bends and loose rock scree until the boulders on the track became so large and difficult to negotiate that we pulled the car over to let the engine cool down and continued on foot. The climb had got us up into open grassy hillsides lightly grazed by cattle, with U-shaped valleys and streams (altitude 2500 metres). There were very few trees or bushes. To give an idea of the flora, some of the plants noted amongst the grass sward included yellow bedstraw *Galium verum* (on which we found a full-grown caterpillar of the Hummingbird hawk-moth), thyme, bird's-foot trefoil, yellow rattle *Rhinanthus* sp., yarrow *Achillea millefolium*, harebell, fringed pink, eyebright *Euphrasia officinalis* agg. and the St. John's-wort *Hypericum maculatum*. Just below the Andorran border an Apollo flew across the track and a Berger's clouded yellow *Colias alfacariensis* was seen traversing the slopes. The Common brassy ringlet *Erebia cassioides* and the fawn and white pyralid moth *Pansteugia aerealis* were plentiful along the track. Several Small mountain ringlets *Erebia epiphron* were seen and a large off-white Wave moth *Scopula incanata* was flushed from among rocks when we sat down to take in the scenery and identify some plants.

On the descent we found large amounts of flowering dark mullein plants once we reached the lower wooded altitudes below Marc (1043 metres) so we stopped off to inspect them for Shark larvae (*Cucullia* sp.), finding several dozen caterpillars of the Striped lychnis *Cucullia lychnitis*.

We returned to the gîte via Port de Lers, seeing another Apollo, this time a male, at the same hairpin bend where we saw the female the day before. Marbled whites *Melanargia galathea* were everywhere on the limestone.

We reached Col d'Agnes on the D8 road (41°47'35"N 1°22'39"E, altitude 1570 metres) at 19.00 hrs and pulled the car over to photograph the backdrop of snowy peaks as the afternoon drew to a close and it became overcast. A silky black geometrid was seen nectaring at the flower of a marsh thistle *Cirsium palustre* by the roadside, along with several Six-spot burnet moths. The geometrid proved to be a male *Crocota peletieraria*, the white female of which we had seen the day before. We motored on down to the village of Aulus les Bains, with its picturesque church amid the mountain setting, to return to our gîte, a restful meal and the excitement of another night's light-trapping.

Carcassonne, Quillan and Montsegur

On 28th July we drove out from the gîte, leaving the foothills of the Pyrenees, and motored across the agricultural plains to the ancient walled city of Carcassonne, surrounded by vineyards. This was purely a sight-seeing trip and our only entomological note was the finding of a single forewing of the Knapweed fritillary *Melitaea phoebe* in the tourist car park. Of course the wing may have fallen from the front of any car with which the butterfly may have collided, the butterfly possibly originating from many miles away. Carcassonne was at one time very much associated with the Cathars, a religious group, and it was to their mountain-top stronghold of Montsegur that we next headed, travelling via, and staying overnight at, the delightful old village of Alet les Bains near Quillan. On the campsite among mature poplars *Populus* by the river we put up some wine-ropes after erecting the tent. They were up by 20.30 hrs and were checked at 22.30 hrs on our return from the restaurant in the village but no moths were seen at all.

The mountain sides above Quillan were much more exciting for Lepidoptera. The vegetation was largely parched and dry, with scattered clumps of evergreen or holm oak *Quercus ilex*, box *Buxus sempervirens*, scrubby pines *Pinus* sp., a thorny broom-like plant and a few maples *Acer* sp., in marked contrast to the lush vegetation around the gîte. We stopped at a largely empty cleared area which served as a car park cum picnic site, with a panoramic view, on the Foix road (D117) 4km east of Nebias, by the junction with the Coudons road (D613) (at approximately 42°53'N 2°09'E). This was a particularly good spot for butterflies, largely because of a bank of nectar flowers on the disturbed limestone ground at the edge of the car park, the result of earlier bulldozing no doubt. A mauve-flowered scabious was abundant, along with marjoram *Origanum vulgare*, a stoncrop *Sedum* sp. and yellow-wort *Blackstonia perfoliata*.

Such a concentration of flowers was not seen elsewhere in the landscape and butterflies finding them were evidently remaining in the vicinity. We saw several fresh Swallowtails and a Scarce swallowtail, Silver-washed fritillaries *Argynnis paphia*, a male Cleopatra brimstone *G. cleopatra* and several of the False grayling *Arethusana arethusa*. Other species noted included a Painted lady *Cynthia cardui*, several Clouded yellows *Colias croceus* and Berger's clouded yellows, Bath whites *Pontia daplidice*, Marbled whites, Adonis blues *Lysandra bellargus*, Common blues *Polyommatus icarus* and a Brown argus *Aricia agestis*. This is definitely a place to return to one day with a light-trap and generator.

Montsegur was nothing short of spectacular. The road winds steeply up into the mountains and eventually one sees a small fortification perched up on a pinnacle. It was a hot sunny day on our visit as we squinted up at this whitish Cathar edifice against a clear blue sky. There is a car park on the nearest flat ground which hummed with the sound of radiator fans on the hot engines of recently-parked cars. The final climb is on foot, up a well-worn path through wonderful steep flower-rich limestone grassland and scrub. Entomologically this was memorable for the numbers of the Large blue butterfly *Maculinea arion*, here occurring in a dusky form associated with higher altitudes.

Motoring on to visit the limestone cave at Bedeilhac, near Tarascon, we came across a lovely flower-rich meadow on the north side of the D119 within sight of Le Serat-Maury. It contained much flowering knapweed, mallow, bird's-foot trefoil and various umbels and was alive with Common blues, Gatekeepers *Pyronia tithonus*, Small heaths *Coenonympha pamphilus*, Meadow browns and Wall browns *Lasiommata megera* and would surely repay greater entomological investigation. There was nothing to indicate whether or not this meadow enjoys any special conservation status.

Journeys to and from the Ariège

We travelled pretty directly to and from the Ariège so that we could spend as much of our time as possible within striking distance of the gîte. We can recommend travelling down the western side of France, from Cherbourg, and find this is more scenic than some other routes we have taken south through France. Nevertheless it is a long haul and two days should be allowed for a pleasant relaxed journey. Quite by chance we found an excellent campsite for the lepidopterist, which is the right distance from Cherbourg to break the journey south and this is a tip worth passing on.

The campsite is situated in oak woodland with good-sized trees, has excellent facilities and a superb local restaurant within walking distance. It is called Camping Municipal La Garenne, 17250 Pont L'Abbé, D'Arnoult (Tel: 49.97.01.46). The campsite is 3km from the N137, from which it is signposted. At the Restaurant le Porche in the village we had a superb four course meal of traditional cuisine for 65F (about £8) a head. PW was too sleepy to do any moth work on this first night in France, due to too many late nights mothing in Britain before we set off and little sleep on the ferry, but the site looked very promising for moths and it is a place we would like to return to.

Our homeward itinerary was different. We left the gîte at 15.00 hrs on 31st July, encountering an amazing thunderstorm and heavy downpour shortly afterwards, during which plane trees *Platanus* sp. along the Toulouse ring-road system shed many branches. We camped overnight on a rather sterile campsite at Puymirol. The site consisted of mown grass and ornamental hedges of laurel *Laurus* and privet *Ligustrum*, with some poplars, in open farmland. We hung four wine-ropes on the hedges around the tent and succeeded in attracting the sleek Black copper underwing *Amphipyra livida*, an Orache *Trachea atriplicis* and a Purple cloud *Actinotia polyodon* by our efforts.

We spent our last night within easy striking distance of the ferry, at Camping à la Ferme, La Cour, 53640 le Ribay, Normandy (c/o R. Bergue, Tel. 43.03.90.84) which is the best of the three campsites in the area from the point of view of light-trapping possibilities, with pastures, hedgerows, mature trees and an old orchard, in contrast to the rather ornamental campsites we saw nearby. Facilities were basic and might be stretched if the campsite was busy, but it was empty on the night we were there. The owner is very friendly and took us to his wine-cellar, where he makes a prize-winning pommeau from the apples grown in the orchard!

Concluding remarks

There is no doubt that a wide variety of moths exist in the semi-natural habitats of the Pyrenees. The interest in these records shown by several French contacts and the scarcity of resident recorders in this large area indicate that visitors can make a useful contribution towards updating records and extending coverage. This is equally true of many other places. There is a growing need for up-to-date species lists for national and international mapping projects. Readers are strongly urged to publish their findings so that they are available for other workers and projects in the host country and can be located through routine literature searches,

now and in the future. As a result of modern computerised indexes, locating published lists is increasingly easy and the *AES Bulletin* is already becoming known as a fertile source of records.

Acknowledgements

We would like to thank David and Elaine Corke for so kindly making available their gîte for our use, our neighbours in the surrounding gîtes for welcoming us during our stay, Terry Hollingsworth for our mothing night together at Les Esquirottes, Barry Goater and Manfred Sommerer for help with some of the moth identifications, Nick Greaterex-Davies for discussions on the Satyrines following our illustrated talk on this project to the Huntingdonshire Moth and Butterfly Group, Martin Honey and the staff at the Natural History Museum, London, for access to the National Collection, Keith Kirby for identifying our sprig of *Quercus pubescens* and Malcolm Rush, English Nature librarian for arranging the loan of various botanical books.

Table 1. Macro-moths recorded at Les Abères, Rivière-enert, St. Giron, Dept. Ariège, French Pyrenees, 22nd - 31st July 1994.

(a) Species which are also resident in Britain.

HEPIALIDAE	
Map-winged swift	<i>Hepialus fusconebulosa</i> (DeGeer)
COSSIDAE	
Leopard moth	<i>Zeuzera pyrina</i> (Linnaeus)
LIMACODIDAE	
Festoon	<i>Apoda limacodes</i> (Hufnagel)
LASIOCAMPIDAE	
Oak eggar	<i>Lasiocampa quercus</i> (Linnaeus)
Drinker	<i>Euthrix potatoria</i> (Linnaeus)
DREPANIDAE	
Scalloped hook-tip	<i>Falcaria lacertinaria</i> (Linnaeus)
Oak hook-tip	<i>Drepana binaria</i> (Hufnagel)
Barred hook-tip	<i>D. cultraria</i> (Fabricius)
Scarce hook-tip	<i>Sabra harpagula</i> (Esper)

THYATIRIDAE

Peach blossom	<i>Thyatira batis</i> (Linnaeus)
Buff arches	<i>Habrosyne pyritoides</i> (Hufnagel)
Common lutestring	<i>Ochropacha duplaris</i> (Linnaeus)

GEOMETRIDAE

Grass emerald	<i>Pseudoterpna pruinata</i> (Hufnagel)
Large emerald	<i>Geometra papilionaria</i> (Linnaeus)
Little emerald	<i>Jodis lactearia</i> (Linnaeus)
Mocha	<i>Cyclophora annulata</i> (Schulze)
Maiden's blush	<i>C. punctaria</i> (Linnaeus)
Blood-vein	<i>Timandra griseata</i> (Petersen)
Lace border	<i>Scopula ornata</i> (Scopoli)
Small fan-footed wave	<i>Idaea biselata</i> (Hufnagel)
Single-dotted wave	<i>I. dimidiata</i> (Hufnagel)
Riband wave	<i>I. aversata</i> (Linnaeus)
Flame carpet	<i>Xanthorhoe designata</i> (Hufnagel)
Red twin-spot carpet	<i>X. spadicearia</i> (Denis & Schiffermüller)
Dark-barred twin-spot carpet	<i>X. ferrugata</i> (Clerck)
Shaded broad-bar	<i>Scotopteryx chenopodiata</i> (Linnaeus)
Common carpet	<i>Epirrhoe alternata</i> (Muller)
Galium carpet	<i>E. galiata</i> (Denis & Schiffermüller)
Beautiful carpet	<i>Mesoleuca albicillata</i> (Hübner)
Purple bar	<i>Cosmorhoe ocellata</i> (Linnaeus)
Phoenix	<i>Eulithis prunata</i> (Linnaeus)
Spinach	<i>E. mellinata</i> (Fabricius)
Small phoenix	<i>Ecliptopera silaceata</i> (Denis & Schiffermüller)
Common marbled carpet	<i>Chloroclysta truncata</i> (Hufnagel)
July highflyer	<i>Hydriomena furcata</i> (Thunberg)
Fern	<i>Horisme tersata</i> (Denis & Schiffermüller)
Pretty chalk carpet	<i>Melanthia procellata</i> (Denis & Schiffermüller)
Brown scallop	<i>Philereme vetulata</i> (Denis & Schiffermüller)
Cloaked carpet	<i>Euphyia biangulata</i> (Haworth)
Tawny-speckled pug	<i>E. icterata</i> (Villers)
V-pug	<i>Chloroclystis v-ata</i> (Haworth)
Green pug	<i>C. rectangularis</i> (Linnaeus)
Lesser treble-bar	<i>Aplocera efformata</i> (Guenee)
Clouded magpie	<i>Abraxas sylvata</i> (Scopoli)
Clouded border	<i>Lomasipilis marginata</i> (Linnaeus)
Peacock	<i>Semiothisa notata</i> (Linnaeus)
Sharp-angled peacock	<i>S. alternaria</i> (Hübner)
Latticed heath	<i>S. clathrata</i> (Linnaeus)
Barred umber	<i>Plagodis pulveraria</i> (Linnaeus)
Scorched wing	<i>P. dolabraria</i> (Linnaeus)
Horse chestnut	<i>Pachycnemia hippocastanaria</i> (Hübner)
Brimstone moth	<i>Opisthograptis luteolata</i> (Linnaeus)
August thorn	<i>Ennomos quercinaria</i> (Hufnagel)
Early thorn	<i>Selenia dentaria</i> (Fabricius)
Lunar thorn	<i>S. lunularia</i> (Hübner)
Purple thorn	<i>S. tetralunaria</i> (Hufnagel)
Scalloped oak	<i>Crocallis elinguaris</i> (Linnaeus)
Peppered moth	<i>Biston betularia</i> (Linnaeus) (typical form)
Waved umber	<i>Menophra abruptaria</i> (Thunberg)

Willow beauty	<i>Peribatodes rhomboidaria</i> (Denis & Schiffermüller)
Mottled beauty	<i>Alcis repandata</i> (Linnaeus)
Pale oak beauty	<i>Serraca punctinalis</i> (Scopoli)
Engrailed	<i>Ectropis bistortata</i> (Goetze)
Common wave	<i>Cabera exanthemata</i> (Scopoli)
Clouded silver	<i>Lomographa temerata</i> (Denis & Schiffermüller)
SPHINGIDAE	
Small elephant hawk	<i>Deilephila porcellus</i> (Linnaeus)
NOTODONTIDAE	
Alder kitten	<i>Furcula bicuspis</i> (Borkhausen)
Lobster moth	<i>Stauropus fagi</i> (Linnaeus)
Iron prominent	<i>Notodonta dromedarius</i> (Linnaeus)
Pebble prominent	<i>Eligmodonta ziczac</i> (Linnaeus)
Lesser swallow prominent	<i>Pheosia gnoma</i> (Fabricius)
Swallow prominent	<i>P. tremula</i> (Clerck)
Coxcomb prominent	<i>Ptilodon capucina</i> (Linnaeus)
Pale prominent	<i>Pterostoma palpina</i> (Clerck)
LYMANTRIIDAE	
Yellow-tail	<i>Euproctis similis</i> (Fuessly)
Black arches	<i>Lymantria monacha</i> (Linnaeus)
ARCTIIDAE	
Rosy footman	<i>Miltochrista miniata</i> (Forster)
Dingy footman	<i>Eilema griseola</i> (Hübner)
Scarce footman	<i>E. complana</i> (Linnaeus)
Buff footman	<i>E. deplana</i> (Esper)
Four-spotted footman	<i>Lithosia quadra</i> (Linnaeus)
Garden tiger	<i>Arctia caja</i> (Linnaeus)
Buff ermine	<i>Spilosoma luteum</i> (Hufnagel)
Ruby tiger	<i>Phragmatobia fuliginosa</i> (Linnaeus)
NOLIDAE	
Kent black arches	<i>Meganola albula</i> (Denis & Schiffermüller)
Least black arches	<i>Nola confusalis</i> (Herrich-Shaffer)
NOCTUIDAE	
Turnip moth	<i>Agrotis segetum</i> (Denis & Schiffermüller)
Dark sword-grass	<i>A. ipsilon</i> (Hufnagel)
Flame shoulder	<i>Ochropleura plecta</i> (Linnaeus)
Broad-bordered yellow underwing	<i>Noctua fimbriata</i> (Schreber)
Lesser broad-bordered yellow underwing	<i>N. janthe</i> (Denis & Schiffermüller) agg.
Least yellow underwing	<i>N. interjecta</i> (Hubner)
True lover's knot	<i>Lycophotia porphyria</i> (Denis & Schiffermüller)
Purple clay	<i>Diarsia brunnea</i> (Denis & Schiffermüller)
Setaceous hebrew character	<i>Xestia c-nigrum</i> (Linnaeus)
Dotted clay	<i>X. baja</i> (Denis & Schiffermüller)
Triple-spotted clay	<i>X. ditrapezium</i> (Denis & Schiffermüller)
Green arches	<i>Anaplectoides prasina</i> (Denis & Schiffermüller)
Dot moth	<i>Melanchnra persicariae</i> (Linnaeus)

Bright-line brown-eye	<i>Lacanobia oleracea</i> (Linnaeus)
Broom moth	<i>Ceramica pisi</i> (Linnaeus)
Campion	<i>Hadena rivularis</i> (Fabricius)
Brown-line bright-eye	<i>Mythimna conigera</i> (Denis & Schiffermüller)
Shark	<i>Cucullia umbratica</i> (Linnaeus)
Alder moth	<i>Acronicta alni</i> (Linnaeus)
Grey dagger	<i>A. psi</i> (Linnaeus)
Knot grass	<i>A. rumicis</i> (Linnaeus)
Marbled beauty	<i>Cryphia domestica</i> (Hufnagel)
Copper underwing	<i>Amphipyra pyramidea</i> (Linnaeus)
Bird's wing	<i>Dypterygia scabriuscula</i> (Linnaeus)
Small angle shades	<i>Euplexia lucipara</i> (Linnaeus)
Olive	<i>Ipimorpha subtusa</i> (Denis & Schiffermüller)
Dun-bar	<i>Cosmia trapezina</i> (Linnaeus)
Light arches	<i>Apamea lithoxylea</i> (Denis & Schiffermüller)
Slender brindle	<i>A. scolopacina</i> (Denis & Schiffermüller)
Rustic	<i>Hoplodrina blanda</i> (Denis & Schiffermüller)
Marbled white-spot	<i>Lithacodia pygarga</i> (Hufnagel)
Scarce silver-lines	<i>Bena prasinana</i> (Linnaeus)
Green silver-lines	<i>Pseudoips fagana</i> (Fabricius)
Nut-tree tussock	<i>Colocasia coryli</i> (Linnaeus)
Burnished brass	<i>Diachrysia chrysitis</i> (Linnaeus)
Beautiful golden Y	<i>Autographa pulchrina</i> (Haworth)
Plain golden Y	<i>A. jota</i> (Linnaeus)
Gold spangle	<i>A. bractea</i> (Denis & Schiffermüller)
Dark spectacle	<i>Abrostola trigemina</i> (Werneburg)
Light crimson underwing	<i>Catocala promissa</i> (Denis & Schiffermüller)
Small purpled-barred	<i>Phytometra viridaria</i> (Clerck)
Straw dot	<i>Rivula sericealis</i> (Scopoli)
Beautiful snout	<i>Hypena crassalis</i> (Fabricius)
Snout	<i>H. proboscidalis</i> (Linnaeus)
Fan-foot	<i>Herminia tarsipennalis</i> (Treitschke)
Clay fan-foot	<i>Paracolax derivalis</i> (Hübner)
Olive crescent	<i>Tristateles emortualis</i> (Denis & Schiffermüller)

(b) Species not resident in the British Isles.

LASIOCAMPIDAE

Odonestis pruni (Linnaeus)

DREPANIDAE

Dusky hook-tip *Drepana curvatula* (Borkhausen) M

GEOMETRIDAE

Blair's mocha *Cyclophora puppillaria* (Hübner) M

SPHINGIDAE

Convolvulus hawk *Agrius convolvuli* (Linnaeus) MHumming-bird hawk *Macroglossum stellatarum* (Linnaeus) MStriped hawk *Hyles lineata* (Fabricius) M

NOTODONTIDAE

Dusky marbled brown *Harpyia milhauseri* (Fabricius) M*Gluphisia crenata* (Esper) M

THAUMETOPOEIDAE

Pine processionary *Thaumetopoea pityocampa* (D. & S.) M

LYMANTRIIDAE

Black v moth *Arctornis l-nigrum* (Muller) M

Gypsy moth *Lymantria dispar* (Linnaeus) M

ARCTIIDAE

Paidia murina (Hübner)

NOCTUIDAE

Purple cloud *Actinotia polyodon* (Clerck) M

White-point *Mythimna albipuncta* (D. & S.) M

White-speck *M. unipuncta* (Haworth) M

Tree-lichen beauty *Cryphia algae* (Fabricius) M

Latin *Callopietria juventina* (Stoll) M

Small mottled willow *Spodoptera exigua* (Hübner) M

Silver Y *Autographa gamma* (Linnaeus) M

Dewick's plusia *Macdunnoughia confusa* (Stephens) M

Ephesia fulminea (Scopoli)

Deltotes candidula (D. & S.)

Jubilee fan-foot *Herminia lunalis* (Scopoli) M

M = recorded as a migrant to Britain.

Table 2. Species list for Les Esquirottes (42°55'N 0°57'30"E), Illartein, Forêt Domaniale de Bellongue Sud, Castillon-en-Couserons, Ariège, France, 30th July 1994.

