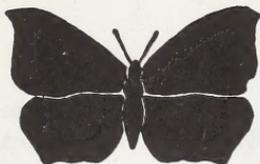


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1985

**THE
BULLETIN OF
THE AMATEUR
ENTOMOLOGISTS'
SOCIETY**



**EDITOR:
BRIAN O. C. GARDINER, F.L.S.**

**Index Compiled by
PAUL SOKOLOFF, M.Sc., M.I.Biol., F.R.E.S.**

**The Amateur Entomologists' Society
355 Hounslow Road, Hanworth, Feltham, Middlesex**

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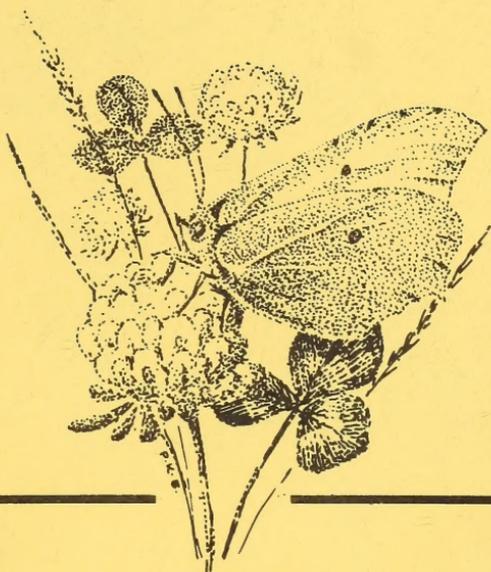
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**THE BULLETIN
OF THE AMATEUR
ENTOMOLOGISTS' SOCIETY**

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BRIAN O. C. GARDINER, F.L.S., F.R.E.S.

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(Founded in 1935)

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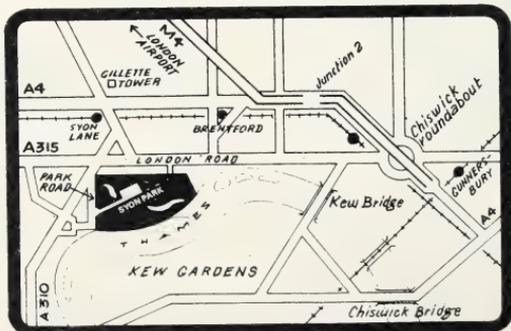
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by G. M. HAGGETT

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AES BULLETIN

No. 346



EDITORIAL

With this issue the society enters its 50th year and members will already have noticed that a few changes have been made in the format of the Bulletin. I hope that these meet with their approval.

The design on the cover and masthead will be changing with the seasons and for these designs we express our thanks to member Peter R. Banks.

Last year, due to the enterprise of member Duncan Reavey, a camping fieldweek was held for junior members and was a huge success. We publish a report, with contributions by all the members taking part, in this issue. It is intended to make this form of fieldweek a regular event in the future and another is promised for 1986. As is so often the case in all activities of this kind the success or otherwise depends very largely on the organiser and a few willing helpers. So any volunteers to lead and organise such an activity in the future will be most welcome.

Council would like to extend its grateful thanks, not just to Duncan, but also to his parents in particular, and to all others, both members and non-members, who so freely gave of their time, help, and encouragement, to make this fieldweek the enjoyable event it undoubtedly was.

With such a scattered membership as ours, your society has always concentrated on keeping members in touch with publications and, apart from its two yearly meetings (the AGM and the Annual Exhibition), other activities have been few and far between, mostly consisting of informal gatherings of a few friends who happen also to be members. This year also we break new ground in holding a photographic competition in association with Messrs. I.C.I.'s Plant Protection Division at Jealott's Hill and details of this are announced below. It is therefore encouraging to see this expansion of our activities as we grow older and we hope that they will increase and prosper.

INTRODUCING THE JEALOTT'S HILL PHOTOGRAPHY COMPETITION

Plant
Protection
Division



Imperial
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Council are pleased — in the Society's Golden Jubilee year — to announce a new annual event for all members.

'The Jealott's Hill Photography Competition' will be sponsored by I.C.I.'s Plant Protection Division at Jealott's Hill Research Station, Bracknell, Berks. Each year a £30 prize will be awarded for the best of the entries by Senior members and a £20 prize will be presented for the best entry from among the juniors. In addition, the two winners will be invited to tour Jealott's Hill Research Station.

The Competition will take a different theme each year — in 1985 this will be 'Camouflage in Insects', something that could provide quite a challenge. Entries can be in any photographic format whatsoever and should be submitted by the end of August.

Entering the Competition

- A photograph will be considered only if it is the work of a current member of the Society and if the member takes no professional income from his photography.
- Up to three photographs per member will be judged. For 1985 they should be based around the theme of "Camouflage in Insects".
- Entries can be print (any size) or slide, colour or black/white. Name and address must be given on the back of each photograph and a stamped addressed envelope included for the entry's return. Winning entries will be retained by the Society and will be published if suitable.
- I.C.I. reserve the right to use any entry in Company Publications.
- All photographs for the 1985 Competition must be submitted by 31st August 1985 to the Competition organiser:

Mr. T. Knight, 46 Swinburn Avenue, Hitchin, Herts.

Results will be announced — and all photographs displayed — at the Society's Annual Exhibition in October.

Our thanks to I.C.I. Plant Protection Division for making this event possible.

Duncan Reavey

NATIONAL PET SHOW WEEKEND — May 26/27, 1985

Stoneleigh, Warwickshire in May 1985.

The Royal Agricultural Society of England and D L Ford Limited are staging the National Pet Show Weekend at the Royal Showground, Stoneleigh, Warkickshire in May 1985.

This event is designed for all animal lovers and will cover all aspects of keeping domestic animals, breeding, feeding, housing and looking after pets as well as competitive sections for dogs, cats, rabbits, gerbils, mice, ferrets, reptiles, butterflies. Our Weekend will also feature frog jumping contests, donkey derbys, fishing demonstrations, police dog displays, working dog demonstrations, obstacle races, pigeon racing, falconry displays and many more — in fact, just about everything for the animal lover.

Supporting the event will be trade stands where the visitor will be able to purchase items for their pets, including toys, feeds, grooming equipment etc.

BEE-FLIES IN BLAENAVON

Whilst pottering about in the garden one morning in May, I noticed a high pitched humming. Curious, I traced it and found it to be emanating from a tiny fluffy bee-like insect, which resembled an undersized, short, fat, pole vaulter, due to its very long psoboscis which was rigidly held out in front of it like a lance.

Over open flowers it displayed superb aeronautical skill and dexterity, hovering, banking, and diving, a true rival of the humming bird. Although dressed in standard issue khaki, after a consultation with entomological volumes, the fuzzy pole vaulter was identified as *Bombylius major*, the bee-fly.

I have seen several since the initial siting, feeding on nectar-rich flowers near the house. Sadly these charming creatures have declined due to their dependency on certain types of solitary bee of which the bee-fly larvae are parasites.

C.A.Jones (7046)

BARK BEETLE BATTLE

Research workers at the Westonbirt Arboretum are monitoring the growth of forty young elm hybrids and clones now growing there, to determine whether they will be immune to the bark beetle which has destroyed millions of British elm trees. The Forestry Commission expect it to be several years before it can tell whether the experiments are successful as the bark beetle only lays its eggs in more mature trees.

habitat

**THE STORY
OF
THE FIRST**



FIELDWEEK

LEPIDOPTERA IN AND AROUND THE NEW FOREST

28th July — 4th August 1984

After many years, a "Fieldweek" for AES Junior Members became a reality when Duncan Reavey, a former Ansoige winner, proposed a Camp in the New Forest to be run by himself with the able assistance of his parents. A wide range of equipment, including a Land Rover, tents, nets etc., batteries for the MV lights and an ideal site in the centre of the Forest were either hired or provided by generous sponsors. A comprehensive programme of morning, afternoon and evening sessions was projected and all were successfully completed thanks to the favourable weather. Leading entomologists and other specialists lectured, led field meetings and identified specimens at the nightly traps at the camp and on two major nights in the Forest. All these volunteer experts are mentioned in the notes that follow — and they included Prof. Sir Richard Southwood, President of the Royal Entomological Society.

The week was a veritable 'feast of entomology' for the thirteen boys and two girls who travelled from all over Britain. Relaxing on the last night, a barbecue was held at Lepe Beach. I will remember for a long time the scene, approaching midnight, wind blowing, rain threatening, sausages sizzling, two MV lights at vantage points and the fifteen crew balancing plates in one hand and nets, at the ready, in the other.

R.D.H.

HOW THE JUNIORS SAW IT—A DIARY AND NOTES

Saturday

The tents had been put up and the Daily Grind Sheet pinned on the notice board before any of us got to the campsite — Duncan must have been up early that morning. I had to make a casserole for the dinner (first time ever) and it was like concrete. But after that Mr Hilliard and Duncan gave us an introduction to the New Forest, its history, habitats and insects and the Fieldweek had really begun. We crept into our sleeping bags late that night and we kept talking for hours!

Steven Nash (7088J)

Sunday

It was a very cold and misty start. By the time I was dressed and out of the tent at 7.45 am everyone else was up apart from Lorna and Anne who are the only girls and are probably always going to be the last up this week (*This proved to be completely untrue — D.R.*) and also Michael who crawled out of his tent on hands and knees, still in pyjamas, half an hour late!

At eleven o'clock Mr Tony Pickles arrived and we drove off in convoy to spend a very interesting day at three contrasting New Forest sites — the heathland at White Moor, woodland at New Copse Inclosure and old pastures near Norleywood. It was a very productive introduction to the Forest.

Dinner that night — asparagus soup and turkey with Jason's dehydrated peas and Michael's Smash — was cold by the time I got it but according to Duncan it was good food! This was followed by a visit to Mr Donald Russwurm's and he gave a very interesting (but crowded!) talk on Lepidoptera aberrations, showing us his excellent collection of butterflies.

We shall probably sleep well tonight and dream about the porridge that Duncan has threatened to make in the morning. By the way, it's Jason's birthday today. Unfortunately he didn't get thrown into a river as promised — there was too much insect work to do.

Ian Stephenson (8125J)

Notable Sightings: 15 butterfly spp. including Silver-studded Blue (very common on heathland), Holly Blue, Purple Hairstreak, White Admiral and Silver-washed Fritillary (these two both frequent in the Inclosure). Heathland moths included Grass Emerald (among the gorse), Purple-bordered Gold (on the wetter heath) and a single fresh Shoulder-striped Clover. A search for adults of the plume moth *Buckleria paludum* among the sundews of Matley Bog revealed nothing.

Monday

A walk in and around Wootton Coppice with Dr Bob Gibbons of the NCC was our first stop. The subject, "Botany, Entomology and Conservation" covered the factors involved in conserving British butterflies and on our walk we made occasional stops in the wood looking at examples of the many features which are important in insect ecology. It was very enjoyable with everyone busy chasing the abundant Silver-washed fritillaries whenever they had a chance.

After a fairly good lunch we headed for our next destination where Colonel Dougie Sterling and his son Philip Sterling conducted a session on "Macros and Micros" in Matley Bog and Passage. The Latin names



The Fieldweek team. *On the Land Rover:* Simon Fraser, Steven Nash, Clive Turner, Jason Sinclair, Robert Evans. *Front:* Lorna Stevens, Anne Piakus, Nick Lear, Mrs. Joan Hilliard, Philip Wilkins, Mr. Roy Hilliard, Mr. Frank Reavey, Duncan Reavey, Martin Clark, Aaron Hunsberger, Sandy David, Ian Stephenson, Michael Henson, Rowan Burrough, Mrs. Jean Reavey.

proved too much for some of us and we went looking for macros while the 'converted' chatted to the Sterlings. On the way back we came on a patch of sundew and Colonel Sterling had us all hunting for the rare plume moth *Buckleria paludum* whose larvae feed on this. Michael was as interested in the plants as the moth and pulled up a specimen for a closer look. On it was a tiny moth larva — the one we had all been looking for and the only one we found.

The Sterlings stayed for dinner and afterwards we all went moth trapping in woodland off the Ashurst road. Joining us that evening was AES member Mr Randolph Drew, on holiday in the Forest, who had spotted the Brimstone logo on the vehicles at the camp and had come over to investigate. The night was not terribly successful as it rained on and off all through but it was enjoyable and as well as 24 moth species we were lucky enough to find a glow-worm. We went back to camp for a welcome cup of cocoa and (officially anyway) bed.

Anne Piatkus (7519J)

Notable Sightings: Brimstone larvae and adult stages were both common in Wootton Coppice. Also one Lappet adult. Brown Argus and Silver-studded Blue common at Matley with nine other butterfly species; occasional Oak Eggars and single larvae of Small Grass Emerald and Broom Moth. Moth light records in the poor conditions were Mother of Pearl; Oak Eggar; Birch Mocha; Riband Wave; July Highflier; Narrow-bordered Pug; Brimstone Moth; Canary-shouldered Thorn; Mottled Beauty; Light Emerald; Sallow Kitten; Black Arches; Dinky Footman; Scarce Footman; Common Footman; Flame Shoulder; Large Yellow Underwing; Purple Clay; Minor Shoulder Knot; Dunbar; Dark Arches; Herald; Beautiful Snout.

Tuesday

After the previous night's MV work, some slept on to the late hour of 7.45 am. A number of us made a trip by Land Rover into Lyndhurst to replenish rations and pick up some cheap sun-glasses. Then, by around 11.30, we were on our way to Old Winchester Hill, lunching *en route* at Southampton Docks.

At two o'clock we met the warden, Mr John Bacon, who took us on a tour of the Hill, a National Nature Reserve managed by the Nature Conservancy Council and taking in chalk downland around an Iron Age Hill Fort. The warden pointed out the considerable impact grazing has on the nature of the flora and thus on the invertebrates that are dependent on it. He made us realise how delicate a habitat is and how carefully it has to be managed in order to support a species. On the walk



Col. Sterling puts a long Latin name to one of Anne's micros!

Chalkhill Blues were particularly abundant and we were also pleased to spot a Humming-bird Hawk hovering above thistle.

Back at camp an AES Select XI rounded off the day losing at cricket to some scouts on the same site.

Jason Sinclair (6617J)

Notable Sightings: An estimated 15,000 Chalkhill Blues over the 80 acres of the downland of the NNR at the time of the visit was expected by the warden to increase to 25,000 — 30,000 by the following week. Five-spot Burnets were present in similar numbers. Reintroduced Adonis Blues, now thriving on the Reserve, were not due until mid-August. Very little work on the moths of Old Winchester Hill has been carried out since early 1960s — an update would prove very interesting.

Wednesday

The day began with Michael parading “his men” across the camp field to show the scouts next door that the AES could march too. But at about 10 o'clock we set off to visit the New Forest Butterfly Farm. Mr Terry Jenvey, the manager, took us round quite a nice stock of exotic moths and butterflies, but the British selection was rather disappointing. Straight afterwards we had our pictures taken by a photographer from *The Times Educational Supplement*.

Sir Richard Southwood came down from Oxford for the afternoon. Three of us, carrying nets so he would recognise us, brought him past the New Forest Showground crowds to join in our picnic lunch and, straight after, he gave us an interesting first lesson about insects on the leaves of Oak and Sweet Chestnut. Later he led us through different kinds of habitat at Emery Down — it was amazing how much he showed us (especially on bugs) during the afternoon and also how he remembered all our first names after the first ten minutes!

Around 8.30 pm we went moth trapping to Holmsley Inclosure in the south of the Forest, led by Mr Tony Pickles and Mr Ted Wild. This is one of the sites to be studied in the NCC New Forest Invertebrates Survey. Two MV lights — one on the forest track and one in a clearing — gave us 49 species but we packed in early because of rain.

Lorna Stevens (7532J)

Notable Results and Sightings: The results of the short survey of leaf damage by defoliating insects vividly showed the difference in importance between native and introduced plants for insects — the native Oak showed more signs of insect damage (eaten leaves, galls, leaf mines, fungus) than the introduced Sweet Chestnut. No real rarities among the Hemiptera were found, but a good range of



Sir Richard Southwood adds another species to Sandy's bugs list.

species were identified including *Piezodorus lituratus*, *Troilus luridus*, *Palomena prasena*, *Elasmucha grisea*, *Scolopostethus decoratus*, *Macrodema micropterum*, *Gastrodes grossipes*, *Anthocoris nemorum*, *Alloetomus gothicus*, *Deraeocoris lutescens* (larvae), *Orthotylus ericetorum*, *Pithanus maerkeli* and *Conomeles limbatus*.

Holmsley Inclosure gave this species list: Festoon; Garden Pebble; Mother of Pearl; Drinker; Scalloped Hooktip; Oak Hooktip; Lesser Lutestring; Buff Arches; Common Emerald; Birch Mocha; Maiden's Blush; Blood Vein; Small Fan-footed Wave; Riband Wave; Broken-barred Carpet; July Highflier; Narrow-winged Pug; Peacock Moth; Tawny-barred Angle; Peppered moth; Willow Beauty; Large Elephant Hawk; Lobster; Pebble Prominent; Pale Prominent; Brown-tail; Black Arches; Rosy Footman; Buff Footman; Scarce Footman; Common Footman; Ruby Tiger; Flame; Flame Shoulder; Large Yellow Underwing; Lesser Yellow Underwing; True-lovers Knot; Double Square-spot; Beautiful Yellow Underwing; Common Wainscot; Smoky Wainscot; Copper Underwing; Small Angleshades; Dunbar; Uncertain; Small Mottled Willow; Marbled White-spot; Silver Y; Beautiful Hooktip.

Thursday

Duncan kindly woke us up about seven thirty. Then his sadist nature made us face his porridge that early in the morning. We just had time to recover and clear up before piling into the two vehicles and leaving for Lyndhurst to spend half an hour shopping (unknown to the Reaveys and Hilliards, Uncle Michael bought their presents).

We soon arrived at the Holidays Hill Inclosure and Mr Chris Nielsen, a forester with the Forestry Commission, was waiting. He gave us a very interesting and informative talk about woodland management; this made a change from entomology but still had a very useful connection. And when this was over we had a look around the nearby Reptillary; we saw six Adders, one Grass Snake and a common Toad . . . Wow! Thrilling stuff eh! When we calmed down after all this excitement in one day we sat down and ate lunch.

Then we journeyed down to North Solent National Nature Reserve. Here, guided by the warden, Mr James Venner, and equipped with binoculars in the hides, we saw about fifteen species of birds including a mislaid Spoodbill (*sic*) which has spent the Summer at the reserve. We took a look at Gull Island in a small work boat which had to make the rough journey twice — somehow Rowan managed to get on both trips.



Breakfast — the safest meal of the day!

In the evening about seven of us set off in the Land Rover hunting for the New Forest Cicada. We searched for about two hours but the only sign of them was that Sandy thought he heard one - this might have been a loud Wood Cricket. Some of us will take another look next season.

Michael Henson (7860J)

Notable Sightings: Not very much due to dull weather and not very entomological programme. The salt-marsh at the North Solent NNR was productive for Orthopterans-Cepero's Groundhopper, Lesser Marsh Grasshopper and (possibly) Short-winged Conehead were recorded - A long term entomological survey of the reserve has recently been started.

Friday

We were woken up early, 6.40 am (too early!), and after a quick breakfast drove off to the Institute of Terrestrial Ecology Research Station at Furzebrook, Dorset. Dr. Nigel Webb showed us around the Diver Collection and told us about the ecology of heathlands; Dr. Jeremy Thomas talked about his work on the Large Blue and about the plans for its reintroduction to Britain; Mr. Andy Abbott, the Station's ant man, told us about his research; and finally we met Dr. Lena Ward who is computerising information on all insects and their foodplants for the Phytophagous Insects Data Bank.

After this excellent morning we had lunch at Corfe Castle on a grassy hillside covered in Lulworth Skippers. We drove down to the Dorset coast where we had a long walk across the cliffs seeing Dancing Ledge and (eventually!) getting to Durlston Country Park where there were hordes of Bloody-nosed Beetles.

In the evening we went down to Lepe Beach on the Solent where we had a brilliant last-night barbecue, with Dunc's home-made punch and the AES Expedition Awards Ceremony. And everybody voted for another Fieldweek as soon as possible!

Sandy David (7591J)

Notable Sightings: Large Blues at Furzebrook can't unfortunately be counted. But there was a large and interesting Hornet nest in a dead tree at the Research Station. On the cliffs Lulworth Skippers were very common, one each of Dark Green Fritillary and Adonis Blue (male) were recorded and occasional Oak Eggars were always more than a match for all but the luckiest pursuers.

Camp Food

The food on the fieldweek was interesting, varied and unique. Since breakfast required little or no preparation and definitely no cooking it proved to be the safest meal of the day, even with Duncan's famous concrete porridge. For lunch it was bread, salad, fresh fruit (every day),

Simon in action.



biscuits and either peanuts or raisins. Fillings included amongst others the luxury of cheese spread and the mundaneness of crab spread - the jars of beef spread had an unusual knack of disappearing when two thirds full. The venues for lunches varied from car parks and docks to heaths, moors and woods.

The evening meal started each night with soup. There were always compliments, although it was rather strange to see small pools of soup collecting in the ditch by the camp. The next course was usually meat, mashed potatoes and vegetables of some sort. The mashed potato was getting rather boring, so one evening an earwig (*Forficula auricularia*, I think) obligingly dropped in to add some flavouring. The following night some surplus soup was 'accidentally' spilt into the mash, so to disguise the taste Aaron's chocolate powder was added. The pudding was made virtually every night by Michael and, for his efforts in this field, he was awarded a wooden spoon for being the best camp cook.

Philip Wilkins (7607J)

The Libyans (!)

During the week we were situated next to a small group of Hampshire Scouts who had the misfortune to tangle with AES Fieldweek members.

Their Scout leader, Keith, revealed himself to be interested in insects and tried to tell us that there were only two types of ant in Britain as the rest were termites. However we soon disproved this suspicious theory (with a little help from the Fieldweek's mobile library).

For some reason the Scout leader earned the nickname 'Keith Ghaddafi' and the other Scouts 'the Libyans'. A (friendly?) rivalry with the Libyans developed, with triumphant sabotage missions, night exercises and Libyan responses too numerous to relate here. But any Fieldweek member will agree that it made living on the camp great fun.

Martin Clark (7829J)

Some Butterfly Notes

Over the whole week we found that Gatekeepers were very common in nearly all habitats and they rose in clouds off Bramble and Ragwort - perhaps 1984 should be called the 'Year of the Gatekeeper'. Marbled Whites also had a very good season, especially on the Dorset cliffs. At Old Winchester Hill there were an estimated 15,000 individuals of the Chalkhill Blue, the largest number since records began in 1976, and there were literally about three Five-spot Burnets on every flowerhead on the hill. We saw many Silver-washed Fritillaries, and there were quite a few of the female *valezina* form. The White Admiral has had a good year, but in contrast is the Ringlet, with only a few sightings of this usually common butterfly during the whole Fieldweek. The highlight of the week

There was always the cocoa to look forward to after nights out in the rain!



was a positive sighting which many of the team missed of a Purple Emperor dropping to shoulder height at very close range in a woodland New Forest site at which it has not been recorded for many years.

Simon Fraser (7508J)

Moth Lights at Camp

Actinic tube traps were put out every night at camp and over the week 51 moth species were recorded. The species list makes an interesting comparison with the results from other New Forest sites at Turf Hill and Minstead (AES *Bulletin*, August 1984, 43:126-127).

Clive Turner (7709J)

List of Macros recorded at New Park Farm (SU290045), July 28th — August 3rd 1984: Mother of Pearl; Oak Hooktip; Buff Arches; Common Emerald; Riband Wave; August Thorn; Canary-shouldered Thorn; Purple Thorn; Scalloped Oak; Swallowtail Moth; Oak Beauty; Willow Beauty; Mottled Beauty; Pine Hawk, Poplar Hawk; Buff Tip; Pebble Prominent; Coxcomb Prominent; Brown-tail; Gold-tail; Black Arches (Males throughout the week, females only after 2.8); Rosy Footman; Dingy Footman; Scarce Footman; Common Footman; Buff Ermine; Heart and Dart; Shuttle-shaped Dart; Flame Shoulder; Large Yellow Underwing; Lesser Yellow Underwing; Broad-bordered Yellow Underwing; Lesser Broad-border; True-lovers Knot; Setaceous Hebrew Character; (Marbled Coronet); Common Wainscot; Poplar Grey; Grey Dagger; Copper Underwing; Mouse Moth; Dunbar; Dark Arches; Marbled Minor; Common Rustic; Rustic; Mottled Rustic; Silver Y; Beautiful Golden Y; Light Crimson Underwing; Beautiful Hooktip.

Orthoptera Records

See Nick Lear's detailed account, produced as a Supplement to the Fieldweek story.

Work on the Beetles

With our main emphasis on the Lepidoptera, Coleoptera enjoyed only an undercurrent of attention. But those beetles caught were met with great enthusiasm from coleopterists and non-coleopterists alike and the experts were only too happy to share what knowledge they had and to spend time discussing specimens found.

We found the New Forest extremely rich in beetles especially those species which feed on wood and which prey on other bark and wood-eating insects. The areas visited also tended to be inhabited by the interesting and sometimes the spectacular. In some places beetles which are local or uncommon occurred in great abundance and there were even the occasional rarities, the most exciting finds being several glow-worms.

All in all the Fieldweek was of great interest for the beetles found as well as its Lepidoptera and probably everyone left with their knowledge and enthusiasm for the Coleoptera greatly enhanced.

Aaron Hunsberger (7847J)

Notable Species: CARABIDAE: Green Tiger Beetle *Cicindela campestris*; *Carabus arvensis*; *C. nemoralis*; Violet Ground Beetle *C. violaceus*; *Cychnus caraboides* (uncommon); *Clivina fossor*; *Bembidion lampros*; *Trechus quadristriatus*; *Harpalus aeneus*; *Amara familiaris*; *A. aulica*; *Zabrus tenebrioides*; *Feronia melanaria*. STAPHYLINIDAE: Devil's Coach-horse *Staphylinus olens*; *Tachyporus chrysomelinus*; *T. hypnorum*. LAMPYRIDAE: Glow-worm *Lampyris noctiluca* (rare). CANTHARIDAE: Soldier Beetle *Rhagonycha fulva*. CLERIDAE: Red-breasted Copra Beetle *Necrobia ruficollis* (local). ELATERIDAE: Click Beetle sp. NITIDULIDAE: *Meligethes aeneus* (could be one of 30 similar species which are very hard to distinguish); *Epuraea depressa*. ENDOMYCHIDAE: False Ladybird *Endomychus coccineus* (local). COCCINELLIDAE: Two-spot Ladybird *Adalia bipunctata*; Seven-spot Ladybird *Coccinella septempunctata*; 22-spot Ladybird *Thea vigintiduopunctata*; 14-spot Ladybird *Propylea quatuordecimpunctata*; Eyed Ladybird *Anatis ocellata*. SCARABAEIDAE: *Aphodius rufipes*; *Serica brunnea*; Garden Chafer *Phyllopertha horticola*; Rose Chafer *Cetonia aurata* (local). LUCANIDAE: Lesser Stag Beetle *Dorcus parallelipipedus*. CHRYSOMELIDAE: *Lema melanopa*; Bloody-nosed Beetle *Timarcha tenebricosa* (local); Tortoise Beetle *Cassida viridis* (local).

TYING UP THE LOOSE ENDS...

This Fieldweek was a first for the AES — and it would not have gone ahead without the enthusiastic help of many people. My thanks to Associated Tyre Specialists, Romsey Camping, St. Mary's College, Southampton, and Oxford University's Department of Forestry for help with some of the logistical problems; to the Forestry Commission, Lyndhurst, for their co-operation and advice; to the fifteen volunteer experts who provided the action-packed programme that proved so successful; to Mr and Mrs Roy Hilliard on site throughout the week as expert "counsellors"; and to Mr and Mrs Frank Reavey for putting in so much work before, during and after the Fieldweek. Finally, thanks to the Fieldweek Juniors for their eagerness both during the Fieldweek and since, with *Bulletin* articles and Exhibition displays.

What about Fieldweeks beyond 1984? The Society aims "to promote the study of insects among amateurs and younger generations" and there is no better way of doing this than by getting the members out into the

field to share ideas with each other and with local experts. There is a need — and a demand — for Fieldweeks and the Society must build on the start it has made in 1984.

Duncan Reavey (6934)

ORTHOPTERA IN AND AROUND THE NEW FOREST

A Supplement to the Story of the AES Junior Fieldweek 1984

The Orthoptera were well represented during the Fieldweek, with a total of 18 species being recorded. Of the species most commonly met with, almost everywhere were the common field grasshopper (*Corthippus brunneus* (Thunberg)), meadow grasshopper (*Corthippus parallelus* (Zetterstedt)), mottled grasshopper (*Myrmeleotettix maculatus* (Thunberg)), woodland grasshopper (*Omocestus rufipes* (Zetterstedt)), common green grasshopper (*Omocestus viridulus* (Linn.)), dark bush cricket (*Pholidoptera griseoptera* (Degeer)) and speckled bush cricket (*Leptophyes punctatissima* (Bosc)).

The oak bush cricket (*Meconema thalassinum* (Degeer)) was fairly common throughout the ancient woodlands of the New Forest. This species was found mainly in the nymphal state, although a few adults were found. Most specimens were found by sweeping the vegetation along the woodland rides and woodland edges. Also very common in the New Forest's woodlands was the wood cricket (*Nemobius sylvestris* (Bosc)). Although rarely seen, except when swept for amongst low vegetation and leaf-litter at dusk, its characteristic song was heard throughout the day and continuing into the evening in most if not all of the woods visited. It was also in these old woods that two species of cockroach, namely the tawny cockroach (*Ectobius pallidus* (Olivier)) and the dusky cockroach (*Ectobius lapponicus* (Linn.)) were found. If the woodland floor and low vegetation such as bracken was quietly observed, both species of cockroach and the wood cricket could be seen going about their business. However, the cockroaches were first seen as a result of indiscriminate sweeping amongst bracken and at the bases of trees. In the woodland, the dusky cockroach greatly outnumbered the tawny cockroach. However, on the heaths, although the numbers of cockroach were much lower, their relative abundance was reversed.

Nymphs of cone head grasshoppers (*Conocephalus* sp.) were swept irregularly from amongst long grass in woodland rides and edges. These were presumed to be the long winged cone head (*Conocephalus discolor* (Thunberg)) when an adult male was found. However, nymphs found on the salt-marshes in the North Solent NNR may well have been the short-winged cone-head (*Conocephalus dorsalis* (Latrielle)) as Ragge (1965) states salt-marshes as being a typical habitat for this species. Found also

in the North Solent and only here during the Fieldweek were the lesser marsh grasshopper (*Corthippus albomarginatus* (Degeer)) and Cepero's groundhopper (*Tetrix ceperoi* (Bolivar)) — this species being represented by one very old, five legged female and numerous nymphs. The much commoner relative of Cepero's groundhopper — the common groundhopper (*Tetrix undulata* (Sowerby)) — was occasionally swept from heather on the New Forest heaths.

Matley Bog possessed one of the most spectacular grasshoppers—the large marsh grasshopper (*Stethophyma grossum* (Linn.)). About a dozen specimens of both sexes were seen. While walking along, especially through the very wet/boggy places, this species could be seen to fly up from the ground and fly distances of about five or six metres, with its wings spanning about 5 cm glimmering in the sun before landing. This species can easily be identified by both its size and by the red on its hind femorae. Also found on this and other bogs and heaths such as White Moor was the bog bush cricket (*Metrioptera brachyptera* (Linn.)).

However the best find of the week was a female heath grasshopper (*Corthippus vagans* (Eversmann)). This was found in a small piece of heathland enclosed by woodland, just to the west of Lyndhurst Hill. It was found in the company of its close and very similar relative, the common field grasshopper. This species is one of the rarest British grasshoppers with its distribution restricted to only Hampshire and Dorset.

This brought the total number of species recorded during the week to 18 or possibly 19 species, not a bad total considering that the Orthoptera were only casually looked for. No doubt a few more species could have been added to the list if specially looked for (Ragge (1965) says that there are 23 native species in “the New Forest or close at hand”).

N. W. Lear (7020J)

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THE CREAKING WILDLIFE AND COUNTRYSIDE ACT

Reports in the newspapers over the last few months have given a number of instances of pure human greed and the failure of the Act adequately to give sites the protection intended and which they so urgently need.

Criticism of the Act is growing and changes are clearly needed. One very weak point is the three month 'freedom to destroy' after a site is designated.

At Udders Heath, Ferndown, the site owners (who had been hiding behind their solicitor in an attempt to avoid detection) at once moved in with bulldozers after a notice confirming the site as an SSSI was issued. It was to the credit of Mr. Patrick Jenkin that he used his emergency powers to issue a stop order and so save a remnant of the site. By law the owners can be made to restore the damage they have done and I hope that this course will be taken. Nevertheless one cannot restore to anything like its original condition a centuries old habitat, nor revive the dead protected species to life. In theory the owners and/or the bulldozer driver could be prosecuted for criminal killing of protected species. But do the police want to know? It seems not, for although it is a criminal offence under the Act wilfully to kill or take protected species, it seems, from two other cases, that they are only willing to prosecute if someone has actually kept the dead specimens rather than destroyed them. An egg-collector was prosecuted and fined £2,000 for having eggs of protected species in his attic, but the police refused to take action, in spite of photographic and eyewitness evidence of killing protected species, against contractors or their principals, involved in doing the killing by destroying the habitat. So it seems one may vandalise with much more abandon than one may collect. Clearly it *is* time the Act was strengthened.

Editor

GIFT OF BUTTERFLY COLLECTION OF MEDICAL IMPORTANCE

The Department of Entomology of the British Museum (Natural History) has received a collection of 2,700 butterflies formed by Sir Cyril Clarke, KBE, FRS and Professor P M Sheppard, FRS. The collection is unusual in that it results from years of breeding of butterflies in order to investigate genetic differences between species. These studies, begun in the early 1950s and continued in collaboration until the death of Professor Sheppard in 1976, still continue, and have touched on several matters of great medical interest. These include the association between blood group O in man and the incidence of duodenal ulcers, and the development of the highly successful 'Liverpool Jab' to prevent 'Rhesus' babies.

These medical benefits were 'spin-offs' from the main study, which was largely concerned with mimicry — the method by which some butterflies achieve, over millions of years, the appearance of another species which has some advantage over their own, such as being distasteful to birds, and thereby escape predation. Butterflies studied and included in the collection are Swallowtails from Britain, the tropics and North America, and tropical nymphalids related to our Red Admirals and Peacocks.

Accompanying the collection are bound copies of relevant papers and an explanatory catalogue, a non-specialist glossary and copies of early correspondence. Thanks to a research fellowship from the Leverhulme Trust, the collection has been selected and arranged by Sir Cyril Clarke for permanent storage in the museum, where it will be available to scholars and researchers from all over the world.

AMERICAN TOPICAL ASSOCIATION

Topical collecting stresses the design of stamps rather than the country of issue or the postal service the stamp renders. The collection of stamps depicting insects can be a relaxing sideline for the entomologist and indeed may well compliment his insect activities. Some of the best colour reproductions of a number of species for instance are to be found on stamps rather than in entomological books.

The ATA is the best source of information, fellowship, and inspiration in this field. It is the world's largest philatelic society with over 10,000 members worldwide. It publishes a bimonthly journal *Topical Times* which is twice the size of our bulletin. There are, in addition, member services available and several hundred handbooks on topical stamps. That on Insects and Invertebrates for instance, runs to 140 pages and costs \$9.00. Membership fees are \$1 per month. Further information and details may be obtained from:- The Executive Director, P.O. Box 630, Johnstown, PA 15907, USA. An enclosure of \$3 will bring a sample of their journal and for anyone wishing to jump straight in, \$18.00 (\$15 if US resident), if received during February or March, will cover an 18 month period of membership.

Editor

LADYBIRD PROJECT—A REQUEST FOR INFORMATION

Our research group at Cambridge University is studying certain ecological, behavioural and genetic aspects of the biology of Ladybirds (Coleoptera: Coccinellidae). We are hoping that entomologists, naturalists or anyone else who is interested will be able to provide us with both information and material, from around the British Isles and abroad, which will aid us in our work over the next few years.

There are a number of aspects to our present work:

1) *The Genetics of Colour Variation in Ladybirds.*

Many species of Ladybirds show variation in the colour patterns which occur on the elytra. A good example is the Two-spot Ladybird (*Adalia bipunctata*) which has a variety of forms, some red with black spots and some black with red spots.

Much work has been done on this variation, and we are investigating it ourselves; but other species are equally variable, though less well understood. We are particularly interested in *Adalia decempunctata* (the Ten-spot Ladybird) and *Coccinella hieroglyphica*. If anyone could collect reasonable random samples (any sample of over 10 individuals) of either of these species, from a specific locality, we would be grateful to receive them. We would need to know the site of origin and would require live individuals.

We would also be pleased to receive unusual forms of any species at any time, particularly if live.

2) *Chromosomal Studies.*

We are currently investigating the chromosomes of Ladybirds. Four species, *Exochomus quadripustulatus*, *Chilocorus bipustulatus*, *C.renipustulatus* and *Anatis ocellata* (the Eyed Ladybird), are proving particularly interesting as the chromosome complements of these species appear to vary from one population to another. We need to know exact locations of populations of these four species from anywhere in Britain. Samples of live ladybirds from any named locality would also be greatly appreciated.

3) *Ecological Studies.*

A thorough knowledge of ecology of Ladybirds is essential to our work; but in many cases, there is a basic lack of information. As a result, we would welcome any information or observations on the ecology and behaviour of Coccinellids.

We are particularly interested to obtain information on: associations with particular types of plants; hibernation sites; the occurrence of migrations of Ladybirds or of large aggregations; the mating behaviour and mating times; and the dates when different stages of the life cycle are found in the wild at specific locations. To facilitate the compilation of this type of information we have produced a data sheet for recorders which we will supply on request.

4) *Ecological Genetics.*

We have been studying the variation in *Adalia bipunctata* in relation to matching preferences, and the frequencies of different forms in wild populations. We are extending this work to *A. decempunctata* and

Coccinella hieroglyphica. We therefore need data on the frequencies of the different forms of these species in wild populations, and records of the forms observed in matings.

If you are able to provide any information, data or live specimens we would be most grateful to receive it. Adult Ladybirds survive well in the post if packed in small, strong containers with a few aphids, or failing this, a small piece of banana. Eggs and larvae can also be sent in this way if aphids are included. Postage will obviously be refunded, and containers returned. Full acknowledgement will be given in any publications.

We would be pleased to supply further information on our work on request.

Our address is: P.W.E. Kearns, or M.E.N. Majerus, Ladybird Project, Field Station, Department of Genetics, 219D Huntingdon Road, Cambridge CB3 0DL, Cambs. Tel: 0223-276190.

DRAGONFLY SOCIETY

The British Dragonfly Society was formed in April 1983, and evolved from an extensive list of dragonfly enthusiasts compiled by David Chelmick and Bob Merritt—past and present organisers of the Odonata Recording Scheme.

The main aim of the society is to promote the study and conservation of dragonflies. Two journals, and at least one newsletter are published each year, and a number of field meetings are also organised.

Membership is £3.00 per annum, and is open to anyone with an interest in dragonflies. To date, there are almost 300 members, distributed throughout the UK. The society's president is Professor Philip Corbet and the society is also affiliated to S.I.O. (The International Dragonfly Society).

Further details and application forms for membership can be obtained from the secretary, Roderick Dunn, 4, Peakland View, Darley Dale, Matlock, Derbyshire DE4 2GF.

ENDANGERED FRITILLARIES TO BE HELPED

It is estimated that about half of Britain's 60 or so resident butterfly species are declining in numbers, with some now in danger of extinction. The Pearl-bordered fritillary, found in Dyfed and Glamorgan is known to be in serious decline and urgent action is needed to save it.

World Wildlife Fund has joined forces with Associated Tyre Specialists to raise funds for essential conservation work to save Britain's butterflies for future generations to enjoy.

As a result, a number of projects have been financed during the year and sufficient funds have now been raised to enable World Wildlife Fund to begin working to save the Pearl-bordered fritillary from extinction in its Welsh localities.

The Pearl-bordered fritillary has suffered together with many of Britain's other butterflies due to loss of suitable habitats. The man-made environments which are replacing our natural landscapes cannot support the foodplants vital to both caterpillars and butterflies — the pearl-bordered fritillary caterpillar's principle food source is the Dog violet, but it has also been known to nibble primrose leaves and pansies, so it is possible to find them in domestic gardens! The full grown butterfly likes bugle flowers, and prefers clearings where undergrowth has been cut down for two to three years and where a good carpet of flowers is apparent. One major factor in the fall in numbers has probably been the decline of coppice management of deciduous woodland.

World Wildlife Fund will be working to establish the precise distribution of the butterfly colonies, to assess their numbers, and to learn as much as possible about their lifestyle and behaviour. It is only in this way that plans can be made to save this butterfly.

The Heath fritillary has declined over the recent past and has now reached the position where it has become Britain's rarest and most endangered butterfly, being found in only a handful of locations, the majority of which are in the counties of the South West.

Colonies of Heath fritillaries tend to move in search of suitable habitats for egg laying such as clearings in woods where undergrowth has been cut down recently, thus allowing the cow-wheat to flourish. The caterpillars are rather shy in their habits, staying hidden amongst their foodplants or dead leaves (except when the sun is shining brightly). After leaving their eggshells, the young fritillary caterpillars spin webs under the leaves of the foodplants and live under them, feeding on the cuticles of the leaves.

WWF will be attempting to establish the precise distribution of the butterfly colonies, to assess their numbers, and to learn as much as possible about their lifestyle and behaviour. It is only through gaining knowledge of the species and its requirements that plans can be made to save this butterfly.

(The above is a summary of two press releases issued jointly by World Wildlife Fund and Associated Tyre specialists Ltd. See article *Butterflies suffering from Dutch Elm Disease* in our previous issue which gave further details.— Editor.)

DEATHSHEAD IN CAMBRIDGE

A Mrs Longland of Wistow, near Huntingdon, gave me two larvae of *Manduca atropos* L. which she had found while potato harvesting in the village on Wednesday 12th September 1984. One had already turned brownish, prior to pupation, and the other, almost full-grown, finally pupated on 20th September.

M.S.L. Simpson (4859)

FEATURED MUSEUM NUMBER THREE — HERBERT ART GALLERY AND MUSEUM, COVENTRY

Perhaps because the Herbert Art Gallery and Museum is a relatively new museum (opened in 1960), it is often assumed that the Natural History collection, and particularly the entomological material, is likely to be of relatively little interest to researchers or interested amateurs. Very little has been published regarding the Museum's insect collections; this has of course compounded the myth that there is little of entomological interest in Coventry.

I hope to be able to dispel this myth by giving a brief *resumé* of the collections in my care. These comprise approximately 110,000 specimens, of which over ninety-five per cent are British. The specimens come from four major sources:

- (a) *The John William Saunt Collection.* Purchased in 1958 from Mr Saunt's widow. Born in Nottingham in 1881, Saunt moved to Coventry in 1915, by which time he had transferred his attentions from Lepidoptera to other Orders, most notably Hymenoptera and Diptera. In 1937 he moved to the Isle of Wight, where he lived until his death in 1958. The collection includes type material (British and Foreign) for Hymenoptera: Symphyta. He was elected an honorary Associate of the Linnean Society in 1925.

- (b) *The Harold William Daltry Collection.* Donated in 1983 by Dr M. W. R. de V. Graham, this collection is kept in its entirety as a separate entity from the other entomological holdings at the Herbert Art Gallery and Museum. Daltry was born in Madeley, Staffordshire in 1887. Following a period at Marlborough College, he entered a career in Locomotive design based at Crewe, but involving considerable travel. On retirement, he finally settled in Rugby, Warwickshire, where he lived until his death in 1962. Daltry made an extremely neat and detailed collection of all insect Orders except Diptera, with particularly strong collections of Coleoptera, Microlepidoptera, Hymenoptera and Hemiptera. There are British type specimens for the last two orders. He was elected a Fellow of the Royal Entomological Society in 1929, and later a member of the Society for British Entomology.

The staff at the Herbert Art Gallery and Museum are most grateful to Dr M. W. R. de V. Graham for this recent donation, particularly since the Daltry and Saunt collections complement each other so well. The two collectors corresponded, and both collections contain material donated by each other.

- (c) *The G. E. Newton Collection and E. M. Eustace Collection*
Two collections of British Coleoptera jointly comprising some 13,500 specimens. Sadly, little information about either collector is known at present. Perhaps any members who know about these collections could help us?
- (d) *Collection by Museum Staff* Although various orders have been collected and recorded by staff over the years, field collection and recording is at present confined to certain Dipterous groups and Hymenoptera Symphyta and Aculeata — the main areas of staff research. Catalogues of the museum's collections of Hymenoptera: Symphyta and Diptera: Syrphidae are currently nearing completion, and it is hoped to publish these in 1985. The former will include biographical notes on the main collectors and their associates.

Brief Notes on the Collections by Order

- (i) *Orthoptera* Some 400 specimens, including almost all species on the British list.
- (ii) *Dermaptera* A small collection, largely H. W. Daltry material.
- (iii) *Plecoptera* A total of about 200 specimens, nearly all of which is H. W. Daltry material. Twenty-five British species represented.
- (iv) *Ephemeroptera* Again only well represented in the Daltry collection, where 163 specimens cover 29 British species.
- (v) *Odonata* Roughly 250 British specimens and 150 foreign ones, the British material being in both the Daltry and main collections. Of particular interest are two British examples of *Sympetrum vulgatum* collected by H. W. Daltry in Kent.
- (vi) *Hemiptera* Here the main collection pales into insignificance against the fine and comprehensive collection built up by H. W. Daltry. Total museum holdings for this group are 8,000 British specimens.
- (vii) *Megaloptera* A small collection, mainly Daltry material.
- (viii) *Neuroptera* The H. W. Daltry collection contains over 400 British specimens, representing nearly every species.
- (ix) *Mecoptera* All four British species are represented.
- (x) *Trichoptera* The H. W. Daltry collection contains 800 British species and is comprehensive. Total museum holdings of British Trichoptera are 1,100 specimens.
- (xi) *Lepidoptera* Total British collections of over 30,000 specimens and a small collection of some 4,000 foreign specimens. The British



collections, both H. W. Daltry and the main collection contain many interesting specimens, including a number of species which are now sadly of mainly historical interest in this country due to their extinction. Most species on the British list are present.

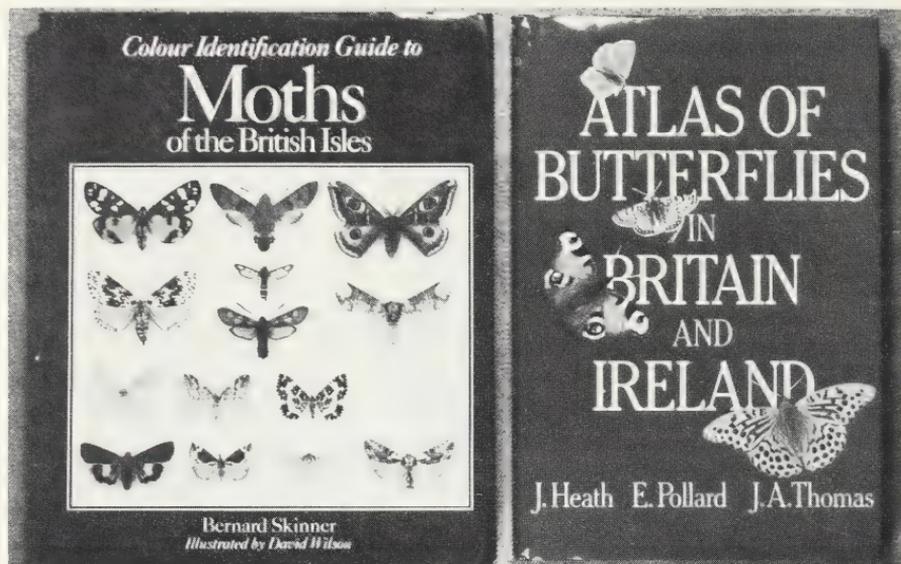
- (xii) *Coleoptera* Total holdings of about 30,000 British specimens and a small foreign collection. The main collection is in "Hill" cabinets, but the H. W. Daltry collection is at present still in storeboxes, and therefore much less readily accessible. It is hoped to transfer this material (about 12,000 specimens) to cabinets as soon as possible.
- (xiii) *Hymenoptera* Total British holdings of about 19,000 specimens. Both J. W. Saunt and H. W. Daltry made excellent Symphyta collections — less than 50 of the British species are not represented, and many rare species are represented by series of specimens. A catalogue is currently in preparation. Whilst Saunt did not collect Parasitica, the Daltry collection contains a fine and representative series of these Insects. Both Saunt and Daltry collected the Aculeates, both producing good representative collections; of the two, Saunt's is the larger and more comprehensive.
- (xiv) *Diptera* H. W. Daltry chose not to maintain a Diptera collection, and the vast majority of specimens at the Herbert Art Gallery and Museum are ex-collection J. W. Saunt. Roughly 12,000 British specimens are housed here. Saunt collected Diptera of all families, and the collection is generally of a very high standard. Of particular quality are the collections of larger Brachycera, Syrphidae and Tephritidae. A catalogue of the Syrphidae is now nearing completion.
- (xv) *Siphonaptera* Not represented in the Daltry collection, and apparently of no great appeal to Saunt, who only collected about 50 specimens.

The collections at the Herbert Art Gallery and Museum, Coventry, are available for consultation by interested persons, although an appointment should be made in advance in order to ensure that staff are available to allow access to the collections. Letters should be addressed to Adam Wright, Senior Keeper (Natural History), Herbert Art Gallery and Museum, Jordan Well, Coventry, West Midlands CV1 5RW.

Alternatively, appointments by telephone can be arranged with Dr Chris Palmer on Coventry (0203) 25555, extension 2516.

Adam Wright
Senior Keeper Natural History

BOOK REVIEWS



Atlas of Butterflies in Great Britain and Ireland by J. Heath, E. Pollard & J.A. Thomas. With illustrations by Sarah Hughes and Peter Creed. Pp. 158, numerous illustrations. Large 8vo. Viking 1984. Price £17.95.

Books on butterflies of a pot-boiling or coffee table nature have been appearing all too frequently over the last few years, so it is a very welcome change to have one of a serious scientific nature which does not merely ring the changes on the angle of the shots on colour plates, for there are none. This is no identification guide similar to some half dozen recent look-alike books. It is a serious attempt, which in our opinion has succeeded, to give a concise ecological and conservation angled account of our butterflies and also to point out the often very drastic distributional changes that have taken place over the past half century.

The distributional maps are derived from the records accumulated by the Biological Records Centre of the Institute of Terrestrial Ecology under whose auspices this book has been published. The senior author, as many of our readers will no doubt already be aware, was, until his recent retirement, the head of the Records Centre. The maps therefore may already be familiar to many readers, but are of course updated from those published earlier elsewhere and take in the latest available information. These maps are printed large enough to be readily assimilated at a glance, and indeed they occupy two thirds of a page for each one.

A particular innovative and excellent idea has been to give also, when the information has been available, bar charts which show the frequency and flight periods of the butterflies for different localities of the British Isles. This is particularly useful for species with extensive north-south distribution such as the Common blue where the single-brooded Scottish emergence can clearly be seen to occur between the months of the double-brooded English emergence periods.

We have already mentioned that the text is written to give an ecological and conservation angle. To give an example, how many lepidopterists are aware that colonies of the Small blue may be restricted to areas of only 1000-1500 square metres? So although the distribution map shows it as fairly densely populating central southern England, actually locating specimens of this very sedentary species is not all that easy. It is also this sedentary habit that has probably prevented recolonization of otherwise suitable areas after the original destruction of a colony by agricultural improvement or overgrowth due to myxomatosis. In addition to this kind of data there is a large amount of information concerning the life history and habits of the butterfly.

In this book the authors have made a determined effort to correct some of the misconceptions over larval foodplants that have grown up over the years. These errors have often arisen due to slavish copying, in book after book, of earlier and often heresy evidence. These authors have gone back to some original sources and eyed them critically, or have taken note of recent research which has defined and in not a few cases refuted, some of the listed foodplants. (This reviewer, incidentally, is of the opinion that larval foodplants in the wild are often not the same as a species can be induced to use in captivity: hence perhaps the confusion over foodplants and the necessity today to state under what conditions a foodplant is being accepted.)

This book indicates that some thought has been given to layout and typography. A pleasant change from some books we have seen lately. Each species is dealt with on two facing pages with all the maps on the right. The English name of each species is in large type between double rules and heads the left-hand page. The text is printed in double columns and this makes for easy reading. At the start of the first column is a delightful black and white drawing representative of the species being dealt with and these are by Sarah Hughes (whose artistry we have previously seen and commended when reviewing the *IUCN Red Data Book (Bulletin 42:136)*). There is a conventional title page, facing which is a frontispiece featuring eight similar drawings. A pleasant touch to tradition. The book is completed by a very adequate bibliography and a checklist of the species and this list also gives the major foodplants. The index gives the English and scientific names only.

While the Photina typeface used may perhaps look rather old-fashioned, I definitely like it and the contents are bang up to date. The large variation in the pricing of books seems to depend rather more on what the publishers think the market will bear, rather than on a reasonable mark-up on the production costs, and this book is expensive. From the same publishers, issued on the same day, were two other books, at £14.95 and £20.00 (*reviewed also in this issue— Editor*) with, respectively, 54 pages of text and 48 coloured plates; 194 pages of text and 42 coloured plates. This volume has 154 pages of text and no expensive coloured plates. Books of equal quality and length are on the market at around the £10.00 mark.

In spite of its price this book will be of far more use and interest to the entomologist than are most of the cheaper identification guides with their minimal texts, often only legends to photographs, or so abbreviated as to be almost incomprehensible. One point, however: although we understand the omission of vary rare vagrants, surely both the Pale and Berger's Clouded yellows deserved inclusion.

Brian O. C. Gardiner

Colour Identification Guide to Butterflies of the British Isles by T. G. Howarth. Pp. 54 (151), 48 coloured plates. 4to. Viking 1984. Price £14.95.

This is a reissue of the book originally published by Messrs Warne's in 1973 and remains a reduced version of the same author's *South's British Butterflies*. In this edition, however, the plates have been reduced to the natural size of the insects instead of being enlarged. This has been in response to the adverse criticism of the oversized reproduction in the previous issue and while a comparison of the two reveals differing tonal qualities the general effect is a great improvement, although in our view the plates depicting the fritillaries are too reddish in hue. The plates have also been arranged so that the imagines occupy the first 24 and the early stages the rest.

As seems usual in modern book production, although the plates are numbered, they are also paginated, so although there are a total of 151 pages in the book only 54 of these are textual.

Certainly the most useful part of this book is the information table, occupying 20 pages and listing the butterflies alphabetically under their English names. This table also gives scientific name and author. (There is a separate list giving synonyms.) The following information is then given in the table:- British racial name; number of named aberrations; variation (a very brief *precis* this); calendar of appearances of all stages; larval foodplants and number of instars; habitat distribution and abundance. In this table we are pleased to note that corrections to errors in the 1973 edition have been made.

