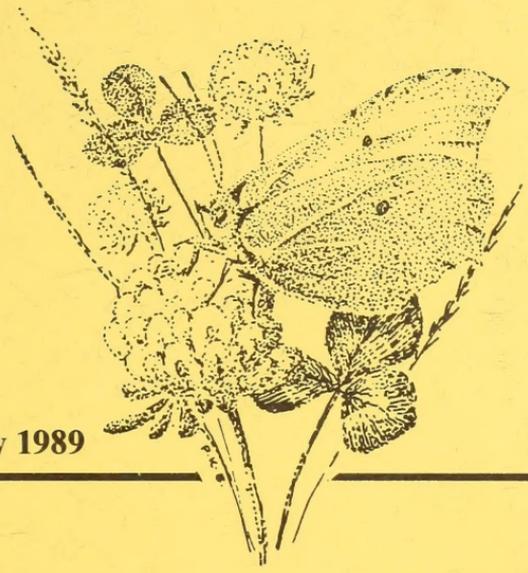


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Volume 48, No. 362, February 1989

**The Bulletin
of the Amateur
Entomologists'
Society**

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

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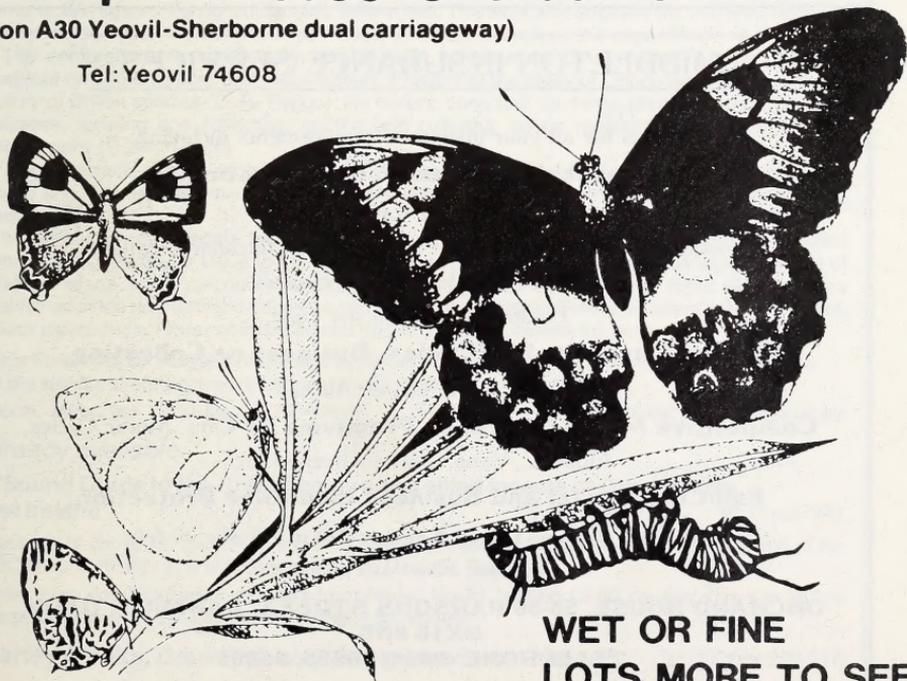


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The Dragonflies of Europe

written and illustrated by R. R. Askew



In this, the first book written originally in English to be devoted to the entire European fauna, the author's aim is to simplify the identification of dragonflies and to promote interest in them. In his Foreword, Professor P. S. Corbet, President of the British Dragonfly Society, writes that he is 'confident this aim will be achieved', adding that naturalists 'will be indebted to Dr. Askew for the dedication, knowledge and artistic skill he has displayed when preparing this book'.

The text contains chapters on life history, the adult dragonfly, distribution of European dragonflies (with colour photographs of habitats), and morphology, followed by a check list, keys and descriptions, with maps showing national boundaries for the 114 species found in Europe. An additional 24 species found in bordering regions are also briefly described. There follow keys to the final-instar larvae, an extensive bibliographical reference section with over 500 entries, 29 superb colour plates of adults and a comprehensive index. The text is illustrated with over 500 line-drawings.

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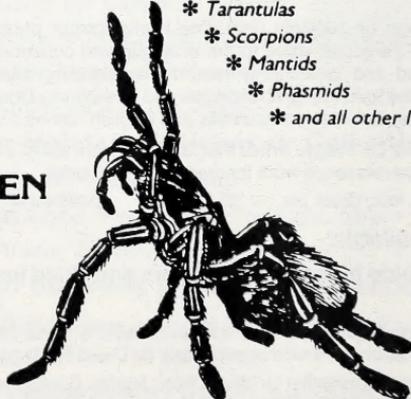
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AES BULLETIN

No. 362



EDITORIAL

It is with great pleasure that I inform members that the *Bulletin* is now to be published bimonthly instead of quarterly. This year, therefore, issues are scheduled for February, April, June, August, October and December. While each issue will be a little thinner than hitherto, we hope to see an increase in the total number of yearly pages and quicker publication of some items, particularly those of more immediate and topical interest. This will also mean that I will need a steady flow of articles and I would particularly welcome those of a practical nature, short notes, and more illustrative matter. While good black and white glossy prints are more suited to our medium, many of the illustrations in recent issues have been translations of colour transparencies into monochrome, something our printer makes a very good job of.

Apologies to members that the November issue arrived very late in the month, or not until December, and also for the serious error that occurred in that the second half of an article appeared (pages 215-217). A combination of factors caused both delay and misprinting. The pressman who had assembled our *Bulletin* for several years had left the firm: a misunderstanding arose with the new man; the realisation at a very late stage of production that some text had gone astray: this combined with the disorganisation consequent upon my change of house.

After 25 years in the one place it takes time (years?) to re-organise elsewhere, let alone keep track of everything during the move. I may also have confused members by giving a different address (my son's) in the last issue to where I am now: 2 Highfield Avenue, Cambridge CB4 2AL, to which all correspondence should be sent. The reason for this apparent double move was that at the time of printing the November issue I had already left my old address but not yet acquired a new one! All credit to the Post Office and mail sent to my old address is being redirected and reaching me.

A considerable number of books are either mentioned or reviewed in our pages. Clearly more than most members would expect, or would even want to buy. Nevertheless there is often something of interest in many books, or even a brief need for the information in a particular book, which could be of use, but which would not justify the price, particularly of an expensive book. While too many books can be assessed on the shelves of a local bookshop, this may only apply to those within larger towns. The answer to such problems is to apply to your local library. Pressed as they are for funding in today's climate of public (or lack of) spending, local lending libraries are there to serve the public, whatever their interests, and have a statutory duty to stock books for which there is a demand, and if enough persistent enquiries and fuss is made then many of the entomological books mentioned in our pages should be available on loan.

TAPE REVIEW

Sound guide to the grasshoppers and allied insects of Great Britain and Ireland by J. F. Burton and D. R. Ragge. Cassette tape, double-sided; playing time 28 minutes. Harley Books, Colchester, 1988. Price £5.75.

I am delighted to have the opportunity here of making some comments on this recorded Sound Guide.

The 35 items are clearly announced and sensibly arranged. The mellow rasping of the Oak bush-cricket is followed by the thin chirping of the Great Green bush-cricket. Later, the song of an isolated male Field-cricket is given, followed firstly by the sound of many in "chorus", then by the courtship song. This allows the listener an appreciation of the range of sounds peculiar to the species, and an insight into the meaning and purpose of those sounds. Songs of the Stripe-winged grasshopper are given, followed by an example of the species' courtship song. So, too, with the Lesser marsh grasshopper — and all clearly announced on the recording.

Grasshopper and cricket sounds vary greatly in volume, and many are thin and high pitched. The technical problems of recording such sounds — amplification, distortion, balance — have been successfully overcome in this Sound Guide, and the result is as pleasing as it is educational.

I feel that the recorded work will impress the listener with the variety of sounds produced by stridulation, and with the natural exuberance of the species of the order Orthoptera, especially in courtship. I feel that it will inspire the listener to wander downland, field and grassy wayside, in future, with ears as alert as eyes, capable and assured of discerning many species by sound alone, and of assigning meaning and purpose to these sounds. I feel that it will inspire some to enter into the spirit, and into the music, of cricket and grasshopper song, and serve to enhance their knowledge and enjoyment of this area of entomology thereby.

Frank Marples

NEED FOR NATIONAL NETWORK OF BIOLOGICAL RECORDS

In our last issue we published some account of how the powers that be regarded Biological Recording as "an area of low priority science." One thing that may not have been apparent from our item was the change of mind that occurred between sending off the manuscript to our printers and the receipt of the proofs. Originally it had been decided to terminate the post of one of the staff at the Monks Wood Biological Records Centre, but during the course of being typeset, as a result of representations being made, this decision was rescinded and nobody is now to be made redundant. Indeed, this area of "low priority science" is now very much alive and kicking and the need for it has been shown to be even more important than ever. The extract below is taken from *habitat* and speaks for itself:

"A national network of biological recording is urgently needed to prepare for land-use changes as UK agricultural land is taken out of production, and as Green Belt land faces increasing pressure from developers. This is the conclusion of a report *Biological Survey: Need and Network* which is published by the Linnean Society (Price £2 inclusive from them at Burlington House, Piccadilly, London W1V 0LQ) which calls on the Government to supply the initial funding necessary to establish such a network. The report is the work of an expert committee, chaired by Professor R.J. Berry, set up by the Society as a result of concern about the state and lack of co-ordination of biological recording in the British Isles."

The report acknowledges the work of the Biological Centre at Monk's Wood which can give the distribution of particular animals and plants. However, it cannot show the diversity or change in particular sites or habitats. There is virtually no co-ordination between the many local and regional records centres which receive and validate data fed in by vast numbers of experts, both amateur and professional. As a result surveys are continually being commissioned by planning departments, the Nature Conservancy Council, water authorities and others when specific information is needed. The report recommends that:—

a co-ordination commission be established under the lead of an appropriate national body.

a national network of biological record centres be set up, linking and strengthening the existing county and regional centres.

a national collative and interpretive unit be centred on the Institute of Terrestrial Ecology.

a central data store be based on the Rural Data Archive at the University of Essex which already holds a range of environmental data.

The authors call upon the Government to supply the necessary finance to meet an urgent national need.

BOOK REVIEW

The Dragonflies of Europe by R. R. Askew, Harley Books, 1988. 291 pp plus 29 colour plates, Hardback, £49.95. ISBN 0 946589 10 0.

Reviewers are always on their guard against new books which duplicate subjects already covered elsewhere, especially so when the subject is one of the more popular taxonomic groups. The dragonflies are something of an author's dream; large, beautiful and having a manageable number of species. Not suprisingly, therefore, Dick Askew is by no means the first author in this field. The book is, however, the first English text to cover the entire European dragonfly fauna and for this reason alone, it might be a first choice for anyone who wants to make a really serious study of the Order.

The book starts with five general chapters which outline the biology and the European distribution of Odonata, and the rather large scale of the work gives space for a thorough treatment of this background information. This thoroughness extends to the naming of morphological parts, but some of this terminology is used in the text long before all is revealed in Chapter 5. In the absence of a well demarcated glossary, the information in Chapter 5 could at least have been made more accessible by the inclusion of morphological terms in the index; not every user of the species' descriptions will be familiar with terms like epiproct and hamule. This is, however a minor problem, and the general chapters are on the whole very helpful.

The style is readable, if necessarily rather didactic, and is relieved by some intriguing snippets of information. Ornithologists, for example, may be alarmed to note that insects can occasionally turn the tables; the American *Anax junius* has been observed to seize, kill and carry off a hummingbird. Medical entomologists may be equally interested to know that *Orthetrum chrysostigma* is said to catch tsetse flies on the backs of Africans. The details of copulation and oviposition are particularly well covered, and there are some interesting remarks on ways in which the males of different species seem to have adopted either of two behavioural strategies to compete genetically with rival individuals. Growth and development are also quite well covered, but there is little explanation of the fact that Odonata are exopterygote insects and therefore do not pupate.

The main part of the work consists of keys and descriptions of taxa within the Odonata. Every European species is thoroughly covered here, and the entry for each species contains a consistent sequence of headings: description of the adult, biology, flight period and distribution. Synonyms for scientific names are given, as are English, French and German common names where these exist. The keys themselves seem to have a good separation of characters, although many of the dichotomies

are based on several different characters, an approach which has both pros and cons for users of keys. Where necessary, separate keys are given for males and females. Every key is supplemented with a wealth of excellent illustrations and with very few exceptions, every set of illustrations covers all the species contained in the particular key.

Each species entry includes a European distribution map which shows national boundaries and which includes much of European Russia and part of North Africa. The maps are based on all the information available to the author, but he has had to place question marks over some distribution ranges, and hopes that other entomologists will be encouraged to help correct and update distribution data. The maps will, of course, be useful in the conservation of species of Odonata, some of which are under severe threat due to destruction and degradation of habitat. This point is made in the book, but there is otherwise little mention of conservation; not necessarily an omission in a book which is geared primarily towards identification.

Since adult insects can only be found in certain months of the year, it is useful to take advantage of the fact that identification, at least to generic level, can often be achieved by examination of the "skins" cast at the final moult. This can also reduce the need to take live adults, even when they are available. The author provides a very useful key for this purpose, compiled largely from the work of earlier authors. This key covers all families and genera and some species.

After a list of references — which are used throughout the text in a scholarly way — the book ends with a series of colour plates, all based on Dick Askew's own paintings. The male and female of every species are included, as are some of the colour variations. These plates are superb in their morphological detail, in artistic quality and in the standard of reproduction. The plate captions appear opposite the plates themselves and it is only on these facing sheets that any lavish acreage of blank paper appears in the book. This is not unreasonable in view of the varying lengths of the caption, only some of which might have been accommodated beneath the plates.

As far as the paintings-versus-photographs argument is concerned, the former are, perhaps, more appropriate in a definitive work of this type. The reflectance of the wings seen, for example, in Andrew McGeeney's photographically illustrated book on British dragonflies, can obscure diagnostic features. Colours such as the blue of *Coenagrion mercuriale* are, however, perhaps rendered more faithfully by well reproduced photographs. Incidentally, McGeeney illustrates a number of colour forms which are not included in Askew's plates.

The index is very good as far as inclusion of all page references is concerned, and the principal entry in the text for each taxon is well marked by bold type. However, there are virtually no entries for

subjects, as opposed to taxa, except as sub-entries under taxonomic headings. This deficiency has already been mentioned in relation to the reader's need to find out the meaning of morphological terms.

Despite minor criticisms, this book is a masterpiece and is well worth the admittedly expensive price tag. Dick Askew's achievement is remarkable when one considers that the study of Odonata is for him a hobby, although he is a professional entomologist. His display of artistic and technical skill in producing both the plates and the text illustrations are also extremely impressive. Like any book which contains morphological keys, it is not instantly accessible to the person whose main experience is with Lepidoptera and whose skill is confined to the recognition of colour patterns, but neither is it an advanced text only for the use of the expert. For anyone whose pocket can take the strain, this will be an outstanding addition to his or her book collection.

David Lonsdale

A THIRD GENERATION OF THE MAP BUTTERFLY (*ARASCHNIA LEVANA*)

by Peter W. Cribb (2270)

While in northern France at the end of July 1988, we found several batches of newly hatched larvae of the Map butterfly. The eggs are laid in chains suspended from the underside of the terminal leaves of nettles. The nettles were in a clearing on the edge of woodland and the larvae had only just hatched, grouping together on the underside of the leaves adjacent to the egg cases. The first generation of the species emerge from over-wintered pupae and these are of the typical 'map' coloration, flying in early April. These produce a second generation in July and these are of the form *prorsa*, and look much more like the White Admiral, *Limenitis camilla*. The larvae we found were the progeny of this generation. On reaching home I kept the larvae outside in a cage and they duly fed up and pupated around 16th August. I left them in the cage, intending to collect them up later to place them into winter quarters in the hope of breeding them on in the Spring. To my surprise I found two males emerged on the 1st September and subsequently five females, all of the *prorsa* form, though the females showed more of the brown coloration, referable to the intermediate form *porima*. The remaining ten pupae appear to be going to hibernate. It would appear that the species must regularly produce a partial third brood as the weather conditions in Middlesex would certainly have been less favourable than in France and after the emergence the weather deteriorated so much that I was unable to obtain pairings from those that had emerged. They sat about in the cage, fed occasionally on *Sedum* flowers but showed no inclination to mate. The literature does not mention this third partial generation.

WHEN IS AN ABERRATION NOT AN ABERRATION?

by Peter Tebbutt (7941)

This somewhat puzzling question occurred to me when I was preparing a talk on Variation in British butterflies. The real confusion began to set in while attempting to differentiate between forms (f) and aberrations (ab). Very few of the textbooks that I possess give definitions. *Colour Identification Guide to British Butterflies* by T. G. Howarth defines the term form: "Certain species have responded to their environment more than others and have evolved distinctive coloration or markings. These forms usually have a geographical association and are referred to as chalk, limestone or heathland forms." The aberrations description includes "Most aberrations, if not all, are genetically controlled, in other words, the characters they possess are inherited, and they may also be controlled environmentally by such factors as temperature."

Surely forms are also created by the same means, but are more closely governed by natural selection, especially in the example given, i.e., the Grayling. The lighter marked specimens are less prone to predation on chalk or limestone sites than would be the darker marked heathland specimens, and vice versa. Although, in all probability, both light and dark specimens occurred on all sites originally, the ones whose cryptic coloration most closely resembled its habitat had the best chance of surviving and breeding, and so passed on its genes that controlled its coloration.

Paul Smart in *The Illustrated Encyclopedia of the Butterfly World* states "Strictly, forms are variations of regular occurrence which represent a fairly constant proportion, however small, of the total population. Aberrations are variations of irregular or random appearance . . ." So the Silver-washed fritillary (*Argynnis paphia valezina*) and the Clouded yellow (*Colias croceus helice*) are by definition forms, as well as being examples of dimorphism. Both are colour forms that are believed to represent 5% - 15% of the female population, where found. That is the awkward bit!

The Clouded yellow is a notable wanderer, so the *helice* form is equally wide-spread. The Silver-washed fritillary however, is much more sedentary. While the *valezina* form is found in many of the localities it is unrecorded from others. If it therefore suddenly occurred in a colony where it was previously unrecorded would it suddenly become an aberration?

Confused? So was I, and it deepened further when I included two varieties of the Chalkhill blue (*Lysandra coridon*) into the reckoning. The famous *fowleri* and the equally famous and beautiful *tithonus* are both known to be of reasonably regular appearance in some colonies,

while being virtually unrecorded from others. Would they be referable to *f. fowleri* or *tithonus* from site "A" while being *ab. fowleri* or *tithonus* from site "B"? These examples could be added to almost indefinitely.

A further point was raised during correspondence with Mr Brian O. C. Gardiner concerning the occurrence of the Large white (*Pieris brassicae*) *ab. coerulea*. Having answered my enquiry he went on to say that a different *P. brassicae* *ab.* could be produced by rearing at high humidity, and finished with "Still I suppose as the results are not genetically inherited such forms do not count."

This was like kicking somebody when they were already down. If it were true, what about all the magnificent melanic *abs.* that are found, particularly in the family Nymphalidae? Would the Purple emperor (*Apatura iris*) *ab. iole*, the White Admiral (*Ladoga camilla*) *ab. nigrina*, Small tortoiseshell (*Aglais urticae*) *ab. semiichnusoides*, the Silver-washed fritillary (*A. paphia*) *ab. nigricans* and many others suddenly be discounted? All have appeared in captive reared stock when the freshly formed pupa are subjected to severe temperature change, either too high or too low, but is it exactly the same in the wild? Is the presence of one or more genes necessary before the resultant imago is affected, or is it simply all down to the exact time and/or duration of the hot or cold spell?

Can different varieties created by temperature or humidity really be discounted because they are not genetically inherited? Surely all spring or summer broods that show seasonal differences are created by such changes. It is just that their appearance can be relied upon while the others are of irregular or random appearance. (Didn't I see that definition applied to aberrations earlier?)

My personal view is that if a variety occurs under natural conditions, no matter how extreme these need to be for its appearance, then it should be counted as an aberration. Whether or not it should receive a formal description and Latin name is open to much debate. I think that one-off *abs.* do not warrant such treatment, but if it occurs several times then a specific name is perhaps justified.

One last poser was set by the Large heath (*Coenonympha tullia*), which in the British Isles is subject to gradual variation over a geographical area, the term cline often being used. It has three named sub-species or forms (depending on the literature referred to), but many intermediate colour or spot variation may be encountered. Should these intermediaries be referred to with the two names that they are between, in much the same manner as half way between north and east on a compass is north-east, while 50% nearer the north is north-north-east, etc?

My own use of the term form is restricted to any variety that is dimorphic or seasonally dimorphic, while the term aberration is used for all other varieties whether genetically inherited or climatically produced.

Although all the examples cited are butterflies, this confusion of terminology must equally apply to moths and other insects, and, to a somewhat lesser extent, all animals and plants. If any member can supply a reliable definition for forms and aberrations I would be eternally grateful. Also any views as to whether or not an aberration counts if it is produced other than by genetic inheritance would be most welcome.

JOHN CROMPTON'S WORKS — HELP WANTED

by *William Weinstein*

I am presently investigating the life of John Battersby Crompton Lamburn, who under the name John Crompton wrote six natural history books between the 1940s and 1960s. These books, which recently have been reissued in the United States, are:

- *A Hive of Bees* (first published as *The Hive*)
- *The Hunting Wasp*
- *The Spider*
- *The Ways of the Ant*
- *The Living Sea*
- *The Snake*

These were beautifully written books, with a loyal group of readers. Crompton's books were written for a lay audience; his assertions about insect intelligence received scorn from most of the scientific community.

Much of Crompton's correspondence has been lost. I am writing to inquire whether any of your members recall Crompton's work, remember some of the controversies he was involved in, or even corresponded with him (and wish to share their correspondence). I am interested in any reaction the British natural science public (lay or scientific) has had, including that of younger members who have come upon Crompton's work.

Did his books have any particular influence on them as students of natural history? Do they think he has been overlooked (or has he been properly overlooked)? Do they take issue with what he wrote? What do they find most appealing, fascinating, irritating, infuriating, endearing, important about his work?

If any members can be of any help I shall be greatly indebted to them and can be contacted at 660 Fort Washington Avenue, 5F, New York NY 10040, USA.

BOOK REVIEW

CIE Guides to insects of importance to man. 1. Lepidoptera by J. D. Holloway, J. D. Bradley and D. J. Carter; Ed., C. R. Betts. C.A.B. International Institution of Entomology/British Museum Natural History, London. Pp. 262, Price £14.00 spiral bound and £25.00 hardback.

This is emphatically not a guide to the identification of species, but it is designed to help the reader to identify Lepidoptera to family, and in some cases sub-family, level. It also includes much information on the economic and scientific importance (both negative and positive) of the many taxonomic groupings within the Order, together with notes on their general biology. As the textual version of a training course, the book also includes, for completeness, elementary guidance on methods of collection, preservation and microscopic examination.

It is pointed out early in the text that the taxonomy of the Order leaves a lot to be desired, partly because both classifiers and identifiers have relied too heavily on the comparison of wing colour patterns for characterisation of taxa. Details of body structure and surface sculpturing may need to be used increasingly in taxonomic work, and the likelihood of consequent revision means that the book represents the state of a changing "art" in this respect. Visual matching cannot, in any case, achieve adequate identification for higher taxa, and this means that keys — rather than pictorial guides — have to be used. Keys of such length may be unfamiliar to amateur lepidopterists who have never tried to identify "other orders", but these keys rely heavily on wing characters, especially venation, which should be familiar territory. There are also many drawings which illustrate features of diagnostic importance.

Following a short guide to the suborders, infraorders and divisions of the Lepidoptera, there is a key to the ditrysian families and some subfamilies. The following section provides descriptions of these groups, together with notes and references on their economic importance. This section is divided, for convenience rather than for taxonomic validity, between the Micro and Macrolepidoptera.

Since many encounters with economically important Lepidoptera are made at the larval stage, it is good to find an additional key to families which is based on larval characters. There is also a guide to pupae. The head and the prolegs figure prominently in most parts of the larval key which, like the adult keys, is well supplied with illustrations. The book closes with a sizeable list of references.

The academic or the economic entomologist will feel more at home with this book than the amateur lepidopterist, who may be discouraged not only by the need to use complex identification keys, but also by the

sometimes rather dry, if grammatically correct text. The rather small size of print also detracts from the book's superficial appeal. For the more advanced amateur, however, the book could prove to be a mine of information and a means of understanding the Lepidoptera within the broader entomological context.

D. Lonsdale

CAN INSECTS TRANSMIT AIDS?

by John Clarke (8784)

Over a thousand cases of AIDS have now been reported from the U.K. and the possibility of insect transmission may be of concern both to those visiting West Africa and to those who feed their "pets" on their own blood.

Insects transmit disease by two mechanisms:- firstly *biological transmission* when the organism is ingested in blood, multiplies and is injected (in saliva) into a second human when feeding next occurs; this is how malaria is spread. Secondly *mechanical transmission* in which blood remaining on the mouth parts is introduced when the second victim is pierced.

The AIDS virus, Human Immunodeficiency Virus (HIV), does not multiply in insect tissue culture or in insects fed, or injected, with highly infectious blood. The receptor to which HIV binds is absent in insect cells and the only organisms that can be infected are man and the chimpanzee. The only piece of evidence to support insect infection is that the DNA of some insects in areas of high prevalence contain a sequence resembling that of HIV; the fact that these include male mosquitoes and antlions which would have no means of contacting the virus suggest that they have identified an insect virus and not HIV.

Thus mechanical transmission is the only route by which HIV could be transferred; the probability of this occurring depends upon

1. the possibility of biting an infected person which is perhaps 1%
2. who has free virus in the blood, only 20 - 30% have detectable HIV
3. the amount of residual blood on the mouthparts, and
4. the infectivity of that small amount.

Bedbug mouthparts contain approximately seven millionths of a ml and horseflies about 10×10^{-5} ml. The usual concentration of HIV in man is low; only one in a million lymphocytes (white blood cells) are infectious and only 175 would remain in the mouth parts of the average bedbug.

Time and concentration seem vital to virus survival in bloodsucking insects:—

Mosquitoes fed on 10-100,000 infectious units/ml = no survival

Mosquitoes fed on 1 million infectious units/ml = 48 hours survival

Bedbugs fed on 10-100,000 infectious units/ml = 1-4 hours survival

Bedbugs fed on 10 million infectious units/ml = 72 hours survival

To put this into perspective remember that only 20% have virus in blood and the average concentration in 2-5 *units/ml*.

After feeding most insects rest and digest their blood meal and only bite a second time if feeding is interrupted. This is more likely with the larger biting flies and the second bite is generally attempted on the same host. Only 2% of feeds are interrupted.

Thus it requires a remarkable series of unlikely events all of which must coincide before insect transmission is even theoretically possible.

The next question to address is— “Is there any evidence that insect transmission does occur?”

The pattern of AIDS in Africa does not resemble that of other diseases that do involve an insect vector. Even in areas of high prevalence, children (who are commonly bitten) and the elderly are at low risk and AIDS most commonly occurs in sexually active males between 20 and 35 years. It is ridiculous to suggest that an unidentified African insect bites only this group, homosexuals, drug addicts and prostitutes.

Household contacts of AIDS sufferers are no more likely than the general population to become infected which would not be the case if bedbugs were transmitting the virus between family members.

However remote the risks of contacting AIDS from tropical biting insects it must be remembered that a large number of singularly nasty, and sometimes fatal, diseases are transmitted by this route and the enthusiast who knowingly allows himself to be bitten by wild Reduvid bugs, Tsetse flies, Ticks or Mosquitoes is courting disaster. Malaria can occur despite taking the correct pills (and be fatal despite treatment) and some ticks transmit viruses that cause the most devastating and untreatable infections of the central nervous system.

So when travelling abroad it is sensible to avoid biting insects, use repellants and other means of protection (nets) and above all remember to take your malaria pills during your trip and for six weeks after returning.

FURTHER OBSERVATIONS ON VARIOUS WATER BEETLES

by Mark Johnson (3464)

When I first started to keep water beetles I suffered many deaths. I then went to the local petshop where I had purchased my aquarium tank and explained that the water was turning green. The owner then introduced me to some products named "Aquarian" and I used No. 4 which contains a special fungicide said to be harmless to other plants and to fish. But still one of the *Hyphydrus* died. I then tried product No. 6 which contains preventative medicaments to combat and kill many ectoparasites. Now I had noticed white spots, both on water beetles I had freshly caught and on the glass sides of my aquarium and when I consulted the leaflet that comes with the "Aquarian" products I found that these were bladders containing *Ichthyophyrius multifilis*.