COSSIDAE

Leopard moth *Zeuzera pyrina* (Linnaeus)

LASIOCAMPIDAE

Lackey *Malacosma neustria* (Linnaeus)

Oak eggar *Lasiocampa quercus* (Linnaeus)

DREPANIDAE

Oak hook-tip *Drepana binaria* (Hufnagel)

Dusky hook-tip *D. curvatula* ((Borkhausen)

THYATIRIDAE

Peach blossom *Thyatira batis* (Linnaeus)

Buff arches *Habrosyne pyritoides* (Hufnagel)

Common lutestring *Ochropacha duplaris* (Linnaeus)

GEOMETRIDAE

Little emerald *Jodis lactearia* (Linnaeus)

Birch mocha *Cyclophora albipunctata* (Hufnagel)

Maiden's blush *C. punctaria* (Linnaeus)

Riband wave *Idaea aversata* (Linnaeus)

Flame carpet *Xanthorhoe designata* (Hufnagel)

Red twin-spot carpet	<i>X. spadicearia</i> (Denis & Schiffermüller)
Shaded broad-bar	<i>Scotopteryx chenopodiata</i> (Linnaeus)
Common carpet	<i>Epirrhoe alternata</i> (Muller)
Yellow shell	<i>Camptogramma bilineata</i> (Linnaeus)
Netted carpet	<i>Eustroma reticulata</i> (Denis & Schiffermüller)
July highflyer	<i>Hydriomena furcata</i> (Thunberg)
Fem	<i>Horisme tersata</i> (Denis & Schiffermüller)
Tawny-speckled pug	<i>Eupithecia icterata</i> (Villers)
V-pug	<i>Chloroclystis v-ata</i> (Haworth)
Clouded border	<i>Lomaspilis marginata</i> (Linnaeus)
Barred amber	<i>Plagodis pulveraria</i> (Linnaeus)
Scorched wing	<i>P. dolabraria</i> (Linnaeus)
Brimstone moth	<i>Opisthograptis luteolata</i> (Linnaeus)
Dark bordered beauty	<i>Epione paralellaria</i> (Denis & Schiffermüller)
August thorn	<i>Ennomos quercinaria</i> (Hufnagel)
Early thorn	<i>Selenia dentaria</i> (Fabricius)
Willow beauty	<i>Peribatodes rhomboidaria</i> (Denis & Schiffermüller)
Common white wave	<i>Cabera pusaria</i> (Linnaeus)
Clouded silver	<i>Lomographa temerata</i> (Denis & Schiffermüller)
	<i>Gnophos fulvatus</i> (Denis & Schiffermüller)

NOTODONTIDAE

Alder kitten	<i>Furcula bicuspis</i> (Borkhausen)
Iron prominent	<i>Notodonta dromedarius</i> (Linnaeus)
Lesser swallow prominent	<i>Pheosia gnoma</i> (Fabricius)
	<i>Drymonia querna</i> (Denis & Schiffermüller)

LYMANTRIIDAE

Yellow-tail	<i>Euproctis similis</i> (Fuessly)
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ARCTIIDAE

Rosy footman	<i>Miltochrista miniata</i> (Forster)
Dingy footman	<i>Eilema griseola</i> (Hübner)
Buff footman	<i>E. deplana</i> (Esper)
Four-spotted footman	<i>Lithosia quadra</i> (Linnaeus)
Ruby tiger	<i>Phragmatobia fuliginosa</i> (Linnaeus)

NOCTUIDAE

Flame shoulder	<i>Ochropleura plecta</i> (Linnaeus)
Lesser broad-bordered yellow underwing	<i>Noctua janthe</i> (Denis & Schiffermüller)
True lover's knot	<i>Lycophotia porphyria</i> (Denis & Schiffermüller)
Purple clay	<i>Diarisa brunnea</i> (Denis & Schiffermüller)
Setaceous hebrew character	<i>Xestia c-nigrum</i> (Linnaeus)
Double square-spot	<i>X. triangulum</i> (Hufnagel)
Green arches	<i>Anaplectoides prasina</i> (Denis & Schiffermüller)
White-speck	<i>Mythimna unipuncta</i> (Haworth)
Miller	<i>Acrionicta leporina</i> (Linnaeus)
Coronet	<i>Craniophora ligustri</i> (Denis & Schiffermüller)
Copper underwing	<i>Amphipyra pyramidea</i> (Linnaeus)
	<i>Polyphaenis sericata</i> (Esper)
Latin	<i>Callopietria juventina</i> (Stoll)
Slender brindle	<i>Apamea scolopacina</i> (Esper)
Bordered straw	<i>Heliothis peltigera</i> (Denis & Schiffermüller)
Marbled white-spot	<i>Lithacodia pygarga</i> (Hufnagel)

Scarce silver-lines	<i>Bena prasinana</i> (Linnaeus)
Green silver-lines	<i>Pseudoips fagana</i> (Fabricius)
Light crimson underwing	<i>Catocala promissa</i> (Denis & Schiffermüller)
Small purpled-barred	<i>Phytometra viridaria</i> (Clerck)
plus the distinctive pyralids and Mother of pearl	<i>Uresiphita polygonalis</i> (Denis & Schiffermüller) <i>Pleuroptya ruralis</i> (Scopoli)

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BUTTERFLY ADAPTATION TO UNNATURAL HABITATS IN THE PHILIPPINES

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and

Grace C. Abejuela

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Cities do not spring to mind as ideal butterfly habitats. Certainly they do not hold anything like the diversity of virgin forest. Nevertheless, studies of the more tolerant species, that are able to exploit them, can be rewarding.

In Britain in recent years, many areas in and around cities have become wildlife havens. Unlike in the wider countryside, where as is all too well known most habitats outside nature reserves have been severely degraded by modern intensive farming, forestry, mineral extraction and the like. Often in and around cities the reverse has been true, and in and around Manchester (PBH's home area), for instance, abandonment of industry has allowed many sites to establish where butterflies have been able to form strong colonies – such as river valleys, abandoned railway lines and yards, abandoned collieries, former rubbish tips and slag heaps; far more public open space exists in and around the city and it is easily possible to walk all day on a near-infinite network of public footpaths

Regrettably these concepts are almost unknown in tropical countries such as the Philippines. The degradation of the countryside has been just as severe but the concepts of allowing wildlife habitat to regenerate in and around cities and provision of walkways are virtually unknown, thus opportunities for study are much more limited. Nevertheless we feel that worthwhile studies on butterflies tolerant of the urban fringe can be made, even in and around the city of Manila.

In the Nayong Pilipino (Philippine Village) park, a site laid out primarily as a formal parkland around a small artificial lake, for the benefit of tourists and family parties and adjacent to the extensive mown grass areas of Manila airport, during several visits we have recorded up to seventeen species in an afternoon (*Papilio demoleus*, *Appias libythea*, *Leptosia nina*, *Catopsilia pomona*, *Eurema hecabe*, *Junonia almana*, *J. hedonia*, *J. lemonias*, *Mycalesis mineus*, *Prosotas nora*, *Chilades pandava* (Plate 95Q, Fig. 1), *Zizina otis* (Plate 95Q, Fig. 2), *Zizeeria karsandra* (Plate 95Q, Fig. 3), *Zizula hylax*, *Aeromachus plumbeola*, *Pelopidas matthias* and *Taractrocera luzonensis*). Some clearly breed in the scraps of rough grassland, e.g. the Grass blues and Hesperiiids, particularly the extraordinary-coloured (silvery-blue) *A. plumbeola*, a Philippines endemic.

We found *C. pandava*, the Plains cupid, in great abundance in December 1994 and April 1995, breeding on young shoots of ornamental pitogo palms (*Cycas rumpii*) in the formal shrubberies in the park (Plate 95Q, Fig. 1). We have also found this species breeding on similar palms bordering the very formal lawns of the Coconut Palace hotel beside Manila Bay, Pasay.

One or more of the three species of Grass blues (*Z. otis*, *Z. karsandra* and *Z. hylax*), particularly the first two, are even more adaptable. Most scraps of greenery, right to the city centre, can produce one or other of these species. They have different hostplants – *Z. otis* mainly utilises leguminous plants (Fabaceae) and the main host of *Z. karsandra* is *Amaranthus viridis* (Amaranthaceae). *Z. otis* can apparently breed even on severely mown lawns, on a small legume in the mown grass. On 3rd May 1995 we watched *Z. karsandra* ovipositing on weedy *Amaranthus* at a demolition site in Intramuros, near the centre of Manila.

In Fort Santiago, Intramuros, a well-known historic and tourist site, on 3rd May 1995 we found evidence of breeding *Papilio demoleus* (the Lime butterfly) on a row of five small ornamental Citrus trees (Rutaceae) (Plate 95Q, Fig. 4); again, though it provides a small scrap of greenery in a densely populated urban area, this site is very formally laid out and very far removed from a natural habitat.

Another, quite different, location where we had an opportunity to assess the adaptability of certain butterflies was King's Paradise, a very small offshore island near Brookes Point, Palawan, in the early stages of being developed as a holiday complex by the owner of the Puerto Princesa airport hotel. At the time of our visit, in late April 1995, the entire natural vegetation of the island's interior had either been replaced by coconut palms or was in a state of severe disturbance due to further earth-moving work which had recently damaged the understory. A small strip of mangrove still fringed some of the shore. During three days on the island we saw four species of butterfly – *Hebomoia glaucippe* (1), *P. demoleus* (max. 2), both species nectaring on ornamental bougainvillea bushes, *Z. karsandra* and *Danaus chrysippus*. Following our seeing a female *D. chrysippus* ovipositing on a tiny, stunted plant of *Asclepias* (Plate 95R, Fig. 5), a single shoot no more than two feet high, and finding a single half-grown larva on the same plant, we searched a number of larger bushes planted near the shore-line. We found no further ova or larvae, but large numbers of pupae – however on close examination every one we found had been sucked dry. From a small hole pierced in each one we believe the culprits to have been a species of red-and-black Hemipteran, which were very abundant on the bushes (Plate 95R, Fig. 6). Clearly, as the butterfly continued to breed, some pupae must have survived but the survival rate must have been very low. We suggest that the ovipositing female may have preferentially selected the very stunted hostplant as being less likely than the larger bushes to harbour predators. However it appeared unlikely that it would have provided enough foliage for the larvae to reach maturity.

De Jong and Treadaway (1993) suggest that less than 10% of the forest cover of thirty years ago now remains in the Philippines, and fear that at the present rate of continuing deforestation the country will be without true forest shortly after the turn of the century. It is therefore refreshing that some butterflies are able to adapt to the changed environment and thus to continue to exist.

Acknowledgement

We wish to acknowledge the help given by C.G. ("Trig") Treadaway in identification of Philippine butterflies.

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A NOTE ON THE SCARLET TIGER MOTH (*CALLIMORPHA DOMINULA*) AT NEWNHAM-ON-SEVERN

by Don McNamara (5573)

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Some further thoughts on the discovery of a small group of *dominula* larvae in my late parents' garden in Newnham-on-Severn, Gloucestershire.

It is generally accepted that Scarlet tigers form discrete colonies. As this moth has been and still is the subject of much on-going research with substantial amounts of literature on the subject it is curious that there is little written evidence regarding the foundation of new colonies. (I am not suggesting that fifteen larvae constitute a colony.)

The females tend to stay in the region where they hatch with the attendant males coming to the females. It is likely that there is some sort of "spill over" to adjacent suitable areas or that airborne females may be blown away from their usual habitat.

I have searched the surrounding area for up to half a mile and cannot find any likely spots where they could occur although comfrey (*Symphytum* sp.) is quite plentiful but not in any great batches. Nettles and brambles are everywhere of course, and when rearing the moths in captivity I always use these as foodplant but it is usually comfrey which seems to attract them.

There might be a clue, however, as the river Severn is close by and the moth is known to frequent damp river banks – although here the water is a mixture of salt and sweet which may have a bearing on its ecology. A bit more exploring is obviously necessary.

I mentioned in a previous article that abs. *medionigra* or *bimacula* were worth looking out for but these only appear in a very few colonies, in particular the "famous" Cothill, Berkshire colony – the chances of this are remote.

Also, I mentioned the possibility of the yellow form being found, to which I referred as *rossica*. However, having obtained a copy of the *Proceedings and Transactions of the South London Entomological and Natural History Society* (1942-43) part I: an extremely thorough survey of this moth by H.B.D. Kettlewell points out that *rossica* is a distinct species, namely *Panaxia rossica*: Kolenati, which occurs in "Russia and Transcaucasia".

I discussed this with some colleagues at the October AES Exhibition, 1994 (mainly in the pub across the road) and although British examples do exist they ought to be referred to possibly as *crocea* (but H.B.D. refers to forewings only being yellow). *Lutea* or *lutescens* seem to fit the specimens in my collection from "Hants 1906" and "Ringwood 1898", although in Bernard Skinner's book, *Moths of the British Isles*, the form is referred to as *ab. rossica*.

Any help on this would be appreciated.

A DINGY SKIPPER IN DERBYSHIRE IN AUGUST

by Roy A. Frost (10011)

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In Derbyshire the Dingy skipper (*Erynnis tages*) has always been considered univoltine, the flight period usually being from mid-May to late June. Extreme dates in the last ten years were 4th May 1984 and 13th July 1985. The largest colony in the county is probably at Clough Wood, near Darley Bridge, where on 1st June 1994 I counted 109 on sparsely-vegetated, south-facing spoil heaps. Returning to the site on 22nd August, I was very surprised to find an immaculate Dingy skipper, which constitutes the first evidence of a second brood in the county. Thomas and Lewington in *The Butterflies of Britain and Ireland* (1991) state that there may be a second brood in August after a hot summer but only in the warmest southern sites.

DARK GREEN FRITILLARY IN NORTHAMPTONSHIRE

by Chris Gardiner (5249)

A single female of the Dark green fritillary, *Argynnis aglaja*, was seen at Castor Hanglands National Nature Reserve on 14th August 1994.

The butterfly was well worn, and settled regularly, enabling positive identification to be made as well as allowing itself to be photographed.

This species is notably scarce or absent from the east Midland counties and there are no resident populations in Northamptonshire. However, the species is a noted wanderer on occasions and may have come from the Norfolk Coast with a spell of easterly winds.

At Castor it was last recorded in the 1950s and seemingly disappeared soon after the woodland was clear-felled in 1952/53, apart from another stray singleton noted in 1988.

MOTH SIGHTINGS IN 1994

by Chris Raper (7540)

22 Beech Road, Purley-on-Thames, Reading, Berkshire RG8 8DS.

Species: *Meganola albula* (Denis & Schiffermüller) "Kent black arches"

Location: Hartslock Nature Reserve, Goring, Oxfordshire.
SU 618795

Date: 29.6.94

Recorder: Mr C.M. Raper, 22 Beech Road, Purley-on-Thames, Reading, Berkshire

Species: *Heliothis peltigera* (Denis & Schiffermüller) "Bordered straw"

Location: Beech Road, Purley-on-Thames, Reading, Berkshire
SU 655762

Date: 7.9.94

Recorder: (as above)

The first was taken using a Heath trap and the second at a kitchen window. Specimens were taken and the identifications have been confirmed by Brian Baker (25 Matlock Road, Caversham, Reading).

The above records will be forwarded to the *Entomologist's Record*, John Campbell at the Oxford Natural History Museum, Brian Baker, BBONT and Paul Waring.

It seems to have been a good year for migrants – several Clouded yellows were seen on the Downs this year and I have caught more migratory moths than I would normally. Other species new to me were the Cloaked minor and Rush veneer. Have other recorders noticed the same?

PURPLE THORN RECORDS IN STAFFORDSHIRE

by Jan Koryszko (6089)

On 24th July 1994, Mr Derek Heath caught a Purple thorn, (*Selenia tetralunaria*) in his garden at the Meir. Then, on 1st August 1994, I myself took a single specimen in Weston Sprink while beating trees and shrubs. This is a new species to our area, with Staffordshire records being Burnt Wood, Copmere, Cannock Chase, Blythe Bridge Mill, Bagots Wood, Trentham and Loynton Moss. It is a local and uncommon species in the county.

ENTOMOLOGY NOTE FROM GLASGOW

by Frank McCann (6291)

On 20th August I went to look for Pebble prominent larvae at Glen Lisset Park, Old Kilpatrick which is situated west of Glasgow near the Clyde estuary. I had just arrived at the park and was looking at a nettle patch when I observed a caterpillar which looked almost full-grown, feeding on a plant quite high up on the stem. I took it from the nettle and put it with some leaves into a container. Unfortunately I didn't find any Pebble prominent larvae which I know occur there on sallows.

The larva I found on the nettles, from the descriptions in my entomology books, seems to be the Burnished brass. It is a nice-looking caterpillar and is green with white and yellow markings on the back and sides respectively.

About a week later I found another Burnished brass caterpillar, on nettle again, in a narrow road leading up to the village of Swinton, about a mile or so east of home. Both larvae have since pupated in peat-filled flowerpots.

I was along that road again on 3rd September, and on a plant which looked like a variety of *persicaria* I found a caterpillar which is green in colour and has a velvety appearance and also has v shaped marks along its back which are quite faint. Its head is darker green and seems retractable. It was resting on the upper surface of the *persicaria* leaf low down neat the ground. I put it in a flower pot with some of its foodplant and also peat for pupation. The caterpillar looks more than half-grown.

I also caught two species of smallish moths, one of which is the Garden carpet. I have them in small containers with various foodplants just in case they are females.

I also found a Grey dagger, about half-grown and a green coloured Geometer larva on hawthorn.

SMALL YELLOW WAVE RECORD

by Jan Koryszko (6089)

On 26th June 1994 while beating on Millford Common, Staffordshire. I caught a Small yellow wave (*Hydrelia flammeolaria*). It has been recorded in the nearby Cannock Chase, but is very local. Other Staffordshire records are, Burnt Wood, Belmont, Madeley, Balterley Heath, Chartley Moss, and Loynton Moss, where I saw it in 1986.



Fig. 2. *Zizina otis*.



Fig. 1. *Chilades pandava*.

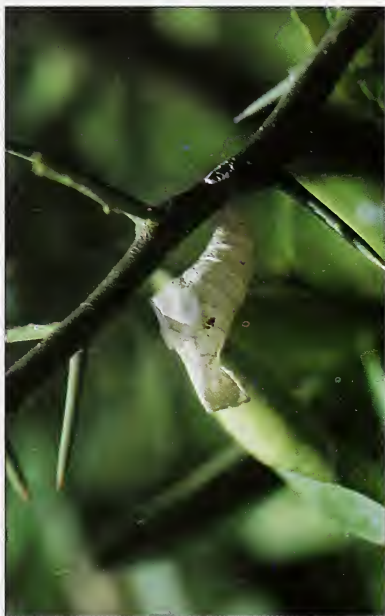


Fig. 4. Empty pupal case of *Papilio demoleus*.



Fig. 3. *Zizeeria karsandra*.



Fig. 6. Presumed predators of *D. chrysippus*.



Fig. 8. Larva of *D. gilippus*.



Fig. 5. Hostplant of *Danaus chrysippus*.

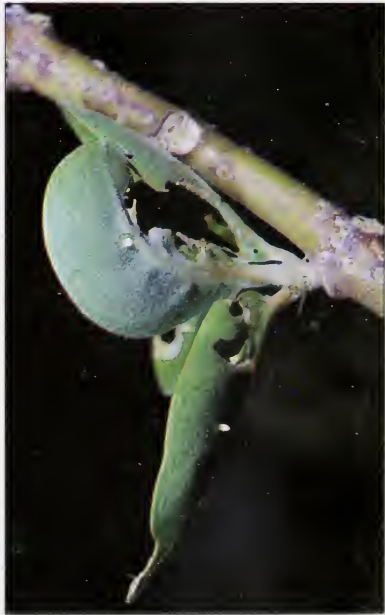


Fig. 7. Ova of *Danaus gilippus*.



Fig. 9. A pair of *T. chumash*, the female insect is brown and the male is green.



Fig. 10. A female *T. chumash* feeding on *Ceanothus* flowers.



Fig. 11. A male *T. podura*.



Fig. 12. A camouflaged female nymph of *T. californicum* on *Picea glauca*.

OBSERVATIONS ON THE APPEARANCE AND BEHAVIOUR OF SPECIES OF THE STICK-INSECT GENUS *TIMEMA* SCUDDER (PHASMIDA: TIMEMATODEA)

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and

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Introduction

The Order Phasmida, the stick- and leaf-insects, comprises many unusual insects. The surprising behaviour of the primitive stick-insect genus *Timema* Scudder (12 species from the USA and Mexico – the only representatives of the suborder Timematodea), sets them apart from other phasmids, in addition to conventional morphological differences.

Timemas are amongst the smallest phasmids, measuring from less than 12mm to 28mm. Females are always longer than males. Unique characteristics separating them from other phasmids (Kristensen, 1975), include:

Tarsi three-segmented (five-segmented in all other species)

Abdominal tergum 1 is distinctly separated from the metatergum

Male subgenital plate is not transversely divided, the male abdominal segment 10 does not extend beyond the subgenital plate and its ventral side is unsclerotized

The cerci of males have characteristic developments, in the form of robust looking appendages curved towards each other distally; their shape is useful to assist in distinguishing species.

Vickery's comprehensive revision of the genus *Timema* (1993) gives some basic information on the few behavioural aspects published, particularly observations by Gustafson (1966) on *Timema californicum* (Scudder). Vickery helpfully mentions a number of foodplants, although their feeding behaviour in the wild extends to many other plants. Their behaviour is more elaborate than recorded and Brock (1994) referred to the jumping ability of *Timema chumash* Hebard, unique amongst phasmids.

The observations which follow are based on four Californian species collected by beating tray from March 1993 to June 1995. *Timema* are also known from mountainous parts of Nevada, Arizona and Baja California in Mexico. Specimens have been observed in captivity to gain further knowledge.

General behaviour

Although many *Timemas* may be found on the same bush, they do not like to come into contact with one another except during mating. During the day they spend most of the time resting under a leaf with legs tucked in and antennae pointed forward and in. There is limited activity during the day, including occasional feeding and mating, but these activities mostly take place at night. *Timemas* walk quickly across branches and leaves feeling with their long antennae. If one meets another, they will raise their thoraxes up and down, pushing the other with their heads, and curling their abdomen up. Adult females are nearly always mounted by males, although at least two species of *Timema* breed partheno-genetically.

Defensive behaviour

1. Odour

An acrid odour is immediately released by many *Timema* specimens when disturbed; this has been noticed in collecting *T. podura* Strohecker and observed in *T. californicum*, with the odiferous gland present on the tergite of the prothorax (Henry, 1937). In captivity *T. chumash* also emit an odour, hardly noticeable in the wild.

2. Jumping ability

Nymphs and occasionally adults of *T. chumash*, especially before females become bulky with eggs, raise their abdomen in a similar manner to earwigs and jump several centimetres before attempting to make an escape by running away. Jumping ability is unique behaviour in phasmids and often a secondary defence i.e. when these insects are beaten from their foodplants, they may often drop to the ground, curl the thorax inward to protect the head and tuck in the antennae and legs for several seconds. Upon a perceived second threat they will uncoil, raise their abdomens and jump.

Newly hatched nymphs of *T. chumash*, just a few millimetres in length, jump several times higher than their own height, a remarkable feat which makes cleaning them out very difficult.

Jumping ability does not appear to be a major feature with other species examined although *T. californicum* exhibits a limited jumping ability.

3. Curling up

This type of death-feigning ability has been briefly mentioned above – newly hatched nymphs of *T. chumash* are masters at this feat, curling up in a ball for a few minutes, instead of, but sometimes before, or after, jumping.

4. Active escape

T. podura is arguably the best runner observed, although other species are not far behind – *T. cristinae* Vickery and *T. chumash*, the latter species often running after the jumping behaviour mentioned above. The usual course of action is to release an odour and run away to find cover, perhaps underneath a rock or leaves, and certainly away from sunlight. Extreme heat will kill *Timemas* which have a short lifespan and they favour shady parts of bushes or trees, often at high altitude in mountainous zones. Males are the better runners of the two sexes and paired couples will also make a run for it. By comparison, *T. californicum* are rather docile when dislodged from foodplants.

Mating behaviour

Adults are often found paired up and in the case of *T. chumash* mating typically begins in May (although this can vary, depending on altitude and locality), and the following observations relate to this species. Although paired, the male is usually only mounted on the female, not copulating (Plate 95S, Fig. 9), but when ready to mate he turns his abdomen under the female's right side. The female raises her abdomen and tilts it slightly to the right with the operculum opened. Copulation may take place for several hours, which does not prevent both sexes from moving around and eating (usually during darkness). The male eats by leaning over the front of his mate or on one side or the other, assuming the positioning allow for this. He rarely dismounts, risking another male mounting her. After mating, the male continues to remain mounted on the female, hence ensuring his genes are passed on. More males than females of *T. chumash* were observed in the wild in 1993 and 1994, although females were commoner in 1995.

If another male approaches a pair, males will fight for position by pushing each other with their heads. The mounted male will position himself to block the other male from mounting, and both males display by raising their abdomens. If a male becomes dislodged, the victor takes its place by mounting the female. On occasions in captivity, males have been observed fighting so vigorously that the female will walk away and be mounted by another suitor. The fighting only lasts a few seconds and does not appear to result in any injury.