Occupying nearly five pages is a dichotomous identification key. I would query the necessity for such on the easily identifiable British butterflies. I would suggest that the space could have been better utilized differentiating thoroughly the few confusable species we do have, such as the Large and Scarce tortoiseshells and the two *Boloria* species for example.

The plates of imagines illustrate a number of varieties and aberrations not shown in other butterfly books and are therefore of use. Our criticism here is not of the plates but of the adjacent legends which are cramped together on the facing page although there is a large expanse of wasted white space available. It would have made for easier reading if a full line space had been left between the figures' legends. A glance at those for plate 24 where by chance such spacing exists will make this clear.

While the plates depicting the early stages are pleasant enough and reasonably accurate artistic representations, I feel the time has come to query the reproduction, yet again, of illustrations which first appeared in 1924 — that is to say, sixty years ago. I do not think any book has yet appeared with good *colour photographs* of the egg and chrysalid stages and I feel that it is time it did. After all, we do see some really excellent examples of such photographs both in our own and in other Societies' exhibitions.

It is unfortunate that an otherwise well-printed and produced book contains a number of errors, both of typography and omission. To give a few instances:—

On page 47 *Anthrocaris* (twice!) instead of *Anthocaris*. On page 49 both *Boloria euphrosyne* and *B. selene* are called Pearl-bordered Fritillary. The author(s) of *Nymphalis xanthomelas* is Shiffermüller on page 38 but Denis & Shiffermüller of page 52. On page 102 *jurina* for *jurtina*. On page 54, while we are grateful that our Society has deserved a mention in this book, we are the Amateur Entomologists' Society, *NOT* the Amateur Entomological Society.

Future bibliographers should also take note that the text is reset and not a facsimile of the first edition. Although the preface to the first edition has allegedly been "reprinted" here, it has been edited and some subtle changes have been made in the wording, so it is not the preface as originally printed. This is very naughty.

Messrs Viking have published two butterfly books simultaneously, and it is gratifying to note that the scientific names are the same in both.

Since this book has been published in its own right and not as a reduced version of something larger, as was the first edition, it is relatively dearer than it might have been and we wonder just what niche it is intended to fill. The book is useful for both the information table

and the illustrations of varieties and aberrations. However, most of the information given in the table is available in far greater detail in *Atlas of Butterflies in Britain and Ireland* from the same publisher, although that book too is expensive and has no colour plates. (*See separate review — Editor.*) It would in our opinion have been better to have omitted the plates of the earlier stages, together with the key, and so brought the price down to be comparable with the smaller illustrated butterfly books on the market. At the present price, a good copy of the previous edition might be a better buy when it can be found, in spite of the improvement in the plates of the imagines.

Brian O. C. Gardiner

Breeding the British Hawkmoth by Paul Sokoloff. Pp. 56, 9 plates. A5. The Amateur Entomologists' Society 1984. Price £2.30 (post free).

The AES continues to produce excellent practical handbooks designed, as is the purpose of the Society, for the Amateur rather than the professional, although he, too, can well benefit from them. This one follows hard on the heels of one on butterfly breeding, published only last year, and can be said to complement it by extending the range into the orbit of large moths which are both diurnal like the butterflies and nocturnal as moths are alleged to be. In this booklet details of how to cope with both kinds are given and stress laid on the importance of taking that in-between period, dusk, into consideration. The importance and details of feeding are also stressed and attention is drawn to those like the poplar hawk that cannot feed.

The major part of the text is taken up with the mechanics of breeding; where and how to obtain eggs; where and how to rear larvae and pupate them successfully; how to store and enclose the adults with minimal losses.

Parasites (there is rather a fine photograph of one) and diseases are also dealt with. Each species is then dealt with individually and it is here that we are given both life-history data and the foodplants to use as well as the speciality treatment required by certain species. Difficulties that may be encountered are pointed out.

There is a useful bibliography (something we are glad to see is becoming more common in books of this kind) and a list of the species dealt with.

Throughout the text reference is made to other publications of the AES. This is of course very appropriate, for much of the general information contained in them on rearing, applies to techniques generally and to have repeated them here would have left less room to concentrate on the special problems of hawkmoths. The text is well written and the author shows a grasp of, and a "feel" for his subject.

The illustrations are appropriate, but the term "Plate" rather a misnomer, for strictly speaking a "Plate" occupies a whole page while most of these illustrations do not. It would also have made for more interest (particularly to the young beginner) to have had photographs of *all* the species dealt with. True, they may be available elsewhere, but only in rather expensive books. This applies particularly to the lesser known European species. In view also of the ready availability of some USA hawkmoths, it seems a pity to have omitted these, but no doubt there were good reasons.

The booklet is well printed and laid out and it presented in an attractive cover. Altogether an excellent and useful manual for anyone who breeds insects, not just hawkmoths.

SAC

Colour Identification Guide of the Moths of the British Isles by Bernard Skinner. Illustrations by David Wilson. Pp. 266 including 42 coloured plates. 4to. Viking 1984. Price £20.00.

There are books that pass the test of time and thousands that do not. This is the one that will. The last one on moths to do so was of course Richard South's *Moths of the British Isles* in two volumes. It has been THE moth book for three-quarters of a century and gone through some twenty editions and reprintings, including a change of plates and endeavouring to keep up-to-date. It is difficult to explain just why the rather textually similar *Butterflies and Moths* by W. E. Kirby, published only two years after South, had but one edition. Perhaps it tried to be too comprehensive for it included both butterflies and microlepidoptera. The plates were very inferior so this may have been the reason. There comes a time in the life of a work, however, when however good the editing or the plates, drastic changes in both knowledge and the use of the English language and the mode of presentation, makes continued updating seem both stilted and very uneven in content and quality. At this point an entirely new work, written from scratch from a fresh viewpoint is called for, and here at last we have it.

Let us say right away that the title of this book is rather misleading. It is *far more* than a 'colour identification guide'. It contains a full and informative text in its own right. Let me explain. The butterfly book from the same publishers (reviewed elsewhere in this issue - Ed.) is quite simply the coloured plates of the very extensive *South's British Butterflies* with the text discarded and replaced with an admittedly comprehensive table, together with some other matter. That book contains 48 plates and only 54 textual pages. This one 42 plates accompanied by 194 textual pages. So it is far more than an 'Identification guide. It deals with all the British macrolepidoptera and due to its very much larger page size, the cutting out of anecdotal verbage, the omission of descriptive matter, contains, so far as we can judge, more information

than 'South.' But, in 'South,' so many of the brief descriptions given were by no means adequate for certain identification and in this book particular emphasis has been laid on similar species and their separation. This is accomplished by both drawing attention to them, using bold type, and the inclusion of figures and diagnostic differences. So it is indeed far more than a 'Colour guide', although of course the majority of our British macro moths may indeed be readily identified by reference to the coloured figures.

At this point let us turn to the coloured plates. These are superb and all involved, particularly David Wilson, are to be congratulated on their production. There has been much controversy over the past twenty or so years about the relative merits of photographs versus artists' drawings of entomological specimens. Opinions differ and there are good arguments on both sides. In our opinion these plates are an excellent, indeed I would suggest almost conclusive, argument in favour of the photograph. Not only is the quality of the examples chosen for illustration superb (they are immaculate and uniformly well set), but the focus is so good that one can almost see the individual scales and might indeed sometimes expect some specimens to fly off the page.

It is interesting to digress slightly at this point to note a small change in the fashion of setting moths since the turn of the century. If we look at the plates in early editions of 'South' we see that the majority of the moths (but not the butterflies!) have the forelegs displayed and mostly also the hindlegs. In the later editions, with artist drawn plates, nearly all still have forelegs but there are very few hindlegs showing. In the plates before us there are but a handful of forelegs but a substantial number of hindlegs.

The text is laid out in double columns. Very suitable for a book of this size and easy to read. The order is that of modern taxonomic thought. The English name of the moth is given in bold type as a heading, followed by the scientific name in italics, with the author, and then the plate reference on the next line. All very easy to assimilate. The plate legends incidentally also usefully refer back to the page number where the text of the moth concerned is to be found. There follows a series of subheadings, as appropriate, also in bold type with the relevant text conjoint. These subheadings give details of:- Variation: Similar species: Imago: Larva. When information given is from European sources rather than British data (as it is for certain rare vagrants) the fact is denoted with a * in bold type.

The information supplied is given as succinctly as possible consistent with clarity. There are no nasty abbreviations. All the information that we lepidopterists need is there, when, that is, it is known, and when it is not, the author calls our attention to the fact. We are given the status, number of broods, brief details of variation and size of the adults (all

now in millimetres), times of appearance, a guide to distribution, foodplants of the larvae and finally on the last line and on its own, the overwintering stage. All this information is so laid out that it is much, much easier to assimilate it and extract the facts required than it ever was in any of the editions of 'South'.

Since this is a book we feel sure will run into further editions, we should like to offer two suggestions. The first is that the plate legends be either printed in larger type, or be given a line space separator between paragraphs. There is plenty of space to do this and it would make for easier quick reading. The second suggestion is that in our opinion a white binding is not suitable for a book that is likely to get so much use.

This is an excellent book, very well produced and very good value for money indeed. It should be in the library not only of all lepidopterists, but also anybody with the slightest interest in moths.

Brian O. C. Gardiner

Spiders of the World by Rod and Ken Preston-Mafham. Pp. 191 with 64 colour plates, 50 black and white plates and line drawings. Blandford Press, Poole, 1984. Price £8.95.

Although not strictly a field for entomologists, the study of spiders is now widespread amongst our membership, but available literature has been sparse. W.S. Bristowe's 'The World of Spiders' (1958) in the New Naturalist Series first whetted my appetite but copies of it are difficult to obtain and this new publication will meet a demand for a general introduction to the subject. The authors have been studying and photographing spiders here and abroad for over ten years and this book is the result of their endeavours, full of information, illustrated by some wonderful camera work and written in an easy, fluent style that must appeal to the amateur and student alike.

The text follows logically from structure, illustrated by some fine line drawings by Paula Chasty, classification, courtship and mating behaviour, to the life histories of the Order. Chapters follow on methods of prey capture, defense mechanisms and, finally, spiders and their relations with man. Appendices give a glossary of terms and a list of the families of Araneae. The wonder and complexity of the spiders is so fascinating that the book was hard to put down and it should do much to promote an interest in the Order amongst amateurs. It is understood that Harley Books of Colchester are to publish three volumes on the spiders of Great Britain and Ireland by Michael J. Roberts. This present publication will make an excellent introduction for them.

Butterfly Farming in Papua New Guinea. National Academy Press, Washington, D.C. 1983. Pp. 34. Ten coloured plates.

This little publication is sponsored by the National Research Council, USA., in co-operation with the Insect Farming and Trading Agency in Papua New Guinea and is one of a series dealing with the management of animals for economic purposes. The trade in butterflies worldwide is estimated at between ten and twenty million USA dollars each year and PNG is benefitting from this world interest by collecting and breeding butterflies and other insects for sale through the Agency. Botanical research has been the key to the programme and the knowledge of larval foodplants and adult nectar plants has meant that butterflies can be 'ranched' by making small jungle clearings and planting them with the correct plants; the butterflies are introduced and farmed without the use of any cage or other confinement. The booklet describes the methods used and about 50% of the stock are culled, leaving sufficient for the next crop. The aims result in conservation of the wild stock and the system is worthy of praise. One hopes that it can be emulated elsewhere, giving an income to forest dwellers and an incentive to maintain habitat and natural resources as a long-term source of income. Copies of the booklet will be sent to interested organisations by the Council whose address is, 2101 Constitution Avenue, Washington, D.C. 20418, USA.

PWC.

British Dragonflies by Roderick Dunn. A set of 4 colour prints (13.5 × 11.5 inches overall). In a limited edition of 500. Woodall Publishing, Townhead, Tideswell, Derbyshire SK7 8LX. Price £20.00 (post included).



These prints of four species of male dragonfly are primarily designed for framing and displaying as a unified set although of course those who in any case collect limited edition prints may well prefer to keep them in their print drawers where they will be equally at home to be looked at and enjoyed as the mood takes the owner.

The species depicted are *Calopteryx splendens*, *Cordulegaster boltonii*, *Libellula quadrimaculata* and *Somatochlora metallica*. They are about twice life-size (the *C. splendens* rather more) and are beautifully executed and printed. All four species are shown at rest clinging to a suitable fragment of plant and occupy the centre of the print and are on a pure white ground. This is then enclosed by a heavy black frame beyond which is a light grey wide border. So no further mount is required and they can be put straight into a suitable frame. The name of the insect and the number of the print is printed, at the bottom, just inside the black border. In our opinion however, this would have been better placed outside the border and further down near the edge.

Artistic appreciation is a very individual taste and to our view the pure white background to these long-bodied and narrow-winged creatures is rather obtrusive and we would have preferred a pastel tone such as a pale cream or blue.

There are numerous limited editions of artistic prints published on all sorts of subjects and it is encouraging to see some on insects. In price these compare very favourably both with other subjects on the market and with plates cut out from old books. Indeed more modern productions such as these could help take the pressure off the demand to dismember old books for the sake of their plates, and the enterprise of both artist and publisher in producing modern works of this nature should be encouraged.

Brian O. C. Gardiner

SOLUTION TO CROSSWORD

(Explanations in brackets)

ACROSS 1 Cordulegaster (Golden-ringed dragonfly). 8 Killing (HNC = cyanide, CC1₄ = carbontet). 9 Lac. 10 Ova. 12 Alate. 13 Rim (Yellowish in Dytiscus). 14 Soil. 15 Ash (Fraxinus). 17 Arid. 19 Not. 20 Aglais and 3 down urticae (Small tortoise-shell). 21 Egg.

DOWN 1 Chrysops. 2 RES (Royal Ent. Soc.). 3 See 21 across. 4 Enallagma (cyathigerum). 5 Ten (Ladybird spots). 6 Rhyncophora. 7 Underwing (Lep). 9 Lema. 11 Apical. 16 Psi (Specific adjective for the grey dagger moth). 18 Dog (flea).

AN EXPEDITION TO NORTHERN GREECE — JULY 1983

My previous experience of Greece had been in the south around Delphi, Mt. Chelmos in the Peloponnese and in the Sounion peninsula (see *Bull.* Vol. 33: 12) but with the opening up of areas in the north previously closed for security reasons, it was decided that our 1983 venture should be along the northern borders. On this occasion Russell Bretherton, who has had several trips to Greece, was able to come and a third member of the party was recruited from the Royal Botanic Gardens at Kew, Mark Clements, an Australian working on basic research into the fungi associated with orchids. I made arrangements through Olympic Tours in London and on the 30th June we flew out from Gatwick at 10.45 am in a Danair aircraft. Because of time changes one loses two hours and we landed at Thessaloniki airport at 3.45 pm, to find a young lady awaiting us with our vehicle, a VW Polo. We drove north from the airport through the centre of the city, a nerve-racking experience as there appear to be no road rules in Greece apart from a general tendency to drive on the right of the road. We left the city to drive due east along the shores of Lake Koronia and Volvi where we saw storks, some nesting on telegraph poles by the roadside. The road then ran on the edge of the Aegean and we should have crossed the River Strymon. However, a bit of wrong map-reading took us westwards to Nigrita and, finding our mistake, we had to retrace the journey some thirty miles to cross the river and take the road to Drama, passing to the north of Mt. Pangeon. We arrived there in the dark and found police everywhere and roads blocked — the President was visiting the town for the celebration of the liberation of that part of Greece from the Turks in 1913. Eventually we found a hotel, the Marianne, where we were most hospitably received, given a meal and went to bed, ready for an early start on the morrow. In our journey from the airport we had had trouble with the petrol supply to the engine which necessitated a stop at a garage to replace the petrol filter and the car had quite obviously not been serviced in a long while. We also had problems in starting throughout the trip — moral, hire a car from a reputable agency rather than through a tour company.

The 1st July started with clear skies as we drove out of Drama towards the Falakron massif, our first goal, lying south of the Bulgarian border. We came to the valley of Stena Granitou short of where the road forks right to Volakas. A stream ran below the road, rich with flowers and shrubs which included the spiny *Palinurus spina-christi*, the thorns of which are wicked but the goats grazing along the valley were eating the shoots without any apparent difficulty. Our first encounter was with the Festoon butterfly *Zerynthia cerisyi*. The sub-species here is *ferdinandi*, being much larger than the Cretan ssp., which I have previously bred, and flying later. We took several males and females and then found both eggs and larvae on the foodplant growing densely by the stream, *Aristolochia clematitis*. The larvae have yellow spines when

young but later develop bright red ones. With careful husbanding of the foodplant we were able to get them home alive and the resultant pupae are a third larger than those of the Cretan race. Our other target here was *Lysandra coridon philippi* but we were too early though *L. bellargus* was well out, flying with a very fine form of *L. escheri*, large and brilliantly blue. However the commonest blue was *Meleageria daphnis*, the females here being of the beautiful blue form. *L. thersites* was also common, mixed up with *Polyommatus icarus* from which they had to be netted in order to identify. Russell took two *Cupido osiris* and one or two of the Short-tailed blue, *Everes decoloratus*. We also took specimens of the Anomalous blue group of the genus *Agrodiaetus*. These included *A. admetus*, *A. ripartii* and another. *Admetus* on the underside hindwing has fairly distinct lunules which are virtually absent in *ripartii* and *aroaniensis*, the former having a white streak on the underside hindwing. Recently J. Brown and J. Coutsis have described a further species from the Mt. Pangeon area (*Ent. Gazette* 29: 201) which requires genitalic and androconial scale examination for identification. However when I found one with the white underside stripe mated with one without, methods of field identification became confused. Both *Euchloe ausonia* and *Pontia daplidice* were on the wing and several tattered *Limenitis reducta* flew among the bushes by the stream. I netted a specimen of *Kirinia roxelana* feeding on a thistle and saw the Comma, *Polygonia egea*, sunning itself on a rock. It is a butterfly I have seen before commonly in the Temple of Apollo at Delphi. We hoped to find the pierid, *Elphinstonia charlonia*, here on the rockier slopes. It is like a small *E. ausonia* with a yellow ground-colour, but we had no luck. *Colias crocea* and *C. australis* dashed about the slopes above the road where there were a few bee hives. I got chased by the bees and had to resort to putting my net over my head to avoid getting stung.

We moved further up the valley to a small tavern by the road and enjoyed some beer. In a wooded area below the tavern Mark found his first orchids, helleborine and bird's nest. Suddenly the roll of thunder echoed round the mountains and it began to rain. Throughout our fortnight's trip this was to be the general pattern of the weather — bright mornings followed by afternoon storms, restricting the amount of field work we could do. We drove back to the hotel where we met two German entomologists who were in transit for Turkey and we were able to discuss the Falakron area in which they had collected in 1982. They offered to come with us on the next day to show us the area they had found most fruitful.

After the storm, we went down into the town and watched some of the celebrations which included folk dancing in costume accompanied by a cacophonous band consisting of a fiddle played between the knees and several horn-like instruments. The tune seemed always to be the same. We then managed to find a tavern for supper which was washed down with the local wine, though Mark rejected this in favour of Coke.

On the second day we joined the Germans and drove up to just below where we had collected on the previous day, beside a large water tank. The morning was again hot and we added a few species to our list, *Satyrus cordula*, *Chazara briseis* and both *Melanargia russiae* and *M. larissa* which were mixed in with hundreds of *M. galathea* of the dark southern form *procida*. The *larissa* were much smaller than those I had taken in the Sounion peninsular, being similar in size to the *russiae*. Among the Whites on the wing we found several *Artogeia ergane* mixed with *A. manni*, *A. rapae* and a few *A. napi meridionalis*. I netted a lot of *Leptidea* which were made up of equal numbers of *L. sinapis* and *L. duponcheli*, both of the second generation form. During the trip we found *L. sinapis* everywhere and at four of the places visited we found also *duponcheli* flying with it. Nowhere did we find *duponcheli* on its own.

Tortoises were common and many were very large with carapaces measuring 10 inches in length. We also found a large dead snake in the road, killed by a passing car. A group of peregrine falcons called along the ridge above us and we saw a lone eagle. At 11.30 our daily storm erupted but was short lived. A Belgian entomologist and his wife stopped to chat by the roadside and gave us some information about Florina on the Yugoslav border where they were going on the following day. The two Germans had meanwhile been searching for the larvae of *L. coridon philippi* on the slopes by the tavern and had found two full-fed specimens under the clumps of *Hippocrepis comosa*. They appeared to be typical *coridon* larvae with the same habits and foodplant. There were lots of mullein plants growing on the slopes, *Verbascum graeca*, and on very many of them were groups of the larvae of *M. trivialis* in various stages of growth. These proved to be larvae of the second generation and emerged soon after our arrival back in England. This generation is small and paler and less well marked than the first and many were parasitised by *Apanteles melitaeorum* Wilkinson (det. M. R. Shaw) and a tachinid fly. A highly-coloured larva of a Shark moth was also feeding on the plants. Mark also found a larva of the Spurge hawk, *C. euphorbiae*, feeding on *Euphorbia rigida* and later I found several on the same plant. These I managed to breed out — they ate vast quantities of leaves and each day we had to be sure we had sufficient stock available.

On Sunday, 3rd July, we took the road northwards from Drama through the village of Livaderon. All along the route through the mountains were bee-hives with men working on them. We stopped high up above the village and collected near a row of hives and where there was a roadside marshy area. The water was full of yellow-bellied toads in various stages and here I took a specimen of *Scolantides orion*. We then followed the winding road down into the valley of the River Nestos and climbed up on the far bank to a village where we hoped to get petrol, only to learn that the nearest petrol was at Drama, now 40 km away. As



Fig. 19. The haunt of *Kirinia climene* near Eptahori.



Fig. 20. In the Smolikas mountains near Agios Paraskevi.

our tank was low there was nothing for it but to drive back. Already a storm rumbled around us and we had a heavy shower. We stopped in a wooded valley north of Livaderon and waited until the rain stopped and then collected in some fields above the road. This turned out to be a fine spot. Mark found some orchids and there was an abundance of butterflies, including *Maculinea arion* and *M. alcon*. The latter had been laying eggs on flower buds of *Gentiana cruciata*. I found several batches of eggs of *Aporia crataegi* on hawthorn and sloe bushes. A few *Brenthis hecate*, past their best, were flying with *B. daphne*, *Clossiana dia* and *Mellicta athalia*. The large fritillaries, *Argynnis paphia* and *Fabriciana adippe* were visiting a clump of ground elder, the latter species being all of the form *cleodoxa* without the silver spots. In a glade of poplars above a small stream there were dozens of male *Heodes virgaureae* sunning themselves and by the edge of a rough field I netted several ascalapids (Neuroptera) sunning themselves, beautifully marked in black and bright yellow. The sun was now very hot and we drove town beside a rubbish tip. Here there were several interesting 'escaped' plants which included a pretty *Solanum* and a squirting cucumber *Ecballium elaterium*, the pods of which, when ripe, shoot out a stream of water and seeds when disturbed. The first I trod on gave me quite a fright.

Second generation *M. trivia* swarmed here and we saw several *Iphiclides podalirius* and *Papilio machaon* and I found eggs and small larvae of the former on a stunted sloe bush beside the road. Grasshoppers and bush crickets were present in thousands and rose in a cloud as we walked about. We returned to Drama with the petrol gauge in the red and the storm descended on us from the mountains with a subsequent failure of the electrical supply to the town. The night was very stormy but the next day broke with clear skies and we made our final foray to the Falakron massif.

This time we drove further up the road to Volakas to the top of the pass which looks down towards the village but found it very cool and windy and nothing much was on the wing apart from a few *Plebejus argus* flying near an old gun emplacement. We returned and took the other branch of the road through the village of Granitis and over the top of a pass. Dramatically the terrain changed from its predominant granite and schist to limestone and we stopped to collect in an old chalk-pit. I followed a grassy path beyond the pit and saw a yellowish butterfly fluttering along ahead of me — it turned out to be our only capture of *E. charlonia*, a male in perfect condition. Lower down on our way back I took a single male *Nymphalis polychloros* and several blues including *M. arion*, a single specimen of *L. coridon philippi* and a new species for me, *Polyommatus eroides*, rather like *P. eros* but larger. During the day we had not suffered a storm and were able to collect until about 5 pm when the sun begins to get behind the mountain tops. The other species worthy

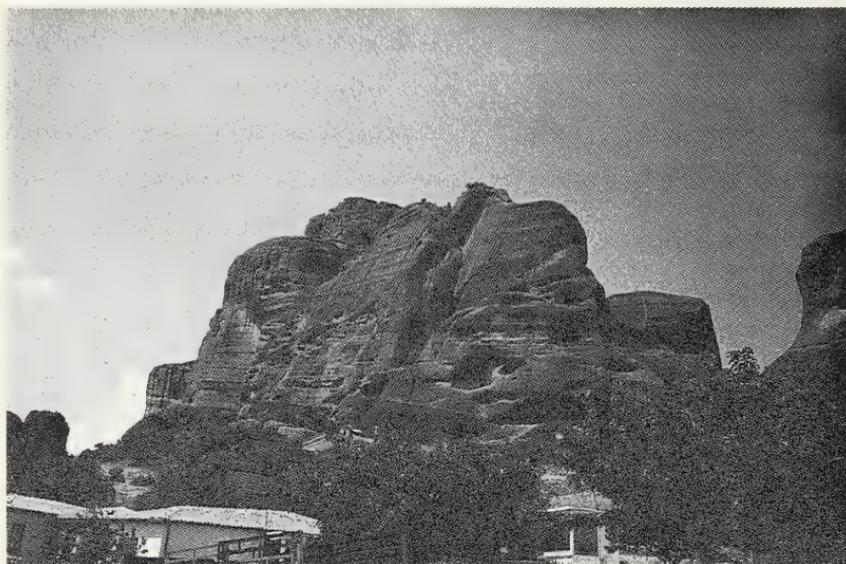


Fig. 21. Meteora-haunt of vultures.

of note here was *Heodes alciphron*, the females of which were well marked on the underside and the males were intermediate between the typical form and *f. gordius*.

That night we settled our bill (9,500 dr.) and packed ready for an early departure on the Tuesday morning, 5th July, having decided to move on to Florina. This time we took the more northerly route back to Thessalonika via Serrai. We found that available maps for Greece are somewhat unreliable — villages on the map are not on the ground and *vice versa*. Apparently good roads on the map are often no better than dirt tracks and some again do not exist. Consequently we got rather lost beyond Thessalonika and made a detour via Veria to Edessa and, before going on above the vast lake of Vigoritis, we stopped on the slopes above the road and collected in the heat of the day. *C. briseis* and *Brintesia circe* were quite common with a few *K. roxelana*. The slopes were very arid and we found *P. thersites* and *Philotes baton* while Russell took a newly emerged *Gonepteryx farinosa*. There were a lot of large ant-lions flying over the stony slopes and several *I. podalirius* and *C. crocea*. Again there was no storm today and we had to push on to find accommodation at Florina, arriving there about 5.30 pm to book in at the Hotel Antigoni, after a journey of about 400 km.

Our sleep here was interrupted by a local band and singers performing below the hotel in the local stadium until the early hours. In the morning of the 6th we took the road out of town towards Kastoria but had only gone about two miles when there was the ominous noise of a flat tyre. The wheel was quickly changed and we drove back to town to have the damaged tyre repaired — the tubeless tyre turned out to have an inner tube and this was quickly repaired.

We set off again, passing a couple of dead dogs in the road. They guard the sheep and cars are a constant hazard — but the vultures have to have something to feed on. The road climbs up through the mountains to a high pass where there is a ski station below which are fine alpine meadows through which streams flow, rich in flowers with plenty of orchids. *Parnassius mnemosyne* females were still on the wing, mostly past their best and void of eggs. *Erebia medusa* was in the same condition but *E. ligea* was just emerging and only males were flying. Four Coppers were present, *H. alciphron*, *H. virgaureae*, *L. phlaeas* and *P. hippothoe*. *Fabriciana niobe f. eris* was quite abundant and among them I took a single male *Pandoriana pandora*. Other species included *Syntarucus piriithous*, rather like a small *Lampides boeticus*, *Cyaniris semiargus*, *Melitaea cinxia* and *Lasiommata maera*, the males small and dark. There were dozens of *Inachis io* on the thistle heads with a few *Vanessa atalanta*, *Cynthia cardui* and *Aglais urticae*, quite like an English downland in high summer. As we had a break for lunch and a drink our Belgian friends turned up. They had taken *Coenonympha leander* and *Melitaea arduinna* near a small chapel higher up the slope and kindly gave us directions how to reach a high peak called Vitsi, south of Florina. Later we drove down the pass towards Kastoria to just below the village of Pisoderion. I followed a winding track up the hillside above a small roadside fountain which led onto flowery slopes. Here I netted a new species for me, *Aricia anteros*, which was flying with *P. argus*. Russell took the skipper *Pyrgus sidae* and a bit lower on the same road where a stream flowed down we took several *M. phoebe*, large and faintly marked, but no *M. arduinna*. Although there had been periods of cloud we were able to collect until 5 pm when we returned to Florina for our evening meal, some setting and plant pressing.

On the morning of the 7th we took the road towards the village of Drosopigi, crossing the river south of the town. Beyond the village the road deteriorated into a dusty stony track which wound up through huge beech forests towards the distant bare peak of Vitsi on which there appeared to be a radio mast. Eventually we came out onto upland meadows below the peak and stopped at the entrance to a military establishment where we were politely told by the guard that we could go no further nor take photographs. He had no objection to us collecting below in the flowery meadows. These proved to be full of interest with many *P. eroides*, fresh males, both sexes of *E. ligea*, a few *E. ottomana*

and all the Coppers we had recorded elsewhere. *Issoria lathonia*, *M. aglaia* and *F. niobe* flew amongst the flowers in the small dells and I took a single *Euphydryas aurinia* which was of the typical form, surprising at this altitude. The *Melanargia* present were all *russiae* and there a few *P. mnemosyne*. *Boloria graeca* dashed about the slopes and down among the trees there were a lot of *A. crataegi* ovipositing on sloe bushes. Our Belgian friends stopped briefly to wish us luck as they drove over towards Kastoria on the south side of the peak and suggested we tried an area just below the peak towards Kastoria where there was a roadside fountain. We drove down and parked there beside a small pool which was full of yellow-bellied toads and some young salamanders. The valley below was lush and Mark went to work on the orchids while Russell and I explored. The only real find here was *Libythea celtis* which was flying over thyme on a dry slope above the marsh. I netted three, surprised that the butterfly should be at this altitude so far removed from its foodplant, the nettle tree *Celtis australis*. Perhaps they overwinter at altitude! We then drove back past the radar station and stopped lower down, only to find that Russell had left his bag back at the spring. Fortunately it was not a long drive back and with it recovered we drove on down to a place where a stream came gushing down the slopes in a wooded valley. This spot was rich in flowers and butterflies. *M. arion*, *L. amanda*, *S. pirithous* and *Cupido minimus* were among the Blues and several *Heodes dorilis* added another Copper to our list. The *Melitaea* included *phoebe*, first generation *trivia*, *didyma* and there were a lot of *Mellicta* flying, later identified as *M. athalia boris*. Russell took *E. decoloratus* and our first *Coenonympha leander* flying with *C. arcania*. *Nymphalis antiopä* were sheltering from the heat in the shade of the bank of the stream and Russell managed to capture one. This was a delightful spot and we left it reluctantly to drive back to Florina and pack ready for a further move on the morrow.

P. W. Cribb (2270)

to be continued

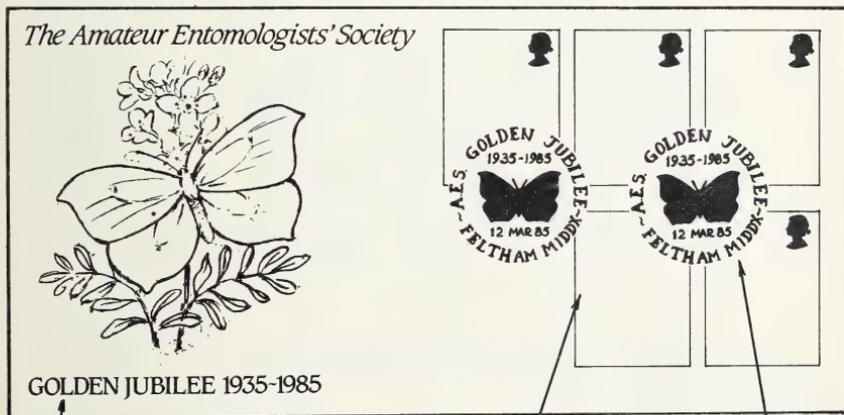


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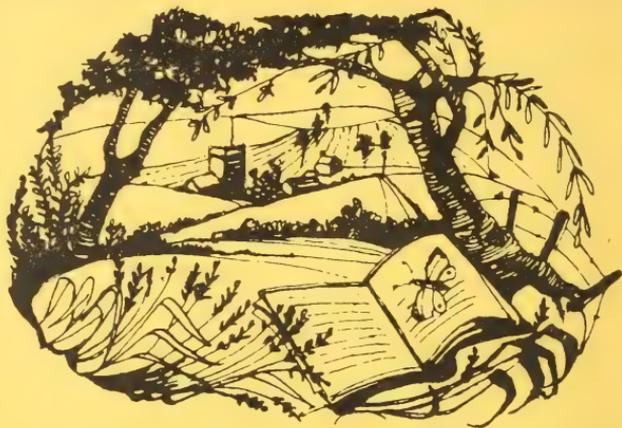
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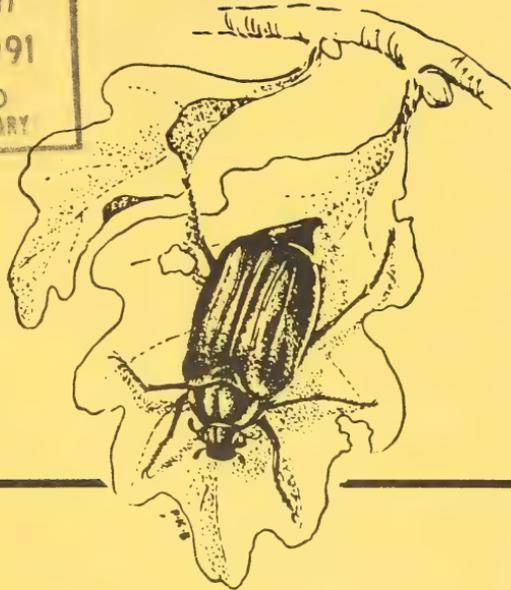


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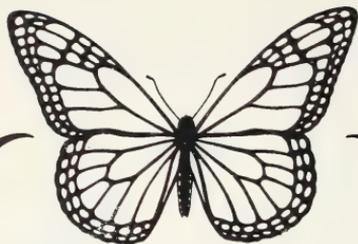
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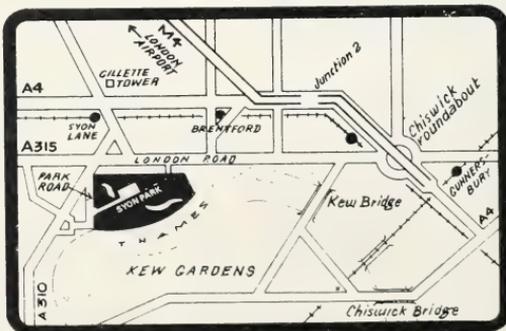
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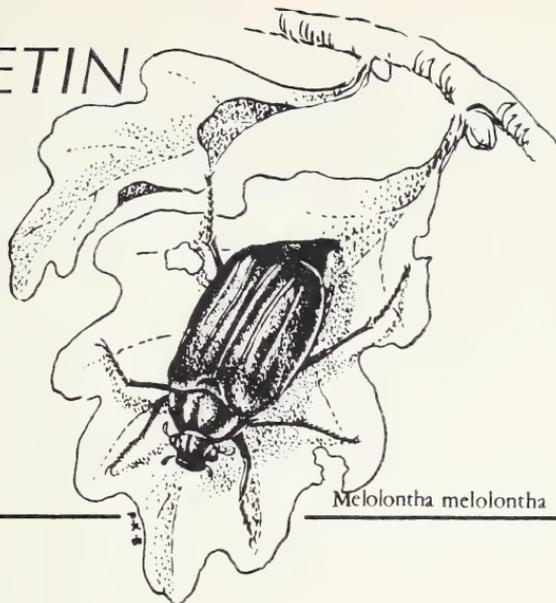
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AES BULLETIN

No. 347



Melolontha melolontha

EDITORIAL

As already announced the August Bulletin will be our Golden Jubilee number and will be a bumper issue containing both special articles and historical matter concerning the Society. As an added bonus, Volume 1, originally published in 1935-36 will be reprinted and issued free to all members. Also, in response to popular demand, we are reprinting, as a separate leaflet, not only the article *Some British Moths Reviewed* by the late W. H. T. Tams, from our 1941 Journal, but also the *Guide to the Critical Species* by John Heath *et al* from *The Entomologist's Gazette* (by kind permission) since these two articles complement each other and between them form a reliable guide to the separation of easily confusable moth species.

We have been aware for some time that the *Bulletin* contains rather a preponderance of articles slanted towards the Lepidoptera. This is not your editor's deliberate policy but reflects the type of articles which are submitted to him for publication, and this, presumably, reflects the main interest of most members, or at least those more inclined to set pen to paper, fingers to typewriter. As some counterbalance to this bias it is intended as soon as possible to have an issue primarily devoted to Coleoptera, for which sufficient articles are already on hand.

I would again ask members to send me more short notes, particularly of a practical nature, and more articles on the "other orders" would also be welcome.

The majority of our members are busy people with a job to go to and entomology is their hobby and not their fulltime business. Our Society and its publications have proved to be of sufficient interest to attract a

worldwide membership and many of our overseas members live in interesting places, entomologically speaking. This is no excuse for them to be pestered with requests to supply specimens ranging from giant millepedes to fleas as well as rare insects. I do not know if these requests come from members or from those, possibly dealers, who have got hold of our Membership list. But in either event I feel that it should be brought to the attention of all that overseas members belong to the Society because they are interested in Entomology and not because they wish to be a distributor of their local insects. If they have either the need or the desire to exchange or trade in specimens then they, like everybody else who does so, will use our *Wants & Exchange* columns or advertise elsewhere as do *bone fide* traders. Anybody who has ever attended our Annual Exhibition, read the advertisement pages of the *Bulletin, Exchange & Mart* or *Insektenbörse* will be aware that there exist enough dealers near at home and at various levels to cater for the demands of everybody who wishes to buy stock, living or dead.

One of the sad and tragic facts of life is that we accept the yearly mortality of thousands of people as the results of motor accidents. What perhaps is not so well known is the almost equally large amount of death and ill-health caused by insecticides. Some recent official reports have given these as between 12-22000 deaths alone per year, and this has been tragically boosted by last year's appalling tragedy at Bhopal in India. In view of these deaths the statement that the remaining deadly isocyanate was to be converted into a 'harmless pesticide' must be one of the sickest jokes of this century and one wonders just how many more innocent victims will in due course be claimed by this 'harmless pesticide.'

The amount of ill-health caused is more difficult to quantify. But it must be very large. People are still suffering from the Seveso disaster and the after-effects of Agent Orange. A recent report has stated that some 60% of fruit and vegetables on sale in this country are contaminated with poison residues. Just what long-term effect these must be having on those eating them only time will tell. From personal experience I can vouch for the fact that most cabbages, bought either from a supermarket or from a local market stall, are poisonous to caterpillars, and yet these are being sold for human consumption. Meanwhile the Agricultural Development Advisory Service, which ought to know better, has been advising farmers to conduct extensive spraying of cereals with chemicals known to be very inimical to both bees and fish and of which one is so toxic as to be a *notifiable poison*.

What the answer is I know not, but as Entomologists I feel we should be pressing for a reduction in the use of so many chemicals and do our best to encourage other forms of management such as biological control, although even this can get out of hand, especially when the control agent is an unpredictable virus.

In this our Golden Jubilee year we congratulate Robert and Rosemary Goodden on the Silver Jubilee of their firm, Messrs Worldwide Butterflies Ltd., who are now just half our age. Like all butterflies this firm arose from a very small ovum, having been started by Robert from a small shed in the garden of his parents' house at Charmouth. As is no doubt well known to many members it now occupies a stately family house (the Goodden ancestral seat in fact) at Over Compton, just off the A30 between Sherbourne and Yeovil. Recently too, the firm has taken under its wing the silkproducing farm founded at Lullingstone back in the 1930's and which produces the silk used by our Royal Family for Coronation and Wedding ceremonies.

Worldwide Butterflies have always been concerned about conservation and Robert and Rosemary were the founders of the British Butterfly Conservation Society and have used the resources of their firm in attempts to breed and reintroduce the Large blue butterfly. Throughout the years Worldwide Butterflies have been keen supporters of our Society and have helped in a number of ways.

To mark the occasion of their quarter century Messrs Worldwide Butterflies have invited AES members to a special open day and details of this are given below.

NEW NEWSPAPER

Just published as we go to press is a new tabloid publication entitled *Butterfly News*, The Popular Butterfly and Conservation Newspaper. Price 15p.

This new stimulus to the popularity of butterflies is illustrated by colour photographs and is published by that well-known Butterfly House entrepreneur Clive Farrell, who in addition to his Syon House and Weymouth Houses has just opened a magnificent new one at Edinburgh.

Editor

ROY HILLIARD

It is with the deepest regret that we have to report the death, on January 30th last, of Honorary member Roy Hilliard. Roy was a staunch supporter of our Society almost since its foundation and apart from the war years has served it in one capacity or another. Indeed all the reports of our Annual Exhibition for the past 30 years have been due to his meticulous recording, and only last year he played a very active and helpful part in the Junior Fieldweek. He will be sadly missed and to his wife and family we extend our sincerest sympathy.

Editor

NOTICE TO OVERSEAS MEMBERS, INCLUDING EIRE

We regret to say that currently the banks are charging a minimum of £5 to clear cheques drawn on banks outside the United Kingdom. All payments from overseas members must be made in sterling — either by an International Money Order or by a cheque drawn on a London bank or by Eurocheque. Otherwise the equivalent of £5 sterling must be added to cover bank charges.

R. Fry (Hon. Treasurer AES)

ADVISORY PANEL CHANGE

Members are advised of the death of Professor T. T. Macan, M.A., Ph.D., for many years the Society's adviser on freshwater insects. Enquiries on the Tricoptera, Plecoptera and Ephemeroptera should be made to Dr. I. D. Wallace, County Museums Department, William Brown Street, Liverpool or Dr. S. Nicholls, Department of Zoology, Woodland Road, Bristol, Avon (aquatic larvae). Remember all enquiries require a stamped addressed envelope.

INVITATION FROM WORLDWIDE BUTTERFLIES



To mark the occasion of our Silver Jubilee, we should like to invite any AES members and their families to an Open Day at our premises, Compton House, Sherborne, Dorset on Saturday July 6th 1985 from 11.00. Naturally we need to know how many are coming and must ask those who would like to attend to send Rosemary a postcard giving name and numbers. If desired and you let Rosemary know, we can reserve a table at Compton Manor Farm restaurant, or you may bring a picnic to eat in our extensive grounds.

ANNUAL EXHIBITION 1984

The Civic Centre, Hounslow has proved to be an excellent venue and we were pleased to book the Centre again on October 6th for our Exhibition. A perfect autumn day was an added bonus. As we have almost come to expect, an enthusiastic company of members and friends, the support of contemporary Societies and the services of leading Natural History Dealers provided a memorable day.

The display of the Conservation Committee was timely, showing posters from the World Wildlife Fund and details of conservation work being undertaken by some of the County Trusts. However the underlying theme was the urgent need for the better marshalling of resources and funds, available from the many bodies engaged in conservation matters. A strong central body was essential, one with authority and sufficient funds to implement decisions.

Reflecting the fine 1984 summer, exhibits were good and the entries of Junior Members the best for several years. We were indebted to C. E. Gardiner and P. W. Cribb who undertook demonstrations on setting coleoptera and lepidoptera respectively, the Members who manned the various AES tables and the Staff of the Centre, including the Caterers, for their valued co-operation. Finally, our sincere thanks to Colin Hart and his colleagues for the splendid organisation of the Exhibition.

Associate Groups with representative displays were:—

- Exotic Entomology Group.
- Insect Behaviour and Ant Study Group.
- Phasmid Study Group.

Other Societies present were:—

- British Entomological and Natural History Society.
- British Butterfly Conservation Society.
- Hertfordshire and Middlesex Trust.

Short descriptions of their exhibits were received from the following:—

AHMAD J. (7590 J) A study of the population densities of Austrian butterflies, relating them to altitude and changing daytime temperatures with diagrams, photographs and specimens.

CARTER T. W. Aberrations of British butterflies.

CHALMERS-HUNT J. M. (1683) *M. niphognatha* Gozmany (Lep. Gelechiidae), A species new to Britain. Male taken by the Exhibitor at Stodmarsh, Kent, 26.6.84. *L. nickerlii* Freyer (Lep. Noctuidae), the Saltmarsh Rustic, from Isle of Sheppey, Kent, 31.8.84.

COPESTAKE D. R. A collection of 80 species of coleoptera taken in 1984 in Oxfordshire that are either rare, local or very locally distributed. *Agapanthia villosoviridescens*, De. G. a very rare longhorn, was shown, and was discovered fairly frequently at two sites to the West of Oxford city. *Ptinus brunneus*, Duft. taken twice appears to be a new record for the County and was found in an old house and a grain store.

COPESTAKE S. (7344 J) (**WINNER OF SIR ERIC ANSORGE JUNIOR AWARD**). The coleoptera of Candleston, a large area of sand dunes in mid-Glamorgan. Eight main habitats were identified and related to their beetle species by photographs, specimens and a relief model.

CRIBB P. W. (2270) Butterflies of the Swiss Engadine, N. Italy and the Valais, mid-July. Continental lepidoptera bred during 1984 including the distinctive *Z. cerisyi Ferdinandi* (Festoon sp.) from Falakron Mt., Greece. A specimen of *C. dia* L. (Weaver's fritillary), taken by Dr. Phillip Cribb on the North Downs, Surrey, August, 1984. A case of British hawkmoths, native and migrant, shown in conjunction with our latest publication, '*Breeding the British and European Hawkmoths*' by Paul Sokoloff.

Also notes and photographs, on behalf of Mr. Maynard, of *B. terrestris* L., (Buff-tailed humble bee) raised in a tea-pot, *L. cervus* L., (Stag beetle) from Hounslow, Middlesex.

Mr. P. W. Cribb has now been advised that some thirty full-fed larvae of Weaver's fritillary were released on the North Downs in mid-summer last year, deriving from stock bred from Var, S. France. Undoubtedly the specimen taken by Dr. Phillip Cribb arose from one of these larvae. It will be of interest to see whether the butterfly can establish itself as the habitat would appear to be ideal.

GARDINER B. O. C. (225) Larvae, cocoons and adults of the American Hickory Tiger, *Halisidota caryae*, reared from eggs received last May.

GARDINER C. J. (5249) Large painted mural depicting the insects and other wildlife on the Wat Tyler Country Park, Pitsea.

HALL N. M. (7859) Specimens, photographs of each stage and equipment used when breeding the hybrid *L. populi* L. Poplar hawkmoth female with *S. ocellata* L., Eyed Hawkmoth male.

HENSON M. (7860 J) A colony of *F. rufa* L., Wood ant from the New Forest, fed on honey, fruit and insects. Also colour photographs of Stick insects.

HODGE P. J. (5335) Coleoptera, Heteroptera and Diptera taken in 1984. Of particular interest were the beetles, *Ptonius dubius* new to the Kent list and *Dermestes maculatus*, *Axinotarsus marginalis* and *Cryptocephalus biguttatus*, new to Sussex list. Of the bugs, *Atoractotomus mirificus*, new to Sussex list.

HOPPER R. (4848) Conservation display by Mid-Devon Natural History Society. A variety of wild life items, photographs and livestock gathered by the Society from expeditions to France, 1981/4.

HOWELL S. J. Mrs (7369) Reference collection of European *Colias* (Clouded yellow) species.

JAMES R. J. BSc. Aberrations of British Pierids. Some simple autosomal recessive aberrations showing both homozygote recessives and wild type including *P. brassicae* ab. *coerulea*, *L. sinapis* ab. *brunneomaculata* *A. napi* ab. *funnebris* and ab. *restricta*. Also the sex limited ab. *helice* of *C. croceus*.

KIRK-SPRIGGS A. (7094) National Museum of Wales, Cardiff. Ectoparasites of House martins. One species of bug, *Oecizus hirundinis*, five species of fleas and one species of fly occurring as ectoparasites on House martins: all figured and the life cycle of *Craterine hirundinis* described. Exhibit included specimens and line drawings.

MAJERUS Dr M. E. N. (4027) Comprehensive display showing genetics and biology of Ladybirds (*Coccinellidae*) with live examples, photographs and charts.

MacNULTY Dr B. J. (4528) A further selection of moths from the Gower Peninsula (W. Glamorgan).

PAYNE J. H. (5923) Wide range of aberrations of butterflies with type specimens for comparison: British, excepting *N. antiopa* (Camberwell beauty).

PENNEY C. C. (3680) and McCORMICK R. F. Selection of macrolepidoptera and pyralidae from British habitats.

PICKLES A. J. & C. T. (5225). Moths taken and bred in 1983/4 including the Scottish and Irish forms of the Transparent burnet (*Z. purpularis* ssp. *caledonensis* Reiss and ssp. *sabulosa* Trem.) Variation in the Large marbled tortrix (*N. revayana* Scop.) and the Orange moth (*A. prunaria* L.).

PRATT C. R. (5965) A geographical series of *L. trifolii* Schf. (Grass Eggar) from the South coast, comparing two Sussex subspecies, *trifolii* and *flava*, with forms found in E. Hampshire and W. Kent. Local moths from Sussex included *E. pygmaeola* Dbld. (Pygmy footman), *D. fascelina* L. (Dark tussock), *R. simulans* Hufn. (Dotted rustic) and the first record of *S. nigropunctata* Hufn. (Sub-angled wave) from Sussex.

REAVEY D. (6934) AES Junior Fieldweek 1984. The story of the Society's first Fieldweek, in and around the New Forest. Told in photographs and contributions by the Junior Members attending

REVELS R. (3942) Large colour prints from his British Wildlife and Countryside Photographic Library covering the life histories of some British butterflies and other nature subjects.

ST. IVO SCHOOL NATURAL HISTORY SOCIETY. Henry Berman and his School Society are flourishing and their attendance, bringing a large variety of wild life is a highlight of the Exhibition.

SANDWELL VALLEY FIELD NATURALISTS CLUB. R. & A. NORMAND showed typical macrolepidoptera from Sandwell Valley (West Bromwich) and *C. diffinis* L. (White-spotted pinion), a new County record. M. G. Bloxham (6551), hoverflies and other diptera including the rare fly, *F. ruficornis* Fabr.

SIMPSON M. S. L. (4859). The variation in *L. coridon* Poda (Chalkhill blue butterfly) from various English localities.

STEPHENSON I. Typical Hampshire lepidoptera collected from 1980/84.

SKINNER B. (2470). *E. abietaria* Goeze (Cloaked pug) from the recently discovered resident population in N.E. Northumberland with photographs of the locality and larva. *L. nickerlii* Freyer (Sandhill rustic) from the marshes of Essex and N. Kent where it was first found this year. Aberrant macrolepidoptera taken or bred in 1984 including melanic *L. monacha* L. (Black arches), from Hertfordshire.

STACEY I. F. (7653) Named aberrations of some common British butterflies with types for comparison.

TREMBATH D. A. (3409). Four drawers of butterflies collected in S. Africa with notes on localities: typical moths from the same area, including Hawkmoths (Sphingidae) which are occasional migrants to Britain. Also some of the more interesting lepidoptera from the Dorking area of Surrey.

R. D. Hilliard (99)

MY ANSORGE AWARD EXHIBIT

By Stephen Copestake

My exhibit for which I won the 1984 Ansonge Award, displayed a collection of beetles from Candleston, also called Merthyr Mawr Warren. Candleston dunes are about three miles from Bridgend, South Wales. Candleston is a large area of coastal sand dunes several square miles in area.

There were eight main habitats where beetles were found. These are: General dunes, a small stream which flows through the season, a small area of sparsely-covered sand which was populated with tiger beetles, a small patch of Black Poplar trees, a limestone ridge, a salt marsh by a river estuary, a spring in the middle of the dunes which dries up in the summer, a remote seashore covered in junk washed up by the sea and river.

The beetles were found on expeditions with my father and younger brother.

Over 270 species were discovered. Some of the more notable beetles were: *Cicindela maritima*, *Strangalia quadrifasciata*, *Nebria*

complanata, *Platycis minuta*, *Chrysolina violacea*, *Hypera dauci*, *Cryptorhynchus lapathi*, *Chalaenius nigricornis*.

Four new beetles to the county that were discovered were: *Deleaster dichrous*, *Panagaeus bipustulatus*, *Aegialia rufa* and *Anthracus consputus*.

The exhibit was accompanied by a series of photographs. Some showed the different habitats, and others showed different beetles, and were taken with my father's camera. Help was given with identification by a few friends.

FIELD STUDY COURSES

Gnats, Aphids and Cow Pats

by Duncan Reavey

Once again the Field Studies Council is holding numerous courses of interest to Entomologists at its various Field Centres.

Council Staff are to give two public lectures about their programmes in the Geological Museum, South Kensington, London, on February 9th and July 13th. Both are on a Saturday, are due to start at 2.30 pm and all interested are welcome. Details of all courses are available from the Information Office, Preston Montford, Shrewsbury SY4 1HW.

The "Flies, Midges and Gnats" course of Dr Henry Disney at Malham Tarn (2-9 August) is a classic; a second course on the same theme to be led by Dr Disney at Juniper Hall, Surrey (4-11 October) is a new feature of the 1985 programme that should prove just as valuable to Dipterists and to any other entomologists looking for a challenge at the end of the season. "Aphids and Sycamores" at Preston Montford, Shrewsbury (11-13 October) will cover sycamore aphids and associated organisms and aims to provide teachers with lots of ideas for school project work.

"The Ecology of the Cow Pat" at Preston Montford (6-8 September) is a fascinating course covering invertebrates in the cow dung community. I went on this course in 1982 and spent happy hours sieving through cow pats collected in the fields next to the Centre and finding all sorts of dung-, bug- and fungus-feeding insects and mites. My main prize was a Sphaerocerid egg! We classified the dung by features like its "musky sweetness" and sorted out the neat succession of communities in different stages of dung decomposition. Lab facilities were excellent, with, for example, binocular microscopes of university standard. Accommodation and food were also very good.

The week-ender can expect to be kept on the move from early morning and (after evening dinner) well into the night. This may be just as well, for there will be keen entomologists, especially the younger ones, who will find the week-end course fee (around £47 plus the travelling) the most they can afford.

A full week (for around £120 plus the travelling) would be great, but . . .