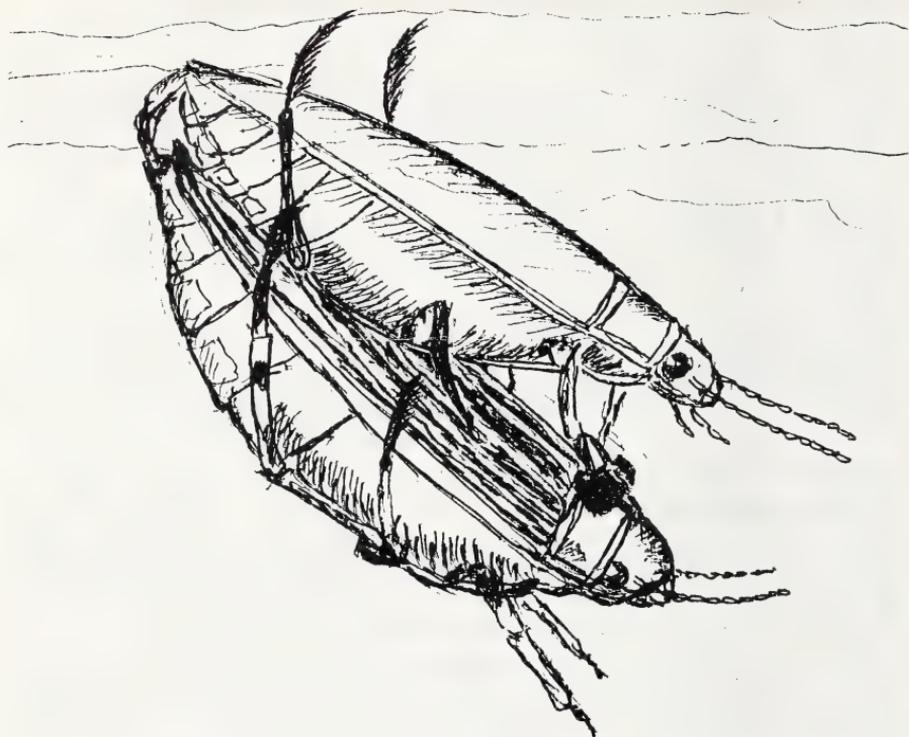
I had been using, as I believe do most people, tap water. From experience I am now sticking to using this only after it has been filtered through a container in which there is a "Brita" filter which completely purifies the water and then add the "Aquarian" conditioners which clears any diseases (parasites) the beetles might have and controls the growth of algae in my aquarium. Whenever the water commences to become cloudy, as it does from time to time, then I change it.

I now have, and find they live happily together, specimens of *Acilius*, *Hyphydrus* and *Hygrobia*. I have collected and observed species of these genera a lot and have also had examples of species of *Rantus* and *Agabus*.

The beetle *Hygrobia hermanni* is easily recognised by its yellow and black colouring. It has a fair-sized body and the legs are of a lighter colour. When annoyed by similar individuals of the same species, this beetle makes an audible screech, but when it seems happy to accept the presence of another individual the sound is different, this time being a loud click. In Victorian days, because of this remarkable feature, these beetles were sold as pets in St. Martin's Lane, London. It is important however, not to overfeed, particularly with the corned beef as this soon putrefies and the beetles do not then like the conditions and try to escape from the aquarium.

As to feeding, I found that *Acilius* does prefer corned beef, while *Hygrobia* and *Hyphydrus* prefer Tubifex worms and Daphnia.

Now I have found that *Acilius sulcatus* is a very quiet elusive species which spends a lot of time resting. Through watching on and off over the past three years I have recorded that these species usually hide by day, only swimming infrequently, and they are most active during the night, particularly between one and three am. I have also found that if the aquarium is of large enough size and is sufficiently laid out with the

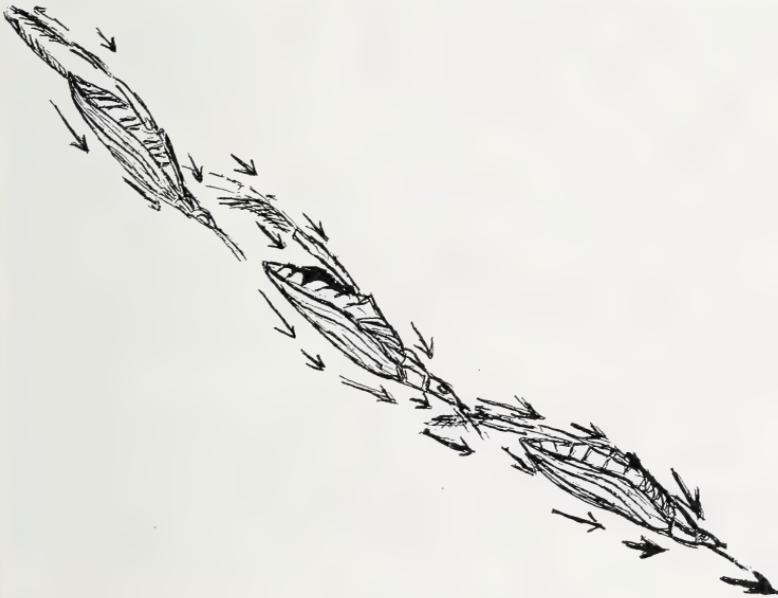


Acilius sulcatus mating. Drawn from life by Mark Johnson.

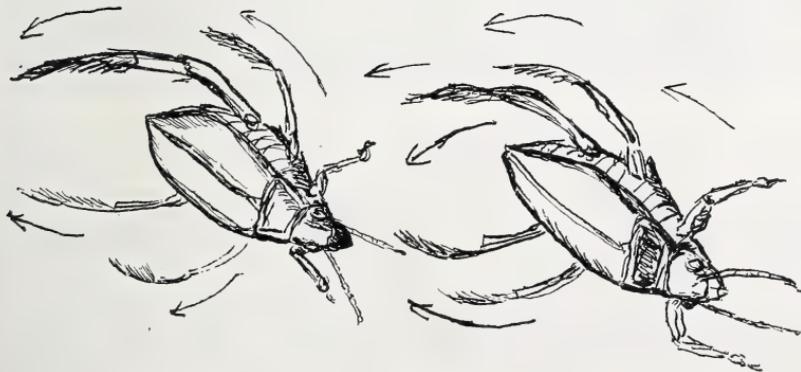
appropriate contents of weed and hiding places, then these beetles will not attack or interfere with each other, accepting the aquarium as they would a natural pond.

One observation that I have made is the acute vision of *Acilius sulcatus*. This beetle has wide angle vision as even when I crept up on them at night and was still standing a few feet away they would dive. I did once manage to creep up without one so doing and managed to draw him amongst the floating vegetation. *Acilius* seem to be night-time feeders and hide during the day, unlike some of the other genera which like to feed during the day.

After studying, observing and drawing water beetles for several years, a project which took up every possible moment of my spare time, I still had a surprise to come. This was when, on April 3rd 1988 I looked at the aquarium and suddenly I spotted a pair of *Acilius sulcatus* mating. I at once grabbed my sketching pad and the result is shown in the accompanying illustration.



The forward jerky descending motion of *A. sulcatus* returning to the bottom.



A male *A. sulcatus* observed as it slowly floats to the surface to replenish its air supply.

AMERICAN SATURNIIDAE: CERATOCAMPINAE

Claude Lemaire's third volume is now published

Brenesia is pleased to announce the April 1988 publication of "The Saturniidae of America: Ceratocampinae" by Claude Lemaire, in honour of the 100th anniversary of the Museo Nacional de Costa Rica. This is the third volume of Lemaire's revisions of the New World saturniids, and covers all known 170 species (27 genera) in 480 pages of text, 379 text figures, 56 lifesize colour photographic plates of all adults, two black and white plates and six colour photographic plates of 24 species of larvae. The text is in easily readable French with an English summary for each species, and an English and Spanish summary for each genus. Male and female genitalia drawings are given for virtually all species, along with geographic ranges and host plants as known at the time of publication.

This is a book of exceptional beauty as well as thorough taxonomic coverage, and the result of over 20 years of intense study by the author. The colour plates of both sexes allow virtually instant identification of adults, which means that there is now the opportunity for extensive work on the ecology, behaviour, and physiology of this speciose group of geographically and ecologically widespread group of predominantly tropical moths.

This book may be obtained by sending a cheque made out to Fundacion Neotropica for \$80.00 US (\$85 if airmail delivery is wished). Mail check to Museo Nacional de Costa Rica, Aptdo 749-1000, San Jose, Costa Rica. Within Costa Rica, copies are available at the Fundacion Neotropica, Organization for Tropical Studies, and the Museo Nacional.

Note: Vol. 1 (Saturniinae) and Vol. 2 (Arsenurinae) are still available from the author: C. Lemaire, La Croix des Baux, F.84220, Gordes, France.

WASP ATTACKING SMALL WHITE

by Jayson J. Lowery (7504)

Whilst walking my dog on August 28 last year I came across something I have never previously witnessed.

Walking over a slightly overgrown grass verge, I noticed a Small white butterfly (*Artogeia rapae*) gently rising and falling above the ground. After a moment or so the butterfly stayed grounded. On close inspection I noticed that a wasp was on the body of the butterfly and it was busy biting off the wings one after the other. When it had done this, it wrapped up the butterflies' dark body and flew off carrying its quarry. (For a similar occurrence with the Large white, see *The Entomologist's Record* for 1952, vol. 64 page 355 — Editor.)

THE YOUNG ENTOMOLOGISTS' SOCIETY

This society, (Y.E.S.) so similar in many ways to our own, grew out of the informal TEEN International Entomology Group and now publishes a regular quarterly journal of the same size and format as our Bulletin. Although based in the United States many of the articles in their journal are of general interest to all entomologists, wherever they may reside, and there is a very strong "Wants and Exchange" section. In spite of the name, membership is open to any person with an interest in entomology, regardless of age, sex, race or nationality. The major aims of the Society are to assist all entomologists, but especially the youthful and amateur, in establishing contact with colleagues in other geographical areas who share similar entomological interests, thus enabling them to learn from one another by sharing advice, information and specimens. Membership currently embraces members from over 60 countries. While the organisation's name reflects the special commitment to youth, "young members of all ages and levels of expertise are welcome to participate in activities and programmes. In fact advanced amateur and professional entomologists are strongly encouraged to become involved because they serve as role models and teachers to guide the development of, and to pass their knowledge on to, the beginner.

The Society receives strong support from several professional bodies: Michigan State University; U.S. Department of Agriculture; Entomological Society of Canada; the Sun Refining and Marketing Co.; the FMC Corporation.

As with many American institutions there are several categories of membership, the yearly subscription for an adult being \$12.00. Those who might have problems in submitting US dollars should enquire about alternatives, such as exchange of publications, or, as is already the case, pay the AES dues for a Y.E.S. member and vice-versa.

THE Y.E.S. INTERNATIONAL RESOURCE GUIDE

The second edition of this very useful 75 page guide has now been published by the Society and is for sale from them at address below. It lists 450 businesses and organisations offering entomology equipment, supplies, services, preserved specimens, live arthropods, books and publications, audio-visuals, educational materials, gift and novelty items, insect zoos and butterfly houses and entomological organisations. The price is US \$7.50.

All enquiries concerning the Society and payment for the guide should be sent to Gary A. Dunn, Y.E.S. International Headquarters, Department of Entomology, Michigan State University, East Lansing, MI 48824-1115, USA.

EDUCATION AND TRAINING IN ENTOMOLOGY

This is a leaflet for young people at school or about to enter higher education. It gives information on the courses of study which allow entry to the field of entomology. It is produced by the Royal Entomological Society and available free from Mr G. G. Bentley, The Registrar, Royal Entomological Society, 41 Queen's Gate, London SW7 5HU (telephone 01-584 8361).

HABITAT PHOTOS WANTED

In connection with another of our proposed handbooks, photographs of various habitats (with particular reference of course to those used by insects!), are required for possible publication. Any member who thinks he/she may be able to help should send their offerings to Reg Fry (address inside front cover).

AN EXPERIMENT WITH EMPEROR MOTH LARVAE

Which foodplant do they prefer?

by Zoe Taylor and Linda Porter (aged eight)

At our school we had been rearing Emperor moths (*Saturnia pavonia*). We took a female onto the Pennine moors and lots of males were attracted to her by her scent. After she had mated with one of the males she laid eggs. The eggs hatched and we fed the larvae on hawthorn and goat willow. We made an experiment to find if they would eat anything else. We collected leaves off all the trees in the school tree trail. We put them in pots of water and sealed the holes in the lids with cotton wool in order to prevent the larvae from falling through and drowning. This was done on a Friday afternoon and we then put two larvae on each sprig and arranged the pots so that the larvae could move from one to another.

On the Monday following we inspected the sprigs. Some of the larvae had moved. The results are shown in Table 1. We found that they liked paper birch, rowan, goat willow and Japanese cherry. To check our results we set up another experiment. This time we used the four favourite plants plus hawthorn. We now put four larvae on each plant, this time on a Monday and left them for a week. We then found the larvae had moved and these results are shown in Table 2.

Japanese cherry was the favourite. None of the books that we consulted mention this as a foodplant.

TABLE 1

WHAT EMPEROR MOTH LARVAE LIKE TO EAT

Tree	Number of Larvae			Leaves
	Friday	Monday	Gain/loss	
Japanese cherry	2	7	+5	Most eaten
Paper birch	2	4	+5	Some eaten
Goat willow	2	3	-1	Some eaten
Rowan	2	3	+1	Some eaten
Weeping willow	2	2	0	Nothing eaten
Alder	2	1	-1	Nothing eaten
London plane	2	1	-1	Nothing eaten
Beech	2	1	-1	Nothing eaten
Norway maple	2	1	-1	Nothing eaten
Western red cedar	2	0	-2	Nothing eaten
Oak	2	0	-2	Nothing eaten
Sorbus	2	0	-2	Nothing eaten
Sycamore	2	0	-2	Nothing eaten

TABLE 2

WHAT EMPEROR MOTH LARVAE LIKE TO EAT

Tree	Number of Larvae			Leaves
	Monday	Monday	Gain/loss	
Japanese cherry	4	12	+8	Most eaten
Paper birch	4	3	-1	Some eaten
Goat willow	4	0	-1	$\frac{3}{8}$ ths eaten
Hawthorn	4	0	-4	Half eaten
Rowan	4	0	-4	Some eaten

BOOK REVIEW

Butterflies and Moths of Derbyshire; Part 3. by F. Harrison and M.J. Sterling. A5, pp. 345. black and white illustrations. Derbyshire Entomological Society, 1988. Price £7.00.

The first two volumes of this work were reviewed in this publication vol. 45 page 87, and vol. 46, page 139. The work covers the history and current study of the microlepidoptera of Derbyshire. Each species is considered in terms of its residential status, life history and general comments.

The work finishes with an addendum and index for the whole work. The authors and Society have continued the high standard of production and should be congratulated on their publication.

C.C. Penney

NEW ELECTRICAL THERMOSTAT

Special offer to members

Eco-Electronics, a firm based at Redruth in Cornwall, specialising in the manufacture of temperature control equipment, has had to introduce a new thermostat to its product range due to so many enquiries from poultry breeders.

The ECO-STAT is a precision solid state temperature controller with an accuracy of $\pm 0.5^{\circ}\text{C}$. and a temperature range of $20^{\circ} - 44^{\circ}\text{C}$. It has a switching capacity of 200 or 400 watts and comes complete with connecting box and calibrated front dial ready for use in incubators, vivariums, brooders and hospital cages. The ECO-STAT is especially suitable for those who need a thermostat for a humid environment.

Trevor Smith, the technical director of Eco-Electronics, said that initially the firm had concentrated on thermostats for the photographic trade, but are extremely encouraged at the interest from this new section of the market.

Model A is for up to 200 W load.

Model B is for up to 400 W load.

The price of the ECO-STAT is £18.00 which includes the cost of postage and packing. Details of the ECO-STAT can be obtained from Eco-Electronics, Eco-House, Back Lane West, Redruth, Cornwall TR15 2BT (telephone 0736-211706).

As a special offer, AES members are allowed a 25% discount and should quote their membership number on ordering.

BOOK REVIEW

Grasshoppers and Allied Insects of Great Britain and Ireland by Judith A. Marshall and E. C. M. Haes. Pp 252, 12 coloured plates, maps and diagrams. 4to. ISBN 0 946589 13 5 Harley Books 1988. Price £25.00.

The book is hardback on good quality paper, size 25cm x 20cm. It comes in a full colour fly-leaf and is arranged in four sections followed by several appendices and the colour plates. It comes with a stiff plastic covered bookmark, listing the English and scientific names of the 52 species covered by the book. Obviously designed to be taken out into the field, it incorporates a millimetre scale. A 30 minute cassette of cricket songs is available to go with the book.

Part one, which calls itself an introduction, includes general information about classification, morphology, life history, collecting, preserving, captive breeding, photography and, both unusually and usefully, a brief note on pronunciation of scientific names. The all-essential glossary is also included in the introduction.

The second part looks at each species of Orthoptera, Dermaptera, Dictyoptera and Phasmida in turn and gives a vice-county distribution map for each species. It starts with a check list and a key. The key is nicely laid out and is easy to follow. It covers all the species in the book and is written so that it is easy to short cut if you know the family for the Orthoptera or the order of the other insects. It is nice to have a key which refers you back to a specific place if you make a mistake early on, rather than leaving you no option than to go back to the start.

The text includes taxonomic notes which eliminates any possible confusion caused by the use of different names in earlier works. A description is given for each species along with details of habitats, food, distribution and current status. The Phasmid Study Group and Blattodea Culture Group are both mentioned along with contact addresses.

Part three is a short section on habitat types and a brief mention of the need for conservation.

Part four is the dot distribution maps for all species.

The appendices include tables of records for vice-counties and offshore islands for all species. There are twenty "outstanding sites" listed for the keen orthopterist to visit. There is a comprehensive list of references which includes titles recommended for further reading.

The ten colour plates are magnificent. My one reservation about the plates is that most show a mixture of magnifications and it is not immediately obvious what the scale is for each insect.

I have found only one mistake; the book claims that the Phasmid Study Group was formed in 1982; it was of course formed in 1980. The book is excellent value and will doubtless become a standard text for Orthoptera enthusiasts, replacing Rage's excellent but dated "Grasshoppers, Cockroaches and Crickets of the British Isles". If you're not going to buy it, it is well worth requesting it from your local library; they won't have it in stock yet but if one or two people request a book they will usually buy it and it is well worth reading.

Phil Bragg

FLOWER BUG'S CHARACTERISTIC BEHAVIOUR

by Mark Young (3759)

Anthony Wootton seemed surprised to be attacked by the common flower bug, *Anthocoris nemorum*, but I am not in the least surprised! I have often been stabbed by it, and its close relatives, and this is so usual that I *expect* to come up in small, itchy red spots after a job like picking my raspberries or tying up the herbaceous border. Indeed, I believe that many of the supposed attacks by "midges", "mosies" and other wee beasties in the garden are caused by the ubiquitous flower bugs. Horrid things!

CARRY ON FIELDWEEKING

The AES Oxford Fieldweekend, 24-26th June 1988

by *Unc Dunc*

It's possible to fit a lot into just 46 hours of weekend and still survive. Witness the nine junior members who came together from all over the country for the Oxford Fieldweekend.

No sooner had we savoured the first of the camp cooking (better than ever before) than an on-form Sue Clarke from the Game Conservancy swept through everything from conservation headlands to ways of individually marking butterflies (mind-blowingly complicated) to the pros and cons of human suicide corpses as lures for Purple emperors. Then it was off to Bernwood for an appetite-whetting m.v. session led by Steve Nash — but we've got to admit that the hot choc and biscuits back at camp were more memorable than the moths.

Come Saturday it was time for some serious entomology. Dr Charlie Gibson and Nelson the dog led us through the classic Wytham Woods. It was a touch early for Black hairstreaks even though the privet was already in flower and the sun hot. Stunning, to say the least, were experimental plots on the limestone grassland showing the effects of different grazing regimes on the vegetation — and insects. So too was the reversion of arable land that had been sown with winter wheat in 1981 to meadowland good enough for the neat chrysomelid *Chrysolina menthastri*. Peter Cribb and Colin Davies had come up from Feltham for the day, so there was no surprise at lunchtime to see an impromptu examination of a strange Spanish lycaenid between peanut butter sandwiches.

So much for Bernwood being the best butterfly site in the country! During a hot, humid, overcast afternoon we turned up a ticklist of just four or five species! Yet Dave Goulson of Oxford Polytechnic saved the visit by telling us about the Forestry Commission/NCC strategy that's (meant to be) keeping the butterflies at Bernwood. There were some notable beetles — *Cantharis figurata*, *Dasytes niger*, *Molorchus minor* and *Chrysolina varians* — and the syrphid *Criorhina floccosa*. Back at Wytham that night, four m.v. lights gave us 82 species of macros before the storm came, but we weren't quick enough to save Caroline, Owen and Steve from a 1.30 am soaking or the minibus from an epic, clutch-burning reverse for half a mile up a Wytham track back to the proper road.

Getting up wasn't so much fun in the drizzle on Sunday morning (or was it afternoon, Corrin?) but we were joined by our President David Lonsdale and after the official (and unpublishable unofficial) photos we made it to Aston Rowant NNR. It's spectacular Chiltern downland



Fig. 1. Some of the Oxford Team in action: (standing) Colin Davies, Neil Grant, Duncan Reavey, Caroline Willmot, Steve Nash (getting keen); Peter Cribb, Andrew Salisbury, Charlie Gibson, Darren Mann.



Fig. 2. Duncan and the D-Vac. The D-Vac is a powerful vacuum cleaner that gives the best possible sample of what's really there in the grassland — including the smallest insects that are usually (conveniently) forgotten.

overlooking the equally spectacular M40. There wasn't much to find, but that's not what Fieldweeks and Fieldweekends should be about. One highlight was a rare, reluctant but highly-acclaimed public appearance by the patent Lonsdale beating tray/walking stick. Ask him about it sometime.

A weekend is too short, though it's the only possibility during school termtime. At least the end of the weekend let us escape from the Reliant Robin Appreciation Society rally in the next field of the campsite, and there was the promise of the Midlands Fieldweek and York Fieldweekend still to come. Apart from the chance to see new sites and new insects, the new entomological friends made and old contacts renewed make a Fieldweekend very well worth it.

Our thanks to the volunteer experts for their time, enthusiasm and secrets, to Paul Emden and the Zoology Department at Oxford University for helping with field equipment, and especially to Mr and Mrs Frank Reavey for all their help before, during and after the camp.

LETTER TO THE EDITOR

I wish to protest most strongly about the moving of the AES exhibition again. Surely, if it is to be held in London, in the interest of members, it should be held where access is available by tube. It looks to me as if we are pampering to the few elite again. I have been to Holland Park, Alexander Palace and Hounslow, but this is the last straw. I notice it never creeps Northwards. Why London anyway? Roll on Leicester and Wigan!

Yours faithfully,
L. Northern

RETURN OF THE LARGE BLUE

habitat reports:-

The Large blue butterfly *Maculinea arion* L. has been reintroduced in a successful rescue operation funded by the World Wide Fund for Nature UK. This summer 150 adults and some 4500 eggs were recorded at the secret site in the south of England chosen for the project. In time it is hoped that six separate colonies will be established. The Large blue was known to be declining in the 1950s and 1960s and contingency plans were made in case numbers became critically low. When two freak drought years wiped out the last colony, stocks from Sweden were used as a basis for reintroduction. Co-operation between the National Trust, the Nature Conservancy Council and WWF UK as well as individuals was vital to the success of the project, believed to be only the second time that an extinct butterfly has been successfully reintroduced in Britain.

BOOK REVIEW

Monitoring the abundance of butterflies by E. Pollard, M. L. Hall and T. J. Bibby. Nature Conservancy Council Report No. 2 on "Research and Survey in Nature Conservation". Pp. 280, 1986. £6.50. ISBN 0 86139 357 0.

This is a report on the first ten years of a survey which is organised in the U.K. by the Institute for Terrestrial Ecology, Monks Wood. The survey data are obtained by recorders who make weekly counts of adult butterflies every April to September at 80 sites, along the length of pre-determined walks or "transects". Population estimates for butterflies, unlike those for most other insects, can be made through fairly simple counts of individuals, with the proviso that records are made only within a range of weather conditions which are reasonably conducive to display by adults. Despite the use of such rules in this survey, the data do of course show great year-to-year fluctuations in the counts of many species. For this reason, there may appear to be grounds for asking whether the survey was intended to generate more than the sort of anecdotal information about the vagaries of "the season" which lepidopterists so love to exchange. Indeed, we are told in the introduction that it was a primary aim to provide information on annual fluctuations, although this point is somewhat submerged by the formal statement of aims which run thus:—

- a) "To provide information at regional and national levels on changes in abundance of butterflies and to detect trends which may affect the status of butterflies."
- b) "To monitor changes in the abundance of butterflies at individual sites and, by comparison with results elsewhere, assess the impact of local factors, such as habitat change."

The first aim is not necessarily intended to apply to the wider countryside outside the recording sites, many of which are nature reserves and which, in some cases, are managed especially for the butterflies. Nevertheless, conservation tends to be the art of the possible, and nature reserves, despite their limited theoretical relevance, are good pragmatic choices in any monitoring scheme which requires a guarantee that sites will remain available over many years. Pragmatism may also have underlain the choice of butterflies as the subject of study, apart from their role as the icing on the entomological cake. Not only is it easy for recorders to recognise most British species in the field; there is also far less shortage of qualified recorders for butterflies than for any other insect group. The very fact that few species occur in Britain is an advantage from the point of view of handling and presenting data. It can also be argued that butterflies are valuable as indicators of habitat quality for some other insect groups, though by no means for all.

Perhaps the main drawback of choosing butterflies is the tendency for their populations to fluctuate wildly. Although fluctuations have some intrinsic interest, they impose a need to maintain a survey over many years so as to reveal the patterns which they obscure; namely, the long-term trends which are of prime interest in conservation.

Despite the criticism which may be attracted by schemes which concentrate on a few favoured species and sites, it is becoming a truism that they can generate a great deal of interest and support to the benefit of invertebrate conservation as a whole. This seems evident in the case of the Butterfly Monitoring Scheme, when we read that the involvement of many reserve wardens and others in systematic recording has “. . . stimulated an interest in butterflies far beyond our expectations and has increased awareness of the importance of habitat management. . .”. The authors also mention that they have had unexpected gains of information in some fields, including the local distribution of butterflies in relation to habitat type, on flight periods, migration and effects of site management on abundance.

There are some interesting notes on the operation of the scheme, and on the validity of the current recording system. A map of site locations is also included in these introductory pages, and this is followed by a general appraisal of results, looking at trends and fluctuations in relation to weather and to habitat change. Included here are count trajectories over the period 1976-85 for over thirty species.

The bulk of the book is taken up with accounts first of individual species and then of individual recording sites, complete with maps and yearly index values for the species recorded at each site. These specific accounts will be valuable to practical conservationists, containing as they do a great deal of information and comment on details of habitat requirements.

The text ends with a series of conclusions and recommendations, some of which relate to problems of data acquisition and interpretation. The authors freely admit here that it may take a further ten years before long-term trends can be distinguished from fluctuations in year-to-year data. One is left feeling convinced that this scheme is a justifiable exercise within the broader context of conservation research, even if only to the extent that there is a political need to be able to quote facts and figures relating to invertebrates as well as to vertebrates and plants. It is, at any rate, good to see a well-produced and modestly priced report on the current state of play.

THE YORK FIELDWEEKEND, AUGUST 1988

by Lorna Stevens (7532J)

Thirteen members came together for the York Fieldweekend, 26-28th August, based close to Cawood at a camp with a reputation for something — for what, we never found out. Most peeps had arrived by about 5pm on the Friday and the Fieldweekend began as per usual with a typical camp culinary delight, prepared by Ian, Robert and David under the direction of Clive, who incidentally, has an O-level in drama. “Dinner” was an interesting experience, the tomato soup expertly mixed to give conglomerations floating on pink-tinged water. Delicious! Next came what was described in Duncan’s programme as “the getting-to-know-everybody session” in which he tried extremely hard to persuade defenceless Fieldweekenders to dress up as caterpillar segments and crawl through London (cause: Friends of the Earth; aim: preserve rainforests; details: Anne Piatkus).

We were due for light trapping at Sherburn Willows. Menacing black clouds had followed the little blue van to cluster over our destination. We were met by Mr Paul Burgess, Chairman of the Yorkshire Wildlife Trust’s Management Committee. The light was set up on the flattest part of the grassy slope. Just as the bulb was clicked on, and we had strategically placed ourselves down in the wet grass, ready to leap into action the moment a moth appeared, the clouds burst and down came the rain. This continued throughout most of the evening. We were swamped by Yellow underwings, but there were another 18 macro species too — not bad for this time of year. They included Small argent and sable, Lesser treble bar and Ruby tiger. We stuck the moth trapping out until midnight. Wet and tired we dragged ourselves back to camp only to find that we were too late for the knees up in the clubhouse. It was cocoa and bed for most, though a few of us stayed up and listened to the end of the Friday Rock Show on the radio.

Nine o’clock Saturday, and most peeps were already up and eagerly tucking into breaky. I decided I couldn’t face food that early in the morning. The females (basically the only sane ones around) spent 15 minutes learning the Latin names for the duck species at the camp in the hope that our humble selves might be slightly compatible with some of the others in our knowledge of Latin names. (I failed miserably!) We were due at Askham Bog at 10am and Mr Clifford Smith, our spider expert from York, arrived on the scene suspiciously dressed in a suit. Strange, considering he was supposed to be leading us round a bog in the pouring rain. We soon discovered, however, that this wasn’t just due to the strange dress sense of arachnologists and set off for York University — the weather was unsuitable for any sort of fieldwork at all. By this time Sue had been officially appointed weekend navigator; this meant she pretended (?) she didn’t know where we were and stared at the map in

disbelief, the result being a pretty (not literally) worried Dunc. Mr Smith's lecture proved very interesting. He showed us specimens caught by students on their visits abroad, and told us a lot about the species found at Askham and the time he almost named a new species. We came to two conclusions: firstly, that if you can ever afford to go to Australia (i.e. if you live South of Watford Gap) never sit on a toilet seat as it is a common thing for Black widows to live underneath them, the result being your painful retreat. Secondly, and more important, all the speculation on the harmful effects of storing specimens in alcohol are probably unwarranted considering the great lengths of the time the arachnids we saw had been in storage.

We arrived at Pocklington Canal midday-ish. I was starving and it appeared by the rate the French bread went down that everyone else was too. Duncan, in his typical sadistic nature, then sent us on a long walk by the canal while he took the van. I don't know what the coleopterists found — we lost them when we encountered a field of cow dung which they really got into (literally). Us lepidopterists found less of interest. The weather had improved drastically by now and the sun was extremely hot, hence Steve's, Clive's, Ian's and even my growing resistance to sprint 150 yards, net at the ready, in reply to Robert, David and Tom with their habit of shouting "Hurry, Wall brown, Hurry!" Our venture along the towpath led us to a rather distressing sight of approximately 50 large and very dead tench (as confirmed by our two John Wilsonists, Ian and Clive) all floating in a radius of five metres. The explanation was possibly deoxygenation of the water. Further down the canal we met up with two York University biologists — Phil Warren (who used to live next door to Roger Waters) and Professor John Lawton (who didn't). Both are keen on aquatics. I found a sunny piece of river bank for a well earned rest before joining the others for a root about in the canal for water creatures which were endlessly identified by Phil and John. This proved very interesting. Discoveries included *Stictotarsus duodecimpustulatus*, *Coelambus impressopunctatus* and *Ilybius quadriguttatus* (n.b. these are all water beetles!). And Suzanne came away with a rather nice scorpion-fly.