If the female is not adult and a male attempts to mount her, she will fend him off.

Foodplants

* = not recorded in Vickery (1993).

T. chumash * (Plate 95S, Fig. 10)

Locality: Mt. Baldy, San Gabriel Mts, Los Angeles Co, California (4527ft). March 1993, many other dates in 1993, 1994 *Bartman) and 29th May 1995 – mainly large nymphs and a few adults (Bartman & Brock).

Manzanita **Arctostaphylos glouca*; Yerba Santa **Erydiction trichocalyx*; Oaks *Quercus agrifolia*, *Q. dumosa*; *Ceanothus* sp. and others (being identified).

Feeding behaviour: nymphs and adults favour new growth leaves, often chewing at the node of a leaf stem, severing the leaf. The petioles are also chewed. They will eat bark of twigs or branches e.g. *Quercus*. In captivity, they are very fond of water droplets and it is presumed they feed on dew in the wild, although this has not been observed. A most unusual observation is their sense of smell – flowers of *Ceanothus* sp. cultivated in England are devoured within seconds of being placed in their container!

T. podura * (Plate 95T, Fig. 11)

Locality: (1) San Jacinto Mts, Riverside Co, California – 1994 (Bartman); adults, 30th May 1995 (Bartman & Brock); (2) Santa Barbara County, California, April 1995 (Dennis Sheridan).

Chamise *Adenostoma fasciculatum* (1 & 2); **A. sparsifolium* (1).

T. californicum * (Plate 95T, Fig. 12)

Locality: San Bernardino Mts, San Bernardino Co, California (5000ft), nymphs, 28th May 1995 (Bartman & Brock).

White spruce **Picea glauca*. In captivity accepts *Ceanothus*, *Quercus* sp. and *Pinus* sp.

Feeding behaviour: readily eats bark. Sometimes only the top surface of pine needles are eaten.

T. cristinae

Localities: Paradise and Vista Point, Santa Ynez Mts, Santa Barbara Co, California (approx. 1000ft), adults, 1st June 1995 (Brock).

Chamise *Adenostoma fasciculatum*, **Quercus* sp. (x2). In captivity accepts *Ceanothus*.

Note: found rather late in the year, some specimens apparently parasitised, with black patches on bodies.

Colour variation

Vickery referred to some degree of colour variation, although these can be extreme and the following observations of wild caught specimens are worthy of mention:

T. californicum Nymphs: three distinct colour forms, which are broadly similar to adults:

- green, with pale cream stripes, two side stripes and one central stripe (very closely matching the underside of *Picea glauca* needles, an excellent camouflage).
- brown, with blackish blotches and markings, notably “V” shape on prothorax (a thinner line), mesothorax and metathorax.
- light-brown.

Underside of all specimens lighter.

T. chumash

– usually green or brown, with green form predominant; dotted with very small pale raised spots, appearing speckled. Yellow or cream side stripes. Green usually the same shade of light green, but may be bluish green. Underside typically whitish.

T. podura

– sometimes entirely grey colonies, but at San Jacinto locality in 1995 (15 males, 14 females) found in distinct colour forms:

- male black patches and lines on grey background. Black patches on base of femora. Underside light-grey.
- male as above on a dark brown background.
- male as above on a reddish-brown background.
- male (one only) with black dots and blotches most conspicuous on mesothorax and metathorax.
- females as in male colour forms, but plain green females predominant.

T. cristinae

All typical green colour form, with yellow side stripes in female.

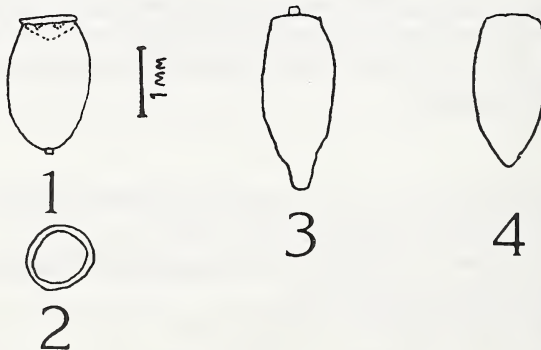
Eggs

Eggs laid by *T. chumash* in 1993 (dropped to the ground and sometimes mixed with debris/frass) were measured with a compound microscope which was calibrated to: 1 ocular unit = 11.1 μ m at 40x, 1000 μ m = 1mm.

Dimensions: width 0.89mm-1.06mm. Average 0.99mm. n=30

length 1.75mm-2.08mm. Average 1.88mm. n=30

Description: Operculum flat with raised rim extending all the way around. Capsule pale yellow (virtually transparent) to dark brown. Micropylar plate a slightly darkened brown triangular region below operculum, with no obvious median line (kindly pointed out to the authors by J.T. Clark Sellick, a specialist on phasmid eggs, as this feature was not clear). The "micropile" referred to by Henry (1937) presumably relates to a knob at the posterior end of the capsule, with the "hard collar" representing the rim of the operculum. Some eggs changed colour and dented in; apparently infertile. This proved to be the case as only approximately 30% of the eggs hatched the following January. These failed to mature, with the nymphs showing little interest in the foodplants provided, possibly because of the hard leaves available in January and/or lack of new leaves.



Dorsal outline of eggs of *Timema chumash*.

1. Egg with debris removed.
2. Operculum of same.
3. Egg coated with soil, typical example with capitulum-like structure and extension at base.
4. Egg coated with soil, lacking capitulum-like structure and tapered at base, without extension.

Eggs laid in 1995 were surprisingly rather different in appearance, after adults were provided with soil from California to lay their eggs. The eggs, coated with soil that the female ingests and uses during oviposition, now has a raised capitulum-like structure in many instances (approximately 80%) and the whole egg is coated with hardened soil, including unusual colours present in some soil particles. The egg capsule is tapered towards the base, often with an extension at the base. Lengths of capsule extended to approximately 2.5mm. As an experiment, removed soil resulted in eggs being laid after several days as described for 1993. Eggs are laid in the soil, on the floor of the container, or if slightly sticky, attached to the netting of its container or leaves, apparently laid in batches.

Similar, uncoated eggs of *T. podura* and coated eggs of *T. cristinae* have been inspected, but it is understood these are being described elsewhere (C. Sandoval, personal correspondence).

Conclusion

Not only is the jumping ability of *T. chumash* (and to a lesser extent other species) unique in phasmids, but behaviour in general is elaborate. The ability to curl up in a ball may also be unique, along with the strange egg laying behaviour, fully endorsing the *Timemas* ranking in a separate suborder.

Acknowledgements

The authors would like to thank Jerri Larsson (California, USA) for suggesting a suitable locality where they found *Timema californicum* and Patrick Marquez (California, USA) for his enthusiastic help in collecting *Timema chumash* on 29th May 1995.

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THE BROWN ARGUS (*ARICIA AGESTIS*) IN NORTHAMPTONSHIRE

by Peter Tebbutt (7941)

112 Broadway East, Abington, Northamptonshire NN3 2PR.

This delightful little butterfly was last recorded in Northants during 1959. There were several reported instances after then, but since the county boundaries have changed the relevant site is no longer part of Northants, something that occasionally causes confusion when reviewing old records.

During early June 1994 Douglas Goddard, the local County Recorder of butterflies, photographed a male Brown argus at a site in the Rockingham Forest district. A return visit a little later in the month revealed a rather worn male very near to where he first recorded this species. A very close study of his photographic evidence reveals that it is quite possibly the same insect, although of course one cannot be absolutely certain of this fact. Due to the territorial behaviour of the males it is a distinct possibility, and the markings were as near identical as one could get.

As word spread of this sighting he received several other reports of odd specimens from different sites. As there was a possibility of mistaken identification of small dark examples of the female Common blue, it was decided to check out some of these areas when the second brood was on the wing. As they are usually more plentiful in August it was felt that it should not be too hard to obtain confirmation of their presence.

I decided to visit the Rockingham Forest district site on 21st August. A track enters this site about half way along it, and whereas Douglas turned right to see his male specimen I decided, for some unknown reason, to turn left. This site contains Common blues (*Polyommatus icarus*) which were now out in very good numbers, but I had not gone twenty paces when something caught my eye that was different. A rather fine male Brown argus was perched on a blade of grass sunning himself. Within ten yards a rather worn male was seen, and two more a little further on. The first 150 yards revealed nine different individuals, some very fresh and others quite worn, but all males, which seemed to indicate that I had still not located the main population.

Some 100 yards further on I saw two in flight together, both of which settled in the same small area. This seemed more promising and a careful approach revealed the first female, with a male in attendance. She had probably already paired and rebuffed all his eager advances. After a few

minutes he took the hint and, with a rather dejected look, flew to a prominent position in the tall grasses to try his luck with the next passing female.

It took me nearly an hour and a half to cover the next 100 yards or so, as I watched approximately 80 more of these lively and inquisitive insects going about their business. Probably not more than ten females were seen, but as all of these were in good condition I would hazard a guess that there were plenty more to come.

A call from Douglas at 5pm the next day, soon found us travelling to the south of the county where several Clouded yellows (*Colias croceus*) were seen the previous day. Although we did not see these we did find several roosting Brown arguses. On our return to Northampton we visited another woodland site and again found Brown argus, almost 20 on this occasion. Douglas had also observed this species on both these sites on 15th August. A third site exists in the same area, so they would seem to be fairly well dispersed.

The following Saturday we visited several old quarries near Kettering. The first was a very steep-sided site, and although I scrambled (with great difficulty) down the first scrub-free area, Douglas decided against it as the risk of damage to his camera equipment was too great. I had barely gone ten yards when I netted a male Brown argus, which I boxed so Douglas could also have a look at it. Strangely enough this was the only one found that day despite a lot of searching.

We thought that someone had originally released a few specimens that had managed to establish themselves, but have been unable to find any evidence of this. It is known that this species has quite a low survival population (the minimum number required to maintain a viable colony), but it seems beyond belief that five confirmed colonies could go unobserved for 35 years, particularly as four of these areas are regularly visited by various natural history recorders. Perhaps the species has suddenly extended its range as I understand it has also (re)appeared in Lincolnshire. The puzzle remains as to where they have expanded from.

A further puzzle exists as to the choice of larval foodplant. None of these sites contain rockrose (*Helianthemum nummularium*), and a search failed to reveal any storks-bill (*Erodium cicutarium*), although I must admit I am not familiar with the latter species. Cranesbill (*Geranium* sp.) is sometimes given as an alternative foodplant, and it is possible that this is used on some of the sites. However, despite watching several females crawling over various plants and looking as if they intended to oviposit, no egg-laying was observed and no ova found. Having seen the ova on

other sites I know they are fairly conspicuous on the underside of the chosen leaf, but much closer observation will be needed to determine the preferred larval foodplant on these Northamptonshire sites. If anyone knows of any alternative foodplants, I should be very grateful if they would let me know.

It will be very interesting to see if this expansion continues in 1995, as I suspect it will if the weather is favourable at the right time. Hopefully the existing colonies will remain intact and provide us with the answers as to the larval foodplants that are used, but I think we could remain in the dark as to how these populations have originated and from where.

Finally, I would like to thank Douglas Goddard for confirming the old county records, sharing his observations, and helping to compile this report.

CYNTHIA CARDUI IN EAST SUSSEX

by A.H.H. Harbottle

I wish to record that at 9.30am (GMT) on Saturday 4th March 1995 I saw a specimen of *Cynthia cardui* flying in the garden during a period of brilliant sunshine.

1996 SUBSCRIPTIONS

Council has increased the 1996 subscription rate by £1 to £10 for Ordinary members. The *Bulletin* is now on or over the next postage band, thus costing the Society much more in postage. The increase is regrettable, but the subscription rate still does not cover the cost of producing the six *Bulletins*. To help compensate members, Council will be giving free entry to members for the 1996 exhibition, which will again be held at Kempton Park Racecourse.

It would greatly help the Society if all subscriptions could be paid by 1st January 1996, payment after 1st February 1996 will incur an additional administration charge. Members paying by standing order are asked to make the necessary arrangements to prevent any delay in receiving their *Bulletins*.

Book Reviews

The conservation of butterflies in Britain past and present by John Feltwell. A5 pbk., pp vii +230 + (3); 17 b/w illustrations by Brian Hargreaves. ISBN 0 907970 02 8. Wildlife Matters, Battle 1995. Price £6.99 (+£1.95 p&p from "Marlham", Henley's Down, Battle, East Sussex TN33 9BN).

Yes, this is yet another book about butterflies but one that is very different to the usual run of them. It is a thoroughly researched historical account of the history of butterfly conservation and gives detailed accounts of the attempts, both failed and successful, of re-introducing the three species, Swallowtail, Large copper and Large blue. Only a brief mention is given of the failed attempt to re-introduce the Black-veined white to Sir Winston Churchill's garden at Chartwell.

Further chapters in the book deal with habitat management, the present threats to butterflies, butterflies and the law, voluntary codes and practices and a selected list of Nature Reserves, as well as those owned by, managed by, or investigated by, Butterfly Conservation (surprisingly both Wicken & Woodwalton fens are omitted but the butterflies these localities are noted for are deliberately omitted). The chapters on the law and voluntary codes make particularly useful reading and give a clear and balanced account of the present situation as well as giving the contrasting views held by some "collectors" and "conservationists".

I would take issue with the author's statement that "Collectors were almost *entirely* responsible for the butterfly's (Large copper) extinction . . .", especially as he modifies this categorical statement on the same page with "it is *probable* that a combination of over-collecting and drainage was responsible." (My italics.) As I have argued elsewhere collectors were not to blame and the fact that the Copper's habitat was reduced by drainage from 2000 square miles to a few hundred acres of fragmented refuges does, I feel, speak for itself. As the author himself says, "it needs space, which only huge wetlands can give. Any future habitats need to be big, really big with a huge grid of interlocking waterways and pools."

In the discussion of the Large blue, an account is given below as to how, about 60-70 years ago, an apparently deliberate attempt was being made to exterminate the Large blue, mainly by disturbance of the habitat and levelling the ants' nests so essential to its survival. This may of course have been done in ignorance and in search of the butterflies' chrysalides then supposed to be in the nests. This information came as a surprise to me and it shows, together with other quoted information in this book,

just how painstakingly the author has researched his subject and delved into both the sometimes very obscure and hard to get at literature as well as studying extant collections of extinct species.

There is a useful list of acronyms and a glossary. The very extensive bibliography runs to 28 pages, but the index could be improved; for instance only a single page reference (13) is given for the Black-veined white and one has to look under *Aporia crataegi* to find a more important discussion of it on page 159. Produced by desktop publishing the layout and type is on the whole pleasing and well laid out. I would, however, cavil at the "notes" to the chapters which are in a minute italic typeface. I would have preferred the Tables to have been in larger typesize. The monochrome illustrations which are by Brian Hargreaves are appropriate to the subject and add interest. In particular the contrasting views of an entomologist in an 18th century sylvan setting and that of one in a 1995 pollution devastated landscape, does I feel, say it all and illustrates so emphatically that the blame for declining numbers can clearly be laid at the door of habitat changes.

This book is an absolute mine of information on all aspects of butterfly conservation and that which applies to butterflies applies to moths and doubtless all other invertebrates also. At its very modest price this book should be in the library of all those with even the slightest interest in the subject.

Brian Gardiner

The Insects: An Outline of Entomology by P.J. Gullan and P.S. Cranson. 512pp. 220 line illustrations. ISBN 0 412 49360 8. Chapman and Hall. £24.99.

Superb! The only word that I can use to describe this book. For a foundation book in entomology look no further. Written in an extremely comprehensible form and with line illustrations of high quality, it is ideal for students studying the subject in any depth.

The book deals with general entomological issues such as the significance of insects, their structure, both internal and external, and how they reproduce, develop and sense their external environment. It follows major themes in insect biology, the ecology of ground-dwelling, aquatic and plant-feeding insects, the behaviour of social, predatory, parasitic and defensive insects, and the importance of insects in medical, veterinary and agricultural science and pest management. Unlike other tomes, there is a systematic synopsis at the end of each chapter rather than having an order by order arrangement.

The book is very reasonably priced at £24.99 and really is a must for the bookshelf.

Wayne Jarvis

THE STORY OF SPIDER SUE

by Wesley Caswell

Let me tell you the story of Spider Sue. Since I was quite young, I have often thought of keeping a “bird-eating” spider or tarantula as a pet, but never actually got around to getting one, as they were much too expensive. Until, that is, the AES exhibition in 1979 when I think it was held at Alexandra Palace. In those days, tarantulas were not nearly as obtainable as now, but I came across a person selling tiny tarantulas from Guatemala for £2 each, and well, I just happened to have a spare £2 to spend so, it was quickly changed into a spider.

Normally, as some of you may know, I only rear silkmoths, so I was not sure how to keep it, but put it into a small plastic tube and fed it on things like greenfly (she was only about half the size of a small housefly). How she survived the first winter with a “keeper” who was “into” tarantulas, still amazes me, but survive she did, steadily growing all the time and eating bigger and bigger flies *etc.* Within a few years or so, she had grown really large and heavy, much larger than most British spiders.

When I married in 1981, “spider” obtained a name, as Ann, my wife, named her Sue. From then on my pet was known as Spider Sue.

In 1987, Spider Sue, still growing, became famous for a day throughout Britain. It happened like this:

My wife had brought my mother a little kitten called Jill, and she had a habit, as cats will, of jumping up onto the piano where Spider Sue sat in her plastic tank. So, the tank had to be covered at times to prevent Jill from seeing Sue crawling around.

One day, I was driving home from the city, listening to BBC Radio 2, and at around 4.45pm, Adrian Love said that he was starting a new competition, with a prize each day of a Radio 2 tea cosy. All listeners had to do was write and tell him the most stupid reason for wanting a tea cosy. Instantly I decided that I would write and say that I wanted one to cover up Spider Sue, so that Jill the cat could not see her inside.

The letter was written and about a week later, again whilst driving home, Adrian announces the daily winner . . .

“Now here's a nutter after my own heart . . . I have here a letter from Wesley Caswell . . . *etc.*” and yes, a week or so latter my tea cosy arrived, and I still have it, but have not used it to cover Spider Sue!

Fifteen years after that exhibition at Ally Pally, Spider Sue continues to grow, gobbling flies, moths and anything that moves within the container. So far, I have never been bitten, but now that baby Esther has arrived, perhaps one day I shall have to get the tea cosy out to cover her up!



60 YEARS OF THE AMATEUR ENTOMOLOGISTS' SOCIETY Part V. 1975-84

by Wayne Jarvis (9899)

Despite the economic status of the country in the 1970s, the Society continued to prosper, with a membership of 1276 by the turn of 1975, an increase of 50% over five years. The three study groups which now remained, the Exotic Entomology Group, the Conservation Group and the Insect Behaviour and Ant Study Group, were also well supported and all produced their own newsletters. The *Bulletin*, under the editorship of Brian Gardiner, was still produced quarterly, with two larger issues in February and August and two smaller issues in May and November. Black and white photographs became much more widespread and articles in the journal began to take on much more of a conservation slant. The Annual Exhibition was held at Holland Park School and was again very successful with the second edition of the *Coleopterists' Handbook* selling well.

Volume **35** Number 310 (February 1976) of the *Bulletin* broke thirty years of tradition with a re-designed cover. Subscriptions were regrettably increased, however, to £2 for adults and £1.25 for Juniors due to increasing costs in producing the journal. Despite this, the Society continued to grow and by the end of the year, another 100 members had subscribed. The Exotic Entomology Group increased its membership by 25% to 211 and the other two groups also continued to gain members. The Society did, however, have its problems; notably, the exhibition venue. The ILEA announced that the Holland Park School was required for other uses during term time in the future, and the Society would, therefore, have to seek an alternative. This caused a problem for the Society, but eventually the University College School in Hampstead was booked. Despite all the problems, the event was again a success and was visited by an Independent Television crew, who were filming a series of natural history programmes. There were three publications produced by the Society during 1976; the *Lepidopterists' Handbook*, *Collecting Lacewings* and *Insect Light Traps*.

The Society continued to expand its membership, with 1521 members enrolling by the end of the year. 1977 saw the foundation of the Anson Award, after a bequest was left by Sir Eric Anson. This award was, and still is, awarded for the best Junior exhibitor at the exhibition. This year saw three founder members of the Society die, Mr G.V. Day, Mr T.H. Fox and Mr L.G.F. Waddington.

The exhibition venue was again changed in 1978 to the Wembley Conference Centre. This provided ample room for the event, but was fully booked for the following year, posing even more problems for the event's organisers as there did not seem to be another venue in London large enough to cope with the event's capacity. Membership rose again to 1650.

Eventually, Alexandra Palace was booked for the 1979 exhibition. This provided the "best venue yet" (B. Gardiner's editorial) but again the venue was unavailable the following year due to "modernisation" work which was to be carried out. Subscriptions were increased to £3.50 for adults and £2 for juniors, mainly due to the increased costs involved in running the Society. The *Dipterists' Handbook* was published and like its sister publications sold well.

The new venue for the 1980 exhibition was to be the Royal Horticultural Society's Old Hall, which was by no means perfect for the event. However, despite this, the best was made of the venue and the event went well. It did however, mean that a further new venue had to be sought which hopefully could be home to the exhibition for a few years. The Conservation Group ceased to exist after 1st January 1980, as it was integrated into the Society as the Conservation Committee. It was intended that a newsletter was to be published entitled *Insect Conservation News (ICN)*, which could be subscribed to. Two issues were published during 1980. The membership continued to grow, with 1747 members subscribed by the end of 1980.

The following year, 1981, was Butterfly Year, the Royal Entomological Society set up a committee to promote all aspects of butterflies and their conservation. A series of butterfly stamps was issued by the Post Office and the plight of our butterflies at least was brought to the attention of the public at large for the first time. Along with this came the final amendments to, and passing of, the Wildlife and Countryside Act. Hounslow Civic Centre was the chosen exhibition venue, and all went well. The Society published *ICN* **3**, **4** and **5**.

The *Bulletin* printers were changed in August 1982 (Volume **41** No. 336) from V.B. Pike to Cravitz Printing Company Limited from Brentwood, Essex. This was mainly because of the four month turn-

around time from editing copy to printing the journal at Pike's. The switch to Cravitz therefore allowed more topical items to be included. The year saw the formation of the Society's second award for its members – the Hammond Award, after a bequest by Cyril Hammond, for the best article in the *Bulletin* over a volume. The first winner was Mr R.D. Sutton (5309) for his article entitled "The male scent scales (androconia) of the British butterflies" and this appeared in Volume 41 Number 334, March 1982. The Hammond Award also allowed the Society to publish a colour illustrated book, the *Silkmoth Rearer's Handbook* the editor of which, Brian Gardiner, was awarded an Honorary Life Membership for his services to the Society. Other publications of the Society were *ICN 6* and *7*, *Study of Stoneflies, Mayflies and Caddis flies* and *Butterflies in the Garden* which sold out very quickly and had to be reprinted. The two remaining study groups continued to thrive, with the Exotic Entomology Group nearing 300 members and the Ant Study Group with 40 members. However, the Society as a whole suffered its first membership decline for a number of years, albeit only very slight, to 1729 (was this due to an increase in subscriptions to £4 and £3 for juniors?). On a sad note, Beowulf Cooper, a founder member of the Society, died in 1982. Beowulf was probably more responsible than any other member for the continued existence of the Society during the war and immediate post-war years and he was greatly missed.

The year of 1983 was a quiet year for the Society, membership rose to 1797 and D. Tozer and R. Fry were awarded Life Memberships. The Society published *ICN 8* and *9*.