This year the Council has organised a number of overseas courses and these range worldwide. That in July, on butterflies and moths of the Swiss Alps has our member John Heath as joint leader. Details of these trips are available from Ros Evans, Flatford Mill Field Centre, East Bergholt, Colchester, Essex CO7 6VL.

Duncan Reavey

(Your editor has appealed before and now does so again. Will anyone who has attended any of these courses please send an account of it for the Bulletin. He does wonder whether lack of response to previous requests means that members (with one notable exception) just do not attend any of them.)

LETTER TO THE EDITOR

Dear Mr Gardiner,

Further to your recent article in the February 1984 Bulletin entitled 'The Sotheby's Sale' concerning the auction of the National Butterfly Museum (formerly Saruman Butterflies) I would like to add the following.

The sale obviously did not include the total 'National Butterfly Museum' Collections, since many items had been disposed of prior to the October 1983 sale.

Indeed a large portion of the Collection had previously been offered at Christie's South Kensington Salerooms on the 23rd July 1982 at which sale I purchased lots 148 and 149 consisting of Lycaenidae for Glasgow.

You mention that many of the lots especially those containing the rarer and type material were bought by the Allyn Museum of Entomology at Sarasota, Florida. It may be of interest therefore, to learn that the following type lots were purchased for Glasgow.

- 603 PIERIDAE *Metaporia* and allies with many rare Tibetan forms, Co-Type of *Mesapia peloria*, etc.
- 612 PIERIDAE *Cepora*, with Co-Types of *C. julia* from Sumba, *C. temena* from Sumbawa, etc.
- 625 PIERIDAE *Appias* species; Co-Types of *ada* from Biak and other scarce forms.
- 633 PIERIDAE *Valeria* and allies including Co-Types of *V. chinki* from Biak.
- 648 LYCAENIDAE Principally Australasian genera including PARATYPE pair of *Liphya brassolis*, *Ogyris* and *Hypochrysops* species etc.
- 661 LYCAENA Rare Asiatic and Australasian forms including a fine series of *L. Li* from China, *splendens*, *sultan*, etc Co-Types of *Heodes tityrus italaveris* and *italorum*.
- 672 ACRAEIDAE *A. acrita*, *exelsior*, Paratypes of *burgessi* etc.
- 699 NYMPHALINAE *Cethosia* including Co-Types of *schoutensis* from Bosnik; other rare forms and aberrations.
- 714 PSEUDACRAEA *gottbergi*, *kuenowi*, etc. Also Paratypes of *Burgessi*, forms of *deludens*, *glaucina* and *hostilia*.

- 746 *NEPTIS* PARATYPES of *elgonensis*, *venilia*, *ida*, *kahoga* etc.
- 785 CHARAXES *Xiphares*, including Co-Types of *burgessi*, *imperialis pythodoris*, etc.
- 789 CHARAXES 'Black' species including series of *opinatus*, paratype pair of *chittyi*, fine aberrations of *eitheocles*.
- 795 *POLYURA jupiter*, *pyrrhus*, PARATYPE female of *sacco*.
- 812 SATYRIDAE *Corades*, *Pronophila*, *Lasiophila* including Holotype male of *gita* and two Paratypes etc.
C.f. Smart, Encyclopaedia of the Butterfly World p.249.
- 814 SATYRIDAE *Oeneis*, *Coenonympha* including Co-Type of *vaucheri*, *Neominois*, etc.
- 827 SATYRIDAE *Chazara* and allies. Also Co-Type of *Beberia abdelkadar*.
- 881 *GRAPHIUM SARPEDON* The Holotype male of ab. *antenigra* together with a typical specimen (2).
- 883 *PAPILIO NOBILIS* The Holotype female of ab. *josetta* together with a male of the same form. Contained in a small display box (2).
- 884 *PAPILIO CANOPUS BURGESSI* HOLOTYPE male and ALLOTYPE female of this newly described form from the New Hebrides. Contained in a small display box (2).
C.f. Samson Pacific Insects, 24:3-4 pp. 228-331 (copy included with this lot).

We also purchased further foreign lepidoptera many of which are figured by Paul Smart, FRES in the *Illustrated Encyclopaedia of the Butterfly World* published in 1975, and in addition the G. R. Sutton Collection of British Beetles, the Dr R. M. P. Clark Collection of British Beetles and the H. D. Smart Collection of British Hymenoptera.

I understand further lots were purchased by Dundee Museum whilst Brighton Museum obtained some of the Nymphalids to supplement their extensive Collections of this group.

If any member wishes further information on any of the material obtained for Glasgow I would be pleased to assist them. The registration Number of the Collection is Z-1983-224. F. R. Woodward, Deputy Keeper Natural History, Art Gallery & Museum, Kelvingrove, Glasgow G3 8AG.

Yours sincerely,
F. R. Woodward

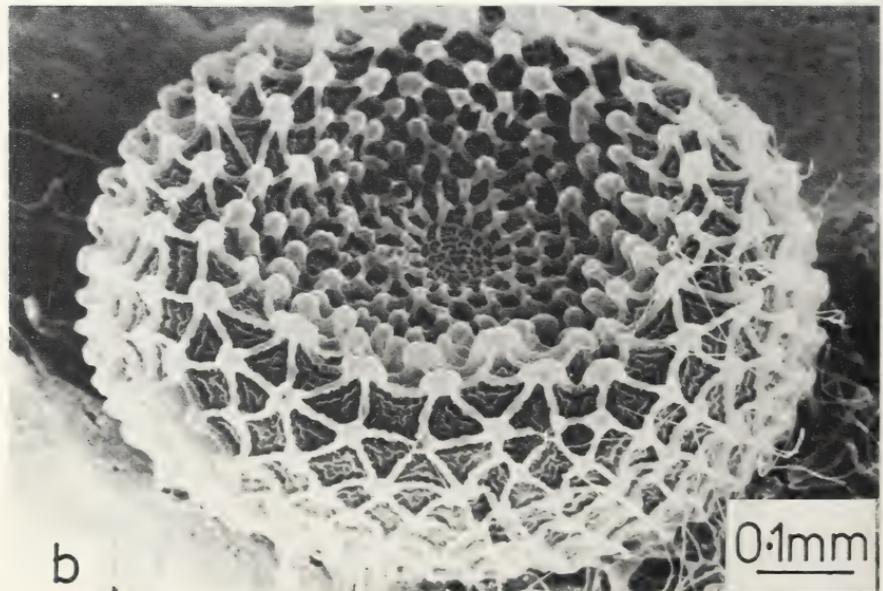
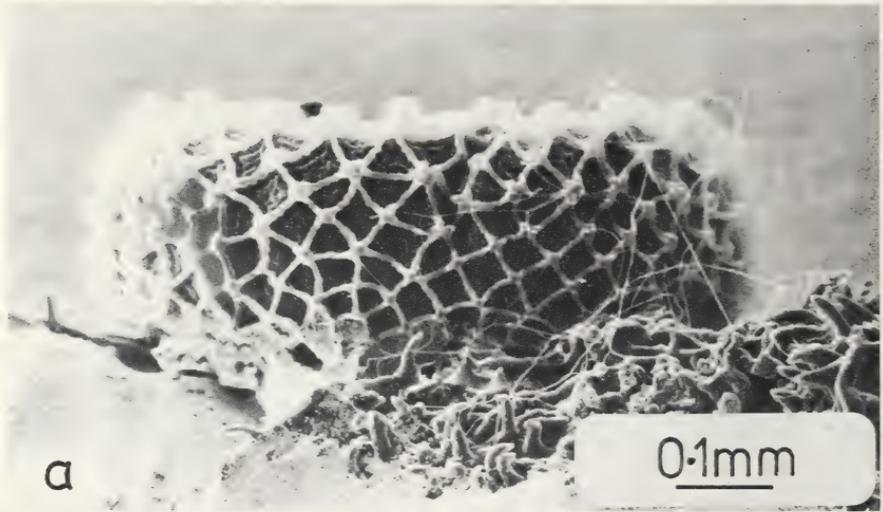
LARGE BLUE SUCCESS

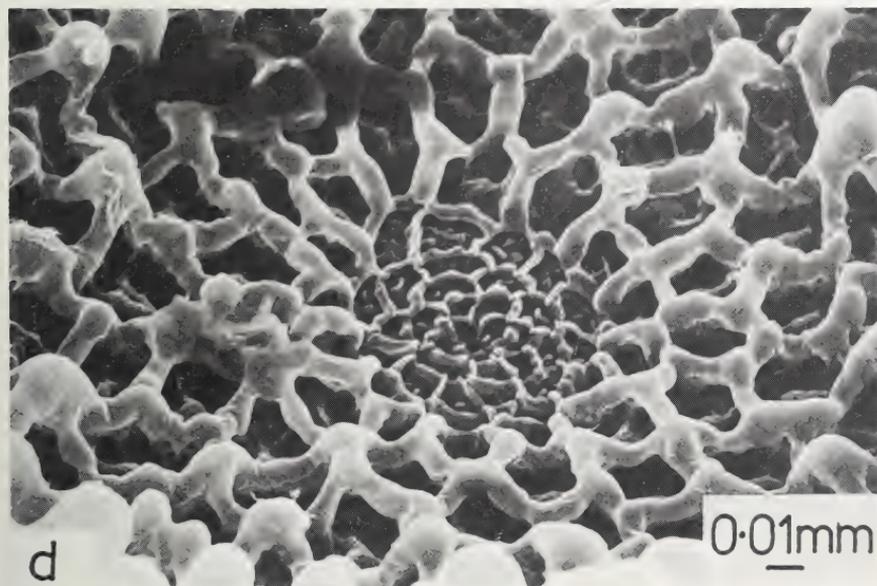
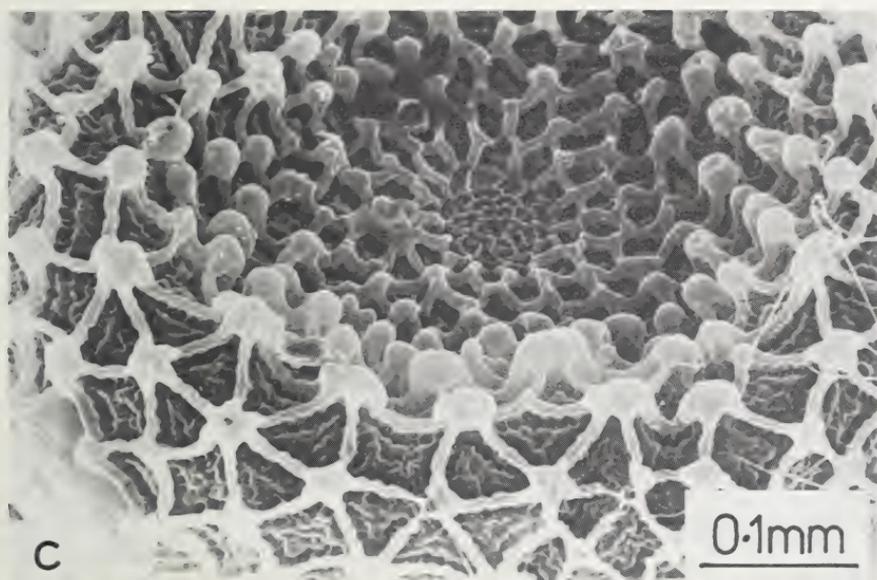
The World Wildlife Fund UK reports that the Large blue butterfly, officially extinct in Britain since 1979, has reappeared in the West Country as a result of a sponsored experiment. The scheme has involved the reintroduction of larvae on old sites artificially managed by the Nature Conservancy Council.

habitat

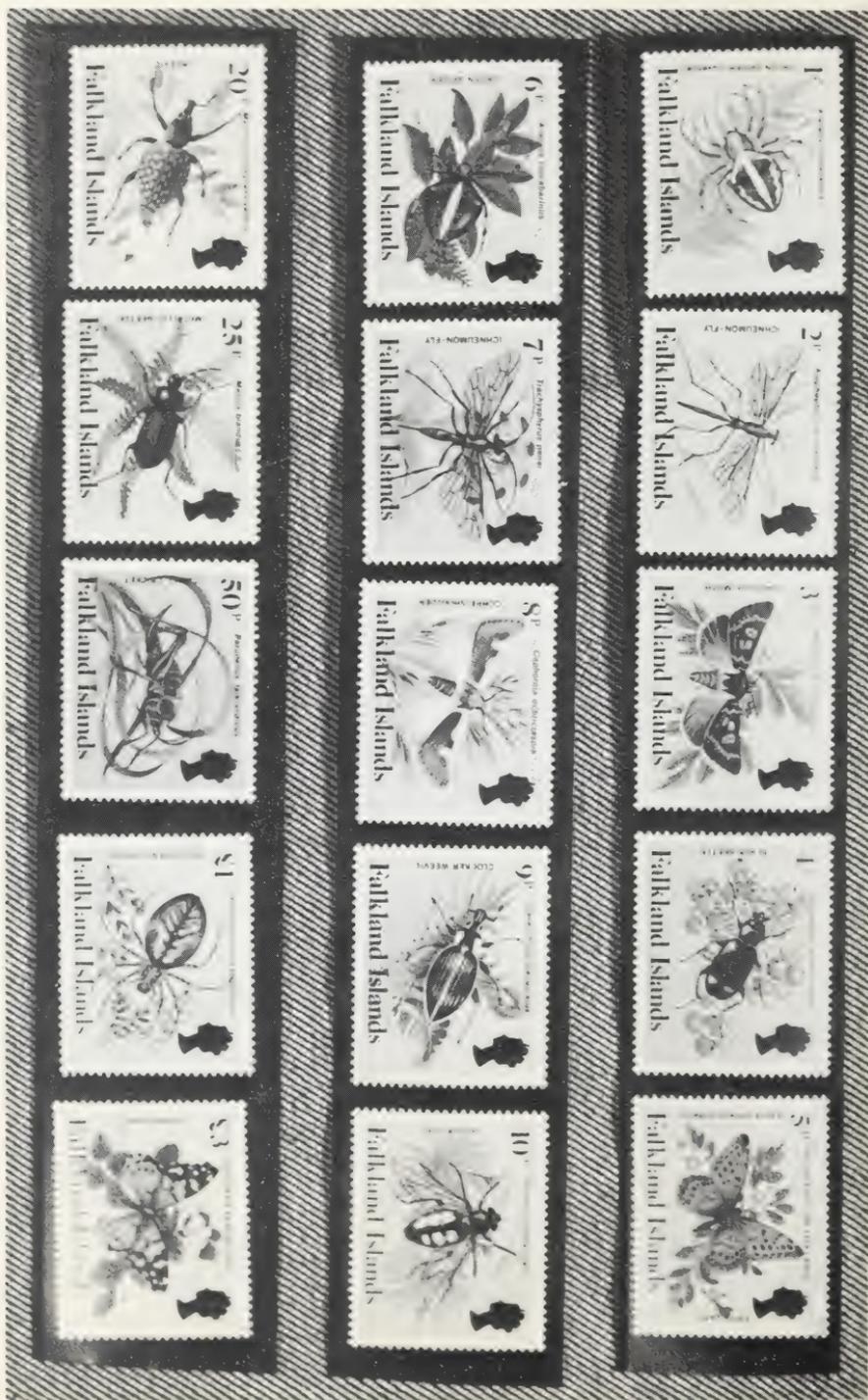
OVUM OF *CELESTRINA ARGIOLUS* (L.), (HOLLY BLUE)

by Richard Tilley (7513)





Scanning electron micrographs of an ovum of *Celastrina argiolus* (L.). (a) and (b) are medium magnification (120x) photographs, while (c) 200x and (d) 440x, show more detail of the micropyle.



THE FALKLAND ISLAND INSECT STAMPS

In the August *Bulletin* last year we promised to feature these stamps, and they are now shown in the illustration on the facing page. We had hoped to give some account of the insects depicted, but in view of the great pressure on *Bulletin* space (many very good items already on hand from members are having to be held-over until next year) decided this must be omitted.

Very many thanks to John Tennent (7756) who supplied the stamps for your editor to photograph.

Editor

WAVED BLACK IN ESSEX

On 22nd August lasy year a male Waved black (*Parascotia fuliginosa* L.) came to the light trap run at my home in Bamber Green, Takely, Near Bishops Stortford, which is in the extreme west of Essex. I should be glad of opinions as to whether it was migrating or is breeding in this area.

G.H.B. Sell (5336)

RED ADMIRAL FLYING IN JANUARY

In connection with the recent article 'Red Admiral no hibernator,' on 20 January 1983 I was with a party of bird watchers near Woodfidley in the New Forest when we saw two *Vanessa atalanta* L. on the wing in bright sunshine at around 11.45 am. As far as I can recall it had been a fairly mild winter in the area up to that date.

Derek K. Jenkins (6626)

STROPHEDRA WEIRANA DOUBLE-BROODED IN CORNWALL

Literature on this tortricid shows it as univoltine, with the moths appearing in June. However, my own observations in Cornwall show that it is at least partially bivoltine here, with moths emerging in May and again in August. Some young larvae found at Milltown on the Fowey river feeding between spun-together beech leaves, on 5th August 1984, were full-fed by the end of the month. But a fresh-looking cocoon found at the same place on the same date produced a moth on 17th August.

John L Gregory (4116)

INTERNATIONAL TRADE IN SWALLOWTAIL BUTTERFLIES

by N. Mark Collins

INTRODUCTION

The worldwide trade in butterflies is big business, running into tens of millions of pounds annually. The number of commercial dealers has risen dramatically over the last three decades and butterflies can now be bought from hundreds of dealers worldwide, but particularly in Hong Kong, Japan, Korea, Taiwan, Malaysia, Western Europe, the U.S.A., Brazil and Peru. Dealers supply a huge range of butterflies and other insects to scientists, museums, butterfly gardens, zoos, private collectors and commercial manufacturing organisations.

Swallowtail (Lepidoptera: Papilionidae) prices range very widely (Table 1) but are generally related to rarity and availability. For those prepared to pay any price, over 80 per cent of swallowtail species are now available. Common species such as *Graphium sarpedon* and *Eurytides stenodesmus* sell for as little as 18p and may be sold in bulk for the curio trade, but thousands of pounds are paid for rare birdwings. An imperfect male specimen of *Ornithoptera alexandrae* was recently advertised for £1,700, and *O. meridionalis* and *O. paradisea* specimens have been offered for £4,200! Up until the 1970s the most valuable butterfly was *O. allotiei* from Bougainville, which sold for £750 at a Paris auction in 1966 (Wood, 1982). *O. allotiei* is only known from about twelve specimens and is thought to be a natural hybrid between *O. victoriae regis* and *O. priamus urvillianus* (D'Abbrera, 1975). The high prices paid for butterflies in recent years have to some extent attracted financiers interested only in a good investment, with little thought for the insects in the wild (Campbell, 1976). There is no evidence that such speculation can regularly produce good dividends; markets fluctuate wildly.

The birdwings tend to attract high prices because they have narrow distributions, but high prices may also be paid for species which are fairly widely distributed but difficult to obtain. In the Himalayan foothills *Teinopalpus imperialis* is difficult to capture because of its strong flight and tendency to keep to the treetops. In 1955 the equivalent of £125 was paid for a single specimen (Wood, 1982), but the price dropped rapidly and the species now costs up to £45 a pair. Species from inaccessible countries rarely appear on the market and when they do they tend to have high price tags. For example, a pair of *Bhutanitis thaidina* from China was advertised by a West German dealer in 1983 for the equivalent of about £135.

An important development in the last decade, particularly in the United Kingdom, has been the rise of the "Butterfly House". These

enterprises have concentrated on providing a display of exotic butterflies under tropical conditions. Butterfly houses need a constant supply of living specimens for display, and although some may be bred, most are obtained as pupae or adults. Using the fast, reliable air freight services now available from many parts of the tropics, burgeoning numbers of exporters can supply a diverse range of beautiful species. A few are available as farmed (bred from parental stock held in captivity), or ranched specimens (conceived by wild parents but reared from young stages under controlled conditions) but it seems that most are simply collected in the wild.

To summarize, there are essentially three different sorts of trade:—

(i) Low value, high volume. Large numbers of common species, often of poor quality are used in a range of ornaments and decorations. The trade of Taiwan is typical of this category, with annual sales estimated at 15 to 500 million butterflies.

(ii) High value, low volume. High quality specimens, sometimes with full data, are sold to museums, students and collectors. Many dealers in Europe, North America and Japan produce catalogues of specimens in this category. Trade from the insect ranching programme in Papua New Guinea is at the top end of this market. Linking (i) and (ii) is the trade in high value, high quality ornamental items. This includes wall mounts and glass domes containing mounted butterflies in life-like settings, and the use of butterfly wings in jewellery.

(iii) The live trade. Fairly low but continuous volume, medium value. Living butterflies, usually pupae or adults restrained in papers, are despatched to butterfly houses. This trade is probably the fastest growing of the three types.

REGIONS OF ORIGIN

(a) The Orient

The Oriental region is by far the richest for swallowtails. The major threat in the conservation of this diversity is loss of habitat from deforestation, agriculture and urbanization. Nevertheless, collecting and trade need to be monitored, particularly where habitat losses have already been severe. In most areas collecting is small-scale, increasingly by Japanese collectors, but there are large-scale international trading centres in Taiwan and Malaysia, and significant commercial enterprises in Hong Kong and Korea (Pyle, 1981).

The Taiwan butterfly trade is vast and employs about 20,000 people, including about 10,000 collectors (Unno, 1974). Estimates of the number of butterflies traded vary from 15 to 500 million (Pyle, 1981). Virtually all butterflies are caught in the wild and sold to the 30 or so factories which

process them (Marshall, 1982). Many species are imported in bulk from overseas, particularly *Morpho* species from Brazil, *Charaxes* from Africa and birdwings from South East Asia. In most cases the bodies are discarded for pig food and the wings are glued to paper bodies with bristle antennae and laminated between sheets of clear plastic. They are then used to make bookmarkers, coasters, table mats, wall decorations and even plastic toilet seats! Others are made into pictures or used to decorate handbags or purses. Taiwan's export trade was valued at £18 million in 1969 (Inskipp & Wells, 1979) and about £13 million in 1976 (Jackman, 1976).

Individual specimens are also sold by a number of dealers in Taiwan, where prices vary according to rarity, size and beauty, from about 12p for a specimen of the endemic *Papilio machaon sylvina* to £30—£45 for the endemic *P. maraho*. Although only a small island (35,960 sq. km.), Taiwan has about 400 butterfly species of which 40 are endemic. About 100 species, including 20 crop pests, need no protection, while the remainder may need some form of management (Marshall, 1982). Between 50 and 60 of these are very rare and the Entomological Suppliers' Association of Great Britain has banned trade in the rare Taiwan endemic *Troides aeacus kaguya* (Heath, 1981). There are no captive-breeding programmes but so far there has been no conclusive evidence that the butterfly industry poses a threat. Urbanization, habitat destruction, air pollution and pesticides seem to be more significant, but careful management will be needed to ensure sustainable exploitation and the long term survival of the butterfly industry (Severinghaus, 1977). The import of specimens to Taiwan from overseas has never been measured and more research is needed. It is not known what effect the market has in the countries of origin.

There is evidence that the trade in *Trogonoptera brookiana* from Malaysia exceeds 125,000 specimens annually, all of which are apparently collected in the wild. Under Malaysian law the species is "protected" but not "totally protected", and collecting is permissible with a permit which is easily obtained. Along with *Parnassius apollo*, all *Troides* and all *Ornithoptera*, *Trogonoptera* is also listed on Appendix II of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) to which 87 countries, including Britain, the European Community and Malaysia are now party. Appendix II listing implies that commercial trading is allowed providing a permit from the country of export is obtained. This is intended to provide a method of monitoring trade levels but there is evidence that most exports of *T. brookiana* are unlicensed. Many dealers sell it in bulk quantities of up to 1,000 specimens and large numbers are used for artwork (Nagano, 1984). In 1983 batches of 100 were on offer for £12—£18. The species may be ranches or farmed, but breeding localities, foodplants and habits of the young instars are being kept a closely-guarded secret (D'Abrera, 1982). The main threat to *T. brookiana* and other Malaysian butterflies is habitat destruction

rather than trade. Nevertheless, the trade in this species should be carefully monitored since the population may be brought to such a low level by loss of habitat that a continuation of heavy collecting could be a serious threat (Owen, 1976).

There is little information on trade in the Philippines and Indonesia although collecting by tourists, private collectors and local people on behalf of dealers is said to be affecting some species, including the endangered *Papilio chikae* in Luzon. Indonesia has legislation protecting certain species, mainly birdwings, but it is not known how effective this has been. Some of the species are often advertised in dealers' lists.

Butterfly trading in India and Indochina is now quite extensive and occurs at all levels, from personal collectors to substantial businesses. In South Korea the decline in populations of species such as *Parnassius bremeri*, *Papilio demetrius*, *P. machaon* and *P. macilentus* has been partly attributed to over-collection (Kyu, 1982). There is little information from Thailand, but at least one Bangkok business uses local collectors to provide material for the international market. In the mountains around Kathmandu in Nepal collecting at times reaches absurd proportions. There are reports from Phulchoki Mountain that encampments of foreign entomologists wait for hill-topping males of *T. imperialis* and kill every specimen that flies in. The Nepal government requires a permit for collecting, but the legislation seems to be openly abused. There is also a substantial market in specimens offered by street hawkers in Kathmandu. In 1980 the Government of India passed an amendment to the 1972 Wildlife Protection Act listing a large number of butterflies as fully protected. This certainly helps to draw attention to the need for restraint in collecting certain species, but the law is very difficult to enforce. Some foreign tourists visit northern India specifically to collect butterflies that are known to be protected. Capturing material for personal study would no doubt be acceptable, but there are fears that large numbers of specimens find their way to the market-place.

China has one of the world's largest swallowtail faunas, but because of its relative inaccessibility in recent years many species still remain poorly known. However, during the 1980s Japanese entomologists have travelled in the rich collecting areas of Yunnan and Sichuan, bringing back little known species such as *Bhutanitis mansfieldi*. There is evidence that local Chinese have been trained to collect specimens and are regularly sending material to Japan. Large numbers of *B. thaidina* have been traded in this way. The export of material from China for academic study is greatly to be encouraged, but the build-up of a large commercial operation should be viewed with caution. Many high altitude species are very local and have short flight seasons; they may be vulnerable to over-exploitation. Monitoring of the trade would be advisable. There are opportunities for summer butterfly ranching programmes in western China, worthy of

investigation as a source of butterflies for dealers, a seasonal income for local people and a means of protection for the butterflies.

(b) *Australasia*

There is relatively little commercial trade in butterflies in Australia, partly because of the low numbers of amateur enthusiasts in that country. The few commercial enterprises have perhaps as much as 80 per cent of their trade originating outside the country. Endemic swallowtails of particular interest, such as *Graphium macleayanum* and *Protographium leosthenes*, have been intermittently in trade but have not been offered for some years. The endemic birdwings, *O. richmondia*, *O. euphorion* and *O. priamus pronomus*, are in demand and also in trade, but not in large numbers. These species, together with the endemic subspecies of the Blue Mountain butterfly, *P. ulysses joesa*, are protected in Queensland; however, the main threat to all these butterflies is destruction of the rain forest habitat rather than commercial collecting. Other Australian swallowtails are occasionally offered, including *Cressida cressida*, commonly called "Big Greasy" because of the way it rapidly loses its wing-scales, producing a greasy effect. The Australian papilionid fauna is a small one and the commercial trade is generally low in volume and high in quality and value.

Papua New Guinea probably runs the best example of a high value, low volume trade, exporting high quality specimens of native butterflies (National Research Council, 1983). The spectacular birdwings of the genus *Ornithoptera* are the greatest attraction for collectors and an important natural resource for the country. Mainly because of habitat destruction, but possibly aided by collecting, some species have become very rare, in particular *O. alexandrae*. In 1968 the seven rarest *Ornithoptera* species, i.e. *alexandrae*, *allotiei*, *chimaera*, *goliath*, *meridionalis*, *paradisea* and *victoriae* were protected by a national law to prevent collecting. In the early years the law was abused, with smugglers reputedly earning up to £480 per specimen of *O. alexandrae*, but this has since been stopped (Inskipp & Wells, 1979).

Before Papua New Guinea's independence in 1975 all collecting was carried out for expatriate dealers by native collectors. They often received as little as 12p for butterflies which could fetch up to £150 overseas (Cherfas, 1979). A few years ago a butterfly dealer visited the island of Nimoa, south-east of Papua New Guinea, and persuaded villagers to collect hundreds of adults and chrysalids of the spectacular birdwing *Ornithoptera priamus caelestis*, endemic to the Louisiade Archipelago. The villagers were paid trifling sums for a haul of several hundred butterflies worth about £3,000 (Pyle, 1981). Not only were the villagers exploited, but no more birdwings were seen in the vicinity for many years. Eventually they were artificially reintroduced from a population on the other side of

the island and are now back in trade. Since independence, only nationals have been permitted to profit from the trade, which is now co-ordinated by the Insect Farming and Trading Agency at Bulolo. The I.F.T.A. pays the villagers all profits less 25 per cent. Villagers are encouraged to ranch or, to a lesser extent, collect the commoner unprotected species such as *O. priamus* and *Troides oblongomaculatus*. By 1978 over 500 people were involved in this rapidly expanding village industry.

A large number of other Papuan butterflies are collected as adults but these are mainly common species such as *Graphium sarpedon* and *G. agamemnon*. Adult *G. weiskei* are collected only as adults because the food plant and larval biology are unknown. This species may be common in some areas but occasionally collection has to be halted for anything up to a year whilst the numbers increase (Pyle & Hughes, 1978). *O. victoriae* is common on Bougainville and the I.F.T.A. may in future recommend its removal from the protected list in order to allow ranching. *O. chimaera* and *O. goliath* have also been suggested as good candidates for future ranching projects although their foodplants are more difficult to cultivate. As well as being a valuable village industry in Papua New Guinea, the butterfly ranching project demonstrates that butterfly trade and conservation can be of mutual benefit and the future could be promising for both the trade and the ranching programme.

(c) Africa and Madagascar

Large numbers of African *Charaxes* (Nymphalidae), *Papilio* and other genera appear on dealers' lists. Many are only listed as being from Africa, West Africa or East Africa, but the Central African Republic, Madagascar, Malawi and to a lesser extent Congo and Gabon seem to be regular suppliers. Malawi is chiefly a source of *Charaxes* species, whereas both the Central African Republic and Madagascar are suppliers of a wide range of butterflies.

Reports from the Central African Republic indicate that every year for the past fifteen years hundreds of thousands of butterflies have been indiscriminately caught by hundreds of local collectors for sale overseas. Collecting of this sort could have an effect on some species or populations. More information is needed from this and other African countries. Some nations would benefit from a farming or ranching scheme, particularly for *Papilio* and *Charaxes*.

Madagascar is well known for its unique and endemic fauna, including many butterflies. There is no commercial ranching and specimens are collected by local collectors for expatriate dealers. The collectors are usually untrained and are only interested in large numbers of different species. The resulting indiscriminate collecting may be highly destructive and wasteful since many specimens are damaged and later discarded. Female *P. morondavana*, a large black and yellow threatened swallowtail,

can command prices up to £90. Other valuable Malagasy species are the two rare species *P. groesmithi* and *P. mangoura*, and the more common *G. evombar*. Specimens from Madagascar are subject to a heavy export tax but the fact that some species are common and cheap on many dealers' lists may indicate large-scale smuggling.

The African species commanding the highest prices are often large and spectacular, such as *P. antimachus* (£10-£20) and *P. zalmoxis* (up to £10). Others are very rare, such as *P. sjoestedti* from Tanzania, which has been commanding particularly high prices (up to £125), or *P. leucotaenia*, which is restricted to relict forests in Central Africa. Collecting is normally done by local people for overseas dealers. In Africa there is no legislation preventing the collecting of butterflies except in Kenya, where a permit is required to collect Lepidoptera and Coleoptera, and the Province of the Cape of Good Hope, South Africa, where 17 Lepidoptera are protected, none of them swallowtails.

(d) South and Central America

Commercial trade in the Caribbean Islands is very variable in extent. There are many endemic taxa of swallowtails in the Caribbean, particularly endemic subspecies, but on the whole these have been little exploited. Some of the commercial collecting in Jamaica has caused unease, particularly the exploitation of the endemic, and very valuable, *P. homerus*. A female was advertised in the U.S. in 1984 for about £1680. One commercial enterprise is established in the Dominican Republic, but most trading activity in the Caribbean Islands seems to be by visiting dealers from elsewhere, particularly the U.S.A. Apart from the trade in swallowtails from Jamaica and Hispaniola, highly-priced specimens of *Battus devilliers* (from the Bahamas) have recently been offered and other species from various parts of the Caribbean are advertised from time to time. On the whole, however, the volume of trade is low, is concentrated on the high value end of the market, and is not to be compared with the volume of trade in butterflies from Peru, Brazil or even Mexico.

Butterfly 'farms' exist in Costa Rica and some species of *Morpho* (Morphidae) and some swallowtails are ranched in Brazil (Pyle, 1979). The beautiful iridescent blue *Morpho* butterflies are much in demand for high quality jewellery and other decorative purposes and 50 million a year are captured in Brazil alone (Carvalho & Mielke, 1972). Although the law requires that morphos in trade must have been farmed, there is evidence that the bulk of the trade is in wild-caught specimens (National Research Council, 1983). Survey work is needed to assess the impact of this trade. In Brazil one butterfly, *Parides ascanius*, is completely protected by law and another, *Eurytides lysithous harrisianus*, has been proposed for listing (Wells, Pyle & Collins, 1983; Collins & Morris, 1985). In Honduras there is a low value, high volume trade similar to that in Taiwan, but on a

smaller scale (Pyle, 1981). In Peru there is a considerable insect industry, with large numbers of swallowtails coming out of the classic Tingo Maria and Rio Satipo regions as well as other areas. A major butterfly collecting company reportedly operates in Columbia (Nagano, 1984). Mexico has a large export trade in butterflies, all of which is required to be licensed under Mexican legislation. Butterflies originating in Bolivia, Columbia, Costa Rica, Ecuador and Venezuela are also not uncommon on dealers' lists.

(e) North Temperate Regions

In general the trade in temperate species is for serious collectors rather than the ornamental market. Butterflies of the Palaearctic region are often in demand and although some farms exist, most species are collected as young stages or adults in the field. Eastern Palaearctic species are particularly difficult to obtain and China has species of *Papilio* and *Parnassius* that would be suitable for farming or ranching. There is extensive European legislation to prevent and monitor butterfly collecting and trade. Being party to CITES, the European Community States are obliged to monitor trade in birdwings and *Parnassius apollo*. Some or all native Papilionidae are protected in Austria, Czechoslovakia, Finland, France, East Germany (DDR), Luxembourg, Netherlands, Poland, Switzerland, Great Britain and the U.S.S.R. (Lithuania). Turkey has a complete ban on collecting and export of butterflies, although there is evidence of abuse of this law by tour operators. In the U.S.A. the Floridan subspecies *Papilio aristodemus ponceanus* (Schaus' Swallowtail) is currently proposed as endangered under the 1972 Endangered Species Act, but *P. andraemon bonhottei* is proposed for delisting as a result of its improved circumstances.

BUTTERFLY TRADE AND CONSERVATION

The impact of private collectors

The major threat to swallowtail butterflies is loss of habitat caused by human actions (Collins & Morris, 1985). Urbanisation, deforestation, overgrazing, agricultural intensification, expansion of subsistence agriculture and atmospheric pollution all take their toll. However, in a small number of cases irresponsible over-collection can cause a permanent decline. This is particularly true if the species has a very small range, has naturally low populations and low reproductive rate, or has already been severely reduced by other impacts (Owen, 1974). Even some wide-ranging butterflies may have vulnerable isolated populations. In 1926 a collector tried to wipe out an entire local population of *Parnassius apollo* in the Italian Alps in order to increase the value of specimens already possessed (Bourgogne, 1971).

Collecting of species that are already known to be threatened can only be regarded as irresponsible. Species of particular concern in this respect include *Papilio homerus* from Jamaica, *P. chikae* from Luzon, *P. hospiton* from Corsica and Sardinia, and the uncommon Malagasy species *Papilio morondavana*.

There is concern about the increasing number of organized collecting tours. Collecting a few specimens for private study generally does no harm, but it now seems to be common practice to collect excess specimens for sale to dealers. There is a danger that collectors may be unable to recognize when they are depleting butterfly stocks below the threshold of recovery, particularly when they only visit the breeding areas for short periods of time. Tour operators have a long-term responsibility despite their short-term interests and they should carefully consider the implications of their actions. They have already been accused of causing serious reductions in the butterfly populations of some areas of the Himalayas (Dasgupta, 1979). In India, Nepal and Turkey collecting tours are abusing national laws unless they hold licenses.

In countries with large areas of natural habitat, small numbers of private collectors are most unlikely to have a significant impact on butterfly populations. Even when butterflies are protected within national parks there would generally be no harm in permitting amateur collecting on a small scale. Private collecting of butterflies can be an instructive hobby and is important for research into faunistics, ecology, population dynamics, genetics and taxonomy. It is particularly important that entomologists are not dissuaded from genuine studies by unnecessarily severe restrictions.

The replacement of butterfly catching by butterfly watching is greatly to be encouraged, particularly in countries where natural habitat is under severe pressure. At the turn of the century ornithologists began to exchange their shotguns for binoculars and cameras. With lightweight equipment now widely available, there is no reason why lepidopterists should not follow suit (Pyle, 1984; Whalley, 1980).

The impact of commercial collectors

Commercial collecting can be an important source of revenue and should not be dismissed as necessarily harmful. If populations are harvested in a sustainable manner, then both conservation and commercial interests can be satisfied. Habitat destruction is the main cause of decline in butterfly populations, but there is a danger that commercial collecting levels that were sustainable in the past may become damaging in the ever-decreasing areas of suitable habitat. Responsible commercial collectors should take all possible steps to conserve the habitats in which they collect. This is clearly essential for both trade and the species.

Commercial collecting has not been independently assessed in any of the main tropical centres of origin. There are insufficient data to judge whether monitoring or regulation of the trade is warranted. The evidence that millions of specimens are now involved in the international trade in ornaments is disturbing and research into the origin and extent of this trade is urgently required. In Taiwan the butterfly populations are reputedly remaining constant despite the enormous pressure on them, but there is a need for an independent assessment. Similarly the main collecting areas in South America and Africa require further research, not only to protect the butterflies, but also to ensure long-term rational utilization of the resources that are the livelihood of many people. Where possible, captive breeding should be encouraged in order to provide high quality specimens for the trade, to provide local employment, and to ease the pressure on wild populations. At present, less than ten percent of swallowtail species are known to be farmed or ranched (Table 1).

Island populations are particularly vulnerable to excessive collecting as well as habitat destruction. For the giant birdwings of New Guinea, Indonesia and the Solomon Islands the problem is exacerbated by low fecundity. In such cases trade does need to be controlled and in Papua New Guinea the butterfly ranching programme is a good example of how this can be done successfully.

There is controversy over the effect of removing large numbers of males from butterfly populations. Males tend to be collected more than females because they are often brighter and more easily captured on hilltops or at baits. One male may be capable of fertilizing several females, but there is little information on the degree of male depletion a population can withstand. In Brazil, where 50 million male morpho butterflies enter the trade annually, a survey showed a ratio of ten to several hundred males to every female in most species (Carvalho & Mielke, 1972). It was concluded that commercial collecting was not a threat. However, these sex ratios have been widely disputed since the habits of females make them much more difficult to capture and the sex ratio of captive-bred butterflies has not been shown to depart significantly from 1:1.

International or national legislation, or voluntary restrictive codes, are increasingly necessary in regions where habitat destruction is so extensive that the relatively minor effects of collecting may come to have a serious impact (Heath, 1981; Lepidopterists' Society, 1982). However, such laws or codes are inadequate unless suitable habitat is also protected. Abolition of butterfly collecting often serves only to distract attention away from the real problems of habitat destruction and does little to protect the butterflies. Nevertheless, this is no excuse to abuse such laws, which often draw much-needed attention to the serious plight of many species of butterflies around the world.

NUMBER OF SPECIES

Table 1: The genera of swallowtails, with data on the number of species, threatened species, legislation, artificial rearing and prices since 1980. Full details for all species are given in Collins and Morris (1985).

TABLE 1

Genera	Total species	Threatened§	More data needed**	Listed in law	Ranched or farmed	Sold in price ranges§§							
						A	B	C	D	E	F	G	H
<i>Baronia</i>	1	1	-	-	-	1	1	-	-	-	-	-	-
<i>Archon</i>	1	-	-	-	-	-	-	1	1	-	-	-	-
<i>Hypermnestra</i>	1	-	-	-	-	-	-	-	-	1	-	-	-
<i>Parnassius</i>	37	2	10	*11	1	2	7	8	13	7	4	1	-
<i>Sericinus</i>	1	-	1	-	-	-	1	1	-	-	-	-	-
<i>Allancastris</i>	4	-	3	-	-	-	-	1	2	-	-	-	-
<i>Zerynthia</i>	2	-	1	2	2	1	2	2	1	-	-	-	-
<i>Bhutanitis</i>	4	2	2	2	-	-	-	-	1	1	1	1	-
<i>Luehdorfia</i>	3	1	2	-	-	1	2	2	-	-	-	-	-
<i>Iphiclides</i>	2	-	-	1	1	-	-	1	-	-	-	-	-
<i>Teinopalpus</i>	2	1	1	1	-	-	-	-	1	-	1	-	-
<i>Meandrusa</i>	2	-	1	1	-	1	1	2	2	-	-	-	-
<i>Eurytides</i>	52	2	4	1	7	23	16	19	6	1	1	-	-
<i>Protographium</i>	1	-	1	-	-	-	1	-	-	-	-	-	-
<i>Lamproptera</i>	2	-	-	-	-	2	1	-	-	-	-	-	-
<i>Graphium</i>	92	8	13	5	6	38	26	41	25	10	6	3	-
<i>Battus</i>	14	1	2	-	1	8	2	8	-	1	1	1	-
<i>Euryades</i>	2	-	-	-	-	-	-	1	2	-	-	2	-
<i>Cressida</i>	1	-	-	-	-	-	1	1	1	-	-	-	-
<i>Parides</i>	45	3	13	1	4	16	19	17	9	3	1	-	-
<i>Atrophaneura</i>	46	4	18	7	4	11	12	21	18	7	1	-	-
<i>Trogonoptera</i>	2	-	-	*1	1	1	1	2	2	-	-	-	-
<i>Troides</i>	21	3	3	*13	1	-	4	13	13	7	4	4	-
<i>Ornithoptera</i>	13	7	3	*9	1	-	-	3	7	8	6	9	9
<i>Papilio</i>	222	26	32	14	26	66	75	114	59	31	11	5	1
Totals	573	61	111	68	55	171	172	258	163	77	37	26	10

§ Species in IUCN threatened categories Endangered, Vulnerable, Rare or Indeterminate; definitions in Collins and Morris (1985).

** Species which are either too poorly known for their conservation status to be assessed, or are not threatened but are known to be under pressure and require careful monitoring.

§§ Maximum prices in these ranks are A £0.60p, B £1.20, C £5, D £20, E £50, F £100, G £1000, H over £1000.

* In addition to the listings in national laws, *Parnassius apollo* plus all species of *Trogonoptera*, *Troides* and *Ornithoptera* are listed on CITES Appendix 11.

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(Editorial Note: This article is an edited and abbreviated extract from "Threatened Swallowtail Butterflies of the World — the IUCN Red Data Book" by N. M. Collins and M. G. Morris, published by the International Union for Conservation of Nature and Natural Resources, Cambridge. The cooperation of the authors, their assistant M. Morton, IUCN, UNEP, WWF, and the many correspondents who supplied data for the book, is gratefully acknowledged.)

GUERNSEY BUTTERFLIES IN AUGUST 1984

On the 13th August last year I arrived in Guernsey to stay with my brother for a week and during that time I came across the following butterflies:

14th August at Fort Houmet: Small white, Greenveined white, Meadow brown, Wall, Holly blue.

14th August at Pembroke: Small white, Greenveined white, Holly blue.

15th August at Le Vildico: Small tortoiseshell, Meadow brown, Small white, Greenveined white.

16/17th August at Le Vildico: Painted lady, Gatekeeper.

16th August at Port Soif: Small white, Greenveined white, Wall, Holly blue, Meadow brown, Gatekeeper.

16th August at Fort Portelet: Small white, Greenveined white, Meadow brown, Grayling.

16th August at Fort Richmond: Small white, Greenveined white, Meadow brown, Wall.

16th August at La Villiaze: Meadow brown, Small tortoiseshell.

17th August at Icort Point: Small white, Meadow brown.

18th August, during a day trip to the Island of Herm: Painted lady, Red admiral, Small tortoiseshell, Small white, Greenveined white, Meadow brown, Gatekeeper, Wall, Holly blue, Speckled wood.

All those on Herm, with the exception of the last species were enjoying the nectar from a large buddleia bush on the east side of the island. I also found colonies of Cinnabar larvae feeding on ragwort (also found at Fort Houmet back on Guernsey) and a single peacock larva happily wandering along a footpath.

John Green (4932)

SMALL PLANTS ATTRACT ATTENTION!

Choice of egg-laying sites in the Greenveined white butterfly (*Artogeia napi* (L.) Lep., Pieridae

By Roger Dennis (5851)

INTRODUCTION

A growing body of information is beginning to accumulate on egg-laying behaviour in butterflies and with this is revealed a wide range of adaptations. Among Pieridae occurring in Britain, the Small white (*A. rapae* L.) and the Orange tip (*Anthocharis cardamines* L.) in particular have been subjected to detailed study (Ives 1978; Jones 1977, Jones and Ives 1979; Wiklund and Ahrberg 1978; Courtney 1980, 1981, 1982; Dennis 1982, 1983, in press). Perhaps most remarkable among the adaptations disclosed is the tendency of many butterflies to lay their eggs on the edge of hostplant plots rather than in the centre. This has been observed in *rapae* (Harcourt 1961; Kobayashi 19655; Jones 1977); *cardamines* (Wiklund and Ahrberg 1978; Courtney 1980; Courtney and Courtney 1982; Dennis 1982, 1983a, b, in press) and in *Pieris brassicae* (Gardiner, pers comm.). Also the same three species are attracted to larger plants (Ives 1978, Courtney 1981, Dennis in press), in the case of *brassicae* Courtney (pers comm.) has seen them selecting large specimens of Woad (*Isatis tinctoria* L.) in North Africa.

Ives (1978) looked at egg-laying responses of *rapae* to differences in size, quality and the spatial distribution of available egg-laying sites, a study carried out at three scales; between leaves on the same plant, between plants within a patch and between patches of plants. He found that the butterflies lay most eggs on larger older leaves of larger plants but that the oldest plants are sometimes avoided. Of plants the same size, younger ones are selected, but preference for variety of crucifer can override selection by size. In his study, the descending order of preference was: cabbage, kale, brussels sprouts and radish. By comparison, Courtney (1982) has discovered that *cardamines* is so attracted by larger and more apparent hostplants that females often lay most eggs on the least suitable plants. A range of 'size factors' at different scales has been shown to attract the butterfly which lays its eggs on the flowerhead of crucifers; such are larger dense patches of hostplant; taller plants; larger and more numerous flowers (Dennis, 1983c). However, as with *brassicae* (Rothschild and Schoonhoven 1977), the response of *cardamines* to plants is further influenced by the presence of eggs; in which case larger plants with eggs would be avoided. Ives and Jones (Ives 1978) have found that Canadian and Australian *rapae*, in contrast to British ones (Rothschild 1977), do not discriminate against plants with eggs.

In north Cheshire, ley grass and cereal fields with crucifer 'weeds', for instance turnip *Brassica rapa* often attract numbers of *napi*, *rapae brassicae*. All three have been seen ovipositing in the same field and a wide range of other activities has been noted as well, including courtship, female harassment, mate location, skirmishing and feeding (cf., Dennis 1982). Casual observations of several *napi* females ovipositing on turnip seedlings amongst barley stubble in August 1983 disclosed some selectivity but for small rather than large plants. This report provides a formal description of the behaviour.

METHODS

Three different techniques were attempted in order to obtain sufficient data. Two of these involved comparing plants directly, the first by assessment of *B. rapa* with and without eggs in randomly placed quadrats; the second by determining the relative frequency on large (largest leaf > 8cm) and small plants (largest leaf < 5cm) respectively. However, it soon became clear that egg frequency on the large population of turnip (> 500,000) was too low for these techniques to be successful. Only one egg was found on 200 plants searched.

Instead, females were followed and the position of plants marked on which eggs were laid. Plants with eggs were then later compared with others selected by the random placement of 50cm² quadrat, three plants per quadrat being selected on the basis of proximity to a marker on the midpoint of three sides. The number of leaves on each plant was counted and the length taken of the largest leaves. Similarly the length of leaf on which the eggs were placed was measured.

RESULTS AND DISCUSSION

Twenty-six plants with eggs were located by following six females. These have been compared with 75 plants obtained from 25 quadrats. Summary statistics are given in Table 1, including means and standard deviations for the number of leaves and leaf length. A large distinction occurs between the size of plants selected and those available in the field. Female *napi* actively select small plants (Mann Whitney U (26,25) = 97, $z = 4.296$, $p < 0.00003$). As can be seen from Table 1, quadrats contain both larger and smaller plants than the average figures. Small plants are well distributed, there being no distinction between the smallest plants per quadrat and those ultimately selected by females ($t_{(49)} = 0.6658$, $p > 0.1$). It should be borne in mind that no attempt was made to measure the smallest nor the largest plants per quadrat.

	Mean (cms)	Standard deviation (cms)
Plants with eggs.		
Number of leaves	5.115	1.366
Size of leaves with eggs	3.004	1.548
Size of largest leaves	3.258	1.687
Quadrat data.		
1. Total sample.		
Number of leaves	6.140	1.234
Size of largest leaves	5.677	2.455
2. Largest plants		
Number of leaves	7.400	2.381
Size of largest leaves	8.072	3.615
3. Smallest plants		
Number of leaves	5.280	1.430
Size of largest leaves	3.584	1.805

Table 1. Summary statistics of turnip plants available to and used by *A. napi* in a barley stubble field near Ashley in Northern Cheshire.

These points were clearly evident from just following the females. The butterfly engages in random flight, low down, often backtracking or circling, covering the same ground twice, and weaving in and out of the hostplants. Further evidence of selective behaviour comes from inspections which the females make on contact with the plant; rejection of plants which occurred from time to time despite examination with the tip of their abdomen; the selection of tiny seedlings (<1cm leaf length) amid plants vastly more apparent and the avoidance of dense areas of turnip with very large individual plants. The failure of size to attract *napi* was confirmed by actively searching for and failing to find eggs on the largest plants in dense patches (0 eggs in 150 plants, compared to 1 egg on 100 small plants). The butterfly lays its eggs in low density areas (Courtney unpub. paper) of hostplant and thus is another candidate for the edge effect scenario.

Some other interesting points were also gleaned. Generally the females conceal their eggs on the underside of leaves, and are quite prepared to work their way down below the plants, occasionally having difficulty in escaping. Two eggs were laid on the upperside of leaves and another female 'missed', the egg being placed on a grass blade. Mechanical problems were also noticed inasmuch as females sometimes failed to curl their abdomens sufficiently to touch the underside of a leaf and having been unsuccessful moved on. On only two occasions were two eggs laid instead of the usual one. Females seemed to choose exposed leaves to lay

on; although one of the largest leaves (the leaves are in pairs) are often chosen (16 of the 26 cases), this is not invariably so ($t_{(25)} = 3.057, p < 0.01$).

Much of the varied nature of egg-laying behaviour in butterflies has adaptive significance. Thus the discrimination against plants already bearing eggs has its logic in the risks of cannibalism, competition for food and the possible local increase in density of predators and parasites. Selectivity for hostplant size has also been explained for some species. Thus Courtney (1982) has shown that there is a selective advantage even in the case of the apparently maladaptive behaviour of *cardamines* in loading its eggs on the largest but least suitable hostplants. In modelling the situation he has demonstrated that where foodplant related mortality is small compared to egg shortfall, for instance due to poor weather, selection for increased fecundity outweighs that for increased specificity of foodplant. *A. rapae* females are also attracted by large plants but a complex balance of conflicting pressures leads them to laying their eggs on middle-aged plants. Jones and Ives (1979) have shown that young larvae develop faster and survive better on young plants than old ones, but larvae on smaller plants are more susceptible to crowding effects and drowning. Conversely, laying on old plants reduces the risks of starvation but lowers survival and developmental rate of the early instars. They have found that females are more likely to land on a large host than on a small one, but having landed are more likely to lay on a young plant than on an old one. The reasons for butterflies laying more eggs on the edge of plots than in the centre is as yet unclear. Both non-adaptive (Jones 1977, Courtney and Courtney 1982) and adaptive (Dennis 1983c; 1984) causes have been suggested although the reasons are likely to differ for separate species. Certainly, butterfly behaviour is more flexible than hitherto thought possible. By way of example, Jones and Ives (1978) detail the different flight activity of *rapae* in Australia and Canada, both originating from European stocks in recent times.

Regarding *napi*, it is necessary to know why females should choose small plants, often very small plants, and avoid dense patches (incidentally behaviour which has been confirmed in Sweden and recorded for another butterfly, *Pontia daplidice* by Forsberg, J.; Courtney, pers comm.). It is likely that small plants allow rapid development of larvae, as in the case of *rapae*. Usually, the small hostplants chosen present an inadequate resource for total larval development, but starvation is unlikely on agricultural crops as larger plants are available nearby for later instars. As for avoidance of dense patches, *napi* may not so much avoid them as simply miss them or fail to be attracted by them. In the Cheshire example, lines of dense patches occupied a small part of the total field area. This behaviour of *napi*, selecting small plants, may hint at the reasons why it has not become a serious agricultural pest on Brassicaceae as has its close relative *rapae*. Agricultural brassicas (crucifers) may be chemically unsuitable, the recently hatched larvae able only to tackle

young succulent hosts. It would be interesting to know how later instars manage with mature plants and if females select small hosts amongst natural crucifers. Other factors have been presented as reasons for *napi* not becoming a pest, in particular, compared to *rapae*, its much lower fecundity and its preference for shaded conditions (Ohsaki 1979; Yamamoto 1981). However, in this example, and elsewhere in Cheshire, it regularly oviposits in open situations. Evidently, much room exists for detailed research on this topic.

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AN OVIPOSITION PUZZLE

The Large white cued, the Small not

By Brian O. C. Gardiner (225)

The previous article by Roger Dennis raises some interesting points and the very full discussion and reference list gives us an enormous amount of information on the egg-laying preferences of several pierid butterflies. However, one point that has not been commented on, is why, when in captivity, *Artogeia rapae* will, in the absence of any foodplant, lay eggs all over the cage, whereas *Pieris brassicae* will die before condescending to place its eggs on so obviously unpalatable surfaces as the glass, wood and netting of a cage.