Back to the camp and another famous Fieldweekend meal where it was worth looking out for psychopathic hippies armed with bowls of water. And the camp warden was in characteristically jolly mood too — we were hitting hard the *Phragmites* reeds on the river bank in a successful search for pupae of Reed wainscot moths. At 8.15-ish we arrived at Skipworth Common, a Grade 1 SSSI and YWT reserve, rigged with bogs and hidden holes from York University experiments. A light and sugaring at the first site were largely unsuccessful (bright moon?), the second site proved better with 17 species including Angle-striped and Centre-barred

sallows, Heath rustic and Haworth's minor. And a punch was prepared, made delicious by the brilliant idea of adding cucumber . . . the night was young. Eventually it was back to camp, reversing quite a way down the forest road in order to reduce the mileage on the clock of the hired van, and late to bed for everyone. At least everyone who went to bed — Guy slept all night in the van.

After demolishing (packing? - DR) tents, we went back to Skipworth Common the next morning. We were met by Dr Chris Rees (expert on rain forests and keen philosopher) and Dr Michael Archer (expert on aculeates). Dr Archer presented us all with a long list entitled "Aculeate Hymenoptera of Skipworth Common" and informed us that we would find very little mentioned on the list in this weather — dull and wet. He was right. Dr Rees showed us how canopy foggers are used. They produce a fine mist of insecticide which is aimed at trees and sends many insects dropping to polythene sheets on the forest floor below. For the demonstration we used diesel/oil to give a choking black smoke that didn't have too much effect on the insect fauna. We made much use of the D-vac too.

Just time for a pâté sandwich before we were off again. This time it was Askham Bog and Robert and David were our guides. Most fun was popping the Himalayan balsam seed pods (try it sometime).

Enough said. It was a speedy retreat back to camp. Soon Duncan had acquired many more abandoned plates, bowls, cups and cutlery to add to the collection from previous years, and Clive showed us his Superman impression head first out of the back of the van in an attempt to catch his train. Although there was not too much to be found in the way of insects, it was a fun weekend, also an opportunity to gain entomological experience. I would like to point out that you don't need to be any kind of an expert to attend one of these week(end)s — all you need is interest.

I still have plenty of *E. calcarata* adults left at very reasonable prices just in case anyone is interested.

The Fieldweekend starred Suzanne Bratton, Ian Davison, David Fitter, Robert Fitter, Tom Hay, Guy Knight, Darren Mann, Steve Nash, Andrew Salisbury and Clive Turner. Also Duncan Reavey (The Boss), Susan Richardson (Chongololo Adviser) and Lorna Stevens (Public Relations Department). Our thanks go to all the local experts, and to the University of York for field equipment and a roof when we needed it most.



BOOK REVIEW

Environmental Economy, edited by Richard Brooker and Matthew Corder. E. and F. N. Spon, London and New York (1986). 224 pp. Hardback. £17.95. ISBN 0 419 13300 3.

The rather cryptic title of this collection of writings conceals (one hopes temptingly) an ecological guide for the development and management of open spaces. Sponsored by Kirklees Metropolitan Council, it is the successor to the rather more descriptively named booklet "Natural Economy; an Ecological Approach to Planting and Management Techniques in Urban Areas" which the editors produced in 1981. At that time there was a growing awareness of the need for wildlife conservation, with all its recreational and educational benefits, in urban areas. This need had to some extent been filled by unofficial nature reserves in "wasteland" — which must have fostered the lifelong enthusiasm of many an entomologist — but many sites have fallen to the developers; a trend bemoaned by David Bellamy in his foreword to this updated and expanded text.

The appearance of such a substantial text reflects not only the recent development of ideas and techniques in what the editors call a naturalistic approach to open space management, but also the current need within local authorities to economise on materials and labour. Indeed the important question of finance is covered in an introductory chapter by Richard Brooker. He provides a useful listing of sources of funds, followed by an exposition of a new philosophy called "natural economy" in which an over-formal imposition of management dogma is replaced by a sensitive use of the resources offered by the site and by the local community.

The succeeding four chapters, which include contributions from the editors and from Alastair Luke, Geoff Farnell and Duncan Moffatt, have a very practical slant, enlivened in places by further expressions of the naturalistic philosophy, and are written largely for the practising local authority officer. The first of these chapters explains how to modify sites by taking account of their individual characteristics, rather than by imposing inappropriate and expensive technology. The existing wildlife of derelict land is not neglected here, but there is little attempt to integrate it into practical management schemes. There is much more emphasis on soil preparation and amendment.

The practical value of these middle chapters is undeniable, but they tend to read like the individual contributions which they are, and there might have been some scope for better dovetailing. Perhaps the general reader would be happiest with the case-study approach of Duncan Moffatt, who explains how habitats have been protected, created and managed at Warrington New Town. He provides much interesting

information on woodland, grassland and areas of standing water.

The book takes an inspiring turn in the chapter by Chris Baines on "Wildlife and the Community". His lively style makes for a good read in itself, and he suggests many very useful ideas for organising voluntary work and developing educational programmes. Again, practical hints are prominent, including some salutary advice on safety, first-aid and insurance. He illustrates some of these themes with the story of the Urban Wildlife Group which he helped to develop in the English West Midlands.

The theme of environmental education is further developed in the next chapter, and this is followed by a return to practical management in a contribution dealing with amenity grasslands and woodlands. Again, one is left with the feeling that there is too much overlap between contributions, and that the subject matter could have been better ordered. A final brief chapter on "The Way Ahead" serves partly to bring the subject together, while raising some interesting points such as the need for nature conservationists to realise that the budgetary systems of local authorities are not well-adapted to provide the year-round commitment that is needed for wildlife management.

This book testifies to an enormous improvement in the attitude of local authorities and it is worth reading just to gain some idea of the new potential for improving on the over-bureaucratic, over-formal management techniques which have done so much harm over the last century. It is not uniformly very readable, but it has some very inspiring moments, and provides an indispensable practical guide for professionals and volunteers alike.

DL

AN UNUSUAL FOODPLANT OF *POLYGONIA C-ALBUM*

by Peter W. Cribb (2270)

While returning from a trip to the Pyrenees with David Marshall, we stopped off by a large woodland in the Loire valley to search for the ova of *Apatura iris*. On one of the lower-growing goat willows (*Salix caprea*) David found an almost full-fed larva of the Comma butterfly. There were nettles on the fringe of the woodland where we also found further larvae. The most usual foodplants are nettles, elms (*Ulmus* spp.), hop (*Humulus* sp.) and members of the currant family, *Ribes*, particularly the gooseberry.



OBSERVATIONS ON THE TERRITORIAL BEHAVIOUR OF THE TWO-TAILED PASHA (*CHARAXES JASIUS*)

by C. Jupp (7802)

While sipping a tube of cool lager on the sunny terrace of a restaurant in south west Europe, I was amazed to see a two-tailed Pasha swoop past. It landed on the top of a stone wall that surrounded a circular space approximately ten yards in diameter. Quickly grabbing my camera, I rushed down to photograph what was my first observation of a pasha in the wild. However, as soon as I approached within five or six feet of the butterfly it took flight and I returned dejectedly to my now flat and warm lager.

A few minutes later, a rotund Italian gentleman placed what I presumed to be his attractive, olive skinned daughter, on top of the wall and began to photograph her. To my amazement the pasha returned and landed right next to her feet, apparently oblivious of her presence and she of it. Whenever an insect crossed the open space, the pasha would rush forth to investigate and then return to its perch at the girl's feet. After what seemed an interminable length of time the couple left the area and I rushed down again with my camera, only to find that another painstakingly slow approach to the butterfly resulted in its disappearance once again! However, I sat quietly on the wall awaiting its return, and sure enough, within a couple of minutes, was rewarded when it alighted on the wall opposite me. I carefully stalked it for the third time. Again, the pasha fled when I got within six feet. I wondered whether the fact that I had approached the pasha across the circumscribed space, where I had previously seen it investigating insects, had been a factor. Consequently, when it returned again to alight on the wall I cautiously approached it along the top of the wall. Much to my delight the pasha seemed completely indifferent to this approach and allowed me to get within inches to photograph its magnificent underwing pattern. From time to time it would flick open its wings revealing the orange and black upper surfaces. When a sparrow flew across the centre of the circle the pasha took flight again but quickly returned.

I had noticed from the café that there were several surrounding open areas within the scrub between ten and thirty metres across, so went to investigate these. In two of these areas a two-tailed pasha had set up territory and I found to my delight that if I kept close to the scrub and did not trespass in the open space, I was easily able to approach other pashas just as closely as the first. Once again I observed that other insects were approached and investigated by the pasha, whereas birds resulted in either no movement or a quick escape. Curiously enough, when I released a home reared pasha in the garden the first thing it did was to rush after a starling in flight. When the starling landed on my chimney

the pasha approached within inches, obviously realised its mistake, and disappeared over the rooftop never to be seen again!

Although I was not fortunate enough to see a meeting between two pashas, this day observing the behaviour of these incredible insects bathed in the Mediterranean sunshine provided me with another unforgettable butterfly memory to sustain me through the long English winter.

THE MONARCH *DANAUS PLEXIPPUS* IN SPAIN

by Nicholas Cook (7777)

Following on the notes concerning the Monarch butterfly in Spain by C. Rankin in the May and August issues of the *Bulletin* last year, I would like to record the following observation.

On November 9 1988 I watched a Monarch for a minute or so as it flew around the gardens at the entrance to the caves at Nerja, Malaga Province. The following day a male was observed further west, at Torre del Mar. Neither butterfly settled at all, and so I was unable to obtain a photograph of this superb and unexpected insect.

THE BATTLE FOR ICKENHAM GREEN

from habitat

Although the Herts and Middlesex Wildlife Trust joined with other conservation bodies and residents to oppose a plan to use the five acres of registered Ickenham Green Common as an extension to a golf course, the plan has gone ahead. This kind of activity is one of the many problems the Trust faces in urban fringe areas. Ickenham Green is an example of the neglect and change of use that our disappearing commons face. The national association of County Trusts, the Royal Society for Nature Conservation (RSNC), is campaigning for stronger laws and for management plans to protect common land. It is regrettable that the elected representatives and officials of the London Borough of Hillingdon have not only ignored the people they represent, but also the advice from their own members of the Ecology Forum which includes the Nature Conservancy Council.

® Editor's note: I am not sure but that a golf course may not be the better evil. Indeed, it may even be a benefit, for the Small blue butterfly survives not far from me because of one. The vegetation remains much as it would if the land were common. Indeed it is managed and controlled far better than if the public (motor bike scramblers, horses, fly-tippers)

had free access. If it were not a golf course? Why it would long ago have been a subsidised CAP wheatfield and no butterflies would be there now. I also believe (although it is now very many years since I was there) that the golf course at Sandwich has been the reason that the area was (still is, I trust) so good entomologically speaking. Would any member from that area of Kent care to comment on this?)

AUTUMN AFTERNOON

by Don MacNamara (5537)

With boots on at least,
He died comfortably in a sunny garden chair,
A box of lepidopterous insects (he always said) by his side,
Face etched and lined with time,
The shine and twinkle fading.
Just before,
He'd argued in the village pub,
The distribution of a moth,
Documents and stuff spread out,
Laughter and bonhomie,
Data-labels double-checked.

His shabby net could tell a tale or two,
Off-duty fields,
Woodlands,
Many standing even now,
Or foreign places,
He then a subaltern as posed in military photographs.
Times saw a perfect setting style,
Of late his grandson did the necessary work,
Who follows such tradition,
Ranked specimens like soldiers on parade,
Drawn-up in regimental colours.

The men would miss him if they heard,
Those that are left,
(But not the local insects),
So will his arguefying mates.
They might see his name upon a stone or box of ash and nod,
Or by a frequent monograph in books,
The butterfly that bears the name and place,
Chance specimens,
His mark made and suddenly not forgotten.

THE BENEFITS OF A STAGGERED EMERGENCE

by Peter W. Cribb (2270)

At the end of August 1988, I collected up twenty-five nearly full-grown larvae of the Large white butterfly (*Pieris brassicae*) from nasturtium (*Tropaeolum* sp.) in my garden. The Large and Small whites had been very common all the summer and were using both my cabbages and the nasturtium as foodplant. Of the twenty-five larvae, all failed to pupate, each producing a mass of pupae of the ichneumon wasp, *Apanteles glomeratus*, twenty or more pupae to each caterpillar. A fortnight later I collected up two batches of small larvae of *P. brassicae* from the same nasturtiums and fed these up on the same foodplant.

By the end of September I had 73 pupae and five dead larvae which had the cocoons of the parasite around them. The wasp attacks the larvae when they are very small and as this batch were about half grown when collected, the parasite would already have done its work. It would seem obvious that the first batch must have coincided with a peak in the egg-laying activity of the wasp while two weeks later the second batch had missed this peak.

EXPERIENCES WITH THE CABBAGE MOTH (*MAMESTRA BRASSICAE*)

by Roy McCormick (3375)

In the August of 1986 a house plant that had been in the open was brought inside to escape the increasing cold weather. The plant, a trailing variety, started to produce frass and naturally enough I wanted to find the larvae responsible for this. The foliage was duly shaken and 30 to 40 small noctuid type caterpillars fell out.

I thought I recognised them but decided to breed them through to make sure of my identification. I introduced them to one of the small leaved willows *Salix caprea*, the old standby, and convenient as it was growing in the garden. The larvae took to it, and consumed the leaves at a great rate.

As they grew I knew that my first identification was corrected, but it carried on and the larvae eventually pupated around late September. I thought they would emerge in two to three weeks time, as they were being kept in the living room where the temperature rarely falls below 60°F. I have bred this species at this time of year before in the same conditions and all the moths emerged after this time.

The pupae were sprayed every day but they sullenly refused to emerge; in the spring these pupae were still healthy and still being sprayed every day. On 25th May 1987 the first imago appeared and I started to set what I thought would be a flood of specimens. But no; these moths emerged at a rate of one every two to three weeks, and I still had healthy pupae at the beginning of September 1987. The final one emerged soon after the end of September.

I can only conclude that this species is continuously brooded, but why did they not emerge in the late autumn like the previous brood?

(Editorial Note: The Cabbage moth is one of those species which has a genetic strain which is an obligate univoltine. Otherwise it has a facultative diapause controlled by the daylength. An extended emergence indicates that the pupae had entered diapause and were not then subjected to a sufficiently long period of cold to satisfactorily break it.)

AN EARLY DEATHS-HEAD HAWK IN ROTHERHAM

Member W. V. Burton (179) has kindly sent a cutting from the *Sheffield Star* of May 16th this year which reported and illustrated the occurrence of a massive seven inch wingspan (*sic!*) Deaths-head hawkmoth (*Acherontia atropos*) which was caught outside a fruit and vegetable shop in Whiston, Rotherham. It was thought that the last local record of this moth was back in 1828. Although the exact date was not given this would have been a few days previous to the 16th.

A NEW RECORDING SCHEME

The Biological Records Centre, Monks Wood, Abbots Ripton, Cambs, PE17 2LS, has launched a recording scheme for a somewhat neglected group of British insects — the Neuroptera (including the Mecoptera and Megaloptera); lacewings, snakeflies, alderflies and related species.

Newsletters are to be a feature of the scheme and will be sent to those participating, giving diagnostic keys, methods of collecting, curating, etc. and distribution notes with occasional book reviews. Recording cards are to be returned to Colin W. Plant of Passmore Edwards Museum, Norman Road, East Ham, London E6 4HN, who is the scheme's organiser. AES members are invited to participate in the scheme. Details of existing collections of the Orders are also required.

1.1 *Some Common Computer Languages*

The following list is by no means complete (there are a large number of languages including PL1, APL, BCPL, LOGO, LISP, COBOL, etc) but covers some of the more common/interesting languages.

(a) *BASIC*. BASIC (“Beginners All-purpose Symbolic Instruction Code”) is the most common language, being supplied with virtually all home computers. Since each type of computer differs in specification this must be reflected in the BASIC supplied, eg in the addition of commands for graphics, etc. This has resulted in a number of distinct “dialects”, requiring a certain amount of manual transcription before a program written for one computer can run on a different computer. BASIC was originally designed to be very simple to learn and easy to comprehend, but since it is interpreted, programs run slowly although some versions have been optimised for speed. Further improvements being achieved by purchasing a compiler. In terms of applicability to entomology, the major advantages are ease of program development and testing, the availability of number, string and file handling functions and its popularity (the majority of computer users will already be using BASIC). The only drawbacks are that it can be slow to run and that complex functions (such as those required for database programs) can be difficult to implement.

(b) *FORTRAN*. This was the first “high level” language and is still popular for number intensive programming. Fortran, standing for “FORMula TRANslation” was designed specifically for the processing of numbers. Some of the programming features are similar to BASIC, making translation of simple programs relatively easy. Fortran compilers are available for some microcomputers but tend to be expensive and unless a compiler is already available, it is probably not worthwhile to consider Fortran as a suitable language for entomological applications.

(c) *PASCAL*. This language, like Fortran, is compiled but is one of the so-called “structured” languages, that is, Pascal has a well defined format. This format (including the declaration of all variables and constants at the start of the program) makes programs easier to read. It is also possible to structure programs in a modular form in a manner similar to BASIC subroutines but with the ability to pass parameters (BBC BASIC also has this facility — a typical example of a non-standard dialect). Pascal was originally designed as a teaching language and is now widely used for this purpose in computing and engineering courses. Another aspect of Pascal is that it is supposed to be “portable”, ie a program written on one computer will run on a different computer (after being re-compiled for that machine). This is however, an ideal situation and is only true if the user does not require computer-specific functions. Pascal can be useful when complex data structures (other than numbers or strings) or powerful list handling facilities (eg for databases) are

required. Now that compilers can be purchased at reasonable cost, Pascal would be a good choice as an alternative to BASIC, being just as simple to learn, more powerful and faster.

(d) *C*. *C* is very similar in many respects to Pascal but with "low level" facilities such as bit shifting and writing to/reading from I/O ports. It is now rapidly becoming the most widely used language and as such would also be a good choice (compiler can be purchased for well under £100).

(e) *PROLOG*. Prolog has been included in this list as it is one of the "Artificial Intelligence (AI)" languages and operates in a completely different manner from any of the above languages. It is a "declarative" language rather than a "procedural" language like Pascal or Fortran which follow the programming steps in the program. Prolog relies only on a description of the problem and tries to solve the problem from this description (this is difficult to illustrate in such a short article). One of the most common application areas which benefit from this type of language is in writing expert systems, programs that simulate the methods used by a human expert in a particular field of knowledge. There are already over 1000 expert systems in existence and incorporate a wide variety of knowledge (medical science, geological surveying, chemical analysis, etc). In the field of entomology, expert systems could be used to aid in the identification of species, or in any area where expertise of this sort is currently used. It is feasible that low cost expert systems will eventually become available to aid in, for example, species identification.

Little has been said of machine code and assembly language programming and it is felt that unless high speed operation or complex control of peripherals is required then high level languages are to be preferred for ease of use and readability. In conclusion, it is suggested that the most appropriate language for entomological applications is BASIC primarily because of its wide availability. Readers with more ambition or more demanding requirements would be advised to progress to Pascal or *C*.

2. *Word Processors*

A word processor can be regarded as a versatile computer-based typewriter which does not commit text to paper until the document is correct to the user's satisfaction. When one considers the problems encountered in attempting to correct or insert words, sentences or paragraphs into text with a manual typewriter, it is not surprising that word processors have become popular. This popularity has led to the availability of a large number of word processing packages (eg Locoscript, Wordstar, Word, Vuwriter Displaywrite-4, Protex, etc). Some of these packages are intended for specialised applications, being capable of producing mathematical equations, chemical symbols and diagrams.

(to be continued)

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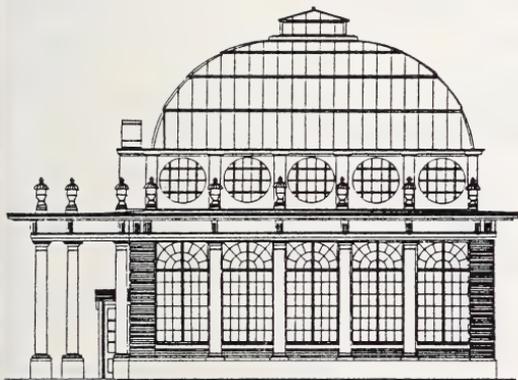
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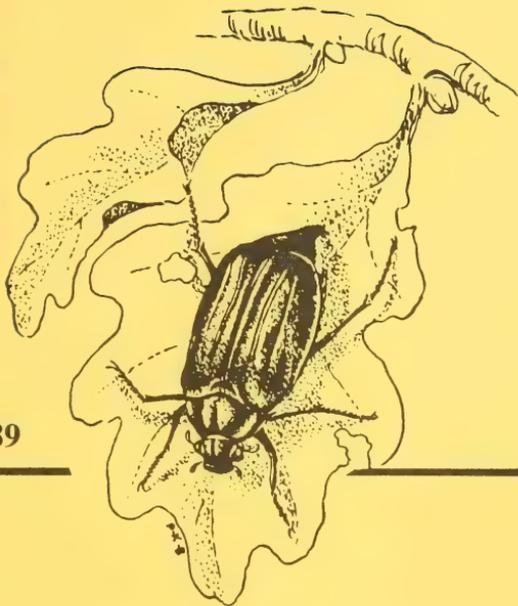
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The Bulletin of the Amateur Entomologists' Society

EDITOR

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

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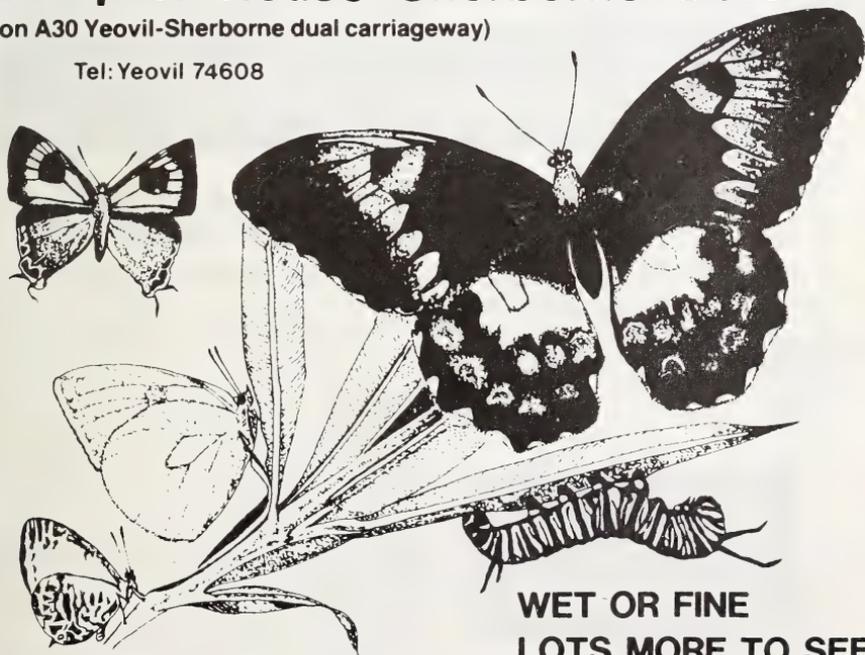


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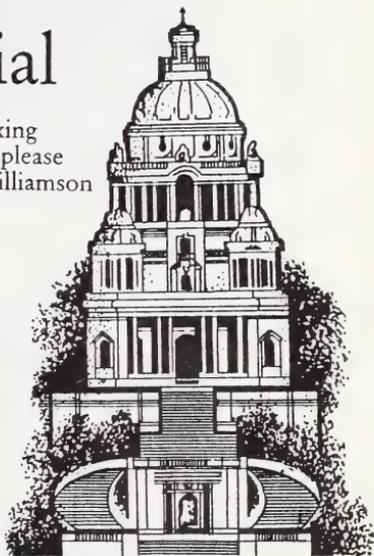
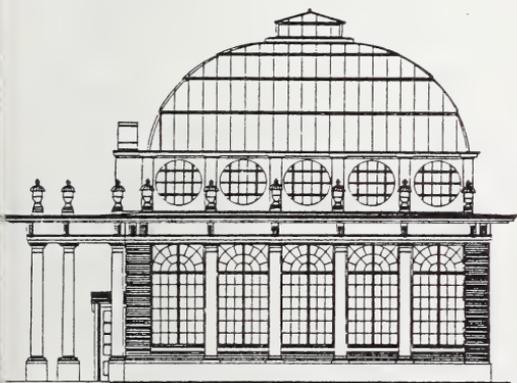
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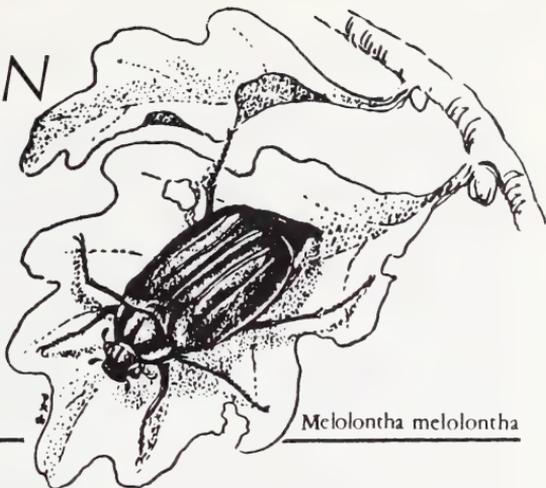
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AES BULLETIN

No. 363



Melolontha melolontha

LETTER TO THE EDITOR

Dear Editor

I feel I must write to you regarding a subject that is causing me and a few friends, including fellow members, a considerable amount of problems.

I have been collecting and studying lepidoptera for about twenty years now with the aim of amassing a reference collection of all the British butterflies, three males and three females of each species, in recto, verso and resting positions. This I have more or less succeeded in doing apart from a few casual migrants of which Continental examples will suffice. I am now more interested in breeding all of our species to study and photograph their early stages and this is where the problem arises.

All the common species present no problems, but whenever I try to find the more local or scarcer species I find that almost all live on land owned by the National Trust or the Forestry Commission. Now as you well know collecting of any kind is prohibited in these places, but it seems that species such as the White admiral or the Silver-washed fritillary only live on Forestry Commission land (do they know something?) So what is one to do? It seems I am left with several choices; poach and risk prosecution; wait outside the boundary and hope they fly over; pay the sometimes extortionate prices asked by dealers; hope that in my travels I will come across a colony on land not owned by anyone; write out several hundred letters to other members (who probably have the same problem) in hope that they can give me some livestock or tell me of a location they know of.

Now I am all in favour of conservation, in fact I belong to several other societies concerned with natural history and would not even consider taking any protected species. These I would willingly pay for, but I am thwarted in most of my attempts to take a few pairs to breed from. As surplus specimens would be released back in their own localities I do not see that this would do any harm.

I understand that permits to collect are available but I believe that unless one is a member of a University or some other scientific body, or has an alphabet of letters after one's name, a permit will not be issued to you. I may be wrong but this is what I have heard.

I would imagine that juniors or people new to the subject and trying to get a collection together will come across the same problem. Collecting specimens in moderation with *full* data can be of use in many people's opinion, including mine, although I prefer to breed, take any specimens required and then release the rest back where their parents came from.

I know that, sadly, there are irresponsible people who kill everything in sight, but I am sure none of them are AES members. Perhaps some form of permit could be issued or permission granted to allow members to take specimens from Forestry or National Trust land.

So there you have it, perhaps you or some other members could give me some help or advice on the subject.

Yours sincerely,
Dave Rolfe (6572)

THE EDITOR'S REPLY

This is a very difficult and complex subject, with both sides holding some strong views. I would, however, query Mr Rolfe's assertion that White admirals and Silver-washed fritillaries live only on Forestry Commission land as I have seen them elsewhere, both on Nature Conservancy land and private land, from whence they might have been catchable from the public road. His point, however, is valid in that a number of scarcer species *are* in localities where collecting is not generally permitted.

To my mind it is an appalling hypocrisy to try and lay the blame for species' scarcity and extinction on the collector and to ban him. It is entirely due to habitat changes, the change all too frequently (as happened to the Large copper on Whittlesea Mere) being preceded by destruction by fire. This gives little chance of species' survival. Consider the following extract, reprinted from *habitat* to realize the appalling habitat destruction taking place:

"Increasing international concern about the continuing destruction of the tropical rain forests of the Amazon Basin has forced the Brazilian Government into action. President Sarney has cancelled subsidies for forest clearance, banned the export of unsawn logs and set up a satellite monitoring system to detect the thousands of forest fires deliberately set during the current dry season. Early in October, ecologist, author and film maker Herbie Girardet returned from Brazil with film and slides of the devastation of the Amazon rain forest. Shown on British television, they showed that an area of

Brazilian forest and pasture nearly twice the size of Britain is on fire, at least 100 million acres. Brazilian scientist Jose Lutzenberger points out that people in Britain have the right to interfere in Brazilian affairs. 'The rain forests act as the air conditioner for the planet. Their destruction could lead to catastrophic climate changes elsewhere and in the UK'. Almost 20% of the annual build up of carbon dioxide, the principle 'greenhouse' gas causing planetary warming, can be attributed to the burning of tropical forests."