The *Bulletin* style was changed in 1984, with Volume 43 Number 342, February 1984. The Society enrolled its 8000th member on the 4th April and membership levels soared to 1873. With the Golden Jubilee Year beckoning, Council's fingers were crossed that the 2000-member figure could be reached. *ICN 10* and *11* were published.

A selection of *Bulletin* articles from the decade follows.

From Volume 35, Number 311, May 1976. Page 66.

NOTES AND OBSERVATIONS - DINER'S DELICACY

by J. Good (5398J)

Recently I came across Vincent Holt's delightful book entitled "Why not Eat Insects", which first came into print in 1885. In its various chapters the author tries to persuade the public to take up eating these creatures, and backs this up with steadfast arguments. I shall just pick out a menu in

the back of this book and you shall see whether your “prejudices”, as the author calls it, shall make you turn up your noses at these mouthwatering dishes.

Curried Cockchafers



Wasp Grubs fried in the comb



Moth sautes in butter



New Carrots with Wireworm sauce



Gooseberry cream with sawflies



Stag beetle larvae on toast

A few weeks after buying this book I decided to try one of these recipes out; so I planned on having Fried grasshoppers. I obtained five of these and put them into boiling water where they changed to a pleasant reddish colour. Then after getting a frying pan, and having placed a small chunk of fat in it, I removed the hind legs and wings of my grasshoppers and put them into the frying pan, one by one. Then I set out to devour them, and found them quite crispy, but they tasted, well, not exactly agreeable. Perhaps because I had burnt them!

From Volume **41**, Number 337, November 1982, Pages 164-5.

NOTES AND OBSERVATIONS – DAMSELFLIES AND SUNDEW FLOWERS

by A.M. Tynan

During a recent fishing holiday in Sutherland I was interested to find quite a number of two species of damselfly trapped by the leaves of the long-leaved Sundew. Neither species *Enallagma cyathigerum* (Charp.) and *Pyrrhosoma nymphula* (Sulzer) has the speed or the power of the larger hawkers or darters. Similarly the long-leaved sundew with its bunches of large erect leaves is a more powerful predator than its round-leaved

relation but the discovery of twelve of these attractive insects struggling to escape from a dense patch of *Drosera* about two square yards in extent did come as a surprise. Although it might sound rather hypocritical from one who was trying to abbreviate the lives of the local brown trout for his own consumption, I spent a little time depriving the plants of their suppers, and returned the damsels to freedom. This although still sticky seemed preferable to slow digestion and ultimate death. Rather more acceptable was the sight of a hawk dragonfly (species not identified) taking a blue damselfly (presumably the *Enallagma* which was present in large numbers) on the wing then settling on a rock nearby and devouring the whole insect, less wings head first.

From Volume 42, Number 340, August 1983, Page 144.

THE FLEAS OF SAINT NENNAN

In Connaught there is a village well known for its church, which belongs to St. Nennan. Here in old days fleas were so abundant and were such a plague that most of the people left and the village became deserted until, by the prayers of St. Nennan, the fleas were all driven out into a nearby meadow.

Not a single flea thereafter could be found in the village, so filled was it with the cleansing spirit of holiness, on account of the virtues of the Saint. But the meadow has been so crowded ever since with the fleas that it cannot be entered by man or beast.

From Volume 42, Number 341, November 1983, Page 196.

NOTES AND OBSERVATIONS - PARASITES OF THE PEACOCK BUTTERFLY

by P.W. Cribb (2270)

During late May 1982 I collected up to eighty larvae of the Peacock butterfly, *Inachis io* L., from nettles on the wasteland adjoining my garden. They were in their last instar and nearly full-fed. Of these larvae I obtained forty pupae and forty pupae of an ichneumon wasp. The latter were slightly elongated spheres, brownish-black with a central cincture of dirty white and attached to the nettles by silken threads. I sent them to Dr Mark Shaw at Edinburgh and I give his comments: "The cocoons ex *I. io* are of a Campoplegine ichneumonid in the genus *Phobocampe* of the species I call *confusa* Thomson, but the name is not very widely used (in fact it isn't on the 1978 Kloet & Hincks list, although it has been used in

the British literature by Stelfox as well as by me). It is a very abundant parasite of *io* and also *A. urticae*, and, as it attacks the second instar of the host, *i.e.* before they disperse, very often a large proportion of a particular brood are stung.”

From Volume **43**, Number 344, November 1984, Page 196.

A SURFEIT OF STAG BEETLES

by Richard Bizely (7143)

In the middle of June this year our local paper (*The Leatherhead Advertiser*) reported that one evening hundreds of Stag beetles (*Leucanus cervus* L.) flew over gardens and were watched by amazed householders. A Mr Jeremy Davies, of Linden Road, reported “The air was alive with them. People who went out had to duck. I think they must just have hatched out and they seemed to come from a hedge. It was an incredible sight.”

I myself, some four years ago, in June/July, one warm evening, found about 55 dead or dying stag beetles in the garden and under close inspection I found that they all had their abdomens removed. I was then, and still am, very puzzled. I would be interested if someone could let me know the reason for this. Had they been eaten by some bird or other animal?

[I too, many years ago, have seen such a swarm passing overhead, also near to Leatherhead. As to the eaten abdomens, I suspect a rodent. I have known field mice help themselves to the abdomens of butterflies before now and leave the rest of the insect intact.— Brian Gardiner, Editor]



CORRECTION TO EXHIBITION REPORT VOLUME 54 NO 401, PAGE 147

Due to a typesetting error, Paul Waring's entry on page 147 for *Agrochola nitida* should have read thus:

Agrochola nitida (D. & S.) – Widely distributed in southern and central Europe, the larvae reported to feed on “low plants”. This individual came to a wine-rope hung on a riverside Willow *Salix* sp. just north of Lednice on 5th September.

The text printed under this species infact refers to *Emmelia trabealis*. Apologies to all for this error.

Diary Dates

Abbreviations

BENHS	British Entomological and Natural History Society.
BISG	Bloomsbury Insect Science Group.
DNHSAS	Dorset Natural History and Archaeological Society.
HMB	Huntingdonshire Moth and Butterfly Group.
LCES	Lancashire and Cheshire Entomological Society.
RES	Royal Entomological Society of London.
RES(QG)	RES Rooms, 41 Queen's Gate, London SW7.
I:	Information from:

To make the diary effective contributions are needed from members. Any relevant items should be sent to the *Bulletin* Editor. No charge is made for entries. Please allow three months advance notice.

NOVEMBER

- 1st **RES Meeting - To Freeze or not to Freeze: Is that the Question?**
RES(QG) Tea 17.00hrs, Meeting 17.30hrs. Prof. J.S. Bale from the University of Birmingham talks about the principles of insect cold hardiness and explains over-wintering strategies in ecological terms. Applications of insect cryobiology will also be discussed.
I: RES 0171 584 8361.
- 8th **BISG Meeting - Development of electrical synapses in *Drosophila*. The rôle of the shaking-B gene.**
Birkbeck College, Department of Biology, Room 232, Malet Street, London. Tea 17.30hrs, Meeting 18.00hrs. Dr P. Phelan.
I: Dr Richard Rayne 0171 631 6253 e-mail r.rayne@biol.bbk.ac.uk.
- 14th **BENHS Indoor Meeting - Post Exhibition discussion and Member's slides.**
RES(QG) 18.00hrs.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.
- 21st **LCES Indoor Meeting.**
Photographic and slide evening and short papers. At Liverpool Museum, 19.00hrs.

- 22nd ***BISG Meeting – The Evolution of Arthropods.***
Birkbeck College, Department of Biology, Room 232, Malet Street,
London. Tea 17.30hrs, Meeting 18.00hrs. Dr D. Osorio.
I: Dr Richard Rayne 0171 631 6253 e-mail r.rayne@biol.bbk.ac.uk.
- 25th ***BENHS Workshop – Craneflies***
Please contact organiser for details and to book in advance.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.

DECEMBER

- 6th ***RES Meeting – Pests and Predators in Orchards.***
RES(QG) Tea 17.00hrs, Meeting 17.30hrs. Talk by Dr M.G. Solomon.
I: RES 0171 584 8361.
- BISG Meeting – Responses of blackflies to host odours.***
Birkbeck College, Department of Biology, Room 232, Malet Street,
London. Tea 17.30hrs, Meeting 18.00hrs. Dr S. Schofield.
I: Dr Richard Rayne 0171 631 6253 e-mail r.rayne@biol.bbk.ac.uk.
- 12th ***LCES Indoor Meeting.***
Members' entomological videos and Christmas social evening. At
Liverpool Museum, 19.00hrs.
- 13th ***HMB Meeting.***
Woodhurst Village Hall, Huntingdonshire at 20.00hrs.
I: Barry Dickerson 01480 475689.
- BENHS Indoor Meeting – Opportunity or design – Which is best for
conserving our biological diversity?***
RES(QG) 18.00hrs. Dick Vane-Wright from the Natural History Museum
talks about new mapping and analysis techniques developed at the NHM
which give new means of conserving biodiversity.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.

JANUARY 1996

- 15th ***BENHS Indoor Meeting – The ecology and conservation of ground
beetles.***
RES(QG) 18.00hrs. Brian Eversham (BRC Monks Wood) talks about this
intensively studied group.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.

- 16th *LCES Indoor Meeting.*
Members' short papers and Presidential Address. At Liverpool Museum.
19.00hrs.
- 20th *LCES Annual General Meeting.*
Liverpool Museum, 14.00hrs.
- 23rd *DNHAS Natural History Meeting – Britain's Heritage of Ancient Habitats.*
Dorset County Museum, Dorchester at 19.30hrs.
I: Kate Hebditch 01305 262735.

FEBRUARY

- 14th *HMB Meeting.*
Woodhurst Village Hall, Huntingdonshire at 20.00hrs.
I: Barry Dickerson 01480 475689.
- 17th *BENHS Workshop – Bluebottles and Fleshflies.*
Please contact organiser for details and to book in advance.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.
- 20th *LCES Indoor Meeting – Rare Insects of the North-West.*
Liverpool Museum, 19.00hrs.
- 27th *BENHS Annual General Meeting and Presidential Address.*
RES(QG) 18.00hrs.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.

MARCH

- 9th *BENHS Workshop – Molluscs.*
Please contact organiser for details and to book in advance.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.
- 11th *BENHS Indoor Meeting – Landscapes and Wildlife Conservation in New Zealand.*
RES(QG) 18.00hrs. Talk by Margaret Palmer.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.

- 19th *LCES Indoor Meeting – North Wales Invertebrate Conservation.*
Liverpool Museum, 19.00hrs.
- 23rd *BENHS Workshop – Aculeates.*
Please contact organiser for details and to book in advance.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.
- 26th *DNHAS Natural History Meeting – Beetles: Well I quite like Ladybirds!*
Dorset County Museum, Dorchester at 19.30hrs.
I: Kate Hebditch 01305 262735.

APRIL

- 10th *HMB Meeting.*
Woodhurst Village Hall, Huntingdonshire at 20.00hrs.
I: Barry Dickerson 01480 475689.
- 16th *LCES Indoor Meeting – Leaf mining insects and their mines.*
Liverpool Museum, 19.00hrs.
- BENHS Indoor Meeting – Plant-Insect interactions with particular reference to galls.*
RES(QG) 18.00hrs. Talk by Margaret Redfern.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.
- 20th *BENHS Workshop – Sawflies.*
Please contact organiser for details and to book in advance.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.
- 23rd *DNHAS Natural History Meeting – The elusive white – Butterfly hunting in Columbia.*
Dorset County Museum, Dorchester at 19.30hrs.
I: Kate Hebditch 01305 262735.

MAY

- 14th *BENHS Indoor Meeting – Sex, Parasites and Venereal Disease in Ladybirds.*
RES(QG) 18.00hrs. Talk by Dr Mike Majerus.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.

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NOTICE

It is to be distinctly understood that all views, opinions, or theories, expressed in the pages of this Journal are solely those of the author(s) concerned. All announcements of meetings, financial grants offered or sought, requests for help or information, are accepted as bona fide. Neither the Editor, the Officers and Council of the Society, nor its Trustees, can be held responsible for any loss, embarrassment or injury that might be sustained by reliance thereon.

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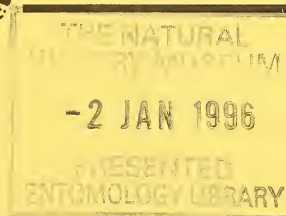
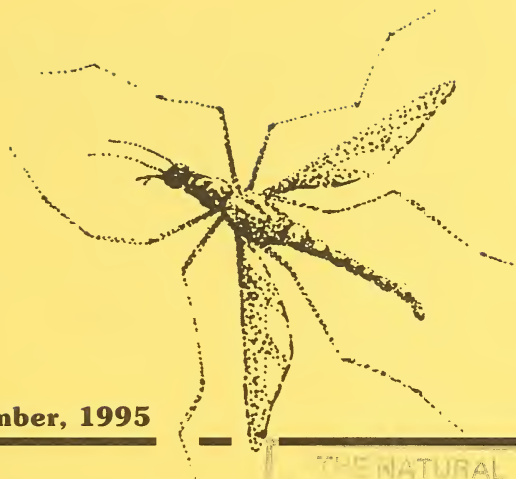
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The Bulletin of the Amateur Entomologists' Society

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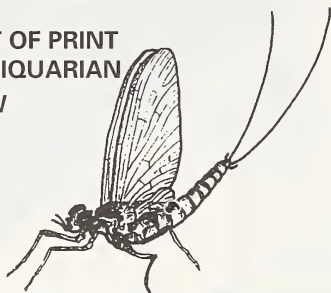
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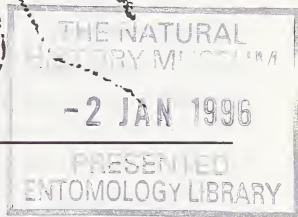
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AES BULLETIN

No. 403



EDITORIAL

As our 60th Anniversary year comes to a close, the 61st year dawns in a new light. The *Bulletin* will appear in its new format in February, complete with colour cover. Over the year several other changes will be seen. The AGM and Members' Day will take place on Saturday 20th April at the Royal Entomological Society of London and the 1996 Exhibition – which I remind you will be *free* for Society members to enter – will take place on Saturday 5th October, under the new direction of organiser Maxwell Barclay.

I again apologise to all authors who are waiting to see their articles published. I do have a large backlog at the moment, but by February's issue this problem should have been rectified and the delay should be minimal. This does not, however, mean that I no longer want articles . . . please keep them coming in. Notes regarding the submission of articles may be found below.

Finally, I would like to wish you all a very Merry Christmas and prosperous New Year on behalf of the Society and I look forward to you joining us once again for 1996.

Wayne Jarvis

NOTICE TO AUTHORS

Articles should be submitted preferably on A4 paper but not necessarily typed or word processed. There should be no underlining, italics or bold type in the article and lines should be double spaced. Otherwise, the articles should be formatted in a manner similar to that in the *Bulletin* and should include the author's address. Slides/photographs/Illustrations should be clearly labelled with the authors name and membership number.

THE CONNECTION BETWEEN *MELOE PROSCARABAEUS* AND *ANTHOPHORA RETUSA* ALONG THE PEMBROKESHIRE COAST

by Gordon Knight

Observations

Meloe proscarabaeus (the Oil beetle) (Plate 95U, Fig. 1) is large (up to 36mm), black and conspicuous along the Pembrokeshire Coast National Park 180-mile coast path and together with *Timarcha tenebricosa* (the Bloody-nosed beetle), the two beetles are conspicuous members of the coast path fauna in April and May. *Anthophora retusa*, *Meloe*'s presumed host, breeds along the same stretch of coast, but is not common. Furthermore, at a time when many of *Meloe*'s larvae are ready to "hitch-hike" to an *Anthophora* nest, *Anthophora* has ceased flying for the year. There is, therefore, a problem. I will summarise observations to date and hope that an interested reader will be able to suggest a solution to this *impasse*.

The female *Anthophora retusa* (Plate 95U, Fig. 2) (the "flower bee") is like a small *Bombus* (Bumble bee). In fact she is the same size as a *Bombus pratorum* queen. She is all black, save for the ginger pollen-brushes on her hind legs, and very fast moving when on the wing in March, April and May, my earliest record being 4th March, and my very latest, 4th June. The males, as is customary with insects, emerge before the females, are brown and could be mistaken for another species and, unusually for males, have as long a flying season as the females. They fly at an even faster rate and rarely land to feed, but either hurry along female "flower-lanes" or hover outside colonies "attacking" them.

The females are rapid, weather-hardy pollinators of spring flowers, both wild and garden, which include primroses, cowslips, ground ivy (*Glechoma hederacea*), violets, aubretia, borage and kidney vetch (*Anthyllis vulneraria*) and even rhododendron, and there is never any doubt that all the *Primula* species in my village garden are visited many times over, producing a full complement of seed. The rate of *Anthophora*'s visits compared with those of some other spring pollinators can be seen from table 1.

Theoretically, the rapid visits of *Anthophora* should ensure that *Meloe*'s larvae have a greater chance of being picked up by *Anthophora* than by any other species, but so far I have not found any larvae on the above-mentioned flowers, mainly perhaps because most don't hatch out until June!

Table 1. Rate of insect visits to *Glechoma hederacea*.

Species	Visits per minute
<i>Bombylus major</i>	12 – 15
<i>Apis mellifera</i>	13 – 16
<i>Bombus lucorum</i> and <i>terrestris</i>	17 – 19
<i>B. pascuorum</i>	25 – 31
<i>B. pratorum</i>	27
<i>Anthophora retusa</i>	30 – 43

Because of erosion there are abundant exposures of what appear to be ideal nest sites for *Anthophora* virtually all along the Pembrokeshire coast in the top few feet of glacial till, but in fact over a period of seven years I have only discovered two colonies. One was a strong colony in a cliff south of St. Davids (SM 750243) in 1991 and the other was a smaller colony near Strumble Head (SM 883395) in 1993. The St. Davids colony was totally wiped out by 1993 and the Strumble head colony by 1995, I suspect by *Meloe*, despite the above-mentioned difficulties. Obviously for species survival the occasional adult *Anthophora* must found a “colony” in a new site and not use, as most do, the parental “colony”. I have observed this in Suffolk, but not in Pembrokeshire.

Conveniently for my studies, and to my utter astonishment, a strong (permanent) *Anthophora* colony was discovered sharing my Welsh cottage home. The bees' nest is in the inferior pointing between the stones of its eastern wall and as the gaps do not affect the inside of the cottage, thus they shall remain! A wait of five minutes, and certainly ten minutes, on a moderately fine day is sufficient to establish the existence of an *Anthophora* colony and there is not another in my village, although there are other stone walls and other cottages which appear to be suitable. Presumably the apparent permanence of my cottage colony is due to the absence of Oil beetles in the vicinity and the fact that *Anthophora* forages locally, not visiting the coast path where *Meloe* are to be found.

The legendary French entomologist Jean Fabre in 1853, and before him Newport in 1851, were the first to work out the extraordinary life-cycle of *Meloe proscarabaeus*, which is conveniently summarised by E.F. Linssen (1959). My earliest record of *Meloe* is 5th April, and my latest, 24th May. Its slow, lumbering gait, never far from the coast path, must attract the attention of predators as well as humans, but once attacked it oozes cantharidine (as does the “Spanish fly” – also a beetle) to discourage further jaw or beak movements. As it cannot fly it can never

be far from the *Anthophora* (or other) host burrows from which it has emerged, though the smaller males, distinguished by their oddly kinked antennae, can move a little faster.

Although they are nearly always found on or near bare ground, like the coast path itself or on the tops and sloping faces of bare cliffs, occasionally *Meioe* turn up in atypical sites, such as the ten males and five females I discovered in rank grass in April 1994 at Penbrush (SM 882394) where the nearest active *Anthophora* colony was 100 yards away. So, however slowly, perhaps they can move further from their point of origin than I supposed. But more puzzling is the fact that I can always count on finding them along the coast between Porthclais (SM 742237) and Porthlysgi (SM 732236), near St. Davids, where I have never seen *Anthophora*!

Matings, mostly in April, can regularly be witnessed, as can eating grass or other vegetation to hand and females digging pits along the coast path. Unlike dogs they dig with their jaws as well as their legs and also upside down, and into these pits they lay a clutch of bright orange eggs, which they then cover over, mainly perhaps to protect them from Myrmicine ants.

One such clutch which I collected hatched between five and six weeks later, but a nearby clutch which I left *in situ* took a week longer. The louse-like larvae are 2mm long, thin and bright yellow. They are extremely active, constantly rearing up their front ends, with legs waving, and climbing whatever is available. They grip shiny surfaces by their rear ends as do leaf beetles. They are called triangulids because each leg appears to have three "claws", although these can only be seen with difficulty. After reaching a suitable flower, say thrift (*Armeria maritima*), they spend much of their time wriggling about inside, particularly on the anthers where they become "plastered" with pollen, some of which I suspect they eat along with nectar, but at night, when cool or in bad weather they retreat into the innermost recesses of the flower. It is easy to imagine how they could have evolved from a pollen beetle.

On a fine day on 7th June 1995 between Porthclais and Porthlysgi I spent two hours searching for triangulids on the flowers which grew along that stretch of coast, finding 74 in all, even though most of the flowers had gone to seed. Their distribution was patchy and they occurred only in or near bare earth sites along the coast path or near the cliff edge. None were found in bird's foot trefoil (*Lotus corniculatus*) or kidney vetch, and most in thrift, the actual count being as follows:

- thrift 44 (one flower with 14)
- sea campion (*Silene maritima*) 28 (one flower with 14)
- sheep's bit (*Jasione montana*) 2

A further check, the day after, confirmed that in suitable sites most thrift flowers contained one or two triangulids and occasionally more than 12. Was this because they actually preferred thrift or because thrift flowers, despite the fact that the majority had gone to seed, were the most widespread flowers in the locality? It is not as if thrift is a particularly popular flower with insect visitors, kidney vetch being far and away the most popular during its flowering season, attracting virtually all species, including *Anthophora*, from other flowers. Triangulids were still easy to find in the same sites as late as 15th June 1995. What sort of "lifts" could they expect at this season? By far the commonest visitor to this miserable remnant of thrift flowers was *Bombus lucorum*. Just occasionally a small solitary bee or fly would visit them, but there can be no doubt that in June most triangulids would obtain lifts from this widespread and abundant Pembrokeshire bumble bee. Note that this is well after all *Anthophora* are "grounded"; moreover *Anthophora* have never been seen along this section of coast.

Triangulids were easy to entice off the flowers by inserting a small paintbrush, but were just as easily persuaded to release their hold on the bristles when presented with another flower. So could *Bombus lucorum* be used as a means of reaching thrift or other flowers which grow in a more promising site? If *B. lucorum* was itself the host, then of course the *Anthophora/Meloe* time problem would not arise, but there is no evidence for this.

According to Linssen's summary of their life history the few lucky triangulids to reach the correct, already provisioned host cell, first eat the egg and then the pollen/nectar provisions, at the same time developing into a more maggot-like, immobile state. This of course raises yet other problems. How does this growing larva in its relatively immobile state reach other host cells to enable it to acquire enough food to attain adult size? And finally how does the very large adult beetle claw its way to the surface through what will usually be stony ground?