This statement is made as the result of rearing *brassicae* for over thirty years and *rapae* from time to time. Whenever I have had *rapae* and left them for a day or two without foodplant then ova have been deposited at random over the cage walls. With tens of thousands of *brassicae*, however, they have often been left for several days without any foodplant and at no time can I recollect any eggs being laid. After reading Dennis's article I left about a hundred pairs of *brassicae* in a cage for eight days without any oviposition cue available and no eggs were laid. These were butterflies which had already laid some eggs and which would normally be expected to lay between fifty and a hundred eggs daily. On the ninth day a cabbage was put into their cage and within an hour thousands of eggs had been laid. Indeed so keen was the rush that mistakes were made and a quantity of eggs ended up loose on the floor and laid onto the wings of adjacent females.

Now it is not difficult to mislead *brassicae* and get eggs laid on all sorts of substrates, but this is done by deception and the appropriate laying cue is present. The cue does not have to be cabbage. It can be a filter paper impregnated with one of the mustard oil glucosides (eg. Potassium myronate) which have been shown by David and Gardiner (1966a, b) to be one of the chemicals present in Cruciferae which, alone or in combination, are the "cue" for oviposition and the start of larval feeding in *brassicae*.

It is well known that many species of moth will lay without any cue although this also occurs in butterflies which deposit their eggs while on the wing. Most moths it seems *must* lay once they have been fertilised and after a few days even frustrated virgins seem to have an irresistible need to deposit their eggs, although this is done in an abnormal fashion. The situation in butterflies seems to be less clear and certainly less commented on in the literature. The reason as to why *brassicae* is so reluctant to lay without a cue is a fact to which I can offer no explanation. Perhaps the explanation is needed to explain why *rapae* will lay without a cue. It would be of great interest to learn which of the many other butterfly species now bred in captivity need a cue or will lay regardless.

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HUMMINGBIRD HAWK IN WALES

I wish to report two sightings of *Macroglossum stellatarum* L. in Dyfed during 1984. The first was on July 23 and the second the following day. They were both feeding from flowers of Phlox and were in my garden at Ammanford, some 20 miles inland.

Graham Hopkins (7779J)

LARGE WHITE ABERRATION FROM SCOTLAND

While rearing *Pieris brassicae* L. larvae in 1983/4 an interesting aberration occurred. In May 1984 a male specimen of ab. *nigronotata* Jach. emerged from stock collected in Lenzie, a suburb of Glasgow. This is the form in the male with a small black streak in the forewing discal area.

According to B. O. C. Gardiner, although this form of the male is the more usual in the Canary islands and Nepal it only rarely appears elsewhere. In 1930 it was recorded amongst stock collected in the Lake District at Arnage and Mr. Gardiner bred a number of examples from Hereford collected stock some years ago.

Sarah Bladon

DERBYSHIRE DRAGONFLIES

Ideal for naturalists, birdwatchers or lepidopterists who would like to get to grips with this fascinating and under-recorded group, this 28 page booklet is now available. It includes line drawings throughout the text which covers dragonfly identification, life history and habitats, followed by a list of the species recorded in the country, as well as sections on recording, conservation and a bibliography. Price £1.20 including postage, it is obtainable from Derbyshire Naturalists' Trust, Elvaston Castle Country Park, Derby.

habitat

STUNG BY A ROTHSCHILDS ATLAS

It is with interest and regret that I bring to members' attention a small omission in 'A Silkmoth Rearer's Handbook'.

Final instar *Rothschildia jacobaeae*, second generation from last year's Annual Exhibition, can sting. The effects are like nettle rash. This was noticed when gathering up some sprigs of privet, which the larvae were on — the dog had knocked over their water jar. I later confirmed their ability to sting by rubbing my wrist on one of the larvae. The effect was most impressive.

I hope that this will serve as a warning to other members—i.e. do not let the dog near the water jar!

S.Moxey (5458)

OBSERVATIONS ON THE TWENTY PLUME MOTH

Orneodes hexadactyla L. is alive and flying in Bury St Edmunds; on the honeysuckle *Lonicera periclymenum*, the common sort, in the back garden. Now, in August, it is almost a nuisance, four to six coming to house lights every night. The larvae were seen around mid-June and were readily identified from the AES Bulletin of February 1983's description. They were seen eating most parts of the flowers, boring in and eating the inside of the flower; as well as the stamens and anthers. Later on when the larvae were larger, they fed on the open petals. At no time were any leaf mines seen on the honeysuckle during the larval season.

Considering the discrepancy in observed feeding habits, could more than one species of moth be involved?

S. Moxey (5458)



ALLSOP PRIZE AND THE WATER'S EDGE

Congratulations to Jacqui Stearn of the London Wildlife Trust for her prize-winning essay in the 1984 Allsop Prize competition. 'Wet-land Wilderness behind King's Cross' won the first prize of £500 and featured work being done to improve the wildlife potential of the Regent's Canal in North London. The Camley Street Natural Park and the Council of Europe's Water's Edge Campaign are both mentioned.

The article explains the rationale of these restoration projects emphasising the potentialities of the urban sites and the importance of protecting natural areas from destruction. The Kenneth Allsop Memorial Essay Competition is organised annually by the Sunday Times (Jacqui's article appeared in the Colour Magazine on 23rd September) to commemorate the death of an exceptional writer and conservationist.

Entries for the next competition should be submitted by 19th April 1985. Further details from the Sunday Times, telephone 01-937 1234.

habitat

NEWS ITEMS FROM HABITAT

Spanish Conference Spells It Out

The world's need for economic development must be matched by care for renewable resources if the diversity and quality of life on earth is to be sustained, 1000 ecologists and officials from 105 countries affirmed at the close of the sixteenth General Assembly of the International Union for Conservation of Nature and Natural Resources (IUCN). The ten-day meeting held in Madrid from 5-14 November covered a wide range of topics and produced some shocking new facts. These include the depletion of ground water supplies in India where 23,000 villages are now without drinking water — a result primarily of the destruction of forests that protect the watershed; the plunging population of black rhinos —

65,000 in 1970 to 7,500 today — because of poaching; and the fact that tree cutting and over-grazing are now responsible for turning 6 million hectares of land into unredeemable desert each year. The General Assembly approved a 1985-7 IUCN programme that sets priorities for the world conservation community in such fields as conserving biological diversity, species survival, parks and protected areas etc. The World Conservation Strategy remains the guideline for all IUCN members. The exploitation of Antarctica, the problems of a 'nuclear winter', air and marine pollution and pesticides were all discussed and the Assembly was told by the Secretary General of the Red Cross that human tragedies, such as famine drought in Africa are misnamed 'natural disasters' since they can be directly attributed to environmental degradation by man. Prevention investment should have the same priority as relief aid.

Successful Prosecution

The owner of a Site of Special Scientific Interest in Leicestershire was fined £200 and ordered to pay £50 costs for permitting an operation to be carried out on his land that the Nature Conservancy Council (NCC) had told him would be likely to damage its wild flora and fauna. The defendant pleaded guilty to the case brought against him, that he allowed the land to be limed in the spring of 1984 without the NCC's consent. Ulverscroft Valley is one of the best wildlife sites in Leicestershire, containing a combination of permanent grassland, heath, woodland and wetlands. The acidic wet grassland south of land owned by the defendant is especially valuable for its flora, including heath spotted orchid, marsh violet, marsh arrowgrass and wood clubrush.

The Butterfly And The Oil Giant

A remarkable story has come to light of the impact that conservation can have on industry. Carless Exploration, an oil company working at Humbly Grove near Alton in Hampshire has sunk seven wells but an eighth would have been on a site frequented by the Duke of Burgundy fritillary. Following representations Carless has agreed to move the well by up to a quarter of a mile, at a cost of tens of thousands of pounds. A proposed pipeline has also been re-routed to avoid elms containing the White letter hairstreak.

Pall of Poison

A special report on the spray drift problem not covered by the Government's new pesticides legislation. Price 60p including postage from the Soil Association, Walnut Tree Manor, Haughley, Stowmarket, Suffolk IP14 3RS.

Pesticides

Friends of the Earth are requesting information from any readers who may have information concerning wildlife or other incidents involving pesticides. This includes spray drift damage to gardens, birds found poisoned (especially if subsequently analysed) and damage to butterfly populations. Please send details to Chris Rose, Friends of the Earth, 377 City Road, London EC1V 1NA. Telephone 01-837 0731.

INSECT CONSERVATION NEWS EXCERPTS

A short synopsis of items and news from the AES publication "Insect Conservation News".

Mass release of butterflies bred in Guernsey (Operation Papillon)

We understand that several species of butterfly have been (or were planned to be) released at various sites in mainland Britain by a Guernsey breeder. As far as we know, the species involved are either common or are annual migrants to Britain which do not overwinter. Beyond observing that there is now a lot of interest in butterflies and that many of those who have this interest are unaware of the complex ecological and genetic factors which must be considered in any release programme, we find it hard to see the justification of this exercise. The most likely effect of the releases is nil, but there is the possibility of genetic disturbance to native populations; the AES has recorded its objection.

Biological control of mosquitoes and midges

We have reported a number of interesting possible alternatives to the undesirable use of pesticides to control mosquitoes and midges and we have now learnt of a method which seems to work well in practice in California, the use of African fishes. Dr E. F. Legner of the Division of Biological Control at the University of California, Riverside has recently presented a paper in Hamburg (17th International Congress of Entomology) describing the use of three African cichlids. These not only give 'excellent control of chironomids, mosquitoes and weeds' but also 'flourish in S. California' and 'constitute a significant game fishery.' This sounds encouraging, at least for California, although we are not told what effects the fish will have on 'non-target' aquatic invertebrates, nor is it clear whether great reductions in the populations of the target species will disturb the aquatic ecosystems.

A different approach, using the "biological insecticide" *Bacillus thuringiensis israelensis* has been used in a north temperate climate, namely the Upper Rhine Valley. Members of the West German Mosquito

Control Association reported at the Hamburg Congress that this treatment was cheap, highly effective and nearly totally safe for 'all other organisms.' The target species were *Aedes vexans*, *A. stricticus*, *A. rossicus*, *A. cantans*, *A. communis*, *A. puntor* and *Culex pipiens*. In 1983 about 3300 Ha (8150 acres) were 'successfully treated'.

Butterfly atlas planned for Berkshire, Buckinghamshire and Oxfordshire

The Berks, Bucks and Oxon Naturalists' Trust has requested information on butterfly records for these counties. A publication is planned by Dr David Steel and Peter Creed as a Sequel to their successful 'Wild Orchids of Berks, Bucks and Oxon'. Records, from 1975 onwards, should be sent with grid references and dates to Peter Creed, 9 Quadrangle House, St Peter's Road, Wolvercote, Oxon.

BBONT buys part of Bernwood Forest

Bernwood forest is one of Britain's foremost butterfly areas, with 43 recorded species (see ICN No. 5 April 1982). Most of the forest is run by the Forestry Commission, but a nature reserve agreement covers part of it and we have learnt that the local trust has bought the area known as Rushbeds Wood which is an ancient deciduous woodland covering 107 acres (43 ha) and is an SSSI.

Aculeates at Hitch Copse Pit Nature Reserve, Oxfordshire

BBONT reports that sixty-nine species of aculeate bees and wasps have been recorded in recent years at this reserve. Unfortunately, motor cyclists and horse riders have been causing serious damage to the site, even having cut a protective fence, and BBONT members have been requested to help to prevent this.

The Marsh Fritillary in Northern Ireland: One of the last sites under threat

Strong criticism of local and national government is made in the April 1984 edition of 'Habitat', the CoEnCo bulletin, over the planned development for leisure use (The Benone Development Scheme) of part of N. Ireland's few SSSI equivalents. The Derry area of Scientific Interest contains over 150 species of wild plant in an area of calcareous dune slacks, many of these being rare or of special genetic or ecological interest. Among the plant species is the Devils-bit scabious, *Succisa pratensis*, which supports one of the last surviving populations of *Euphydryas aurinia* in the province. Various bodies have objected to the scheme (which has already begun) in order to initiate a Public Enquiry.

These include the Ulster TNC and the Botanical Society of the British Isles, but not the Conservation branch of the Department of the Environment which is responsible for ASIs. We have heard of the scheme only through 'Habitat', but it is doubtful whether we could have made much impression on the authorities since, according to conservationists who have tried to reason with the Limaverdy District Council, all representations have been in vain. The scheme includes a golf course, tennis court, access road and car parks.

Water Beetles in danger in the Somerset Levels

Some time ago in the Somerset TCN newsletter, a most interesting article was contributed by Alison Leadley Brown on *Hydrophilus piceus* and its relative *Hydrocara caraboides* (some of our older supporters may remember the interest in *H. piceus* which existed in the days when there was a beetle conservation section within the British part of Teen International Entomology Group). Alison reports on twenty-three years of observations which show that *H. piceus* is fairly evenly distributed from Shapwick Heath in the south to Westhay Moor in the north, and from Catcott Heath in the west to Godney Heath in the east. However, the Shapwick Heath populations are suffering from the effects of drainage, and the same is threatened at Westley Moor which has been the beetle's main stronghold in the Levels in recent years. In one rhyme at this site, *H. caraboides*, 'one of our rarest beetles' still survives. On the other hand, *H. piceus* is less endangered nationally, because it seems to re-colonise sites in S.E. England by immigration from the Continent. Nevertheless, the Levels are probably becoming its last stronghold as a self-replenishing British species.

Conservation of both species is a problem because of drainage of rhynes due to agricultural intensification and peat extraction. Destruction of egg cocoons and larvae is another problem if the (necessary) cleaning out of rhynes is carried out between May and September. This job can be more safely done in the autumn, providing that the pupae are not destroyed by the disturbance of the banks.

The article includes much information on the natural history of these beetles (*H. piceus* is one of our largest British species), and to us is a very welcome contribution towards popularising non-lepidopterous insects. That is not to say that Lepidoptera do not deserve even more publicity, and we note a very useful article on butterfly conservation in the same Somerset Trust Annual Report.

Urban Conservation in Cleveland

When looking through county trust newsletters, the ICN editor has to scan much interesting information on wildlife other than insects but only occasionally does it seem fair to our entomological readers to 'dilute' the entomological content of ICN. On the other hand it is excellent to see some notes from an ornithologist which strongly support what we have been saying about urban wildlife ever since the early days of the AES Conservation Group. The following is from a note on 'The Short-eared Owl in Industrial Cleveland' by Richard Pepper of the Cleveland Trust's Middlesbrough and Thornaby Group, and appeared in the Trust Newsletter of April last year.

"We were standing on an unused part of Thornaby Industrial Estate, virtually surrounded by factory units of recent vintage and on ground being reclaimed by nature It was during those moments when the owl's flight was all but lost against a grey corrugated factory wall that conservation, to me, really became meaningful. That seemingly unlikely piece of 'waste' ground on the edge of urban Cleveland had attracted a pair of birds not very often seen. How many more spots of a similar nature must there be within the country providing a web of wildlife sites which should be cherished, and if possible protected? But it is the apparent ordinariness of the place which may be the problem — for the 'every-day' may breed contempt. From now on I shall try to view *every* site as unique and potentially instructive. Natural (!) inquisitiveness on the part of every Trust member should ensure that the fragile network of wildlife sites is not severed repeatedly."

(Insect Conservation News is available from David Lonsdale (address inside front cover) at a cost of £1.30 for four issues.)

CONTINENTAL BRIMSTONE ON WATER

Whilst holidaying on the island of Rhodes last year I came across a sight that I have never seen before. Whilst collecting near to the area known as Petaloudes, I witnessed a female specimen of *Gonepteryx cleopatra* alighting on water in a slow running stream. This she did on several occasions before flying off into the surrounding woodland. A male specimen was later seen, captured and released. Have any other members witnessed this or any suggestions as to why this was happening?

M. Colvin (7356)

ABUNDANT BUTTERFLIES

While out walking my usual path last summer (1984), I noticed a large number of *Lasiommata megera* and *Polyommatus icarus*. I hadn't seen them in such numbers before. The sightings were in late July to mid August in Great Sankey near Warrington. I wondered if the hot summer caused an early or large brood?

I would be interested to know if any other member has found a sudden increase in these species.

Tim Allen (7826J)

CLOUDED YELLOW IN WARWICKSHIRE

In August 1983, I visited the Royal Botanical Gardens at Birmingham. It was a very hot day and whilst there I saw a yellow butterfly. On closer inspection I discovered it to be a Clouded yellow (*Colias croceus*) female.

Later on when out looking for butterflies in an overgrown field near my housing estate in Stratford-on-Avon, Warwickshire, I found another two, both females. They were in very good condition, as if newly emerged. It was a very hot day again and I also caught a Marbled white (*Melanargia galathea*) on that same afternoon.

This September (1984) whilst on holiday in the Black Forest in Germany I saw another Clouded yellow feeding in a meadow.

Catherine Porter (7938J)

AN EXPEDITION TO NORTHERN GREECE — JULY 1983

by P. W. Cribb (2270)

(Continued from page 48)

On the morning of the 8th we left Florina in heavy cloud cover and took the Kastoria road. As we reached the top of the pass above Pisoderion it started to rain but as the cloud appeared to be lifting we stopped at our previous spot below the village and waited until the sun broke through. I walked up the path onto the higher slopes and took two male *Pyrgus sidae* with their bright yellow markings on the underside. There were a lot of *P. baton* laying on the large clumps of thyme and I again took a specimen of *L. celtis*. We drove down the pass to have a drink at a wayside tavern and then on into wooded hills leading south to Kastoria. Here the road degenerated into a dirt track which continued for about 20 km. We stopped to collect in roadside clearings, finding *M. arion*, *L. duponcheli*, *Aricia agestis* and the Skippers *Spialia orbifer* and a *Pyrgus*, possibly *P. alveus*. Tortoises were again numerous and we saw

several large green lizards. Above the town of Kastoria, built on a peninsular jutting out into a huge lake and surrounded by mountains, we stopped in hot sunshine to collect on the slopes. *C. crocea* and *P. daplidice* flew fast across the slopes in a northerly direction and I took a single *M. arion*. All specimens of this species taken on the trip were fairly heavily suffused with black scaling, not as intense as some of the Alpine forms I have taken. The females were large, up to 48 mm wingspan. Driving down to the town we found it to be a maze of narrow streets but eventually found a hotel, the Europa, where we booked a room, had a shower and then explored the town. The lake we found to be very dirty, probably from the town's effluent, but men were fishing with nets from small boats. We noted that despite the heat no one was swimming. In the evening we considered a further visit to the slopes of Vitsi from the Kastoria side but eventually decided to explore towards the Albanian border below the Grammos range on the next day, provided the weather was still good. Next morning we were able to buy local maps in the town and using one of these we drove out across the plain due east and then through the village of Mesopotamia. On the roadside we took many of the species seen elsewhere including *thersites*, *pirithous*, *minimus* and brown *Agrodiaetus* ssp. Mark spotted a large viper curled up in the grass. It had a very thick body and broad dorsal zig-zags; the camouflage was perfect and it would have been easy to tread on it. We then tried beyond the mountain village of Jereopigi but all was heavily grazed and inhospitable so we drove back through the village of Nestorion to climb the Vojon range, stopping on the top above a wooded valley. Here were orchids in plenty for Mark and Russell found a three foot specimen of *Himantoglossum hircinum* which caused some excitement. There were thousands of *M. galathea* with a few *russiae*, *C. crocea* and *C. australis*, several female *M. daphnis* of the blue form, *A. admetus* and three Skippers, *Thymelicus lineola*, *actaeon* and *silvestris*. *B. daphne* was common and I found more larvae of *M. trivialis*, this time on a woolly-leaved *Verbascum* sp. There were *C. cardui* larvae on the thistles and more Spurge hawk larvae. As the afternoon progressed a storm came down upon us and it started to rain as we made our way back towards Kastoria. At our evening meal we discussed our next move. The Germans had mentioned that the Smolikas massif to the south west was of considerable interest and a new road had been built to Konitsa, a town near the Albanian border.

On the 10th July we set off via Neapolis where we took the westward fork to climb into the mountains towards the massif. On the top of the pass we stopped to explore but it was rather bleak and apart from seeing thousands of young frogs in a pool in the path there was little of interest. We then drove down the pass a short way and pulled into a flat area by the road where there was a wayside shrine. On the right of the roadside there were two lush dells below the road, full of grass, flowers and

clumps of wild raspberries, edged with woodland. Here were hundreds of butterflies on the wing in the bright sunshine. I took my first *C. leander* flying again with *arcania* and easily mistaken for it. Both *L. duponcheli* and *L. sinapis* were here with *A. paphia*, *F. niobe* and *F. adippe cleodoxaa*. We netted several *M. alcon*, all males and very small, and Russell found the clumps of *G. cruciata* spattered with eggs. There were a lot of *M. jurtina* flying and I hoped we might see some fresh *K. roxelana* at this altitude. A butterfly got up from the grass in front of me, looking like a female *jurtina* but with the orange wing-flash looking different. I thought '*roxelana*' and caught it just as it was about to dive into the raspberry canes. On examination it looked a bit like *roxelana* but was only the size of a large *jurtina* and looked somewhat different. On consultation with Russell it was agreed that it was a real find — *Kirinia climene*, of which only a single specimen had been reported from Greece previously. Searching the area turned up nearly a dozen specimens, many past their best. I boxed one female which subsequently laid six eggs, round white spheres similar to the eggs of *M. galathea* and laid unattached. Unfortunately subsequent heat experienced in our travels appears to have killed the embryos. It would be easy to overlook this species as its habits and appearance are so very like *jurtina* and it was only my wish to find *roxelana* that made me net the first specimen. So much of discovery arises by chance.

There were several fresh *L. amanda* around the large clumps of tufted vetch on which its larvae feed and we saw a lot of *Erynnis tages*, perhaps the second generation. After mid-day we drove down to the village of Eptahori where we had a cooked meal in a small tavern. There is a road marked leading from here into the Smolikas massif but we missed it and drove on towards Konitsa to where a road leads off eastwards into the massif via the village of Agios Paraskevi. The road was metalled until just short of the village where it crossed a bridge over the ravine and turned into a rocky rutted track. With some apprehension we drove on for some distance beyond the village to a point below the peak of Smolikas (2637 m) where we could see the snow-covered top up a rocky ravine down which a stream tumbled. The mountain is of serpentine, a very attractive rock, and Mark found plenty of orchids to occupy him. Above the stream were thousands of butterwort, *Pinguicula* sp., growing on the wet rock face and purple orchids grew down to the water's edge. I climbed up the drier slopes in the hope of taking *M. arduinna*, reported from this area, but found only *M. phoebe*. I also took several of what appeared to be *Agrodiaetus ripartii* though some again had not got the white underside flash and I found two dissimilar ones paired. *B. circe* was common and there were a few *M. daphnis*. By now the sun was dropping behind the mountain peaks so we made our way back through the village to the main road and then on to Konista where we found simple but pleasant accommodation at the Hotel Timfi, the window of

which looked out onto the vast mass of Mt. Timfi. We had a meal of kebabs for supper and went to bed early, having enjoyed a hot and exhausting day crowned with a real 'find'.

The next day was the 11th July and our trip was drawing to a close. We decided to go south via the Katara Pass through the Pindos Mts. and have a look at Mt. Olympus on our way home. The road leads south through a valley thick with tobacco plantations and then by a huge lake at Joannina. From there the climb up the pass starts and we stopped low down to collect in some meadows where vines were growing and irrigation canals divided up the fields. There were hundreds of gypsy moths, *L. dispar*, flying round the trees and bushes, apparently searching for females but none was obvious. I then found that on the leaves of the trees there were unhatched chrysalids of the females. Mark found an interesting helleborine by one of the canals and I took *K. roxelana* and saw what might have been *A. ilia* circling round some poplars by the road. The whole area was pretty heavily grazed by both sheep and goats and it was only the presence of water which made the spot attractive to insects. We drove on up the pass where we had some rain and stopped just above the village of Metsovon. Here the meadows were also grazed — by cattle, mules and donkeys, the two latter being put out to graze with their heavy saddle fittings still in place.

These damp upland meadows should have been rich in butterflies but the grazing seems to have a telling effect and we only saw a few *E. medusa* and I found a lot of *A. crataegi* eggs on some scrub hawthorns. After some heavy rain while we ate our lunch, we drove to the top of the pass which has rocky outcrops of limestone, heavily grazed wherever there was grass. However, below the road the steep slopes were dotted with box, *Buxus*, and a dwarf *Daphne* and in the clearings the grass and flowers flourished while on the barer areas there was a carpet of a *Sedum* with whitish flowers. The sun was still being obscured from time to time by black clouds but I spotted several *P. apollo* floating up and down the slopes. It was impossible to give chase but eventually I was able to net two and Mark caught another as they flew past. A more exciting find was a good colony of *C. leander* and from a female I got eight eggs and these did hatch on our return home. Both *M. arion* and *H. alciphron* were quite common. Inevitably the storm broke and we left to drive down the pass to Kalambaka in the heaviest rain we had yet experienced. The lightning was spectacular, hailstones rattled on the car roof and rocks washed down into the road in front of us.

We booked in at the Hotel Rex at 5.30 pm just ahead of a coach-load of pilgrims. Kalambaka lies below an amazing conglomerate rock formation upon the top of which are perched four monasteries; the place is called Meteora, a place of pilgrimage where goods, and sometimes people, are hauled up to the top by rope in baskets. In the evening we sat and ate our meal in the town square, looking up to the great cliffs where

Griffon and Egyptian vultures circled along the sheer face in which were caves, the nesting places for the birds. On the wing they are beautiful. After supper Mark realised that he had left his trowel at the top of the pass so the next morning we were up at 6.30 and drove back the thirty miles to the top in brilliant sunshine, passing gangs of men on the road clearing up the rock-falls of the previous day. While Mark went to find his trowel, Russell and I collected on the slopes of the previous day.

The same species were on the wing with the addition of a few *E. ottomana*. When Mark rejoined us we drove back via Kalambaka and Tricala to the plain where we followed the course of the River Pinios. It was now very hot and we stopped for a break near the village of Pinios to have a drink and investigate the masses of Chaste bushes in flower along the riverside. Here there were a lot of *C. pamphilus* of the form *lyllus* which has a silver submarginal band on the underside hindwing. I also took a male *Hyponephele lupina*. A large herd of cattle was standing belly-deep in the river and these accounted for the lawn-like appearance of the meadows by the banks. On the other side of the road the slope was rocky and arid, dotted with scrubby *P. spina-christi* bushes which had been burned off but were springing up again. As we came back to the car Mark spotted a very small butterfly sitting on the road. I managed to net it and discovered it to be a new species to us, *Tarucus balkanicus*, minute and beautifully marked on the underside, rather like a small *S. pirthous*. Russell knew that it fed as a larva on *spina-christi* and our closer investigation of the bushes produced about a dozen males and females. The spines of the bushes made netting them very hazardous for the net.

It was now almost unbearably hot and we drove on towards Larissa to take a branch road which by-passed it, taking us to Elasson. Short of the town I spotted some wild plum trees, heavy with fruit, and we stopped while I picked a bag. A storm was brewing and the butterflies were coming in under the trees to take shelter. However, the clouds moved away towards Mt. Olympus and we were able to do some collecting in the rough roadside meadows. These abounded in *M. trivia*, second generation, and there were a lot of *P. daplidice* flying with *C. croceus*, some of the form *helice*. *I. podaliirius* was laying on the plum trees and among the *trivia* were some newly-emerged *M. didyma*. An unexpected find was the Skipper, *Erynnis marloyi*, which is almost black and sits on bare patches of earth. It looks rather like *E. tages* on the wing. We reached Elasson at 5.30 pm and found the Hotel Acropolon, just off the village square; on top of the church facing the square there were two large stork's nests, the young being fully fledged and making rather amusing attempts at flying, jumping up into the air and flapping their wings then falling back into the nest. We had our evening meal in a nearby tavern and watched the evening custom of the young men and girls of the town who walk up and down at dusk in separate groups, looking each other over; presumably part of the local courtship ritual.

The 13th July was to be our last day of collecting and we set off early to explore the slopes of Mt. Olympus, seat of the gods, the top of which is covered with perpetual snow, height 2977 m. We drove north and took the road to the village of Kalithea but again poor maps and road-signs led us astray and we finished up at a place where the road disappeared into a torrent thick with boulders. We retraced our path to the village and set off again on a road which led away from the mountain but eventually wound its way up to high alpine meadows, all heavily grazed.

We explored, but apart from one or two *P. icarus* and *L. megera* and a huge tortoise there was little of interest. We climbed on up through a small village, not on our map, and stopped at a spot where a stream came down to the road through a fir and beech wood. On the rocks beside the stream were several *K. roxelana* sunning themselves and on some brambles there were a lot of *A. paphia*, *B. daphne* and a single *P. pandora*. On the slopes were *M. arion*, *L. thersites*, *P. dorylas* and one female *H. lupina*. The road had all the time been little more than a mule track and it got worse as we wound down to the village of Karia. Here by the river we tried a spot near some bee-hives and had some lunch but there was little about due to cultivation. The road climbed again up towards high forest of fir and pine and we stopped in a clearing to collect. *A. paphia* was here in dozens on tall thistles and I took a single female *S. orion*. Other species present were *A. ripartii*, *M. daphnis*, *M. galathea*, *C. dia* and *H. alciphron*. Suddenly a huge explosion rent the air, followed by a second, and a huge plume of smoke and debris rose into the air in the valley just below us. Apparently a new roadway was being blasted out — with none of the warning whistles, etc. which one would have expected at home. We had now got to the top of the pass, below the south of Mt. Olympus and, after discussion, we decided to drive down towards the coast of Leptochorion and then take the coast road up to Katerina and back on what appeared to be a good road north of the massif to Elasson. This we expected to be the road we would use on the morrow to return to Thessaloniki and it was a lucky decision to try it out. From Katerini to below Agios Dimitrios the road was metalled but then changed to a dirt track, full of ruts and strewn with rock debris. We got behind a hay wagon which stopped suddenly at the top of a rise in front of us. We got out to investigate and found that the whole of the mountain-side lay across the road, blasted there in an effort to push the track back away from the edge of the ravine below. Consulting one of the roadmen, we were told it would take about one and a half hours for the bulldozer to clear a way through. This was done laboriously by pushing the rocks and debris over the edge of the cliff into the river valley below and at last we could drive on over the rubbish left. We travelled about ten miles further on the same terrible surface and at last reached a newly metalled road as we came off the escarpment. We arrived back in Elasson as a thunderstorm broke all around, the mountain tops deep in

cloud and the rain torrenting down. Later the weather cleared and we had a meal in the square to the accompaniment of a political harangue lasting well over an hour from a local communist party leader. We decided that there was no way in which we could risk going back to Thessaloniki by way of the mountain route and agreed that the best course would be to go south to Larissa and take the auto-route along the coast.

The sun was brilliant again as we started home on the morning of the 14th and drove the 61 km back to Larissa and then on to the motor-way. It consists of a road wide enough for a single line of traffic in each direction with no central reservation and with a hard shoulder on each side. The latter was used for slow traffic — farm tractors, combine harvesters, mule carts and other items which would not be allowed anywhere near one of our motorways. We passed through the narrow defile of the Vale of Tempi where in bygone days the Persians were held at bay by a handful of Athenians, the River Pinios flowing in the gorge below.

Just west of Thessaloniki the road runs across the marsh land at the delta of the Axios river and here the road was being crossed by great clouds of dragonflies, thousands of them coming out of the marsh. Odonata enthusiasts would find this a most interesting spot. At last we came to the city outskirts and threaded our way through the buzzing traffic to the airport, south of the city. We had an uneventful flight back across a cloud-covered Europe until we emerged into brilliant sunshine as we got to north Germany. At Gatwick the temperature was at least equal to that experienced on this trip. We had covered nearly 2,500 km in the car in Greece — perhaps we had been over-ambitious but it was an exploratory trip and has whetted our appetite for a return. Mark had done well with his orchid survey and we had seen some wonderful terrain — I had added eight new species to my European captures and Russell five. I had also taken some interesting beetles, including the largest carabid I have ever seen, and greatly increased my slide collection. The air trip and car cost us about £300 each and our petrol and hotel expenses, etc. in Greece cost a further £150 each, including a comprehensive cover for the car which we had had to pay on landing in Greece, something that had not been advised to us by the travel company.

P. W. Cribb (2270)

MORE CLOUDED YELLOWS

On 1st September 1984 a fresh and perfect female form *helice* was netted near Stockton, South Wilts. Although I remained in the area for at least another two hours no other yellows were observed. However, on the 14th September I saw three examples at Merriott.

G. D. Trebilcock (2976)

The recent articles on Clouded yellows prompt me to make the following observations. Until 1983 I had never seen them in the New Forest. In that year they appeared frequently with a mass gathering of some 60, apparently all males, in a field at the Roydon wood reserve near Brockenhurst. According to what I had read, I did not expect to see another for the next ten to twenty years. I was surprised therefore to find a single male late in 1984 on 22nd September on a grassy ride near Denny Lodge in the New Forest. Exactly a week later I sighted another male in the vicinity of Bishop Dyke, about three miles from where the previous one was seen. I have seen a report which suggested that a few specimens from 1983 may have overwintered and appeared early in 1984 in favoured localities, but I feel that in the Forest where there is no concentration of foodplant, these two *croceus* may have been 1984 immigrants.

D. K. Jenkins (6626)

Further to recent reports on this species, my records show the dates of my first annual sightings to be as follows:—

1973 14 August
1976 19 August
1980 1 August
1982 11 September
1983 26 July
1984 15 July
1984 15 July

In 1983 the species was abundant in many parts of Cornwall, with a good number of *helice* being seen. But my most unusual sighting was on Christmas Day 1966 when a female was found, still alive but very lethargic, on the beach at Porthpean, only a few inches out of reach of the tide.

John L. Gregory (4116)

THE NORTH LONDON ENTOMOLOGICAL FAIR

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by G. M. HAGGETT

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ANNUAL EXHIBITION

**The AES Annual Exhibition will be held at the
Civic Centre, Lampton Road, Hounslow, Middlesex
on Saturday, 12th October, 1985, 11 am to 4 pm**

This is the same venue as last year and it is hoped that this advance notice will enable Members to plan projects and exhibits for the Exhibition.

Maps and full details will appear in the
August, 1985 AES Bulletin.

All enquiries to: Colin Hart
Fourpenny Cottage, Dungaltes Lane, Buckland,
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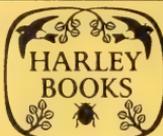
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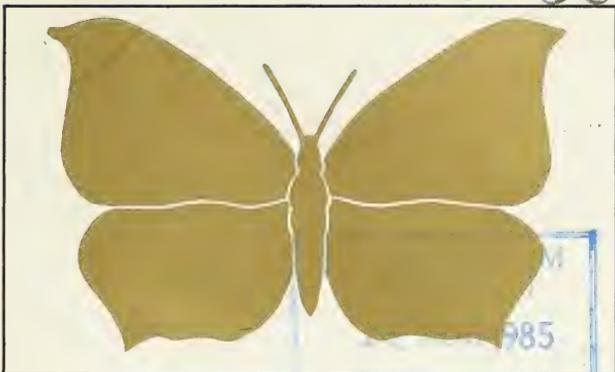
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Volume 44, No. 348, August 1985

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Golden Jubilee Issue

Editor:
BRIAN O. C. GARDINER, F.L.S., F.R.E.S.



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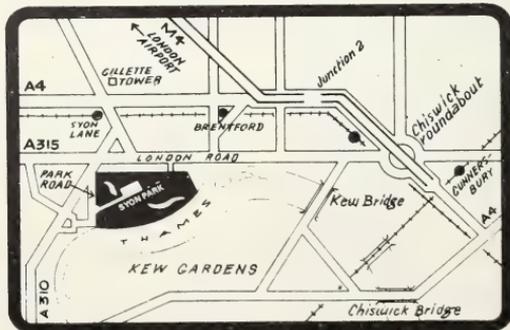
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AES BULLETIN

No. 348



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EDITORIAL

Jubilee or anniversary issues take many forms, but in order to justify their title they should be significantly different from an ordinary issue. We have tried to make this 50th issue not only very different from our normal run of Bulletins, but also exceptionally interesting, both historically and entomologically.

All the items in it were specially written and thanks are due to all those who responded to the request to do so. We hope members will enjoy the unusual mix of historical and out-of-the-ordinary matter presented in this issue.

Since articles came in at different times and not in the order they appear, and since the illustrations are split between colour and half-tone, and had to be fitted onto the pages as convenient in shape rather than correct sequence, it should be noted that while each article refers to its illustrations in the correct order, on the plate pages they are not so, and in order, therefore, to facilitate reference to them, all the illustrations for the main articles are placed in the centre of this issue, with the exception of those showing early issues of our publications which are printed integral with the bibliographical article concerning them.

A BRIMSTONE BUTTERFLY

The autumn sun that rose at seven
Has risen again at noon,
Where the hill makes a later heaven,
And fringing with bright rainbow hair
The boughs that lace the sky,
Has wakened half a year too soon
This *BRIMSTONE* butterfly,
That fluttering every way at once
Searches in vain the moss and stones,—
Itself the only primrose there.

Andrew Young

EARLY DAYS

Being a collection of reminiscences by pre-war AES members

THE EDITOR has invited me and other pre-war members of the Society to commemorate our fiftieth anniversary by recording the early activities that would be of interest to the current readers of the Bulletin.

I can remember all kinds of happenings back to when I was three years old but cannot remember how I came to join the AES and in what year. My membership number is 91 so it must have been a year or so after the formation in 1935. (*June 1937 — Ed.*) Perhaps I saw the advertisement in the press. In the membership list there are two with earlier numbers than mine, D. Tozer, Hon. Life Member, is No. 36, Eric Classey is No. 41 and with R. Hilliard No. 99 sadly passing away only this year, there are now only four of us with double figures, that is under 100, in the membership list. (*A few other very early former members were contacted and have, I am pleased to say, contributed to this issue.—Ed.*)

The earlier members that come to mind are L. R. Tesch and particularly Beowulf Cooper with whom I had considerable correspondence and who did such valiant work and kept the Society going during the war. Contact with many members was made in those early days including Dr. Lisney, H. Chipperfield, G. Cruttwell, Capt. T. Dannreuther, Rev. J. Marcon, Dr. C. B. Williams and Baron Charles de Worms to mention a few who have passed on to Elysian fields. Others with whom a lasting friendship has been ensued include the Rev. Jack Vine Hall, George Hyde, Richard Fairclough and Dr. Neville Birkett.

It is most interesting to browse through the old Journals. I possess a complete run from Vol. 4 No. 32, dated January 1939; prior to this date they were duplicated sheets. I can remember Dr. Lisney, who produced a magnificent tome on entomological literature asking me if I possessed a copy of No. 1 Bulletin of the AES, a valuable document.

What a splendid succession of Editors we have had, from B. A. Cooper, Trevor Trought, W. J. B. Crotch, B. R. Stallwood, Peter Taylor, W. N. Lawfield, M. V. Danks, David Corke, John Pocock, Paul Boswell to Peter Cribb and then from 1974 our current Editor, Brian Gardiner. How fortunate the Society has been in the quality of such editorial excellence.

Here is an extract from Bulletin No. 64, August 1944.

Editor Beowulf A. Cooper:

PROGRESS

The New Format

“Nine years ago this month, when we were six members strong, appeared our first publication, *Journal* No. 1. With this issue commences the first printed volume of the Bulletin of the AES. Vol. 1 (1935-6), Vol. 2 (1937)

and Vol. 3 (1938) were known as the *Journal* of the Society. In future the title is *Bulletin*."

"The subscription for 1945 will be increased to 5/- for members over 18 and 2/6 for boys and girls."

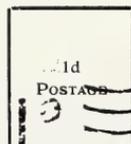
In those early days I formed a 'Blues Group' which though never large in numbers was very active and constant correspondence ensued between the keen members. An instance comes to mind; when a young member had the luck to take an albino form of the Chalkhill Blue, *Lysandra coridon* L. in Dorset, I published this remarkable capture and Castle Russell, the eminent Blue specialist, said this was impossible as he possessed the only pure white specimen known. But when I sent him a photograph of the freshly caught insect dear old Castle Russell had to agree that his specimen was no longer unique.

My special interest was the geographical distribution of the Common Blue, *Polyommatus icarus* Rott. and I endeavoured to obtain a short series, two or three of each sex from each county and island in the British Isles. This was nearly achieved mainly by my own travels but with tremendous help from fellow correspondents, the Rev. Jack Vine Hall, Commander Harper, G. E. Hyde, T. S. Robertson and several other members.

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Another constant letter writer was Archie Wightman who lived at Pulborough in Sussex. He specialised in the Noctuid group of moths and had a wonderful collection particularly the species which have considerable variation. Archie left his collection to Gerald Haggett but the outstanding species went to the British Museum. I have numerous letters from A. Wightman full of information which I suppose I ought to publish one day

When Beowulf Cooper discovered my profession, horticulture, he asked me to go on the panel of advisors on 'Foodplants'. Over the years I must have answered hundreds of queries and still receive the odd letter occasionally. I wish they would all remember to enclose a stamped addressed envelope. I was very pleased to be able to provide foodplant, *Choisya ternata* (Mexican Orange Blossom) for Sir Cyril Clarke when he was researching blood genetics by crossbreeding exotic swallowtails. He was knighted for his outstanding discoveries.

Ronald C. Dyson (91)

WHEN Brian Gardiner wrote and asked me to contribute my recollections of the Society fifty years ago, it was my first sight of the AES letter-heading for about twenty years. It wore still the familiar logo of a brimstone butterfly.

It is not, of course, any old *Gonepteryx rhamni*, but very definitely *G. rhamni cooperi*. Beo Cooper designed it when he was shaping the early fortunes of the AES. To me, the butterfly states his essential traits as compactly as his handwriting which was large, bold, simple, clear as to his purpose. These traits he imprinted on the Society at the beginning of his suzerainty; that the emblem remains unchanged in 1985 is a tribute to his forceful influence.

How we came to join the Entomological Exchange and Correspondence Club I no longer remember, but we joined at the same time, and I recall that my membership number was 18, his 19, in deference to alphabetical priority.

We had met long before 1935 as two short-trousered boys in the same class at school. Our quite different temperaments reflected themselves in our approaches to insects. Beo, I know, thought me lazy because my entomology was to sit probing an ants' nest, ruminating over the mysteries of behaviour and communication. I, rather loftily, thought him a 'mere' collector. As usual, extrovert and introvert had difficulty in getting the true measure of each other. At all events, it was clear to me,

as it was to him, that his destiny lay in a straight line to professional entomology. For me, it was to undulate, seemingly haphazardly, through phases of my life.

He had an explosive energy. He was strong, stocky, square-shouldered, with quick, effective, though awkwardly-executed movements. To see him accelerate from a standing start in pursuit of a silver-washed fritillary or a white admiral was a remarkable demonstration of galvanism.

Totally unselfconscious, he was oblivious to those who smirked at the sight of their stereotyped idea of a potty bug-hunter, a gesticulating figure, pockets bulging with killing-bottle and pill-boxes, long-handled net waving aloft as he stood on one pedal of his bicycle to weave an erratic course along a pathway. If, for one of our Sunday excursions, I felt strongly about going to my ant El Dorado of Weybridge Heath, he agreed; next time he had his way and we went to Stanmore Common. We traded Box Hill for Esher Common and our compromises worked out excellently. Once at our site, we went our utterly different entomological ways until picnic time.

One year, we spent part of the summer holidays youth-hostelling together in the New Forest. Beo's mother was an unfailing source of postal information, and I still possess a letter from her containing detailed notes about sphagnum bog-moss and the sweet-gale bog-myrtle, for all that time we were penetrating the unknown and boggy mysteries of Matley Bog's unusual insect species.

His parents' house was hospitable and welcoming in a down-to-earth, unsentimental way. Beo's passion for lepidoptera was encouraged with sensible help from his mother. His upstairs room, and the passage leading to it, was lined with cabinets, one of which we bought together at an auction, and lugged the thing back on a two-wheeled cart. He and I possessed the large, square sitting-room table with boxes, tweezers, test-tubes, jam-jars, needles, setting-boards, killing fluids, notebooks. No-one objected. Mr Cooper listened to the wireless; Beo's sister tried to do her homework; Mrs Cooper supervised us all. A room engrossed. Then, briefly, the table was cleared and we played table-tennis on its unstandard expanse.

In spite of our curiously impersonal relationship, we pursued a variety of activities together at school. We shared a garden plot, published a short-lived biology magazine (I, as editor, was reprimanded by the headmaster for publishing an indelicate poem by Julian Huxley); we were active in the Biological Society, though this was sometimes too theoretical for Beo's pragmatic tastes. A misguided master even created a cricket team called 'The Butterflies' with Beo and me in it. As captain, I had to countenance Beo's disdain for the game; when not actually and briefly at the crease, he lay down in the long grass and read his Richard South.

When it came to keeping L. R. Tesch's Entomological Exchange and Correspondence Club going, Beo's path and mine were already separating rapidly. Never noted for my organising ability (I have always had enough to do managing me) I was content to leave the Club's and then the AES's welfare to Beo's energy and close identification with their development.

With the war and army service, entomology bumped into me three times. First, when I was posted, briefly camouflaged as an entomologist, to the Army School of Hygiene, where life was enlivened by Eric Classey whose wife, Ivy, dear soul, sewed on my stripes when I was despatched to where my talents might be of greater use. Then, seconded to the Free French in Algeria, I recaptured the flavour of Mediterranean natural history I had first met in 1932 and has fascinated me ever since. The third episode was a shade bizarre. In interviewing a senior SS officer in the ruins of Germany, I found him to be a coleopterist. He became rather bored, he related, with some battle going on in the Carpathians, so he strolled from the scene of destruction and collected unusually interesting beetles. Such splendidly self-centred eccentricity in an SS officer deserved to be recorded.

After demobilisation I was still a passive member of the AES, when I was alarmed at an invitation to become President. Ernest Lewis had been deputed, obviously, to dredge for someone who would do. The outcome was that the Society's Council, eighteen-strong, trooped regularly to our London house for its deliberations. How my wife was able to produce coffee, sugar and biscuits for the meetings during that period of rationing, we still scratch our heads over.

I do not remember Beo coming to any of those meetings. News of his death reached me, casually, some time after the event.

I have often wondered whether, but for Beo's vigorous resuscitation, the delicate AES-child would have survived. And when I see today's *Bulletin* I am glad his persistence ensured the thriving, sophisticated organism it obviously is.

A. N. Brangham

AFTER this lapse of time and my call-up in 1939, my memories of the AES early days tend to be 'Beo Cooper and the Rest'. I can recall some very amusing incidents — the White Elephant Beo bought at the Covent Garden sale for £5, a massive 40-drawer cabinet which went through his front door and not an inch further; two soaking mothers calling at the 'Baron's' front door at midnight; the dedication of his mother escorting a German Professor round the fences in Willesden, looking for melanic moths, etc. My memories of other things may read like a sermon, but if any ideas are useful, I will be pleased if somewhat surprised.

Beo wrote and printed the *Bulletins*, was responsible for all the early publications, received subs (the early war-time subscription was 1/- for six issues) and managed the funds. Later in the War, when Beo was at Leeds University, Miss P. L. Rogers became Subscription Secretary and other posts were filled. The pre-war Committee reflected well the AES as an amateur's Society. Among the ten members, S. G. Abell was a licensee; E. W. Classey and T. G. Howarth at the British Museum (Natural History); F. D. Coote, a botanist; D. H. Sterling and R. D. Hilliard, bankers; and J. E. Knight, a jeweller.

It is gratifying that some of these and other subsequent members, became leading specialists in the entomological world.

A small company of us used to gather at Beo's home, (61 Okehampton Road, London) and laboriously, using an old 'Roneo' produce a *Bulletin*. One of several faults was that the machine periodically shed a small but vital spring. It was useless looking visually but a patient Hoovering of the room found it.

Probably the main contrast with today was the members', mainly macro-lepidopterists, approach to collecting. The standard was long series of perfect specimens, immaculately set. All had to be genuine British and most members would only handle material caught personally. Supplies appeared limitless and discretion was only urged for local rarities.

The average member was probably a superior field worker. He dug for pupae, searched and beat for larvae, sugared his favourite trees and dusked with a torch or Tilley lamp. If he obtained one specimen a year of a species considered rare, this was a bonus. Today the MV trap picks up ten in a short evening.

Another difference was transport. For most members, bikes and public transport were the order of the day and collecting was restricted to local areas and possibly a summer holiday. My greatest acquisition was a bike with a motorised wheel (20 mph on the level) and a hike tent. Those days it was possible to camp almost anywhere and hard tack sufficed for meals.

With hindsight, there was a dearth of publications and societies catering for younger or amateur naturalists. The AES filled this niche admirably and after surviving the war, held its own against the flood of post-war youth societies and magazines. The late but welcome voice of the Conservation Lobby owes much to the dedication of this band of workers.

Roy Hilliard (99)

I CLEARLY remember my first contact with the Amateur Entomologists' Society. One Saturday morning I was glancing through a current copy of *Nature*, which was included in my official reading as a temporary civil servant concerned with education and science staff, and saw a short notice on an Exhibition to be held by the AES in a school near Victoria (London). I was surprised by such a survival from peace-time, for we were still in the year before the war in Europe ended, and decided to look in as the Exhibition was not far off the route to the flat that was my temporary home.

Perhaps it was because of being starved for so long of contacts with natural objects, but the sight of *A. luna* emerging from cocoons and clinging pristinely to the tops of Hugh Newman's black-net cages took my breath away. My previous memory of a silkmoth was solely of drab *B. mori* which I had reared as a schoolboy. Here was sheer beauty of an entirely superior order. And then came the magnificent Atlas moth with a wingspan of ten inches. I was so much enchanted that I rushed home and told my wife she must come and see too. We had about a half-hour before the show closed. I signed the visitors' book and departed, expressing our pleasure.

Within a week, Beowulf Cooper (who had been primarily responsible for the Society's war-time survival) was ringing at my door and after an hour's chat asked me if I would join the AES council. I demurred, but was persuaded to attend the next meeting at his mother's house as an observer. There I was pressed again to join — largely, Beowulf admitted to keep someone else from being elected; I would have less nuisance value!

Some months later when Cooper again called on me and found larvae of *selene* being bred in cylinder cages on top of a wardrobe (it was a tiny flat) he asked me to prepare an extended revision of his *Silkmoth Rearer's Handbook*. That led to a greater circle of contacts; at the London Zoo I met the curator of insects, all sorts of members in London and correspondence, once the war was over, with members overseas, who sometimes sent me ova in sections of gull quills by airmail. Eventually the second edition was published in 1956, with an expensive coloured photograph on the cover (the Council were very venturesome) and other plates inside. Luckily it was well received and sold overseas as well as in the U.K. Now it has taken a quantum jump in importance and appearance in the third edition prepared by B. O. C. Gardiner.

W. J. Blyth-Crotch

THINGS are not what they used to be ! Or do I view the past with the rose-tinted spectacles of old age? I think not. Lepidoptera *were* more abundant but one had to work to find them — no setting up the MV light trap and returning later to find it swarming with insects. On the other

hand sugar does seem to have lost its charm. A few selected extracts from my diary may make the point.

1937 30th May.

“The previous week has been one of continuous sun and very warm reaching 80°F. To-day somewhat overcast but still hot.”

On the western slopes of Bledlow Ridge, Bucks. I recorded Small blues as abundant together with 14 other species of butterfly and five species of day-flying moth (macros) together with many Drinker larvae.

The 6th June on the other hand records a

“very unsuccessful visit to the New Forest”.

Only five species in very small numbers recorded.

The 30th June provides a somewhat unusual item.

“Goonhilly Down, Cornwall. A number of Red-necked footmen flying in a stiff breeze round the top of an elm tree with some lichen on it. Two were netted with difficulty.”

The 19th August.

“Ranmore Common, Surrey with B.A.C. Put up about a dozen male Adonis blues.”

The 26th September.

“Taken at two separate opal ‘BENSKINS’ lights outside pubs — 2 Dusky Thorn, 1 Canary ditto another on a lamp post at King’s Langley.” I well remember the fear and trembling with which I approached the pub door net in hand!

“1st Nov. 1937. At midday I saw an Angleshades settle on a tree-trunk exposed to the rain which had been coming down all morning. There were mercury-vapor street lamps which seem to be particularly attractive.”

Shades of things to come !!

The 15th—29th June, 1938. Porlock Weir, Somerset. Daylight work yielded nine species of butterfly and 20 species of moth.

The 3rd August. Sugared in Wormley Woods, Herts. Eight species recorded. Next day in the garden (N. London) 15 species recorded !

The 11th Sept. AES field-meeting King’s Langley, Herts. Sugar — first round 9pm and last 12.45. Nineteen species including Square-spot rustic “in enormous numbers”. Plus a Feathered gothic in a ’phone box. Light was otherwise entirely unproductive.

The 29th May, 1939. Again on the slopes of Bledlow Ridge —22 species of butterfly and moth flying including Duke of Burgundy and Cistus Forester.

The 22nd March, 1940. The war had started and petrol was rationed. I motored from North London and Bob Morton, who had been evacuated to Hitchin, Herts. cycled. We met at Hitch Wood.

“Dull. In spite of digging and searching all day we found only 4 *leucophaearia* and two unknown pupae plus two empty *vinula* and one smaller, possibly *furcula*.”

The 5th May. We met again.

“Thirteen various species were flying and larvae were abundant.”

The 28th June. Hitch Wood again. Fourteen species recorded including White-letter Hairstreak.

The 21st Jan. 1941.

“A bomb on the court destroyed among other things hibernating larvae of *caja* and *plantaginis*.”

Sept. In the Army now.

“Clouded yellow flying and *nupta* at rest, Woolwich Barracks.”

What a thought !

The 13th June, 1942. Home on leave, went to Hexton, Herts. (Don't ask where the petrol came from!) Recorded 23 species flying during the day including a worn Marsh fritillary and

“*Cistus* Forester in great numbers. Twenty-seven counted on one patch of Birds-foot Trefoil a square foot in area.”

1943-46. Mostly in Assam. It was on the train from Calcutta that I remarked on the plethora of butterflies and found a kindred spirit in Frank Sutton. A lifetime friendship followed until his premature death in 1967. On arrival at Tezpur, Assam we needed nets ! He was in the cook-house and provided the netting (intended to keep the flies off the food !). I was in workshops and able to make the frames of aluminium fuel piping from a crashed aircraft. The local Indian tailor did the necessary sewing for a rupee or so. Bamboos grew everywhere so sticks were no problem, five or ten feet long as required. Killing was by nicotine injection. An infusion of issue “Nigger Brand” tobacco filtered through blotting paper provided an unpleasant but lethal fluid. The Medical Orderly supplied used hypodermic needles which I fitted to a sort of miniature oil-can. “Will's Woodbines” came in cellophane which made excellent envelopes for “papering” one or more specimens. An empty cigar box and a tablet of carbolic gave protection against mite and mould. We were in business ! No inhibitions here — even the C.O. was interested. It was surprising who borrowed our nets to go hunting on their day off, there was little else to do.