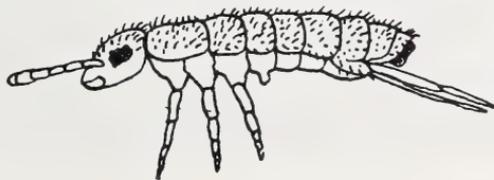
In the face of such destruction as this the forbidding of collecting is of the same scale as forbidding the taking of a pebble or grain of sand off a beach!

Not all who own land or have authority in such matters are against collecting. The following extract appeared in the review of a book published in the Nature Conservancy Council's journal *Topical Issues*:

"With the possible exception of a few very rare species of butterfly, collecting by entomologists is not a threat to British insects; indeed collecting is often essential for locating insect populations, particularly for those species which are small or difficult to identify. We hope that the publication of the Red Data Book will encourage more entomologists to locate and study rare insects in the field. All too little is known about most of the species listed and an adequate knowledge of habits and habitat requirements is an essential prerequisite for their conservation. For some species we are probably already too late; the last native large blue butterfly flew in 1979 and the bone skipper fly *Centrophlebomyia furcata* whose larvae develop in the bone marrow of large dead animals, has not been seen since 1906.

The Red Data Book for insects took nine years to prepare and includes much hitherto unpublished material. It is a healthy collaboration between amateur and professional entomologists, and governmental and voluntary conservation organisations, which is one of the hallmarks of natural history and nature conservation in Britain."

The question of the AES sponsoring or otherwise supporting members to obtain permits has been considered in Council on several occasions but rejected on several grounds. While I am sure Mr Rolfe is correct in that we do not harbour irresponsible members, the moment that it became known we were an easy route through which to obtain permits, then every shady dealer and irresponsible collector would make haste to join and his statement on this score would no longer be true.



COMPUTERS AND ENTOMOLOGY

PART 2 — COMPUTER LANGUAGES AND WORD PROCESSORS

by David Chesmore (7375)

(Concluded from page 40)

2.1 Features Common to Word Processors

With so many word processing packages available, it is difficult to describe the often unique features of each package. However, they all have a number of common facilities which are outlined below.

(a) *Editing*. The simplest form of editing operates in a manner similar to the rub-out key on a manual typewriter equipped with a correcting ribbon, i.e. the last character(s) typed can be removed; on a computer this is achieved by the delete key. It is also possible to delete characters anywhere in the document by use of cursor keys which move the cursor (a marker, often flashing, pointing to the place in the document where the next character is to be typed) around the screen and document. When a character is deleted, the space it occupied is filled by the character immediately to its right, and on some packages this change is automatically reflected throughout the document. This is the same for lines and blocks of text that are deleted or inserted. There may be special keys for the deletion of words and lines. More powerful editing facilities include the ability to delete, insert and move larger sections of text such as paragraphs.

(b) *Searching*. It is possible to search for and replace words in the document to correct mistakes. Most word processors allow the user to control the searching/replacing process so as to search for one or more occurrences, replace automatically or ask the user to verify the replacement and possibly to change the attributes of the word to be replaced. The replace facility is very useful if some words have been misspelt throughout the document.

(c) *Character Attributes*. An attribute for a character is simply the style in which it is to be presented i.e. whether in italics, bold, underlined, superscripted or subscripted. Another attribute is that of character size usually expressed in terms of characters per inch (cpi), the smallest common size being 17 cpi. Some word processors have the ability to display mathematical symbols such as Ω and π , and foreign characters, eg ö. Depending on the type of word processor and computer, the attributes may or may not be displayed on the screen. If they are, then the term used for this type is WYSIWYG (“What You See Is What You Get”). Attributes in documents produced with other types of word processor will not be shown until the document is printed.

(d) *Saving and Printing.* When the document is completed to the user's satisfaction then it can be saved on cassette, floppy or hard disc, or printed directly. Most word processors automatically back-up documents that have been edited by renaming the old version of the document so that all is not lost if the latest version becomes corrupted. It is therefore wise to save a document frequently when editing in order not to lose too much information. When printing a document, the options available depend primarily on the type of printer available. For example, different character sizes (and diagrams) can easily be printed using a dot matrix or laser printer but not with a daisy-wheel printer since the wheel has to be changed. Two types of print quality can be obtained with dot matrix printers, these being draft and letter quality (or Near Letter Quality — NLQ). The advantage gained in printing unfinished documents in draft quality is that of speed, often a factor of two faster than letter quality since in the latter mode each line is overprinted twice (or possibly three times).

(e) *Document Layout.* There are a number of different formats in which a document can be presented. The first is in a manner similar to that produced by a typewriter, with the text aligned to the left and ragged on the right margin (left justified). The second format is known as justified because text is aligned to both margins (like the text in the *Bulletin*). This is obtained by inserting spaces into the text until the last character on the line lies on the right margin and can sometimes produce unusual results, such as only three words on a line, when strings of long words are used. Some word processors can produce text that is justified to the right margin, opposite to that of a typewriter. One of the more useful text formats is centred text, where the computer automatically places the text at the centre of the line; this is useful for headings. Also included in document layout are facilities for setting margins, page length, tab stop positions and formats for page numbering.

(f) *Spell Checking.* There are now a large number of spell checking programs available, some of which are incorporated into the word processor and some which run as separate programs once the document is finished. The first type is recommended since words that have been mis-spelt can be changed immediately whereas with the latter a note must be made of the positions of the mis-spelt words which can then only be changed by running the word processor again. Nearly all spell checkers can be tailored to suit particular applications by updating them with the words commonly encountered. For example, it is unlikely that a commercially available spell checker would contain the word *Noctuidae* but it could be added.

The above list of features is by no means complete but should provide an idea of the capabilities of word processors.

2.2 *Entomological Applications of Word Processors*

Some of the possible uses for word processors include:

(a) *Report Writing*. With a little practice any reports or articles can be made to look professional, particularly when features such as automatic page numbering, centred headings and highlighting of important points (underlining, italics, etc) are employed. It is important to be consistent when writing reports, i.e. keep the same margin settings, consistent section numbering and the inclusion of an introduction, conclusions and possibly an abstract, particularly when many journals demand specific layouts for articles and papers, often in double line spacing.

(b) *Label Printing*. The use of a word processor can overcome one of the major problems associated with hand-written labels, that is legibility. The method for producing small data labels has been described in the *Bulletin* previously (1) and will not be reproduced here. Cabinet labels can also be produced by using a larger character size. Other methods of printing data labels directly from record lists will be included when databases are discussed.

(c) *Form Generation and Filling*. There is often a requirement for producing standard forms for surveys, species lists, etc. This can be achieved with ease if a word processor capable of producing diagrams is used but boxes and columns can be generated with any word processor by using the underline or minus characters for horizontal lines and the vertical bar ("|") or capital I for vertical lines. Once designed, multiple copies can be printed or photocopied.

(d) *Customised Letterheads*. One of the more straightforward applications is in the design of customised letterheads. These can be obtained in two ways — by header text or by printing the letterhead onto paper and re-inserting the paper into the printer when required. The latter method is simple and achievable with any word processor. However, the first method can only be used with packages that can insert header text onto each page before the main body of the text is printed (e.g. Locoscript on the Amstrad PCW computers).

There are now a number of software packages known as integrated systems (e.g. Integrated-7 and Smart) which not only incorporate word processors but databases, spreadsheets and graphics as well. These packages enable, for example, graphs from data stored in the spreadsheet to be included in word processed documents. In entomology, data from records (e.g. moth trap) can be processed and graphically displayed by the spreadsheet, and then transferred to the word processor for inclusion in a report. These possibilities will be discussed in more detail in the next article.

REFERENCE

1. Topical Tip, "Computer Data Labels", *Bull. amat. Ent. Soc.* 47, pp.67-68.

ON THE LARVAE OF THE DARK DAGGER MOTH *ACRONICTA TRIDENS*

by Paul Waring (4220)

Further to the most interesting note by John L. Gregory (*Bulletin* 47: 154-155) on the dorsal colour patterns in the larvae of the Dark dagger, *Acronicta tridens*, I enclose a colour slide which you are welcome to reproduce. It shows a larva of *tridens* viewed from above. The specimen has approximately equal amounts of orange and white in the dorsal stripe, except on the final segment. I would consider this as a white stripe interrupted by orange patches, the latter being reduced to almost absence in some specimens, such as the one illustrated by Mr Gregory. I welcome observations such as Mr Gregory's for they serve to emphasise the importance of making first hand descriptions. So much of the 20th century literature, both on the appearance of larvae and on their foodplants, involves repetition without credit to the original sources. At each stage descriptions have been paraphrased, or simplified, such that the third hand versions are inaccurate, as Mr Gregory demonstrates. The outstanding exception is Haggett (1981) which should be an example to us all. I would advise the reader to seek out the original 19th century accounts in libraries when discrepancies are found in the recent works. Examples of useful works are Buckler's nine volumes and Wilson (1880), in which the descriptions are better than the illustrations. The prices of



these books are now beyond the means of most of us. Second-hand copies of Newman (1869) are cheaper and more readily available. The larvae are not illustrated but there are many useful descriptions. Fortunately, as many members may know, a comprehensive amount of the larvae of the Macrolepidoptera, complete with photographs of all species, is in preparation. In recent years the compilers, Messrs Jim Porter and Steve Church have treated us to displays of the photographs each year at the annual exhibition of the British Entomological and Natural History Society (BENHS). They are still trying to obtain photographs of a small number of species and are circulating a list of these. Copies of the list can be obtained at most meetings of the BENHS or with SAE from J. Porter, 45 King Charles Road, Surbiton, Surrey.

Regarding larval foodplants I have found Skinner (1984) to be the most useful of the readily available works for two reasons. Firstly it is comprehensive for the macro-moths, and secondly the author has distinguished between what the larvae have been found on recently in the wild, and what they have been reared on in captivity. Many other works fail to make this important distinction. Work to conserve our moths will flounder if host plant data and other information on the larvae is unreliable.

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A JANUARY YELLOW UNDERWING

by Don McNamara (5537)

At 20.50 hours on 14th January this year a mint specimen of the Large yellow underwing (*Noctua pronuba*) flew into the saloon bar of the Ship Inn, Newnham-on-Senon, Gloucestershire. This event was witnessed by myself, Lionel Lusty — a reputable local naturalist — and several unnamed darts players.

Cheers!

AN EARLY SPRING IN GALICIA

by Gareth King (8585)

February is not renowned as the month for entomological discovery in Britain, but as I was to find, this was not to be the case in Galicia. I arrived in Vigo at the end of January — to be sure the first week was wet, but by the end of the first week of February I was to be pleasantly surprised. Surprised, in that many species were seen well in advance of Britain.

Galicia is in the north-western-most province of Spain, lying to the north of Portugal. I was walking in Vigo, Galicia's second city, 30 km from the Portuguese frontier on the Rias Bajas. Galicia's coastline is reminiscent of Brittany's, offering plenty of mist.

On 7th February I saw both *Pararge aegeria* (Speckled wood), and *Artogeia rapae* (Small white) around Vigo. But more interesting still, was a find of four *Vanessa atalanta* (Red admiral) larvae. Certainly this species must be continuously brooded there. I was to find both larvae and imagines throughout my stay.

February 13th, on a visit to a coastal town, Baiona, 17 km west of Vigo, several empty nests of *Thaumetopoea pityocampa* (Pine processionary) were seen amongst *Pinus sylvestris*. The next day, a 25 minute ferry ride across the Ría de Vigo brought me to Cangas de Morrazo, where early specimens of *Lasiommata megera* (Wall brown) were seen in the wooded area of *Eucalyptus* and *Pinus*, near the coast. Here a first *Cynthia cardui* (Painted lady) was spotted. *Eucalyptus globulus* is a common plant in Galicia, it seems to have been planted to stem the erosion which occurs due to deforestation, combined with poor, thin soils and frequent rain. (The ubiquitous nature of the tree has led to protests by ecologists in Asturias, when recently planted trees were uprooted en masse. Oct.1988.GEK). The good weather must have coaxed out of hibernation, larvae of *Eurodryas aurinia beckeri* (Marsh fritillary), which were found in quantity feeding on "Honeysuckle and resting amongst ivy and bramble. Several were collected of this larger, Iberian sub-species. Also found were *Pieris brassicae* (Large white) and *V. atalanta* (Red admiral) pupae.

The continuing early spring sunshine produced a solitary *Macroglossum stellatarum* (Humming-bird hawkmoth) flying down the main street of Tui, a pretty town nestling on the banks of the Río Minho, which forms the frontier with Portugal. A further *L. megera* (Wall brown) was also seen the same day.

A subsequent visit to Cangas on 18th February a first *Colias crocea* (Clouded yellow) was seen along with *Gonepteryx rhamni* (Brimstone)

and *A. rapae* (Small white). The favourable February weather was certainly doing good things for the *E. aurinia beckeri* (Marsh fritillary) larvae, which on further inspection at the site where found, were seen to be doing well. I was to visit Cangas several times a week over the ensuing months and was to note the following. On 23rd February several further Red admiral larvae were found in a sheltered nettle bed along with a pupa. The surprising find was on 27th February, when amongst the sparse vegetation on cliffs, was seen a battered female *Papilio machaon* (Swallowtail) no less. Seeing a specimen so early can only be considered unusual.

However, no further Swallowtails were seen in any stage for the rest of my stay until June. Common species seen in and around Cangas were Walls, Small whites and Red admirals. It was rather odd that both the latter species and Painted ladies were common, but precisely no *Inachis io* (Peacocks) or *Aglais urticae* (Small tortoiseshells) were ever seen. Presumably, Galicia is some source of immigrants of the Vanessids to Britain. But why no *io* or *urticae*? According to Higgins and Riley, both are found in north-west Spain. On 19th March several Clouded yellows were noted amongst lucerne, growing further along the coast from Cangas itself. On the same date I found a half-grown *Lasiocampa quercus* larva. I was most surprised that I did not encounter more, or for that matter larvae of *Macrothylacia rubi* (Fox moth), which in similar habitats in the Tuscany and Pyrenees were very common. Apart from *rapae* and *crocea*, other early *Pierids* were *Artogeia napi* (Green-veined white) *Leptidea sinapis* (Wood white) seen on 3rd and 23rd April respectively, one of each. An early *Polyommatus icarus* (Small blue) was seen on 15th May and surprisingly enough, a *Zygaena filipendulae* (Six-spot burnet), considerably earlier than the July/August flight time in Britain. Subsequent examples were seen in Playa de Samil, Vigo's town beach on 25th May.

Of the *E. aurinia beckeri* larvae collected, imagines began to emerge 18th April and behaved like moths considering the ease with which they paired. One particular pair stayed in cop for a day. However, despite easy pairings no ova were produced as the weather turned cooler in late April.

Crossing the Spanish frontier there is a meadow due east of the frontier town of Valenca. Facing Tui on the opposite river bank this meadow proved quite productive. Early in April I discovered yet more Red admiral larvae. Also seen were several Clouded yellows and the, by now, ubiquitous Wall butterflies. On subsequent visits to the same meadow on 16th and 20th May several Painted lady larvae were collected on Burdock as well as further Red admirals. Due to large numbers of

these larvae being reared I was able to release several butterflies. I have no doubt that the antiquated farming methods employed in this area of Portugal, helped to maintain populations of insects. Therefore, further studies of a more intensive nature in this area could prove interesting.

In conclusion, it was heartening to see so many species so early in the year and in relatively unspoilt countryside. However, whether February in this part of Galicia (and just over the frontier into Portugal) is regularly so mild and productive remains to be seen.

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FURTHER FRIDGE NOTES

by Gareth King (8585)

I was interested to read Alan Winterflood's notes on using the fridge to maintain viability of imagines emerging only sporadically (*Bulletin* 47: 177).

I have used the fridge on previous occasions for the same reason, especially with *Saturniids*, but without the same success rate as Alan.

For example, October 1988 saw emergences of *Dictyoploca simla* — normally with this species there are no problems with synchronized emergences — however this time there was. A female was put into the fridge on 18th October immediately after emergence and remained perfectly quiescent therein. This specimen was joined by another female on 28th October. For some reason, despite experiencing the same conditions as her fellow inmate, she began to oviposit immediately. When a male finally emerged on 30th October, both females were brought out into room temperature with the male. The first female, by now twelve days old, began to lay immediately, the second female began to lay as before. Neither females ever bothered to call, and the male battered itself silly in the cage before being found dead the following day.

Obviously it would seem that a fridge may serve a purpose for some species, but not others. I could understand very low temperatures damaging beyond relief tropical species, but *simla*, coming from Japan, would presumably (at least in northern Japan) be experiencing similar autumn temperatures to Britain. Therefore, why can both *Deilephila*

elpenor and *Pieris brassicae* (according to Brian Gardiner) survive fridge conditions to breed afterwards, but not *simla*? A possibility could be that low temperatures irreversibly affected my *simla*, but if so, why did the females oviposit normally afterwards, without even calling? Fridge conditions certainly did nothing to alter the frenetic flapping of an earlier male *simla*, which continued to batter itself to death regardless. Perhaps once a moth (or butterfly) emerges, its internal mechanisms control its behaviour regardless of external conditions.

So twelve days is twelve days, whether spent in cold conditions or normal conditions, and that once normal conditions prevail (ex-fridge) oviposition will occur. Another thought — *Saturniids* being non-feeding imagines would be unable to replenish "thirst" caused by the dry conditions of the fridge, whereas feeding species like *elpenor* or *brassicae*, for example, could be re-enlivened and therefore any damage done made good. *Saturniids* are notorious for sporadic emergencies, so a recourse to the refrigerator is presumed to be a help, but what is the point, if behaviour is irreconcilably altered, to the extent where no breeding takes place when a pair are eventually brought together?

BOOK REVIEW

Elateroidea: provisional Warwickshire atlas by S. A. Lane. A4, pp5. City of Coventry Leisure Services: Arts and Museums. 1988. Price not stated.

This concise booklet is testament to the indispensable nature of computers to the modern biological recorder. Whilst the printing may be a shade light, particularly on the maps, the compilation of widely scattered data and indeed the very appearance of this work are ample justification for their use. In his brief introduction, the author details several interesting species which the diligent field-worker may yet discover in the County — a refreshing change from the usual lament over a catalogue of decline which faunal lists so often throw up. Each of the 32 species recorded from the County is then covered individually with a 10 km square distribution map and short accompanying notes as to habitats, status, etc. The maps are usefully enhanced by numbers indicating date-classes (eg "6" = 1960-69) rather than a simple dot or cross. Both alphabetical and taxonomic indices complete the work. As ever the aim is to stimulate further recording, with a view to producing a definitive Atlas in the future. The author and his small band of co-workers deserve success in this venture.

FREE BOARD AND LODGINGS

by Annabelle M. Spencer

Normally we close in winter, but how could we even have imagined turning away such an unusual visitor to our Guest House? We offered him the Pink Room, "Sunset". He accepted.

It all began last May 27th (1987) at 8.25 in the evening, when I observed a wonderful sighting of what looked to me to be a tiny beautiful miniature like Humming bird feeding high up on the red Valerian on our yard wall. In awe and wonderment I just stood and gazed at such beauty in miniature. For this was to be our first recording of our visitor, the Humming-bird hawk moth at Falkland House, Wells, in Somerset.

It is a day-flying moth with an approximate wingspan of 2¼". When hovering, his wings look almost transparent, beating at such a high speed, although there is a tinge of orangey-brown about them and the underpart abdomen slightly barred in black and white. Brian had seen one years ago in Hampshire. Me — well, for days I was in a trance hardly able to believe the beauty of what I had seen and telling everyone. The sound his wings made was strange as he flew and then hovered over the Valerian, inserting his long tongue deep into the tiny flower heads. Apparently the high-pitched humming sound made by his wings is said to be more audible to women than to men. Then with more quick darting movements he was away, flying high. Here one moment, gone the next, aptly describes him.

During the summer last year we could hardly keep our eyes off the Valerian and spent hours and days sitting and waiting for return visits. Yes, we were rewarded. We are used to filming Falkland Islands Wildlife in the raw, the great Elephant seals and magnificent roaring Southern sea lions. This was a completely different experience. Our still cameras went into action. Difficult was the word, for sometimes it was literally just seconds only that he stayed.

After a few visits we realized he was returning on a sort of schedule. Our video cameras would be set up from early morning to late evening and yes, we did capture him — on film.

In August and September we were fearing the worst. No sightings. He had been like a breath of fresh air to us, awakening and inspiring. Probably we would never again have such a rare visitor to our garden. I just hoped he was safe somewhere.

Around the 8th October the weather had turned to cold, wet, windy days. Just after mid-day I was going out through my mother's yard (next door to our yard) shutting the conservatory door behind me. It was music to my ears. Even now, on re-living that moment, I shake my head

in wonderment, and tears well in my eyes — it was the return of our Humming-bird hawk moth. I have called it a miracle. Immediately I could sense he was looking for a safe hiding place for the winter days. Here there were a few old wooden beams and nooks and crannies that could shelter him. I talked to him and told him he would be safe. “Please settle, we will look after you. I will open the door and you can come into the dry.” We had talked to him all summer; he knew our voices. But, even now at any second he could turn and fly off, for the world was open to him. I came back down the yard, opened the conservatory door and gently invited him to fly in. And yes he did, settling onto the folds of an old umbrella.

From there we transferred him into a large glass sweet jar with some still flowering Valerian but there he just stayed quiet on the dried stems and was not interested. He was obviously worn out from the battering of the last few days of rough weather.

After a few hours, although there was no movement to escape, we were already beginning to feel uncomfortable for him and so decided to take him into our Guest Room, “Sunset”. Here I encouraged him to fly from the stems of the Valerian. Just twice around the room he circled and then settled onto the net curtain at the window. Later that day he climbed up and tucked himself into the folds. No heating was dared to be turned on in his room all winter. In the weeks that followed as it became colder — this room faces north — we covered the glass with newspaper and gently placed some over the half net curtain to give him a darkened hiding place. Daily checks, by squinting sideways beneath his covering but not disturbing it, showed no movement. At a glance he appeared quite an inconspicuous little grey moth.

As the days begin to lighten and lengthen we are becoming anxious. We are very hopeful that our Humming-bird hawk moth will fly around in the warm days of Spring and fly off to mate and lay eggs. We must resist that temptation to hold the moth for this would increase its activity, causing it to use vital body energy reserves and it would die. At present, however, he is still our visitor to “Sunset” awaiting the warmth of the Spring sunshine to awaken him.

In June, after warm days of sunshine and still no movement, we discovered him to be dead. A lovely specimen. Since then, a coincidence: when reading L. Hugh Newman’s book *Hawk moths of Great Britain and Europe* we found it reported that a Peter Hobbs had bred a small brood of this species from a female captured in a garden in Wells, Somerset, early in summer!

OLD LADY IN TOWN

by Jan Koryszka (6089)

On 13 August 1988 I saw an Old lady (*Mormo maura*) roosting in the gents public toilet in Longton town centre. Three days later she was seen back in the same spot. No doubt one of her favourite roosting sites. She is not a common species in Staffordshire and a first recording for Longton, although she has been reported in areas some miles away, being most frequent in the Trent and Churnet valleys. The last time I had seen an Old lady was back in 1974, in a corridor of the North Staffs Royal Infirmary at Hartshill.

SOME OBSERVATIONS ON OVIPOSITING BEHAVIOUR IN *NORDMANNIA ACACIAE* FABRICIUS (*LYCAENIDAE*), WITH SOME NOTES ON ITS DEVELOPMENT IN CAPTIVITY.

by P. J. C. Russell (8977)

On 14th July 1987 at 20 km on the N 623, just north of Ubierna (Burgos) Spain, at about 14.30 hours local time, I observed a small butterfly flitting around a sloe bush (*Prunus spinosa*). On closer inspection it proved to be a female Sloe hairstreak *N. acaciae*, the black anal tuft being clearly visible in the bright sunshine. After a few seconds she alighted, walked about among the twigs and tucked her abdomen under the twig on which she had rested. At the same spot she repeated the latter movement three or four more times. She then flew off, alighted some short distance away on the same bush, which was a mature one, being about 2.5 metres high and the same in diameter, and repeated the entire process.

After she had flown off to another bush some 20 to 30 metres down the road, I examined the two twigs expecting to find a small cluster of ova on each, which would have been unusual as the Hairstreaks (*Theclinae*) lay their eggs singly; but with the naked eye I could not find a single egg let alone a small group. All I noticed was what looked like a small hairy opalescent scale-bug adjacent to a dormant bud on each twig. However, when viewed with a hand lens ($\times 8$), each proved to be a single egg, bright greenish white with a flattened top and covered with many black hairs. Its camouflage almost fooled me! Obviously on the first recurving of the female's abdomen the ovum had been deposited and on the subsequent ones she must have brushed the still moist (sticky?) egg with her anal tuft, leaving some of its black hairs attached to the egg. These hairs broke up the regular outline of the egg and this would aid its concealment against the black bark of the twigs during the nine months of its resting period.

The two ova were removed from the bush still attached to their twigs and on returning home placed outside in a clear plastic pin box, where they remained until early spring. On 15th March 1988 one of the eggs appeared to have darkened and they were then kept indoors. On hatching neither larva made any attempt to eat the empty shell, but soon crawled off to find a fresh bud into which they bored and began feeding; each larva was placed in an individual plastic container and given fresh twigs of *P.spinosa* every four or five days. The following table shows the times of their moults and subsequent development:

	<i>Ovum a</i>	<i>Ovum b</i>
Laid	14.7.88	14.7.88
Hatched	19.3.88	20.3.88
1st Moult	28.3.88	1.4.88
2nd Moult	6.4.88	8.4.88
3rd Moult	13.4.88	17.4.88
Pupated	27.4.88	3.5.88
Emerged	19.5.88	26.5.88
Sex	Male	Female

I returned to Spain in April 1988 and between 13th April and 7th May the larvae/pupae were kept inside a vehicle and therefore subjected to rather higher than normal temperatures. On 15th April I passed the bush from which the ova had been collected and noted that the flower buds were just bursting — at least a month later than those in Sussex which I had just left; however the collecting site was about 950 m above sea level, whereas those in Sussex which I had seen earlier were about 10 m above sea level.

It is well known that some moths, especially those of the family *Lymantriidae* for example *Euproctis similis*, *E. chrysorrhoea* and *Dasychira* species cover their egg clusters with hairs from their anal tufts; however, I have never seen any record in the literature of butterflies using hairs to cover their eggs. *N. acaciae* would appear to be unique morphologically on two counts: firstly, among European butterflies (possibly worldwide?) it is the only species to have an anal tuft of a totally different colour from its abdomen; and secondly, among Lepidoptera as a whole it would seem to be the only species in which only the female has this different coloured anal tuft. This anatomical feature of *N. acaciae* has been well documented in the literature, almost every book on European butterflies states the fact, but never before, so far as I am aware, has the significance of it in terms of egg camouflage even been noted or even suggested.

I would be most interested to hear from anyone who has observed or seen reports of this constructive camouflage of ova in this or any other butterfly species.

LETTER TO THE EDITOR

Dear Mr Gardiner,

Regarding the letter from J. Campbell in *Bulletin* 47: 106, your measured response was welcome, but, however, I feel that both of you missed an important point.

Vast areas of the United Kingdom and parts of Europe have been changed. Notice that I do not say the habitat has been destroyed, for very rarely is habitat destroyed. Perhaps an example of destroyed habitat would be of a meadow or wood paved over to form a car park. Examples of "changed" habitat are drained fens, progression of farmland to suburbia, destruction of hedges, changing of shrubs or moorland to conifer plantations.

All changed habitats have their own species that will eventually colonise them, but *only if there is a free immigration of species*. In other words, suppose that large tracts of the British countryside had been naturally colonised by conifers. Over thousands of years, without human interference, new species will move in or adapt to fill the niche. The same could be said for suburbia. In many countries, insect species, including some spectacular moths, *Samia cynthia* being a good example, have forged a relationship with the urban environment. City environments do not have to be empty ones.

In similar fashion there are plenty of spectacular conifer feeders such as *Eacles imperialis* and *Hyalophora columbia* to name but a couple.

Since man has artificially changed these environments, why not artificially introduce some species to adapt? Not all such introductions will be successful, but the chances are that some species will thrive.

There is another compelling argument for introductions, and that is extinctions. *H. columbia* used to be fairly common in Michigan and a few other areas. Unfortunately its particular environment is larch trees bordering small lakes. These places were and are regarded as desirable areas for human habitation, so they have been slowly transformed into homes and cottages. The larch is gone and so are most of the moths. What makes more sense than to introduce it into virgin larch plantations in the UK?

Since the authorities are incredibly conservative regarding introductions, it is the *duty* of every lepidopterist who is interested in conservation on a world-wide basis to introduce endangered species into suitable environments wherever they may be. In the event that you may regard my above remarks as radical, consider the possibilities if the Dodo had been introduced into other environments before it was exterminated.

Yours sincerely,
Chris Young (5236)

BOOK REVIEW

The smaller moths of Staffordshire by R. G. Warren. A5, pp38, card cover. Staffordshire Biological Recording Scheme Publication No. 13. 1988. Available from City Museum and Art Gallery, Hanley, Stoke-on-Trent, Staffs ST1 3DW. Price £0.50 (+ post).

Over the period 1975 to 1981 the *Atlas of the Lepidoptera of Staffordshire* was published, in six parts, covering the butterflies and larger moths. This current volume collects together records of some 700 species of microlepidoptera recorded in Staffordshire, updating H. W. Daltry's list which was published between 1925 and 1929.

Species are arranged in the numerical order used by Bradley and Fletcher in their *Indexed list of British butterflies and moths*. Records have been gleaned from the *Victoria County History* (published in 1908), Daltry's list, and more modern records. Recorders are identified by initials, and place names in the text are identified with a Gazetteer. Each family is briefly described in layman's terms, and the occurrence of species is noted by locality and recorder, with a very brief comment of foodplant, where appropriate.

It is a pity that more information is not given for many species — such as dates of capture, or comments on more of the critical species (uncertainties about identifications are occasionally given). A number of the listed species are of considerable interest but, as the author acknowledges, there are many gaps. This book certainly whets the appetite, and should stimulate further interest in Staffordshire microlepidoptera. It is a pity that the cover does not match the first six volumes. The text has been word-processed and photo-reduced, but the price is very reasonable.