Conclusion

In my own mind I am sure that *Meloe* was responsible for destroying the two good Pembrokeshire coastal colonies of *Anthophora*, so I am not disputing Fabre's original findings, but this cannot be the whole story. The larvae will be "hitch-hiking" from 18th May to 26th June. Hence those "cadging lifts" in May could occasionally be picked up on, say, cowslip, a favourite with *Anthophora*, or perhaps violet-not primrose, which will have finished flowering (*Anthophora* actually collects cowslip pollen).

These triangulids will arrive at *Anthophora's* cells at an ideal time, but from the beginning of June they must find another host, as *Anthophora* has ceased operations. They must frequently be picked up by *Bombus lucorum* on thrift, but presumably their survival depends upon their obtaining a subsequent lift from a solitary/mining bee species. Which other species is not known, but there are 180 miles of coast path and associated cliffs in which other species abound.

Acknowledgements

Thanks are due to Dr Roger Key of the Nature Conservancy Council for England for his encouragement and assistance, particularly in regard to references.

REFERENCE

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WILDLIFE AND COUNTRYSIDE ACT QUINQUENNIAL REVIEW

by Paul Batty

In the Entomological Livestock Group list 382 (15th August 1995) I outlined proposals for additions to the protected species on Schedule 5 (section 9). I also stated at the time that there was no sign of the rumoured "ban on releases". I have now discovered (via information from a very reliable source) that the proposals to ban all releases of any of the fully or partially protected species are to be considered and are likely to become law. This appears very likely to happen, especially as I have been told that we were *not* going to be consulted over the matter. It seems that this one was to be slipped through on the quiet! Exactly whose decision this was. I don't know. Anyway, the best thing to do if you don't agree with this proposal is to write to the addresses I shall give below and put your opinion across. If the JNCC and English Nature get a few hundred letters from the very people that this legislation will affect - then they might consider all sides before making a decision. I believe that legislation pushed through on the quiet will not be easily accepted by the people at the blunt end. Write to: Margaret Palmer, JNCC, Monkstone House, City Road, Peterborough PE1 1JY (Tel: 01733 62626 Fax: 01733 555948) or English Nature, Northminster House, Peterborough PE1 1UA (Tel: 01733 340345 Fax: 01733 68834).

BUGGED UP TO THE NINES – DRESS SENSE FOR ENTOMOLOGISTS

by *Richard Jones (8355)*

13 Bellwood Road, Nunhead, London SE15 3DE.

There can be nothing more disconcerting than to be innocently walking along a sunny woodland ride, oblivious to all but the distant twittering of song-birds, when suddenly a dishevelled shape lumbers menacingly from the undergrowth; cursing and stumbling, the looming figure rips through the brambles, drops the beating tray and stands panting before a very startled rambler. This is not the way for an entomologist to make an entrance.

The little girl, out walking Horace the King Charles spaniel, blinks and turns to her mother: "Is that a tramp mummy?" she asks.

Unsure what this apparition could possibly be, mummy is on the verge of confirming her daughter's suspicions, but errs on the side of discretion. "I'm not sure, but whatever it is don't touch it" she urges, pressing forward to glare at the spilled tubes, scattered pill-boxes and dangling pooter. This could be worse than she had initially imagined,

Sadly, this is all too often the entomologist's first contact with civilised humanity. The image of this obviously dowdy and repugnant creature is firmly set in the public imagination; first impressions are long-lasting and final. And to our detriment it is people like this that get us decent and respectable entomologists such a bad name.

Something has got to be done to improve the image of field naturalists. Eccentricity is one thing, but downright untidiness is inexcusable. The following notes have been penned with the hope that readers will bring them to the attention of those wretched creatures with whom it is so embarrassing to be seen net in hand beside.

At the risk of appearing sexist, I can only apologise, because the ensuing essay is aimed almost entirely at my male colleagues. This is partly because I am more familiar with male apparel, but also to some extent because since there are probably fewer women entomologists there are also fewer badly dressed women entomologists. It may also have something to do with the fact that men seem to be more cavalier in their attitude to clothes and personal hygiene.

Important note!

Any resemblance of the characters portrayed herein to real people living or dead is completely intentional. When they read this and recognise themselves they should be thoroughly ashamed.

The suit

There was a time when suits were *de rigueur* and no gentleman would be seen dressed in anything else. With the modern style of “casual” clothes, corduroy or denim jeans and waxed jackets have usurped the rightful place of the two-piece suit as the most frequently encountered country squire's attire. But jeans are not roomy enough for squatting to grub at the roots of trees and the pockets are pathetically small, not even room for a few cream crackers and a small jar of Gentleman's Relish. As for wax jackets, we must blame the Sunday colour supplements for infecting the country set with the notion that these are anything other than ghastly wet-look donkey jackets.

The blessings of the suit are manifold. There are usually endless pockets, both inside and out, to carry all manner of paraphernalia, from boxes of tubes and hand lenses to hip flask and spam sandwiches. Those items most likely to be lost in the frantic scramble after quarry or climbing over high barbed-wire fences, can be attached by a cord to one of the many lapel button holes. However, too many items secured by too many pieces of twine can give the incumbent the appearance of being held together by bits of string – not the height of chic as one can imagine.

In summer, a light cotton suit is cool and airy, while in winter a dark tweed or worsted will hide mud-stained knees and backside, keep the bitter wind out and offer some protection against snarling bramble thorns and farm dogs. The appearance of a waistcoat on the coldest and windiest days offers further protection against the elements and provides neat little pockets for handwarmers and extra strong mints.

Whether to go single- or double-breasted is a matter of personal conviction and current “fashion” has little to do with the choice at hand. Varying lapel widths, presence or absence of shoulder pads and the modern or out-moded cut of the cloth can be used to good advantage in presenting the mildly eccentric figure that is the well-dressed naturalist.

The tie

Whereas a gentleman will use a tie to ornament the neck and declare allegiance to one club or the other, the typical entomologist regards it more as a kind of self-imposed torture device. Having wrapped it about the neck, twirled it through several bouts of ignominious (and mathematically bizarre) knotting and unknotting, the final effect is one of noose not nice.

For those less well informed than the rest of us, here's a little tip to assist the novice when attempting a double Windsor knot: the device

logo or motif on the tie is intended to be displayed just below the Adam's apple, not under the left ear.

True, some society ties, 100 per cent rayon, do not handle well unless treated to hearty doses of saddler's grease and warm sweat. But their ability to absorb spilled claret without a blemish is unsurpassed; this I can declare from personal experience beside flailing elbows at various entomological bean-feast.

Buying a tie can be a traumatic experience, especially since natural history emblems have been appropriated by all and sundry to pass as local or national symbols. Faced by a stern sales assistant in a Penzance gentleman's outfitter's, I plucked up my best courage to ask about the yellow tie with blackbirds on it.

"You mean the choughs, sir" he sneered, pronouncing it "choffs", "the ornithological emblem of Cornwall".

"Ah, yes, that's the one. Do you have any other colours?"

"No sir, choughs are black and the gold is the Cornwall colour."

A shudder ran involuntarily through his body at the notion! I quickly bought the tie and left. Tie-buying encounters need not be so harrowing, many high street shops and back street jumble sales are willing to serve even the most dowdy entomologist.

Some ties are wide and some are narrow, following the vagaries of fashion. Almost anything of medium width is acceptable, but the two extremes can make personal statements if required. A broad silk tie, brightly coloured, can give the wearer a brash and confident dash of colour, but be warned that kipper ties are worn only by wide-boys. A discrete narrow number suggests calm and sophistication, but bootlace ties should be avoided unless one is stopping off at a barn-dance later.

Apart from giving the wearer a vague air of decorum, and offering something to fiddle with when faced by an armed and angry game-keeper, ties can have distinct entomological functions. They can be used to make hasty repairs to broken net handles; they can be lashed across a bulging rucksack full of sievings for the Burlese funnel, and they can even be used to hold the light trap fast to the roof rack.

As well as such practical uses, ties offer excellent opportunities for entomological snobbery. Garbed with the official neckerchief of the so-and-so club, one is often greeted with cries of "Oh, I didn't know you were a member of the what-d'ye-m'-call-it society." Remember to cross one's fingers when extolling the virtues of the group. Take care not to overdo the performance when recounting how one first joined this elite party. And never let on that one found the tie for 15p in an Oxfam shop.

The hat

To some extent, eccentricity can be given full rein when it comes to head-gear. However, on no account wear a white flat-cap or a floppy green angler's hat unless one wishes to invite ridicule. Other foppish affectations such as berets, boaters and fezes are probably also best avoided.

Although the bowler was once regarded as the typical gentleman's hat, it is now rather old-fashioned and very expensive to launder if knocked off into a cow pat or dented when one falls out of a tree. Slightly more practical designs include, among others, the much more flexible Panama, fedora, Homburg, trilby, Australian bush-hat and American cowboy hat. All of these can be carried with aplomb and style and cleaned under a cold tap if mistreated or over-used.

The cloth-cap should be donned with care to make sure that the check or plaid pattern does not clash with the suit. Despite the fact that the brim gets in the way when peering through the camera viewfinder, never wear the cap backwards or one will simply be dismissed as a simpleton.

Under certain conditions, pith helmets or sou'westers make perfectly acceptable accoutrements, though these are rather specialised garments and would look out of place at, for example, the Verral supper or other garden party.

Apart from hiding a dreadful haircut, keeping off the rain and shading the eyes from the sun (avoid vulgar sunglasses and comical green plastic sun-visors), hats are extraordinarily practical. Having accidentally left the net on a bus, flying insects can be caught with a deft swipe of the deer-stalker; a loose-weave straw hat will make a passable sieve; other types will serve as make-shift fans on a hot day or containers for picking blackberries.

The supreme justification for having a hat is being able to raise in greeting to some stranger or other. If one ever causes a start when tumbling out of the undergrowth, raising one's hat is just enough to convince that one is not a dangerous psychopath or a bumbling fruitcake. This works especially in exotic locations where entomologists are thin on the ground. In foreign situations, obviously aberrant behaviour such as avidly dissecting a dung heap or collecting live fleas from mange-ridden cats, can cause embarrassing social problems unless the situation is disarmed by the polite, if comical, antics of hat-raising and hallooing.

Losing one's hat is a sad fate, but should this occur on a hot day, please resist the temptation to wear a knotted handkerchief after the manner of postcard cartoon characters.

Footwear

Shoes or boots need to be comfortable and strong. Since they are invariably encrusted in mud they should be waterproof. In the past, galoshes worn over light-weight shoes were common and practical, but these appear to have given way to the green welly. These are all very well if one drives a shooting brake and owns a smooth-haired English setter called Dennis, but conventional black gum-boots are perfectly acceptable in most cases. Industrial variations with steel toe-caps are available, but do take care when pond-dipping at dyke edges or the added weight of the metal insert is liable to drag one wait-deep into the water.

Cowboy boots are a little over the top unless the rhinestones are picked off first and unusual reptile skins are vulgar beyond belief. Some foolhardy show-offs have been noted with 1930s-style brown leather cavalry boots complete with side buckles and brass eyelets for the bootlaces, but such footwear is ungainly, uncomfortable and makes the wearer look a right chump.

Sandals are only of dubious use on dry heaths and distant white sand beaches. Suede should be avoided at all cost unless one is a geography teacher. Plimsols and "training" shoes might be comfortable and ooze street credibility, but they show the stains as soon as one steps in one's first badger latrine.

Woollies

Whether one favours jumpers, cardigans, sweaters or jerseys, in Fair Isle, pearl or plain, a woolly can still add to the entomologist's smartness. A word of warning though – don't let elbow holes ruin the effect; get the best repairs one can afford, don't attempt to darn them oneself and shun leatherette patches like the plague.

If a distant (or close!) relative knits their favourite entomologist a mail sack of a pullover grin and bubble thankfulness, then immediately scheme to loose it at the first opportunity in a raised peat bog. Perhaps the cat would like it?

Other raiments

The anorak has suffered a decline in its perceived stylishness, mainly due to the remorseless torment of train-spotters by the media and other pompous intellectuals. Although functional and economical, one does have to admit that it does lack something in terms of suavity and elegance. Unless intending to make a personal statement in terms of self-deprecating irony, it is best left on the clothes peg and a light overcoat worn instead.

A recent bright appearance has been made by the ubiquitous cagoule, in gaudy colours and various synthetic fibres. They now commonly bespot the countryside with specks of orange, purple and turquoise, usually in matching pairs. Although decidedly waterproof, they have a tendency to acquire vulgar amounts of condensation on the inside and it is not long before the wearer is sodden from within rather than without. From an entomological perspective, these strange garments may show some promise in attracting horseflies, although further research on this topic is no doubt in order.

The dufflecoat, once a beatnik's jazz icon, is now rather outmoded. Its patch pockets have an annoying tendency to fill with leaf litter and fluff and once moistened by even the most modest of showers it takes on the feel and weight of wet roofing felt. Beatnik entomologists are now wearing black polo-neck shirts and linen zoot-suits.

New styles

One-piece clothing has recently come to entomological circles, having been assimilated from the worlds of angling and photography – the many-pocketed over-waistcoat. The sleeveless “bugging jackets” are worn over shirt, jacket or even overcoat and, like Batman's utility belt, offer countless zippered pockets to take notebooks, hand lenses, tubes and other entomological accoutrements like Swiss army penknife and thermos of bovril. As long as the wearer's tie is straight and general appearance tidy, there can be no objection to these peculiar garments.

What next?

Gazing into the future is a hopeless task, except that fashion goes in cycles and there are always being revivals of past styles. Several dress items have been tried and rejected over the years. As with all fads, a vogue blossoms then disappears. Nevertheless there may still be some mileage in many items and it would be interesting to discover whether certain garments could be resurrected including jodhpurs, plus fours, lederhosen, gaiters and puttees.

For myself, I always regretted the fact that the poncho never really took its rightful place in the halls of entomological fashion and I must admit that I look forward with eager anticipation to the imminent return of the frock coat.

CORFU IN LATE SEPTEMBER - BUTTERFLIES

by David Withrington (7110)

21 Lawn Avenue, Peterborough PE1 3RA.

I spent the last two weeks of September 1993 in Corfu with two naturalist friends. Corfu is the most northerly of the Ionian islands, with views over Albania and the Greek mainland. On weekday mornings, I helped to escort fellow tourists on wildlife walks, organised by Friends of the Ionian. The rest of the time was available for exploring this surprisingly green island.

There was wildlife literally in and behind every bush, with autumn bird migration in full swing and wild flowers reasserting themselves after the scorching heat of the summer. The flora ranged from the imposing sea daffodils, through cyclamen and crocus in the olive groves, to the beautiful yellow *Sternbergia* on the slopes of Mount Pantokrator (936 metres).

With stripe-necked terrapins in the ponds, tortoises and wild boar in the dunes, colourful locals and good food and drink in the tavernas, it was reminiscent of Durrell's "My Family and Other Animals" (set in Corfu).

We stayed in Maltas, a tiny village in the south-west of the island, with some new apartments behind a long sandy beach. Butterflies proved to be numerous and varied, although it was fairly late in the season. A small patch of rough ground outside our apartment produced the ubiquitous Swallowtail (*P. machaon*), whites (*P. rapae*, *P. daplidice* and *L. sinapis*), blues (*L. boeticus*, *S. pirithous*, *C. argiolus*, *A. agestis*, *A. thersites* and *P. icarus*), browns (*M. jurtina*, *C. pamphilus*, *L. maera* and *P. aegeria*) and skippers (*S. orbifer*, *T. lineola* and *O. venata*).

Another productive habitat was the cliff path (Plate 95V, Fig. 3) – a mixture of bare ground, rough grass, brambles and maquis. Here we saw three species of grayling (*H. semele*, *H. aristaeus* and *H. syriaca*), the Wall (*L. megera*) and Southern comma (*P. egea*). The biggest surprise was the graceful Hungarian glider (*N. rivularis*) which we saw in the south, centre and north of the island – apparently some 200 kilometres south of its previously recorded range.

Two large, fast-flying butterflies were easy to identify but difficult to observe. In low-lying coastal areas we often saw individual Plain tigers (*D. chrysippus*), migrants from Africa which look like Monarchs. The Two-tailed pasha (*C. jasius*) would seldom allow an approach closer than four metres, even when feeding on over-ripe grapes. On 1st October, we climbed to the top of Mount St. Mattheos (463 metres) where we saw a

Two-tailed pasha patrolling a stretch of woodland path. As I was trying to photograph it on a dead branch, it took off and landed on my hat (Plate 95V, Fig. 4). It stayed there contentedly while I struggled to undo my camera strap, so that I could pass it to my friends without lifting it over my head. It proved to be very photogenic, flying off every five minutes to see wandering males of its own species. After half-an-hour, I took off my hat and we bade it farewell.

This episode seemed to symbolise a close association between man and nature on Corfu. But it was not borne out by any behaviour of some of the locals who were often seen driving around on mopeds and banging off rifles. I also observed dynamite being thrown into the sea from a fishing dinghy. Near our apartment I was sprayed with pesticide from a plane debugging the olive groves. This was presumably accidental, though I had been shaking my fist at the pilot.

On the other hand, we met taverna owners (the second a Dutch lady) who had, respectively, rescued a shot kestrel and a crossbill that had been hit by a car. Part of the objectives of Friends of the Ionian is to introduce local schoolchildren to wildlife. This is made possible by the enlightened attitude of tour operators, such as Sunvil with whom we were travelling.

Amongst the other interesting butterflies that we saw were Silver-washed fritillaries (*A. paphia*) and their larger relative the Cardinal (*A. pandora*). The skippers were well represented, with the Mallow skipper (*C. alceae*), Marbled skipper (*C. lavatherae*) and Mediterranean skipper (*G. nostrodamus*). One lasting memory of Corfu will be my first ever sighting of the Lattice brown (*K. roxelana*). We were sitting in a small village taverna near Spartera in the south of the island, having an afternoon snack and a beer. Ever alert, we spotted a butterfly settling on a branch of a very large olive tree above our heads. It was clearly a Lattice brown, and it stayed there motionless for 35 minutes before flying away.

GREY DAGGER ON LAUREL

by Frank McGann (6291)

On the 27th October 1994, I was walking along Bogbain Road, Easterhouse, when I found a Grey dagger larva on laurel. The larva was feeding on a leaf four feet from the base of the plant. The laurel had some leaf damage and I presume that this was due to larval feeding. I took the larva and put it in a container along with some laurel and birch leaves.

LOS ANGELES INSECT FAIR – 1995

by Paul D. Brock (4792)

"Papillon", 40 Thorndike Road, Slough SL2 1SR.

During a trip to California and Arizona, I was able to make a brief visit to the Ninth Annual Insect Fair held on Saturday and Sunday, 20-21st May 1995 at the Arboretum of Los Angeles, Arcadia, California.

This event was well supported by mainly local insect traders and exhibitors and visitors travelled many miles to see it, in addition to people visiting the Arboretum.

The venue, north of Los Angeles, was ideal for a day out, with visitors paying US\$5 entrance fee to the Arboretum, which included entry to the Insect Fair. Exhibitors were situated in a hall (34) around the patio area (24), with good access. Several people stated that the Fair was too commercialised, but European Fairs are much more commercially orientated. Several exhibitors were not selling any items.

The Fair catered for children well – there were special activities, children's books, toys and face painting. Live exotic insects were relatively few in number, no doubt due to regulations on importing insects from outside the USA; the US Fish and Wildlife Service were represented to provide information on this aspect and the US Department of Food and Agriculture-Aphis/PPQ provided information and details of career opportunities.

Excellent displays of dead exotic insects were intermingled with various traders from the impressive wide range of equipment and books offered by Bio Quip Products, Inc. to deadstock for sale of various orders and some livestock e.g. tarantulas were well represented. There were antique insect prints, insect candy for sale (trading name "Licket cricket"!), numerous T-shirt designs, gifts, maps and plants. Prices were generally reasonable, although I had to resist some expensive antique prints.

This was an interesting smaller scale version of European Insect Fairs, with something for everyone, and possibly several thousand visitors over the two days. Another feature of the Fair was six talks – three held on each of the two days of the Fair, including such varied subjects as scarab beetles, dragonflies and butterfly farming from China.

For information about forthcoming Fairs, held annually, contact the organisers – Dr A.V. Evans, Insect Zoo Director, Natural History Museum, 900 Exposition Blvd, Los Angeles, CA 90007, USA, who also exhibit at the Fair.

THE STRANGE TALE OF "THE MANCHESTER TINEA" – RETOLD

by Eddie Sutcliffe

359 Wheatley Lane Road, Fence, Burnley, Lancashire BB12 9QA.

The now extinct "Manchester Tinea" was first described by John Curtis in his 16 volume *Magnum opus*. It can be found on page 304 of the seventh volume of this work which was published in 1830. Here it is described as *Pancalia woodiella* of the Tineidae family, a detailed account is given of a female specimen which includes reference to the strikingly-coloured bright orange forewings and the reddish-orange hindwings freckled with black. Opposite the text is a slightly larger than life-size hand-coloured print of the moth together with detailed anatomical drawings of mouth parts and hind leg. Since this time the moth has been referred to at various times as *Oecophora woodiella*, *Schiffermuelleria woodiella* and latterly as *Euclementia woodiella* in the family Momphidae. It has been described and illustrated in the works of Humphreys and Westwood and in those of the Rev. F. Morris. There is nothing remarkable about all this, but let us delve back into history and we may have a tale that, while belonging to the annals of entomology, could, with its complexity and mystique, grace the pages of fiction.

My story begins in June 1829 with Robert Cribb, an amateur entomologist who resided in Oldham Road, Ancoats, Manchester. About the 15th June he visited Kersal Moor, which was situated less than two and a half miles from the centre of Manchester. There he observed a brightly-coloured moth flying round a hollow tree trunk, close to Singleton Brook. On this visit, and subsequent visits later in the month, he secured some 30 to 60 specimens of the moth in question – there appears to be some dispute over the exact number. Of these specimens taken Cribb gave one to a Mr R. Wood and two to Samuel Carter, fellow entomologists, and, at that time, friends of Cribb. It was intended that the specimen given to R. Wood should be sent on to Curtis for identification, and this was duly done. On receiving this and finding it to be a species hitherto unrecorded, Curtis named the moth *Pancalia woodiella* (after Wood). Cribb was most irritated by this slight and refused to part with any other specimens.

Now Cribb, in addition to his liking for entomology, also had a fondness for the fruits of the hop which Samuel Carter attempted to use to his advantage. Finding Cribb from time to time a little worse for wear, he would try to persuade him to part with his box of specimens, but without success – until one day he offered Cribb ten shillings for the box,

to which Cribb agreed but informed Carter that it was in pawn at a beerhouse. Carter thereupon gave his five shillings to redeem the pawn – this was the last he saw of Cribb for several weeks! On the next occasion when the two men met Carter informed Cribb that he would give him his ten shillings and in addition go to the beerhouse with Cribb and pay the money owed on the box as well. However, on arriving at the said house they were met by the mistress who informed them that “the box of flies has been stuck in the fire” as she did not think he was coming for them.

Needless to say not only was Cribb the first person to take specimens of this species, he was also the last, and the moth has not been seen again to this day. Of the the three specimens which remained, the one held by Curtis is now (together with the rest of Curtis's collection) in the Melbourne Museum, Victoria, Australia. The two held by Samuel Carter were eventually sold with his collection to the Manchester Museum. One remains there today, while the other was exchanged for a collection of the late Lord Walsingham, and is now in the British Museum, London.

The chronicles that I have used in assembling these facts are first those of Joseph Sidebotham, who gives an account on pages 52-54 of *The Entomologist*, 1884. In this he states that, on his joining the Manchester Natural History Club in 1840, the tale was recited to him by Samuel Carter and other members present. Further accounts are given by James C. Melvill in the *Lancashire and Cheshire Naturalist*, May 1924, and by Alan Brindle in the *Entomologist's Gazette*, Vol. 3, 1952.