Whenever possible we took our leave together going to the hills of Darjheeling or Kalimpong. The abundance and variety of butterflies was fascinating, wet and dry season forms added to the numbers. Outstanding in my memory are just a few — Swallow-tails of many species plus mimetic forms, iridescent Danaids, large Orange-tips, yellow and red Jezebels, the aptly-named Sailers like our own White admiral, brilliant Hairstreaks and Blues, some with very long tails, an enormous

Fritillary (*childreni*), an endless selection of Browns and Ringlets. A complete list would fill pages.

We sent our parcels home monthly declaring them as "scientific specimens of no commercial value". Most arrived safely. I lost one, I think, and Frank had one selectively pilfered of the most showy specimens. It took me seven winters to relax and set the lot ! The British Museum (Natural History) named what we could not and we were pleased for them to retain what they wanted — mostly moths. I still have 15 drawers full of specimens in remarkably good condition and most attractive to look at.

I left India and the Army in May 1946 and moved to Ross-on-Wye in Herefordshire in October of that year. Here the electricity supply was 110 volts from batteries and had to be used with care. However, I arranged an extra 60 watt lamp in the bathroom window and here many species new to us were taken. Frank remained in London but came to Ross for long weekends whenever possible. We worked the area with sugar, paraffin lamp or car lights.

In June 1951 we spent a week in Wood Walton Fen. I had made up a car headlamp bulb on a stick and a length of cable in order to work a sheet from the car battery. However when we got to the "Red Lion" at Ramsey we found Eric Classey and the late Robin Mere were already working the Fen and they very kindly invited us to join them with their generator and MV light. What an experience ! My lighting arrangements seemed very puny! We went again in August the following year; I had a generator then — it cost me £60, a lot of money in those days ! One of my outstanding memories is of sitting on the verandah of Lord Rothschild's bungalow in the middle of the Fen at midnight eating bacon-and-egg sandwiches and *cossus* landing "plop" on the sheet.

Thus I entered the MV era. It certainly enabled me to produce a good local list for Ross-on-Wye, it turned some rarities into commoners, and even now I can add the odd new name. But I still say "Things ain't what they used to be."

John E. Knight (94)

AS THIS is the Jubilee year after the founding of the AES, I thought I would write a few lines as I am one of the early members and also an advisor on the naming of Coleoptera.

The other advisor is Mr H. Last who some years back took over the family Staphilinidae as he was making a study of this group and wanted to see as much material as possible. This of course made things easier for me !

As there were so few members when I joined (I am No. 36) I offered to deal with the Coleoptera as best I could and I have filled that position ever since.

I first heard of the AES from Mr C. Henderson (No. 20) of Loughborough, Leicestershire, and he must have been one of our very early members indeed. He was a very keen collector of beetles and it was really through him that I started on the order myself. Unfortunately he recently died and I often think of the many happy times we had when out hunting together for beetles.

One of our early trips was to the New Forest and I believe I took about 80 species new and desirable to me. Among the better ones we took there were *Agabus brunneus* F., *Helops coeruleus* L. and two or three of the red species of *Elater*.

Sherwood Forest was a frequent happy hunting ground and here we took many good species of which perhaps the best was *Agrillus biguttatus* L. which was breeding in the bark of old oaks.

Years later when we visited the locality we found that the oaks in that part of the Forest had disappeared and even the ground had been cleared of logs and branches and we could find nothing of this very rare Buprestid beetle. I doubt if the whole place is anywhere nearly as good as formerly. This seems to be the fate of all our old woodlands!

Of course we also had to visit those well-known localities, Wicken Fen and Monks Wood (the one in Huntingdonshire that is). At Wicken Fen on our first visit I remember how delighted we were to find a few specimens of that handsome longicorn *Obesea aculata* L., on the willows, and *Crysolina graminis* L. on mint among other good beetles.

We often visited Monks Wood and here we could depend on finding many kinds of interest. I myself added about 60 species of beetle to the list for Huntingdonshire, mostly taken in or near the wood.

The Charnwood forest in Leicestershire also produced quite a fair number of rare or local beetles and some were new to the county list.

It is pleasing to note that in addition to our lepidopterist members we also have many who are interested in the other orders of insects.

In conclusion I wish to say that I hope our Society will continue to flourish as it has over the past fifty years.

D. Tozer (36)

I WAS FIRST aware of the AES a year or so after its inception. I still have the cyclostyled numbers from that time, bound, but at present packed away and not very accessible at the moment. I do not, however, have the numbers prior to my joining. An advertisement in the price list



"Sorry I can't come out collecting today, Frank. A new Label List has just come out. I must keep my collection up-to-date"

of L. W. Newman brought it to my notice and I was delighted to join. Having always been interested from the start in rearing lepidoptera, I was most pleased with the exchange list, which then appeared monthly. I have always thought it a pity that this practice could not have been continued, even perhaps at the cost of an additional subscription. A quarterly list is not very practicable and as a result we have been overtaken by the ELG with its fortnightly list. (Apologies for this digression !)

In 1939 the first printed *Bulletin* made its appearance and Beo Cooper appealed for help in designing the cover, which, as a young commercial artist (graphic designer it is called these days !), I was pleased to answer. This was the beginning of a sporadic correspondence which lasted until his death. Then came the war, I disappeared into the Army, my home was bombed, and with several changes of address I missed the wartime publications of the AES. In 1944 I chanced to advertise in "Countryside" for one of P. B. M. Allan's books, which was spotted by Beo and he wrote asking if I was the K. H. Poole who had drawn for him. So began my association with the AES during his editorship, doing drawings, diagrams, and of course the cartoons he was so keen on. (See illustration — Ed.) These included some for the new covers of that time and one which I was most pleased with, the cover of the first edition of the "*Coleopterist's Handbook*". This association continued long after Beo ceased to be the editor of the AES and transferred his keenness to Beekeeping and "The Old British Bee" in particular.

So I'm afraid my reminiscences are confined to those of trying to meet Beo's deadlines and trying to illustrate his sometimes optimistic ideas for cartoons.



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

I FIRST HEARD of the AES from an advertisement in a dealer's catalogue. I think it was from Newman's Butterfly Farm at Bexley, or was it perhaps from Watkins & Doncaster to whom I was a frequent visitor? I was then working in the City and they were at 36 Strand and the Underground fare was only about a penny — one of the old variety at 240 to the £ ! I wrote off for details and received a copy of a duplicated *Bulletin* which impressed me greatly, so I joined right away and eagerly awaited the next issue. The due date came and went but, alas, no *Bulletin*, so I wrote to the secretary and editor, Mr B. A. Cooper and received his apologies for delay in production, and eventually it came. The same thing happened on the next due date, but this time the apology came with a suggestion that we should meet, and, after an interesting afternoon together, Beo suggested that I should relieve him of the secretarial work so that he could give more time to the editing side. He probably thought that this would at least save the AES one letter per issue !

So I joined the AES Committee as secretary and there began a very happy association. The Committee used to meet in Beo's parents' house in North-west London or in one of the other members' houses. I can recall a few, but not, I am sure all, of those of us who used to meet. Besides Beo and myself, there was the treasurer, Roy Hilliard, John Knight, Eric Classey and O'Farrell. I forget his Christian name, but he was slightly heavier than the rest of us slim young men and so was known as "Barrell O'Farrell". Roy was a most popular member, being the only one of us to possess a car. Beo was the next most mobile, being the owner of a power-assisted bicycle, but, although the motor saved pedalling on the flat (it couldn't take hills), it is debatable whether the pedalling needed to start it did not exceed that which it saved. Beo had very definite ideas of where the Society should go to and how it should get there and, before each Committee meeting, I received from him a letter giving his opinion of what should be done about each item and on this he always signed himself as "Chief Whip".

At one of these meetings (it was probably when the war-clouds seemed to be looming as they so often did in the late 1930's), we decided that it would be advisable to have an "elder statesman" on the Committee, and so Frank Coote joined us. He also became President of the South London (now British) Entomological and Natural History Society in 1941. He had a system for determining whether he had had a good day's collecting or not. Irrespective of rarity, he placed a value of one penny on each specimen he retained and if the total exceeded what he paid for his fare, then he considered that he had had a worthwhile trip.

The last meeting of the "Old Committee" was shortly after the outbreak of war. For some reason connected with problems in travel and blackouts, we held the meeting in the Lyons Tea Shop near Clapham Junction over a cup of tea. I was going into the Army the following

week (how little I dreamed them that I should spend the next forty years of my life in the Army) and most of the others were in a similar position, so the meeting was wholly devoted to finding people to take over from the vanishing Committee and taking steps to ensure the survival of the AES. It is gratifying that they were so successful.

My only wartime contact with the AES was an "almost" one. Roy Hilliard and I discovered that we were both serving in the same theatre of war, and made plans to see each other. The contemplation of such a meeting must have been too much for the German High Command, as Roy was promptly taken prisoner-of-war before we could get together.

Col. D. H. Sterling

I AM AFRAID that I really have very little to offer in the way of early recollections, except that when in 1936 I joined the staff of the British Museum (Natural History) a number of us in the Setting Room were involved with producing the *Bulletin*. I seem to remember on several occasions we went round to Eric Classey's home where we all "mucked in" with this time-consuming chore. Beo Cooper came along then, when I believe he was at Imperial College.

Graham Howarth

MY MEMBERSHIP number was, and still is, 192, which I expect takes me back to about the year 1936 or '37. (*Actually first listed in October 1938 — Ed*) By this time I had already developed a considerable interest in butterflies and moths.

Of course, the second world war was soon to follow. I rather rushed into it like a moth to a light and became a private soldier within the first two weeks. By January 1940 my Unit was all set for the Middle East. I decided to make sure I included a Kite net, cyanide bottle and Meyrick's Revised Handbook in my kit bag. We crossed France and then by boat to Palestine where we were subjected to more training. Outside the wooden hut in which we lived were Oleander bushes and I soon found the hawk moth caterpillars of this name to be not uncommon, the only trouble being to find the space, time and conditions to rear them. Bath whites and Painted ladies soon were on the wing — but this was not quite the time to bring out the net. We moved down into Egypt across the Sinai Desert and the Suez Canal to the Bitter Lakes area and a large tented camp in the sand.

I found my way out to the hills at the back when time allowed and now with the net I was alone to follow my interests. Although a sandy and stony waste area, the sparse scrub and camel thorn was cover for insect life. Much of it included beetles, grasshoppers, mantids and locusts. The areas of cultivation nearer to the Bitter Lakes produced the Long-tailed blue which was able to breed on the "bessicamm", the fodder plant in Egypt for horses, camels and donkeys, etc.

Into Libya and the Western Desert produced much harsher conditions both for insects and soldiers, but with searching I found beetles to be the best adapted to real desert.

The fact that I was an insect collector soon leaked out and equally as soon I lived it down and became a scorpion and snake catcher for all and sundry. In certain areas these were abundant. I even had an officer from another unit bring me an enormous lizard that he had shot; it must have been about two and a half feet long with its knobbly pineapple-like tail. "Could you stuff it . . . ?" I had to control my reply of course!

I was sending parcels of specimens home; not all arrived, but all had to be censored. This went on for over four years in the Middle East generally. I think my entomological interest, stimulated as it was through the AES, kept me sane at times. I well remember I had reared the Striped hawkmoth but these started to emerge during the retreat from Libya into Egypt before El Alamein.

After being brought back eventually from Italy we had a few months in England, then to Normandy and by 1946 demobbed from Germany.

I found the AES had somehow managed to continue over the difficult years and I've hardly missed an exhibition since. Of course I knew Beowulf Cooper and like him I also turned my attention to beekeeping soon after the war. Looking back, since I retired, I do find I owe a debt to the AES over the many years and I wish the AES every continued success in the future.

P. J. Gent (192)

MY FIRST INTEREST in entomology was aroused by my father's copies of Coleman's *British Butterflies* and Wood's *British Moths*. Since these books confine themselves to the commoner species, this resulted in the earliest caught moth still extant in my collection, a *Convolvulus* hawk (now *there* was beginner's luck !) masquerading as a Privet hawk until I had joined the AES and learnt that such books as 'South' existed, thereby enabling me to differentiate the critical species.

I believe I first heard of the AES through that old faithful, *Exchange and Mart* to which my mother was a regular subscriber, and my letter of welcome from "Beo" Cooper is dated January 1939 and I remember

how eagerly I awaited the arrival of the *Bulletins* thereafter, for it was these that perhaps more than anything "fixed" my lifelong interest in Entomology rather than my other schoolboy interests in philately, photography, bus ticket collecting or cigarette cards, all of which had had their turn. Sadly, after a year, the nice fat *Bulletins* ceased, to be replaced by the very thin and irregular wartime exchange Sheets, but these missives did serve to retain my interest and, best of all, was the arrival of the *Journals*, which Beo and his helpers so fantastically managed to get written and produced in spite of all the difficulties that they must have had. It was the eagerly awaited *Silkmoth Rearer's Handbook*, however, that I remember best of all and which turned me as much to the rearing of insects as to the catching thereof. Little did I dream then that I would be responsible for the revised third edition of this handbook forty years later.

Brian O. C. Gardiner (225)

I OFTEN THINK that when I was a small boy, how much more helpful from a moth hunting point of view it would have been had the Amateur Entomologists' Society come on the scene much earlier than was the case.

At the tender age of eight, I was fascinated by moths — the eggs of a Poplar hawk moth given to me by my father duly hatched out, but the little caterpillars — having been offered all types of vegetation bar the correct one — just wandered about and died. This episode did not deter me and my interest was further stimulated when I discovered two poplar trees in the garden which yielded specimens of the same tribe as those which had died, and thus enabled me to observe and study their life history. I later found that Poplar and Aspen are hosts to an amazing variety of species — Puss moth, Poplar greys etc, so it is rather sad that these trees are no longer popular as garden trees and so the Poplar-eating species are now at a very low ebb.

Changes have taken place which effect the environment — after the 39-45 war the large Elephant hawk moth spread its larvae around, feeding on the Rose bay willow herb, the Fireweed of the bombed sites, and now it appears the Lime hawk moth is following suit having been found at York and Doncaster in recent years — so I was pleased when removing the growth from the base of a lime tree to discover a half grown specimen of this species, with more on the higher branches. Although not a very good area for Lepidoptera, we are fortunate to be near the Derbyshire border with its vast areas of moorland, which provides suitable conditions for the Northern eggar, Fox moth, Emperor etc and a delight for me. On a lighter side whilst on holiday in the Dordogne, we spotted a Praying mantis perched on a car bonnet —

whilst studying this the inevitable spectator sidled up - its a Mantis I said — No it isn't the fellow replied — its a Cortina!

Great credit must go to those who pioneered the first barely legible jelly panned *Bulletins*, from which I learned and enjoyed so much — to todays beautifully produced glossy magazine. Congratulations on this 50th Anniversary with thanks and Good wishes for the future.

William V. Burton (179)

THREE VIEWS OF OUR FIRST ANNUAL EXHIBITION, 1939

From *The Entomologist*

THE AMATEUR ENTOMOLOGISTS' SOCIETY'S EXHIBITION.—A display of Apparatus and Collecting Methods was held at Buckingham Gate Central School, London, S.W.1, on the afternoon of Saturday, March 25th. It was the first exhibition arranged by the Society, which has not long been in existence, and was an unqualified success, about 150 members and visitors being present. Exhibits were of a varied nature, covering most orders of insects, although Lepidoptera predominated among both live and dead specimens. A great many types of sleeve and breeding-cage, giving the inmates every modern convenience, were on view, while every type of apparatus, from pins and pillboxes to cork and cabinets, was shown in many varieties and forms. Some interesting and unusual pieces of Coleoptera-collecting apparatus were kindly lent by the British Museum, while Rothamsted Experimental Station exhibited a lighttrap, various insect mounts, an excellent device for showing colour photographs, cases of migrant Lepidoptera, and other apparatus. A number of aquaria of live water insects and other aquatic creatures were on show, and a considerable library of standard and popular recommended works on entomology and general biology was also displayed. Also shown was a simple device fitted to an ordinary camera for photographing insects, while it was noteworthy that considerable interest was taken in the entomological slides and microscopy exhibited. Demonstrations of larva blowing and preserving, relaxing, setting and repairing of Lepidoptera and the preparation of microscope slides were conducted and watched with much interest. The meeting was as great a success for the entomological contacts made as it was for the useful collecting tips displayed.—D. H. Sterling, *Hon. Secretary*.

From *Bulletin No. 34*

Our first advertised meeting, the Exhibition of apparatus and collecting methods, was a distinct success. Somewhere about 150 people turned up and a keen interest was taken in the exhibits. Visitors coming from con-

siderable distances declared that the day in London had been well worth while and they would look forward to future meetings of like nature. Perhaps the most pleasing feature of the afternoon was the large number of new entomological contacts made by members of the Society and visitors, of whom several enrolled as members. Nearly everyone remarked that he had learnt some useful "wrinkles" at the exhibition, while demonstrations of setting, repairing, micro-slide making and the use of apparatus were eagerly watched. It was clear that this type of meeting is widely appreciated, both as an exhibition of specimens and apparatus, and as a meeting place for young and old entomologists, whom the Committee were glad to introduce to one another, and it is certain that such meetings will be repeated, perhaps also in the provinces.

Beowulf A. Cooper

From the *Daily Mirror*

ALTHOUGH Jill Ekins, 18, of Croyland-road, Wellingborough, Northants, is a modern miss, she doesn't like dancing, doesn't care for jive.

She is one of hundreds of young men and women who have taken up a new sport — "bug hunting". They find it as exciting as jazz, as interesting as the "flicks".

I met Jill when she was fixing her insects at the exhibition of the Amateur Entomologists' Society in London, writes a *Daily Mirror* reporter.

"I go out collecting with my boy friend" she said. "We specialise in butterflies and moths.

"We would much rather go butterfly-hunting than dancing," she added firmly.

REMINISCENCES OF AN OLD BUG—HUNTER

BY Ronald C. Dyson (91)

Perhaps it would not be out of place if I use part of my Presidential address to this 1980 AGM to record some of the collecting highlights of yesteryear, when Lepidoptera were much more prevalent than they are today.

Over sixty years ago when I roamed the Sussex Downs as a lad, there were no fences, no gates and hardly any scrub. There was nobody about, only the shepherd with his sheep and dogs. The herbage was closely mown by the sheep and the rabbits.

Butterflies were everywhere particularly on the south- and west-facing slopes. *Lysandra coridon* and *L. bellargus* abounded in myriads in their most suitable habitats. What a change in sixty years — no sheep, few rabbits after myxamatosis, whole areas ploughed and barbed-wire fences erected up and down the whale-backed hills. Where a little downland herbage remains, the grasses are rampant with Cocks'-foot Grass six feet high in some places.

Not far from Brighton there is a bank where I met F. W. Frowhawk many years ago. Today it is covered with Ash and Thorn some twenty feet high. It used to be such a fine locality with all the downland species in profusion. The Grayling, *Satyrus semele* L. was extremely abundant and every Scabious and Knapweed flower had one of them imbibing nectar from the blossom, not the usual practice of this species. The bearded gentleman bending over the Bedstraw looked up at me with my net and asked "What was I looking for?" When I replied "Butterfly varieties" he replied "I have bred all the British butterflies and have now started on the Hawkmoths". He was obviously looking for larva of either the Hummingbird or one of the Elephant hawkmoths. It was not for some years after that I realised the old gentleman must have been the famous F. W. Frowhawk. At one end of the bank the Scarce forester, *Procis globulariae* Hb. occurred in numbers each year, but alas they are gone forever.



Ron, catching butterflies, I.O.W. September 1928.

During my sojourn in hospital last summer I read old numbers of the *Entomologist* published in the late 1800s and the wonderful reports of collecting in the New Forest were numerous. I was lucky enough to see the New Forest in its heyday when White admirals, Silver-washed and High-brown fritillaries were in abundance and dozens of ab. *valesina* could be seen each day in mid-summer. Now the Forest is one large holiday playground and most of the butterflies have disappeared. The High-brown fritillary used to be prolific in Vert Wood in Sussex but suddenly died out some years ago; in fact, also, from most localities in the south-east of the country. No adequate reason can be given for this sudden demise. I remember counting thirty-six freshly emerged specimens of both sexes on one small patch of bramble.

On a slope near Lewes one evening I witnessed a remarkable occurrence. Marbled whites, *Melanargia galathea* L. were flying everywhere in great profusion, one strike of the net would capture several. As the sun slowly descended I was standing near a patch of the False-brome grass, *Brachypodium pinnatum* L. when I noticed specimens of the Dark-green fritillary, *Argynnis aglaja* L. flying into the patch of grass to roost for the night. Eventually, at least fifty females were sitting on the grass blades sunning themselves in the lengthening rays of the sun. There were no males; I wonder why? It was a glorious sight never seen again.

Another occasion stays in my memory, when Dr Banner and I set off to try to obtain the Brighton Wainscot, *Oria musculosa* Hb., so called because the first British specimen was taken near the town. We had heard that the moth occurred on the Salisbury Plain near a Military Camp. After reconnoitering the area Dr Banner favoured a place on the road to Devizes but I chose a tank crossing near the camp. We agreed to try the latter first but if a *musculosa* did not come to light within fifteen minutes we would move to the other site. Within five minutes of darkness there were at least twenty-five wainscots on the sheet, all *musculosa* and after we had each selected a short series of the various colours there were quite five hundred on the sheet which we tipped back into the corn in the adjacent field. We also took other good species on this most successful night. Another good night to remember was at Freshwater in the Isle of Wight when hordes of *Dasypolia templi* Thunb. the Brindled Ochre, came to our trap and sat all over it and the surrounding walls and objects, every specimen in mint condition. This is a moth I thought I should never see in such numbers as it was considered a north country species.

One night in August 1961 on our way home from Ham Street, Dr Banner and I looked in at Pevensey Marshes at 1 a.m. As soon as we arrived we saw numerous small moths in the headlights. Stopping the car we quickly recognised them as the Small wainscot, *Arenostola pygmina* Haw. We unloaded the generator and set up the M. V. light which soon

attracted hundreds of *pygmina* in a few minutes. They varied greatly in colour from putty to a deep red. We did not know until later that our friend Len Savage had visited Pevensey Marshes that evening and left at midnight but had not seen a Small wainscot which goes to prove that certain species of moth have a definite flying time or this is controlled by weather conditions though any difference was not noted at the time.

All my collecting has not been as successful as the few recorded above for on many occasions very few moths have come to light, either through inclement conditions or, in recent years, the scarcity of so many species once very prevalent. In the suburbs of Brighton three species used to be everywhere, the Magpie moth on the *Euonymus* hedges, the Buff tip on the street elms and the Privet hawk moth on the privet hedges. We have not seen one of these species for some years. Why should they disappear? Is it the petrol and diesel fumes from the traffic?

I ought to mention a near failure when I was looking for the Large heath butterfly near Lake Bala in North Wales. I found a suitable moss with cotton grass and had just seen the first butterfly when I was attacked by a bull with glaring bloodshot eyes. Have you ever tried to run backwards on a moss which is covered with holes containing dirty water intermingled with humps of heather? I lived to tell the tale and managed to take a few Large heaths an hour or so later.

Now a few comments on the migration of butterflies seen on the south coast in past years. On the Isle of Wight in 1928 the Clouded yellow, *Colias croceus* Geoffroy, abounded everywhere. Over a clover field the butterflies appeared as a golden cloud. There was a massive migration that year.

In 1940 I saw a tremendous migration of Cabbage white butterflies coming in from the sea. I was at Whitehawk, an eastern suburb of Brighton when I saw this white cloud approaching the coast as far east or west as the eye could see. There must have been millions, mainly Large whites, with some Small whites. Many settled on the grassy hill on which I was standing but most continued their flight inland.

I saw many Bath whites when they arrived in 1945. A year to remember was 1947 when we had an Indian summer and the Clouded yellows that arrive on our shores in June had remarkable weather in which to breed so that the third brood was emerging in late September and early October. Near Laughton in Sussex, three clover fields were the home of millions of *croceus*, they were emerging all over each field and could be inspected as they were drying their wings.

I doubt if we shall ever see such large migrations again due to the change in agricultural practice. In those days they did not cut fodder for silage. Now it is harvested when young, giving ova and young larvae no chance at all to survive. The silage cutting is going on all over Europe so

few *croceus* reach our shores though quite a few managed to do so in 1983.

Most of my butterfly collecting in recent years has been on the mountains of Europe in Spain, France, Switzerland, Italy, Austria and Germany in company with several of the members of the AES, constantly with Peter Cribb and Russell Bretherton and on occasion with Howard Phelps, David Marshall and Dr David Lonsdale. Even on the continent many of the prime butterfly habitats have been ruined by intensive farming and it is only on the steep gradients of the mountains where cultivation is impossible that the insects persist in any number.

Now to the future. What does it hold entomologically? I hear that the powers-that-be want to stop the collecting of all British Butterflies. This seems to be a very drastic action and a calamity for the young collector starting the study of Lepidoptera. Will the new legislation, if passed, achieve any more than putting endangered species on the protected list?

Collecting has not been responsible for the reduction in numbers of any British butterfly to the current situation. Only one species of moth may have suffered in this respect, the New Forest Burnet, which was undoubtedly over-collected during the last century, but this was a weak day-flying insect in a very small restricted habitat, easy game for the host of collectors who travelled to this favoured area to obtain the prize.

The Large copper was lost through the draining of the Fens, the Black-veined white probably by the use of insecticides. The Large blue was lost by the depreciation of its habitats becoming unsuitable for the species of ant on which the larva of the butterfly depended. It must also be remembered that the Large blue was on the end of its range in Europe.

The habitats of most of our butterflies have been created by man over the past centuries. When the chalk downs were covered by scrub there would have been few Chalkhill blues, but clearing for sheep grazing provided adequate conditions. The coppicing of English woodlands was essential for the survival of the small fritillaries and many other species that have been in such short numbers since forestry coppicing became uneconomic.

The cause of the reducing number of British butterflies must be attributed to the great loss of habitats by the clearing of scrub and woodlands and ploughing up the land, removal of hedgerows, changes in forestry management, building and extension of towns, construction of motorways and other roads, increased number of people and cars, use of insecticides, the spread of bracken in certain areas and other factors not fully understood. Changes in weather conditions could be another reason. It is well-known that seasons that follow hard winters are much better for Lepidoptera, maybe because dessication of bird life saves many larvae and pupae. Since the Protection Order for Birds, numbers of certain species have clearly deteriorated.

May the Society forge ahead for another fifty years.

MITTREI MAGIC

By Dave Moon (3850)

A quarter of a century has passed since my first introduction to the Malagasy Comet Moth *Argema mittrei* Guérin-Ménéville: older members may recall David Attenborough's BBC television series 'Zoo Quest to Madagascar' and have shared with me the excitement at seeing the giant moth emerging from its cocoon in its homeland.

Nowadays, enthusiasts have a better chance than in the late 1950s of seeing the living moths, for cocoons are imported quite often, but until recently no-one in the UK had ever reared this beautiful insect through all its stages. The opportunity arose for me when fellow Exotic Entomology Group member Brian Morris achieved two artificially-induced pairings among imported stocks in September 1982 and was kind enough to supply me with ten ova from one pairing.

Nine larvae hatched from October 2 - 8 and were raised throughout the late autumn on various myrtaceous plants, including *Psidium guajava* (Guava), *Eucalyptus gunnii* and *E. niphophila*, not all of which were in continuous supply. Casualties from disease were heavy (probably caused by the Guava, which is not to be recommended as a foodplant). Only two rather undersized larvae reached the spinning stage in mid-December, pupated some two weeks later, both male. The two eucalypts are probably ideal foods, though the softer leaves of juvenile *gunnii* are better for the young larvae than those of *niphophila*, which comes into its own during the later stages. All the larvae were sluggish at temperatures that averaged about 20°C with fair humidity, so higher values are obviously needed — say 25-26°C.

A crippled moth was helped to escape from its pupa in late February, 1983, but the event which made the whole exercise worth-while took place during the late evening of March 14 when a superb male *mittrei* burgeoned from the first-spun cocoon. These were possibly the first of their species to be reared from the egg in this country, though I'd be quite happy to be corrected on this. The full-winged male spanned 17cm — somewhat smaller than a wild specimen — but this did not detract from the magnificence of its colouring or the sheer perfection of its markings: the best reward for my efforts!

A detailed account of rearing this stock is given in the E.E.G. Newsletters for Winter 1984 and Spring and Summer 1985. The photos are by Gerhard Ragus (Colour Fig. C) showing a first instar larva from another source, and Roy Chuter (Colour Fig. D) which shows a final instar larva from the same pairing also provided by Brian Morris to whom we are both extremely grateful. Although adult *mittrei* have often been illustrated, I believe this is the first occasion any of the larval stages have been illustrated in colour.

Dave Moon (3850)

DEATH, DAMNATION AND RESURRECTION:

BUTTERFLIES

AS SYMBOLS IN WESTERN ART

by

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Throughout the history of art, butterflies have appeared in paintings, sculptures, etchings, textiles, book illustrations, jewellery and many other media. Obviously the infinitely-varied shapes, markings and colours of the wings of lepidoptera make these beautiful insects universally appealing objects to be employed in decorative design. However, butterflies and moths have also been used as symbols from the very beginning of their appearance in art. As such they have been inextricably interwoven with the religious beliefs and folklore of the society in whose art they appear and in which art they evolved specific functions and meanings.

Although the origins and precise meanings of butterflies in the art of the oldest civilizations remain elusive, the fact that butterfly-like insects were depicted some 2,500 years prior to the Christian era is indisputable. Their appearance in Egyptian tomb paintings and carvings certainly suggests that butterflies carried symbolic meanings related to death and, for the ancient Egyptians, consequently afterlife as well ⁽¹⁾. Various artifacts and gold jewellery also depicting butterflies have been found at ancient Mycenaean grave sites from approximately the same period as the Egyptian tomb paintings and suggest that the butterfly had religious meaning and was associated with death and quite possibly with the concept of resurrection as well.

A central part of the Judeo-Christian religious tradition is the belief that man is distinguished from all other creatures by the possession of a soul, which inhabits his body up to the moment of his death, at which time the soul leaves the body to go to heaven for its eternal reward for a "good" life, or to hell for eternal damnation as punishment for a sinful life. But this concept was shared by the pagan world as well, and even the ancient Greeks were quick to recognize the parallel between the idea of the human soul leaving the body to begin a new life and the butterfly emerging from the chrysalis, leaving the latter behind as a dead, empty shell and flying off into the sky, weightlessly and with the lyrical grace of some truly spiritual being. It is no accident, then, that the Greek word for butterfly, "psyche", is the very same word for the soul. Indeed Aristotle (384-322 B.C.), considered ancient Greece's greatest and most influential philosopher and biologist in his time and afterwards, wrote extensively on the soul in *De Anima*, one of his most important works. For Aristotle the soul (psyche) is the ultimate perfection toward which all the functions of the body, and hence life itself, are directed, somewhat akin to the functions of a growing, metamorphosing butterfly, moving toward the ultimate perfect imago. The concept of the souls of the deceased assuming the form of moths or butterflies to travel either heavenward or to the underworld was expressed in written accounts as well as in a few surviving ancient Greek and Roman works of art ⁽²⁾.

However, the synonymy of psyche and butterfly has its most tangible manifestation in the myth of Cupid and Psyche, a subject that has appeared in art from ancient to modern times. The beautiful young princess, Psyche, the lover of Cupid (= Eros), son of the goddess Venus, is subjected to many ordeals and tests of her love for Cupid before finally being made immortal by Zeus and being united in marriage with Cupid to live eternally with him and among the other gods. Thus, any representation of Psyche in art would almost automatically be recognized as an allegory of resurrection, or better, the immortality of the human soul. Psyche, often graced with wings resembling those of a butterfly or moth, frequently appeared among the relief carvings on Roman sarcophagi, and, on rarer occasions, as the subject of life-sized sculptures in the round, as exemplified by a Roman, fourth century A.D. statue in the Capitoline Museum, Rome. It is widely speculated that these images of Psyche with butterfly wings in ancient art evolved, from late fourth century onward, into the angels of Christian art, whose wings are those of birds rather than butterflies.

As recently as the nineteenth century, during the Neoclassical era, there was a great resurgence of interest in the Cupid and Psyche theme in art, and, of course, in the association of Psyche with the butterfly. In the work of Antonio Canova (1757-1822), the Italian sculptor whose marbles were considered the greatest embodiment of Neoclassical art by his contemporaries, Psyche appears both with and without her traditional wings. In *Cupid and Psyche*, 1793 (Paris, Louvre), the two lovers are shown in a tender embrace (Fig. 1). Quite remarkably, in contrast with Psyche's small, round butterfly wings hanging limply from her back, Cupid brandishes a pair of large, erect bird wings reaching outward into space, as though the artist has captured the action in mid-flight. On the other hand, in his *Psyche with a Butterfly*, 1793 (Bremen, Kunsthalle), Canova carved the full-length figure of a classically-proportioned maiden whose identity as Psyche is established only by her attribute, the butterfly, which she holds between her hands (Fig. 2). The French painter Francois Gérard (1770-1837), a contemporary of Canova, also depicted Psyche as a maiden who is wingless in his painting of the two lovers, 1798 (Paris, Louvre), although Cupid wears a pair of large, extended bird wings (Fig. 3). However, hovering directly over the head of Psyche is a Cabbage butterfly, *Pieris rapae*. It is as though this butterfly-soul symbol were preparing to alight upon Psyche just as her lover prepares to bestow a kiss on her forehead, symbolically reminding the viewer that the maiden will achieve immortality.

The device of showing a butterfly hovering over these two happy lovers has a famous source in the art of the Italian Renaissance. Raphael Sanzio (1483-1520) was responsible for the design of the cycle of frescoes in the Loggia of Psyche in the palace of Agostino Chigi, generally called the

Farnesina, in Rome. In the wedding banquet scene, the couple and the other celebrants are regaled by dancing sprites over the table, all of them adorned with butterfly wings marked with eyespots and other abstract patterns (Fig. 4). In an equally famous Italian Renaissance fresco by Andrea Mantegna (1431-1506), on the ceiling of the Bridal Chamber of the Ducal Palace, Mantua, a butterfly hovers in the very centre of the painted sky. Although neither Cupid nor Psyche actually appears in the fresco, one may logically interpret the presence of this insect as a reference to the legend, and hence a metaphor of the union of the couple in the room below the painting and the immortality of their souls.

While each of the above-cited works of art containing butterfly symbolism is a product of Western, Christian society, the works are obviously of Classical, or non-Christian subject matter, and each was conceived and intended for existence in a secular context. However, in works of specifically Christian content and function the butterfly image has also persisted as a symbolic embodiment of resurrection and salvation, and of sinfulness and damnation as well.

Although the image of butterflies or moths in Christian art is virtually absent for the nearly one thousand year span of the Middle Ages, the first manifestations of the emerging Renaissance era included a renewed interest of the physical, material things on earth, including natural history. In addition to numerous illustrated bestiaries produced in the fourteenth and fifteenth centuries, the religious manuscripts of the period — Bibles, Books of Hours, Breviaries, Homilies — began to be decorated with flowers, birds, mammals and insects of various kinds, including butterflies, some highly stylized and abstract and others readily recognizable as common European species. While there is some correlation between the butterflies in the decoration of the margins and textual references to the Virgin Mary or some of the saints, the great assortments of plants, birds and other animals appearing with the butterflies suggests that they are collectively a celebration of the reawakening of Christian man to life on earth. In a page from the French manuscript, the "Grandes Heures" of Anne of Brittany (c. 1500-1508), the floral border contains an adult Clouded Yellow, *Colias croceus*, as well as a full-grown larva of the same Pierid species (Fig. 5).

But it is also during the culminating years of the Renaissance and afterwards that the butterfly's appearance in the company of the Virgin Mary and Christ Child leaves no doubt that artists intended the presence of the insects to be understood as symbolic of Christ's resurrection and his ascent to the heavens. The first artist, and surely the greatest of all, to employ butterflies symbolically in this context was the German, Albrecht Dürer (1471-1528), in several drawings, engravings and one painting, the *Adoration of the Magi*, 1504 (Florence, Uffizi Gallery). In this exquisitely detailed and realistic work, the Virgin and Child are shown seated at the

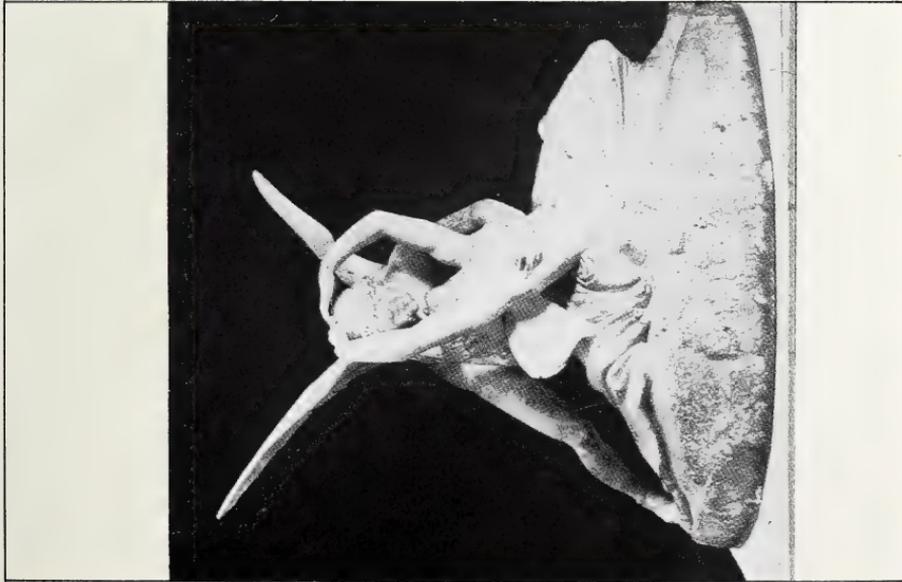


Fig. 1. Canova, Antonio, *Cupid and Psyche*, 1793, Marble, Paris, Louvre.

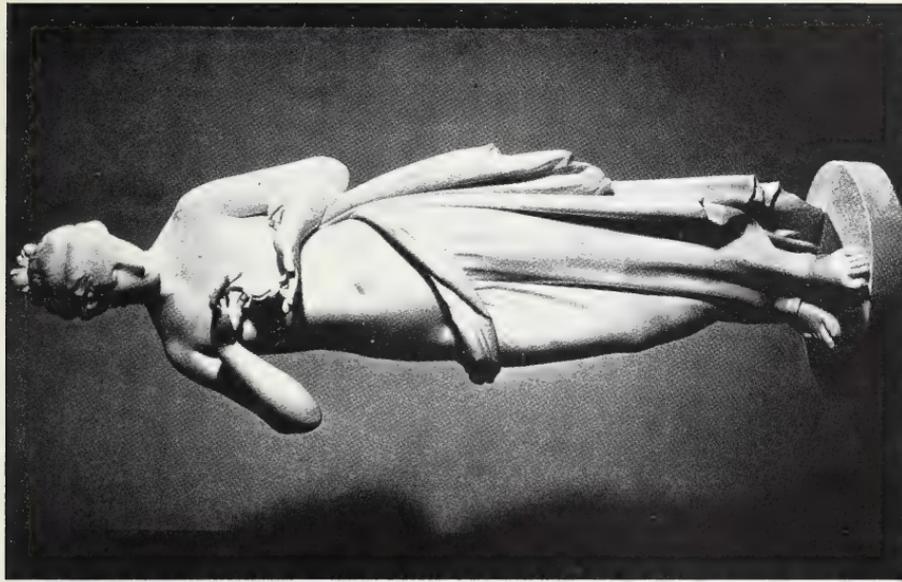


Fig. 2. Canova, Antonio, *Psyche with a butterfly*, 1793, Marble, 59½" h., Bremen, Kunsthalle.



Fig. 3. Gérard, François, *Cupid and Psyche*, 1798, Oil on canvas, 42½ x 52", Paris, Louvre.



Fig. 4. Raphael, and G. F. Penni and Assts., *Wedding of Cupid and Psyche*, Rome, Farnesina, Loggia of Psyche, 1516-17.



Fig. 6. Dürer, Albrecht, *Adoration of the Magi*, 1504, Oil on wood, 100 x 114 cm., Florence, Uffizi Gallery.



Fig. 7. Seghers, Daniel, *Madonna and Child in a Garland of Flowers*, Dutch, 17th century, Antwerp, Musée Royale.

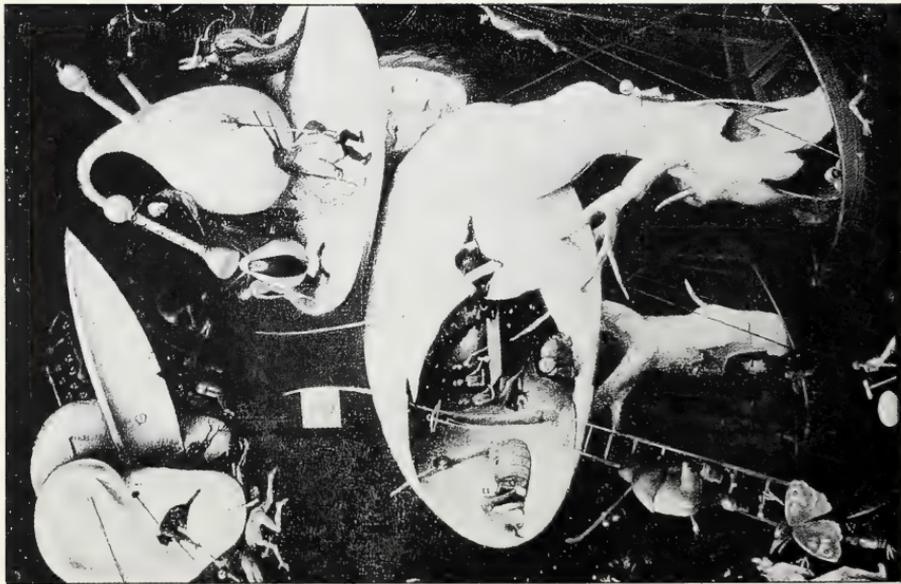


Fig. 9. Bosch, Hieronymus, *Garden of Earthly Delights*, 1500, Hell wing, detail, Madrid, Prado.

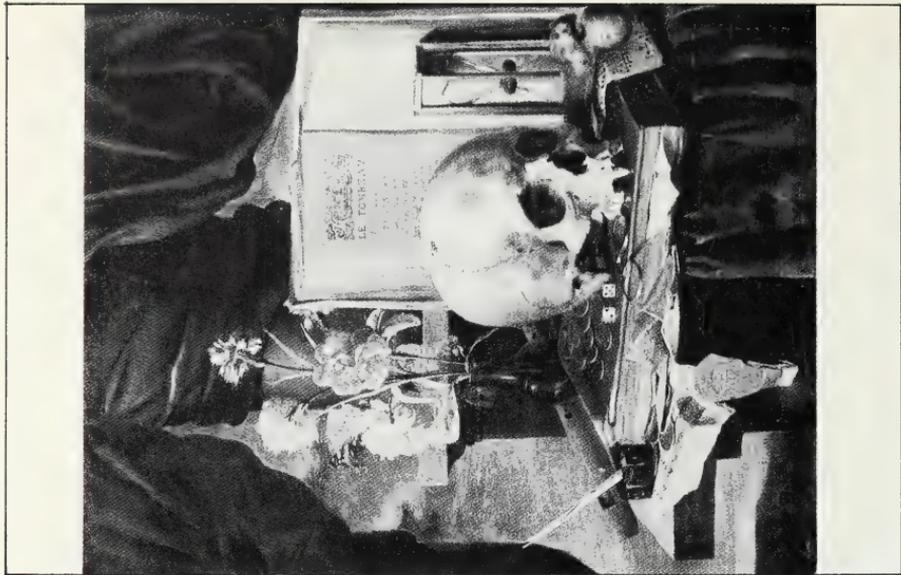


Fig. 11. Renard de Saint-André, Simon, *Vanitas*, 1660s, Oil on canvas, France, private collection.



Fig. D. *Argema mittrei*, final instar larva.
Photo: Roy Chuter.

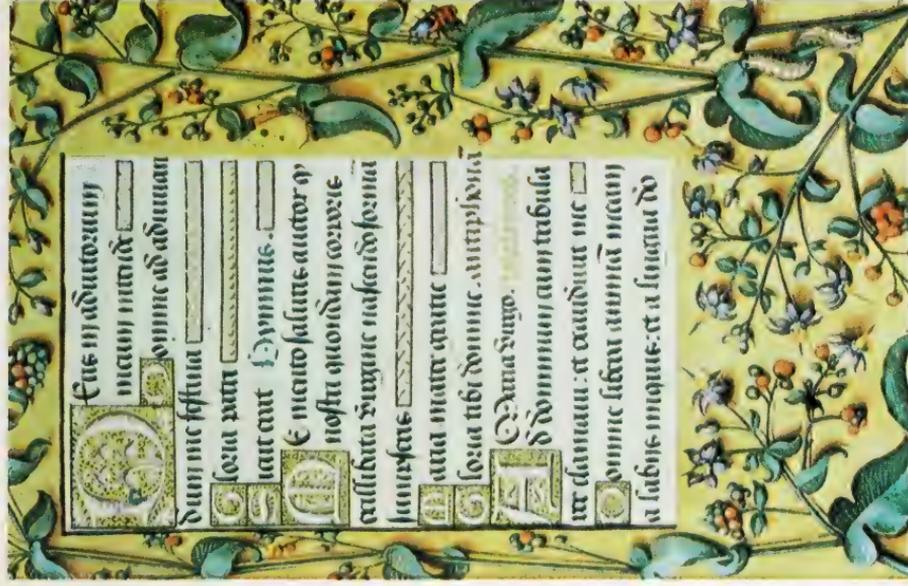


Fig. 5 Page with floral border from the *Grandes Heures of Anne of Brittany*. Anonymous (French), c. 1500-1508.



Fig. 12. Jan Davidszoon de Heem, *Lobster and Fruit*, 1670s. Oil on Canvas, 25 × 33¼". Toledo Ohio Museum of Art.



Fig. C. *Argema mittrei*, First instar larva. Photo: Gerhard Ragus.



Fig. 8. Hieronymus Bosch. *Garden of Earthly Delights*, 1500.
Central panel, detail. Madrid, Prado.



Fig. 10. Pieter Bruegel the Elder. *Fall of the Rebel Angels*, 1562.
Oil on panel, 46 × 64". Brussels, Musées Royaux des Beaux-Arts.



Fig. A. Site Julia. Several thousand Monarchs roosting on tree.



Fig. B. *Acanthoxyla prasina*. Photo: Paul Brock.



Fig. 13. Goya, Francisco, *Caprichos*, Plate 61: "Volaverunt," 1797-1799, Etching and aquatint.



Fig. 14. Goya, Francisco, *Caprichos*, Rejected Plate: "Dream of Lies and Inconstancy," 1797-1799, Etching and aquatint.



Fig. 15. Photograph of Loie Fuller dancing at the Folies Bergère, Paris, 1890s. (Photographer unknown.)



Fig. 16. Moser, Kolomon, *Loie Fuller*, c. 1918, Watercolour and India ink, Vienna, Albertina.



Fig. 17. Site Alpha. Jo with Monarchs by a stream.



Fig. 18. Site Alpha. Ground carpeted with dead Monarchs.

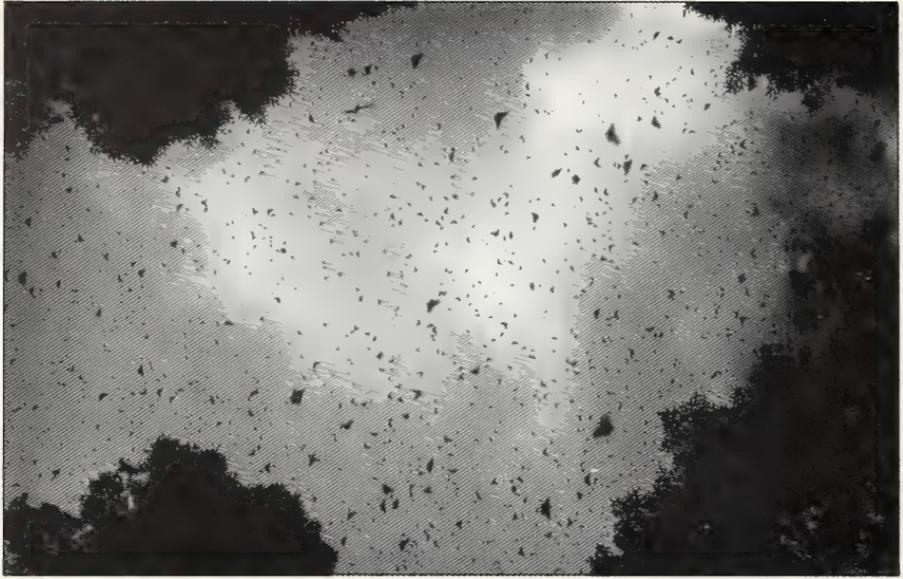


Fig. 19. Site Julia. The sky is filled with Monarchs.



Fig. 20. Site Alpha. A Monarch that has been killed by an Oriole. Note the slit abdomen, typical of this bird.

lower left, and, as if echoing them in miniature in that same corner of the painting and appearing closer to the viewer than anything else in the scene are a Painted lady, *Vanessa cardui*, and a male Clouded yellow, *Colias croceus*, nectaring quietly on the blossoms of a small weed (Fig. 6). Dürer, who was obsessed with the scientifically-accurate recording of living things — his famous rabbit, his dandelions and renderings of other plants attest to this — depicted the two butterflies correctly and convincingly, but the artist was also well aware of the prevailing belief of his time that everything, animal, vegetable and mineral, contained a hidden, symbolic meaning for the faithful. In other words, the whole world was cloaked in symbolic meaning. Thus, in this context, the Painted lady and Clouded yellow butterflies may anticipate not only Christ's death and resurrection but also, carrying over the ancient synonymy of the butterfly and soul concepts, the immortality of the soul of both Christ and the Virgin Mary.

The same idea is later embodied in a mid-seventeenth century portrayal of the Virgin and Christ Child surrounded by a garland of flowers, the work of the Dutch Jesuit painter, Daniel Seghers (1590-1661). In this painting (Antwerp, Musée Royale), as in the one by Dürer, two butterflies appear perched on flowers, this time a Green-veined white, *Pieris napi*, at the lower right, and a Red admiral, *Vanessa atalanta*, in the upper right corner (Fig. 7). The interaction of the Virgin and Child with the two butterflies is particularly intriguing. Mary's gaze is directed at the Green-veined white, and the cupped hand of the Child is raised, as though he is about to reach out and capture the butterfly. Yet, surprisingly, his eyes are fixed on the Red admiral in the corner above, far out of his reach. Christ's reaching for the butterfly is an obvious allusion to the immortal soul concept, and his upward glance can logically be interpreted as referring to his ultimate ascent to heaven. However, there is reason to believe that the artist's choice of the Red admiral as the butterfly that stays far outside the reach of the Christ Child — and indeed outside the garland enclosing him and the Virgin — may have still another symbolic meaning: this butterfly may be an embodiment of evil, in fact of the Devil himself.

It seems incredible that butterflies, so long equated with the human soul and immortality, should also be interpreted by anyone as evil spirits, or as manifestations of the Devil. However, beautiful as these creatures are in their adult stage, they are insects nonetheless and, particularly as larvae, some of which defoliate whole fields of cabbage and other crops, can easily be equated with locusts and other injurious insect pests, all enemies of man. In the era following the devastations of the Black Plague, the Hundred Years' War and the Fall of Constantinople to the Turks, there existed a widely prevailing insecurity and sense of impending doomsday, and hence an obsessive preoccupation with death, damnation and hell. Thus, many of the life forms, particularly those less

familiar and less understood, and those in competition with man for food or living space, came to be held in mistrust, were hated, and were equated with the Devil and his evil, anti-Christian activities.

Perhaps no artist has ever conveyed this spirit of pessimism and gloom more effectively and imaginatively than the Dutch contemporary of Dürer, Hieronymus Bosch (c. 1460-1516), a painter whose creations are encyclopaedic catalogues of the symbols of man's deadly sins on earth and of the terrifying tortures and despair that are his eternal punishments in hell. Since the church in Bosch's time still believed that fear was the best assurance of man's virtue, its priests sermonized by conjuring up the most horrific images of man's damnation conceivable. Thus, Bosch's altarpieces, such as his *Garden of Earthly Delights*, 1500 (Madrid, Prado), served as a visual counterpart of the verbal descriptions and, in their own symbolic language, as powerful indictments of man's transgressions on this earth. They were painted sermons designed to terrify him into living a clean and reverent Christian life.

In the three panels comprising the *Garden of Earthly Delights* are depicted perhaps thousands of humans, animals, birds and various hybrid monsters, and among these are two butterflies, one in the central panel, which shows man's sexual excesses on earth, and the other in the right wing, which portrays man's damnation in hell. It is significant that nothing resembling a butterfly can be found anywhere in the left wing, depicting Eden on the Sixth Day, with the creation of Adam and Eve. In the central panel, indeed virtually in the very centre of the composition, a tremendously oversized Small tortoiseshell butterfly, *Aglais urticae*, is nectaring on a comparatively enormous thistle blossom, among all the bizarre sexual activity surrounding the butterfly (Fig. 8). In fact the insect and flower are so huge compared to the humans and animals in the landscape that it has been suggested that the butterfly and thistle image may have been intended to embody the central idea of the entire altarpiece⁽³⁾. With the thistle traditionally symbolizing the agonies of death and the butterfly the salvation of the human soul, the placement of the combined image probably suggests a midpoint between Heaven and Hell, between salvation and damnation. However, there is no ambivalence in Bosch's depiction of a butterfly in the hell wing, this time an obvious demon in the process of torturing one of the damned (Fig. 9). Shown with photographic accuracy, the creature sports the wings of the Meadow brown, *Maniola jurtina*, but it has the head of a bird, whose predatory beak was probably derived from a theatrical mask, as devils were often presented in the theatre of the period as having birds' heads⁽⁴⁾. The artist seems to have depicted a metamorphosis: the butterfly going from a symbol of salvation to one of damnation.

A comparable transformation can readily be seen in the *Fall of the Rebel Angels*, 1562 (Brussels, Musées Royaux des Beaux-Arts), by the

Flemish heir to the legacy of Bosch, Pieter Bruegel the Elder (c. 1525-1569). This transformation is recognized by examining the magnificent outspread feathered birdwings worn by St. Michael, in the process of striking down the Rebel Angels with his shining sword. The Rebel Angels, on the other hand, have lost their traditional attributes of good Christian angels — the wings of birds — and are developing butterfly wings as they fall from grace, thus becoming symbols of evil and damnation (Fig. 10). Only the Rebel Angel directly beneath St. Michael has wings whose patterns and coloration are those of an actual species, the Old World swallowtail, *Papilio machaon*, probably Europe's most attractive butterfly. It may be relevant here that this period, the era of the Counter-Reformation, took a distinctly jaundiced view of things pagan, so that the portrayal of Rebel Angels as monsters with butterfly wings may well be a butterfly-Psyche reference, in an obviously derogatory light.