Paul Sokoloff

SMALL TORTOISESHELL IN THE SOVIET CAPITAL

by Leigh Plester (2968)

While awaiting our connecting flight from Helsinki to Singapore on 7 April 1988, Nick Marsh and I took a lazy stroll in the sunshine round the walls of the Kremlin in Moscow. The air temperature was about 10°C. I was delighted to observe a Small tortoiseshell (*Aglais urticae*) flitting up and down the warm surfaces and alighting on a choice spot. The species has been my first butterfly of the year countless times but I have rarely seen it in such an unusual place! Not being familiar with Moscow, I cannot say where the nearest clump of nettles abides, but I would imagine that, as in Leningrad, you would not have to walk far to find one.

Part of the Kremlin wall, habitat of the Small tortoiseshell (7.4.1988).



BOOK REVIEW

Butterflies of the British Isles: The Lycaenidae & Butterflies of the British Isles: The Nymphalidae both by Michael Easterbrook and pp.24 including Coloured illustrations. A5 (card cover). Shire Publications 1988. Price £1.25 each.

Publishing is a notoriously costly business so I am at a loss as to how Shire Publications are able to produce such excellent books at such low prices as those in their natural history series.

The first, Hawk moths of the British Isles was published in 1985. Since then, two more of interest to lepidopterists have made their appearance — *Butterflies of the British Isles: the Nymphalidae* in 1987 and the *Lycaenidae* last year. All three volumes are by Michael Easterbrook and at £1.25 each are remarkable value.

The work on the Nymphalidae contains no fewer than 28 coloured and three black and white illustrations, in addition to three line drawings. Each species is described in detail and much interesting information may be gleaned. The book ends with a list of organisations, including the AES, which cater for the enthusiast. A list of suitable books and journals is also included.

The *Lycaenidae* deals with all 11 species to be found in this country and also included are the two Coppers and the five Hairstreaks. Once again there is an abundance of illustrations as well as a book list somewhat more comprehensive than in the earlier volume.

I cannot praise these works too highly and eagerly await further volumes in the series.

Terence F. Knight

CHEQUERED SKIPPER RESEARCH

We are currently undertaking a three year project to investigate the ecology and status of this rare and localised species in Scotland with a view to designing conservation measures for it. Consequently, all site records and observations of the behaviour of the species would be gratefully received. We would like to appeal to visitors to NW and central west Scotland in the May-June period to contact us for a standard site recording form. Information on dates and locations from specimens in collections would also be extremely valuable. All data will be acknowledged and used responsibly.

Further details are available from: N. O. M. Ravenscroft and M. R. Young, University of Aberdeen, Department of Zoology, Tillydrone Avenue, Aberdeen AB9 2TN.

THE PROFESSOR HERING MEMORIAL RESEARCH FUND

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

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

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

Awards may be made to assist travelling and other expenses necessary to fieldwork, for the study of collections, for attendance at conferences, or, exceptionally, for the costs of publication of finished work. In total they are unlikely to exceed £350 in 1989/90.

Applicants should send a statement, if possible in sextuplet, of their qualifications, of their plan of work and of the precise objects and amount for which an award is sought, to Dr M. J. Scoble, Department of Entomology, British Museum (Natural History), Cromwell Road, London SW7 5BD, as soon as possible and not later than 30 September 1989.

THE PAINTED LADY IN YORKSHIRE, 1988

by A. Grayson (8621)

It may have been a poor summer in 1988, but it proved to be a very good year to see the Painted lady (*Cynthia cardui*) butterflies in the Ryedale area of North Yorkshire. Throughout the year I kept a record of all my personal sightings which totalled 47 insects. There is of course the possibility that I may have seen the same insect twice, perhaps on different days, but even so it is unusual to see so many in this district.

The first ones I saw were on 16th May and 11 were seen between then and 19th June. All but two of these were badly damaged or had been bleached by the sun. There was then a lull until 16th July and between then and 18th September I recorded a further 36, nearly all of which were freshly emerged.

Compared with other Vanessids, they were as common as the Peacock (*Inachis io*) but only half as common as the Small tortoiseshell (*Aglais urticae*) and much commoner than Red admirals (*Vanessa atalanta*) of which I only noted nine during the year.

BOOK REVIEW

The Hymenoptera. Edited by Ian Gould and Barry Bolton. Published by Oxford University Press for the British Museum (Nat. Hist.). 1988. 332 pp., eight coloured plates, two black and white, many line drawings. Hardback — price £35.

This book looks a little like an AES publication, being in a yellow cover with black titling and cover illustration and it complements our own *Hymenopterist's Handbook*. Like that, it is a team effort. Taxonomists of the British Museum and the National Museums of Scotland have combined to produce an outstanding introduction to the Order. The greater part of the book is made up of a series of accounts of the families occurring in Britain. Diagnosis, distribution and biology, with lists of key identification works. Keys are provided to superfamilies and families.

Introductory chapters cover biology, evolution, structure and classification. There are 48 pages of Reference at the end of the book. The colour plates are very good, particularly those of the parasitoids, and the line drawings by David Morgan are of a very high standard. Chapter 4, which deals with collecting and studying, covers only nine pages so that it does not steal too much thunder from our own publication, which might have got a mention in this chapter.

The price is high for the beginner but well worth it for anyone who wishes to take a serious interest in the Hymenoptera.

PWC.

BEWARE OF THE WINE FLY!

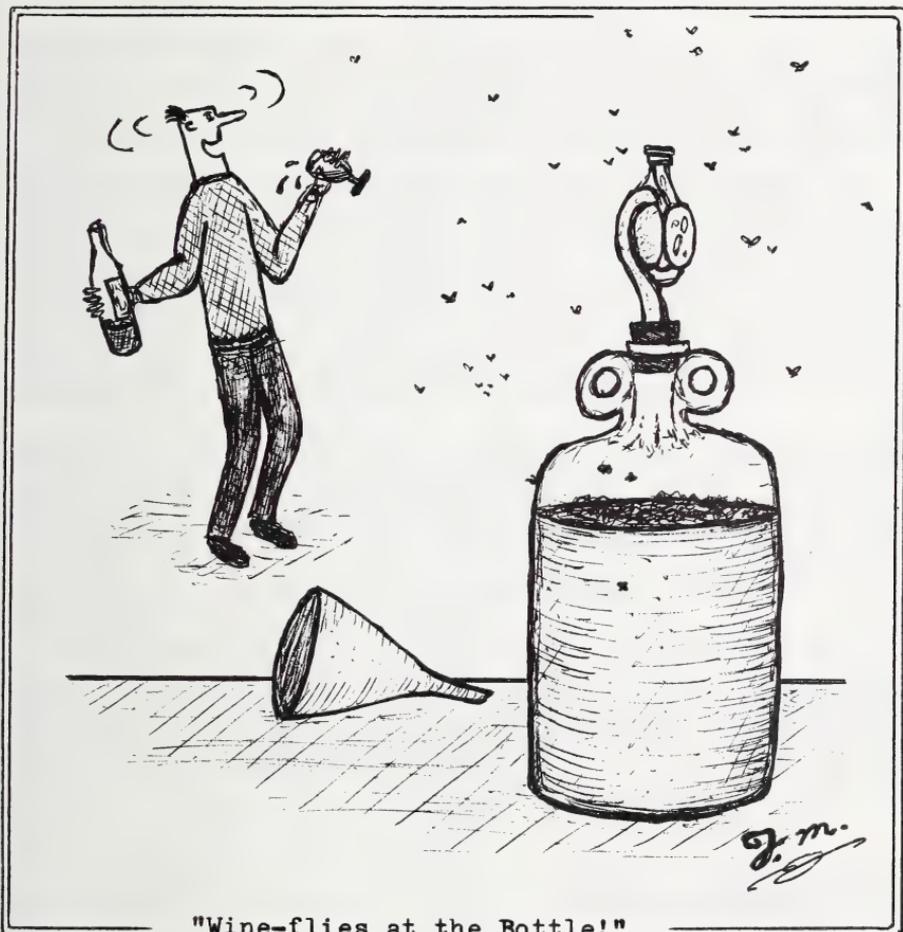
by Frank Marples (8226)

Since my introduction to home wine-making I have been told to "beware of the wine fly!" Until this time I had not heard of the creature, so I resolved to discover just what it is and why it is despised by wine-makers.

To all accounts the wine, or vinegar (meaning sour wine), fly is *Drosophila melanogaster*. It is attracted to fermenting materials, and decomposing fruit, and bacteria carried by it can have the effect of turning wine sour — hence the name.

Flies of the family Drosophilidae are well known, and well used, by geneticists, apparently. These fruit-flies have certain characteristics, including a rapid life cycle, which make them ideal for study purposes.

When making wine I will beware of the wine fly, of course, but I will also enjoy identifying the tiny creature, should the opportunity arise.



ABUNDANCE OF THE WHITE-SHOULDERED HOUSE MOTH

By Jan Koryszka (6089)

During 1986 to 1988 the White-shouldered housemoth (*Endrosis sarcitrella*) became very common in a stretch of my garden, the reason being a very large patch of saxifrage which had died, apparently of natural causes. It went completely brown and resembled an old bird's nest, which this moth is particularly fond of. Many moths were seen and I have now removed the remains of this plant, but on doing so I was surprised to find some forty dead ladybirds which must have gone into the plant for hibernation. They seemed to have been attacked by predators.

COSTA RICA AND TRANSWORLD BUTTERFLY COMPANY

We have been given to understand that AES members have shown considerable interest in the collecting expeditions arranged by this company. They have now made some major changes to their programme and we draw members' attention to their offerings for this year below.

Their programme for both lepidopterists and other entomologists has been greatly expanded to offer rainforest lodges in lowland rainforest, and high Montane rainforest, with options to visit Tortuguero, The Amazon of Costa Rica and a Cloudforest lodge. Naturalist and Birdwatchers programmes available. Rates are all-inclusive. Costa Rica, the most biologically diverse country in the World, the land-bridge between North and South America offers the Lepidopterist the chance to collect in a safe, peaceful country. Collecting and export permits are required under Costa Rican law — Transworld Butterfly Company obtain these for you. Special airfares arranged from London with KLM Royal Dutch Airlines. Request brochures: Transworld Butterfly Co, Apartado 7911, San Jose, COSTA RICA, C. America (Tel 506-284768, Fax 506-281573).

When mentioning various courses and expeditions that are available in the pages of our *Bulletin*, we have requested that any member, or members, who have attended such, send us an account of their experiences for publication. The response has been minimal and I would appreciate an account from anyone who has been to Costa Rica, for I am sure that many other members would be interesting to hear as to how they fared.

A NOTE FROM CANADA

by G. M. Owen

Apropos of the article "An Urban Pioneer" (*Bulletin* 46: 240) which concerned *Hyalophora cecropia*, I once found a live *Ceanothus* moth (*H. euryalis*), which seems to be the western version of *cecropia*, at the bottom of a low hedge just a few yards from the seashore on the Juan de Fuca straits off the Pacific ocean.

I was also much interested on the article on hibernating the Comma butterfly (*Bulletin* 46: 239). I believe this species (*Polygonia c-album*) is the same as the Canadian *P. satyrus*, also referred to as the Comma in the central plains and eastern North America. They are very prolific on Vancouver Island and appear to be at least double-brooded. I raise many of them every year from eggs collected in early spring and they are quite free of parasites. Not so with collected larvae, however, where losses can be appreciable.

A WORLD OF THEIR OWN

by Hugh Popham

(Editor's note: The Ashton Memorial in Williamson Park, Lancaster has been described as one of the grandest monuments in England. With financial help from Messrs Esso UK plc., it, together with its accompanying Palm house, has been saved from decay and turned into a magnificent butterfly house, with particular emphasis being given to British species. This article appeared in *Esso Magazine* No. 147, Autumn 1988, and is reprinted here with permission. It is unfortunate that we cannot reproduce the fine colour illustrations accompanying the article, but the editor of *Esso Magazine*, John Adlington, has very kindly offered to send, post free, a copy to any member writing to Esso Magazine, Esso House, Victoria Street, London SW1E 5JW.)

WHAT is a conscientious city council to do when faced with "the grandest monument in England" so dangerously decayed that it has had to be closed to the public, and a rather elegant Edwardian palm house in a similar condition? The pair of them dominating a 38 acre park presented to the city by a deceased linoleum millionaire for the permanent enjoyment of its citizens.

These awkward questions were brought to the urgent attention of Lancaster City Council ten years or so ago, by which time they could not be ignored. There were various possibilities. One, obviously, was demolition. But the Ashton Memorial is almost as much a symbol of the city as its castle. However, if the Memorial and the Old Palm House, were to be restored — at a cost of well over one million pounds — how was the expense to be justified at a time when money was short?

The answer, as in so many cities smitten by the decline, flight or depredation of their old industries, was to go for leisure money and woo the tourists. Williamson Park, with its lakes, wooded slopes, flowery hollows and two noble Edwardian relics, certainly seemed ideal to be turned into a tourist attraction. There is a nice historical irony here.

In the 1860s James Williamson, the founder of the linoleum firm, first began to create the park out of stone quarries from which Lancaster was built. His laudable aim was to alleviate the unemployment in the cotton industry caused by the American Civil War: a not dissimilar incentive to that demanding its restoration today. Williamson's son, the first Lord Ashton, continued the work and opened the park to the public in 1896. He went on to build the Memorial to his family and the palm house ten years later.

The Memorial, 65 metres high, designed by John Belcher in the most florid High Baroque style could, once restored, look after itself. Its handsome marble hall has proved ideal for concerts, receptions and as a

backdrop for open air theatrical productions, while the view from the gallery on a fine day, takes in not only the Isle of Man in the west and the Pennines to the north east but also the fells of the Lake District.

But what of the Palm House? An aviary, perhaps? Or a tropical plant house, as at Kew? Or — why not? — a butterfly house. Better still, an Exotic Butterfly House, an increasingly popular attraction these days. The City Fathers, having tentatively made their decision, called in Mr G. W. Wheatley of North Midlands Butterflies, then running just such an enterprise in the Festival Gardens at Stoke-on-Trent, to advise them.

Bill Wheatley is one of those enviable souls who turned a boyhood hobby into a profession, and his knowledge of, enthusiasm for and delight in butterflies is profound and irresistible. Anyway, he duly came to look at the Old Palm House — and reeled back.

The place was a wreck, doors missing, ironwork rusty, glass smashed, the floor full of potholes: no home, as it stood for his exotic insects accustomed to a good humid 30 degrees Celsius: no home, indeed, for anything except field mice. However, it was — potentially — a delightful structure, and restored and converted, would suit the purpose admirably; he recommended accordingly.

From the Council's point of view it would accord with their plans for creating a kind of Edwardian pastiche in and around the Ashton Memorial, and it should help to draw the crowds. The attendant young ladies wear period costumes (which rather gives the impression that they have been out dancing all night and have only just got home), and on the upper floor of the Memorial there is a film show designed to illustrate Edward VII's brief sad reign.

So it was done. Lord Ashton's Old Palm House was restored to its original elegance, while within new paths were laid, beds set out, and along one side, a runnel of water with small fountains and shoals of goldfish. The massive old heating pipes were replaced with their modern equivalent to maintain a constant temperature of 24 to 30 degrees Celsius — that, Bill Wheatley says, of a tropical rain forest in spring.

Now planting could begin, and not just a random selection of tropical plants. Butterflies are extremely finicky in such matters: the leaves on which they lay their eggs must be the particular leaves which the subsequent caterpillars will feed on, while the butterflies themselves must have those flowers whose pollen and nectar they prefer.

This is what makes a butterfly house so fascinating. It has to be a perfect little world, complete and self contained as to both climate and ecology, for within it the butterflies will breed, live out their complicated life-cycle, and die. Pests such as mice, ants and wasps which prey on them must be kept out or provided with their natural enemies; similarly

the aphids that attack the plants. No question of pesticides to control unwanted visitors here: natural balance is all. Thus, whitefly, the curse of every hothouse, is the food of a tiny, but otherwise harmless, wasp from Malaya, so there are tiny Malayan wasps to counter it. Australian Zebra finches, which whizz about among the foliage, keep down unwanted insects, and Chinese painted quails bustle about in the undergrowth like miniature partridges on a perpetual useful scavenge.

Through this lush tropical garden dip and pause and flutter the enamelled beauties from the jungles of India, China, Japan and Taiwan, from Central Africa and Australia and the Americas: the Giant Orange from the grasslands of South-East Asia and Swallowtails from the Philippines, whose caterpillars account for the leaves of three hundred small orange trees every year.

It is a delight to be amid all this moist luxuriance and watch them — as many as five hundred at the height of summer — in all their brilliance of colour and intricacy of pattern, daintily sip the pollen and nectar from the flowers. To allow them to settle on you and fold their wings before they change their minds and go wandering off, is pure enchantment. So casual are they in their choice of a perch there is a real danger of stepping on them or taking them out with you when you leave.

Of course, to the gardener, thinking of the ravages of cabbage white caterpillars on his vegetables, the whole place must seem a dreadful aberration, for here the brutes are actually encouraged to munch their way through every green thing. So much so that Bill Wheatley has the run of a large council greenhouse in which to raise the plants for his voracious beauties to gobble up, and as some of the caterpillars are disturbingly hefty — that of the American Owl reaches a length of eight inches — their appetites are formidable.

In the Old Palm House, as it is called, all the denizens are exotic, and many of them strikingly large and gorgeous. But the British Isles have many vivid and exquisite butterflies too, from the common Tortoiseshells to the splendid Purple Emperors, Peacocks and Red Admirals; and to complement the tropical house Bill Wheatley decided that a British equivalent would be a good idea.

There were no more Edwardian palaces left to convert, so the only thing to do was to build one. Since its intended inhabitants climatically speaking, would be at home it would not need to be particularly elaborate, and would not even need to be glazed. But it would cost money; and it is here that Esso forms an improbable alliance with the Gatekeeper, the Painted Lady and the Grizzled Skipper. The Company has had links with Lancaster for many years, including a base from which it explores for oil offshore in Morecambe Bay, and so was glad to contribute to the construction costs of the new house.

Compared with its rather voluptuous neighbour, it is inevitably a modest structure lacking those opulent curves and lofty windows, but the rules that govern the one govern the other.

Open to the air except for fine nylon netting on roof and walls, it is just as much the natural habitat of its occupant. Not here, though, the cannas and bamboos, orange and banana trees, passion flowers and thunbergia, and an Amazonian temperature. Instead there will be nettles and docks, buddleia and goldenrod and sorrel, and a variety of the native flowers whose pollen and nectar are our butterflies' bread and butter — and a brisk breeze off the Irish Sea.

Bill Wheatley hopes to have more than twenty native species, among them several, like the Large Blue, close to extinction, and all of them encouraged to breed. He may even be able to release some of the rarer species to the wild. For those that hibernate, one end of the house will be covered in order to give them somewhere dry in which to spend the winter.

Lancaster claims that this linking of exotic and domestic butterflies in adjacent premises is unique in Britain. Certainly for devoted entomologist and casual visitor alike, there are not many opportunities to see and compare the Small Copper, the Comma and the Chalk Hill Blue with the splendours of the Scarlet Swallowtail, Yellow Birdwing and Plain Tiger.

FOODPLANT OF THE MAGPIE MOTH IN STAFFORDSHIRE

by Jan Koryszka (6089)

On 5 June 1988 while I was doing some gardening, I noticed some frass on my *Sedum spectabile*. On further examination I found the leaves had been eaten and after a search found a number of larvae of the Magpie moth (*Abraxas grossulariata*). A few days later my colleague Mr R. H. Heath found a larva of this moth on a *Sedum* plant in his garden. Now the usual foodplant of this species is currant and gooseberry, both plentiful in our gardens. I have never found Magpie moth larva on *Sedum* before and just why they should have swapped foodplants in 1988 remains a mystery. P. B. M. Allan, in his book *Larval Foodplants* does give the related *S. telephium*. Other *Sedum* species may perhaps also be utilized. The late H. W. Daltry of Madely found the Magpie to be rare in his garden between 1924 and 1950, in spite of having many currant and gooseberry bushes present, while over the same period it was common on sloe bushes growing in hedgerows. In 1969 I found a Magpie pupa on bramble and perhaps differing foodplants are selected in different areas.

(Curiously enough, I have never found Magpie larvae on anything except various species of *Euonymus* — Editor.)

BOOK REVIEW

Grasshoppers and Bushcrickets of the British Isles by Andrew Mahon. pp24; Coloured illustrations. A5 (card cover). Shire Publications 1988. Price £1.25.

This is a welcome addition to the Shire series, covering an increasingly popular Order. The book has three main sections — Life-history, Ecology, and Identification and Distribution, which give a concise summary of the main aspects of the group, from basic life-cycle to courtship, feeding, mortality and so on. Inevitably the long shadow of Ragge is present in the song diagrams but I liked the addition of a pictorially — summarised habitat table. I would question the contention however that Roesel's bush-cricket is a species only of coastal sand-dune and salt marsh. Such over-simplifications are likely to mislead the beginner, who could easily find this species in dry grassland within a few miles of central London.

Much of the book is taken up by the systematic section, with notes and comments on each of the species. There is also a good, simple key with diagrams. Not so easily interpreted is the "distribution map" and a bar-chart of relative sizes as the accompanying species list is crammed into a solid block of text.

The colour photographs are of good quality, but I was disappointed by the fact that 15 out of the 16 shots depict Bushcrickets and Coneheads, leaving only one photograph (plus the cover picture) of Grasshoppers. Surely a more balanced coverage would have aided identification. It could also have been useful to have had the Groundhoppers (Tetrigidae) included in the work, since they are unlikely to be included in future volumes.

The back cover blurb, alas, falls victim to its own hype, boasting "A final chapter suggests places to visit . . .". I cannot regard one paragraph as a "chapter", listing only "The New Forest" as a place to visit along with just two localities in the Isle of Purbeck.

It would also seem an oversight at the very least to include only Marshall and Haes' 1988 *Magnum opus* in the "list" of further reading and not Brown's *Naturalists' Handbook* or indeed Ragge, which can still be found in most large libraries.

Thus although well-written, and attractively presented, and at £1.25 a bargain by any standards, I feel a little more attention to detail could have resulted in a more complete and valuable reference work.

OBITUARIES

Edward (Teddy) Charles Pelham-Clinton

Teddy Pelham-Clinton died on Christmas day last year, less than two months after he had unexpectedly succeeded to the title of 10th Duke of Newcastle.

Educated at Eton and Cambridge, he first worked on ectoparasites for the Agricultural Research Council at Edinburgh University and then the Moredun Institute before taking a curatorial post at the Royal Scottish Museum in 1960 where he remained until his retirement in 1981 when he moved down to Devon where his garden (as had been the one in Scotland) was laid out so as to encourage insect life.

Teddy was our foremost microlepidopterist and will be sadly missed, not only as an Associate of Harley Books' *Moths and Butterflies of Great Britain and Ireland*, for which he was responsible for a large part of the already published micro families, but also by all those to whom any request for help was never refused and by those who so enjoyed his company and eye for a locality and specimen when on collecting trips.

Teddy not only had an eye for spotting those tiny micros, discovering several species new to the British list and having one he discovered, not to mention two other insects, named after him. He also had a flair for encouraging others to look out for things and was always ready to dash off and investigate a new locality or a rumour of some unusual insect having been seen. Besides his insects Teddy had an enduring interest in music and sang in an Edinburgh choir. He was particularly fond of early English composers and would often set his specimens to the accompaniment of loud choral music.

His collections have been bequeathed to the National Museums of Scotland (formerly Royal Scottish Museums) and they are particularly useful, for Teddy was a very systematic and diligent worker who kept copious notes and indexed records.

I first met Teddy when he came up to Cambridge and together with Tony Harbottle and other hardy souls we spent many a day and night searching the fens, in those days of course by Tilley light, not MV! One of the things Teddy taught me in those early days was the importance of a tot of rum to warm things up when the moths were shivering in the undergrowth. That friendship made then lasted forty years.

Brian Gardiner

Lt. Col. Charles Cowan

Charles Cowan passed away on September 13 last at the age of 76. His main interest was in the butterflies of India and Malaya, where his army career gave him the opportunity to collect extensively and indeed it was

on his collection that *The Butterflies of the Malay Peninsular* by Corbet and Pendlebury was based.

Cowan was particularly interested in the Lycaenidae and, after his retirement from the army, turned his attention to systematics and the history and literature of natural history. He published extensively on these subjects. His books and records have gone to Malaya, for he wanted entomologists there to benefit from his knowledge and experience of their country.

Brian Gardiner

ENTOQUIZ: THE ANSWERS

(With apologies that these were omitted from our last issue. The quiz appeared last November (*Bulletin* 47: 225).)

1. Silver Y or Golden Y.
2. Cinnabar.
3. Brimstone.
4. Small Copper.
5. Ant.
6. There are two possible anagrams to this one, Puss (a moth) or Wasp.
7. Diapause.
8. Burnet (Glowworm would also be possible).
9. Mosquito.
10. Earwig.
11. Mite.
12. Ladybird.
13. Flea.
14. Blue-bottle.
15. Greenfly.
16. Bush cricket.
17. Grizzled skipper.
18. Weevil.
19. Lacewing.
20. A batch of eggs.

SOME NOTES FROM GLASGOW

by Frank McCann (6291)

The year 1988 began early for me. On 12th February I noticed a fresh growth of grass by the road at the back of my house in Glasgow. There were large clumps of it and I noticed that the sides of these had been eaten by caterpillars. On 20th February, a mild day, I went out at night and searched the grass tufts. With the illumination from the street-lights I could clearly see them quite easily and found five caterpillars of the Lesser yellow underwing moth (*Noctua comes*) which were about half-grown and feeding half way up the grass. I had already found caterpillars of this species at the Queenslie housing estate and on 27th February discovered two more hiding under a piece of paper lying on the grass near Bargeddie Church and again found more at night on the road behind my house. The ones near the house were a brownish-ochreous colour, whereas the others had a greener and brighter ground-colour.

On 6th March I came across some Large yellow underwing caterpillars (*Noctua pronuba*). These were on the pavement of Barlanark Road and also underneath some corrugated cardboard lying in East Hallhill Road.

I fed the Lesser yellow underwing caterpillars on a selection of foodplants available from my garden, such as grasses, dandelion, clover, buttercup, primrose, and also gave them slices of turnip and carrot. They preferred the dandelion and the turnip. I rear them in a margarine tub and when they are nearly full-fed I transfer them to sealed flowerpots with the larvae and enough food to last in paper cake-cases which rest on top of the peat in the flowerpots. The top is sealed with clear plastic held on with a rubber band.

The Large yellow underwings were offered dandelion, ribwort, plantain, goosegrass, some grasses and slices of carrot.

I also found some other larvae near Bargeddie church which I believe were those of the Autumnal rustic. They were rather small and fed mainly on clover and ribwort. They grew so slowly, however, that I eventually released them into the garden rather than have the patience to go on looking after them.

BOOK REVIEW

Pimpline Ichneumon-flies. Hymenoptera, Ichneumonidae (Pimplinae) by M. G. Fitton, M. R. Shaw and I. D. Gauld. Pp110, 186 Figs, 8vo, card cover. *Handbk. Indent Br. Insects Vol. 7 part 1*. Royal Entomological Society 1988. Price £9.00.

This latest in the series of Handbooks from the Royal Entomological Society completely revises the British Pimplinae, describing one new genus and two new species. The introductory material contains informative and readable notes on systematics, general biology, techniques for collecting, preserving and rearing, terminology and notes on keys and a check list of the British species. The bulk of the work comprises keys to genera and species (often to females only, as the males of many species are very difficult to determine). The keys are well illustrated, and notes on biology accompany many of the species' descriptions.

The sub-family Pimplinae is represented in Britain by 37 genera and (so far!) 108 species, including our largest and most spectacular ichneumon, *Rhyssa persuasoria*, the females of which can reach 100 mm in length! Most of the family are ectoparasites of immature stages of Lepidoptera, Coleoptera, Hymenoptera, Diptera or, occasionally, Arachnida. Yet others are pseudo-parasitoids of spider egg-sacs and one group are endoparasitoids of pupae and pre-pupae. Several species are hyperparasitic, and a few cleptoparasitic on other pimplines. This adds up to a fascinating group for study, although it must be said that identification of many species is far from easy. The authors are to be congratulated on producing a valuable and useful guide to these insects.

Paul Sokoloff

SPAIN AND FRANCE, 1986

by Dean Warren (7759)

We, D. Warren and Martin Gascoigne-Pees, commenced our three week trip through Spain and France on 24th July at Santander. The overnight ferry crossing had been smooth and relaxing, but we seemed not to have escaped the dull overcast skies of home. Only the giant agaves, palm trees, and beds of flowering Cannas on the Santander waterfront suggested we had reached normally sunnier reagrions.

Eagerly off the ferry we drove immediately west along the coast towards Novalles. Driving through eucalyptus plantations we came across a hillside above disused quarries which looked a promising spot to find *Heteropterus morpheus* (Pallas), Europe's largest skipper. The grass was damp, though butterflies could easily be disturbed from it as we made our way up the hill. We found mostly *Maniola jurtina* (L.), *Melanargia galathea* (L.), and *Pyronia tithonus* (L.), but Martin quickly discovered our first *H. morpheus*. We went on to find several more before retiring to a campsite for the night at nearby Santillana. We returned to the same place on the following day. Under gradually improving conditions we saw many more *H. morpheus*. It occurred fairly commonly over the hillside, though we only came across two females. Of thirty species recorded here the best finds were: *Celastrina argiolus* (L.); *Heodes tityrus* (Poda); females of *Everes Argiades* (Pallas); one male *Satyrium ilicis* (Esp.); one female *Syntarucus pirithous* (L.); and one fresh female and many males of *Gonepteryx cleopatra* (L.).