AUTUMN LEPIDOPTERA FROM GLASGOW

by Frank McGann (6291)

On the 12th September 1994 I found a half-grown larva of the Broom moth on willow. This was at Possil, Glasgow on a piece of waste ground where willow and other trees grow. I also found a larva of what I think is the Mottled beauty. Both larvae were resting on the upper surface of the willow leaves. I had been searching for more Poplar hawkmoth larvae, common at this location.

At Bargeddie Parish Church I found two larvae, one of which was an Arctiid, the other, much smaller, looked like a species of Wainscot moth. The Arctiid caterpillar could be the Ruby tiger. It is feeding well on dandelion.

Recently I have also caught a female Garden carpet moth, which has laid numerous eggs on blackcurrant, and found a cocoon of a quite large larva on Oxford ragwort. I have this at home and will be looking to see what it produces.

OF BATS, BADGERS AND BOVINES

by M. Hancox

According to recent reports, it seems that salmonella disease of relevance to poultry and other livestock, and hence to human health, may also be present in wildlife. This has been suggested for bats (Simpson 1994), as well as for badgers (Humphrey & Bygrave, 1988). But since salmonella will be present in the sporadic outbreaks of salmonella in poultry, sheep and cattle, in faeces, it is hardly surprising if there is occasional spillover to wildlife. Serotine bats for example may consume appreciable quantities of small *Aphodius* dung beetles (C. Catto pers. com.), and badgers often turn over cow pats in search of the larger *Geotrupes* dor beetles (Hancox 1992).

This may provide an interesting clue to the great badgers and bovine TB saga. It is quite clear that badger tuberculosis is initially of dietary origin in 70% of cases being first clinically diagnosed in lymph nodes under the tongue (the submandibulars), and hence comparable to child "scrofula" of the tonsils formerly from unpasteurised milk. Badgers would be almost bound to pick up TB, salmonella, or indeed brucellosis via the dietary route from infected cattle, particularly from point source cow pats. Blaming badgers or bats for bovine problems is hence not altogether believable!

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A DATE FOR YOUR 1996 DIARY

AES Annual General Meeting and Members' Day on 20th April 1996.

All members are urged to attend this event to be held at the Royal Entomological Society of London, 41 Queen's Gate, London SW7. Doors open at 10.00am

**THE STICK-INSECT *DATAMES OILEUS* (WESTWOOD)
1859 (PHASMIDA)**

by Francis Seow-Choen (1987)

54 *Mimosa* Walk, Singapore 2880, Singapore.

The insect currently known as *Datames oileus* apparently occurs over a wide range in South-east Asia. Westwood described the insect he called *Acanthoderus oileus* in 1859 but unfortunately based his description on a nymph from Java. Subsequently, Günther in 1934 synonymised *Acanthoderus gravidus* Bates 1865, *Acanthoderus mouhoti* Bates 1865, *Datames aequalis* Rehn 1904, *Datames mitratus* Redtenbacher 1906, *Datames cylindripes* Redtenbacher 1906, *Datames arietinus* Redtenbacher 1906 and *Dares fulmek* Werner 1934 with *Datames oileus*.

Redtenbacher examined specimens from Malacca, Perak and North Sulawesi in describing *Datames mitratus* and specimens from Mentawai Island and Malacca for *Datames arietinus*. Rehn's specimens of *Datames aequalis* were from the Moluccas. Bragg has recently found specimens of similar insects from Sarawak. Mr Chan Chew Lun and I have collected specimens of *Datames oileus* from Singapore, Selangor, Pahang and Sabah. It was clear from our examination of these specimens that the *Datames* so far collected and examined from Peninsular Malaysia and Singapore are co-specific whilst the *Datames* from Sepilok in Sabah are not the same species (Figures 1-4). It is unlikely therefore that the type specimens being from widely separate localities might not actually be co-specific. The taxonomy of these insects is therefore shrouded in uncertainty and there is an urgent need for a revision of the entire genus, but only after having examined specimens from all the type localities at least!

Whatever their status or names, these insects are fascinating and easy to breed in captivity. In the wild in Singapore, they have been found feeding on leaves of *Curculigo latifolia* (Hypoxidaceae), *Dieffenbachia* sp. (Araceae), *Uncaria gambir* (Rubiaceae), *Aidia wallichiana* (Rubiaceae), *Urophyllum glabrum* (Rubiaceae), *Daemonorops cf. didymophylla* (Palmae) and *Scindapsus aureus* (Araceae). In the United Kingdom, the insects have been reared successfully on Aroids (Araceae) and the Wandering Jew (P.D. Brock; pers. comm.).

I am grateful to Mr Tay Eng Pin, Senior Research Taxonomist, National Parks Board, Singapore Botanic Gardens for help with the identification of foodplants.

THE LARGE WHITE IN SOUTH AFRICA

by Phil Grey (3820)

Coridon, Steppeshill, Langton Maltravers, Swanage, Dorset BH19 3ET.

On arrival at an eastern suburb of Cape Town in February 1995, the first butterfly I saw in the garden was a female Large White (*Pieris brassicae*). It was of normal English size and markings and it transpired that these butterflies were to be seen passing by every one or two minutes and sometimes two or three at a time.

This species is not supposed to occur in South Africa and they were certainly not present in Cape Town in February 1994 so I went to Kirstenbosch National Botanic Gardens, also east of Cape Town, and to the Company Gardens in the centre of the city; in both places the Large white was to be seen in great numbers.

On a visit to friends to the west of the city, the lady had lost three rows of cabbages in her garden and was left only with the "forks". She was far from amused! I pointed out three unmistakable batches of eggs laid beneath the "forks", at which stage I began to feel that she was blaming me for being a "butterfly-man"!

I sought out the entomologist in his office at Kirstenbosch Gardens and, although he was not a lepidopterist, he had heard that the Large white had been seen in the Cape Peninsula since the previous August. He did not seem unduly perturbed when I suggested that, as the butterfly probably had no natural predators in South Africa, a plague of pest proportions might arise.

It would be interesting to know whether any of our widespread membership has heard of this phenomenon or knows how it came about.

There is a similar story in reverse involving the little brown South African Lycaenid, *Cacyreus marshalli*, which lays its eggs on Pelargonium flowers. This species arrived in Spain and its islands four years ago and has become a pest to Pelargonium growers. It was possibly exported from the Cape among Pelargonium flowers but one cannot imagine anyone sending infected cabbage leaves to Cape Town.



A FURTHER NOTE ON BLACK-VEINED WHITE AGGREGATIONS IN CENTRAL FINLAND

by Leigh Plester (2968)

BioFilm Ltd, Ylä-Muuratjärvi, 41800 Korpilahti, Finland.

Having written a note (*Bulletin* **53**: 286-7), accompanied by a photograph showing a small group of Black-veined whites (*Aporia crataegi*) imbibing at wet mud, I was delighted to see a colour photo accompanying a short article entitled "Butterflies like a snow storm" in issue **6-7** 1994 of *Suomen Luonto* (Nature of Finland) magazine. The slide had been sent in by a horse rider and showed three other young ladies on horseback clearly passing through a cloud of some 200-300 of the same butterflies! The ground in the picture looks much drier than the area in which I observed my individuals but lies in the same vicinity at Korpilahti, Central Finland. Finland's leading butterfly expert, Dr Kauri Mikkola of the University of Helsinki, replied to the young lady's query regarding why butterflies "by the thousand" had congregated on a track used annually by horses and their riders and I am grateful to him for permission to translate part of his reply here.

"This is a wonderful observation!" enthuses Dr Mikkola, "as the species dwindled alarmingly in the 1960s, not returning until the 1970s, and then mainly to south-eastern Finland, where its population had been abundant. Gathering in large flocks is typical of the species, but we can only guess as to its nature. The Black-veined white lives in colonies: in some places they are extremely abundant but in similar places elsewhere they are scarce or absent. In addition to roads, Black-veined whites may also gather on flowers or trees to rest for the night.

"Presumably the following conditions have to be met for flocking to take place: (1) open gravel or sand, ie normally a road, in a peaceful spot close to the breeding place, (2) the collection of moisture from previous rain, often with small dried puddles, (3) nitrogen-containing substances dissolved in the ground from animal droppings and urine, (4) social behaviour draws the insects together."

He goes on to say that the gathering spot is almost always a road or, as in this case, a bridle path. Horses are also ridden along the dirt road where I found the individuals mentioned in my article. The ideas I put forward on the subject seem to be not too far off the mark, in view of Dr Mikkola's further comment that "The social aspect comes out in the following minor event: ten years ago I watched a lorry in the Altai

mountains come along a lonely road and drive into a Black-veined white swarm, damaging one butterfly, which was transported ten metres away from the original gathering place. Immediately the flying butterflies began to land next to this injured specimen, even though there had been none of the butterflies there before." He ends by saying that although the females are known to pair immediately after emergence, flocking would help to ensure that mating takes place.

MORE LEPIDOPTERA FROM GLASGOW

by Frank McGann (6291)

Recently I found some Grey dagger larvae on hawthorn and then shortly afterwards another one on sycamore. The latter was resting on the upper surface of one of the leaves of a sycamore sapling, a foot or so high, growing behind a mesh fence. The following day I found another Grey dagger larva about the same size as the first *i.e.* about half-grown, on another sycamore sapling near to the first one.

Whilst I was out at Possil Park, Glasgow with friends, I noticed some willow bushes growing amongst paving and against a wall. I recognised leaves that had been eaten by Sawfly larvae, a lot of which were present. On one of the willow leaves I noticed large droppings of frass. I at once suspected a much larger larva and sure enough on the willow in question I saw a full-grown Poplar hawkmoth caterpillar. It was resting near the centre of the bush, and I collected it. I searched for some more and higher up on the same willow bush I found another, slightly smaller than the first. This I also collected, and have both larvae in separate flower pots with earth from the garden plus of course leaves for them to feed on. I put in willow, birch and garden rose leaves. The larvae are beautifully marked and look in perfect condition. I have found Poplar hawkmoth larvae before, again on willow, a tree of which grew in the garden of my previous house in Wellhouse Crescent, Easterhouse. There I also found the eggs of the moth and the perfect insect or imago.

Regarding the Grey dagger larvae, I have found these on trees other than their usual hawthorn. I've seen them on apple, oak, wild rose, hornbeam, lime, elm and now sycamore. The larvae I found on elm were at a place near Arbroath in north-east Scotland, whilst on holiday in 1970. At that location then, I picked up a piece of almost rotten branch from the ground near the elm trees. I broke it in two with my hands and inside was a Grey dagger larva which must have bored its way inside to pupate.

HEATH FRITILLARY ABERRATIONS IN 1994

by Lee & Derek Slaughter

On 16th June, 1994 we visited Lockett Nature Reserve in east Cornwall to see the Heath fritillary butterfly. The butterfly is one of Britain's rarest and is fully protected by law under the Wildlife and Countryside Act 1981. We are very fortunate to have this fine reserve in our county which supports healthy numbers of this beautiful butterfly and our visit on this particular afternoon we forecast should be at about peak flight time for this season. Luck was on our side; no sooner had we reached the area which supports the main colony than dozens of Heath fritillary butterflies were gracefully flying around us. The colour of this species is orange marked with black on the upper wings and the tips of the antennae orange. We managed to obtain a number of photographs of this butterfly and were attempting to photograph a late Small pearl-bordered fritillary when something caught our eye. It looked like a dwarf Ringlet butterfly. It was dark chocolate/black in colour and was flitting slowly between some shoots of bracken. We followed it for a few seconds and watched it settle on an open leaf of bracken. When it opened its wings, we looked at it and then at each other without uttering a word. It suddenly dawned on me that it was a male Heath fritillary with no orange marking on the upperside at all. Upon close examination we could see that there were five very faint spots no bigger than pinheads on the margin of the upper hindwing but the rest of the upperside was completely melanic (excess of dark suffusion/markings). Strangely enough the specimen was more willing to let us photograph it than most normal specimens and a number of slides were taken of it. It was also quite friendly and stayed within an area of 50 square yards or so leaving us with over an hour to observe this obviously rare variation of the Heath fritillary. Upon checking in my library upon returning home I can confirm that the first mention of this aberration was by F.W. Frowhawk in his book *Varieties of British Butterflies* published in 1938 under the name "*navarina*" selys – Long. He showed two known examples of this aberration both caught in 1936 – one in Essex and one in Kent. Another specimen was caught at this very locality (Lockett) in 1978 by A.P. Gainsford who described it under the name *cymothoe extreme*. This particular specimen was sold several years ago under Department of Environment licence for a considerable sum of money and hence stresses the extreme rarity of this particular butterfly. Another two aberrant specimens were also seen later that same afternoon but both not nearly as extreme as the above-mentioned specimen. I myself revisited the same locality two days later and, after much searching, found and

photographed just one more quite superb aberrant male Heath fritillary and, although not as extreme as the *cymothoe extreme* aberration seen two days previously, the specimen was still dark brown/black all over except for marginal spots on the upper hindwing and bright orange marks near the margin of the upper forewing.

My father and I consider ourselves extremely fortunate to have seen not one, but four quite extreme aberrations of this nationally endangered butterfly. It does seem strange that all four butterflies were males and I would conclude too that the occurrence of these specimens could probably be attributed to very changeable weather conditions earlier in the year. There were several seasons in the 1970s when A.P. Gainsford captured some extreme aberrations of this species (before the species was protected from capture by law in 1981) for which I think he tried to draw his own conclusions as to the cause of the occurrence of them in certain seasons only. If anyone else has ever witnessed any similar sighting at this site then please let me know (whether it be this season or not) as further study on this subject could make some interesting findings.

A REVIEW OF THE NEW PERMANENT EXHIBIT OF INSECTS AT OXFORD

by Murray Eiland (9731)

Wolfson College, Oxford OX2 6UD.

It is a rare exhibit that operates on many levels – without sacrificing accuracy – and effectively conveys a complex subject in simple terms. Such an exhibition has been designed by Dr George McGavin and Jo Liddard, at the University Museum in Oxford. Such success, sadly, has not been the rule. Many museums that have changed the format of their permanent exhibitions have opted for the user-friendly “interactive exhibits”, which almost without exception brings the level of description down to the stunningly obvious. At the same time they are often poorly understood, and clearly do not address the interest of the target audience.

Such is not the case at Oxford, where a range of materials, from specimens, models, charts, photographs and micrographs, are used to convey the range of the subject effectively. The photographs are particularly good, which is hardly surprising, as a number are from the

there are informative captions, and further notes in bold face type. A good example is near a photograph of a flower mantid. The note reminds the viewer that mantids are the only insects able to see over their shoulder. This bit of information, when taken with the photograph, leads the viewer to question and explore the information at his/her disposal. Clearly stated on the caption, and clear from the photo, mantids have a range of adaptations designed to capture prey.

Such organisation is not only used on a small scale. The exhibit starts with the standard definition of "The Arthropoda", and then presents the insect orders. Starting with *Archaeognatha*, commonly known as the bristletails, the reader is presented with a dossier of facts. The Greek/Latin names are explained, the (average) size of the insect is given, and development and distribution are covered, along with the numbers of families and species. Identification is divided into two parts, adult and nymph, and the habitat and biology of the order is summarised. Each category for each family is clearly presented, and major topics of interest are introduced within the body of the exhibit.

Instead of presenting separate displays covering such aspects as colour, for instance, these themes are integrated with the order that best illuminates them. The Orthoptera were chosen to demonstrate the various ways in which colour can be used. Warning colours, flash coloration and eyespots, and cryptic coloration, were all illustrated by grasshoppers. This method was very successful at making these concepts clear, and at the same time interesting to any audience. It is even notable that this exhibit includes Phasmids, an order that has been generally neglected in such presentations, and one that is dear to many amateur entomologists.

Overall the display can only be appreciated as a complete success, and by the number of people attracted to the hitherto unknown upper level of the museum, this appears to be the opinion of the majority. The only complaint to be directed towards what is certainly the best exhibit in the University Museum is that it does not occupy about half the space of the museum. Given that insects make up perhaps 56 per cent of known life forms, a case could be made for proportional representation.

A DATE FOR YOUR 1996 DIARY

AES 1996 Exhibition on Saturday 5th October 1996.

Everyone is welcome to attend this highly enjoyable event at Kempton Park Racecourse, Staines Road, Sunbury, Middlesex. Entry is *free* for all Society members.

LARVAL FINDINGS IN GLASGOW

by Frank McGann (6291)

On 26th September 1994 my friend Margaret and I visited Robroyston which is situated just north-east of Glasgow. There is a new housing estate there and the surrounding countryside is lovely. Before we left the bus stop I searched the leaves of a smallish beech tree growing nearby. Resting on the underside and in the middle of one of the leaves there was a large beautiful green larva. I had not seen this species before and was impressed by its beauty and form. It was approximately one inch in length and had a largish head with markings along the middle of its back. I examined it closely and put it in my container with beech leaves and twigs.

I then searched a hawthorn hedgerow on the way to the area I intended to search for caterpillars. At this particular site (which is a lane bordered with hawthorn and some beech trees and willows) I had collected blackberries when I was a child, but hadn't returned since. Margaret and I then sat at the base of a beech tree on the edge of the lane. Whilst searching the twigs and leaves of this tree I found resting on a twig a specimen of Coxcomb prominent larva – which looked almost full-grown. I took it from the tree and put it in my container.

Further along the country lane I found another Coxcomb prominent, this time on willow. It was also almost fully-fed. I noticed the different coloration of the two larvae, the one from the beech having reddish tinges to it, and the one from the willow being decidedly greener. Both were very beautiful larvae.

Still further along at an opening to a grassy field I found a Tiger moth caterpillar on thistle. It was resting on the stem about half-way up, and was smaller than the one I had previously found at Easterhouse. It had star-like tufts of blackish hairs and a small black head. It could have been a Buff ermine caterpillar.

On a day when I wasn't expecting to find much, I found four good caterpillars. Long may the fine weather continue!

The green caterpillar I had found on the beech tree at the bus-stop is the Green silver lines – I looked up the description in my entomology books, and found it described with a colour illustration in *The Moths and Butterflies of Great Britain and Ireland* (Vol. 9). It is also described in *South's Moths of the British Isles* (Series 1).



Fig. 1. A female oil beetle digging.



Fig. 2. Female *Anthophora retosa*.



Fig. 3. View along the cliff-path.



Fig. 4. The Two-tailed pasha.



Fig. 5. Nyany Camp, Jonglei Province, southern Sudan, aerial view, showing paucity of woody vegetation, dry season, January 1982, including sites of mounds and seasonal pools.



Fig. 6. The Emperor moth *Gyananisa jama*, *sensu* Pinhey, 1968 form *festa* Rougeot, 1978 found at rest in grass by day, Bor woodlands, Jonglei Province, southern Sudan.



Fig. 7. Larvae of *Bunea alcinoe* feeding in *Balanites aegyptiaca* tree.



Fig. 8. Monitor lizard post-mortem: two larvae of *Bunea alcinoe* and a toad found in stomach.

THE EFFECTS OF TEMPERATURE ON THE DEVELOPMENT OF THE NORTHERN EGGER MOTH, *LASIOCAMPA QUERCUS CALLUNAE*, AND THE WIDER IMPLICATIONS

by Paul Waring (4220)

I was very interested to read Brian Winslade's comments about his experiences rearing the Northern egger at raised temperatures and with fridge treatments (*Bulletin* **53**: 59-60). His results demonstrate clearly that given strong cues in the form of drastic temperature changes, the race is capable of developing much faster than in the wild. The raised temperatures enable faster rates of metabolism and therefore growth, a common experience with the Lepidoptera. The mechanisms by which insects ensure that the adults emerge together, at an appropriate time to mate and lay eggs, and that hatching of eggs coincides with the correct stage of the larval foodplants, have always been a source of fascination – about which much has now been written in the scientific literature. Sometimes these mechanisms are simply temperature dependent, but the photoperiod, ie the length of daylight, at critical stages of development, is often influential, and other factors may also be involved. A period at a low temperature is often needed to trick the insects into developing as if they had experienced winter; an hour or two in the fridge is unlikely to do it. This whole subject remains a source of wonder and experimentation.

The synchronisation of insect development is not just of entomological interest. It has much wider repercussions. How many people realise that the spring birdsong that we all enjoy relates directly to generations of Winter moth larvae and other abundant insects on trees and shrubs recognising the cues and timing of spring bud-burst? If the caterpillars get it right, they can capitalise on the short-lived supply of nutritious young leaves. Many of the insectivorous birds which fill the woodlands with song in defending their breeding territories coincide their broods to cash in on the abundance of spring larvae. As the leaves on trees and bushes get bigger and tougher and accumulate unpalatable chemicals, their food value declines, so there are major advantages to moths in correctly timing the laying and hatching of their eggs. If the larvae get it wrong and hatch before bud-burst, they may starve to death. When this happens on a large scale, young birds sometimes die in their nests because the parents simply cannot find enough food for the family. This is no concern to the larvae of course, but merely a knock-on effect. Moth eggs are like little time-bombs set to go off at the right moment. However, to put the eggs in place so that they are ready to hatch in the spring, the adult moths may fly in the summer, autumn, winter or spring, depending on the species.

Other species do not exploit the first spring leaf growth, but nevertheless have their characteristic times of appearance, The adults of each species of moth are presumably at an advantage appearing together when they do and they need to get it right to find a mate – another set of cues and another source of fascination. What is quite clear from experiments like Brian's is that the time taken to get from egg to adult moth and the duration of each stage is flexible and can be reduced or extended by environmental factors.

FURTHER STAFFORDSHIRE LIME HAWKMOTHS

by Jan Koryszko (6089)

Since my last report in *Bulletin* **53**: 129, further Lime hawkmoths (*Mimas tiliae*) have been reported. On 12th June 1994 I found a dead moth on the road by the Cinderhill Industrial Estate, close to Weston Sprink. The following evening I found another moth sitting outside a shop window in Longton town centre.

But the most remarkable records again came from Normacot Longton. Steve Chapman, a local schoolboy, who is a very keen entomologist, reported a number of moths from Watery Lane, Normacot, where quite a few lime trees grow. Steve also found larvae and dug up pupae in the autumn at the base of the trees.

Since 1992 this species has become much more widespread in the Longton, Normacot and Meir areas of north Staffordshire.

EARLY LEPIDOPTERAL SIGHTINGS

by Rosalind Hodge

On Sunday 19th March at 1.30pm I was surprised to see *Cynthia cardui* in my garden. I was able positively to identify it, as I grabbed my folding net and was able to catch it.

On 1st April at 5.30pm at Wakehurst Place, Ardingly, West Sussex a bright unworn specimen of *Vanessa atalanta* alighted on the grass about four feet from me.

Both these days were extremely warm with brilliant sunshine and I thought it rather early in the season to see these varieties.

PUFFIN ISLAND EXPEDITION

by Colin Jones

Being a light-trapping fanatic, and always on the lookout for unusual and virgin territory, especially the latter, I have, for the past few years, longed to light-trap Puffin Island which lies off the north-east coast of Anglesey in Gwynedd. Even more so since I was informed by Bangor University, that it had never been done before.

I applied for permission from the owner, who granted me an open permit for July and August, providing I made a small donation to the RNLi which seemed quite fair and who knows, I may need their services out there.

The island is not easily accessible, due to the meeting tides and being at the head of the Menai Straits, which is notorious for its current at the best of times.