Yet, even in the seventeenth century and beyond, the butterfly continued to reappear as the embodiment of a very negative statement about man and his less-than-virtuous ways. Dutch still life painting is considered one of the crowning glories of the history of art. It is generally agreed that, on the whole, this particular genre of painting constitutes a celebration of the beauty of nature. Thus the arrangements of flowers, fruit and their often accompanying butterflies and other insects, snails, lizards and other small creatures should be taken at face value, without searching for disguised symbolic meaning in every flower, leaf or bug. However, a significant number of still life paintings of the period did indeed carry meanings quite beyond the visual beauty of the objects in those paintings.

One such form of still life painting was the "vanitas" theme, symbolic statement about man's greed to acquire earthly wealth, and about the transitory nature of that materialism and, indeed, of life itself. Many "vanitas" compositions have abundant allusions to death. A characteristic example is the *Vanitas*, c. 1660 (France, private collection), by the French painter, Renard de St. André. Here the skull and hourglass, both traditional symbols of death and the temporality of life, dominate the composition whose other main iconographic elements are the books, the coins and the vase of flowers, or the objects of man's quest for the acquisition of knowledge, wealth and the beauties and pleasures of nature. On one of the flowers is perched a Red admiral, a species already seen in the Seghers painting from approximately the same time. It is a butterfly that seems to occur more often in those Dutch still life paintings that have a message to convey, than any other species. *Lobster and Fruit*, 1670's (Toledo, Ohio, Museum of Art), by Jan Davidszoon de Heem (1600-1683), considered by some to be Holland's greatest still-life-painter, constitutes a variant of the "vanitas" theme. This time man's

greed takes the form of gluttony. There is so much food piled on the table that no human could stuff himself with all these things without serious consequences. The overturned silver goblet suggests such an outcome, perhaps even that man poisons himself with excessive food and drink. The dominance of the huge red lobster and its bright colours may be the clue — red is indeed the traditional colour of the Devil, the fires of Hell, and so on. And the Red admiral, present in all these paintings, may well be a symbolic reference to the Devil and his work. Such an interpretation would also make sense in defining the role and meaning of the butterfly in the corner of the Seghers' *Madonna and Child in a Garland of Flowers*. The Christ Child reaches for the white butterfly, equated with virtue, resurrection and immortality, while the red butterfly, symbolizing death and damnation, seems to look on from a very respectable distance.

With the dramatic secularization of Western art during the Enlightenment, there was a sharp decline in the use of the butterfly image in art for symbolic purposes during the eighteenth century. Just as increasing numbers of scientific publications appeared, accurately depicting, describing and classifying all the known species of butterflies and moths, it appears that artists found little in those publications to inspire them to include the butterflies in their paintings, prints, or whatever art form.

However, toward the end of the century, the re-awakening interest in Classical themes and styles saw a return of the butterfly to art, as seen earlier in the Canova and Gérard works portraying Cupid and Psyche.

It was at precisely that same time that the great Spanish painter, Francisco Goya y Lucientes (1746-1828) utilized the image of the butterfly in a few of his works in a context surprisingly distinct from that of the aforementioned examples, and for a symbolic purpose again very different from that of other artists who incorporated the butterfly into their works. Nonetheless, Goya's images carried a negative symbolism reminiscent of that of the seventeenth century Dutch painters whose "vanitas" compositions laid bare man's greed, materialism and other vices. Between 1797 and 1799 Goya evolved his series of eighty etchings, the *Caprichos*, intended to "... censure human errors and vices, ... the multitude of follies and blunders ... as well as the vulgar prejudices and lies authorized by custom, ignorance or interest ..."⁽⁵⁾. In the scenes making up this series, the artist attacked nearly all of his society's customs, mores and traditions, from the upbringing of children, courtship and marriage, to the superstitions of the time, witchcraft and sorcery. Towards that end, he created a nightmarish world of monsters and hallucinatory visions, for which he is justly famous.

In Plate 61, "Volaverunt," Goya shows an attractive young woman, generally interpreted as a portrayal of the Duchess of Alba, with whom

Goya is believed to have had a brief affair, being borne aloft by three hideous crouching witches (Fig. 13). Her outspread arms extend the shawl she wears like a large pair of butterfly wings, and this allusion to butterfly wings is duplicated even more emphatically by the pair of variegated wings sprouting from her hair. The butterfly imagery in this case may be understood to be symbolic of fickleness and female inconstancy, and it is quite probable that Goya was making a very personal comment expressing his bitterness over the sudden end of the relationship between him and the Duchess. In other words, the print is a personal amorous satire of the Duchess and a universal commentary on the vagaries of fickle fortune. The Duchess and fortune are fickle and inconstant, and, as the title of the print, "Volaverunt" (it has flown) implies, they have flown away in a flash, like a butterfly, vanishing and leaving frustration and disappointment ⁽⁶⁾. The same theme was reiterated, even more emphatically by Goya, with the same symbolic use of the butterfly imagery, in a plate originally intended for the *Caprichos*, entitled "Dream of Lies and Inconstancy"; where the Duchess is depicted with two faces and with the artist himself embracing her arm and looking longingly into her eyes (Fig. 14) ⁽⁷⁾.

Although no major artist since Goya's time has portrayed women with butterfly wings specifically to symbolize female fickleness and inconstancy, later nineteenth century and early twentieth century artists have repeatedly utilized anthropomorphized butterfly images, always with the body of a young woman. At the end of the last century, the Art Nouveau style was one of great flamboyance, embodying a spirit of breaking away and shaking off the burdens of the whole nineteenth century. In particular, designers of jewellery, such as Alphonse Mucha, Louis Comfort Tiffany and René Lalique, created pendants, brooches and necklaces that consisted of a human female with elaborately-patterned butterfly wings, some based on real species and others on wild flights of the designer's imagination. In the world of dance, the Parisian Loie Fuller performed her flamboyant butterfly dance at the Folies Bergère in the 1890s, giving her widespread recognition and fame, and inspiring many artists to attempt to embody the grace, movement and energy of her performances in their work (Fig. 15). Henri de Toulouse-Lautrec designed a lithographic poster in 1894, depicting Miss Fuller's dance, in which the composition borders on complete abstraction. The Austrian Kolomon Moser portrayed the dancer in performance in a watercolour and ink rendering, 1918, truly bringing the image of the butterfly into the context and language of modern art (Fig. 16).

These modern images are indeed far removed from the depictions of Psyche with butterfly wings by the ancient sculptors or even by Canova at the end of the eighteenth century, or from Goya's portrayal of the Duchess of Alba in the *Caprichos* etchings. Also the symbolism in the modern works is ambivalent, if present at all. However, there can be

little doubt that their ultimate derivation is the heritage of works from the history of Western art such as those examined in these pages, that employed the butterfly as a symbol of life or death, good or evil, as well as an object of great visual beauty, worthy of being celebrated and immortalized by mankind in his art.

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7. Goya apparently considered this scene a bit too personal and in questionable taste, and so he rejected the plate.

CONGRATULATIONS TO FINNISH SOCIETY

We send our congratulations and best wishes to the Entomological Society of Finland on their 50th anniversary. Like the AES they were founded in 1935, a few months earlier than us, and so are also celebrating their Golden Jubilee this year. Like us they managed to survive the very difficult war years which came so soon after we came into existence. Like us too they have since gone from strength to strength and so too has their main Journal, the *Annales Entomologici Fennici*, which has only had three editors over 50 years whereas at least seventeen people have been involved in editing our *Bulletin* alone.

Vol 51 of the *Annales* contains a very apt remark, which I feel also applies to the AES, and so I quote:-

"Looking back over its past 50 years, the Entomological Society of Finland starts the second half of its first century with optimism and confidence. Some of the founders confirm that there is something in the gatherings of entomologists which never changes. The future of the Society always rests upon the shoulders of those members, amateurs and professionals alike, who make no compromises in their devotion to the aims of the Society."

NEW ZEALAND PHASMIDS ESTABLISHED IN SOUTH-WEST ENGLAND: A Brief Account with notes on their distribution

by Paul D. Brock (4792)

Many entomologists are unaware that two species of Stick Insect occur in various parts of the south-west of England, and, although rarely seen, they are amongst the longest insects found in Britain.

Both species are widespread in New Zealand. The older records seem to verify the most likely origin of these insects as accidental importation with plants from New Zealand. It is likely that the insects have survived for many years, and favour sheltered areas. Sub-tropical plants can often be grown without much difficulty in the areas they colonise. The insects are active at night, and rarely feed or move in the daytime. The species concerned are:—

1. *Acanthoxyla prasina* (Westwood) (Colour Fig. B)

Length 76-85mm from head to tip of abdomen, with short antennae up to 26mm. Females only occur, which breed by means of parthenogenesis. Adults are usually green, but may be brown, sometimes with white flecks, and always with a number of stout black spines, mainly on the head and thorax.

In New Zealand the species is said to be quite common and widespread, along with several similar *Acanthoxyla* species. In their native land they appear to accept a wide range of foodplants, including spiny shrubs: *rata*, *pohutukawa*, *ramarama*, *totara*, *rimi* and also more familiar plants to us such as willow, bramble and *eucalyptus*.

The British distribution of this species is known to be as follows:—

PAIGNTON

The species has probably occurred there since 1908, feeding on various plants including Conifers e.g. *cupressus* species, Japanese Cedar *Cryptomeria japonica* var. *elegans*, but also bramble, myrtle, loganberry and rose. More sheltered areas are likely spots, sometimes but not necessarily, on larger trees or bushes. I found a recently-moulted adult in a garden on 12th July 1984, feeding on a *Cupressus* type species, but normally one would expect to find only nymphs in July. There appears to be little doubt that the species drops its eggs to the ground; these overwinter and produce nymphs in Spring or early Summer. Most adults have been found in August, September and October, usually concealed in the bushes. However, sometimes they are very conspicuous resting high up on bushes. When the colder weather approaches they may sometimes be seen dead under the bushes.

They appear to occur within a few miles radius of Paignton, and at Galmpton I was informed that they used to be very common on roses in one spot, up to two years ago. Some ten years ago many nymphs were found crawling on *Cupressus* bushes. However, records appear to be fewer in the last two or three years, and the species seems to be on the decline in the area, but it is hoped that numbers will increase.

TORQUAY

At one time they were common in the Palm House, but the plants have now been sprayed for many years, and they were last seen some twenty years ago. There appears to be no recent records from elsewhere at Torquay.

ST. MAWES

Probably imported with New Zealand plants obtained from the Scilly Isles. Several sightings have been reported from gardens in recent years.

TRESCO, SCILLY ISLES

Appears to have occurred here for many years. Early records indicate it was found in Tresco Abbey gardens, but there have been no recent sightings. The species has been seen this year. There are also several recent records including good numbers feeding on *Pittisporum* bushes at St. Nicholas Church and elsewhere on Tresco.

This species has been difficult to rear in captivity so far, probably due to an incorrect level of humidity being provided. I have reared a specimen to adult from New Zealand stock, feeding it on bramble, but many of the newly-hatched nymphs die. Next time I aim to try and start them on *Cupressus* and hope for better results. A plastic propagator is useful to provide a humid environment, and the foodplant may be sprayed lightly once or twice a day.

2. *Clitarchus hookeri* (White)

Length 86-87mm. Females only present in UK stock, but in New Zealand where it is one of the commonest Phasmids, males occur. The species is smooth-bodied and stick-like, often green but sometimes brown forms occur. There are two yellowish edges along the body.

The distribution is as follows:—

TRESCO, SCILLY ISLES

First recorded in 1949 by Major A. A. Dorien-Smith (see Uvarov, 1950) being found by his gardener in the grounds of Tresco Abbey. Again, there have been no recent records from this area. The species is known to

feed on bramble and rose in captivity, but few records actually quote the foodplant in the wild. However, Mr M. Waller found two large nymphs in August 1982, one of which was located by beating a *Callistemon* tree at the main gardens on Tresco. They are also said to occur at Old Grimsby. One specimen survived and laid around 300 eggs.

A BBC television programme recently showed both colour forms of the species on Tresco, but incorrectly stated the brown specimens were males!

CORNWALL

These recent records are recorded on the basis that the insects are smooth-bodied; one adult was sent to the British Museum (Natural History) and confirmed as a *Clitarchus* species.

TRURO

Reported from a garden in August 1979, the first find in mainland Cornwall.

FALMOUTH

On a Banksian Rose in June, 1981, from small nymphs to adults, other foodplants bramble and raspberry. In December, 1983, adults were found in another garden.

ST. MAWES

Also noted.

The species is said to occur on the island of Rosdohan in the Bay of Kenmare, South Kerry, but I have not heard of a very recent sighting.

In recent years both species have become more widespread, probably due to the purchase of plants with the insect on, or eggs in the soil. They require a suitable climate, and, in particular, parts of the West Country, with their usual mild winters, are not dissimilar to parts of New Zealand.

ACKNOWLEDGEMENTS

My thanks go to Mrs. Stella Turk (Cornish Biological Records Centre) for details of the records on the Cornish mainland, and Colin Bath, Ralph Hopper and Howard Turner for information concerning distribution around the Paignton area.

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RUGGED CHILDREN OF AIR

by Jo Brewer

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THE SEARCH (1886-1975)

A mass of literature tells us that during this century and the last, a great deal of interest in all aspects of 'The Butterfly' developed in both the United States and Great Britain. Butterfly collecting in both countries became an increasingly popular sport as well as a source of scientific research, and has continued as such for close to two centuries.

Popular books by well-known authors in both countries mention the Monarch, and various congregations and flights were recorded, but much of what was written was re-used, either by the author or by other lepidopterists. Apparently nothing was done to discover where the butterflies went, or why.

For example, in the States: C. J. Maynard, in *The Butterflies of New England* (1886) wrote 'These fine butterflies possess strong powers of flight . . . Doubtless they cross over wide sections of ocean, for I saw hundreds of an allied species (*Danaus berenice*) flying to the eastward over the Atlantic, 50 miles from land.'

In 1893, Samuel Scudder wrote: (The Monarch) . . . "has extraordinary powers of flight . . . and every autumn migrates southward in streams after passing the winter on the wing without, so far as is known, hibernating in torpidity . . . it flies northward not in flocks, but

singly. In 1885 no less than nine specimens were captured in England. As further proof of the transcendent powers of flight of this butterfly, it may be mentioned that it has been seen 500 miles from land”!

Kirby, in *Familiar Butterflies and Moths* (1901), first apologises for mentioning “*Danaus chrysippus*, which does not appear in England”. He goes on to say, “The largest American species, called by Americans ‘The Monarch’ (*Danais archippus*, Fab) is of very migratory habits and has not infrequently been captured in England.”

Five years later, Richard South (*Butterflies of the British Isles* (1906)) wrote, “Monarchs were first caught in England in 1876 and appeared also in 1881, 1884-’87, and in 1890 and 1896. There seems to be no question that the species is migratory in its habits, but exactly how it reaches this country is not definitely known.”

Looking back, it seems strange that after such a long stretch of ‘lepidopterous enthusiasm’, the appearance of mass gatherings and spectacular flights by The Monarch, had aroused so little public curiosity.

But never underestimate the power of a lepidopterist! In Edinburgh in 1930, Oliver & Boyd published a book by C. B. Williams entitled *The Migration of Butterflies* which describes the mass flights which occur not only in the States, but world-wide, and not only by monarchs, but by butterflies of many families. An entire section of the book was devoted to the migrations of monarch butterflies in the United States.

Dr. Williams had the co-operation of many lepidopterists of his day, both amateur and professional, who provided him with descriptions, dates, and all pertinent data. He received information from all over the US. Roosting sites were reported in Florida, California and several other locations. It was thought that the monarchs simply went south to avoid cold weather, and that was all.

In 1942, Dr. Fred Urquhart of the University of Toronto, and his wife, Nora, had embarked on a venture which later involved butterfly enthusiasts from all over the United States. In 1950, after eight years of gathering information about monarchs, he initiated a capture-tag-release report programme that fired the imagination of people country-wide of all ages. In 1960 his book *The Monarch Butterfly* was published, in which there is a dedication to “Dr. C. B. Williams for his pioneer studies of insect migration, and for his helpful suggestions and friendship over the years.”

By 1964, when Volume I of Dr. Urquhart’s newsletter, *Insect Migration Studies*, was sent out, about 195 people were tagging butterflies for the purpose of discovering the flight routes of the monarchs and their destination. That number eventually rose to over 600. The number of butterflies tagged must have been astronomical, for I, myself, tagged nearly 1,000.

By 1969, Dr. Urquhart had received a three-year grant from *National Geographical Magazine* to help finance a search for the winter quarters of all the monarchs east of the Rocky Mountains.

In 1971, a butterfly released in Texas was found in Hildago, Mexico, and another from West Wisconsin was captured in Coahuila, Mexico.

In 1972, a butterfly released in Wisconsin was captured in Coahuila, Mexico.

In 1973, one captured in New York was found in Mexico.

In that year Kenneth Brugger, a student living in Mexico City became an associate of the banding programme. He and his wife drove around the Mexican countryside seeking clues to the mysterious, almost mythical, canyon of the butterflies. During October and November of that year they saw individual butterflies in streets and fields.

In 1974 a monarch from Missouri and another from Texas were both captured in Michoacan. From that day, Ken and his wife spent every moment of their spare time cruising through Michoacan, leaving not a stone unturned in the narrow, crooked mountain roads of the state, in their quest for the roosting site.

On the eve of January 9, 1975, Dr. Urquhart's telephone in Toronto rang. When he lifted the receiver the first words he heard were, "This is Ken Brugger. We have located the Colony! Millions of Monarchs! — in the Evergreens beside a mountain clearing."

In that one moment the careful, sometimes tedious, but always fascinating work of a lifetime had at last reached its dramatic conclusion. One year later, on January 9, 1976, Dr. Urquhart and Nora, witnessed the breathtaking panorama at Site Alpha for the first time.

SITE ALPHA

Now that the mystery had been solved, the next step would be to find a way to prevent tourists from flocking to the site, and to protect the site from being ravaged by the lumbering interests. Lumbering is a vital part of the Mexican economy, and therefore a much more dangerous threat to the butterflies than tourism, which can be controlled quite readily. It is a situation that must be resolved if this unique cycle — this huge act of gathering and hibernating, mating and departing yearly, at the same chosen place — is to survive.

The first step was taken by Dr. Lincoln Brower, a Professor of Biology at the University of Florida at Gainesville. Dr. Brower had long been interested in the Monarch Butterfly. His research had described the mating behaviour of various Danoids. His experiments with monarchs, viceroys and bluejays had proved without a doubt that monarchs are poisonous to birds, and that birds can teach their young not to eat them. These results have appeared in the Proceedings of the National Academy of Sciences and in *Scientific American*.

“Link” Brower had been a long-time friend of mine. He had also shown me techniques for rearing, and provided me with various milkweeds for my own experiments. He and his colleagues had been working at Site Alpha for several years before my husband and I had any idea that we would ever see the Mexican butterfly colonies. When the telephone call came asking if we would like to meet him there I was stunned.

As it turned out, this particular event was not only for the purpose of visiting the sites. It was part of a plan for arousing interest among various influential people in protecting the roosting sites of the butterflies. Roger Caras, an author and nature writer, would be there, and Richard Lindley, representing the World Wildlife Federation. Several professors from the University of Mexico were coming. Cauahatemoc Cardenas, the Governor of Michoacan would also be there. The ABC Network was coming to film a documentary, and the Mexican Government had loaned a helicopter so that the site could be observed from the air. We did not know anything about all this when we stepped from the plane in Mexico City in mid-March, 1981.

Chaos at the airport coupled with the trauma of negotiating a car rental in Spanish, lasted almost until dusk. We then faced the next hazard — that of driving through a maze of mountain passes in the dark. One false turn, and we could become totally lost until morning. By blindly following some directions we had been given, and relying on a primitive faith in astronomy, we finally reached the hotel where the others were lodging, at about midnight.

When we left for Site Alpha the next morning before sunrise, we had our first real glimpse of the terrain through which we would be weaving for most of the day. The canyon home of the butterflies was totally hidden from any road accessible to a wheeled vehicle. In addition, we had been weaving our way through such a maze of mountains that I completely lost my sense of direction by the time the sun was visible. We were in a six car convoy, the leading car carrying Dr. Brower and Richard Lindley among other people. The last car was a small Jeep driven by a mechanic, “just in case . . .”.

We embarked on roads wide enough for one car only, cones of extinct volcanoes visible intermittently through the rising pre-dawn mists . . . rarely in the distance, a cluster of small unpainted buildings . . . sheep and goats in tangled fields Once the entire convoy had to squeeze against the rocks to our right to make way for a donkey train laden with firewood to pass by, as it plodded up the precarious left side of the road with its drivers.

Eventually the vehicles could go no further, so we left them in a clearing and began the long descent into Site Alpha, the Canyon of Monarchs that had first been seen by Dr. Urquhart and Ken Brugger.

I can describe what I saw, but I do not believe I will ever be able to express how I felt when we turned into the little path hardly two feet wide.....

We had already seen groups of Monarchs, quiescent on small shrubs, and a number flying listlessly — perhaps a hundred of them in shafts of sunlight that filtered between the oyamel trees.

But the path turned sharply at the bottom of the slope. We rounded the corner, and suddenly we were standing on a carpet of dead butterflies — a patchwork of wings and leaves. One could only walk on them, for there was nowhere else to go. I tried to tread lightly. (Figs. 17, 18)

This was the day that Governor Cardenas and his sons and various officials had come to see the massed butterflies, I believe for the first time. We all went into the depths of the canyon but I lingered and was last because I needed to look and listen in silence.

Every turn in the path was a new adventure. We came to a shallow water hole where hundreds of butterflies were quenching their winter-long thirst — so engrossed in their drinking that when I sat down on the sand in their midst they did not notice me.

But I noticed one thing. I noticed a butterfly with an abdomen so swollen that it was not able to leave the ground. It could barely crawl. It seemed that when warm weather returns and the butterflies come out of hibernation, they are so thirsty that some will drink until they almost burst. Usually they fall prey to some small animal. Even in this idyllic place there are such hazards! There are black grossbeaks which raid the sleeping butterflies, bite off and eat their abdomens, while the remains of the butterfly flutter to the ground. There are also orioles which, with their sharp beaks, slit the abdomen and take the fats stored by the caterpillar, later sequestered in the butterfly. These appear to be the only birds which are not made ill by eating these poisons. (Fig. 20)

After this we came to the deep canyon. The path transected it, rising on our left to unseen heights, and dropping on our right to the dark depths of the forest floor. The treetops — the tallest must have been a hundred feet tall — were devoid of branches until at their tops they spread a canopy over all that lay below. But that morning the branches were so densely covered with sleeping butterflies that they hung like huge stems of dates fifteen feet long and wider than the length of a man's arm. In the sunlit places closer to the ground, they covered the trees, slowly opening and closing their copper-bright wings, shifting patterns, like embers in a dying blaze. As we climbed uphill, scuffing leaves as we went, there was suddenly a hissing sound and hundreds of monarchs swirled up in a great mass, so close to where we were that I felt a rush of wind as they rose. In the green-gold light of the sun filtering through leaves onto the yellowed path, I had thought that they were dead leaves!

THE HELICOPTER

All thought of silence was postponed when the helicopter arrived the following morning and touched down in a meadow adjacent to our hotel. Dave and I were to be given the unique opportunity of trying to spot monarch colonies from the air.

Apparently as soon as the sound of the helicopter became audible, every child in Michoacan heard it, for it had no sooner landed than they began to come out of the surrounding shrubbery. Timidly at first, one at a time, wide-eyed as they crept toward the gleaming blue and white bird. But as more appeared, steps became longer and surer. When the first child ran there was no way to hold them back. The Mexican pilots guarded the plane as well as they could until (strangely enough) the children were instantly diverted when I focussed my camera on them. The camera worked overtime to save the integrity of the helicopter, and I guess the children felt that they had been made immortal by the camera.

Dave, Link and I boarded the helicopter, and in a few minutes the children were almost literally blown from the field. I watched them grow smaller as the helicopter rose, and I thought of the little winds I had felt on my cheeks as the butterflies had risen up and crossed my path in Alpha canyon the day before.

We were higher than the mountains, looking down on the world, looking for masses of orange in the tree tops. We spotted several, all of which proved not to be butterflies, but dead or dying trees. Link finally suggested that we look for butterflies flying around — not for a large mass.

The northern migration had begun. Seeing single butterflies from the air was not easy, I thought, but Link was right. When we really looked for them we *could* see them — as pale little scraps floating in air.

The helicopter turned, dived and rose again in a dizzying spiral, around and high above a panorama of tree-covered slopes. Occasional air currents added to the excitement by sucking the plane down between peaks.

Then, suddenly — “There it is!” Both of us spotted it at the same moment — a thick cluster of trees, not orange, but dark green overlaid with a vague purple sheen. Without knowing why, we knew that it was a monarch colony! Later we were told that seen from the air, the sun can cast a beam which reflects from the wings of monarchs, sending back a mauve iridescence.

SITE JULIA

The TV crew arrived, and as previously planned, we started out for one of the three possible entrances to Site Julia. When we arrived at the appointed place, donkeys and their drivers were already waiting to carry

the extremely heavy and expensive camera equipment into the canyon. The camera men — all New Yorkers — stared at them in disbelief. Probably they had never seen one of these patient little beasts safely transporting a load of fire wood many times the size of their camera; perhaps they didn't know how carefully a Mexican *burro* can negotiate the most hazardous of slopes without stumbling, nor how securely their drivers can strap heavy burdens onto their backs. Be that as it may, they refused to have their equipment taken into the canyon by the donkeys.

So, we started down on foot, cameras and all. The path was so steep and so hazardous that after nearly an hour we had not gone far enough to see a singly butterfly, and Link decided it would not be sensible to continue. We would try one of the other entrances the next day. However, the area was certainly picturesque, and much of the photography was done during the time we were there.

The next day we decided to try the second entrance, but again we failed — in three ways. First, we walked many miles, but lingered too long, and the sun became low on the horizon. Second, we had, of necessity, left our vehicles miles from our destination, and third, the camera men, who still black-listed the donkeys, were about to revolt

Now it was our last day in Mexico. We were on a broad plane overlooking an expanse of forested land, but around us on the slopes there were stumps of trees and great piles of timber ready to be taken to the mill and reduced to chips and sawdust which would be converted into wall board.

The helicopter was there with Governor Cardenas, three professors from the University of Mexico and several others — all supporters of wildlife conservation, who wanted to see the extent of lumbering as well as some of the eight small monarch sites now discovered, but not yet explored. Dave and I had decided to stay and try the third route into Julia.

We waved them farewell, and walked up the slope with Nöe, a young Mexican boy whom Dave had hired to be our guide.

It is not safe for two strangers to enter these canyons alone especially Julia. The entrance to the canyon is over 10,000 feet, and drops to under 8,000 feet at the roosting sites.

The trail leading into it is a donkey path worn smooth on the side of the mountain with overhanging cliffs on its right and a canyon partially filled with trees on its left. The path, narrow as it is, is garnished with smooth pebbles, that increase the danger of falling. Farther on there are branching paths and paths that criss-cross. A person could fall and be injured, or take a wrong path and be lost in a maze of thick undergrowth. We felt very safe with Nöe, who knows the eccentricities of all the canyons.

The walk into Julia and back is an all-day journey. Nöe was silent by nature, and with only three of us on the trail there was often hardly any sound. It seemed that echoes in the canyon spoke to us. Hundreds — even thousands of years ago people of a magnificent culture may have walked here on their way to or from some mysterious ceremony that now can be only guessed at.

We met one very old man walking through the forest with his cane and his dog. In broken and halting English he told us that when he was a little child his grandfather had told him that when *he* was a boy, he and his friend had gone into the canyon and rolled around in the butterflies just for fun . . . as our children love to roll in piles of autumn leaves!

The original inhabitants of these mountains may have walked where we were walking, hundreds — even thousands of years ago. Perhaps some distant ancestor of his had believed in Xipe, the little god of Spring, who wore a butterfly on his lips; and Itzpapalotl, the Obsidian Goddess. When the volcanoes erupted, fiery streams of molten metals ran down the sides of their cones, and hardened into the brittle black glass called obsidian, from which Itzpopalotl made spear heads and knives, and lured young warriors into battle.

With the advance of Spring the butterflies were growing restless. Many more were flying back and forth, perhaps testing their wings after a season of complete immobility. Many more were drinking. We stopped by a little brook to have our lunch, and sat on stones in the sun surrounded by butterflies warming their wings. The deeper we went the more silent and mysterious the canyon seemed to be. The trees closed out the sun, and there were many dead butterflies, most of them under the trees on the slopes above us. I don't know how far we may have walked. It was almost as if time and space were meaningless — that nothing was real except the butterflies. They covered every tree — leaves, branches, even the trunks of the trees were all invisible beneath them. They were so densely clustered that the whole landscape seemed to be made of nothing but butterflies holding each other in place. (See Figs. 19 and A)

We came to a downward slope, beyond which we could see light. When we reached it — when we came out of the woods into the light — it was a mountain of butterflies with open wings — a huge bonfire!

Nothing in nature could possibly be more dramatic than that confirmation of life which I saw as I came out of the woods and into the light! What had happened that made them fly all at once? There was a muffled sound of wind, a column of darkness against the sky which broke into fragments, and an empty tree — or was it a bush? I do not know, but its branches touched the ground, and its leaves were green.

The groundwork done by Urquhart and Brower were the first real steps toward a complete understanding of the migrating phenomenon of the monarch butterflies — until now a missing link in the life history of

the species. If Dr. Urquhart had not spent a painstaking 32 years of research prior to the unveiling of the roosts, and if Dr. Brower had not brought the significance of the discovery to the attention of Governor Cardenas and other officials and to biologists and entomologists as well, it is entirely possible that Site Alpha would by now have been destroyed. One of the results of alerting Governor Cardenas and his colleagues, was the founding of an organization called MONARCHA, which has the same goals — to protect the monarch sites — as has the Xerces Society. As a result, the logging at Site Alpha has been halted — at least temporarily, pending negotiations.

The Monarch Project, an offshoot of the Xerces Society, is a massive attempt to organize and conserve the integrity of the various winter quarters of the monarchs in California. By doing so, we shall acquire much valuable information which will be useful in comparing it with the lifestyle of the Mexican populations.

The Mexican sites, because of the astronomical numbers involved, are first in everyone's mind, but there is a great deal yet to discover about the monarchs in Australia that feed on a kind of milkweed quite different from the species we have in the States. Our milkweeds are wild flowers. Theirs are very large spreading trees, but with blossoms similar to ours. Migrations of these butterflies have also been recorded, but not to my knowledge, studied in depth.

No one yet knows where the monarchs originated. We know that they cannot survive in freezing temperatures in the north and that a heavy wet storm can destroy many, as previously mentioned. We have no notion where they would go for winter shelter if their present canyons should be destroyed, and we do not know how over three hundred million butterflies from the entire eastern half of our continent could all have been "programmed" to find this one small corner of the earth at once. These are not only mysteries to be solved. They are facets of a delicate and enormous phenomenon without which our entire world would be poorer and less beautiful.

PROFESSOR FUNGUS. (Copyright by G. S. Kloet).



FIFTY YEARS OF PUBLISHING — A BIBLIOGRAPHY OF THE AMATEUR ENTOMOLOGISTS' SOCIETY

Compiled by Paul Sokoloff (4456)

During the first half century of its life the Society has published an enormous volume of material, varying from a barely legible "jelly-pan" hectographed sheet to a professionally produced hard-back book with full colour illustrations. The general policy of the Society has always been to produce inexpensive literature for use by the novice, amateur or practical entomologist. So successful has this policy been that as well as holding a respected place within British entomological literature, a number of our publications now enjoy world-wide sales.

The first publication of the Society was produced in August 1935 as "*The Journal of the Entomological Exchange and Correspondence Club*". After 13 duplicated issues the name was changed to "*The Entomologists' Bulletin*" under which title a further 18 duplicated issues, comprising volumes two and three of the Journal, were produced. These were enlarged, and enclosed within a tinted cover. In January 1939 a further metamorphosis occurred: Volume four appeared under the title "*The Amateur Entomologist*" — a name which survives to the present day. The issue was commercially printed, in octavo format, with the Society's logo represented by a yellow brimstone on a black background. The intention of the editors was that this new format journal should contain "... matter of the most permanent nature."

Initially the Journal contained collections of short articles, written by specialists, on particular aspects of entomology. Very soon, however, it became the practice to devote the whole of a volume of the Journal to a single theme, and thus the Society's "*Handbooks*" came into being.

The Bulletin separated from the serial publications of the Society at the same time as the new format Journal was issued, and also commenced (confusingly) with Volume 4, Issue No. 32. The Bulletin remained as a duplicated publication throughout the years of the Second World War (issued from 1940 - 1944 as the "*Wartime Exchange Sheet*"). The first commercially produced Bulletin was Volume 6, Issue No. 64, August 1944. Individual issues were printed without covers, and to allow for permanent storage each annual volume was issued with a wrap-round printed cover in thicker paper. Later each issue had a thin yellow printed cover as well as the annual wrapper. This practice continued until volume 21 (1962) after which the Bulletin was issued quarterly, without an annual wrapper.

The leaflets were originally intended as reprints of the more significant articles in the Journal, and this practice has continued over the years. Increasingly, however, leaflets have been specially written, rather than being reprinted from other publications. Society pamphlets were

designed to produce factual summaries of use to the amateur, such as label lists, directories etc. Comparatively few items have been published under this heading.

Membership lists are always a fascinating reflection of a Society's history and fortunes. The first published list of members appeared in issue No. 1 of the Journal, August 1935: five members were listed, although the Hon. Secretary and compiler, L. R. Tesch, was omitted. Updates of new members were published in or with each subsequent issue. The first published membership number appeared in issue No. 11, September 1936, and was member No. 41: Mr. E. W. Classey! Subsequently all new members were allocated a number. Lists were published in or with the Bulletin at irregular intervals until 1962 when the first free-standing membership list was produced. Supplements and new lists have been issued regularly since then.

The only other serial publication to survive to the present day is the "*Wants and Exchange List*", first issued in 1948, and published four times a year ever since. Prior to the issue of the first list, members wants and exchanges were published in the Journal, and then the Bulletin. The first published item appeared in issue No. 1 where a Mr. B. V. Fox advertised some lappet larvae for sale or exchange.

NOTES ON THE COMPILATION

This compilation has concentrated on the serial publications of the Society. A considerable amount of additional material has appeared in the form of notices, advertisements, reports, catalogues etc. No attempt has been made to catalogue these ephemera. I have followed the general format used in the first bibliography 25 years ago. (*Bull. amat. Ent. Soc.* (1960) 19: 91-94). The published dates and issue numbers are given where these are printed in the publication. Numbers and dates in SQUARE BRACKETS are inferred. During the mid- to late-1940's many printers' delays were experienced, and the lists below carry two dates. The first is the date printed on the cover (or rear) of the issue and the second, in brackets, is the actual date of publication. Similarly where an issue, or pages in an issue are not numbered the relevant information is contained within square brackets. The numbering of figures has presented a problem, for example where composite figures are counted as one or several depending upon the circumstances. No consistent approach is evident either in our publications, or this compilation. I have used the term "plate" to indicate a separately produced photographic illustration which has been incorporated into the publication. Modern printing techniques allow photographic illustrations to appear on text pages, and in these cases I have used the term "half-tone illustration", even if these are labelled as "plates" in the publication. Where a publication is based on a previous article in the Journal or Bulletin, the original reference is given. Whilst this is not strictly necessary from a bibliographical point of view, it may assist members in tracking down interesting information.

THE AMATEUR ENTOMOLOGIST



6^p

JAN. 1939

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IN 1939
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1944-5

HYMENOPTERIST'S HANDBOOK



7 1/2 TO HIREES
THE AMATEUR
ENTOMOLOGIST
1940 Vol. 7 No. 48

THE AMATEUR ENTOMOLOGIST



SILKMOTH REARER'S HANDBOOK



Edited by R. A. COOPER, B.Sc., A.C.S.I.,
The University, Leeds 1,
1941-42 (2 vols., 3P (from the publisher))

THE BULLETIN OF THE AMATEUR ENTOMOLOGISTS' SOCIETY

EDITED BY
R. A. COOPER, B.Sc., A.C.S.I.,
A. J. PAVANELL, B.Sc., A.C.S.I.,
A. R. SPYRIS, B.Sc., A.C.S.I.,
1941-42 (2 vols., 3P (from the publisher))

COLLECTING FLIES (Diptera)



L. PARNHEIMER, PARIS

THE AMATEUR ENTOMOLOGISTS' SOCIETY

LEAFLET No. 5

JANUARY 1981

PRICE: TWO POUNDS AND SIXPENCE - POST FREE

A 15, 1, WEST HARTLAND, LONDON W 11

THE AMATEUR ENTOMOLOGISTS' BULLETIN

THE JOURNAL OF
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THE AMATEUR ENTOMOLOGIST

Edited by
TREVOR THORNTON, M.A., F.R.E.S.,
with the assistance of W. B. COOPER, M.A.

A COLEOPTERIST'S HANDBOOK

PUBLISHED BY
THE AMATEUR ENTOMOLOGISTS' SOCIETY
Pages 151-154



PRICE:
Six Shillings
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Published by the Amateur Entomologists' Society, 15, London

SUMMARY OF SERIAL PUBLICATIONS, 1935-1985

JOURNAL (*Amat. Ent.*)

The Journal of the Entomological Exchange and Correspondence Club No. 1
4to. Remainder foolscap; hectographed or duplicated; irregular.

Vol. 1. 1935-36. Nos. 1-13. Ed. L. R. Tesch, B. A. Cooper, A. N. Brangham.
91 pp. Issues individually paged.

The Entomologists' Bulletin - The Journal of the Amateur Entomologists'
Society. Foolscap; duplicated; nine issues per year.

Vol. 2. 1937. Nos. 14-22. Ed. B. A. Cooper, A. N. Brangham. 113pp.

Vol. 3. 1938. Nos. 23-31. Ed. B. A. Cooper. 107 pp.

Serial Publications divided into Journal and Bulletin.

The Amateur Entomologist - The Journal of the Amateur Entomologists'
Society. 8vo; printed; bi-monthly.

Vol. 4. 1939. Nos. 32-37. Ed. B. A. Cooper. 48pp.

8vo; printed; annual, later irregular.

Vol. 5. 1941. No. 38. By various authors, Ed. B. A. Cooper. 64 pp., 84 figs.
(Nos. 5-73 + A-H + 7 unnumbered), 4 plates.

Vol. 6. 1942. No. 39. Silkmoth Rearer's Handbook [1st edition]. By various
authors, Ed. B. A. Cooper. 72 pp., 21 figs. (Nos. 2-22), 4 plates.

Vol. 7. 1943 [1945]. No. 40. The Hymenopterist's Handbook. By various
authors, Ed. B. A. Cooper. 160 pp., 184 figs. (Nos. 0-183), 2 plates.
1969. *Ibid.*, facsimile reprint with additional preface and original
advertising material omitted.

Vol. 8. 1944 [1945]. No. 41. By various authors, Ed. B. A. Cooper. 49 pp.
32 figs., 6 plates.

Serial numbers discontinued

Vol. 9. 1951. Practical Methods and Hints for Lepidopterists. By various
authors, Ed. Trevor Trought, W. J. B. Crotch. 42 pp. 48 figs., (Nos. 1-47
+ 1 unnumbered), 6 plates. Corrigendum and Addendum sheet. [2] pp

Vol. 10. 1951. By various authors, Ed. Trevor Trought, W. J. B. Crotch. 40 pp.
10 figs., 12 plates.

Vol. 11. 1954. A Coleopterist's Handbook. By various authors, Ed. Geo.
B. Walsh, John R. Dibb. 120 pp., 50 figs., 20 plates. Coloured cover.
1975 *Ibid.*, 2nd. Edition. Revised by J. Cooter, P. W. Cribb. 142 pp. 61
figs. (fig. 23 not included). 20 plates.

Vol. 12. 1956. A Silkmoth Rearer's Handbook. [2nd edition]. By W. J. B.
Crotch. 165 pp., 26 figs., (Nos. 1-23, 25-27), 26 plates (2 coloured).
Coloured cover.
[1969] *Ibid.*, Facsimile reprint omitting plates 1 and 2 and original
advertising material. 3 additional text lines on p[7]. Monochrome
cover.

1982. *Ibid.*, 3rd edition. Revised and Ed. Brian O. C. Gardiner. (General
Ed. Peter W. Cribb). 255pp. 14 figs., 58 plates (32 in colour). Boards.

Vol. [13]. 1976. A Lepidopterist's Handbook. by Richard Dickson, Ed. P. W.
Cribb. 34 figs., 13 half-tone illus. (unnumbered).

Vol. 14. 1977. Insect Photography for the Amateur. By Peter E. Lindsey,
Ed. Peter W. Cribb. 52 pp., 10 figs., 11 half-tone illus. (unnumbered).

Vol. 15. 1978. A Dipterist's Handbook. By various authors, Ed. Alan Stubbs,
Peter Chandler. General Ed. Peter W. Cribb. ix + 255 pp. 100 figs.
(nos. A + 1-17 + 1-77 + 5 unnumbered). Errata slip [4] pp.

Vol. 16. [1980]. Practical Hints for Collecting and Studying the
Microlepidoptera. By Paul Sokoloff, Ed. P. W. Cribb. 40 pp. 11 figs.

- Vol. 17. 1982. The Study of Stoneflies, Mayflies and Caddis Flies. By T. T. Macan, Ed. Peter W. Cribb. 44 pp. 10 figs.
- Vol. 18. [1983]. Breeding the British Butterflies. By Peter W. Cribb. 60 pp., 6 figs., 5 half-tone illus. (unnumbered).
- Vol. 19. [1984]. Breeding the British and European Hawk-Moths. By Paul Sokoloff, Ed. Peter W. Cribb. 56 pp., 5 figs., 9 half-tone illus.

BULLETIN (*Bull. amat. Ent. Soc.*)

The Bulletin of the Amateur Entomologists' Society. Foolscap; duplicated; nine issues per year. (Volume and serial number began with those of the corresponding issue of the Journal)

Vol. 4. 1939. Nos. 32-40. Ed. B. A. Cooper. 48 pp.

Amateur Entomologists' Society Wartime Exchange Sheet. Foolscap; duplicated; bi-monthly or irregular.

Vol. 5. 1940-44. Nos. 41-63 (1-23). Ed. B. A. Cooper. 74 pp.

The Bulletin of the Amateur Entomologists' Society. 8vo; printed; bi-monthly, sometimes irregular. Annual wrapper.

Vol. 6. 1944-45. Nos. 64-72. Ed. B. A. Cooper, E. W. Classey, A. F. O'Farrell, H. K. Airy Shaw. vii + 93pp.

Supplement to No. 71 (Meeting notice 2), vi pp. 8vo; printed; monthly. Annual wrapper.

Vol. 7. 1946-48. Nos. 73-96. Ed. B. O. C. Gardiner, B. A. Cooper, T. Trought. xiii + 232 pp. Supplements to Nos. 92, 93 and 95, duplicated, [4] pp.

Vol. 8. 1949. Nos. 97-108. Ed. T. Trought. viii + 96 pp.

Vol. 9. 1950. Nos. 109-120. Ed. T. Trought. viii + 108 pp. 1pl.

Vol. 10. 1951. Nos. 121-132. Ed. T. Trought, W. J. B. Crotch. viii + 124pp.

Vol. 11. 1952. Nos. 133-144. Ed. W. J. B. Crotch. vi + 116 pp.

Vol. 12. 1953. Nos. 145-156. Ed. W. J. B. Crotch. vii + 96 pp.

Vol. 13. 1954. Nos. 157-168. Ed. B. R. Stallwood. vii + 116 pp.

Vol. 14. 1955. Nos. 169-180. Ed. B. R. Stallwood. viii + 100 pp.

Vol. 15. 1956. Nos. 181-192. Ed. B. R. Stallwood. viii + 120 pp.

Vol. 16. 1957. Nos. 193-204. Ed. B. R. Stallwood. vii + 96 pp.

Vol. 17. 1958. Nos. 205-216. Ed. B. R. Stallwood. vi + 76 pp.

Vol. 18. 1959. Nos. 217-228. Ed. B. R. Stallwood. viii + 92 pp.

Vol. 19. 1960. Nos. 229-240. Ed. B. R. Stallwood. (229-232) and W. N. Lawfield (232-240). Issue 236 designated "Silver Jubilee Number". x + 118 pp.

Vol. 20. 1961. Nos. 241-251. Ed. W. N. Lawfield. xii + 128 pp.

Vol. 21. 1962. Nos. 252-257. Ed. Peter G. Taylor. viii + 108 pp. 8vo; printed; quarterly.

Vol. 22. 1963. Nos. 258-261. Ed. Peter G. Taylor (258-259) and H. V. Danks (260-261). x + 139 pp.

Vol. 23. 1964. Nos. 262-265. Ed. H. V. Danks. xii + 144 pp.

Vol. 24. 1965. Nos. 266-269. Ed. H. V. Danks. (issue 268 designated a special issue on "A guide to and local list of insects in North West Cornwall" by G. D. Trebilcock). viii + 172 pp.

Vol. 25. 1966. Nos. 270-273. Ed. H. V. Danks. viii + 144 pp.

Vol. 26. 1967. Nos. 274-277. Ed. H. V. Danks. vii + 136 pp.

Vol. 27. 1968. Nos. 278-281. Ed. H. V. Danks (278-279) and D. Corke (279-280). vii + 138 pp.

Vol. 28. 1969. Nos. 282-285. Ed. David Corke. viii + 136 pp.

- Vol. 29. 1970. Nos. 286-289. Ed. David Corke (286) and John Bocoock. v + 100 pp.
- Vol. 30. 1971. Nos. 290-293. Ed. John Bocoock. Issues 290 and 291 were incorrectly paginated pp 121-196 [1-72] Issue 292 incorrectly marked "Vol. 31". viii + 126 pp.
- Vol. 31. 1972. Nos. 294-297. Ed. John Bocoock (294) and Paul Boswell (295-297). vii + 144 pp.
- Vol. 32. 1973. Nos. 298-301. Ed. Paul Boswell (298-300) and Peter W. Cribb (301). [iv] + 184 pp.
- Vol. 33. 1974. Nos. 302-305. Ed. Peter W. Cribb (302) and Brian O. C. Gardiner (303-305). [iv] + 156 pp.
- Vol. 34. 1975. Nos. 306-309. Ed. Brian O. C. Gardiner. [iv] + 184 pp.
- Vol. 35. 1976. Nos. 310-313. Ed. Brian O. C. Gardiner. [iv] + 196 pp.
- Vol. 36. 1977. Nos. 314-317. Ed. Brian O. C. Gardiner. [iv] + 200 pp.
- Vol. 37. 1978. Nos. 318-321. Ed. Brian O. C. Gardiner. [iv] + 216 pp.
- Vol. 38. 1979. Nos. 322-325. Ed. Brian O. C. Gardiner. [iv] + 196 pp.
- Vol. 39. 1980. Nos. 326-329. Ed. Brian O. C. Gardiner. [iv] + 208 pp.
- Vol. 40. 1981. Nos. 330-333. Ed. Brian O. C. Gardiner. [iv] + 200 pp.
- Vol. 41. 1982. Nos. 334-337. Ed. Brian O. C. Gardiner. [iv] + 202 pp.
- Vol. 42. 1983. Nos. 338-341. Ed. Brian O. C. Gardiner. [iv] + 196 pp.
- Vol. 43. 1984. Nos. 342-345. Ed. Brian O. C. Gardiner. [iv] + 203 pp.

LEAFLETS (*Leafl. amat. Ent. Soc.*)

8vo.; printed; issued at irregular intervals.

- No. [1]. 1939. Coleoptera Collecting by George B. Walsh. 4 pp. (Reprinted from *Amat. Ent.*, 4: 17-19, 25-26).
- No. [2]. 1942. Setting Lepidoptera by B. A. Cooper. 8 pp., 3 figs. (Reprinted from *Amat. Ent.*, 5: 47-55)
- No. 3. 1943. Silkworm Rearing By Beowulf A. Cooper. [4] pp., 2 figs.
- No. 4. 1946. Collecting Sawflies by Robert B. Benson. 12 pp. inc. 2 plates., 26 figs. (Nos. 181, 150, 151, 153, 37-57). (Reprinted in part from *Amat. Ent.*, 7: 3, 19-19, 30, 36-42, 143).
- No. 5. 1951. Collecting Flies (Diptera) by L. Parmenter. 8 pp., 1 fig., 8 plates.
- No. 6. 1951. Collecting Beetles Associated with Stored Food Products by E. B. Basden. 9 pp., 6 figs., 3 plates. (Reprinted with some alterations from *Amat. Ent.* 11: 99-104).
- No. 7. 1951. Some Improved Devices for Rearing Hymenoptera by G. S. Kloet. 7 pp., 3 figs. (Reprinted from *Amat. Ent.*, 7: 94-101).
- No. 8. 1946. Collecting Ants by Horace Donisthorpe. 12 pp., 5 figs. (Nos. 154-158). (Abridged from *Amat. Ent.*, 7: 42-55).
- No. 9. 1951. Collecting Caddises by [H. Whitehead] W. Whitehead on cover, in error. 5 pp., 4 plates. (Reprinted from *Amat. Ent.*, 10: 35-39).
- No. 10. 1947. Experiments with Bees by William Hamilton. 12 pp., and Experimenting on Bees by Mathilde Hertz. 12 pp., 3 figs. (Nos. 172-174). (Abridged from *Amat. Ent.*, 7: 107-119).
- No. 11. 1945. Collecting Mosquitos by E. W. Classey. 7 pp (p [2] blank), 7 figs. (Reprinted from *Amat. Ent.*, 8: 9-14).
- No. 12. 1945. Collecting Dragonflies by A. F. O'Farrell. 12 pp., (including 2 plates), 12 figs. (Reprinted from *Amat. Ent.*, 8: 1-9).

1977. *Ibid.* Revised edition by David Keen, Ed. P. W. Cribb. 24 pp., 12 figs., 2 half-tone illus. Supplement ("Appendix II") [2] pp. Printed one side only.
- No. 13. 1945. reprinted 1955. Collecting Microlepidoptera by Leonard T. Ford. 4 pp. 1 fig. (Reprinted from *Amat. Ent.*, 8: 26-29). Note: only one edition of the leaflet was issued (in 1955).
- No. 14. 1945. reprinted 1955. Setting Microlepidoptera by S. Charlson and Simplifying the Setting of Micros by Arthur Smith and Winter Work for the Microlepidopterists by S. C. Brown. 4 pp., 5 figs. (Reprinted from *Amat. Ent.*, 8: 29-32). Note: only one edition of the leaflet issued (in 1955).
- No. 15. 1946. Collecting Het-bugs (Hemiptera-Heteroptera) by various authors E. C. Bedwell et al. 12 pp. (inc. 2 plates), 5 figs. (Adapted from *Amat. Ent.*, 8: 14-21).
- No. 16. 1945. Making a Sweepnet by L. G. F. Waddington and Other Sweepnets by B. A. Cooper. 5 pp., 6 figs., 2 half-tone illus. (Reprinted from *Amat. Ent.*, 8: 22-26)
- No. 17. 1945. Making a Garden Pond for the Study of Aquatic Insects by Evelyn A. J. Duffy. 4 pp., 3 figs., 1 plate.
- No. 18. 1946. Collecting Clearwings by E. W. Classey, E. A. Cockayne, W. Fassnidge, T. Bainbridge Fletcher, R. W. Parfitt, W. H. T. Tams. 12 pp., (including 2 plates), 4 figs. (Compiled from notes in *Amat. Ent.* 5 and *Bull. amat. Ent. Soc.* 6., nos. 67-72).
- No. 19. 1947. Carded Beetles with Balsam-mounted Genitalia. by Beowulf A. Cooper. 2 pp., 1 fig. (Reprinted from *Bull. amat. Ent. Soc.*, 7: 90-91).
- No. 20. 1948. Preserving Caterpillars. How to "blow" and "pickle" Larvae Successfully. by H. E. Hammond. 14 pp., (including 6 plates), 9 figs. (Note: the statement on p 14 that this leaflet is a reprint from *Amat. Ent.* is incorrect).
- No. 21. 1950. Collecting Psocoptera by Edward Broadhead. 4 pp., 10 figs. (Nos. 1-3, a-g). (Reprinted from *Bull. amat. Ent. Soc.*, 8: 90, 92 and *ibid.*, 9: 4-6).
- No. 22. 1951. Collecting Lacewings by F. C. Fraser. 9 pp., 8 figs., 5 plates. (Reprinted from *Amat. Ent.*, 10: 3-11).
1976. *Ibid.* Revised 2nd edition. This edition is a facsimile reprint with minor text changes on p 9, and the advertisement on back page replaced.
- No. [23]. 1952. Collecting Centipedes and Millipedes by J. Cloudsley-Thompson. 4 pp., (Nos 5-8), 2 figs. (Reprinted from *Bull. amat. Ent. Soc.*, 11: 5-8).
- No. 24. 1952. The Entomology of Bird Pellets by Philip M. Miles. 8 pp., 4 plates, 1 map.
- No. 25. 1953. Collecting Bumble Bees by T. B. Poole. 21 pp., 85 figs. (Nos. 1-8b, 9-19. Remainder unnumbered). (Reprinted from *Bull. amat. Ent. Soc.*, 11: 9-10, 19-20, 27-29, 38-40, 45-47, 78-79, 87-90, 96-98, 104-105, 111-114).
- No. 26. 1953. Collecting Collembola by Peter R. Barratt. 6 pp., 4 figs. (Reprinted from *Bull. amat. Ent. Soc.*, 12: 17-20, 27-28, 36-37).
- No. 27. 1955. A Study of the Insects Living on the Wayfaring Tree by K. C. Side. 20 pp., 4 figs., 1 diagram. (Reprinted from *Bull. amat. Ent. Soc.*, 14: 3-5, 11-14, 19-22, 28-31, 42-43, 47-50).

- No. 28. 1956. Killing, Setting and Storing Butterflies and Moths by L. W. Siggs. 13 pp., 10 figs.
1972. *Ibid.* Revised edition by P. W. Cribb, G. Prior, P. Taylor. 20 pp., 8 figs (Nos. 1-6, 8 + 1 unnumbered).
- No. 29. 1969. Collecting Fleas by R. S. George. [8] pp., 2 figs.
- No. 30. 1970. Rearing Stick Insects. Anon. [by W. J. P. Crotch] 20 pp., 9 figs (Nos. 2-10), 1 plate.
1980. *Ibid.* Revised edition. anon. facsimile reprint with pp 21-27 (by N. Hopkinson) added. (Reprinted from *Bull. amat. Ent. Soc.*, 33: 30-36). 27 pp., 15 figs (Nos. 2-10, remainder unnumbered). 1 plate.
- No. 31. 1969. The Study of Mayflies by T. T. Macan. [16] pp., 5 figs. Small corrigenda slip. (Reprinted from *Bull. amat. Ent. Soc.*, 28: 52-67).
- No. 32. 1969. Leafhoppers (Autenorrhyncha) by W. J. Le Quesne. [10] pp., 8 figs. (Reprinted from *Bull. amat. Ent. Soc.*, 28: 83-92).
- No. 33. 1970. Insect Light Traps by J. Heath. 16 pp., 16 figs.
1976. *Ibid.*, second edition by J. Heath. 16 pp., 16 figs. (a facsimile reprint of the first edition, with some deletions on p 15 and a redesigned cover).
- No. 34. [1973] An Amateurs Guide to the Study of the Genitalia of Lepidoptera by P. W. Cribb. 16 pp., 15 figs.
- No. 35. 1974. Rearing the Hymenoptera Parasitica by K. G. V. Smith. 15 pp., 10 figs.
- No. 36. 1980. Rearing and Studying the Praying Mantids by George L. Heath, Ed. Peter W. Cribb. 15 pp., 7 half-tone illus.
[1984] *Ibid.*, facsimile reprint with minor text deletion on p 5 and address alteration on unnumbered final page.