Later that morning we moved along and away from the coast via San Vicente to the Picos de Europa. As we got into the mountains the remaining cloud cover lifted and it became very warm and sunny. Fortunately the good hot weather stayed with us for the rest of our time in Spain. About 5 kms south of Potes we came across an area of old orchards and scrubby hillsides alive with butterflies. *Laesopis roboris* (Esper) was very common but worn. No eggs could be found on the small ash trees and saplings they were flying around, and several females placed in a netting-covered ice-cream tub preferred to die rather than lay on the twigs provided for them. Obtaining eggs by this method proved increasingly difficult with many species as we moved further south into Spain. Despite attempts to provide enough shade and moisture butterflies rapidly desiccated and died in these containers before laying. We found altogether 29 species here. Amongst these were a single *Iphiclides podalirius* (L.) subsp. *feisthamelii* Duponchel, *Leptidea sinapis* (L.), fresh males of *Hipparchia statilinus* (Hufn.), *Mesoacidalia aglaja* (L.), *Fabriciana adippe* (D. & S.) *F. chlorodippe*, *Issoria lathonia* (L.), *Brenthis daphne* (D. & S.), *Melitaea didyma* (Esper), *Mellicta parthenoides* (Kefer.), and the Zygaenid moth *Aglaope infausta* (L.).

After exploring there for a short while we continued on up to the Puerto de San Glorio, our main destination that day where we hoped to find *Erebia palarica* Chapman, the largest of the *Erebia*. We stopped short of the summit, and I soon found our first *E. palarica* not far from the roadside. They were commoner, however, on the meadows sloping down to the stream at the bottom of the pass. At this late date they were mostly females becoming worn and they had to be carefully picked out from amongst the *Erebia meolans* (De Prunner) which flew with them here as the large and bright subsp. *almada* Fruhst. Martin succeeded in getting females to lay in an ice-cream tub. Other *Erebias* here were *E. euryale* (Esper), and *E. cassioides* (Hohen.) subsp. *buronica* Hubn. *M. aglaja* was very common at thistle heads with a few *Pandoriana pandora* (D. & S.) amongst them. There were also a few *Parnassius apollo* (L.) subsp. *ardanazi* Fernandez. We attracted the attention of an inquisitive shepherd. With much gesticulating and after subjecting him to some of my poor Spanish his curiosity was finally satisfied, and he told us all the best "mariposas" were down beside the stream. Following the stream we found one or two more *E. palarica*, some large bright females of *Lasiommata maera* (L.) subsp. *adrasta* Hubn., and many *Heodes virgaureae* (L.) of the fine subspecies *miegii* Vogel, which has a black discoidal and three or four postdiscoidal spots on the forewing upperside.

We camped that evening at La Vega, near Potes. The campsite was rather overcrowded, the only free spot we could find being so close to the steps of the lavatory block that we had a regular stream of curious onlookers passing by as I got down to setting my day's catch of beetles — I being also a coleopterist.

On the 26th we headed for Espinama and Fuente De and caught the cable car up to the Refugio de Aliva. We were hoping to see *Agriades pyrenaicus* (Boisduval) subsp. *asturiensis* Oberthur, but on the summit we found only one fresh and two worn males and one female. However, we were satisfied to find here *Colias phicomone* Esper subsp. *juliana* Hospital, *Lysandra coridon* (Poda) subsp. *asturiensis* Sagarra, and more *Erebia meolans almada*, *E. cassioides buronica*, and *P. apollo ardanazi*. We were not alone. Before we descended around 4 pm Martin had met a coleopterist from the University of Orleans and two Spanish lady lepidopterists. We finished the day at Puerto de San Glorio again, seeing much the same as on the previous day. That night was spent camping rough just the other side of the pass. At sunset the temperature plummeted, getting seriously cold. Far from city lights the most perfect star-filled night formed around us. Our torches packed up, and in the gathering gloom we finished off our evening meal with a melon, the

sticky nectar dripping down our already shivering fingers. It was the most beautiful, but the most uncomfortable night I have ever spent out-of-doors.

Next day we started off towards Burgos, stopping briefly at the Puerto de Piedraluengas where we found one very worn female *E. pararica*, *E. meolans*, *E. cassioides*, and a single male *P. apollo* subsp. *maurilianus* Fernandez. Before reaching Cervera we made a roadside stop at an interesting looking spot just south of Embalse de Requejada. In weedy fields to one side of the road *M. galathea f. leucomelas* was common, whilst *Hipparchia alcyone* (D. & S.), *Brintesia circe* (F.) subsp. *hispanica* Spuler, *Hyponephele lycaon* Kuelhn, *L. coridon asturiensis*, *Quercusia quercus* (L.), *Satyrium esculi* (Hubn.), and *Limenitis reducta* Staudinger, were found in scrubby woodland on the other side. Continuing past Aguilar we reached Paramo de Masa at about seven o'clock that evening. In the dry stony fields beside the road *Agrodiaetus ripartii* Freyer subsp. *montanosa* Gomez Bustillo was abundant. Also here were *A. ainsae* Forster, *L. coridon* subsp. *burgalesa* Agenjo, *Satyrus actea* (Esper) subsp. *bustilloi* Agenjo, *Melanargia russiae* (Esper) subsp. *castilianensis* Gomez Bustillo, and *B. circe*. We stayed that night at a hostel at Covanera where we had a good meal in the restaurant where the locals had gathered to watch "Miami Vice", dubbed into, for us, incomprehensible Spanish.

We explored rough meadows above nearby Sedano next morning where we found *A. ripartii* again, and also *S. esculi*, *S. ilicis* (Esper), *S. spini* (D. & S.), *Lysandra albicans* (Herr.-Schaff.) subsp. *esteparina* Agenjo, *Meleageria daphnis* (D. & S.), *S. actea*, *Chazara briseis* (L.) subsp. *caiaca* Zerny, *M. russiae*, *Coenonympha glycerion* (Bork.) subsp. *iphioides* Staudinger, *Clossiana dia* (L.) *B. daphne*, and one worn female *B. hecate* (D. & S.) subsp. *briciae* Gomez Bustillo. Later we headed north along the N623 to higher ground at Alfoz de Bricia, above Escalada. We stopped next to the 312 km sign. Very little was flying here, *Agrodiaetus damon* (D. & S.) being the commonest species, though we did see a few *C. briseis* subsp. *gothica* Gomez Bustillo, *S. actea*, *S. spini*, and *A. ripartii*. We quickly returned to Paramo de Masa where butterflies were more plentiful. Occurring in clouds were the Lycaenid species present on the previous day plus fresh males of *Plebicula thersites* (Cantener). The bright and boldly marked *P. apollo* subsp. *marteni* Eisener was reasonably common at roadside flowers. Feeding amongst them were *M. galathea f. leucomelas*, *M. russiae*, and a few *M. lachesis* (Hubn.). Returning to the hostel by way of Sedano we made a brief stop and found *M. daphnis*, *C. glycerion iphioides*, and worn *B. hecate briciae*.

On 29th July we passed through Burgos and headed to Abejar in the province of Soria. Just before reaching the outskirts of Abejar we made several searches in pine woods beside the road for *Aricia morronensis* (Ribbe) subsp. *hesselbarthi* Manley. There were several fresh *P. pandora* but only one *A. morronensis*. We decided to backtrack down the road and eventually we found an extensive colony freshly emerged and flying in meadows between the road and a railway line. Its foodplant, an *Erodium* species of cranesbill, was flowering here in a continuous pink ribbon along the roadside. We also found a few *Aricia cramera* (Esch.) subsp. *subcanariensis* Verity, and *Lycaeides idas* (L.) subsp. *prior* Agenjo.

From Abejar we made the long drive down towards Madrid under totally clear blue skies, the temperature rising all the time from hot to exceptionally hot. We reached our destination, Campo Real about 15 kms east of Madrid, with just sufficient sunlight remaining in the evening to stop and make a quick roadside examination. It was not long before we saw our first *Lysandra albicans* subsp. *camporrealis* Gomez Bustillo. They occurred commonly on hot, rocky slopes, flying over desiccated herbage which crunched underfoot. We also came across *Syrictus proto* subsp. *chelalae* G.-Btllo, and a few *H. statilinus* before retiring to find overnight accommodation at Perales de Tajuna.

We explored the olive groves and stony fields along the road from Campo Real to Loeches on the following day. It seemed hard to believe that the arid rocky terrain could support any insect life at all, but we found the fields teeming with *L. albicans camporrealis*, the extremely bleached white form *bolivaroide* G.-Btllo. being particularly common amongst the males. Making the most of what little shade there was were masses of butterflies hiding in the long grass circling the base of each olive trunk. These were mostly *L. albicans* and *A. cramera*, but there were also *H. lupinus* and *Lycaena phleas* (L.) f. *eleus* F. On the trunk of almost every olive perched either an *H. statilinus* or a *C. briseis*. These were all easily disturbed from each tree we approached. They would rise up in clouds and scatter to the shelter of nearby trees. Also hoping to seek the shade of the olives were a large hare and a Scops owl. Martin then came along, however, and flushed both of them out of the olive grove. The owl, which was trying to eat a mouse at the time, was not amused.

Later that day we left the Madrid area for Cuenca. The main road was an oven, the heat was oppressive and the sky was thick with ochre dust. It made the prospect of cooler altitudes ahead of us in the Montes Universales something all the more to look forward to. After a long drive we stayed that night at Villabra de la Sierra.

On the 31st July we made for the lake at Una. It was still hot and sunny but by no means as oppressive as it had been around Madrid. We stopped on the road above the lake to explore an area of pine woods and meadows. *Lysandra caelestissima* (Verity) presented us with a marvellous sight, flying in large numbers all over the wooded slopes. Also here were many *H. alcyone*, freshly emerged males of *Arethusana arethusa* (D. & S.), *C. glycerion iphioides*, and a few worn females of *B. hecate*. On roadside flowers were a few *I. podalirius feisthamelii*, and one boldly marked *Papilio machaon* (L.) subsp. *hispanicus* Eller.

We continued on to the head of the valley beyond the lake. We were greeted there by a remarkable sight. On a stretch of flowering thistles growing luxuriantly in a broad ribbon at least 300 yards long fritillaries in abundance were feeding. Every thistle head seemed to have a fritillary adorning it. *P. pandora* was in spectacular numbers. Amongst them were many *F. adippe* f. *chlorodippe*, *M. aglaja*, *I. lathonia*, *B. circe*, and a few *P. machaon hispanicus*. Further up the valley Martin found one worn male *Plebicula nivescens* Keferstein subsp. *uclensis* Melcon. Also flying here were *P. thersites*, *L. caelestissima*, *A. arethusa*, *M. didyma*, a few worn females of *M. daphne*, *S. proto*, *S. sertorius*, and *Coenonympha dorus* Esper. Circling effortlessly above the cliff-face at the head of the valley were about 15 honey buzzards.

We took a wrong turning somewhere on the way to Albarracin and ended up on the desolate road to the Puerto de El Portillo at an altitude of 1790 metres. It turned out to be not too unfortunate a mistake for we found crossing the road in front of us first a large *Meloe* species of oil beetle, and then the biggest Tenebrionid beetle I have ever seen.

We eventually descended into the beautiful old town of Albarracin where we found a room at the Olympia hostel. The next day, 1st August, we came across a dried-up stream bed about 3 km from the town. Though we were to find many species here later in the day nothing was flying in the morning, so we decided to see what the sanfoin fields around Moscardon had to offer. We found swarms of butterflies there. *Agrodiaetus fabressi* Oberthur was common, together with many *A. damon*, *L. caelestissima*, *P. thersites*, *A. arethusa*, and *Aporia crataegi* (L.). Flying along the road were worn females of *L. reducta*. We saw no *Erebia zapateri* Oberthur, the species we had hoped to see here.

Back at the dried stream bed that afternoon we found *Charzara priouri* (Pierret) subs. *iberica* Oberthur to be common. Between us we found several females of the buff form *uhagonsis* Oberthur. In fact, the whole of this area turned out to be classic Grayling country, with *Satyrus actea* subs. *bellorum* Verity, *Hipparchia semele* (L.) subs. *cadmus* Fruhstorfer, *H. fidia* (L.) subs. *minor* Oberthur, and *C. briseis* subs. *caiaca* Zerny being plentiful. We also encountered a group of four continental collectors, two Germans, one Frenchman and one Swiss. I discovered the Frenchman was a Zygaenid specialist, and while I had

noticed a single burnet moth he had uncovered a few *Zygaena loti* (D. & S.) subsp. *aragonensis* Staudinger at this site. We learned from one of the Germans, who fortunately spoke good English, that they had been up near Greigos the previous day and had found five fully fed larvae of *Graellsia isabellae*. These had pupated overnight. He had also seen there a few *E. zapateri*. This encouraging news prompted us to head for Greigos early on the following day.

In the midst of the extensive pine woods between Bronchales and Greigos, on 2nd August, we found fritillaries abounding on an extensive stretch of ragwort growing at the roadside. These were *Argynnis paphia* (L.), *M. aglaja*, *F. adippe* f. *chlorodippe*, *B. ino*, *M. parthenoides*, *I. lathonia*, and amongst them were many females of *Heodes alciphron* (Rottemburg). But no *E. zapateri*. Further down the road towards Greigos where the woods gave way to meadows we found our first *E. zapateri*, a freshly emerged male. Also here were two females of the richly coloured *Aglais urticae* (L.) subsp. *teruelensis* Sheldon, and a few *P. apollo* subsp. *hispanicus* Oberthur.

With funds starting to run low and with plenty yet more to do before returning home we decided to save on hotel bills and camp rough in the woods around Bronchales. We found a good spot which a large Spanish family had already discovered, and settled in for the night. As we tucked in to our candlelit evening meal we were serenaded by our neighbours who suddenly broke into jolly camp-fireside songs. Above the din of us munching and them singing, Martin's sharp hearing picked up something chewing away behind us in the dark which was obviously an even noisier eater than we were. A search quickly revealed the culprit. On a nearby pine trunk was an enormous longhorn beetle, a female *Prionus coriarius* L. Candles in hand, (we had still not renewed the batteries in the torch) we promptly set to searching other pines in case there should be more. Our odd behaviour must have alarmed the Spanish family since they fell suddenly silent, and very soon afterwards they all came trekking over looking quite worried to find out what was wrong. We tried to explain as best we could what we were up to and someone must have understood as they went and kindly fetched us a couple of torches to help the crazy English carry on with their eccentric pastime. We found no more *P. coriarius*, but on returning the torches next morning I showed the family the longhorn the fuss had been about and explained the life cycle as best I could. I then learned that they had all been finding these monstrous, obviously longhorn, larvae in the firewood they had been gathering — and they burnt the lot!

Despite intensive searches we were only to find another two male *E. zapateri* over the next two days. We were evidently a week or so too early for the main emergence of this species. Disappointed we decided not to

hang around but move on up to the Pyrenees and into France. We saw more of the species already described, but the only other notable discovery in this area was of a small colony of *P. nivescens* which Martin found on a brief roadside stop near Bronchales.

On the afternoon of 4th August we drove north via Zaragoza. Finding no likely looking out-of-the-way spot on which to camp we became increasingly desperate as darkness closed in. We eventually opted for a small pine plantation just short of Huesca. It seemed like a reasonable idea at the time. I was abruptly woken several times during the early hours by busy local farm traffic trundling down the lane we camped beside. No-one seemed to mind us being there though. Martin, with a little help from some wine, had a good night's sleep, and was surprised next day to hear I had had such a bad time of it.

We reached the Pyrenees on 5th August. A visit to the Ordesa National Park was quickly reconsidered when we saw the traffic jams and hoards of people converging on the park. We made a hasty retreat via Biescas, and eventually crossed into France. We headed over the Pic du Midi d'Ossau and stopped at the summit of the Col d'Aubisque. Nothing was flying except for a few worn *Erebia meolans* and *E. manto* (D. & S.) subsp. *constans* Eiffinger. We continued on to Luz St. Sauveur and camped there for the next four days.

(to be continued)

MOONLIGHT — A POSSIBLE ATTRACTION FOR SOME MOTHS

by Jan Koryszka (6089)

Over the years both I and some of my entomological friends have remarked on finding a number of moths, mainly geometridae, but also microlepidoptera, trapped in small puddles early in the morning on the outskirts of woods and over heathland, after there has been a moonlit night. Small concentrations of water seem to be more attractive than ponds or large expanses of water. I know that some moths do tend to get blown to the ground and into water after a stormy night with wind and rain, but I have found these moths in water after a cloudless night which had been also windless but with a bright moon. I think that the reflection of the moon in the puddles may draw some species to them, whilst other species seem to actively dislike the moonlight. One of the more frequent finds by us has been the Pebble hook-tip (*Drepana falcataria*). Back in 1986 I and friends visited Whixall moss, Shropshire, after a calm moonlit night. During the morning we all remarked on the number of Large yellow underwings (*Noctua pronuba*) trapped in ditches and a small section of water lying in the area. A few microlepidoptera, not identified, were also seen in the water. I wonder if other members have noticed this phenomenon.

SAD END OF A MALAYAN BUTTERFLY COLLECTION

by A. Grayson (8621)

In September last year I was asked to sort out seven glass-topped boxes of butterflies which had been captured and set in Malaya by an Army Colonel 40 years ago. The boxes were reasonably well constructed, but there was a gap of as much as 2 mm around the edges of the lids. Unfortunately they had spent the past seven years in the loft of the house of the Colonel's daughter and there was considerable damage caused by insect pests.

In six of the boxes I found several dead specimens of the Brown house-moth (*Hofmannophila pseudospretella*) and one dead larva was found on one of the set butterflies. As I do not pretend to be an expert, I can only say that their deaths remain a mystery to me, but I presume, however, that the adults' failure to escape from the boxes obviously meant that they would die in them sooner or later. The dead larva was found on a Danaid butterfly, a family known to carry body poisons. Could an accumulation of poisons in the moths finally have killed them?

Most of the damage caused to the Colonel's collection was, however, not due to the moths, but to the work of Museum beetles (*Anthrenus museorum*). In one box the butterflies had been completely eaten away and all that remained were rows of pins in a dusty box. The contents of another were in a similar condition, but the other five were in a state worth saving, despite the damage they had suffered. Most had had their bodies wholly or partly eaten away. Some had their wings nibbled and a few had escaped unscathed. These few were ones whose bodies had been set higher up on the pins and were therefore further off the bottom of the box. The Danaiids in particular had survived particularly well. The seven Rajah Brooke's birdwings (*Trogonoptera brookiana*) all had their bodies completely eaten away with only their legs and wings remaining. The Nymphalidae had remained in reasonable condition as had most of the Papilionidae, "Birdwings" excepted. Most of the Pieridae and Satyridae were damaged. Counting pins and specimens, there must have been around 150 butterflies brought back from Malaya and the Colonel had collected two or three examples of each species, with the exception of the seven *brookiana*. It was also noticeable that he had collected only the largest and most colourful, as there were relatively few Satyridae and Lycaenidae and no Hesperiiidae in the boxes. I managed to identify some 47 species.

Orange-tip

(According to P. B. M. Allan, the French and Germans call this butterfly "Aurora".)

Spring has not arrived
until it flutters by, when
Spring is alighting

on cuckoo flower,
hind underwings lichen green,
Spring is settling:

peeping over tips
of underwings dappled green,
Spring sun is rising . . .

(This poem is in the form of linked haiku (hokku), a long-established Japanese poetic form in which there are three lines of 5, 7 and 5 syllables respectively.)

Brian Mitchell



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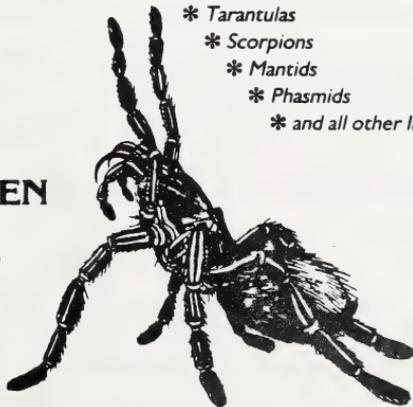
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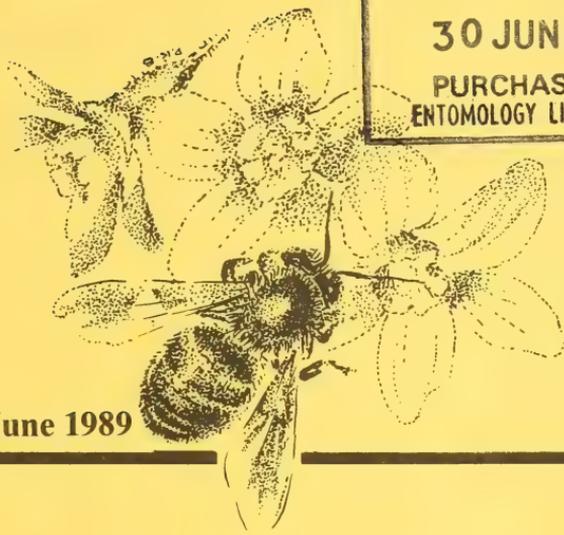
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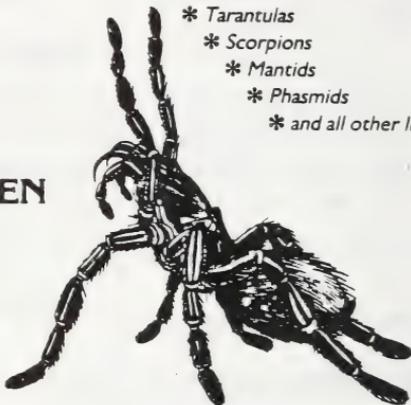
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No. 364

BRITISH MUSEUM
(NATURAL HISTORY)

30 JUN 1989

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EDITORIAL

Having announced in our February number that the *Bulletin* is to be published six times a year, I now have another improvement to announce to members. After an innings of fifty years the *AES Bulletin* has now fallen into line and is following the standard practice of most journals, scientific or otherwise, of giving FREE REPRINTS. Authors of the longer (one page plus) articles will therefore receive 25 reprints, as cut from the *Bulletin*, so these may contain extraneous matter. If anyone requires further copies, or the extraneous matter removed, then our printer will quote a very keen price, but the request must be made when sending in the article and the author will be informed of the cost before any commitment is made.

ANNUAL EXHIBITION 7th OCTOBER 1989

This will again take place at Kempton Park Racecourse. Council wish to draw the attention of members that major changes in the law relating to insects have come into force this year and this affects the sale or exchange of a number of species. Members who may be concerned should familiarise themselves with the rules of the Confederation on International Trade in Endangered Species (CITES) and with the Wildlife and Countryside Act 1981 and its recent amendments.

The sale of specimens, or even parts thereof, which are in Appendix I of CITES will not be permitted without an export and/or Department of Environment licence, which must be displayed.

It has been decided by Council to allow the sale of non-protected species from old collections by dealers who have established their reliability by attending our Annual Exhibition for the past five years. Old specimens from collections, of species that are now protected, do, however, require an appropriate licence, and the onus may be on the seller to prove where they came from and when.

Council has been concerned about the sale for profit of wild-caught insects. We, the AES, have a legal duty to ensure that the law, complex and difficult as it is, is not broken with regard to trading in any of the protected species. We trust that all members, visitors and traders at the Annual Exhibition will observe these laws. Very heavy fines have recently been imposed on illegal imports and collections of both reptiles and birds eggs. We do not wish to hear of similar cases involving insects.

The following species in particular are covered by the various regulations:—

Foreign— *Ornithoptera alexandrae*, *Papilio chikae*, *P. homerus*, *P. hospiton*, *Parnassius apollo*, the genera *Bhutanitis*, *Teinopalpus*, *Trogonoptera*, *Troides*.

British— the Swallowtail, Large blue, Heath fritillary, Northern brown argus, Adonis blue, Chalkhill blue, Silver-studded blue, Small blue, Large copper, Purple emperor, Duke of burgundy fritillary, Glanville fritillary, High brown fritillary, Marsh fritillary, Pearl-bordered fritillary, Black hairstreak, Brown hairstreak, White-letter hairstreak, Large heath, Mountain ringlet, Chequered skipper, Lulworth skipper, Silver-spotted skipper, Large tortoiseshell, Wood white, Barberry carpet, Black-veined moth, Essex emerald, New forest burnet, Reddish buff moth, Vipers bugloss, Rainbow leaf beetle, Violet click beetle, Fen raft spider, Ladybird spider.

BOOK REVIEW

Tephritid Flies by I. M. White, pp. 134; 286 Figs. 8vo, (card cover), *Handbk Ident. Br. Insects. Vol. 10 part 5a*. RESL London 1988. Price £12.00.

Tephritid flies form part of the group known as the picture-wing flies.

This excellent book in the RES series, as well as providing a key to the identification of the British species, also covers their biology, parasitoids, host plant species, their use as biological control methods for weeds, and those species considered pests themselves. Techniques for rearing and preservation are also given.

The keys are effective, but this is not a group for the entomological novice, as the terminology is complicated and may take time to grasp. My major criticism of the book is that there is a 63 page gap between the key to abbreviations and the actual morphological diagrams. The requirement to flick from page to page to understand the features used is most frustrating.

Overall this is a very good book and will be of use and interest to both dipterist and to those studying plant gall formation and leaf mining insects. The photographs of the "picture wings" themselves is an added bonus.

D.J. Mann

AES MEMBERSHIP AND THE COMPUTER

Members of the Society are hereby officially informed that the Society's membership is now stored on a computer system in order to improve management of the day-to-day working and services provided to the membership. The details stored are the name, address, number and interest of each member and their status. In future *Bulletins* will be sent out in labelled envelopes which will give the member's number. If your number is followed by the letter J and you are now over the age of eighteen, please inform the Registrar as future membership lists will separate Junior members from the rest of the membership in order to help juniors in contacting each other without having to wade through the two thousand members. The Registrar also requests that errors should be notified as well as changes of address or interests. Often members fail to advise of address changes and *Bulletins* are returned or are abandoned in the post. Membership lists are for the use of members and should not be used by traders to circulate members without the permission of the AES Council. Members are also reminded how important it is to renew subscriptions promptly. This year over five hundred members had to be written to because they either failed to renew by the end of March or paid at the old subscription rate. This only wastes time and money which could be better used in giving our members a better service. If any member objects to their membership record being kept on computer will they please inform our Registrar (address inside front cover) immediately and their name will be removed.

Mrs R. A. Cribb
Registrar

ABUNDANCE OF THE WHITE-SHOULDERED HOUSE MOTH

By Jan Koryszka (6089)

During 1986 to 1988 the White-shouldered housemoth (*Endrosis sarcitrella*) became very common in a stretch of my garden, the reason being a very large patch of saxifrage which had died, apparently of natural causes. It went completely brown and resembled an old bird's nest, which this moth is particularly fond of. Many moths were seen and I have now removed the remains of this plant, but on doing so I was surprised to find some forty dead ladybirds which must have gone into the plant for hibernation. They seemed to have been attacked by predators.

THE CONSERVATION OF INSECTS AND THEIR HABITATS

14th-15th September 1989 at Imperial College, London SW7

A Symposium, being the 15th in the series organised by The Royal Entomological Society

This very important Symposium, at which the AES will be represented and presenting a poster, should be of interest and value to all those whose main concern is the preservation of our dwindling wildlife before it is too late and extinction overtakes it.

The aim of this symposium is to bring together leading experts in the conservation of insects from throughout the World. On current predictions, millions of species will become extinct in the near future unless sensible measures can be devised. Chief among the threats are the destruction of rain forests and other primary habitats, the supplanting of isolated endemics by introduced aliens, and the demise, in developed countries, of traditional forms of land management.

The Symposium will by no means be all doom and gloom. Although the causes and scale of the problem will be assessed more precisely than ever before, the emphasis will be on solving problems and on reviewing recent initiatives. Above all, the case will be made for a more scientific approach to conservation.

As can be seen from the programme listed below, the speakers are from several countries and are well-known and experts in the field. There is a registration fee of £30 to attend, which covers light refreshments etc., but not of course accommodation which is available at £14.50 bed and breakfast in Imperial College's student hostel. Fuller details and application forms may be obtained from: The Registrar, Royal Entomological Society, 41 Queen's Gate, London SW7 2AZ.