Luckily, I have a friend, Dave Phillips, who owns a tough sea-going vessel, *The Three Brothers* who offered to take me as close as possible and from the boat to the island in a punt.

As I had a two-month permit, and providing I telephoned The Estate office, prior to our visit, we could watch the weather, combined with tides and take the opportunity almost immediately, work permitting.

It wasn't until late July, that everything fell into place. The weather was calm and humid, the tides were perfect and my moth-trap at home was producing large numbers. So it seemed we couldn't fail to catch one or two species, even on an island in the Irish Sea.

So at 6.30pm on the 29th July, we weighed anchor in Conway harbour and headed for Puffin Island, a good two hours away.

Dave had circled the island in the boat previously, and found the landing place, but he had reservations about leaving the boat for too long, in case the anchor dragged. So it was decided we would get on the island, set up the trap and generator as quickly as possible, then move away to the north-west, where anchoring would be more reliable.

It's strange when you see the island from the mainland how small it looks, but as we approached, it seemed like a mountain rising up out of the sea. On the cliffs, there were Shags and Cormorants, shoulder to shoulder in their hundreds. There were seals on the shore, Puffins in the water and a Manx shearwater flew past as a Fulmar circled the boat.

We landed on the single beach at around 8.30pm and thought the worst part was over. There is a footpath but to even get on it, you first have to stand on a large rock, not easy with a moth-trap and generator. Once on the path, it's up, up and up. There were many rest camps on the way, as we paused for breath and to wipe the sweat away.

The island habitat was not what I was led to believe. There were Elders that overgrew the path, forming tunnels over our heads, nettle and long grasses, teasle and a strong smell of rotten bird droppings.

We eventually came to a clearing near the top, just as dusk was falling and decided this was far enough. After setting up the trap and trappings, we returned to find the boat exactly where we had left it. So far so good.

As we moved away from the island, it was almost dark and we could see the bushes glow by the light of the trap, which we had sited on the north-west side. So, with all being well, we settled down for the night, near Red Wharf Bay and proceeded to fish through the night, until just before dawn.

At about 4.30am we put the kettle on and made our way back with high hopes. The weather was still calm and warm as we again sweated our way to the top of the island. On approaching the trap, I could see Garden tigers and Swallow-tailed moths, on the bushes and grass surrounding it. A good ten minutes were spent counting and noting these down before I got near the trap. Being a home-made portable, the trap isn't very big, about 18 inches square and when I looked inside, it seemed full to the brim with moths.

I lost a few on taking the lid off but the final count was 482 of 42 species. I have been informed since, by Mrs M.J. Morgan of Bangor University, that only two or three of the species caught have been recorded before, during hand-netting in the hours of daylight. No rarities perhaps but at least the species list for Puffin Island has been increased by about 40.

Eight specimens of one species defied identification and I sent one to Bernard Skinner, who was also baffled and forwarded it to the British Museum. They identified it on genitalia as Crescent dart.

We made a return visit on 27th August but the weather turned rough in the night and just 27 of five species were recorded. Even so, two more species were added to the list of the previous visit.

The species list and total for the two nights are as follows:

Lasiocampidae

Lackey	<i>Malacosoma neustria</i> (19)
Drinker	<i>Euthrix potatoria</i> (8)

Geometridae

Common emerald	<i>Hemithea aestivaria</i> (1)
Small fan-footed wave	<i>Idaea biselata</i> (1)
Single dotted wave	<i>I. dimidiata</i> (1)
Riband wave	<i>I. aversata</i> (7)
Dark-barred	
twin-spot carpet	<i>Xanthorhoe ferrugata</i> (1)
Garden carpet	<i>X. fluctuata</i> (1)
Yellow shell	<i>Camptogramma bilineata</i> (1)
Wormwood pug	<i>Eupithecia absinthiata</i> (2)
Bordered pug	<i>E. succenturiata</i> (1)
V-pug	<i>Chloroclystis v-ata</i> (1)
Early thorn	<i>Selenia dentaria</i> (4)
Scalloped oak	<i>Crocallis elinguarua</i> (2)
Swallow-tailed moth	<i>Ourapteryx sambucaria</i> (18)
Willow beauty	<i>Peribatodes rhomboidaria</i> (15)
Engrailed	<i>Ectropis bistortata</i> (8)

Arctiidae

Common footman	<i>Eilema lurideola</i> (5)
Garden tiger	<i>Arctia caja</i> (71)

Noctuidae

Heart & club	<i>Agrotis clavis</i> (6)
Crescent dart	<i>A. trux</i> (17)
Large yellow underwing	<i>Noctua pronuba</i> (16)
Lesser yellow underwing	<i>N. comes</i> (2)
Lesser broad-bordered	
yellow underwing	<i>N. janthe</i> (11)
Least yellow underwing	<i>N. interjecta</i> (11)
Small square-spot	<i>Diarsia rubi</i> (2)
Square-spot rustic	<i>Xestia xanthographa</i> (12)
Brown-line bright-eye	<i>Mythimna conigera</i> (13)
Clay	<i>M. ferrago</i> (8)
Smoky wainscot	<i>M. impura</i> (53)
Mouse moth	<i>Amphipyra tragopogonis</i> (53)
Straw underwing	<i>Thalpophila matura</i> (1)
Dark arches	<i>Apamea monoglypha</i> (1)
Light arches	<i>A. lithoxyloae</i> (3)
Cloaked minor	<i>Mesoligia furuncula</i> (10)

Common rustic	<i>Mesapamea secalis</i> (78)
The Uncertain	<i>Hoplodrina alsines</i> (2)
Mottled rustic	<i>Caradrina morpheus</i> (1)
Pale mottled willow	<i>C. clavipalpis</i> (1)
Burnished brass	<i>Diachrysa chrysitis</i> (20)
Silver-Y	<i>Autographa gamma</i> (3)
The Spectacle	<i>Abrostola triplasia</i> (5)
Straw dot	<i>Rivula sericealis</i> (1)
The Snout	<i>Hypena proboscidalis</i> (27)

On the second visit, we were asked by Mrs Morgan at Bangor University to collect insect samples, leaf litter etc. We managed to find a weevil which is very uncommon for the whole area (*Barynotus obscurus*). So what we lost in moths, we made up for in weevils and it wasn't a wasted journey after all.

Many thanks to the following for making the whole thing possible: Sir Richard Williams-Bulkeley, owner of Puffin Island. Dave Phillips, Skipper of *The Three Brothers* sailing vessel, without whose help I would never have got the trap and trappings onto the island. He is also now a budding moth enthusiast! Mrs M.J. Morgan at Bangor University for her help and information. Also to Bernard Skinner and the British Museum for their help in identification.

MASS PHORESY BY PSEUDOSCORPIONS

by Tony King (9094)

"A wide distribution, a cryptolic life, intricate structure, characteristic habits, mysteries and puzzles in plenty, all this builds up to the biology of a group of wholly delightful creatures." So said Theodore Savory of the Arachnid order Pseudoscorpiones (Savory, 1977). So why do many entomologists, amateur and professional alike, seem to know very little about the hugely intriguing habits of pseudoscorpions? Perhaps it is because they are not insects. Or that they are not very big. Or that they are not venomous to anything larger than small invertebrates. Or even that, as Peter Weygoldt bluntly points out, "no species seems to be of direct importance to man" (Weygoldt, 1969). Whatever the reason, it is an unjustifiable ignorance, for anyone who flirts even briefly with the study of pseudoscorpions is invariably snared into a romantic infatuation with them. "Their deliberate, almost pompous progress, alternating with rapid backward dartings, is like nothing else in the animal kingdom." Weygoldt, indeed, was led to write an entire book devoted to pseudoscorpion biology. And now, less than a month after encountering live pseudoscorpions for the first time, I am writing an article about them for the *Bulletin of the Amateur Entomologists' Society*.

Although this article is concerned with a behaviour known as “phoresy” (one for the dictionary!), a browse through Weygoldt's delightfully written book reveals pseudoscorpions as exhibiting many diverse and eccentric behaviours, such as their ability to run backward much faster than forward, or the ability of some species to transfer sperm without mating while other species conduct elaborate and intimate mating dances (one of which being so exhaustive as to necessitate a ten-minute siesta during the performance). It is for me here only to tease your inquisitiveness with the wonders of pseudoscorpion biology, and to encourage a lazy afternoon's leisurely read through the literature for yourself.

One misty Bishop's Stortford morning, following the bitterly cold night of 14th October 1994, I discovered in my m.v. light trap a fly carrying no less than five pseudoscorpions on one leg. The fly's mobility seemed detrimentally affected by the one-sided load, and it strikes me as an impressive feat on the fly's part to have found its way into the trap, especially considering that the temperature had been so low as to restrict the moth catch to just two individuals.

This habit of “hitch-hiking” (Danahar, 1991) by certain pseudoscorpion species appears to be very frequent, at least during a certain time of the year (Savory, 1977) and especially by mature females (Weygoldt, 1969). Indeed one exhibit in the “British Natural History” exhibition at the Natural History Museum, London informs the reader that the pseudoscorpion species *Lamprochernes nodosus* is “often seen attached to the legs of flies in houses and office buildings.” I did wonder, however, what proportion of the general public who read this would be able to agree that they had often seen *Lamprochernes nodosus* attached to the legs of flies in their house or office building. But if only they were to look . . .

Data on the “carrying capacity” of flies in terms of potential numbers of pseudoscorpion passengers was rather harder to come by. Danahar (1991) and Eitschberger (1994) both report just single individuals, while Bailey (1865), despite frequent observation of common houseflies, never found more than two on one fly. However, Savory (1977) refers to a study by Vachon in 1932 which reports 78 pseudoscorpions on the legs of 57 harvestmen in one week, with the highest number on one harvestman being eight. How they were distributed in terms of numbers on each leg is not stated, but I suspect that five on one leg of a flying insect, as with my fly, must be approaching the limit of potential hitch-hiker load. One wonders whether a more even distribution of pseudoscorpions across the fly's legs would increase the number a fly could carry during flight. Carrying capacity would almost certainly also be dependent on the size of the fly, and therefore could vary greatly between different species.

Over the years, several reasons for phoretic behaviour by pseudoscorpions have been suggested. Bailey (1865), somewhat confused as to the identity of his house-fly passengers, describes his excellently illustrated pseudoscorpion as an "insect of parasitic nature . . . extremely like *Tenebrio molitor*, the beetle of the mealworm; both are of a red-brown colour." However, with the advantage of considerable hindsight, we can agree with his description in his assertion of their colour. Some authors suggest phoresy may arise from attempted predation of the carrier, but this seems unlikely as the pseudoscorpions tend neither to injure nor feed on the fly (Weygoldt, 1969; Savory, 1977), despite the potency of their venom (most species have poison glands in their pedipalps or "pincers"), and its speed of action. From Savory's experience "A victim once bitten seems to be at once immobilised; and one has seen a spider, swinging on its thread, and coming into momentary contact with a false scorpion much smaller than itself, die instantaneously when it was bitten. It is tempting to claim for false scorpions that in proportion to their size, they are the most venomous of all the Arachnida." It would appear, then, that phoretic behaviour is unlikely to arise from a failed attempt to injure the host, but rather that the flies are specifically used as transport to aid dispersal, "an office for which they are admirably adapted from their erratic character. Nobody can tell what sorts of places and company they do not visit in their wanderings" (Bailey 1865). Indeed! However, some effort has since been made to map the activities of flies, and following these Savory (1977) warns of making assumptions about actual distances travelled by flies. Nevertheless, the dispersal capacity of a fly is surely much larger than that of the wingless pseudoscorpion (Danahar, 1991), and for the generalist species at least there should be no specific requirements for the destination save for the presence of a community of small arthropod prey (e.g. spring-tails, psocids, even head-lice (Weygoldt, 1969)).

Finally, a cautionary note on the topic from Graham Bailey (1865). "Queer-looking insects are always turning up in unexpected places, and I have no doubt many of them are dropped by the flies! It is probable that by this means many of these 'odds and ends' find their way into the human stomach, and produce various disorders in the skin."

So be warned!

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SOME EMPEROR MOTHS (SATURNIIDAE) OF THE SOUTHERN SUDAN

by Paul Waring (4220)

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Introduction

From January 1981 until February 1983 I lived at a place called Nyany (Plate95W, Fig. 5), in Jonglei Province, southern Sudan, working on an ecological impact study of the Jonglei Canal, the results of which can be found in Howell *et al.* (1988) which also included photographs of the area. During my spare time I recorded the Lepidoptera of the area around the bush camp in which we were based. I had regular opportunities to find saturniid moths and their larvae by day during butterfly monitoring on a fixed route of approximately 1km in length encircling the camp. This route was walked once and sometimes twice per week. The route was always commenced between 14.00 and 14.30 hours, was only attempted on fine days with sunshine and took between one and two hours to complete.

Data on nocturnal moths were collected using a standard black plastic Robinson trap with 125W MB/U bulb. This was operated from dusk, around 18.00 hours, to between 22.00 and 23.00 hours, at least twice a week, as a rule, occasionally as late as 00.30 hours or even 01.30 hours. Power was supplied from the camp generator while it was operated to provide evening light for the camp. Owing to shortage of fuel it was rarely possible to operate the generator, and hence the trap, all night, although one or two all-night sessions were achieved for comparative purposes. The light trap was inspected soon after dark and once or twice more before it was time to switch off the power. The trap was not manned continuously, partly because of the large numbers of mosquitoes, but a good search was carried out around the trap and on the wall of a hut illuminated by the trap on each inspection. The catch was sorted and recorded before the power was switched off and then the trap was packed away, so moths were recorded even if they did not reach or enter the trap. Searches for nectar flowers by day and at dusk were also undertaken, though of course saturniid adults do not feed, and any Lepidoptera and their larvae that entered the camp or came my way during casual observations were noted.

During this time saturniid moths were notable by their almost complete absence from the light trap catches. Some have a reputation for flying late at night (A. McCrae and A. Bjornstad pers. comm.) and it is possible that

some were missed because the trap could not be operated all night. However, some were seen flying after dark, usually into lighted rooms in the camp, not especially late, and the details are given below. A few were encountered as adults by day and one species was numerous as larvae on one of the trees in the camp in both years of study. An all-night trap session on the edge of the swamps to the west of Nyany on 5/6th June 1982 revealed that some sphingids arrived between 22.00 hours and midnight but there was virtually no moth activity after midnight and no saturniids were seen on this occasion. A similar result was obtained when the trap was operated in Nyany camp until 01.30 on the night of 26/27th June 1981. The impression was that, as a group, the Saturniidae were not well represented in the area around the camp, the site and habitat details of which are given below. Only three species of saturniid were seen there. In view of the paucity of recent moth records from southern Sudan, I have taken the opportunity to include records of additional saturniid moths seen in the woodlands just north of Bor and, outside Jonglei Province, on the outskirts of Juba, the capital of southern Sudan. These raise the total to five species. One of these, *Pseudaphelia apollinaris simplex*, was initially thought to be the first record for Sudan (A. McCrae pers. comm.) but a single specimen from Wau, Bahr el Ghazel Province, dating from 1918 has since been located in the National Collections.

Site details

Nyany is situated between Bor and Kongor in Jonglei Province, at approximate latitude $6^{\circ}52'N$ longitude $31^{\circ}25'E$. A map is given in Waring (1992, p. 265). Nyany is an old Dinka cattle-camp some 80km north of Bor and 10km east of the old village of Jonglei, the latter, surprisingly, being marked on most atlases. During the period of the study Nyany was the base camp of the Jonglei Ecological Research Team, and consisted of a number of mud huts and an unsurfaced access road (Plate 95W, Fig. 5). Bor and Kongor were the nearest settlements of any size, being small towns with local traders. However the area was inhabited by the Dinka, who live and move between scattered mud-huts, grass-roofed cattle byres and seasonally occupied camp-sites.

Bor is a small market town, principally of mud huts but some more permanent buildings, government offices and moorings and loading areas for boats on the Nile. Roads were unsurfaced. Bor is situated at approximately $6^{\circ}10'N$ $31^{\circ}40'E$.

During work I visited Juba on a number of occasions each year. Some moths were collected at the lights of the laboratory of the UN Project Development Unit, where there was a 24 hour electricity supply. This was on the northern edge of Juba at approximately 4°56'N 31°29'E.

One of the saturniid specimens was found at Panyagor, by Kongor, at approximately 7°01'N 31°27'E, in habitat similar to that at Nyany.

Habitats

The camp at Nyany was 11km east of the permanent swamp system of the Sudd, in an area of open grassland containing depressions which filled with rainwater during the wet season. The area was a flat plain scattered with termite mounds.

The grassland consisted principally of the grass *Sporobolus pyramidalis* P. Beauv. with *Cynodon dactylon* (L.) Pers., *Echinochloa pyramidalis* (Lam.) Hitchc. and Chase. and *Setaria barbata* (Lam.) Cunthe. amongst other grasses. The wild rice *Oryza longistaminata* A. Chev. and Roehr. was the principal species in the seasonally-flooded area to the west and *Hyparrhenia rufa* (Nees) Stapf., a reddish grass when dry, reaching 2-3m in height, was the dominant species of the plains to the east.

The principal larval foodplants of saturniid moths are various species of trees and bushes. Such trees and shrubs as were present were confined mainly to the termite mounds and included mainly various *Acacia* species, of which *A. seyal* DC., *A. drepanolobium* Harms ex Sjestedt. the whistling thorn, and *A. fistula* Schweinf. were the most abundant, *Balanites aegyptiaca* (L.) Del., *Cadaba farinosa* Forsk., *Calotropis procera* (Ait.) Ait.f., *Capparis tomentosa* Lam., *Crataeva adamsonii* Pliv., *Grewia tenax* (Forsk.) Fiori, *Hoslundia opposita* Vahl., *Salvadora persica* L. and *Secrinega virosa* (Roxb. ex Willd.) Baill. In addition to the *Acacia* spp., other known saturniid foodplants present included *Piliostigma thonningii* (Schum.) Milne-Redhead, which was abundant in the Jonglei region though particularly around the camp at Nyany, *Ziziphus*, represented by *Z. mauritiana* Lam. abundant in the general area, and *Z. pubescens* Oliv., which was occasional, *Turraea nilotica* Kotschy & Peyr., occasional in the general area, and *Combretum*, represented by *C. fragrans* F. Hoffm., locally abundant in clumps of woodland, and *C. aculeatum* Vent., which was seen occasionally in the area. The termite mounds around the camp, which carried the all-important woody vegetation, were scattered at distances of 50-100 metres from one another, sometimes more.

Climbers included *Chasmanthera dependens* Hochst., *Ipomoea obscura* (L.) Ker Gawl. and *Kedrostis foetidissima* (Jacq.) Cogn.

Smaller broad-leaved plants included *Abutilon figarianum* Webb., *Cardiospermum halicacabum* L., *Cassia mimosoides* L., *Commelina forskalei* Vahl., *Crotalaria polysperma* Kotschy ex. Schweinf., *Desmodium hirtum* Guill. and Perr., *Gynandropsis gynandra* (L.) Briq., *Hibiscus cannabinus* L., *Indigofera stenophylla* Guill. and Perr., *Ipomoea aquatica* Forsk., *Mimosa pigra* L., *Pentatropis spiralis* (Forsk.) Dene., *Portulaca oleracea* L., *Sida alba* L., *Solanum incanum* L. and *Vigna luteola* (Jacq.) Benth. amongst others.

The woodlands at Bor had a similar range of species but trees were larger and more abundant and consisted of various *Acacia* species in particular. These *Acacia seyal* woodlands were being felled and transported for use as building materials to construct the mud huts and cattle byres on the plains to the north and east. There was a small copse of similar habitat at Kopp, just south of Nyany, which had not been felled by the Dinka because it was sacred. A map from 1952 shows that such woodland was more extensive around Nyany at that time. Floods in the early 1960s are believed to have killed many trees on all but the higher ground and termite mounds (Howell *et al.* 1988).

The Project Development Unit (PDU) of the United Nations Development Programme (UNDP) at Juba consisted of a group of permanent buildings in a fenced compound on a flat plain in which most of the vegetation had been cleared or overgrazed. What remained around the compound was *Sporobolus*-dominated grassland with few herbs. The sward was cut to keep it short in the wet season but became parched, with much bare ground, during the dry season. There were a few scrubby bushes outside the compound, mainly *Acacia* spp. and *Ziziphus*.

Climate

In the above parts of southern Sudan there is a single, well-defined wet season consisting of intermittent rains from May to October, preceded by the odd shower in late April. The annual rainfall measured at Nyany was 738.5mm in 1981 and 776.8mm in 1982. July was the wettest month in both years (213mm and 204mm respectively). December to early April is the dry season, during which hardly any rain falls; maximum day-time temperatures can soar to between 40-44°C in the shade, and much of the grassland and vegetation becomes tinder-dry. Maximum temperatures of 30-40°C were the norm during the rest of the year and minimum

temperatures seldom fell below 15-20°C at any time. There were dramatic beginning and end points to the wet season at Nyany in 1982. After isolated showers on 24th and 25th April, the first heavy rains fell on 2nd May (18mm), preceded by a dust storm, and the last rains ended, accompanied by another strong wind, on 31st October, after which the Dinka said almost immediately that the rains were now over. Days in November were often muggy and there was much floodwater lying about but the pools of floodwater and rainwater dried up over the subsequent weeks. The rains brought a flush of grass growth and a great increase in available cover for insects, snakes and other animals, with grass-cutting beginning in earnest in mid-June to keep the camp clear.

The Saturniid moths

The Saturniid moths recorded at Nyany, Bor and Juba between January 1981 and February 1983 were those below, listed in taxonomic order, following Pinhey (1975):

Subfamily Attacinae

Epiphora bauhiniiae (Guerin-Meneville, 1982) form *sudanica* Le Cerf (Nyany, Juba).

Subfamily Saturniinae

Pseudaphelia apollinaris (Boisduval, 1847) form *simplex* Rebel, 1906 (Nyany only).

Usta terpsichore Maassen and Weymer, 1885 (Juba only).

Bunaea alcinoe (Stoll, 1782) (Nyany and Panyagor only).

Gynanisa jama, sensu Pinhey, 1968 nec Rebel, 1915 form *festae* Rougeot, 1978 (Bor and Juba) (Plate 95W, Fig. 6).

Imbrasia [*Gonimbrasia* auctt.] *hecate* (Rougeot, 1955) (Nyany, Kopp, Juba).

Species accounts

Epiphora bauhiniiae, the Southern atlas moth of Pinhey 1956 p.4 and 1975 p.110.

The species occurs as several forms which probably grade into one another geographically: Pinhey (1975) attributes form *vera* to southern

and south central Africa. *atbarina* from Tanzania and Kenya, *bauhiniae* from equatorial West Africa and *sudanica* from Sudan, all feeding as larvae on various species of *Ziziphus*, for which foodplant there are many supporting records. McCrae (pers. comm.) questions Pinhey's view of the geographical distribution of the various forms. Form *sudanica* Le Cerf 1923 has been recorded from "near Khartoum", but probably does not occur in the bush country of the Suk, northern Uganda, as stated by Pinhey (1975). It is described as having a reddish ground colour at the base of the wings, in contrast to the dark maroon in *atbarina* (Pinhey 1956). Both *atbarina* and *sudanica* have the purple coloration in the middle of the forewing extending back to the trailing edge of the wing in a broad belt, replacing much of the white patch present here in *bauhiniae* (which was originally described as a separate species *schultzei* Aurivillius 1905) – A. McCrae, pers. comm. In the form *bauhiniae* the purple median patch only reaches the hind margin of the forewing as a thin line which fades away. Form *bauhiniae* appears to be more widespread than Pinhey believed and extends from West Africa into East Africa, so the vernacular name of Southern atlas given by Pinhey is misleading.