PAMPHLETS (*Pamphl. amat. Ent. Soc.*)

8vo; printed; irregular

- No. [1] 1943. A Topic for Immediate Discussion-A New System of English Naming for British Macrolepidoptera. By Beowulf A. Cooper and A. F. O'Farrell. 23 pp.
- No. 2. 1945. The Amateur's Library. By various authors. Ed. B. A. Cooper. 11 pp. (Reprinted from *Amat. Ent.*, 8: 37-47).
- No. 3. 1946. Constitution and Byelaws of the Society. iv pp.
- No. 4. 1946. A Label List of British Macrolepidoptera. Compiled by B. A. Cooper and A. F. O'Farrell. 32 pp. (Printed one side only).
- No. 5. 1946. A Check-List of British Macrolepidoptera. 32 pp. (Text identical with No. 4).
- No. 6. 1947. Label List of British Butterflies. 2 pp. (Printed one side only. Reprinted from *Pamphl. amat. Ent. Soc.*, 4: 4-6).
- No. 7. 1948. Directory of Natural History Societies. By H. K. Airy Shaw. 155 pp.
- No. 7a. 1949. *Ibid.*, First Supplement. By H. K. Airy Shaw. 44 pp.
- No. 8. — Number not used.
- No. 9. — Number not used.
- No. 10. 1951. A Glossary for the Young Lepidopterist. By W. J. B. Crotch. 6 pp. 2 figs.
- No. [11] 1966. A Label List of Butterflies (Rhopalocera) North, Western and Southern Europe. By Peter W. Cribb. 4to. 9 pp. Supplement [2] pp. (Printed one side only).
- No. 11. 1981. *Ibid.*, by Peter W. Cribb. A5. 20 pp. small addendum & corrigenda slip. (Printed one side only).

MEMBERSHIP LISTS

8vo. printed. (highest membership number shown in brackets)

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- 1965 Third Supplement. 12 pp. (Nos. xxi - xxii [xxxii]).
- 1966 Fourth Supplement. 4 pp. (Nos. xxxiv - xxxvi).
- 1968 New List. 27 pp. (4333)
- 1969 First Supplement. vi pp.
- 1970 [Supplement]. Paginated in Bulletin 29: 47-54
- 1971 [Supplement]. Paginated in Bulletin 30: 175-178 (pagination error in this issue [51-54]).
[Supplement]. *Ibid.*, p 106.
- 1972 New List. 35 pp. (4972)
- 1973 Addendum. [4] pp.
- 1974 Second Supplement. [11] pp.
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- 1976 New List. 37 pp. (5868)
- 1977 Supplement No.1. [10] pp.
- 1978 New List. 40 pp. (6434)
- 1979 Amendments and Additions. [12] pp.
- 1980 Amendments and Additions. [12] pp.
- 1981 Amendments and Additions. [12] pp.
- 1983 New List. 38 pp. (7726)
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WANTS AND EXCHANGES LISTS

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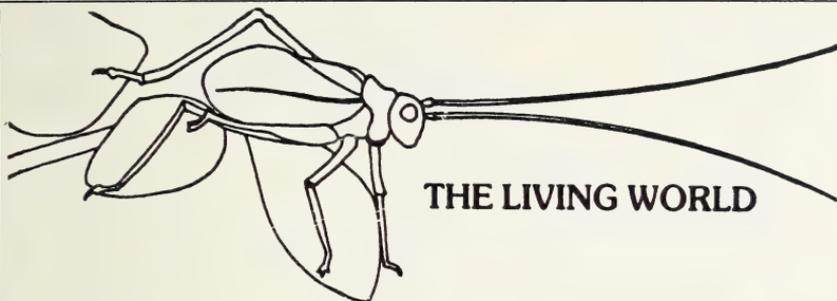
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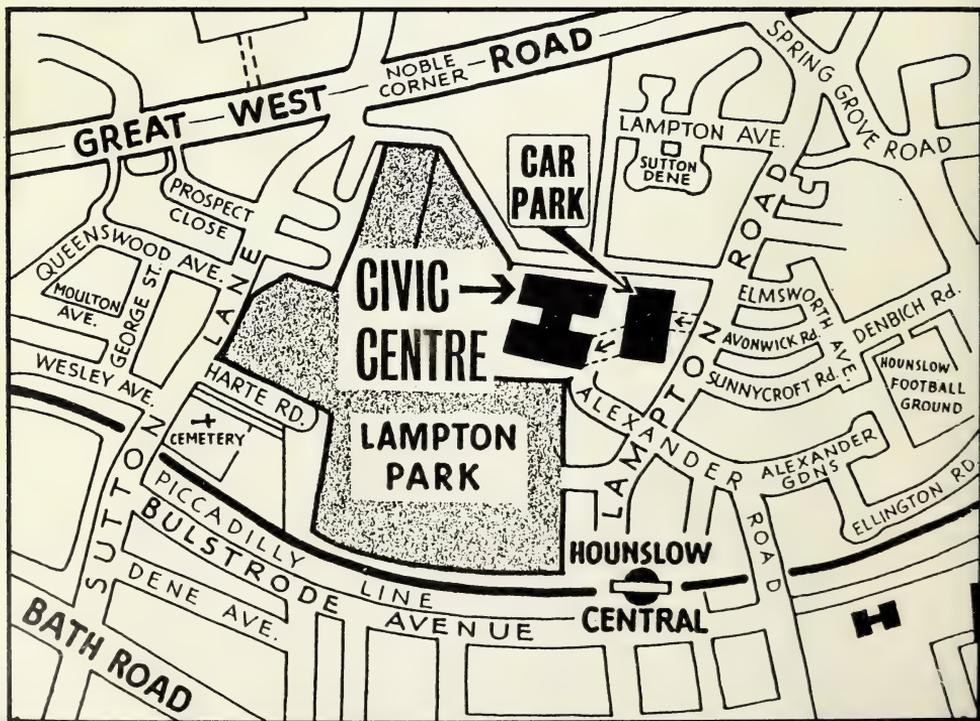
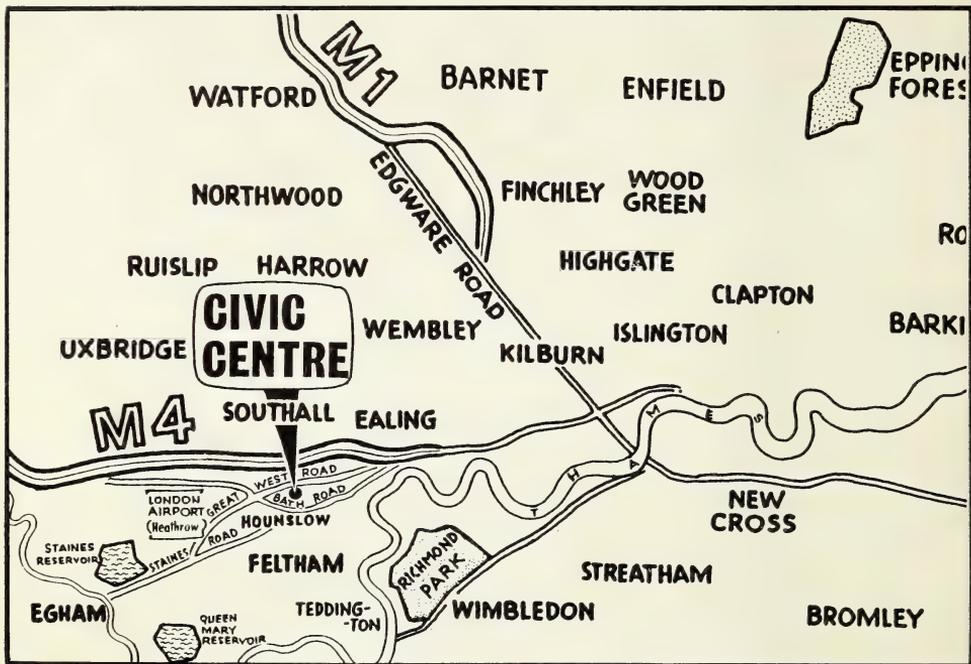
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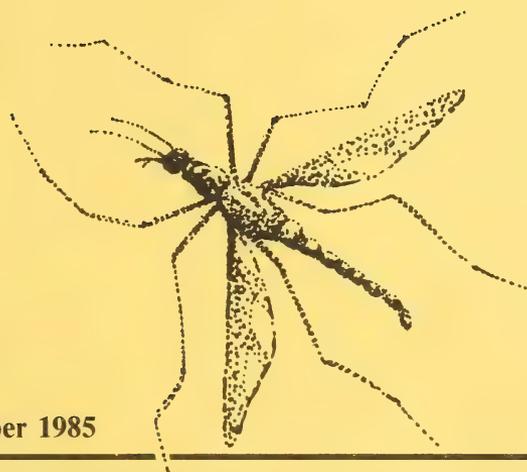
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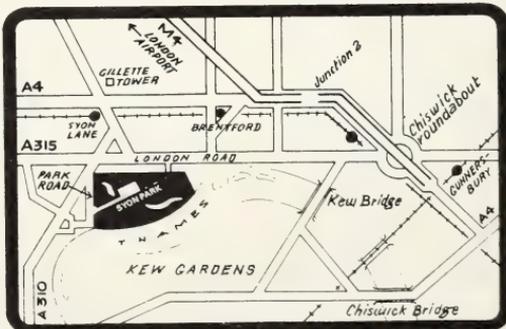
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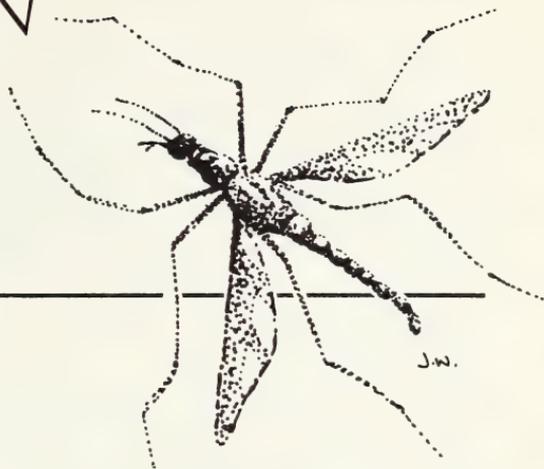
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AES BULLETIN

No. 349



EDITORIAL

For the past few years we have given a report of the Leicester Fair from the pen of member Brian Wurzell. We should have liked to do so again this year, and also to have reported in full on the new venture at Edmonton. However, due to the back-log of articles awaiting publication we felt that in fairness to those members who have been so patiently waiting for their useful and interesting observations to be published (at least two years in some cases) we should give them absolute priority and avoid taking in new material which would of necessity have to jump the queue, for, if it did not, then it would become stale and outdated. It really would not make sense to delay such reports for a year and then have them coincide with next years report of the same event.

We should like to report, however, that in spite of the clash with football crowds causing parking problems, the Leicester Fair had its usual large attendance and was as successful and enjoyable as ever. The new Edmonton Fair also attracted a large attendance, including many of our members and was obviously also an enjoyable success. There is clearly a demand for occasions such as these and we wish them every success and hope next year to give a much fuller account.

In No. 10 of our Bulletin, back in 1936, the then editors, Messrs Cooper and Brangham, published a notice absolving themselves from any responsibility as to the *bona fides* of material offered in the Wants and Exchange section. Such material was of course expected to be, and we believe nearly always has been, honest and bona fide. Nevertheless, not only does such editorial absolvment still apply, but I feel I should take this opportunity of clearing up some other misapprehensions that have been brought to my notice. The points in question are as follows:—

- 1) The AES holds only one Annual Exhibition a year, usually in October, and for the past few years and also we hope in the future, this has been held at the Hounslow Civic Centre. Not one of the other *very similar* entomological fairs or exhibitions that are now held have

any connection whatsoever with the AES, although of course they are also a great attraction for many of our members.

- 2) Any views expressed by me in the editorial are entirely my own and are not necessarily endorsed by the Society.
- 3) Any view expressed by members in Bulletin articles are theirs alone and may indeed differ from official policy or views of the Society.
- 4) The Society both expects and assumes that traders and others who advertise in its publications or sell at its Annual Exhibition, are aware of, and are abiding by, the law as it applies to the sale and protection of insects.

The working of the Wildlife and Countryside Act continues to cause disquiet in several quarters and yet another curious anomaly has recently been brought to our attention, which caused us to go and have another read of the Act and find out for ourselves. It has until recently been assumed by many that the provisions of the Act applied to *British* species only. This is not so. It applies to all the species named in the attached schedules to the Act and it is specifically stated that the quoted scientific name is to be taken as definitive. In all cases only a binomial name is given. *Papilio machaon*; *Maculinea arion*. No mention at all of any subspecies. It is, therefore, just as illegal (penalty up to £1000 fine per specimen) to breed, catch, exchange, sell, or be in possession of any of the foreign subspecies of the said species. Even when, for instance, they might be Japanese *P. m. hippocrates* and unable to breed with our *P. m. britannicus* and arguably a separate species. The lawyers could have fun with this one and as far as we know a test case has yet to be brought before the courts. Meanwhile I suspect this aspect of the Act was unintentional and since it *is* legal to possess specimens if a *licence* so to do has been obtained, I suggest those wishing to catch, breed and possess foreign subspecies apply for one.

On another tack, I cannot feel anything but a sense of quiet satisfaction at the troubles that have come upon the firm of Acorn Computers. This firm of toymakers (for that basically is what their products are) had successfully claimed (using their "High-Tech" image) that it was essential to their continuing success they build over 12 acres of greenbelt land. An alternative industrial site was available but no, they *must* have the greenbelt bit. As it happens this was an interesting area entomologically, and local to my home ground, so I may be biased, but cannot help but feel that the nemesis that overtook the company earlier this year was well-deserved for their temerity and can only now hope that no-one else will take up the claim to this little bit of greenbelt whose status has of course now been compromised by its being given planning permission for building. How, I wonder, does one convince the Planners and Councillors that the enjoyment of the many should take precedence over the (potential) profits of the already rich and few.

LETTERS TO THE EDITOR

Dear Brian,

Belatedly, I have discovered that we omitted to insert our imprint in the Jubilee Edition of the Bulletin. I think this was caused by the last-minute flurry of excitement in producing a bumper edition.

Whilst proffering my apology for the omission may I add the hope that your readers enjoyed reading the Bulletin as much as our pleasure was in producing it.

Yours etc.,
Norman Cravitz
(Cravitz Printing Co. Ltd.)

Dear Sir,

As one of only two members of the AES in New Zealand I get dozens of letters from members of the Society. These are usually, but not always, young enthusiastic members who request specimens of large, showy, tropical butterflies, moths or beetles.

As time does not permit me to answer all these letters individually I would be grateful if, through the columns of the *Bulletin* I could apologize for letters I have not answered.

Whilst New Zealand is considerably warmer than the UK, it is not a tropical paradise and does not have a large selection of big spectacular butterflies and other insects. There are scarcely more than a dozen endemic butterflies. New Zealand has a rich diversified fauna, mainly associated with mountainous regions, where large areas of native forests still exist that have not been devastated by the clearing of land for farming and forestry.

If size and colour are the criteria collectors are looking for then New Zealand has the Red Admiral (*Bassaris gonerilla*), one large green Hepialid (*Aenetus virescens*) and the world's largest Brenthid (*Lasiorrhynchus barbicornis*) and some giant weevils (*Lyperobius* and *Anagotus*.)

Fascination in New Zealand entomology lies in the unusual and varied insects associated with alpine areas — there are 600 named mountains over 5000ft — namely, black Cicadas; Carabids; three Satyrids; diurnal Geometrids, and large Orthopterans, known by the Maori name of "Weta's".

Perhaps our members should do their homework before requesting material from overseas! There are no entomological suppliers or dealers in New Zealand. Many of the interesting insects are confined to the

South Island, and often found only in remote inaccessible areas. I regret I am unable to maintain a supply of these insects or even answer some of the queries.

Would members please accept this explanation as an apology also.

Yours faithfully,

Dr. Kenneth J. Fox (1459)

THE OPENING OF THE EDINBURGH BUTTERFLY HOUSE

by J. F. Anderson (7580J)

On the first of April 1985 The Edinburgh Butterfly Farm opened its doors to the public. The project is a joint venture between Mr Clive Farrell of The London Butterfly House and Mr David Barnes, managing director of Dobbies the nurserymen, who provided the site for the 150 foot glasshouse next to their Gardening Centre at Eskbank near Dalkeith, Midlothian.

I visited the Butterfly Farm a few days after it was opened and was very impressed with the layout and facilities. The house consists of a large free-flight area with such features as a waterfall, a bubbling mud spring, an ornamental bridge and a large natural pond. A temperature of 75 degrees Fahrenheit is maintained throughout the day and regular 'Tropical showers' maintain the humidity. The butterfly garden was landscaped by Gordon T. Ledbetter, author of "Water Gardens".

Among the Tropical species bred at the farm are *Troides aecus* (Golden birdwing), *Papilio asterius* (Black swallowtail), *P. bianor* (Chinese peacock), *P. memnon* (Great Mormon), *Vindula arsinoë*, *Danaus plexippus* (Milkweed), *Graphium sarpedon* (Blue bottle), *Euploea mulciber* (Blue striped crow) and *Parides alcinous*.

Whilst primarily dedicated to butterflies, some of the more spectacular moths are also bred including the Indian moon moth and the Giant atlas moth. Other important residents — behind glass — are Praying mantids, Stick insects, Scorpions and the Red-legged tarantula.

Other attractions include The Farm Shop which stocks a wide range of books and tasteful gifts and souvenirs, a tearoom, a fish farm including tropical, marine and pond fish, and the garden centre itself which stocks foodplants for the amateur breeder. The Farm is open every day from the 1st April to 31st October inclusive, from 10.00 a.m. and is well worth a visit.

The general public need to be made aware of the need to conserve these beautiful insects and butterfly houses are the ideal way of doing just that. If they are successful in spreading the news, and I sincerely hope they will be, they will be well worth all the time, money and effort put into them.

EARLY AND LATE BUTTERFLIES

A note on Staffordshire sightings in 1984

by Jan Koryszko (6089)

During the Spring of 1984 some quite early records of butterflies were seen in the County. The Green hairstreak (*Callophrys rubi*) was on the wing at the end of April in several areas, but especially at Barlaston Rough Close Common on 27 and 28 of that month where it was flying with the Orange-tip (*Anthocaris cardamines*). No doubt the weather conditions were the reason, it being very dry at the time. Later in the year I saw Small skippers (*Thymelicus sylvestris*) on the wing in the first week of September, a late date for this species although it did also occur so late in 1977. On November 1 I saw a Large white (*Pieris brassicae*) in my garden and also a Red admiral (*Vanessa atalanta*) but looking quite battered. Again the weather was very mild for the time of year; indeed in Staffordshire it was the warmest November day for many a year.

THE RISE OF LEPIDOPTERISTS' EXPEDITIONS

Over the years we have reported accounts of a number of collecting expeditions undertaken by members. These have all been undertaken on their own initiative, either alone, with their family, or with a few immediate kindred spirits. From time to time in recent years we have informed members, via the Bulletin, of a few tours that have been organised by travel firms for the specific purpose of collecting Lepidoptera. If any member ever joined one of these we have yet to hear from them. Be that as it may, there seems little doubt that these organised lepidopterists' tours are becoming very popular. Certainly the number being organised is increasing. For some years now there have been regular tours from Japan to the Pacific Islands and to India. This year (1985) we were informed of three fabulous tours, to Peru, Brazil and Ecuador. This information unfortunately arrived too late for any advance notice to be given as they were to take place in March, May and June. The leader of all three was Dr Thomas Emmel of the University of Florida. All tours commenced from Miami, Florida and are to be held again next year so if anyone is interested they should write to Holbrook Travel, Inc. 3540 NW 13th St. Gainesville, Florida 32609, USA.

While we in Great Britain may like to go rushing off abroad to collect and study Lepidoptera, in America there was sufficient interest in our Lepidoptera for the Xerces Society to organise an expedition to study them over here and this took place during June. We hope they had a successful trip.—Editor.

REPORT OF THE COUNCIL FOR 1984

During the year we have received many enquiries about membership. These have often been due to local exhibitions, TV programmes and new publications arousing an interest. Our membership has now reached 1873 which is our highest yet. Of course it must be borne in mind that considerable expenditure is involved with those 'just curious' enquiries received! We now have 9 Honorary Life, 32 Life, 38 Associate and 1793 Ordinary and Junior Members. With the latter it is difficult to be accurate as many members covet the 'J' suffix for more years than they need; sufficient to say that Council is concerned with the general decline in Junior recruiting.

The Council moved its meeting place to the National Liberal Club in May. It met on six occasions under the Chairmanship of our President for 1983, E. W. Classey, R. A. Fry our President for 1984 and our elected Chairman, P. A. Sokoloff. Our thanks are due to them for the distances they travel to attend meetings and the interruptions to Mr Classey's busy business commitments and Mr Fry's combined role as Treasurer — an arduous task in itself.

Apart from routine organizational matters your Council has had the pleasure of witnessing its first Field Week, held in the New Forest and organized by D. Reavey for a party of Junior members. Details have also been resolved for a sponsored Photographic Competition, again our thanks are due to D. Reavey for his initiative.

The Golden Jubilee of the Society and ways to celebrate it have been discussed and special publications, articles, car stickers, envelopes for stamp collectors are among those forthcoming. Information regarding our founder Mr Tesch is proving most elusive and your Council would welcome interesting facts for the record.

The Bulletin was published as four issues, edited by B. O. C. Gardiner. The Wants and Exchange list supplemented each issue and other items despatched included subscription, exhibition, AGM notice, a supplementary membership list and index for the 1983 Bulletin: the latter compiled by P. A. Sokoloff. Commercial advertising inserts have been resisted since it can cost the Society more in postage rather than bring in revenue.

The publications of the Society are selling well, both direct and through other agencies. Many of our handbooks are in the process of being considered for reprinting or revision. The year also saw the publication of 'Breeding the British and European Hawkmoths' by P. A. Sokoloff and a reprint of 'The Mantids' by G. Heath.

The Hammond award for 1983 was won by Mr M. Fuller for his article on 'The Butterflies of Picket Wood'; the award was announced at the AGM. Mr David Carter of the British Museum (Natural History) gave a most interesting illustrated talk on "The Curation of the National Collection."

We managed to accommodate most people's needs at our Annual Exhibition thanks to the organisation of C. Hart. Pressures on space precluded any large exhibit but it is encouraging to see many more members' exhibits. Your Council would, however, like to see many more exhibits and would certainly hope for more contestants for the Sir Eric Ansorge award. Feeling that we had fulfilled all criteria for a good day and easy repeat booking, your Council had to face bureaucracy, yet again, wishing to discuss arrangements already agreed upon!

By now, to some, it may be repetitive, but it is most frustrating for your officers to receive correspondence which clearly should be directed elsewhere. Duties are clearly printed inside the Bulletin and delays, inconvenience and expense are incurred should members not note these positions. A stamped addressed envelope is expected if a member anticipates a reply; sometimes the matter has to be re-directed and this can cause further delay, especially if we have not an expert advisor at the moment on some particular subject. Since all Council members are giving of their time freely, it is regrettable that a number resort to phoning rather than writing.

During 1984 we recorded the death of one of our valued experts. Dr. V. H. Chambers, who gave advice on Sawflies. This gives us another gap in our list of experts and Council is seeking authorities on a number of orders and sub-orders to provide guidance and identification for members. A well-known member in Leicester, Lt.-Col. D. Hall-Smith, also died in November. He was a popular member of Leicester City Museum doing much to encourage interest in new techniques and ecology and his exhibits of gall-inducing insects are most fascinating.

(Hon. Secretary) S. A. Painter

REPORT OF THE TREASURER

I am very pleased to be able to report that the year ended 31st December 1984 was another successful year for the Society financially. The General fund income was up by over £650 to £10,514 and expenditure up by £146 to £8,986. The latter increase is unusually low, but is the result of a steep increase in costs the previous year with the issue of a new membership list. In consequence, the General fund had a surplus of income over expenditure of £1,528, and it should be possible to maintain subscriptions at their current rates for yet another year.

On the Publications front, sales were down slightly to £6,032. After payment of the publication agent's commission and other expenses, the fund recorded a trading surplus of £1,806 and the total value of the fund now stands at £26,011.

I should like to record my appreciation again to Roy Stallwood, my assistant Treasurer, for dealing with all your subscription renewals payments and to our Honorary Auditor, Tony Pickles of Robert W. Watson and Co, for his support in verifying the Society's accounts.

R. A. Fry (Honorary Treasurer)

ANNUAL REPORT OF THE SOCIETY'S REPRESENTATIVE ON THE JOINT COMMITTEE FOR THE CONSERVATION OF BRITISH INSECTS

There have been two meetings in the past twelve months; Dr Lonsdale and myself have attended both of them. The JCCBI is a member of the Wildlife Link Committee and our representative, Dr Whalley, has issued a full and informative report for the year. In this report he stresses the continuing importance of 'Link' and I quote from his report. "In my opinion Wildlife Link has 'come of age' and is now of considerable practical use for conservation. It is consulted by the Government and by government departments, more often than not, before legislation is proposed. We should strongly support Link."

Dr Collins represents us on the International Union for the Conservation of Nature: in his report mention was made of plans for the protection of Swallowtails worldwide and for study of dragonflies.

Using money from ATS several projects on butterflies are under way. The survey of the Swallowtail (*Papilio machaon britannicus*) was completed in 1984 and a preliminary report was issued. The butterfly is now restricted to fenland areas in the Norfolk Broads, but it has not declined further in recent years. The insect was found to occupy about 1000 acres of fen, most landowners are aware of the butterfly and are proud to have it present. With a little effort and money it is estimated that a further 300 acres of 'marginal' land could be made suitable for *machaon* in the next three years or so. There is no immediate threat from drainage or 'improvement' schemes.

After five years intensive research the surveys officer is of the opinion that the Heath Fritillary (*Mellicta athalia*) is no longer in danger of extinction. Some further losses are expected, but most colonies are now on protected sites and their survival will depend on good management of these areas.

There was a trial introduction of the Large Blue (*Maculinia arion*) in 1983 when 93 larvae from Swedish stock were released. The ant hills involved were covered in emergence cages and last summer seven adults emerged at the correct time for eggs to be laid on Thyme flowers. The survival rate was similar to that recorded in the wild for other colonies. The site is not considered satisfactory yet but a full scale re-introduction in 1986 is possible.

The Nature Conservancy Council has been given a considerable amount of money to complete re-notification of SSSIs and other work. The Wildlife and Countryside Act is due for its first five year review and the JCCBI (together with other amateur bodies) was asked to make recommendations about the presence or absence of insects on the protected list in the future.

The finance of the JCCBI is causing some concern. The committee has no direct membership and has to rely of its constituent bodies. This has led to a lack of activity within the committee which is regretted by the members. At about the same time Dr Lonsdale and myself proposed a re-organisation of the JCCBI in order to make it more effective in the field of insect conservation. This proposal was accepted and a working party has been set up to define terms of reference for a smaller executive sub-committee to handle rapidly most of the day to day running of the JCCBI.

C. Hart

CONSERVATION COMMITTEE REPORT FOR 1984.

Committee work and representation

The Committee met on 4th November 1984 and sent a representative to the JCCBI meeting of 6th December. Representation of our views and policies has been a prominent feature of the year, with a major review of the 1981 Wildlife & Countryside Act, amendments to which are, at the time of writing, being debated in Parliament. The amendments are mainly to the benefit of conservation, and it seems likely that some of the 'loopholes' in the law regarding SSSIs will be closed. In addition to discussions about the 1981 Act, we have seen and commented on an unprecedented number of discussion documents on land-use policy, all of which seem to show that the tide is turning against the concept of maximum yields in agriculture and forestry as an over-riding objective. This work involves us in much painstaking writing of reports and letters, the final impact of which is not always apparent. We were, however, glad to note that we were listed as contributors to the discussions in the Forestry Commission's recent publication on broadleaved woodland policy. It has been gratifying for us to receive an invitation to a conference on insect conservation and management to be held in Belgium in September 1985.

The problems concerning the allocation of Butterfly Year funds which we reported last year have made it apparent to many people beyond our own Committee that insect conservation is not well organised. This has given us the opportunity to initiate discussions within the JCCBI which we hope will result in a radically improved system of co-operation between all those working for our cause.

Publication and exhibits

The frequency of publication of Insect Conservation News remains at about two per year with the preparation of Nos. 10 and 11. Readership is still far short of the level which would make the effort of continued

production worthwhile for the editor, despite the many favourable comments received. Our leaflet on 'butterfly gardens' has been reprinted in A5 format and is selling well. Our stand for the 1984 Annual Exhibition displayed the work of the local nature conservation trusts in insect conservation. We are very grateful to the several trusts who very kindly lent us photographs and other materials for our display. The contribution of the Hampshire & Isle of Wight Trust was especially valuable.

Field meetings

We held two very interesting field meetings, one at Northaw Great Wood, Herts and the other at Sandwell Valley, West Midlands, in association with the local wildlife group. (Our task work continued at Ditchling Common, E. Sussex, with continued efforts to help re-establish the wet grassland following scrub encroachment and excessive drainage.)

Protection of individual sites

We continue to receive occasional requests to provide evidence and/or comments in support of saving habitats from destruction. We are, however, aware that these cases are the tip of an iceberg, and also that there is a need for much better co-ordination between organisations. For these reasons, and for many others, we hope that our next report will include some encouraging news on the re-organisation of insect conservation in this country.

David Lonsdale (4137)

REPORT OF THE INSECT BEHAVIOUR AND ANTS STUDY GROUP

Membership

1983 ended with a membership of 55 and after all renewals were gathered in 1984, started with 38 members. The group increased its membership during the year by 18 members, which meant that the growth of the society was 1.28%. This was accomplished in the following ways Leicester Exhibition 2, AES Exhibition 1, and Advertising 15. Out of the 56 members at the end of 1984, there were 45 AES Members, 5 Subscribers, 4 Overseas Members and 2 Associate Members. Membership-wise, 1984 proved to be steady, though it is hoped that a steady growth can be accomplished during the year of 1985.

Publications

This side of the I.B.A.S.G.'s activities again saw the full quota of bulletins produced. The group welcomed a new editor, Mike Pearce, whose main aim is to encourage greater membership participation in the

group's Newsletter. 1984 saw the long awaited guide for sale at the 1984 AES Exhibition. It sold well and further guides are planned to follow.

Meetings

1984 started with the Leicester Exhibition where Malcolm Parsons allotted some space on his tables. The group enjoyed a very well run Exhibition/Fair. Though the group acquired only two new members many of the people who attended the Exhibition were very interested in the group's live display of ants.

The next meeting that the I.B.A.S.G. was represented at was the AES Annual General Meeting. Unfortunately Malcolm Parsons was unable to attend the Annual General Meeting so another I.B.A.S.G. member was sought to represent the group there. Paul Sokoloff kindly agreed to present the I.B.A.S.G.'s Annual Report.

On 19.5.84 the I.B.A.S.G. held its Annual General Meeting in the rooms of the Royal Entomological Society. On the day seven people attended with the results of the meeting appearing in the May 1984 I.B.A.S.G. Newsletter.

The Summer season saw three well-attended field meetings. The meetings held were Bedgebury Pinetum 3.7.84, New Forest 12.8.84 and Ranmore Common 19.8.84.

The AES Annual Exhibition was successful but unfortunately marred by misunderstanding over the allocation of our allotted exhibition space. This resulted in the afternoon loss of a valuable exhibit, our commentary/Slide show.

As requested by I.B.A.S.G. helpers at the exhibition a detailed letter was sent to the AES (copy with secretary) but as yet no formal response has been received. Hopefully a reply will be received and an assurance that future allotted display tables/areas for our group will be clearly defined

In conclusion 1984 has created many high standards for the group and in future years it is hoped that these standards will be built upon. It is hoped that 1985 will see the group's 10th Anniversary celebrations and increase in membership gather pace.

Malcolm Parsons

DRU DRURY'S "DIRECTIONS FOR COLLECTING INSECTS IN FOREIGN COUNTRIES"

By *Bill Noble*

Dru Drury was born on February 4th, 1725, the son of a successful London silversmith (1). He succeeded to his father's business in 1748 and proceeded to expand it steadily. By 1771 for instance, his trade was sufficiently large to enable him to purchase the stock-in-trade and goodwill of another silversmith, Nathaniel Jeffreys, for £11,500, while his annual income was in excess of £2,000. Apart from a brief trauma in 1777 — when he was so swindled by two unscrupulous Yorkshire cutlers that he had to declare himself bankrupt (2) — Drury's trade remained lucrative and on his retirement in 1789 he was able to live in some comfort on his country estate in Broxbourne, Hertfordshire. He died on January 15th, 1804.



Drury's success as a silversmith, enabled him to indulge to the full, his first love — entomology. His wealth, for example, enabled him to publish at his own expense, the three volume *Illustrations of natural history* (3). This work was well received by his contemporaries. Sir James Edward Smith in his inaugural address to the newly founded Linnean Society of London of which he was the first President, said "the exquisite work of Drury displays the complete insect in a degree of perfection that leaves nothing to be desired" (4), while William Kirby called it simply, an "opus entomologicus splendidissimus" (5). Moses Harris engraved and coloured the illustrations which were almost entirely drawn from specimens in Drury's own collection, one of the largest in eighteenth century England (6).

In building up this collection, Drury's wealth is again evident. He was one of the prime movers behind Henry Smeathman's collecting trip to West Africa (7). Smeathman left London in the winter of 1771/72 and by January 1775 had sent back four large consignments of specimens. The last shipment — received during the summer of 1775 — was so large that Drury complained! "My house", he wrote, "could not possibly contain one half the things when taken out of their packages", and went on to say that to unpack the plants alone would take one person at least two months (8). But Drury had good reason to be satisfied with Smeathman, for he received many interesting specimens and many fascinating observations, a debt acknowledged in the preface to volume three of his *Illustrations*: "The termites are another genus of insects, which some time or other injure the traveller, and at least add to the number of his cares. These wonderful creatures were little known till Mr Smeathman developed their extraordinary history" (9).

Drury's other overseas connections were less formal. Whenever he heard of ships leaving for exotic parts, he made the acquaintance of people on board and persuaded them to collect insects for him. He provided them with the necessary equipment and gave detailed instructions about how and what to collect. Sometimes the apparatus was quite valuable. John William Lewin received materials worth £51.10.6 — including a "neat Mahogany Cabinet, glazed, corked & papered for 24 drawers" (valued at £4.4.0) — and in return promised to obtain for Drury "a collection of insects of equal value" (10). Captain Mayle, bound for Africa, was recommended to hire a boy to collect specimens and told how to kill butterflies: "give the body a good squeeze, which will kill it, and then stick it in one of the boxes" (11).

Drury must have written these instructions out many times — in 1768 alone he contacted individuals on over seventy ships (12) — and thus decided, to save time, to have them printed. These *Directions for collecting insects in foreign countries* are exceptionally rare — as far as I am aware, the copy in the British Library Reference Division is the only

surviving. They consist of three quarto pages, with a fourth blank. The British Library catalogue dates them, tentatively as (1800). I suspect that they are much earlier for the address given at the very end — “at the corner of Love Lane, in Wood Street, near Cheapside” — was not used after 1772. In a letter to Giseke, March 29th, 1772, Drury noted that: “I am removed from Wood Street into the Strand” (13).

The *Directions* were not the first printed instructions for collectors; nor would they be the last. The honour of being the first person to issue printed ‘Instructions’ belongs to James Petiver. Petiver, like Drury, was an omnivorous collector. “Friends, friends of friends, customers in the shop at the sign of the White Cross, fellow apothecaries, physicians, surgeons, ship captains, merchants, planters and missionaries, all were asked themselves to collect for Mr Petiver” (14). And they all received a copy of his *Brief directions for the Easie Making and Preserving of all Natural Curiosities for James Petiver, Fellow of the Royal Society of London*, (15) in which he explained how to pack and preserve the specimens for the journey back to London. With regard to what to collect, Petiver wanted “all natural curiosities” — his *Brief directions* refer to “small animals”, “fowls”, seeds, plants, insects, metals, minerals, ores and “large pulpy moist fruit”!

The first person to issue instructions specifically for the entomological collector was Benjamin Wilkes. In 1742 Wilkes, a portrait painter by profession, had issued a series of twelve engravings of moths and butterflies. These *Twelve new designs of English butterflies* were first advertised in April of that year; seven months later in the *Daily Advertiser* for December 12th, Wilkes advertised his *Directions for making a collection* as a supplement to the *Twelve new designs* (16).

In these ‘Directions’, Wilkes describes where, when and how to capture butterflies and moths. Although all sorts of habitats would yield specimens — “go into the woods and fields thereto adjacent (always placing yourself where the sun has most power) also into chalk pits, rough grounds, lanes &c” — the months between April and August inclusive were, in Wilkes’ opinion, by far the best, especially for butterflies. As to the method of collecting, here Wilkes was at his best. Several items of equipment are described for the first time in print, including the clap-net. The ‘Directions’, indeed, open with this description: “Provide a Net made of Muscheto Gause, in shape like a Bat-folding Net, let its Length be one Ell (45 inches) the Width at Bottom three quarters of a Yard, at Top half a Yard, and cut circular”.

Moses Harris was the next person to describe the clap net in print. His net was designed to be portable and easily put together in the field. It was constructed “to take in Half, or put together at Pleasure, by a Brass socket in the middle and carried convenient with the Benders in a Canvas Bag under the Coat”. This description first appeared in Harris’s *The*

Aurelian — a work originally issued in parts and first published in one volume in 1766 (17) — and the advice therein, “was followed by generations of naturalists, who treasured their copies of the lovely work and called for three further editions — the final as late as 1840. His methods were little modified until the first decades of the nineteenth century”(18).

Just a few years after Harris’s ‘Instructions’ had appeared, and almost simultaneously, two other entomologists, William Curtis and John Coakley Lettsom published their ‘Instructions’. William Curtis’s appeared in 1771. Entitled *Instructions for collecting and preserving insects; particularly moths and butterflies*, it places particular emphasis on describing equipment. The title page, indeed, announced proudly that it was illustrated with a copper plate, on which nets and other apparatus . . . are delineated” (19). Lettsom’s ‘Instructions’ appeared in a general work entitled *The naturalists and travellers companion, containing instructions for collecting & preserving objects of natural history*, published in 1772. In this work, Lettsom offered much familiar advice on where to find insects — “multitudes live under stones, moss, rubbish and wrecks near the shores of the lakes and rivers. These are found also in bogs, marshes, moist places, pits, and holes in the earth, on stems of trees” (20) — but also stresses the importance of accurate ecological observation: “the naturalist should . . . endeavour to keep an accurate journal, where in all occurrences, observations, places, distances, descriptions, accounts, informations, and remarks, should regularly and daily be entered, while recent in memory” (21).

Drury’s *Directions*, then, were part of a recognised entomological and natural history tradition, but they are unique in one important way. Although they incorporated much familiar advice and contain nothing on equipment (after all Drury tended to provide his collectors with all the equipment necessary) they were the first solely entomological ‘Instructions’ that were free. This, plus the fact that they are exceptionally rare, makes them worth reprinting here in full:

“The person that would collect insects must go into the fields or woods, taking with him the brass tongs, nets, &c., the oval pocket-box, and the pincushion stocked with pins. The box is lined at top and bottom with cork, and is to receive what he takes, When he catches an insect of any kind, let him stick it through the body with a pin, and place it in the box; using small pins for small insects, and large pins for large ones. Large pins should not be stuck into small insects.

If he catches a butterfly or moth, let him give the body a squeeze with his finger and thumb while it is in the net; which will prevent its fluttering, and will kill it. In doing this, he must take great care not to rub off the meal or down on its wings, for in that all their

beauty consists. He must not squeeze the body of any other kind of insect; only a butterfly or moth, because it will do harm to other sorts; and if he perceives the edges of the wings to be ragged or broken, appearing as if little pieces were torn out of them, he must throw such butterfly or moth away; but as the wings of many of them are naturally scalloped, great care must be taken to distinguish one from the other. The ragged ones are imperfect and good for nothing; the perfect ones (whether they are scalloped or plain), if not torn or battered, are desirable; therefore, to know the difference, he must observe closely the wings, and if they are scalloped, he will perceive the same notches or indented edges on the right wing as on the left, the one answering very exactly and regularly to the other; whereas, in those that are ragged and imperfect, there is not any exactness or regularity, the edges of the wings being very uneven and unlike each other, having a notch here and there, as the wings happen to be more or less torn and wasted. The four butterflies placed in the oval box will readily discover the difference between those that are perfect and complete, and fit to be preserved, and those that are ragged and good for nothing. This account of the butterflies and moths is thus particularly mentioned, because, when they are caught, being ragged and bad, as described before, they are worth nothing; and the collector may, for that reason, spare himself the trouble of bringing such home; good ones being as easily to be caught and brought home as bad ones.

Let him catch small insects as well as large, they being equally as valuable; and let him take all the various sorts he possibly can.

When he gets home let him take out all that are alive (except butterflies and moths), and sticking a few at a time on the end or edge of a piece of wood or stick, &c. let him hold them to the fire (but not so close as to scorch or burn them), and he will find this will quickly kill them; or by throwing them into boiling hot water, they will be killed in a few moments, without injuring them, if they are taken out as soon as they are dead. Afterwards they must be stuck in the large square box, taking care not to move them after they are fixed there on any account, for fear of breaking off their horns or legs, which will much lessen their value; therefore be careful to preserve these parts, and dont place them in the large box till they are quite dead, because they will pull and tear one another to pieces with their claws, if they are alive and placed near each other. This box being lined at top and bottom with cork, like the small one, is to be considered as the repository or receptacle for all he catches.

This method is much better than putting them in spirits, because the spirits will certainly destroy their colours.

The insects placed in the oval box, and now sent, will serve to show what kind of things are meant, and also the manner in which the pins are to be stuck through them, observing, that the insects of foreign countries are oftentimes much larger than any of these now sent, but are not less valuable on that account. These are only sent as examples, being all English, and of no value; therefore they may be thrown away when the person gets abroad, in order to make room for those that are to be caught.

It is desired, if the ship touches at different places in — — — to collect some at each of them, taking care to distinguish and separate them by a mark or line in the box denoting where they were taken, and keeping each parcel by itself.

Remember to bring as great a variety as possible, not too many of one sort, but different ones; two or three being a sufficient number of any one kind, it not being so much the number as the different kinds that are wanted; and for this reason the collector is requested to bring various sorts of BUTTERFLIES or MOTHS, BEETLES, FLIES with transparent wings, LOCUSTS or GRASSHOPPERS, WASPS, ANTS, WATERFLIES, FIREFLIES, or in short and other sort except *Cockroaches*, *Centipedes*, or *Scorpions*, which are in general so very common as not to be worth bringing, unless they are unusuals sorts, and such as are seldom seen.

When the box is filled, he must cover it all over with a piece of linen dipped in tar or wax, or paste a slip of paper all round the edges, to prevent the small vermin getting in, who will certainly do mischief to the insects withinside; it being observed, that cockroaches and other vermin do not eat or gnaw any thing that is well impregnated with tar, therefore he must be careful to cover every crevice or opening exceedingly well, that nothing may get in.

It is necessary to mention that insects are found in various places, some frequenting flowers, particularly butterflies and those with transparent wings; others, particularly beetles, are found in the dung of animals, and in stinking flesh or putrid carcasses of dead creatures; some hide themselves under the bark of trees, where it starts or separates from the body of the tree itself, and which by tearing it up, will discover many kinds; numbers also are found in rotten wood and rotten trees, living in holes in the wood. The billets and bavins likewise that are cut and brought on board ships for their necessary use, when they are in foreign countries, frequently contain many curious insects, and therefore should be examined when it is split, at which time large white *worms* like *maggots*, as big as a man's finger are sometimes found in the wood, and very frequently *worms* that are of a small size. These should not be stuck

with a pin or put in spirits, but should be preserved in the same cavity of the billet they were found in, by tying the split pieces together with a string, for in the process of time they will turn to beetles, many of which are very curious, and seldom to be met with in any other way. And this is a matter that should be particularly observed, because the insects proceeding from such worms are generally very desirable. Many insects also are found under moss that grows on the ground, or at the roots of trees, which, by removing, are easily discovered. Likewise when ships lie at anchor, a great many insects are blown from the shore by the land-breezes in the night, which settling on various parts of the ship, may easily be taken in the morning with the brass tongs or forcep-nets, and therefore should be searched every day for that purpose. The different seasons or times of the year also will yield different sorts, insomuch that every week will produce new kinds that were not to be seen in the foregoing ones, so that by searching for them at different times he will be sure of finding different sorts.

In this account it is not intended for the persons to bring any caterpillars or worms, except such as were mentioned before to be enclosed in the split billets, but chiefly insects with wings, unless it be curious *ants*, *spiders*, or *crabs*, &c., and the most ugly disagreeable insects, as they seem to be, are generally the most acceptable.

It is desired no insect may be thrown away on the person's passage home, even if it is mouldy, broken, &c., because many desirable ones may be thrown away by that means; if there are any so bad as not to be worth keeping, they can at the worst be thrown away when they arrive in England.

It is necessary to mention that butterflies should not, like other insects, be held to the fire to be killed, because the fire will crimple and shrivel up their wings and spoil them; neither should they be thrown into hot water, a pinch with the finger and thumb, as mentioned before, will be sufficient to kill them.

Whatever quantity is collected (either little or great) is desired to be brought to Mr. Drury, at the corner of Love Lane, in Wood Street, near Cheapside, who will give sixpence a piece for them either large or small."

Drury's inducement of sixpence an insect must have worked. His collection was said to be one of the finest in England — in 1778 it had contained 5505 specimens of 4842 different species; by 1788 it had grown to 9578 specimens of 8370 species — and at auction after his death it realised £614.8s.6d.(22). Today, of course, the 'Instructions' have all but been forgotten and Drury is chiefly remembered as the author of the elegant *Illustrations of natural history*. But this work could not have

been published without Drury's collection; a collection built-up with the aid of his 'Instructions'. Drury was not the greatest naturalist in eighteenth century Britain and his curiosity was not unusual. But with his 'Illustrations' and his detailed little 'Instructions' he is symptomatic of the general eighteenth century urge to explore and classify the world beyond Europe. The extensive nature of Drury's collection, indeed, bears witness to the effectiveness of his *Directions for collecting insects in foreign countries*.

NOTES TO THE TEXT

- (1). Biographical details of Drury are taken from H. B. Weiss, "Dru Drury, silversmith and entomologist of the eighteenth century", *Entomological news*, 1927, vol. 38, pp. 208-14; T. D. Cockerell, "Dru Drury, an eighteenth century entomologist", *Scientific monthly*, 1922, vol. 114, pp. 67-82; C. H. Smith, "Memoir of Dru Drury", in *An introduction to the mammalia, chiefly with reference to the principal families not described in the former volumes*, (The naturalists' library, vol. 1.) Edinburgh: W. H. Lizars, 1842, pp. 17-71. See also F. J. Griffin, "The first entomological societies; an early chapter in entomological history in England", *Proceedings of the Royal Entomological Society of London*, series A, 1940, vol. 15, pp. 49-68.
- (2). Drury supplied the Yorkshire cutlers, William Tate and John Wheate, with £7500 worth of goods on credit on the understanding that one of the partners would be inheriting an estate of £20,000. This inheritance never materialised. Drury's friends, chiefly Sir Joseph Banks and John Fothergill, supported him however, and he was able to repurchase his stock and re-establish himself in business. By April 1778 he could write, "I have got re-instated in my business which I really think is much greater than it ever was". C. H. Smith, "Drury", *op. cit.*, pp. 22-26. See also A. G. Grimwade, *London goldsmiths, 1697-1837; their marks and lives*, 2nd ed. London: Faber, 1982, p. 496.
- (3) *Illustrations of natural history. Wherein are exhibited upwards of two hundred and forty figures of exotic insects, according to their different genera, very few of which have hitherto been figured by any author, being engraved and coloured from nature, with the greatest accuracy.* 3 vols., 4^o London: printed for the Author, And sold by B. White, at Horaces Head in Fleet-Street, 1770-82.
- (4). *Transactions of the Linnean Society*, 1791, vol. 1, p. 46.
- (5). Quoted in Weiss, *op. cit.*, p. 209.
- (6). Drury claimed that Fabricius, who made use of the collection while in England, enjoyed it with "as much glee as a lover of wine does the sight of his cellar when well stocked with full casks and bottles". See Smith, 'Drury', *op. cit.*, p. 59.
- (7). The other sponsors included Fothergill, Banks, Marmaduke Tunstall, William Pitcairn and, later, the Dowager Duchess of Portland. Drury acted as secretary to this syndicate, the members of which initially subscribed £100. For Smeathman, see F. J. Griffin, "Henry Smeathman" *Proceedings of the Royal Entomological Society of London*, series A, 1942, vol. 17, pp. 1-9.
- (8). Griffin, "Smeathman", *op. cit.*, p. 6.
- (9). *Illustrations of natural history*, vol. 3, p. x. Smeathman later published the results of his observations on termites: "Some account of the termites which are found in hot

climates", *Philosophical Transactions of the Royal Society of London*, 1781, vol. 71, pp. 139-92. Smeathman did not satisfy Fothergill to begin with. In a letter to Linnaeus, April 4, 1774, he exclaimed, "Smeathman is, I hope, among the living. He has sent a large number of insects, many of them rare. No plants, no seeds — not a single one". *Chain of friendship; selected letters of Dr John Fothergill of London, 1735-1780*; with an introduction and notes by B. C. Corner and C. C. Booth. Cambridge, Mass.: Harvard University Press, 1971, pp. 409-11.

(10). P. M. Jones, "John Williams Lewin, a memoir", *Biblionews; Book Collectors' Society of Australia monthly newsletter to members*, 1953 vol. 6(11), pp. 36-46. See also B. Smith, *European vision and the south Pacific, 1768-1850; a study in the history of art and ideas*. Oxford; Clarendon Press, 1960. Pp. 159-60.

(11). Smith "Drury", *op. cit.*, p. 29.

(12). *Ibid.*, p. 32.

(13). British Museum Natural History, Drury Correspondence 244. It has been stated that Drury had the *Directions* translated into other languages. Smith, "Drury", *op. cit.*, p. 33.

(14). R. P. Stearns, "James Petiver; promoter of natural history, c. 1663-1718", *Proceedings of the American Antiquarian Society*, 1952, vol. 62, pp. 261-62. See also R. S. Wilkinson, "English entomological methods in the seventeenth and eighteenth centuries. Part I: to 1720", *The entomologists' record and journal of variation*, 1966, vol. 78, pp. 144-49, and D. E. Allen, *The naturalist in Britain; a social history*, Harmondsworth; Penguin, 1978. pp. 37-38.

(15). The 'Brief directions' are reprinted as an appendix to Stearns "Petiver", *op. cit.*, pp. 363-65.

(16). R. S. Wilkinson, "Benjamin Wilkes: the British Aurelian", *In Benjamin Wilkes: the British aurelian; twelve new designs of English butterflies and Directions for making a collection*. (1742.) (Facsimile.) Faringdon; E. W. Classey, 1982. (Classica entomologica, 3.) p. 7. The "Directions for making a collection" are here reprinted as a separate folio facsimile sheet. They are also available in full in R. S. Wilkinson, "English entomological methods . . . Part II: Wilkes to Duffield, *The Entomologists Record and journal of variation*, 1966, vol. 78, pp. 286-89.

(17). A. A. Lisney, *A bibliography of British lepidoptera, 1608-1799*, London; Chiswick Press, 1960, pp. 158-63.

(18). R. S. Wilkinson, "English entomological methods . . . Part III; Moses Harris' *The Aurelian*", *The Entomologists Record and journal of variation*, 1968, vol. 80, p. 198.

(19). In his text, Curtis described the net. It "should be made of fine gauze, having its stiffening taken off by being soaked a little while in warm water; or if dyed of a green colour, which is common, this will be unnecessary". *Instructions*, p. 13. See R. S. Wilkinson, "The history of the entomological clap-net in Great Britain", *The Entomologists' Record and journal of variation*, 1978, vol. 90, p. 128.

(20). Lettsom, *Companion*, pp. 3-4.

(21). *Ibid.*, p. xvi.

(22). See Smith, 'Drury', *op. cit.*, p. 56. Copies of the auction catalogue are available in the British Library Reference Division and the Entomology Library of the British Museum Natural History.

REARING THE ORANGE TIP BUTTERFLY (*ANTHOCHARIS CARDAMINES*)

by Don McNamara (5537)

This Maytime insect really is the bright harbinger of summer despite its short four or five week flight season which, nevertheless, adds a touch of grace and beauty to our fields, hedgerows and woodland fringes.

The males are the easier to spot by their naming characteristic, the orange-tipped forewings, further tipped with black, against the general white background. The females, who are without the orange, are often mistaken whilst in flight for the Green-veined white (*Artogeia napi*) or the Small white (*A. rapae*). Both sexes have the cryptic dappled greys and greens of the underside hindwings which render the resting or sleeping insect virtually invisible.

The Larvae, too, are well-camouflaged, both in colour and in the manner of their positioning. After the initial hatching, when they are greenish with a hint of brown, they soon become a light, downy, leaf-green with lateral streaks of powdery white, which replicate the whitish mildew which often strikes their foodplants. They lie along the seedpods or along the veins of leaves and only the practiced human eye can spot them. Because of their ferocious cannibalism during the early instars and the females' tendency to lay one egg at a time, they are always spread out: seldom does a caterpillar share its branch of a plant — and certainly not two to a pod!

Favorite foodplants are Jack-by-the-Hedge or Garlic Mustard (*Alliaria petiolata*), Hedge Mustard (*Sisymbrium officinale*) and Lady's Smock or Cuckoo Flower (*Cardamines pratensis*), although other crucifers are used. The female delicately lays her single egg (pale yellow at first but soon becoming orange) under the inflorescences of the plant — one egg, usually, per flowerhead.

To rear these one may obtain livestock by various methods: a search of the foodplants at the appropriate time (mid-May) in areas where Orange tips are known to fly — and a bit of diligence, possibly aided by a hand-lens, will reveal the eggs or young larvae. One may also seek the larger larvae from the end of May into early July.