The following programme has been arranged:—

THURSDAY 14th SEPTEMBER

- 0830 Registration
- 0900 The President of the Royal Entomological Society
Introduction
- 0915 **N.W. Moore** (Cambridge, UK)
Observe extinction or conserve diversity?
- 1000 **P. Opler** (US Fish and Wildlife Service, USA)
North American problems and perspectives
- 1045 Coffee
- 1115 **P. Greenslade** (CSIRO Division of Entomology, Australia) and
T.R. New (La Trobe University, Australia)
Australia: conservation of a continental insect fauna
- 1200 **F.G. Howarth** (Bishop Museum, Hawaii) and **G.W. Ramsay** (Dept. of
Scientific and Industrial Research, New Zealand)
The conservation of island insects and their habitats

- 1245 Lunch
- 1430 **K. Mikkola** (University of Helsinki, Finland)
Northern and eastern European insect conservation
- 1515 **W.H.M. Geraedts** (The Netherlands)
Mapping, monitoring and surveys of insect distribution in Europe: past, present and future
- 1600 Tea
- 1630 **J.P. Dempster** (University of Cambridge, UK)
Fragmentation, isolation and mobility
- 1715 **M.B. Usher** (University of York, UK) and **R.G. Jefferson** (Nature Conservancy Council, UK)
Creating new and successional habitats for insects
- 1800 Reception and poster session in RESL rooms

FRIDAY 15th SEPTEMBER

- 0915 **G.N. Foster** (West of Scotland College, UK)
Conserving insects of aquatic and wetland habitats
- 1000 **M.S. Warren** and **R. Key** (Nature Conservancy Council, UK)
Woodlands; past, present and potential for insects
- 1045 Coffee
- 1115 **J.A. Thomas** (Institute of Terrestrial Ecology, UK) and **A. Erhardt** (Botanisches Institut der Universität Basel, Switzerland)
Lepidoptera as indicators of change in the semi-natural grasslands of lowland and upland Europe
- 1200 **J.W. Dover** (The Game Conservancy, UK)
Conservation of insects on farmland
- 1245 Lunch
- 1415 **M.G. Morris** (Institute of Terrestrial Ecology, UK) and **N.M. Collins** (World Conservation Monitoring Centre, UK)
The utilisation and value of non-domesticated insects
- 1500 **E. Balletto** (Università di Torino, Italy)
Mediterranean insect conservation — the importance of Pleistocene refugia
- 1545 Tea
- 1600 **K.S. Brown** (Universidade Estadual De Campinas, Brazil)
Insects as indicators of Neotropical palaeoenvironments and their biotas
- 1645 **S.L. Sutton** (Leeds University) and **N.M. Collins** (World Conservation Monitoring Centre, UK)
Insects and rain forest conservation
- 1730 Concluding remarks
- 1800 Reception and poster session in RESL rooms

SPAIN AND FRANCE 1986

by Dean Warren (7786)

(Concluded from page 47)

The weather continued fine on the following day, but being much fresher was a pleasant change from the heat of Spain. On the road from Barege we turned towards Pic d'Ayre. We worked our way along the bottom of the valley and up along the eastern grassy slopes and screes. Many *P. apollo* subsp. *pyrenaicus* Har.-Bath glided effortlessly up and down the valley side. On the lower parts of the slopes were *Erebia manto constans*, *E. gorgone* (Boisduval), *E. gorge* (Hübner) subsp. *ramondi* Oberthur, *Boloria pales* (D. & S.) subsp. *pyrenesmiscens* Verity, *Heodes virgaureae* subsp. *pyrenaicola* Graves, *Lycaeides idas*, *Polyommatus eros* (Ochs.), *Colias phicomone*, and *Hesperia comma* (L.). On the higher screes *Erebia hispania* Butler subsp. *rondoui* Oberthur was common. In the afternoon we went up to the Col du Tourmalet. The summit was very busy. The crowds, and the discovery that we had to pay a hefty fee to carry on up to the Pic du Midi de Bigorre, persuaded us to try the slopes below the summit to the south. Martin found two fresh males of *Pontia callidice* (Hübner), but otherwise species here were much the same as at Barege. There was no sign of *Erebia sthenno* or *E. lefebvrei*, for which we were obviously far too late, though we had hoped to find a few here.

On 7th August we went to Gavarnie and trekked up to the Cirque along with the countless hoards of tourists and mule trains. We eventually broke free of the crowds and following a small stream we climbed up to steep meadows. We found nothing new here, however, except for *Erebia cassioides* subsp. *arvernensis* Oberthur, one worn *Agriades pyrenaicus*, and one worn *Carcharodus lavatherae* (Esper). It started to cloud over as we headed back to camp, and by the next day cooler damper conditions had set in, with a heavy mist which did not start clearing till noon. We searched again for *E. sthenno* and *E. lefebvrei* on the Cirque de Tremouse and the Pic de Midi de Bigorre on this and the following day, but once more without success. We decided to continue on further north into France.

Just past the village of Puylaroque on 9th August we spotted an area of scrubby woodland and weedy fields which were alive with *Lysandra coridon*, amongst which I found a female *f. syngrapha*. This was also a good place for *Minois dryas* (Scopoli). These were mostly worn, but several females laid eggs copiously in an ice-cream tub. Also flying here were *L. bellargus*, *P. machaon*, *I. podalirius*, *H. lycaon*, *B. circe*, *A.*

arethusia, *H. semele*, *L. reducta*, *Clossiana dia* (L.), *Melitaea phoebe* (D. & S.), *M. cinxia* (L.), *M. didyma*, *Mellicta athalia* (Rott.) and many *Colias croceus* Geoff. and *C. hyale* (L.). Conditions were hot and humid. We woke to rumbles of thunder early the next morning at our camp site 20 kms or so north of Figeac. We swiftly packed up the tent and we were safely installed in the car just as the deluge hit us. Our original plan of heading up to Le Lioran to look for *Erebia sudetica* seemed scuppered, great black thunder clouds and torrential rain rolled continuously northwards. We made a hasty retreat back south to seek the sun.

Above Meyrueis on the Tarn we again found butterflies flying in warmer, sunnier conditions. *L. coridon* and *A. damon* were in good numbers, together with *P. thersites*, *H. lycaon*, *C. briseis*, *A. arethusia*, and worn females of *Satyrus ferula* (F.) and *S. actea*. Martin also found a worn male *A. dolus* and a web of *M. phoebe* larvae.

We carried on further east, crossed the Rhone and camped that night between Orange and Carpentras. We learned from an English family on the site that it had been hot and sunny all that week. The next day proved no exception, and we realised as we approached Mont Ventoux that we were going to be lucky in finding the summit cloud free and sunny. Above the tree line but still below the summit we made a false start in searching for *Erebia scipio* Boisduval. We found none, so decided to try higher up. We stopped again just short of the observatory and Martin promptly found our first *E. scipio* sailing over a precipitous scree slope. We tried further along the slightly more accessible barren white scree slopes at the very summit, and here we found the species flying quite commonly on the northern side of the mountain. Mount Ventoux was a spectacular sight. Though of no great altitude by alpine standards, there is nothing comparable to it anywhere nearby. It therefore appears to stand aloof, rising to a stunning and vertiginous height. The perilously loose looking scree was nevertheless relatively safe to trudge over, but it was *E. scipio* which was truly at home here, gliding effortlessly up and down the slope. The species is only found here and a few other peaks in the South-western Alps, and we were very fortunate in coming across them in favourable conditions. On the following day thick cloud was obscuring the summit of Mount Ventoux and *E. scipio* had completely disappeared.

At a bend in the road down amongst the pine woods on the southern side of the mountain we came across an interesting area of rocky glades where lavender was plentiful. Here we found *Erebia neoridas* Boisduval very fresh and obviously just emerging. Also at the flowering lavender were a few *P. apollo* subsp. *venaissinus*, *A. arethusia*, *H. statilinus*, *H. fagi*, *H. alcyone*, *S. ferula*, *H. lycaon*, *L. coridon*, and *H. comma*.

Though I was the Coleopterist of the two of us it was Martin again who came up with the spectacular beetle find. On a pine trunk he discovered a gigantic longhorn, a female *Ergates faber*.

On the night of the 11th we camped at what turned out to be an appalling site at Beduin. Our opinion of the concrete hard compacted ground and the miserable facilities was not mellowed by the deluge hammered suddenly upon us by the most violent thunderstorm I have ever experienced. Surprisingly, the skies were clear and bright by the following morning, and we were back again on the slopes of Mount Ventoux by noon. Disappointed at seeing dense clouds whipping over the summit we returned to lower altitudes finding much the same as on the previous day, but turning up one new species: *Pyrgus foulquieri* Oberthur.

From here on we began gradually working our way home. On the 13th we stopped at woods just west of Dijon where Martin had found *Erebia medusa* Schiff. and *Limenitis populi* (L.) on a previous visit two months earlier. Butterflies were common, but only *F. adippe* f. *cleodoxa*, fresh males of *Erebia aethiops* (Esper) and an *L. coridon* f. *syngrapha* were the only discoveries worth mentioning. We also found a few larvae of *L. camilla* (L.) on honeysuckle, but we could not find any ova or larvae of *Apatura iris* either here or later at woods south of Rheims. We ultimately reached Calais just in time to catch a departing ferry, and with a quick and easy crossing so ended an intensive, exhausting, but thoroughly enjoyable entomological three weeks. We saw approximately 150 species of butterflies, I also had a fair collection of Coleoptera, and we had travelled through some of the most beautiful scenery in Europe. Across great areas of Spain the intensive agri-business and overpopulation pressures which have wrecked our own countryside appeared to have had little impact. Butterflies were common at almost every roadside stop we cared to make. Eagles circling overhead were a familiar sight; we even saw a Lammergeier in the Montes Universales. The people, too, were very friendly and helpful, and did not seem to mind a bit when I murdered their language. This may have been my first trip to Spain; it will certainly not be the last.

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- Higgins, L. G. and Riley, N. D. 1980. *A field guide to the butterflies of Britain & Europe*. London.

GLOSSARY OF ENGLISH NAMES (AS GIVEN IN HIGGINS AND RILEY)

<i>Aglais urticae</i>	Small tortoiseshell	<i>Heodes tityrus</i>	Sooty copper
<i>Aglaope infausta</i>		<i>Heodes virgaurea</i>	Scarce copper
<i>Agriades pyreniacus</i>	Gavarnie blue	<i>Hesperia comma</i>	Silver-spotted skipper
<i>Agrodiaetus ainsae</i>	Forster's furry blue	<i>Heteropterus morpheus</i>	Large chequered skipper
<i>Agrodiaetus damon</i>	Damon blue	<i>Hipparchia alcyone</i>	Rock grayling
<i>Agrodiaetus dolus</i>	Furry blue	<i>Hipparchia fidia</i>	
<i>Agrodiaetus fabressiei</i>	Oberthur's anomolous blue	<i>Hipparchia statilinius</i>	Tree grayling
<i>Agrodiaetus ripartii</i>	Ripart's anomolous blue	<i>Hyponephele lycaon</i>	Dusky meadow brown
<i>Apatura iris</i>	Purple emperor	<i>Iphicles podalirius</i>	Scarce swallowtail
<i>Aporia crataegi</i>	Black-veined white	<i>Issoria lathonia</i>	Queen of Spain fritillary
<i>Arethusana arethusa</i>	False grayling	<i>Laeosopis roboris</i>	Spanish purple hairstreak
<i>Argynnis paphia</i>	Silver-washed fritillary	<i>Lasiommatia maera</i>	Large wall brown
<i>Aricia crameri</i>	Southern brown argus	<i>Leptidae sinapis</i>	Wood white
<i>Aricia morronensis</i>	Spanish argus	<i>Limenitis camilla</i>	White admiral
<i>Boloria pales</i>	Shepherd's fritillary	<i>Limenitis populi</i>	Poplar admiral
<i>Brenthis daphne</i>	Marbled fritillary	<i>Limenitis reducta</i>	Southern white admiral
<i>Brenthis hecate</i>	Twin-spot fritillary	<i>Lycaedes idas</i>	Ida blue
<i>Brenthis ino</i>	Lesser marbled fritillary	<i>Lycaena phleas</i>	Small copper
<i>Brenthis circe</i>	Great banded grayling	<i>Lysandra albicans</i>	Spanish chalk-hill blue
<i>Carcharodus lavatherae</i>	Marbled skipper	<i>Lysandra bellargus</i>	Adonis blue
<i>Celastrina argiolus</i>	Holly blue	<i>Lysandra caelestissima</i>	Azure chalk-hill blue
<i>Chazara briseis</i>	The hermit	<i>Lysandra coridon</i>	Chalk-hill blue
<i>Chazara priouri</i>	Southern hermit	<i>Maniola jurtina</i>	Meadow brown
<i>Clossiana dia</i>	Violet fritillary	<i>Melaegeria daphnis</i>	Meleager's blue
<i>Coenonympha dorus</i>	Dusky heath	<i>Melanargia galathea</i>	Marbled white
<i>Coenonympha glycerion</i>	Chestnut heath	<i>Melanargia russiae</i>	Esper's marbled white
<i>Colias croceus</i>	Clouded yellow	<i>Melitaea cinxia</i>	Glanville fritillary
<i>Colias hyale</i>	Pale clouded yellow	<i>Melitaea didyma</i>	Spotted fritillary
<i>Colias phicomone</i>	Mountain clouded yellow	<i>Melitaea phoebe</i>	Knapweed fritillary
<i>Erebia aethiops</i>	Scotch argus	<i>Mellicta athalia</i>	Heath fritillary
<i>Erebia gorge</i>	Silky ringlet	<i>Mellicta parthenoides</i>	Meadow fritillary
<i>Erebia hispania</i>	Spanish brassy ringlet	<i>Mesoacidalia aglaja</i>	Dark green fritillary
<i>Erebia lefebvrei</i>	Lefebvre's ringlet	<i>Minois dryas</i>	Dryad
<i>Erebia manto</i>	Yellow-spotted ringlet	<i>Pandoriana pandora</i>	Cardinal
<i>Erebia medusa</i>	Woodland ringlet	<i>Papilio machaon</i>	Swallowtail
<i>Erebia neoridas</i>	Autumn ringlet	<i>Parnassius apollo</i>	Apollo
<i>Erebia palarica</i>	Chapman's ringlet	<i>Plebicula nivescens</i>	Mother-of-pearl blue
<i>Erebia scipio</i>	Larch ringlet	<i>Plebicula thersites</i>	Chapman's blue
<i>Erebia sthenno</i>	False dewy ringlet	<i>Polyommatus eros</i>	Eros blue
<i>Erebia sudetica</i>	Sudeten ringlet	<i>Pontia callidice</i>	Peak white
<i>Erebia zapateri</i>	Zapeter's ringlet	<i>Pyrgus foulquieri</i>	Foulquier's grizzled skipper
<i>Erebia cassioides</i>	Common brassy ringlet	<i>Pyronia tithonus</i>	Gatekeeper
<i>Erebia euryale</i>	Large ringlet	<i>Satyrium esculi</i>	False ilex hairstreak
<i>Erebia meolans</i>	Piedmont ringlet	<i>Satyrium ilicis</i>	Ilex hairstreak
<i>Erebia gorgone</i>	Garvanie ringlet	<i>Satyrus actea</i>	Black satyr
<i>Everes argiades</i>	Short-tailed blue	<i>Satyrus ferula</i>	Great sooty satyr
<i>Fabriciana adippe</i>	High brown fritillary	<i>Strymonidia spini</i>	Blue-spot hairstreak
<i>Gonepteryx cleopatra</i>	The Cleopatra	<i>Syntarucus pirthous</i>	Lang's short-tailed blue
<i>Graellsia isabellae</i>	Spanish moon moth	<i>Syrichthus proto</i>	Sage grizzled skipper
<i>Heodes alciphron</i>	Purple-shot copper	<i>Zygaena loti</i>	

OCCURRENCE OF *CALLICERA AENEA* (FABRICIUS) IN STAFFORDSHIRE

by G. Halfpenny (Keeper of Natural History, City Museum and Art Gallery, Hanley, Stoke-on-Trent).

On 31st August 1988 I took a telephone call from Guy Knight of St. Jude's Road, Wolverhampton, excited at the possibility of having caught a rare hoverfly. Arrangements were made for the insect to be examined at the Museum and I was then able to confirm that it was indeed a female of the very rare hoverfly *Callicera aenea* (F.).

The only previous record that I was aware of for this species in Staffordshire related to a specimen caught by the late J. Edwards at Dimmingsdale (SK04) on 12.8.1947. I was able to use this specimen for comparison as the Edwards Diptera Collection is now in the City's care.

The recent animal was observed hovering back and forth about five feet above a bed of sunflowers, sweet peas and tobacco plants in the recorder's garden on 17th August 1988, SO 898 995. At least one other was present which beat a hasty retreat.

Stubbs (1983) states "Though specimens have been noted as far north as south Yorkshire, this very rare fly is mainly found in southern England."

REFERENCE

Stubbs, A.E. (1983) British Hoverflies, BENHS.

RELATING TO *CALLICERA AENEA* IN WOLVERHAMPTON

by Guy Knight (8040J)

After showing the specimen to Geof Halfpenny at Stoke I decided to take the find to display as part of my exhibit at the 1988 AES Exhibition. It was seen by Alan Stubbs who talked to me about the insect. He told me that not much was known about this fly's nesting habits and behaviour and that it was presumed to breed in rut holes either wet or dry. He then invited me to the annual Dipterists Meeting at the British Museum (NH).

During 1988 I had been mainly involved with the hymenoptera but during the AES Fieldweek my interest in hoverflies was stimulated by Adam Wright of Coventry Museum who was one of the experts helping with the Fieldweek. He also showed great interest in the insect and set it for me as I was rather nervous of attempting it myself as it was so special. Along with other dipterists he has shown interest in coming to survey the garden in 1989 if *C. aenea* is seen again.

THE MANAGEMENT AND WELFARE OF INVERTEBRATES IN CAPTIVITY

by *N. M. Collins, J. E. Cooper and D. Hughes*

(Invertebrate Working Group, National Zoo Federation, Zoological Gardens, Regents Park, London NW1 HR7)

On 9th and 10th December 1988 a conference was held on "The Management and Welfare of Invertebrates in Captivity", the first meeting of its kind ever to take place. Sponsored by the National Federation of Zoological Gardens of Great Britain and Ireland, the participants gathered in the wood-panelled lecture theatre of the Royal Entomological Society of London. The programme was primarily aimed at UK-based institutions keeping invertebrates for display, animal food or research, but the 90-strong registrants included delegates from as far afield as Berlin and Ontario.

Why should a conference on this topic be necessary? During the 1980s the number of institutes displaying invertebrates has trebled with the advent of the popular "butterfly houses". An IUCN report (Collins 1987) recommended a number of initiatives to improve management practices and collaboration between keepers of invertebrates. The Zoo Federation took up the initiative by setting up an Invertebrate Working Group. Its task was to develop Codes of Practice for invertebrate management, to integrate invertebrate welfare into the provisions of the Zoo Licensing Act 1981 by interpretation of its requirements, and to organise this conference to discuss and debate the issues.

The conference was opened by Gren Lucas OBE, Chairman of the Federation. Although a botanist at Kew by profession, Mr Lucas brought his perspective as Chairman of IUCN's Species Survival Commission to bear on the meeting. He warned of the likelihood of more and more legislation to control wildlife management and conservation and called upon the specialists who understand the technicalities to play an active role in fashioning laws that make sense.

He leaked news of a forthcoming "Heritage Species" initiative whereby zoos will be helping to fund captive breeding and conservation of threatened species of global concern, including invertebrates. These and other efforts to maintain the diversity of life on earth, deserve a combined effort, towards which this conference provided a first step.

Friday 9th December — Invited Speakers and Discussions

The morning's Chairman, Mr R. I. Vane-Wright, Deputy Keeper of Entomology at the British Museum (Natural History) introduced the first speaker, Mr John Cooper from the Royal College of Surgeons. John,

well known for his broad veterinary interests and his organisation of the Arachnida Symposium of 1987, gave the Keynote Address "Invertebrates in Captivity". A whistle-stop tour of the diversity of invertebrates, from crayfish to cephalopods, beetles to butterflies, demonstrated the types of species being kept in captivity, and the range of their habitat requirements. The four main reasons for keeping invertebrates are for display, for research, for production of live animal food and for conservation. John introduced these circumstances with examples and set the canvas for following speakers to paint in the detail.

Dr Gordon Spiers (Edinburgh Butterfly Farm) opened by criticising the IUCN butterfly house report (Collins 1987) from a number of points of view. The profits being made were exaggerated, he claimed, and this affected the ability of the industry to participate in costly conservation or collaborative measures. Public attitude, far from being critical of management practices, was very supportive and interested in the work of butterfly houses. Dr Mark Collins, author of the report and one of the convenors of the meeting pointed out in discussion that he predicted a more critical public attitude in the future, and that he believed that the industry should prepare itself by establishing good standards and codes of practice at an early stage, before they were forced upon them by public pressure. Dr Spiers finished his presentation with an insight into the day-to-day management of a butterfly house, where walk-through enclosures, numerous school parties and tropical conditions all need special consideration.

Dr Chris Andrews, Assistant Curator at London Zoo, lucidly detailed the management of the wide range of invertebrates held there, placing particular emphasis on the marine exhibits that are his speciality. He added data on terrestrial invertebrates provided by Mr David Hughes, Senior Keeper at Glasgow Zoo, to round off a synopsis of the environmental conditions needed to maintain colonies for display and breeding purposes. London and Glasgow zoos have the largest numbers of invertebrate species of any UK zoos.

Dr Douglas Wise, from the Veterinary School at Cambridge University, runs a private business breeding insects for animal food. Production capability currently stands at around 425,000 crickets and 7000 locusts per week. Management practices focus on maximum productivity and profit, and issues such as labour and heating costs, secure caging and disease control are prime considerations. Dr Wise emphasised the vital importance of record-keeping for identifying constraints on productivity. Disciplined manipulation of environmental parameters and quality control of substrates and foods pay dividends in a market with high capital investment and the potential for stock losses on a massive scale.

In the chemical industry the need is for successful breeding colonies of invertebrates for use in evaluating pest control compounds. Dr David Twinn of May and Baker, outlined the wide variety of techniques used to maintain colonies of invertebrates as diverse as mites and moths, over 25 species in all. Rearing on plants or on artificial diets have different applications, advantages and disadvantages. Simple equipment and basic expertise are key desirable factors, particularly for small-scale rearing.

Pests and diseases in displays of living invertebrates can wipe out whole colonies painstakingly built up over the years. Claude Rivers, a consultant to the butterfly house industry who has wide experience of insect diseases though his earlier work in the University of Oxford, described the symptoms of bacterial, fungal, protozoal and viral infections, particularly of lepidopterous caterpillars. Prevention is better than cure and good hygiene practices such as sterilising eggs and avoiding potentially contaminated feed from the wild pay dividends. Maintenance of disease-free colonies is much easier when insects are not stressed by living at high densities.

Legislation for the welfare and management of invertebrates is more widespread than is commonly believed, as Mrs Margaret Cooper explained. The Dangerous Wild Animals Act, the Zoo Licensing Act, the Convention on European Wildlife and Natural Habitat (Bern Convention) are just a few of the statutes of which keepers need to be aware. With Post Office and Ministry of Agriculture regulations to bear in mind, the spread of legislation is wide, but patchy. To a large extent, statutes remain untested and uninterpreted for invertebrates. The industry has an important role to play in modifying and influencing legislation for maximum effect with minimum bureaucracy.

Gareth Ireland, a former teacher who now directs the Stratford-upon-Avon Butterfly Farm, demonstrated the vital educational role that the butterfly house industry fulfils. Interpretative material provided to groups of school-children is designed precisely to conform with the requirements of the new GCSE syllabuses. The investment, in terms of money for printing and time for preparation, is high, and has been made possible by close liaison with a number of other establishments. Schools are, however, an important source of revenue, and good teaching materials, displays and oral presentations are central to butterfly house management.

Dr Mark Collins wound up the first day's papers with a glimpse into the future of captive invertebrate displays. The interpretation of global biodiversity, and the comparative amenability of invertebrates to ecologically holistic displays mitigates for a growing emphasis in the zoos of the future. Recognition of this trend by zoo directors must lead to a

greater investment in modern displays with technically diverse mechanisms for promoting public participation. Conservation will be a growing theme, not only with captive breeding of those few invertebrates for which this is an effective measure, but also by emphasising the current likelihood of global mass extinction of invertebrates.

Saturday 10th December — Workshops

The four workshops were held in two concurrent sessions. "Breeding plans for *Partula* snails" was a whole morning workshop chaired by Quentin Bloxam of Jersey Zoo, and was attended by a group of representatives from zoos and universities involved in a captive breeding programme. These snails, originally from the island of Moorea in the Society Islands, have suffered a number of species' extinctions in the wild and the group is breeding them with a view to reintroducing them to their native habitats.

Meanwhile, the three other workshops took place one after the other in the main meeting room. Mr David Williams and Mr John Cooper organised the workshop on "The Importance of Invertebrate Collections for Research". The speakers were Mr Tim Benton (Cambridge University) on keeping scorpions, Dr Martin Wells (Cambridge University) on keeping cephalopods, Dr Roy Sawyer who described his work in a leech farm in Swansea and Prof T. Calow (Sheffield University), who gave a fascinating insight into his breeding of water fleas (*Daphnia*) for research. It was clear from the enormous range of expertise demonstrated here, that captive colonies of invertebrates have a great deal to offer researchers in physiology, medicine, environmental and behavioural sciences.

"The Potential for Involvement in Projects on Invertebrate Conservation", chaired by Dr Ian McLean of the Nature Conservancy Council, raised a great deal of interest. Keepers who maintain invertebrates essentially for display were anxious to participate in meaningful conservation projects. However, there were serious constraints in terms of financial and human resources, and it was clear that collaborative efforts would stand the best chance of success. Dr Caroline Steel of the British Butterfly Conservation Society outlined a number of ways in which butterfly houses and zoos could help to bring butterflies back to the British countryside.

Finally "Invertebrates for Exhibition — Buying or Breeding" raised the controversial question of whether it is best to try to breed invertebrates for display on site, or to import them from abroad. Whilst there are good economic reasons for "breeding your own", it was made

clear that most supplies of live Lepidoptera from abroad are also bred in captivity, and that, in at least some cases, there were benefits to local people and to the conservation effort in tropical countries. However, concern was also voiced that many species of spiders, certain beetles and other invertebrates with lengthy maturation are still collected in the wild, often very destructively and without benefit of guidance on management for sustained production. It was widely felt that zoos had a responsibility to ensure that the stocks they obtain are either captive bred, or obtained in ways that are not damaging to overall levels of wild populations.

The meeting closed with an overview by Mr Bob Golding, a consultant to butterfly houses. It was clear to all that there was a very wide interest in the management and welfare of invertebrates in captivity, and that this interest needed to be combined in order to influence legislation and working practices. To many people at the meeting the National Zoo Federation seemed to be a natural focus for this work, and a number of organisations pledged to join.

Proceedings are in preparation and will be available later in 1989.

Collins, N. M. (1987) *Butterfly Houses in Britain: the Conservation Implications*. IUCN, Cambridge. 60 pp + annexes.

NOTES AND RECORDS FROM IRELAND

by John W. Lavery (7469)

1. The Dingy skipper

I have in my collection a specimen of *Erynnis tages* taken in late June 1988 near Askeaton, Co. Limerick and this confirms its presence there.

2. The Wood white

On the same day and in the same locality I took a specimen of *Leptidea sinapis* also confirming its presence in Limerick.

3. The Narrow-bordered bee hawk

During a collecting trip to the Burren on 29th May 1988 I found *Hemaris tityus* to be common and managed to capture two fresh specimens "hovering" over flowering plants of trefoil. The locality was at Cloncoose, Burren, Co. Clare.

LETTER TO THE EDITOR

Dear Editor,

Firstly, I should like to congratulate the World Wildlife Fund for introducing the Large blue back into this country and I just hope the site stays secret for as long as possible.

Secondly, I would like to make a statement on behalf of every collector in the world, and that is: "How do so many different suppliers of butterflies come up with so many different prices for the same butterfly?" A prime example is the beautiful *Morpho adonis*. I have before me five catalogues and this butterfly ranges in price thus:— 95p; £1.95; £2.50; £2.65; £9.00. I know these suppliers have to compete but the price range is ridiculous to the extreme. Can any supplier or collector come up with any explanation on this subject.

Yours sincerely

Ian Mascall (6065)

(Editor's reply:— Could this not be a case of charging what the vendor thinks the market will bear? The same thing also applies to books. I have seen copies of Edward Newman's *Butterflies & Moths* variously priced between £6 to £75 and this is not all due to condition! Also a house I could buy for £12,000 in Durham would cost £120,000 in Cambridge, so does perhaps the locality the offered *adonis* came from also effect its price? Fifty years ago an English *fraxini* cost £5, but I could buy a French one for 1/- (5p).)

WOMAN'S BATTLE WITH ROACH LEAVES HUSBAND BATTERED

(This item was sent in by Bob Parker (5247) and is extracted from the *Daily Telegraph* of 26th August 1988, who in turn extracted it from the *Jerusalem Post*.)

An Israeli woman's battle with a stubborn cockroach landed her husband in hospital with severe burns, pelvis and some ribs broken.

The wife stamped on the insect then threw it down the toilet and, since the insect had refused to die, then sprayed a full can of insecticide onto it. Her husband later threw a cigarette end into the toilet bowl and the insecticide fumes ignited, "seriously burning his sensitive parts." The two ambulance men who attended were so shaking with laughter at the incident that they dropped the stretcher and victim down the stairs, thereby causing his other injuries.

A BRIEF RECORD OF BREEDING THE KENTISH GLORY

by John W. Lavery (7469)

I was offered seven ova of *Endromis versicolora* in May 1987; they were part of a batch of fourteen found on Birch at Aviemore, Scotland by fellow AES member Raymond F. Haynes earlier in the month. The hatch was successful and seven healthy larvae produced pupae in late July.

During March and April of 1988 I waited for their emergence but nothing happened. Raymond had the same experience with his batch but mentioned that this species could over-winter in the pupa a second year.

This proved to be correct as a fine female was the first to emerge on 10th February 1989 and at the time of writing, 21st February 1989, four females and one male have emerged and it is intended to breed another generation from them.

BEEES, WASPS AND ANTS RECORDING SCHEME (BWARS)

BWARS is currently being revitalised and now produces a bi-annual Newsletter and a Starter Pack sent to all new participants. BWARS also organises Field Meetings, and two annual indoor meetings. One of the indoor meetings consists of a few short informal talks and a workshop identification/recording/slides session (23rd Sept. 1989). The other is for identification and recording (6th Jan. 1990). Expert help with identification is available at both. Anyone interested in collecting, recording and studying aculeate Hymenoptera (bees, wasps and ants) is encouraged to join; beginners particularly welcome! Send your name and address to:—

Dr. J. P. Field, Dept. of Pure & Applied Biology, Imperial College at Silwood Park, Ascot, Berks SL5 7PY.

BOOK REVIEW

Checklist of fish and invertebrates listed in the CITES appendices by Patricia C. Almada-Villela. pp. 82; A4 (card cover). Nature Conservancy Council, Peterborough 1988. Price £11.00.

This publication is one of a series covering all the plants and animals on the schedule of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Its companion volumes deal not only with CITES listings, but also Red Data Book (RDB) species, but it was not considered worth attempting to give such full coverage to fish and invertebrates. The RDBs for these groups are no more than a partial guide, since they include large numbers of species for which there are no survey data.