I captured a female at light at the Project Development Unit (PDU), Juba, on 4th August 1981. A second female was found in our lab hut at Nyany on the morning of 21st May 1982. Both specimens were retained. Both have large white patches between the purple median area and the hind margin of the forewing so these moths conform to form *bauhiniae* rather than the peripheral forms *atbarina* of Tanzania and *sudanica* of northern Sudan.

Bunaea alcinoe, the Common emperor of Pinhey 1956 p.6 and 1975 p.114.

This is one of the most widespread and adaptable of all the African saturniids in that it extends from dry wooded grasslands to rainforest, though it does not occur in quite such dry country as *E. bauhiniae* (A. McCrae pers. comm.). It occurs commonly almost throughout the African continent south of the Sahara. In Sudan it has been found as far north as the Nuba Mountains. It has also been reported from Madagascar though this refers to a separate species *B. aslanga* (A. McCrae pers. comm.). *B. alcinoe* is a variable species, even within any given area. The larvae have many recorded foodplants including *Bauhinia*, *Croton*, *Cussonia*, *Ekebergia*, *Gymnosporia*, *Harpephyllum*, *Khaya*, *Maesa* and *Terminalia* (Pinhey 1965, 1972, 1975). According to Pinhey (1975), the larvae are commonly eaten as a relish, though he does not mention in which part of Africa this occurs.

Larvae were found feeding gregariously on the leaves of a large lone-standing tree of the date palm *Balanites aegyptiaca* at Nyany on 11th November 1981 on my return from annual leave (Plate 95X, Fig. 7). Larvae have also been found feeding on this plant in northern Uganda, Zaire, coastal Kenya, the rift valley in Ethiopia and Nigeria (A. McCrae, pers. comm.). The larvae at Nyany were later found wandering over the ground below until 22nd November after which no more were seen. Three were collected and all were keen to burrow below ground. Two successfully pupated in earthen cells below the surface and one adult emerged on 26th May 1982, after a tawny-yellowish form had flown to the lighted mess window at 21.00 hours on 15th May 1982 and another wild one had been found in the kitchen hut by the original tree on the evening of 17th May 1982. Subsequently an adult was found at the mess light by the *Balanites* tree at 19.00 hours on 8th October 1982 and another on 11th October 1982 under the same tree soon after dawn (at 06.00 hours). On 15th October 1982 a male was found at rest during the day on a *Balanites aegyptiaca* tree at Panyagor near Kongor. On 12th November 1982 about 25 larvae, each four centimetres in length, were noted feeding in groups of six or seven on a series of sprays of the *Balanites* tree back at Nyany, just above head height, at the north-west corner, and several sprays had been defoliated. The larvae had the same black and red markings and white spines as when full-grown. By 13th November they had moulted and dispersed to feed singly in the tree. On 21st November 1982 the larvae had reached nine to ten centimetres in length, were very stout and were found descending the tree and on the ground below, in numbers at first light on what was a rather overcast and cloudy day. By 07.00 hours several were seen some metres from the tree, in search of pupation sites. As the larvae were very noticeable but only seen in November, I wondered if the insect is univoltine here and was intrigued that adults were seen both at the beginning and end of the rains. In both the reared specimen and the tawny individual of 15th May 1982, one hindwing had failed to expand fully, perhaps symptomatic of the lack of rain, and hence moisture, when these individuals emerged. This species is continuously brooded in wetter regions such as the Kampala-Entebbe area of Uganda, but in dry habitats it usually appears at the start of the rains, so it would seem that mine in October, with larvae in November, were of a second generation and that I somehow missed seeing larvae of the first (A. McCrae pers. comm.).

Two fully-grown larvae were found, along with a toad, in the stomach of a Nile monitor lizard *Varanus niloticus* (Linn.) during a post-mortem dissection (Plate 95X, Fig. 8). The lizard had died as a result of having

been bitten by an Egyptian cobra *Naja haje* (Linn.). The snake was discovered at 20.55 hours on 18th November 1981, on the roof of one of the mud huts at Nyany, holding the hind leg of the lizard in its jaws, while the lizard struggled to escape. Both the larvae from the lizard's stomach were seven centimetres in length and looked like they had only recently been eaten, probably the same evening the lizard died. The lizard measured 79cm in length and weighed 600g. The heavy spines and coloration of the larvae look like effective deterrents against avian predators and the larvae appeared to be unmolested by the local birds so predation by this lizard, which had swallowed the larvae whole, is of interest.

B. alcinoe is like the great majority of African saturniids in pupating below ground though *E. bauhinae* and the following species *P. apollinaris* often spin up amongst debris and leaf-litter (Pinhey 1972, McCrae, pers. comm.).

Pseudaphelia apollinaris, the Apollo moth of Pinhey 1956 p.25 and 1975 p.111.

P. apollinaris in its broad sense is a widespread and highly polymorphic species with records from Natal, Mozambique, Botswana, Zimbabwe (Rhodesia), Zambia, Malawi, Zaire, Tanzania, Kenya and Uganda, with recorded larval foodplants including *Turraea*, and possibly *Combretum* (Pinhey, 1975). *T. nilotica* is mentioned specifically by Pinhey (1972). Sevastopulo (notes, 1961 – in Natural History Museum, London) found that larvae from eggs hatched on the Kenyan coast refused *Combretum abbreviata*. The larva is figured by Pinhey (1956, Pl. 27). Both sexes, but particularly the males, fly slowly through the bush by day and are said to be reminiscent of the Apollo butterflies (*Parnassius* species, Papilionidae) of Europe and Asia (Pinhey, 1972). They also fly by night.

A male was captured at m.v. light after dark on 18th June 1981 at Nyany. It conforms to the form *simplex* Rebel 1906 which has grey tips to the forewings but does not have broad dark margins to the fore and hindwings and lacks spots at the forewing cell, unlike other forms. The *simplex* form, which Rouget (1962) regards as a separate species, is known from western Uganda and the Central African Republic and extends as far west as southern Cameroon. This record from Nyany is an addition to its known range. *Simplex* has been captured at least once before in Sudan however. There is a specimen in the National collections at the Natural History Museum labelled 31st May 1918, Wau, Bahr-el Ghazal. This province borders the Central African Republic which lies to the south-west and Nyany is some 400km (250 miles) further east. The Wau specimen comes from the Rothschild bequest, and was possibly

captured by one of the 400 or more collectors Lord Rothschild paid to obtain biological material from all over the world (Rothschild 1995). *Simplex* probably feeds as a larva on *Turraea* spp. like the *apollinaris* form, but this needs confirmation (A. McCrae, pers. comm.).

Usta terpsichore, the Cavorting emperor of Pinhey 1956 p.25 and 1975 p.112.

A widespread species in South Africa, extending northwards through Mozambique, Zimbabwe, Zambia, Malawi, Tanzania, Kenya and Ethiopia (Pinhey, 1975). The species also occurs in the Gambia (McCrae in Prost *et al.* 1980), across northern Ghana, Nigeria, Chad and has been noted from Somalia and from the Nuba Mountains in Sudan (A. McCrae, based on data from the Natural History Museum, London, and the Hope Collections at the Oxford University Museum). Pinhey (1972) lists the following foodplants for central and southern Africa: *Commiphora caryaefolia* Oliv. (= *C. woodii* Engl.), *Melia azedarach* Linn., *Sclerocarya caffra* Sand. and *Schinus molle* Linn. (DC.). The latter is the pepper tree introduced from South America and the latter record actually comes from Kenya ex Gardner (1957). The reference to *Melia azedarach* derives from Schultze (1914) and comes from the Chad region, where *Melia* is an introduced tree; probably the principal natural foodplant is *Sclerocarya birrea* (A. Rich.) Hochst. (larvae found in north Uganda and northern Nigeria), a tree very widespread in dry woodland and probably to be found around Juba (A. McCrae, pers. comm.).

I captured a male at an outside light at the Project Development Unit (PDU), Juba, on 18th May 1981.

Commiphora, *Melia* and *Sclerocarya* were not seen in the Jonglei area. *Commiphora* belongs to the Burseraceae and no other members of this family were seen either. Four species of the Meliaceae, to which *Melia* belongs, were recorded, including *Turraea nilotica* K. & P., *Trichilia emetica* Vahl, *Pseudocedrela kotschyi* Schweinf. and *Azadirachta indica* A. Juss. *Sclerocarya* is a member of the Anacardiaceae which was represented by *Lannea humilis* (Oliv.) Engl. and *Lannea schweinfurthii* Engl. in the Jonglei region.

Gyanisa jama festa (no English name in Pinhey 1956, 1972 or 1975, a female is figured in Pinhey 1956, Plate 17 Fig. 2 but nowhere cited as such).

This genus is in need of revision. There are a number of confusingly similar forms, some of which are distinct species. The type locality of *jama* Rebel (1915) is southern Tanzania but this is probably a different sub-

species from form *festae* described by Rougeot (1978) from Senegal. Forms conforming to *festae* have been recorded from western Senegal and the Gambia across to central Kenya and a *Gynanisa* from the Nuba Mountains, Sudan may also be of this form though this needs confirmation (A. McCrae, pers. comm.).

The larval foodplants are probably *Acacia* spp. (A. McCrae pers. comm., from data label in the National Museum, Nairobi, and other sources).

A male of the northern *festae* form, which may be a good species, distinct from southern material (Rougeot, 1978), was encountered at the PDU compound on 4th August 1981. Another male was found at midday on 30th August 1981 in the woodlands near Bor while on a botanical survey. The moth was discovered at roost in grass. When touched it immediately flicked the forewings forward and exposed the mauve-tinged eyed hindwings. It was photographed in this display (Plate 95W, Fig. 6) before it crawled up the grass stem on further agitation and took off with slow, flapping flight, like a big bat, up and over the road into the top of a tree. The broad dark wing margins gave a peculiar and puzzling impression of shadow all around the wings.

Imbrasia hecate (= *nictitans* auct. nec. Fabricius) (referred to as *Nudaurelia nictitans* in Pinhey 1956, p.17, the Black-eyed emperor).

Long known from Kenya and West Africa (Pinhey 1956) but not included as a species of southern Africa (Pinhey, 1975), this moth is actually widespread and sometimes abundant in woodlands from the Gambia (McCrae in Prost *et al.* 1980) to northern Uganda and to south-west Kenya and Shaba in south-east Zaire (McCrae, pers. comm.). Rougeot (1962) adds Tanzania. The larva is evidently polyphagous. Foodplants include, from northern Uganda: *Piliostigma thonningii* and *Butyrospermum paradoxum* (Gaertn. f.) Hepper; from northern Cameroon: *Terminalia*, *Bauhinia* (which may refer to *Piliostigma*, formerly included under *Bauhinia*) and *Anona senegalensis* Pers., but above all on *Terminalia schweinfurthi* (Schultze in Aurivillius, 1905); and from Shaba, Zaire, *Combretum psidioides* Welw., *Piliostigma* (*Bauhinia*) *reticulata* (DC.) Hochst. and *Julbernardia paniculata* (Seydal 1939) – compilation courtesy of Angus McCrae.

A moth of this species was seen on 16th May 1981 at the PDU lab in Juba. A female was encountered on 28th May 1981 when it flew to the lighted window of the camp mess at Nyany in the evening. Another specimen was found between 20.00 - 21.00 hours crawling up grass stems and fluttering its wings while I was on a nocturnal foray to the woodland at Kopp just south of Nyany on 28th June 1981, and another

female of this large pink flappy moth flew to the mess window at Nyany and settled on it at 20.00 hours on 20th August 1981.

General conclusions and comments

All the above saturniid species were seen during the rainy season, which seems to be typical (A. McCrae, pers. comm.). Most were either at the beginning or the end of the wet season, with eight of the fifteen adults appearing in May or June and seven in August or October. None were seen in the middle of the rainy season in July. Pinhey (1972) reports that in southern Africa most of the species are "usually double-brooded, appearing as the warm weather commences, about September, and their progeny will often be seen flying about the time of New Year or a little later. Their broods in the Western Cape are, of course, different". Larvae were presumably feeding during the wet season. Pinhey (1972) also cites an instance of an African saturniid (the White veiled moon moth *Argema besanti* Rebel 1895) spending 18 months in the cocoon, which was found in the field, before the adult emerged successfully, so this may be one means of passing the dry season.

The paucity of individuals and species seen at Nyany may be partly because it was not possible to run the light trap all night but is also a reflection of the poor quality of the habitat for this group of moths. Suitable woody foodplants of all types were very limited in abundance around the base camp and the swamps to the west would also offer few opportunities for saturniids. No African saturniids are known to be associated with swampland and such conditions would be unsuitable for the majority of species which pupate underground. The swamps of this flat alluvial clay plain generally lack fringing forest or even scrub along the swamp edge and most woodland has been lost or cleared. The scarcity or absence of many woodland (let alone forest) species emphasises the barrier which the area constitutes between west African woodlands and Ethiopia.

In spite of the small number of saturniids observed, useful contributions to our knowledge of these moths in Africa have been made. Relatively little previous information has been collected from southern Sudan so any species lists are valuable additions for work on the biodiversity and geographical range of species in Africa. The record of *Pseudaphelia apollinaris* and the illustrations of the particular forms of the various species encountered are especially important. The observation that monitor lizards prey on the spiny larvae of *Bunaea alcinoe* adds to our understanding of the natural history and ecology of these fascinating and attractive large moths.

Acknowledgements

I am most grateful to Dr Angus McCrae for checking the moth identifications and current nomenclature and for helping with literature and many comments from his own as yet unpublished research. I thank Dr Mike (J.M.) Lock and John Goldsworthy for their help in recording the plants around Nyany camp and for their valuable botanical work in the Jonglei area. I would like to thank Mike Carwardine for his hospitality at the PDU, Juba, and Dr Stephen Cobb, Mefit-Babtie and the Jonglei Executive Organ of the Sudanese Government for providing me with the opportunity to live and work in the southern Sudan. Lastly, I thank David Wilson for his photographic work in illustrating the set specimens.

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60 YEARS OF THE AMATEUR ENTOMOLOGISTS' SOCIETY Part VI. 1985-95

by Wayne Jarvis (9899)

With Volume **44** Number 346 (February 1985) the Society entered its 50th year and the *Bulletin* changed slightly in format. The design on the cover adopted its current status with the masthead changing with the seasons. The August issue was a celebratory Golden Jubilee number and was a bumper issue containing special articles and historical matter concerning the Society. In addition, members were issued with a reprint of the extremely rare Volume **1**, a car sticker and a First Day cover depicting the Brimstone to coincide with the Post Office issue of insect stamps. A garden party was held at the home of Colin Plant, who was President during the jubilee year. The 1985 exhibition was again held in the Hounslow Civic Centre. The number of people attending the event caused some problems with regard to space, especially during the early part of the day, nevertheless the event was its usual success. Membership didn't quite make the magic 2000 figure with 1996 members subscribing during the year.

The following year saw membership cross the 2000 mark for the first time in the Society's history, reaching a figure of 2017 by the end of the year. The second revised edition of the *Hymenopterists' Handbook* was published.

In 1987, the exhibition was held for the final time at the Civic Centre, Hounslow. The number of people attending the event made it essential that the venue was changed for the following year. Society sweatshirts were produced for the first time with a Brimstone embroidered upon them. The year's publication was the *Legislation to Conserve Insects in Europe* handbook, which dealt with the increasingly complicated laws regarding insects. The Exotic Entomology Group had a mixed year: on the activity front the group had one of its best, but financially, with increased postal and printing costs of the newsletter, debts of £330 were recorded, thus making an increase in the group subscription rate for 1988

essential. The Conservation Committee's publication *Insect Conservation News* was registered under an ISSN number in 1987, commencing with Volume **13**.

The 1988 exhibition was held at Kempton Park Racecourse where it has remained since and was well attended. Membership fell slightly to just under the 2000 mark once again. Volume **14** of *Insect Conservation News* was published.

The *Bulletin* was the main focus of 1989 with the publication becoming a bi-monthly rather than a quarterly journal. Another improvement was that the Society began giving free reprints to authors of longer articles. Along with the *Bulletin* the Society also issued *A Directory for Entomologists*. Subscription rates were however, increased to £6 for ordinary members. The 1989 exhibition was again held at the highly suitable venue at Kempton Racecourse and was very well attended on what was a very cold and blustery day. Membership during the year, however, fell to 1838.

Council decided to try and attract younger members to join the Society during 1990 by including a Junior Section within the *Bulletin*. It was with great regret and sadness that the Society reported the death of B.R. (Roy) Stallwood in July of 1990.

Membership by 1991 continued to hover around the 2000 mark despite the increased number of *Bulletins*. The Society published a new revised edition of the *Coleopterists' Handbook* and the long-awaited *Habitat Conservation for Insects – A neglected green issue*, which sold extremely well. The second Junior Section appeared in the *Bulletin* during the year. On another sad note, the Society's Registrar, Nancy Cribb, died suddenly and unexpectedly during the year.

With little happening of note in 1992, 1993 saw the third death of an influential Society member in as many years. Peter Cribb died on 31st October having joined the Society in 1953 and Council in 1957. The Society published the second edition of the *Directory for Entomologists* during the year and issued it free to members.

Last year (1994) saw several changes to the Society with two long standing officers of Council deciding that enough was enough. Brian Gardiner handed in his pen to yours truly after twenty years of editorship and Reg Fry handed the cheque book over to Andrew Locke. *Insect Conservation News* was revived as *Invertebrate Conservation News* (Volume **15**) and became incorporated within the *Bulletin* and was to be published every four months.

And finally, 1995 – the Diamond Jubilee Year of the Society. The anticipated arrival of the colour cover did not materialise, but a celebratory two-colour cover issue was produced for the August issue. The other major event of the year was the publication of the *Practical Hints for the Field Lepidopterist*. Membership is presently around the 1600 mark, and hopefully with the new look *Bulletin* we will be able to begin to build our Society into the best entomological organisation that can be found.

I hope you have enjoyed this look back at just a few snippets of the Society's history as much as I have enjoyed compiling them. I have not mentioned by any means all of the people who at various times have given their free time voluntarily to run the Society. Each has played an important part in some aspect of the Society and hopefully members will continue to do so in the future.

Acknowledgements

I would like to thank the following people for their help in compiling this history: Lorna Eason, for her help in browsing through the thousands of pages of articles which have been produced by the Society over the past sixty years to select some of the more interesting snippets, Brian Gardiner for his help and expert knowledge, all of the staff at Cravitz Printing who have allowed me a little extra time each issue to prepare the article, my two proof-readers, Peter Hardy and John Gregory and finally, all the members of the Society who have either written or phoned me about the Society in its earlier days.

THE MOTH THAT WASN'T

by Graham Stevens

Urb. Pla. de les Clotxes 11, Apt. de Correos 20, 46450 Benifayo, Valencia, Spain.

In 1994 my geraniums were totally destroyed by what I believed was a South African moth. At the beginning of this year I noticed a number of small brown butterflies with short tails paying particular attention to my new geranium plants, and within a short period of time they have also been destroyed. With the help of Mr John Tennent of North Yorkshire the culprit has now been identified as *Cacyreus marshalli*. For several years now this little butterfly has destroyed huge numbers of geraniums in southern Spain and is slowly making its way northwards. The female lays her eggs inside the soft stem of the plant and the resulting larvae eat out the centre of the plant, thus destroying it.

Diary Dates

Abbreviations

BBONT	Berks, Bucks and Oxon Naturalists' Trust.
BENHS	British Entomological and Natural History Society.
DNHSAS	Dorset Natural History and Archaeological Society.
HMB	Huntingdonshire Moth and Butterfly Group.
LCES	Lancashire and Cheshire Entomological Society.
RES	Royal Entomological Society of London.
RES(QG)	RES Rooms, 41 Queen's Gate, London SW7.
I:	Information from:

To make the diary effective contributions are needed from members. Any relevant items should be sent to the *Bulletin* Editor. No charge is made for entries. Please allow three months advance notice.

JANUARY 1996

15th **BENHS Indoor Meeting – The ecology and conservation of ground beetles.**

RES(QG) 18.00hrs. Brian Eversham (BRC Monks Wood) talks about this intensively studied group.

I: Dr Ian McLean,

109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.

16th **LCES Indoor Meeting.**

Members' short papers and Presidential Address. At Liverpool Museum. 19.00hrs.

Reading University and BBONT Evening Class.

Conserving Butterflies, Moths and other Invertebrates. A ten week evening class held at Reading University giving an introduction to the conservation of invertebrates and their habitats, taught by Martin Harvey (AES Habitat Conservation Officer). The course includes two visits to local nature reserves and costs £33 (£17 for concessions).

I: Reading University Extramural Office 01734 318347 or Martin Harvey 01491 671889.

- 20th *LCES Annual General Meeting.*
Liverpool Museum, 14.00hrs.
- 23rd *DNHAS Natural History Meeting – Britain's Heritage of Ancient Habitats.*
Dorset County Museum, Dorchester at 19.30hrs.
I: Kate Hebditch 01305 262735.

FEBRUARY

- 14th *HMB Meeting.*
Woodhurst Village Hall, Huntingdonshire at 20.00hrs.
I: Barry Dickerson 01480 475689.
- 17th *BENHS Workshop – Bluebottles and Fleshflies.*
Please contact organiser for details and to book in advance.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.
- 20th *LCES Indoor Meeting – Rare Insects of the North-West.*
Liverpool Museum, 19.00hrs.
- 27th *BENHS Annual General Meeting and Presidential Address.*
RES(QG) 18.00hrs.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.

MARCH

- 9th *BENHS Workshop – Molluscs.*
Please contact organiser for details and to book in advance.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.
- 11th *BENHS Indoor Meeting – Landscapes and Wildlife Conservation in New Zealand.*
RES(QG) 18.00hrs. Talk by Margaret Palmer.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.
- 19th *LCES Indoor Meeting – North Wales Invertebrate Conservation.*
Liverpool Museum, 19.00hrs.

- 23rd *BENHS Workshop – Aculeates.*
Please contact organiser for details and to book in advance.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.
- 26th *DNHAS Natural History Meeting – Beetles: Well I quite like Ladybirds!*
Dorset County Museum, Dorchester at 19.30hrs.
I: Kate Hebditch 01305 262735.

APRIL

- 10th *HMB Meeting.*
Woodhurst Village Hall, Huntingdonshire at 20.00hrs.
I: Barry Dickerson 01480 475689.
- 16th *LCES Indoor Meeting – Leaf mining insects and their mines.*
Liverpool Museum, 19.00hrs.
- BENHS Indoor Meeting – Plant-Insect interactions with particular reference to galls.*
RES(QG) 18.00hrs. Talk by Margaret Redfern.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.
- 20th *AES AGM & Members' Day.*
RES(QG) 10.00hrs.
I: Wayne Jarvis 01582 486779.
- BENHS Workshop – Sawflies.*
Please contact organiser for details and to book in advance.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.
- 23rd *DNHAS Natural History Meeting – The elusive white – Butterfly hunting in Columbia.*
Dorset County Museum, Dorchester at 19.30hrs.
I: Kate Hebditch 01305 262735.

MAY

- 14th *BENHS Indoor Meeting – Sex, Parasites and Venereal Disease in Ladybirds.*
RES(QG) 18.00hrs. Talk by Dr Mike Majerus.
I: Dr Ian McLean,
109 Miller Way, Brampton, Huntingdon, Cambridgeshire PE18 8TZ.

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