As in all things entomological, advance preparation is the key to success. You ought to have a net rearing cage of moderate size, (approximately 37 cms x 37 cms 50 cms high), and as many as is required of the clear-type plastic pill box with snap-on polythene lids for airtight sealing, 2½ to 5 cm diameter and in height. Foodplants may be grown from seed in pots, which can be transferred to the cage, or cut foodplant may be stood in bottles, with the tops plugged against suicidal larvae. My somewhat laborious method is:

- (a) Prepare 10 (or whatever number you require) plastic containers with a portion of leaf and a couple of seed pods.
- (b) Using a fine-haired artists' brush, put one egg or larva into each. Snap-on lid and place receptable in a darkish, non-sunny position. (Direct sunlight will 'cook' the contents).
- (c) Have another 10 containers standing by. I usually put them all on a tray.
- (d) After two days (no longer) put fresh portions of leaf and pods into the 'standby' containers. Open the ones with the ova/larvae and carefully (with the brush) transfer to the new receptacles. Snap-on lids.
- (e) Remove old vegetation, frass, chewings and any corpses from the 'old' pots, wash out *thoroughly* and dry. These now will be your standby containers.
- (f) Repeat the process until the larvae are about 2 cms long. They then can be transferred to the net cage and place individually onto the pods or leaves. (Keep them spread out — take no chances!)

Within six weeks (exactly how long depends upon the temperature) the larva then spins a small pad and a 'girdle' to aid its change into an angular pupa. These chrysalids shade from buffs to greens and, like their other stages, have a high degree of invisibility. They remain like this until hatching the following May. Rarely they overwinter for two years.

Care of pupae: its best to leave the whole cage out of doors but sheltered from extremes of weather and guarded against 'nasties' and assorted raiders such as ants, spiders, mites and earwigs. Mice also are partial to a juicy chrysalis. If kept indoors fatal dehydration may occur, which can be prevented by a weekly spray, but premature emergence may well occur, with no foodplants or nectar plants in sight.

If you need to detach a chrysalis — do so with care, preferably cutting off the stalk upon which it has pupated and removing the whole item. If the larva has pupated on the roof, side or door of the cage this becomes problematic. You must cut the girdle with a pair of fine scissors on both sides and then get between the cremaster (tail-hook)/silk pad and the side of the cage with a pin so that the cremaster remains attached to the silk. If you try to pull the pupa from its 'mounting' you'll dismember it — the silk girdle, although extremely thin, is very strong and can slice through the chrysalis if you pull at it.

You can also capture gravid (pregnant) females or try to pair couples in the net cage — put in about four freshly-hatched adults of each sex which should ensure at least one pairing. Stock the net cage with foodplant, especially the flower-heads, as well as other nectar plants. You must replenish the nectar plants each day, if cut, because in water they will not produce nectar after about 24 hours. Do not throw away the

flower-heads of foodplants unless you have inspected them carefully for ova. The whole cage should be placed in strong light. Bright light is a stimulus to pairing and laying. A useful technique is 'light-shock'. Keep the cage in the dark for 24 hours and then place in bright sunlight: pairing often takes place within minutes.

If you intend to keep the adults for any length of time, you must make sure that they have plenty to drink. Spray the nectar-plants with fresh water in the morning — they must not be without moisture for more than a couple of hours during daytime; they will drink this quite happily.

In captivity the females will break with their usual pattern of single egg-laying and put many ova together under the flower-heads. Each egg will have to be separated before the larva hatches.

Much of the above is labour-intensive, although if you are a time and motion enthusiast it is surprising how many you can deal with if you organise your 'production-line'. However, if you wish to go in for mass-production an alternative method is available: detach the eggs as they are laid, do this carefully although they are quite tough. Having prepared a large patch of growing food-plant under netting — you can then sprinkle the eggs, like salt, and upon hatching the larvae will crawl up the plants and either by luck, instinct or by eating their compatriots become spread-out and will then go through their metamorphosis quite happily. Although there may well be some casualties this way it is surprisingly successful.

If you want to be really crafty and also live in an Orange Tip area — grow plenty of foodplant (my favourite is Jack-by-the-Hedge) along the sunny sides of your fence or hedge and the females will come and lay there. It saves you much effort and there is something gratifying about these beautiful insects coming to you and laying in your garden.

SOME FACTORS AFFECTING LARVAL FOODPLANT SUITABILITY AND QUALITY

By Amory Thomas

Some eight years ago I had an article published in the Bulletin (38) concerning my experiences rearing (or rather failing to rear!) *Imbrasia (Nudaurelia) cytherea* Fabr. and *Citheronia regalis* Fabr.. The ova I had of these species hatched very late in the season (end of August to mid September) and hence the leaves upon which the larvae were fed were not in the best condition, being old, dry and tough. Despite the application of 'Smith's Elixir' (11, 40), an artificial nutrient supplement, to the leaves, all the larvae eventually perished.

The conclusion was drawn that these species required additional heat to speed up their development (see 11, 40) so that they pupated before the leaves of their foodplants died. I think however, that the important effect of the condition and nutritional quality of the leaves provided for

feeding on the subsequent slow growth and demise of the larvae was not emphasised. I have recently had occasion to do some background reading which has brought this subject to my attention and thus prompted this belated follow-up article.

An accepted larval foodplant may vary widely in its quality and suitability for larval feeding according to a number of factors. One of these factors, the effect of plant secondary metabolic chemicals and the possibility of plants 'defending' themselves chemically against insect herbivores has become a very active area of research in the last fifteen years.

The first factor which springs to mind in terms of the suitability of leaves for larval feeding is the nutritional adequacy of an accepted alternative foodplant, or the ability of the larvae to efficiently utilise the different balance of nutrients contained in an unaccustomed plant. In the case of tropical species, all the foodplants on which the larvae will feed when reared in this country may be alternatives to those upon which they normally feed and some will be better alternatives than others.

Brian Gardiner mentions in the '*Silkmoth Rearer's Handbook*' that certain species may be "undersized or have a high mortality when reared on some of their known alternative foodplants". These plants may contain the necessary chemical stimulus or lack of deterrent so that feeding occurs (especially if nothing else is available!) but not be totally suitable.

House (1965) reared Spurge Hawk *Celerio euphorbiae* L. larvae on an artificial diet which was manipulated in two ways. Firstly he diluted it to various degrees in terms of nutrient content. He found that the larvae ate progressively more food the greater the degree of dilution but gained no more weight. Secondly he created imbalances between the proportions of nutrients. Here he found that larvae tended to eat less and gain less weight than on an adequate diet due to a reduced efficiency of conversion of consumed food to body mass.

Catase (1981) has suggested that some populations of widely distributed polyphagous lepidopterans are much more specialised in their diet than a simple list of acceptable host plants would suggest. For example in a three year study in north Argentina he found *Eacles imperialis* Druce larvae feeding only on *Ximenia americana* (a member of the Olacaceae) whereas this moth is generally considered to be polyphagous (11, 31).

If records are kept of the progress of species reared, for example in terms of size attained (e.g. pupal weight), duration of larval stage at a given temperature, mortality and fecundity then this could be of benefit in assessing the suitability of a foodplant when compared with similar results obtained using another host plant.

Other factors which affect host plant quality are water and nitrogen content, toughness, fibre content and chemicals present within the plant. In general the former two decrease with leaf age whereas the latter three increase.

Hyalophora cecropia L. larvae reared on wild cherry (*Prunus serotina*) leaves (30) which contained variable amounts of leaf water but were otherwise identical were found to grow more slowly on leaves with lower water content. Larvae fed on leaves with a high moisture content were better able to utilise ingested food and converted nitrogen to body matter more efficiently (24, 35).

Haukioja et. al. (1978) (15) rearing the geometrid *Oporinia autumnata* Bkh. from late May to mid July in Finland found that the larvae grew better on birch leaves collected in the morning compared to those reared on leaves collected in the evening. The moisture content of the leaves was found to be higher in the morning than in the evening. Nitrogen (occurring for example in proteins) is essential for the growth of plants and insects. In plants, the highest levels of amino acids, soluble proteins and some other nitrogenous compounds occur in young, actively growing tissues and storage tissue such as seeds. Lower nitrogen (N) levels occur in the mature plant except in the case of senescing tissue in which proteins may be hydrolysed (24).

Annual plants tend to require high levels of nitrogen to sustain their rapid growth and reproduction within a short life span whereas perennials, trees and shrubs tend to require and contain less N. Evergreen plants are usually lower in nitrogen than their deciduous counterparts (24).

As any gardener knows, plants which are grown under conditions of improved nitrogen/nutrient supply show better growth. These plants may also incur higher levels of herbivory (27). Insects feeding on plants or plant parts high in nitrogen are able to utilise their food more efficiently and will probably be larger, produce more ova and have increased rates of larval survival (21, 24, 25, 27, 37) over their contemporaries feeding on a poorer food supply. Fertilisation to improve the nitrogen level of foliage may also increase the water content of the leaves (33) which will be additionally beneficial.

Low levels of nitrogen in plant food may be compensated for by increased consumption (33) and/or prolonged periods of feeding, digestion or development (24).

Nitrogen in its nitrate form is one of the main ingredients of 'Smith's Elixir' (see above), its role being to increase the amount of nitrogen available to larvae feeding on older leaves which otherwise might be lacking in this element.

Having made the general statement that healthy, N-rich plants provide the best source of food for herbivorous insects, some exceptions have been noted, especially in the area of forest fertilisation.

Stark (1965) published a review of results which demonstrated a trend for increased mortality of defoliating pest larvae on fertilised trees. Schwenke (cited by Stark) believed that this effect was due to reduced levels of foliar sugar (another constituent of 'Smith's Elixir'), although this view is disputed.

Some other studies have also suggested that fertilised trees may be better able to resist pest attack and show increased rates of pest mortality (12, 20, 28, 34). Not surprisingly many of these studies were carried out on evergreens e.g. fir and pine, which tend to be lower in nitrogen and other nutrients (17) than deciduous trees. Perhaps some of the defoliating insects feeding on these trees are less able to accept an increased intake of certain foliar nutrients (Merker cited by Stark), or changes in the balance of nutrients especially with regard to the nitrogenous constituents (34).

The chemical formulation in which the fertiliser is applied may also be important in determining whether the effect on phytophages is beneficial or adverse (32 and also 4 although this paper deals with a sucking insect).

There is evidence that as well as fertiliser, certain types of stress in the plant may increase soluble nitrogen levels by inducing hydrolysis of structural proteins and/or translocation of amino acids and soluble proteins (24). This process has primarily been demonstrated for stress caused by low moisture availability.

If the lack of sufficient nutrient rich plant food (i.e. high N content) is the limiting factor on larval survival in a species (37, 41, 42) then conditions of low rainfall, soil type and topography which induce water stress in the plants can cause conditions of improved food quality suitable for outbreaks of insects (22, 36, 41, 42) such as gypsy moth (*Porthetria dispar* L.) or forest 'looper' caterpillars.

In the last twenty years or so the possibility that plants defend themselves chemically against insect herbivores has been the subject of much research and debate which would take a hefty article to review adequately.

In 1968, Paul Feeny published a paper in which he noted that lepidopterous larvae feed on oak leaves primarily in the spring and also that levels of tannin in the leaves increase from low levels in April to high levels in September. By rearing Winter Moth, *Operophtera brumata* L. larvae on an artificial diet to which tannin was added he found that a significant reduction in larval growth rate and pupal weight was obtained. He was led to conclude that the increasing tannin levels in the leaves was one factor influencing selection for an early larval feeding period.

Subsequently Feeny (1976), Rhoades and Cates (1976) and others hypothesised that there were two main types of chemical defence employed by plants utilising secondary metabolites.

Toxic or qualitative defence occurs particularly in ephemeral plants and plant parts. These tissues tend to be N rich and often their defensive compounds are based on nitrogen, for example various alkaloids. These qualitative allelochemicals are toxic at low levels and may also act as deterrents to non-adapted enemies. However, adaptation and the ability to break down these compounds can evolve and eventually specialist herbivores may use them to locate their foodplants. An example of this is *Pieris rapae* L. which is attracted to oviposit on its foodplant (*Brassica* sp.) by the presence of glucosinolates; its larvae are unaffected by high concentrations of these compounds in the leaves (8, 33).

Digestibility reducing substances (quantitative defence strategy) occur in plants which are nitrogen poor but are also obvious to herbivores by virtue of their longer life span or commonness. These compounds are usually carbon based, for example phenolic compounds such as tannins which complex proteins and reduce the availability of ingested protein substrates to gut enzymes so that the proteins are not broken down and utilised. Digestibility reducing substances tend to accumulate in leaves as the growing season progresses (7, 14) and the higher the concentration ingested by the larvae the greater the effect.

The terms 'non-apparent' and 'apparent' were coined to refer to these two types of plant and defensive strategy. 'Non-apparent' plants or plant parts are, for example new leaves, annuals or rare plants which utilise qualitative defensive compounds and which may also be able to escape herbivory by not being regularly encountered in time or space (8). 'Apparent' plants and materials are mature leaves, woody perennials and trees; these are readily locatable and utilise quantitative chemical defences.

The existence of induced chemical defence systems in trees has also been postulated. In studies on birch (*Betula pubescens*) damage to leaves apparently induced increased levels of phenolics which then reduced the fitness of subsequent herbivorous lepidoptera and hymenoptera by increasing larval period and decreasing pupal weight. This response may persist for months or even years (6, 13, 16, 26, 43), and is marked in early to mid summer before background levels of phenolics in the leaves are high. Baldwin and Schulz (1983) suggested that such a response may even be induced in neighbouring trees, possibly by trees communicating with each other using airborne chemicals. Despite the great interest aroused by this paper the importance of induced responses in reducing insect herbivory is debateable (10). Some of the original proponents of the existence of such a response to defoliation have just published a paper (Tuomi, Niemela, Haukioja et al., 1984) hypothesising that the inducible response of trees to insect (lepidoptera) herbivores may not after all be an active defensive reaction. They now advocate that defoliation causes nutrient stress due to the removal of foliar nutrients and that this stress leads to an increased production of carbon based secondary metabolites

(i.e. phenolics) because the carbon cannot be diverted into growth as it normally would be. The level of carbon based allelochemicals decays gradually according to the rate at which the nutrient balance is redressed. On poor soils this may take several years.

Most of the factors mentioned above affecting leaf/plant quality; moisture and nitrogen content, toughness, fibre content and presence of toxic chemicals can be correlated with the age of the leaf.

Young leaves tend to be moisture and nitrogen rich although they may also contain toxic chemicals. These leaves will be preferred by insects, (9, 21) although the presence of any qualitative defensive chemicals may preclude their utilisation by insects other than specialists which are adapted to detoxify those chemicals.

Older leaves are tougher, lower in moisture and nutrients and higher in fibre and digestibility reducing compounds (14, 21, 23).

Beckwith (1976) fed Douglas fir tussock moth larvae (*Orgyia pseudotsugata* McDunnough) on new foliage from the top and old foliage from the bottom of the tree crown. The larvae forced to feed on old foliage suffered 'stress' resulting in increased developmental time, frass production, number of instars and decreased head capsule size and egg production.

Microlepidoptera and smaller macrolepidoptera are usually early season feeders (24) whereas larger macrolepidoptera are late season feeders because their size makes them more able to cope with tough, moisture and nutrient poor food. The possession of an alkaline midgut may assist lepidoptera in breaking down tanniferous leaves (3).

Larvae forced to consume older leaves may suffer from effects produced by a combination of the previously mentioned factors which become accentuated as the leaf matures and ages. These effects include prolonged larval stage (and hence greater risk of predation and parasitism), decreased size and fecundity and death.

In the '*Silkmother Rearer's Handbook*', p.19 our editor cites an example of an unsuitable foodplant as the winter leaves of *Quercus ilex* which, when fed to *Antheraea pernyi* Guerin — Meneville larvae produced a brood about half the size of those produced in summer. This can be explained by the increased toughness, lack of moisture and nutrients and probably increased levels of tannins to be found in these leaves. The addition of 'Smith's Elixir' (p.21) to such leaves would help to redress the nutrient balance.

In summary, the points which can be made really only confirm what most successful rearers already know!

Firstly, attempts should be made to obtain the most suitable available species of foodplant for the larvae.

The optimum age of leaf for larval feeding will vary with the specialism of the insect herbivore and the variation with age in the host plant species of the criteria affecting leaf palatability.

Younger leaves are more succulent, nutritious and more easily digested; they may be protected to a varying extent by toxic, qualitative chemicals.

Young leaves will be preferred by insects which specialise in feeding on that particular plant species and have evolved means to detoxify any toxins present. However, depending upon the existence or efficacy of any qualitative chemicals, generalist herbivores (i.e. those that do not specialise in the foliage of one particular plant species) will also find younger leaves more palatable than older ones (9).

Older leaves are tougher and poorer in N and water. They will also tend towards high levels of digestibility reducing substances e.g. tannins. Many species of macrolepidoptera normally feed on mature/older leaves. It has been suggested that generalists will prefer such leaves because although they are more indigestible and less nutritious they may be less toxic than young leaves.

Within limits, larvae will tend to prefer younger to older leaves of their foodplant. Such leaves can be more easily utilised and more efficiently converted to body mass due to their higher nitrogen and water content coupled with reduced toughness and fibre content. Very young leaves may be toxic just as old leaves may be so poor nutritionally that no growth is possible.

The age range of leaves which larvae would normally be exposed to in the wild should also be considered.

Plants growing in conditions of high nutrient availability will be of better food value for insects than those growing in impoverished soil. Some plants which have been subjected to water stress may also be high in soluble nitrogen and it would be interesting to carry out some experiments to compare the performance of insects feeding on such plants.

Leaves should preferably be picked in the morning or evening. Leaves collected in the early morning (especially in summer) may have a higher water content than those collected at other times of the day. This is because during the day transpiration may exceed absorption of water by the roots. If such an imbalance does occur then the deficit is normally made good during the night when absorption exceeds transpiration.

Acknowledgement

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STATUS OF DRAGONFLIES AND DAMSELFLIES (ODONATA) ON SOUTHAMPTON COMMON, HAMPSHIRE

In the winter of 1983/84 the largest of the three man-made lakes, the Ornamental Lake (size 200 yards \times 50 yards), on Southampton Common, (a 365 acre site of predominantly mixed woodland with open short turf areas) was dredged completely. This lake is used extensively by anglers.

The dredging resulted in virtually the total removal of the mud layer, the abundant vegetation, and of course the associated aquatic fauna. Dredging has been carried out periodically in previous years but never so drastically as last year. The lake, being surrounded by mixed woodland and patches of meadow, was an absolute haven for all manner of wild life, including a wealth of insect life.

Of particular concern is the effect the dredging will have on the Odonata populations of this lake and the neighbouring Boating Lake. During the summer of 1983 a total of 16 species of Odonata were recorded. No doubt the complete dredging of this lake was a disaster for all the insect species which over-winter in the lake, notably the Odonata.

The Management of Southampton Common's Lakes is carried out by Southampton City Council Parks Department. Fortunately for some of the species concerned the nearby Boating Lake provides a breeding place, so hopefully in 1984 the re-population of the ornamental lake will be supplemented by adults from the Boating Lake. This lake itself was also due for dredging and had been drained down to the mud in preparation, further action being halted only by the intervention of the Nature Conservancy Council. The NCC were made aware of the situation by the Southampton Common Studies Centre, an MSC funded association which has been on the common for several years but as yet has little say on how the common is managed.

Although dredging of the lakes is necessary to prevent silting up and that winter is the correct time to dredge, it is felt both by myself and many others that the lake management as it exists should be modified to ensure maintenance of habitat and certainly that it is never repeated in the way just described.

The Parks Dept. have this year installed silt traps on two of the three streams entering the Ornamental Lake, although a trap has not been placed on the stream apparently carrying most of the incoming silt. Further advice on how and when to dredge is required (certainly by the Parks Dept.), with changes in management certainly including piece-meal dredging in winter separated by a year or more.

Other aspects of the dredging include:

- The presence of the Great crested newt (a species protected by law), this being a major reason why the NCC were contacted and possibly why they showed concern. This newt has been found in the Boating

lake this winter and was probably present in the Ornamental Lake prior to its dredging.

- The dumping of the vast amount of dredged mud onto an area adjacent to the lake known to be a site for Lizards.
- The presence, in large numbers, of the Pyralid moth, the brown china mark (*Nymphula nympheata*) whose larvae overwinter (well, which were intending to) on the leaves of *Potamogeton*, a plant which was abundant in the lake.

The following summary of records were made by, amongst others, Tim Norris and Simon Delany, a lecturer at Southampton Common Studies Centre.

Erythromma najas (Red-eyed damselfly)

First recorded on May 26th, a male at the Boating Lake. This rare species was present at the Ornamental Lake in small numbers until mid-August. The maximum count was of ten on July 22nd and the last sighting was of a male on August 17th.

Coenagrion puella (Azure damselfly)

This species is similar in appearance to the most numerous damselfly found on the Common (*E. cyathigerum*) and undoubtedly it was frequently overlooked. The first specimen recorded, a male, was caught at the Ornamental Lake on May 26th. Odd singles, all male, were netted between that date and the last record on August 27th.

Enallagma cyathigerum (Common blue damselfly)

Large numbers emerged from the Boating Lake between May 25th and June 15th, and from that time onwards this was the most numerous and widespread damselfly on the Common. Few accurate estimates of numbers were made but on July 1st several hundreds were recorded from the Ornamental Lake and 30+ from the Cemetery Lake. One hundred + were again seen on July 22nd and an interesting find of a blue form female, from the Boating Lake, was made on July 31st. The last recorded sighting was of 30 on the Ornamental Lake on August 27th.

Pyrrhosoma nymphula (Large red damselfly)

There was one record of this species, a male, by the Ornamental Lake on July 25th.

Ischnura elegans (Blue-tailed damselfly)

First seen on May 26th, this species was present in relatively small numbers in July and August. The highest count was of 20 at the Ornamental Lake on July 22nd with 15 seen on August 18th.

Lestes sponsa (Emerald damselfly)

Present in very small numbers on the Ornamental Lake from late July to the end of August. First seen were two males on July 22nd, the last sighting also of two males was made on August 27th. A single female was seen on August 16th.

Calopteryx splendens (Banded demoiselle)

There was only one sighting, on a rather late date for this species, a male at the Ornamental Lake on August 31st.

Calopteryx virgo (Beautiful demoiselle)

A female *Calopteryx* seen at some distance near the Ornamental Lake on June 29th was either this or the previous species. A definite male was found to the north of the Common, at rest on bramble, on July 21st.

Aeschna cyanea (Southern aeschna)

Present from mid August and by late August, although numbers had hardly reached double figures, it was the most conspicuous dragonfly present. Several survived through October and the last record was of two near the Ornamental Lake on November 6th.

This species was also seen ovipositing at the Ornamental Lake in August.

Aeschna juncea (Common aeschna)

A single male was seen at the Ornamental Lake on August 31st and two males were present there the next day.

Anax imperator (Emperor dragonfly)

Many nymphs emerged from the Boating Lake between June 6th and 10th, but adults were scarce until the second half of the month. The highest numbers counted were 11 at the Ornamental Lake and six at the Boating Lake on July 25th. The last ones seen were two males and three females on August 16th.

Orthetrum cancellatum (Black lined skimmer)

An individual, possibly this species, was seen at the Ornamental Lake on July 25th, and a definite male was seen on August 19th, a late date for this species.

Orthetrum coerulescens (Keeled skimmer)

Only recorded on July 25th, when five *Orthetrum* were seen, of which one was a definite male *coerulescens*.

Libellula depressa (Broad-bodied chaser)

Seen firstly on June 7th, numbers built up over June reaching similar numbers as the Emperor at the Ornamental Lake in July, when the highest count was eight on the 22nd. Last seen on August 9th. Also seen ovipositing frequently at the Ornamental Lake in June.

Sympetrum sanguineum (Ruddy darter)

A male of this rare species was found on August 15th at the Ornamental Lake. The next day a pair and a single male were closely observed. Single males were seen on the 19th and 26th and a pair were seen in tandem over the lake on the 27th.

Sympetrum striolatum (Common darter)

This was probably the most numerous dragonfly in August and September, the highest count being 20 on August 9th. It was first seen on July 22nd with three observed as late as November 6th.

C. Townsend (7806)

THE PAINTED LADY INVASION

We have received about a dozen reports of the sighting of *Vanessa cardui* early in April last. The immigration was very extensive and widespread and so noticeable as to get extensive coverage on TV, radio and press at the time. The cause of perhaps the largest and earliest immigration of this species within living memory was due to an unusually strong wind blowing from the direction of North Africa towards the North Sea. In view of the current pressure on Bulletin space and the extensive coverage of the event elsewhere, we have chosen not to record the individual reports received, but would like to express our thanks to all those who sent them.

FIFTH CONGRESS OF EUROPEAN LEPIDOPTEROLOGY**BUDAPEST, HUNGARY — 7 to 12 April 1986**

The Societas Europaea Lepidopterologica (SEL) announce that their Fifth European Congress of Lepidopterology will be held in Budapest 7-11 April 1986. Provisional offers of papers should be made to and further details obtained from:—

Dr A. M. Vojnits, Zoological Department, Natural History Museum, Baross utca 13, H-1088 Budapest VIII, Hungary.

THE CLOUDED YELLOW AND OTHER MIGRANT LEPIDOPTERA IN EAST DEVON

In 1983 *Colias croceus* Geoffroy was quite common here at Beer and Seaton and it was not unusual to see half a dozen males flying at one time in the local lucerne field. During the season a number of females were observed including a small proportion of the white form *helice* Hübner.

Having seen the first few males flying rapidly about our lanes and cliffs in June I was surprised to find a dead specimen lying in our single track lane, presumably having been hit by a vehicle — an unusual occurrence — until I realised that just over the high hedge was a lucerne field which I had not noticed before! The last specimen of the season observed was a very fresh female which I caught between finger and thumb and released on 23rd October.

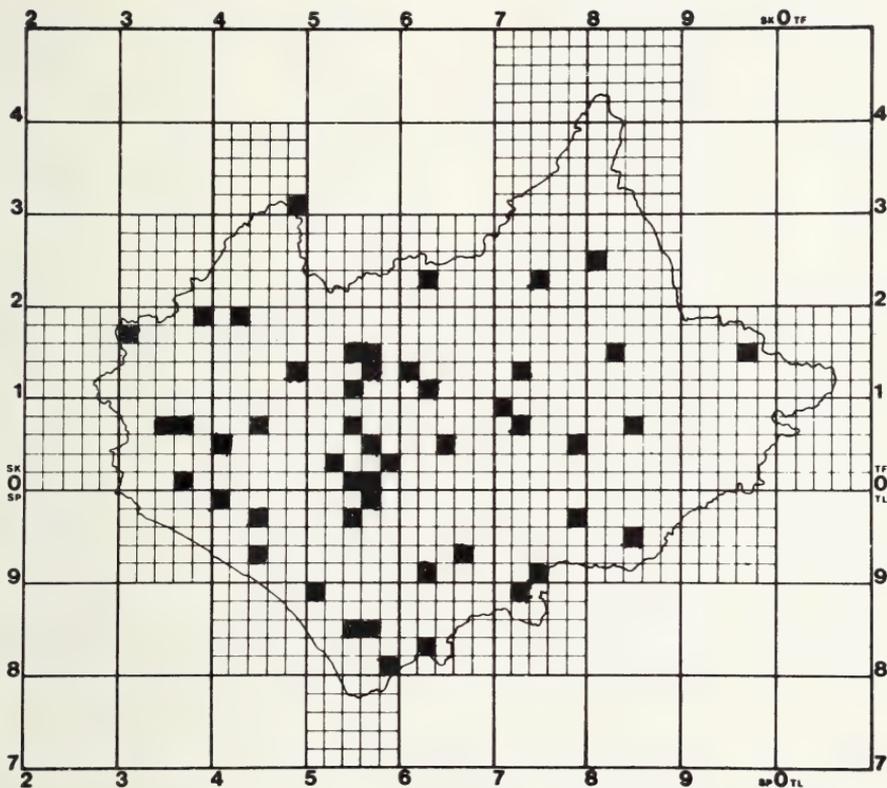
No *Colias hyale* Linn., the Pale clouded yellow, were seen during 1983 and I believe that the specimens reported were very probably *C. croceus* f. *helice* as was rightly queried by our Editor (*Bulletin* 43:65). Bearing this in mind I feel certain that the female specimen illustrated on page 64, figure 5, bottom left hand figure (loc. cit.) as that of *hyale* is in fact a *C. croceus* f. *helice*! The latter species has the black marginal areas of both fore and hind wings, but particularly those of the hind wings much more extensive than those of *hyale*.

On the 10th July 1984 a perfect female *croceus* was captured by hand in the garden and then released. Two days later on the 12th, a Hummingbird hawk moth (*Macroglossum stellatarum* L.) was seen at 08.00 hours feeding on lavender and on the same day the first Red Admiral (*Vanessa atalanta* L.) was seen in the garden, which would seem to indicate that these may well have been recent immigrants. No more *croceus* were seen until this last week when a male was observed on 11th September in Seaton and then two more on the 16th. It is quite possible that the latter sightings were of the same individual as they were well separated both in time and space.

T. G. Howarth (197)

CLOUDED YELLOWS IN LEICESTERSHIRE

As Co-ordinator of the Lepidoptera recording scheme in this County, I have had over 50 Clouded yellow sightings reported during 1983 and these are detailed in the Table below. It is also interesting to map the sightings on a gridmap of Leicestershire, although this may perhaps map recorders as much as insects. The conclusion is undoubtedly that *croceus* was common and widespread throughout the county in 1983.



Colias croceus in Leicestershire.

Map Ref.	Locality	Date	Recorder
SK707086	Newbold Lane, Owston	19.6.83	Mrs J Buchanan
SK784047	Abbey Farm, Laundl	31.7.83	M Hider
SK56-14-	Kinchley Lane, Swithland	1.8.83	M Pendery
SK43-19-	Osgathorpe	4.8.83	Unknown
SK493132	Herberts Meadow	7.8.83	J Walker
SK741234	Browns Hill Quarry	2.8.83	I M Evans
SP85-54-	Eyebrook Reservoir	10.8.83	W Allen
SK812251	Stonesby Quarry	13.8.83	I M Evans
SP757901	Wellam Lane, Great Bowden	23.7.83	J R Branson
SK722068	Lowesby Hall	7.8.83	J R Branson
SK641044	Railway Embankment Thurnby Lodge	7.8.83	H Broughton
SP449970	Garden, George St. Barwell	8.8.83	D R Hands
SP542971	Littlethorpe, Narborough	14.8.83	M Dennis
SK550067	County Hall, Glenfield	25.8.83	J R Gilson

SK302162	Ashby Woulds	23.8.83	B J Meloy
SK840075	Road Cutting, Braunston-Oakham	21.8.83	K Breach
SK355074	Stanford Reservoir	13.8.83	Dr J Owen
SK631225	Wymeswold Lodge Farm	Aug.83	M Mills
SK588022	Railway Sidings Euston Street	10.8.83	R J Barnett
SK589027	Freemans Common University Accommodation	10.8.83	R J Barnett
SP660920	The Stone House, Saddington	8.8.83	C W Holt
SP654827	Husbands Bosworth Airfield	25.9.83	R H Williams
SK38112	Syston	4.8.83	P A Evans
SK557148	Road-Field-Woods, Quorndon	22.8.83	M Pendery
SK563143	Grassy Field, Rothley	30.7.83	M Pendery
SK555141	Railway Bank, Swithland	19.8.83	M Pendery
SK555104	Wheat and Rape Fields, Thurcaston	19.8.83	M Pendery
SK559114	Garden, Thurcaston	3.8.83	M Pendery
SK566120	Fields, Thurcaston	18.8.83	M Pendery
SK554144	Fields and Woods, Woodhouse Eaves	18.8.83	M Pendery
SK729130	Thorpe Satchville Cutting	7.8.83	D G and A C Goddard
SK385191	Lount Meadows	8.8.83	D G Goddard and S W Wilkinson
SK82-14-	Whissendine-Oakham	1983	— Stevenson
SK523031	8 Towers Drive, Kirby Muxloe	21.8.83	L Jones
SP555008	Braunstone (works garden)	1983	H J Smith
SK49-30-	Lockington	14.8.83	D A Lott
SP728881	35 Victoria Avenue Market Harborough	19.8.83	W E White
SK567006	Great Central Way, Nr Aylestone	5.10.83	M Mawson and J Davis
SK455068	Glenfield	20.8.83	E P Tura
SP504887	Ullesthorpe	1983	H J Smith
SK362074	Ashby Canal, Shackerstone	9.8.83	F T Smith
SSK355074	Ashby Canal, Shackerstone	12.8.83	F T Smith
SP405994	Ashby Canal, Sutton Cheney	14.8.83	F T Smith
SK401058	Buften, Nailstone	18.8.83	F T Smith
SK397002	Hinckley Area	1.8.83	R Morris
SP440930	Hinckley Area	10.8.83	R Morris
SK57-04-	Leicester	1983	C J Tatham
SP79-97-	Hallaton	July '83	S C Ford
SP56-99-	Great Central Railway	13.8.83	N W Hagley
SP571997	9 Victors Close, Leicester	29.7.83	D V Kolaczek
SP564844	Misterton, South	1983	H W Ball
SP556850	Misterton, North	1983	H W Ball

SK60-12-	Wanlip Gravel Pits	1983	H W Ball
SP625910	Shearsby	19.8.83	H Goosmark
SK979153	Clipsham Clay Bank	12.6.83	Rutland Natural History Society
SK57-17-	Garden, Quorn	1983	P MacQueen
SK56-13-	Swithland Reservoir	1983	P MacQueen
SK85-08-	14 Tyne Road, Oakham	1983	J G Williams

D. H. Hall-Smith (4954)

(Sadly, Don Hall-Smith died last November after sending in this article and we now publish it as a memorial to a fine entomologist—Editor.)

ADVISORY PANEL

Please note that Dr. I. D. Wallace deals only with the Caddis flies (Tricoptera). Enquiries, etc. in respect of the Mayflies (Ephemeroptera) and Stoneflies (Plecoptera) should be addressed to Dr. S. Nicholls, Dept. of Zoology, Woodland Road, Bristol, Avon.

Members who are expert in any particular branch of entomology and who would be prepared to serve the Society's members in an advisory capacity should advise the Society's Secretary, Mr. S. A. A. Painter, so that they may be considered for an up-dating of the Panel.

A NORTHERN NATURAL HISTORY BOOKDEALER

As the conservation pressure to desist from collecting insects mounts, so it seems the naturalist is turning more and more to collecting books about the subject and to meet this demand several fresh dealers specialising in natural history books have entered the market lately. Recently come to our attention is E. M. Egglisshaw, of 54 West Moulin Road, Pitlochry, Perthshire PH16 5EQ, whose catalogue 4 was issued earlier this year. It was a very comprehensive 40 page booklet listing over 900 items on natural history generally with a very good selection on insects. We were particularly impressed by the variety and quantity of the older books on offer including quite a few we have rarely seen in any catalogues in recent years. There was also a good selection of both the new naturalist and wayside and woodland series. We also noted that some multiple works such as those by Barrett and Curtis were being offered as separate volumes (of related groups of insects) rather than as sets. These books, in their complete state, have now become so expensive, that it makes sense for the specialist to be able to purchase only that section of the work which is of interest in his field.

We wish this Scottish dealer success and hope he can continue to find good replacement stock north of the border to replace the contents of catalogue 4 as they get snapped up.



ROY

THE WIGAN INSECT SHOW

Already it is time to enter in one's diary the date of this most northerly of the ever popular insect shows. Next year this one falls between Leicester and Hounslow and the date is Saturday 14 June 1986. The venue is very famous. It is to be held at Trencherfield Mill Exhibition Centre, *Wigan Pier*, Wigan, Lancashire. Opening time is 1.00 pm (giving us southerners plenty of time to get there without having to start before dawn) and it closes at 5.00 pm. It is intended to publish further details in the May issue next year. A real opportunity, not to be missed, of following George Orwell's road and finding something more exciting at the end of it than he did.

ROY HILLIARD — 1914-1985

It is seldom that the pages of our Bulletin carry an obituary recording the passing of one of our Society's members but Roy Hilliard, who died in the January of this year, was an unusual man. He joined the Society in its infancy, his membership number being 99, and was able to see the dawn of its fiftieth year. During that half century he held many offices within the Society, including those of treasurer, advertising secretary, President and finally that of a Trustee. For as long as I can remember he wrote up the account of our annual Exhibition for the Bulletin and his last work for the Society was the compilation of the report on the 1984 Exhibition. His wise advice at Council meetings and his cheerful participation in so many of the Society's activities endeared him to all who worked with him and he will be greatly missed.

Born at Hackney, the oldest of five children, he worked briefly for the Metropolitan Railways and then started a service with the Midland Bank which lasted for 41 years until he retired in 1974. His knowledge of investments was invaluable to the Society. During the last war he volunteered in 1939 for the City Regiment of the Royal Artillery and in 1941 was taken prisoner at Tobruk, being a prisoner of war until freed in 1945. Roy's interest in the Lepidoptera was a life-long one and in addition to being a member of the AES he was also a founder member of the Harrow Natural History Society and a member of the Harrow Camera Club, photographing insects, and the Caravan Club. He was a keen gardener and conservationist. In his interest he was always encouraged and supported by his wife, Joan, who for some years arranged the catering at our annual exhibitions.

Roy's last major activity for the Society was joining with Joan in helping to run the 1984 junior field week in the New Forest, so well reported in the February number of the Bulletin and a fitting tribute to Roy's memory. Members of the Society joined his relatives and friends at an inspiring funeral service at Hendon Crematorium where we said good-bye to a friend and a truly gentle man. We are all richer for having known him.

AMENDMENT TO THE MEMBERSHIP LIST 1985

In the supplementary membership list issued with the May 1985 Bulletin, the following members were omitted from the new members section, due to an error in photocopying the master list. Please make the necessary additions to your own supplement.

- JONES, A. R. (8092)** 23 Sandwich Road, Cliffsend, Ramsgate, **Kent** CT12 5HX (L.)
- JONES, L. (8178)** 8 Towers Drive, Kirby Muxloe, **Leicester** LE9 9EW (L. galls)
- JONES, N. W. (8037)** 31 Drummau Road, Birchgrove, Swansea, **S. Wales** SA7 8QA (L.)
- JUDD, Mrs. B. (8015)** 98 Carlton Road, Redhill, **Surrey** RH1 2DD (Phas. Sat.)
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- KENNAWAY, J. (8119)** Escot, Ottery St. Mary, **Devon** (L.)
- KEYS, A. (8067J)** The Old Smithy, The Street, Ashwellthorpe, **Norfolk** NR16 1HD (L.)
- KITCHEN, I. G. (8156)** 12 Hall Drive, Hanwell, **London** W7 1AB (fw. R.)
- KNIGHT, G. T. (8040J)** 78 Newbridge Street, Whitmore Reans, Wolverhampton, **W. Midlands** WV6 0EQ (L.C.O.)
- LANE, G. (8059)** 19 The Paddocks, South Lancing, **W. Sussex** BN15 8DN (L. breed.)
- LANGLOIS, Mrs. S. (8120)** Langdale, 50 Galley Lane, Barnet, **Herts** EN5 4AL (Papilios)
- LEEKE, R. G. (8054)** 7 Bibury Close, Woodley, Reading, **Berks** RG5 3PE (D.L.C.)
- LETHABY, M. J. (8158J)** Haere-mai, Slade, Nr. Oxwich, Swansea, **S. Wales** SA3 1NA (Phas. Mant. formic)

R. A. Cribb (Mrs.)
AES Registrar

HOME MICROS AND THE NATURALIST

The home-micro computer is here to stay and may provide the field worker, amateur or professional, with considerable data handling power at relatively low cost. Many people are already using them to record data, which might otherwise have stayed in their notebooks, and are also using a micro to plot distribution maps and the like. An investigation into how widespread the use of micros may be in natural history is now under way with a possible view to setting up an informal network to ease the exchange of data and information between naturalists. Readers who are using a home micro for natural history, or may be interested in joining a group, should contact Doug Moncur, Llysdinam Field Centre, Newbridge-on-Wye, Powys LD1 6NB.

THE AES GOLDEN JUBILEE GARDEN PARTY

This was held on 21 July in the garden of the president, Colin Hart, and was attended by members, wives, a few older children of members, and friends. As guests of the Society were Norman Brangham, who was the 18th member to join the Society and who figures so prominently in the editing of our first volume of publications, and Roy Stallwood, who has served the Society for over forty years as Trustee, this being one of those legal requirements a Society such as ours is required to have.

We were fortunate with the weather; the sun shone; there was some cloud; just enough breeze to keep one from becoming too hot. The food and the wine were superb. Yellow balloons bearing our brimstone logo floated gently in the breeze. The very rare original early publications of the Society were on show together with the final proofs of the Jubilee year reprints. As is usual when entomologists get together the conversation was animated and stimulating and members who perhaps knew each other only through letters finally managed to meet face to face.

Many of the personalities involved in the running of the Society were present and for the benefit of those who for one reason or another can never get to any of our meetings and would like to know what the people they write to look like, we publish a number of photographs taken at the party.

An excellent and thoroughly enjoyed occasion and as editor I take it upon myself to thank Colin and Pamela Hart for the use of their lovely garden and for all the hard work so clearly put in, both in organizing the party and for running it so smoothly on the day.

EMPEROR NEAR CENTRAL LONDON

Towards the end of April I had ten cocoons of the Emperor moth (*Saturnia pavonia*) which duly emerged and paired except for one female. The males being very battered and nearly dead I put the 'best' with the late emerged female and put them in a plastic box with a gauze top and stood it outside the back door. Imagine my surprise when a wild male suddenly appeared, was easily caught by the box and paired within seconds when placed inside it! I would not have thought that *pavonia* would be around so near Central London (Kingsbury) and it certainly was not one of mine as all were accounted for. Possibly, of course, that it was an escapee from some other breeder in this vicinity.



Fig. 1. Participants at the Jubilee garden party.



Fig. 2. Norman Bringham and Colin Hart.



Fig. 3. Sid Painter and Bernard Skinner.



Fig. 4. Colin Penney and Laurie Christie.



Fig. 5. Mrs Stallwood, Roy Stallwood, Reg Fry.



Fig. 6. Nigel Painter, Pat Mainwaring, Tom Fox, Colin Hart.
David Lonsdale, Brian Gardiner, Doris Gardiner.



Fig. 7. Paul Sokoloff.



Fig. 8. Roy Stallwood and Reg Fry.

BOOK REVIEWS

The Caterpillars of European Butterflies by Erhard Bodi. 47 pp of text, 161 coloured plates of larvae. A4 size, hardback. Sciences Nat. Available through E. W. Classey Ltd. Price £23, including postage.

This handsome book is the result of the author's 25 years study of lepidopterous larvae, during which time he has accumulated more than 1,000 species on colour slides. In this volume are figured a good percentage of the European butterflies, some for the first time. The text is in German, French and English, the English translation being by our member Brian Morris, and much of the contents appeared in serial form in the quarterly publication "Sciences Nat". The text gives a brief outline of general rearing techniques, a description of the method of photography used, an index of the species, and then more detailed accounts of breeding the species. The larval pictures are excellent, each plate being the same size. However, reference to the text does not indicate the scale of enlargement but all appear to be in the final larval instar, apart from *M. alcon*. I feel that there should have been some reference to the different colour forms which occur in some species, e.g. *L. celtis*, *P. apollo* and many of the Satyrs. The omission might make some species difficult to identify from the illustrations.

However, the book fills a long-standing gap in the literature on the European butterflies and one hopes that there will be a Volume 2 to cover the species not included, so that there will be a comprehensive photographic record of all the European butterfly larvae. Sciences Nat are to be congratulated in making the work of Mr Bodi available to fellow lepidopterists.

PWC

Cuckoo-wasps, Hymenoptera Chrysididae by D. Morgan. Handbooks for the identification of British Insects, Vol. 6, part 5. 8vo. pp 37, 95 figs. Royal Entomological Society. London 1984. Price £3.90.

The primary aim of this series of handbooks was, and to some extent still is, to provide a complete guide to the identification of all the British insect fauna. In the past this objective has often disguised the great potential which such authoritative works possess to inform and inspire other entomologists unfamiliar with the insects concerned. Some of the earlier keys are barely usable by other "experts" working in the same field, let alone by less specialised entomologists. It is true that the complex nature of many groups makes the production of simple, easily understood guides almost impossible, but this should not inhibit the writing of a readable introductory account, summary classification and other manageable notes.

The recently re-styled handbooks have gone some way to meeting these needs: a more concise standard format with better reviews of general biology and nomenclature; and improved, well illustrated keys. The latest guide to Cuckoo-wasps by Dave Morgan at the British Museum (Nat. Hist.) is no exception.

This volume is concerned with a rather small but beautiful group of Hymenoptera, the Chrysididae, often referred to as cuckoo-wasps, ruby-tailed wasps or jewel-wasps. They are mostly parasitoids of other Hymenoptera, particularly solitary bees and wasps. Despite their diminutive size the vivid metallic colouration of the adults renders them quite conspicuous when at rest on vegetation and around the nests of their hosts. The thinness of the handbook betrays not only the conciseness of its composition but also the small size of this family: just 33 British species contained within eleven genera.

Unlike foreign chrysidids there is very little literature on the British species, and only a couple of other major, relevant works have been published this century. Morgan's accounts of classification, nomenclature, and characters and character variation are consequently brief but comprehensive and easy to read. The short section on biology is supplemented throughout the key by notes on each subfamily, genus and species, giving distribution, flight period and host (where known). The shortage of detailed biological information is characteristic of the handbooks, and in this case also reflects the lack of original investigation into the natural history of these insects. A paragraph on "Collecting and Preservation" provides some useful tips and references, but fails to mention how useful a pooter can be for collecting these small wasps as they explore nest entrances of their hosts. Perhaps some mention of the characters that must be exposed during setting would also save time when keying the insects out: I found various, useful parts of the head were obscured and features of the legs difficult to observe in some set specimens.

I still find keys occasionally confusing and frequently rather threatening taxonomic tools. I entered Morgan's key to subfamilies with some trepidation and completed my first run successfully (and a little smugly) in record time! The second key, to genera, supported my feeling of confidence: the characters are distinctive and visible under medium power (X30) of a binocular microscope for even quite small specimens. The terminology for the keys is well illustrated and the lack of a complete glossary of terms is not a hindrance. Separating species is more difficult. Comparative characters creep into the key where illustrations can only partly serve to reassure the hesitant user. However, this lack of confidence is easily overcome with practice and familiarity with the material. The couplets in the keys are very well written with plenty of supporting characters and, best of all, only essential jargon.

In conclusion, I found Morgan's handbook on cuckoo-wasps easy reading, usable and suitably in line with an intention to promote an active interest in their natural history. The overall lack of literature concerning British chrysidids and the serviability of this new key should spark off more original work on these beautiful little wasps.

Dr. Clive Betts (4976)

Hawkmoths of the British Isles by Michael Easterbrook. Pp. 24 (8 in colour). Size A5, card cover. Shire Publications Ltd. Aylesbury 1985. Price £1.25.

We have had so many butterfly books lately (which may include more moths than butterflies) that it is a pleasant change to see one blatantly using the word 'moth' in its title and actually dealing solely with moths.

This booklet is clearly designed as an introduction to our British hawkmoths for the budding entomologist and any general naturalist who wishes to broaden his or her interest in this direction.

The moths are divided into two groups, Residents and Migrants, and under these headings the adults are described and information given on the distribution and lifecycle. All this information is given in the form of a prose commentary such as is to be found in the familiar 'South' instead of the often very abrupt abbreviated precis that one often finds in so many books today. There is also an introduction of general 'Spingid' interest and brief details of studying and breeding hawkmoths are given together with a table of larval characteristics.

No less than a third of this booklet is taken up with colour photographs. There is also a coloured cover. These show all but the Bedstraw adult. A number of the larvae are also in colour. There are also a number of half-tone illustrations. For some reason the larval illustrations have mostly been selected of larvae just after they have moulted and this gives a false impression of the normal appearance, for it is very easy to miss seeing this transitory stage. This applies particularly to the photograph showing the young Poplar hawkmoth. The large tail to which attention is drawn is only present within the first 48 hours of its life after hatching from the egg, and it is this newly hatched stage which is illustrated. Some indication of scale would also have been useful, although for the adults at least this can be gathered from the text.

The half-tones suffer rather from underexposure, a common fault with modern printing techniques.

It is not always possible to tell from colour printing whether the printer has got the colour balance wrong, or whether the original was "wrong" and the printer has got it correct to his material. The quality here is

rather variable from one or other causes and to my eye basically suffers from a lack of green. This is rather sad in the Lime and Oleander hawks whose often transitory beauty lies in their subtle shades of green and pink.

The most astounding fact about this booklet is its price. Just how this has been achieved is little short of a miracle. Clearly there must have been a large print-run and clearly the publishers and author are out to serve the public and not make fortunes. At the price imperfections are forgiven for it is an absolute snip and deserves to be in everyone's library. Indeed this booklet complements very well our own publication on *Breeding Hawkmoths* by Paul Sokoloff, and the two together form a very useful and informative package at a very small cost.

This is the first in a series to be published by Shire and we congratulate them on their enterprise and wish them success.

Brian Gardiner

The World of Butterflies: An illustrated Encyclopaedia by Valerio Sbordoni and Saverino Forestiero. Published by Blandford Press, price £20 h/b. 312pp. 1985 ISBN 0 7137 1500 6. Colour and b/w illustrations.

Despite the title, this is a lavishly illustrated tour de force of the world of both butterflies and moths i.e. the lepidoptera. The book is unusual in that the wide range of biological topics discussed are accompanied by a super-abundance of delightful paintings, carefully chosen to illustrate key concepts in the text. A welcome feature is the emphasis placed upon ecological topics such as population dynamics, predator-prey relationships, social behaviour and distribution whilst earlier chapters look at the origins, evolution, classification, structure and life cycles of the lepidoptera. A systematic survey of the world's butterflies and moths has endeavoured to feature representatives from almost every family in existence. A slight touch of irony is provided by the penultimate chapter on catching and preserving lepidoptera being followed by one on conservation. A book combining Italian artistry with a wealth of fascinating information.

habitat

PHOTOGRAPHIC AGENCY SEEKS MATERIAL

We have received details of a photographic agency which is seeking new material in the insect and wild life line generally. If any members are interested in marketing their superb photographs, then they can get in touch with "BIRDERS" 46 Westleigh Drive, Sonning Common, Reading, Berks RG4 9LB, who will be pleased to send them details and terms.

MORE GERMAN LEPIDOPTERA LIST

In *Bulletin* Vol. 43, p. 198, we published a note on a paper on the lepidoptera to be found around Hanau. Members might like to know that a supplementary list has now appeared on pp. 21 - 35 of Vol. 6 (1985) of the *Nachrichten des entomologischen Vereins Apollo*.

For those who prefer the Italian Alps, the first 20 pages in the same Journal are taken up with a detailed account (which is part only of a series) of the papilionidae and pieridae to be found round the old town of Aosta.—Editor.

SPRING BUTTERFLIES IN THE WEST OF IRELAND

Winters in the West of England are generally very mild due to the Gulf Stream but this year was an exception, the winter being dry but with prolonged cold spells. The cold weather persisted into the first week of May and undoubtedly affected the time of emergence of several common species of lepidoptera. However, the effect of the cold Spring on the time of emergence appears to have affected species differently. Thus *Euchloe cardamines* (Orange tip) was seen on 7th May some two weeks behind the usual time of first emergence. Similarly *Artogeia napi* (Green veined white) seconds when placed inside it! I would not have thought that *pavonia Pararge aegeria* (Speckled wood). Somewhat surprisingly, *Erynnis tages* (Dingy skipper) appeared on 11th May a few days earlier than previously noted.

The freak winds which appear to have been responsible for the occurrence of *Vanessa cardui* (Painted lady) in large numbers in the South of England this year have also affected the West of Ireland. I recorded the first specimen (a slightly damaged male) on 9th May which is approximately five weeks earlier than my previous record.

I would also like to record that I captured three male *Colias croceus* (Clouded yellow) during the last week in August 1983 on the coast of County Wexford. I have never seen this species in the West of Ireland.

Professor B. E. Leonard (7290)

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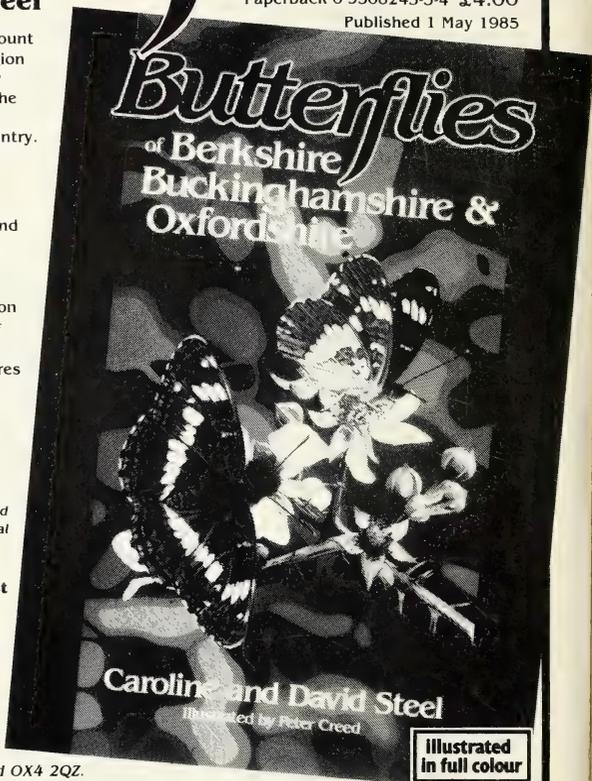
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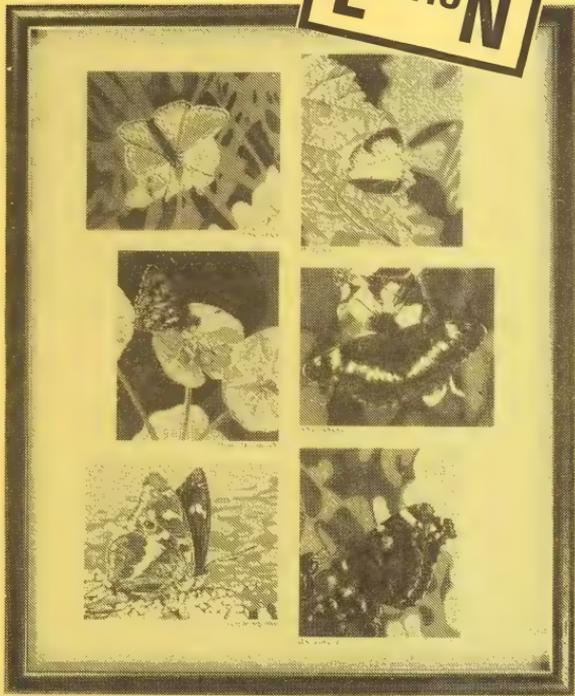
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By W. H. Tams, J. Heath, R. Cooke, M. J. Skelton and J. Reid.
64 pp. (AES Pamphlet No. 12)

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