In most cases, selection of species for CITES listing depends on the presumption that international trade would endanger wild populations. This danger has been judged to apply only to a very small proportion of insects, all of them in the single butterfly family Papilionidae (Swallowtails and Birdwings). Under the classification of Papilionidae used here, there are 52 species listed. All the other invertebrates listed are either molluscs or corals, except for a single spider, the Mexican red-kneed tarantula (*Brachypelma smithi*) and a single annelid worm, the medicinal leech (*Hirudo medicinalis*).

For each species listed, the following information is given: taxonomic synonyms, geographic range, the categorisation under both CITES and the relevant RDB, and a set of literature reference numbers, these then being given at the end of the booklet.

As a source of reference, this checklist is very useful, but it also sheds some light on the difficulty of deciding which species deserves CITES status. For example, only seven of the 52 butterflies listed here fall into any of the RDB categories which indicates a high degree of risk ("vulnerable"; "endangered"; "rare"; or "commercially threatened"). Twenty-nine have no RDB listing at all. On the other hand there are insects in other groups (such as large spectacular beetles) which are commercially exploited and which are thought to be rare.

This is not a book for light reading, but everyone who deals in fish or invertebrates or who may wish to import specimens for personal use, should obtain a copy. D. Lonsdale

DANGERS OF FINGER-LICKING

by Mike Dawson (9130)

Reading back numbers of the *Bulletin* I think it may be well to point out the danger of the practice of repeatedly licking, or moistening, a finger to pick up a beetle as suggested by Richard Jones (*Bulletin* 45: 21).

A friend of mine cleaned the excreta from a Carrion crow's egg by this method. Three days later he was in hospital; not just very ill, but in an exceedingly dangerous condition. The nature of the disease was not given but was probably coccidiosis or capillariasis. These microbes spread throughout his entire intestines within a few days. It was only with difficulty that he was kept alive. Beetles, or any other insects, which may be on recent excreta, could cause the above symptoms with fatal results.

To alleviate any possibility of the above, it would be advisable to spit the saliva onto a finger, wiping off any excess and, on no account, make contact with the mouth.

THE AES FIELDWEEK — THE MIDLANDS

Introduction

by R. J. Barnett (*Herbert Art Gallery and Museum, Coventry*)

The 1988 AES fieldweek for the junior members took place from 6th to 13th August, based at Coombe Abbey Country Park, near Coventry, West Midlands.

Previous fieldweeks have been held in the New Forest in 1984 and 1986 (see AES *Bulletins* Vol.44 No.346 and Vol.46 No.355). This year's organiser Darren Mann, a veteran of the 1986 trip, had arranged an agenda of intensive field work and places to visit. It was hoped that the Midlands location would encourage those from the north of the country to attend who may previously have been put off by the long trek down to Hampshire. As it happened the greatest distance travelled by any of the ten participants was from Truro in Cornwall!

Camp was established at Coombe Abbey and then Darren, assisted by his long suffering family and also Steve Lane from the Herbert Museum, Coventry, set about proving that insects do exist north of Watford. Warwickshire, Worcestershire and Leicestershire were all visited to take in meadows, heaths, ancient woodland as well as reclaimed sites such as quarries. Unfortunately the weather was not too kind to us being very cool and damp. This, coupled with the necessity to search harder for the more interesting insects than in the New Forest could have led to despondency. However the spirit remained high with the opportunity to explore collecting techniques such as sweeping, beating, pond-netting, malaise, light-trap and pit-fall trapping. The end result was a total of well over five hundred species of insects positively identified including 17 species regarded as of national importance by the Invertebrate Site Register of the Nature Conservancy Council. I hope too that ten young people were further encouraged to continue their study of insects and perhaps to go on to investigate other orders they had not thought of before. They certainly looked encouraged!

R.J. Barnett

Sunday 7th August — Ulverscroft Nature Reserve

by Steven Telling (8414J)

We got up at about 7.30 am, had our breakfast and got ready to go. We all bundled into the van and shot off down the motorway towards Ulverscroft Nature Reserve.

We soon got there, and we met Derek Lott of Leicestershire museum who showed us around. He seemed very knowledgable. It was a very nice place.

After that we went for a walk along the river and spotted several species of Dragon and Damsel flies. All in all it was a very eventful day.

Monday 8th August — Wyre Forest

by Ben Woodcock (8938J)

The Wyre Forest has a restriction on taking butterflies. The day was hot, the walk we went on took us down a hill to a stream and up the hill on the other side to an old railway track. The bulk of the area was woodland but one patch was good for sweeping. We managed to catch quite a few species of Diptera, in particular hoverflies. The area was also populated with various reptiles *i.e.* common lizards and grass snakes.

Tuesday 9th August — Brandon Wood and Marsh

by Nick Willits (8670J)

As Brandon Wood was quite close, Darren generously decided that we could lie in until 8.30. After a breakfast of sausage, beans and last night's mash we all bundled into the minibus. We then drove a few miles to Brandon Wood to meet our day's experts. We all went off in our various groups with different nets and pots and had one of our most productive mornings yet. Chris Loughlin and Ben Jameson managed to find one of the two *Hylobius abetius* specimens and the only *Pissodes castaneus* specimen found. While all this was going on Steve Telling had persuaded me to help him look for slow worms. Surprisingly, even after an hour's searching we didn't find any, but we did get lost and ended up walking round every path in the area before getting back to the minibus.

After the standard lunch of sandwiches and crisps we all made for Brandon Marsh.

When we arrived I and several others decided to follow Steve (Lane) who was determined to reach a set of Dragonfly ponds. The journey to these ponds took us through ten foot high reeds and mares-tail plants, then up a long bank that was easily 1 in 2 and covered in bramble. When we finally arrived at the pools Darren and his group were already there and had been for at least half an hour.

We sat by the pool for a while, visited a small bird lake on the site and then returned to the camp site to prepare for the night's moth trapping.

Wednesday 10th August, morning — The Butterfly Farm

by Dion Battersby (8947J)

We had a very productive morning at the Stratford Butterfly Farm. We looked for caterpillars, pupae and butterflies, and moths, and tried to identify them.

We saw many species of British and tropical lepidoptera. There was also an insect house which had Phasmids, Mantids, Arachnids and Katydid. After that we went to the pub and all had a shandy.

Wednesday 10th August, afternoon — Snitterfield Bushes

by Guy Knight (8040J)

After lunch we went to Snitterfield bushes in Stratford. This area is mainly a woodland and scrub habitat, containing small gorse, aspen, sallow and short herb clearings. The woodland area suffers from a poor ground layer of vegetation, and therefore is not very productive. However, the small clearings were very productive as were the edges of the area which were characterised by grasses and a tall herb.

Some of the exciting species caught were: a first Warwickshire Chrysomelid called *Chrysolina hyperici*, and on gorse a local species of weevil called *Sitona tibialis*, also two species of true bug, the first *Melotropis rufescens* found on Enchanters nightshade and secondly, scarce in Warwickshire, *Brachyarthrum limitatum* found on aspen. Most of these species were obtained by sweeping and beating the area. Also found were a pair of Great crested newts under a stone which also housed many Devil's coach horse beetles.

On the way back we stopped off at a dung field, nothing much was found except a brown form of *Aphodius rufipes* a common dung beetle which is usually black. All in all it was a good day.

Thursday 11th August — Sutton Park

by Ben Jameson (8690J)

After a nice late breakfast we bundled into the minibus, only stopping to collect wanderers from the toilets. We were hurtling towards the speedramps, the exit to the Abbey, and on to Sutton Park.

Our first call was at a garage where we vacated the bus. Loaded with our purchases, mainly two litre bottles of coke, we went back to the bus to continue with our journey.

My first impression of Sutton Park was that it was very bumpy; my second was that insect life was limited, but this was probably because of the weather, which was cold and windy. However, the insects we caught were quite rare. Among them were *Prasocuris phellandrii*, and two nymphs of *Rhacognathus punctatus*.

After a brief lunch, we drove to another part of the huge park. We split up here, but all my group managed to collect was a sweepnet full of pinecones which caused chaos, to which the food fights of the previous night were but a shadow. After picking up the pieces, we set off to the chip shop where we had tea.

For moth trapping we returned to our first site of the day. But it wasn't long before it started to rain, then we headed for home.

Friday 12th August — The Herbert Art Gallery and Museum

by Mathew Haselden

The venue for Friday morning was the Herbert Art Gallery and Museum. Here we were to see many interesting exhibits and the work behind the scenes.

We all rose that morning at the unearthly time of 8.30, after a taxing night's mothing only five hours before. Such were the hours we gruelled for such tiny moths who, when we tried to capture them they did nothing but infuriatingly flit out of range of the m.v. We grabbed our breakfast with haste and clambered, still half asleep into the bright yellow minibus.

On the way to the museum we had to put up with Fergie's (Steve T) comments on the relationship between his cat and the compost heap at the bottom of his garden. Of course there was also the grouchy grunts from the direction of Nick's seat.

When we arrived at the museum we were split into two groups. My group went to look at the animal movement exhibition. We also went behind the scenes to look at the various reptilian creatures, all of which either slithered, slimed or bit.

We then went down into the depths of the museum's storerooms where we saw the collection of stuffed birds and animals. Best of all was the insect storeroom where row upon row of insects from micros to phasmids could be found.

We then broke for lunch and had a look around the city of Coventry (the centre of the Universe). We eagerly engulfed our lunches consisting of sandwiches, crisps, orange squash and an apple if you were lucky enough to find one.

In the afternoon we then continued to Ryton Wood which happened to be such a memorable experience, I can't remember what happened (this is because the BRATS democratically decided not to go — DJM). Overall we had a good time all week.

Insects Recorded

by R. J. Barnett

Lepidoptera

The cool damp weather kept the numbers of lepidoptera low. Seventeen species of butterfly were seen including considerable numbers of Silver-washed fritillary *Argynnis paphia* at its Wyre Forest stronghold.

Mercury vapour light trapping was carried out at six localities and was largely responsible for the list of 72 species of micro moth and 120 macro moths. Unfortunately numbers were fairly low even of common species. Four nationally notable species were noted, two of them on our first night's trapping held at the Wyre Forest courtesy of the British Entomological and Natural History Society field meeting. These were the Drab looper *Minoa murinata*, one second brood imago netted at dusk, and the Angle-striped sallow *Enargia paleacea* later came to light. Other notables taken in Warwickshire were the Brown-veined wainscot *Archanara dissoluta* and the Mere wainscot *Photedes fluxa*.

Small orders

During the week six species of Orthoptera (grasshoppers and crickets) were recorded. These were obtained by sweeping and beating low foliage.

Only four species of Odonata (damselfly and dragonflies) were recorded though this was probably due to the absence of sunshine.

The two common species of Dermaptera (earwig) were recorded, the Lesser earwig *Labia minor* being attracted to the mercury vapour light trap.

Hemiptera — true bugs

A total of 61 species of heteropteran bug was recorded. The Heath Shieldbug *Rhacognathus punctatatus* was taken for the first time in Warwickshire and *Agnocoris reclairi* was observed at its Midland locality far from the headquarters for this species, the Cambridgeshire and Huntingdonshire fens.

Homoptera insects were not exhaustively searched for and only 26 species were found. Three species regarded as provisionally nationally notable by the NCC were noted, being *Aphrophora alpina*, *Graphocephala fennahi*, and *Jassargus flori*.

Coleoptera — beetles

Beetles were the second most popular order of insects recorded during the fieldweek, superseded only by the number of lepidoptera. This interest shown by a number of participants was very encouraging given the challenge this group represents. A total of 145 species have been identified. Most beetles were caught by sweeping although trapping

techniques were also used. *Chlaenius nigricornis*, *Prionychus ater*, *Chrysolina brunsvicensis*, *Phyllobrotica quadrimaculata*, and *Pissodes castaneus* are all notable species taken during the week.

Diptera — true flies

Around 65 species have been identified to date. The only diptera collected with any regularity were the syrphids (hoverflies). The following species are those taken which hold nationally notable status. *Melangyna arctica*, *Parasyrphus vittiger*, and *Sphaerosphoria virgata*. Also caught was *Chrysogaster macquarti* which has been given a provisional Red Data Book 3 category.

Hymenoptera — bees, wasps, ants

A number of hymenoptera were collected but due to the lack of appropriate, useable keys they have not been identified as yet.

Acknowledgments

by Darren J. Mann (8181)

The 1988 Fieldweek could not have gone ahead without the help and encouragement of Ray Barnett or the minibus driver Steve Lane. Many thanks are also due to the other staff in the Natural History Section of Coventry Museum (HAGM), namely Adam Wright, Tony Barlow, Dean Warren and John Pierkorcczyk for their tolerance of the "Bratts" and help in the field.

At the campsite, life would have been impossible without Linda Mann (my mom) and Mandy Cooper who kept us fed and clean.

I would also like to thank the following people for their leadership in the field and co-operation in the organisation of the week: Derek Lott, Roger Juckes, Peter Cooke, Dr Ken Greenwood, Peter Hillcox and Geoff Lewis.

I hope that all the participants enjoyed and learnt something from the week, and hope that we have shown that the Midlands is not entomologically dead!

SHERLOCK HOLMES, ENTOMOLOGIST

by John A. Hollier

In 1881, in the chemical laboratory of Bart's, Sherlock Holmes met Dr John Watson and uttered the words "You have been in Afghanistan, I perceive." Thus began one of the best known partnerships in literature, chronicled in four novels and 56 short stories.*

The career of Holmes spans some 30 years, and coincides with the period of the great entomological collectors, and the Victorian Naturalists. It might be expected that something of this would find its way into the stories which describe Holmes' cases, but one must remember that there is no mention of cricket, even though Conan Doyle was very fond of the game and even played for the MCC on a number of occasions (Shaw 1985). The student of entomology is more fortunate however, two entomologists are involved in his cases (if one discounts Jethro Rucastle's son who showed "quite remarkable talent in planning the capture of mice, little birds and insects" and was adept at killing cockroaches with a slipper (*The Copper Beeches: Adventures*) as an entomologist proper).

Nathan Garrideb, described as a "crazy boob of a bug collector" by Killer Evans (*The Three Garridebs: Case Book*) was a harmless if eccentric man who spent all his time in his rooms with "cupboards and cabinets all round, crowded with specimens, geological and anatomical. Cases of butterflies and moths flanked each side of the entrance." Unfortunately for him there was another collection in the room, known only to Evans, hence the involvement of Holmes.

The other entomologist was rather more interesting; none other than the dastardly Stapleton *alias* Vandeleur *alias* Baskerville (*The Hound of the Baskervilles*). This man had lived in Costa Rica and Yorkshire before moving to Dartmoor, had acquired a name as a "recognised authority" according to the BM, and had described at least one new species. One of the rooms of his house was "fashioned into a small museum, the walls were lined by a number of glass-stopped cases full of (his) collection of butterflies and moths". Stapleton considered his collection "the most complete one in the South-west of England". Stapleton was never without a butterfly net and when Watson first met him he was in hot pursuit of a specimen of "*cyclopid*". I can only suppose that this was the Chequered skipper, given as *Cyclopid* (*Carterocephalus palaemon*) by South (1941), the only reference to the name I can find. If the identification is correct this certainly extends the range of this woodland species considerably.

* Conan Doyle placed many of these stories with magazines, but the references here are to the collected stories as published by Penguin.

Holmes expected to have him “fluttering in our net as helpless as one of his own butterflies. A pin, a cork and a card, and we add him to the Baker Street collection.” In the end Dartmoor got there first.

Three cases of Holmes’ include real invertebrates. The case of the Lions Main (*Case Book*) is told in full, the villain of the piece being a jellyfish identified as *Cyanea capillata*. Williams (1951) has already pointed out that *C. capillata* is not really poisonous enough to fit the bill and suggests *C. arctica* as the culprit. The other two cases; the “repulsive story of the red leech and the terrible death of Crosby the banker” (*The Golden Pince-Nez: Return*) and the case of “Isadora Persano, the well known journalist and duellist, who was found stark staring mad with a matchbox in front of him which contained a remarkable worm, said to be unknown to science” (*The Problem of Thor Bridge: Case Book*) are only mentioned in passing, though both sound intriguing. I must take issue with Trevor Hall (1971) when in the course of an entertaining discussion of the Persano case he suggests that the term “unknown to science” implies a belief in the supernatural. Holmes meant of course that it was an as yet undescribed form, and probably added a scientific description to his long list of publications. This quibble in no way affects the rest of Hall’s argument, with which I am inclined to agree.

Other real invertebrates mentioned include “the scorpions and the centipedes” which inhabit the old fort at Agra, and the “beetles” which the naturalist Mr Sherman’s snake kept down (*The Sign of Four*).

Invertebrates are also used in metaphor and simile. Given the large number of stories Watson is very restrained in his use of detective story clichés such as spiders-and-flies (*The Five Orange Pips: Adventures, The Norwood Builder; The Final Problem: Memoirs*) and “she wouldn’t kill a fly” (*The Problem of Thor Bridge: Case Book*). In Black Peter (*Return*) Inspector Hopkins produced the colourful (if inaccurate) phrase “he was pinned like a beetle to a card” to describe the body which was suspended from the wall by a harpoon, and added that the scene of the crime “was droning like a harmonium with the flies and bluebottles”. Watson himself compared Dr Mortimer’s fingers to “agile and restless” insect antennae (*The Hound of the Baskervilles*) and the ruined Kitty Winter told Holmes that the evil Baron Grunner “collects women, and takes pride in his collection, as some men collect butterflies and moths” (*The Illustrious Client: Case Book*).

Watson always presented Holmes as an emotionless reasoning machine, uninterested in anything but his cases; the introduction to *The Cardboard Box (His Last Bow)* is a case in point “everbody was out of town, and I yearned for the glades of the New Forest or the shingle of Southsea. . . . as to my companion, neither the country nor the sea

presented the slightest attraction to him. He loved to lie in the very centre of five millions of people . . .". Such indeed was the image Holmes liked to promote, but his suggestion of a walk in the "beautiful woods" around Forest Row (one of the last remnants of the great Weald forest) to "give a few hours to the birds and flowers" (*Black Peter: Return*) gives the game away. Although Holmes claimed to despise knowledge which took up space in his memory without helping him in his chosen career (even protesting ignorance of the Copernican theory (*A Study in Scarlet*), once again he is misleading Watson. His references to the role of natural enemies in the control of oyster populations (*The Case of the Dying Detective: His Last Bow*) show him to be up-to-date with contemporary theory, as well as convincing Watson that he is delirious.

When he retired it was to a cottage in rural Sussex, and there Holmes became an entomologist in earnest. In *His Last Bow* (*His Last Bow*) (set in 1914) Holmes was engaged in feeding the German master-spy Von Bork false information. At their last meeting Holmes, with Watson in attendance took Von Bork a supposed book of Navy Signals. It was none other than the "magnum opus of his latter years", the *Practical Handbook of Bee Culture, with Some Observations on the Segregation of the Queen*.

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INTERESTING SPRING MOTH RECORDS

by *Tim A. Lavery (8677) and Diane Lavery*

January 1989 proved to be an exceedingly mild month, particularly here in the south-west of Ireland, with temperatures often reaching 15°C.

Not having a M.V. Light Trap, we decided to keep an eye on the bright outside light at our home at Farnes, Castlemaine, Co. Kerry, though not knowing quite what to expect to see, so early in the year.

From the 25th to the 30th we took the following moth species:—

Hebrew character (*Orthosia gothica*), Double-striped pug (*Gymnoscelis rufifasciata*), Early thorn (*Selenia dentaria*), all normally seen from March/April onwards, and finally a specimen of the Early moth (*Theria primaria*).

EARLY NESTERS

by *Brian Gardiner (225)*

On 20th February this year, a fine warm sunny spring day here in Cambridge, as had been so many in the month, I noted three queen Hymenoptera out and about and clearly searching for suitable nesting sites. One was a wasp and the other two bumble bees. With many trees in full blossom, behaving more as if it were late April or early May, there was no shortage of nectar about for them. One does wonder, however, what will become of these early nesters if the weather deteriorates to normal, either before or after they have commenced rearing their broods. I do not believe that a return hibernation can be achieved, particularly once the hormone balance has set in train the egg-laying response.

I have, on a number of occasions, come across very small wasps' nests containing only a dozen or so larval cells and often open at the base. These have been deserted and empty. There is of course no way of knowing the fate of the unfortunate mother, whether she was a victim of weather, predators, or insecticides. While, too, it is not easy to tell the age of such nests, it is clear, from my experience, that a considerable number of females setting out to found their colonies in spring must be failing. In view of the early start to the year it is interesting to speculate, during February, what effect the unusually mild winter is having on our insect population. Besides bringing hibernators out early, perhaps to be caught out, there is also the possibility that the greater than usual survival rate of birds and rodents, combined with the lack of a protective snow cover, will have resulted in far greater than usual predation pressures upon many insects and I hope that members will, later in the year, report any unusual effects that they may notice for publication in our pages.

THE COMMON WASP AND THE LAUREL BUSH

by *Jan Koryszka (6089)*

During 1987 Mr Peter Burton, a botanist, and myself noticed the frequent visits being made to a laurel bush by the common wasp (*Vespa vulgaris*). The wasps seemed to search the bush and then fly off again. Nothing seemed to be taken from the bush. Perhaps they are attracted by the glossy leaves, but then other plants with glossy leaves were ignored. The other possibility is the smell of the plant which can be quite strong as no doubt other entomologists have observed when using laurel leaves as a killing agent. It would be interesting to know if other members have noticed this behaviour of wasps and if they have any ideas about it.

WILTSHIRE BUTTERFLIES IN 1988

by Mike Fuller (6566)

After three years of generally favourable weather for our butterflies, the year started full of promise of better things. February was dry, the warmest and sunniest on record for fifty years. March was also reasonably pleasant, and April and the first half of May were particularly good with some exceptionally hot sunny periods.

This all resulted in many of the early species appearing several days earlier than usual and in reasonable numbers. The Speckled Wood, Comma, Orange tip, Large white, and Peacock were noticeably common, and there were many early sightings of the Painted lady, which arrived from the Continent in May, and continued to be quite frequently seen throughout the season. Usually the Red admiral, another immigrant from Europe, is more commonly seen than the Painted lady, but this year there appeared to be very few early records. Only one record of the usually scarce Clouded yellow was made in May and there were no summer or autumn records. Small tortoiseshells were active in March after hibernation, but were not generally seen until July and in the autumn in relatively small numbers. Jennifer Harrison reported finding scores of dead specimens in a disused house, where they had entered last year for hibernation, and had been unable to escape in the spring.

Unfortunately the weather curtailed much of the butterfly activity in June, which was generally overcast, cool, and showery, with only a handful of warm sunny days. With many species already at very low numbers over the last three years, it was not surprising that butterflies were scarce. The Grizzled and Dingy skippers, Duke of Burgundy, Brown argus, Pearl-bordered and Small pearl-bordered fritillaries, Common and Small blues were all scarce, and the Holly blue, Wall, Marsh fritillary and Green hairstreak were virtually absent from most observers' records.

On the brighter side, the Adonis blue numbers at Bratton appear to be holding their own, in spite of the habitat being unmanaged and looking very overgrown, and the Large skipper was also to be seen in much larger numbers than for a few years. The Small heath was also common locally. A visit to the only known location in Wiltshire for the scarce Wood white, in good weather conditions, on 15th June, proved unrewarding. None were seen and the colony was known to be small and vulnerable, and it could now be extinct as a county species. It was however, encouraging to see the very scarce and local Small pearl-bordered fritillary widely distributed throughout the wood in good numbers, (in fact it was the commonest butterfly seen), but this situation will probably quickly change in the next year or two as the conifers mature and shade out the violets, the larval foodplant.

The usually solitary Brimstone enjoyed a long flight period, a spring male was seen on 19th June, indicating an adult life-span of about eleven months, half of which would have been spent in hibernation.

The poor June weather continued into July, which turned out to be one of the coolest and wettest on record. This is usually the month of much butterfly activity, but proved to be the case for only a few species. The Silver-washed fritillary and White admiral and second brood Commas appeared to be up to strength, but the Ringlet, although much in evidence, was not as abundant as in recent years. The Marbled White was less plentiful and the usually common Small skipper, especially so. Three species, the Meadow brown, Dark green fritillary, and Essex Skipper, all appeared to be commoner than last year.

Peacocks were late to emerge and generally scarce, and the continuingly depressing weather for most of August resulting in low numbers of the second brood Large, Small, and Green-veined whites, Brown argus, Brimstone, Common blue, and Small copper. Two of the last single-brooded species to emerge, the Hedge brown (also known as the Gate-keeper) and the Chalkhill blue, were both below strength in most areas, as was the elusive Purple hairstreak. The second brood Adonis blues at Bratton enjoyed the first gloriously hot and sunny week of September (Summer at last!), and Speckled woods were particularly abundant at this time, supporting the theory that they prefer wet seasons!

Our butterflies have now experienced three years of generally poor summer weather since the good years of the early 1980s, and with a few exceptions, most are now scarce and in low numbers. Even non-entomological friends have commented on this. The generally common species are no doubt able to cope with these fluctuations in their abundance levels, increasing again when favourable weather conditions return. Some of the more local and colonial species however, such as the Marsh fritillary and Adonis blue, may suffer local extinctions as a result of prolonged unfavourable weather, and deteriorating habitat. In this situation, nature reserves and other suitably managed areas become particularly important, enabling the butterflies to be more likely to survive these periods, and recover and expand their range in due course.

Although fewer records than usual have been received from recorders, additions to the country distribution maps continue, and my thanks are again due to all recorders. All records are made available and stored on the computer at the Biological Records Centre based in the Museum of the Wiltshire Archaeological and Natural History Society in Devizes.

Let us hope that 1989 will be the beginning of an upturn in the fortunes of our county's butterflies.

LEPIDOPTERA LARVAE ON FRESH BIRD DROPPINGS

by Jan Koryszka (6089)

Over the years, in my rock garden, I have noticed that a number of lepidoptera larvae are to be found at dusk feeding on fresh bird droppings deposited on the stones. While some have not been identified (these mostly belonging to the cutworm (*Noctuidae*) family) others have been and these were: Large yellow underwing (*Noctua pronubae*), Heart and dart (*Agrotis exclamationis*), Dot moth (*Melanchra persicariae*), and once a garden tiger (*Arctia caja*). I also once found a larvae of the Dot moth eating a piece of old newspaper blown into my garden one windy night. Other visitors to the bird droppings are slugs and snails together with some species, but very few individuals, of beetles and other insects. Perhaps the larva hunter may find other interesting species in this way.

NEW BOOKS ANNOUNCED

by the Editor

The Butterflies and Moths of Yorkshire

Edited by S. L. Sutton and H. E. Beaumont and published by the Yorkshire Naturalists' Union, this book is being offered at a reduced price of £13.75 (which includes postage) to those subscribing by 30th August, after which date the cost will be an extra £3.00. Applications, with payments made out to the Yorkshire Naturalists' Union, should be sent to them c/o W. S. Maney & Son Ltd., Hudson Road, Leeds LS9 7DL. The book will be octavo in size and of some 240 pages with illustrations and maps. Pre-publication orders will be a great help to the Yorkshire Naturalists' Union and once the printer's bill is paid all proceeds will go to them and these can then be ploughed back into their publication fund to produce more updates on the county's wild-life.

Les Insectes de A. J. Rosel von Rosenhof

We must thank member Christopher Nissen for drawing our attention to this work which is a large quarto volume of 496 pages including 289 fine colour plates as well as black and white illustrations. It is a translation into French of one of the finest entomological journals ever published, von Rosenhof's *Der monatlich herausgegebenen Insecten-Belustigung* (of which a literal translation is "Amusing insects monthly magazine"). A contemporary of Linnaeus and Buffon, von Rosenhof was a fine artist and the handcoloured plates of the original are of superb quality, quite up to our Donovan or Curtis of 50 to 100 years later.

This book reproduces them well, and is similar in format to the reproduction by American Heritage Publishing Co. of Audubon's *Birds of America*, which, together with Bessler's Plants, has now also been published in a French edition. The American work may be the more familiar to our readers as it has been around for some years and not so long ago was being remaindered at a mere £20. Unfortunately this French book is rather dearer, about £170 when we saw it recently in Paris and we have not yet seen it advertised in England. Should any member be interested and unable to obtain it through their English booksellers (and French books are notoriously difficult to come by in England), then the publishers are:— Editions Mazonod, 33 rue de Naples, 75008 Paris.

AN OBSERVATION ON THE DAWN FLIGHT OF THE GHOST MOTH

by Jan Koryszka (6089)

During 1987 and 1988 the Ghost moth (*Hepialus humuli*) was quite abundant in and around my garden and other areas of Staffordshire. Quite large numbers were seen at dusk hovering and pendulating a few feet above the grass. Also noticeable was a very strong dawn flight, more so after a rainy spell of weather. Perhaps these conditions are favourable to this activity, for the males to emit their goatish scent. The females were also observed to be laying eggs over a number of different low-growing plants. I took a number of the females and these laid their eggs quite freely in their boxes, over 300 eggs in all. The last time I observed such a large dawn flight was back in the early 1970s. In *Moths of the British Isles* by Bernard Skinner, it is stated that the Gold swift (*Hepialus hecta*) also has a dawn flight in favourable conditions. It does seem as if this activity is governed by the right weather conditions.

AN EARLY HOLLY BLUE

by Brian Gardiner (225)

On visiting my son's house in Cambridge, which is very near to my own he drew my attention to a butterfly flitting across his and the neighbour's gardens. This was a specimen of *Celastrina argiolus* which was either looking for a mate or surveying the local holly bushes on which to lay her eggs. This was on 31st March this year.

SOS FOR EUROPEAN BEES

by Klaus Wolf, translated by Gareth King (8585)

(This article originally appeared in the Spanish journal *NATURA*, January 1989 and is reprinted here with permission and thanks.)

It was at the beginning of the century that a parasite called *Varroa jacobsoni* was discovered by a Dutch entomologist.

Initially a parasite of an Asian bee, *Apis cerana jacobsoni* now also affects *Apis mellifica* of Europe in plague-like proportions. In the USSR, *jacobsoni* was identified for the first time at the beginning of the fifties. In 1976, at the first world conference called on *jacobsoni* held in Bulgaria, the majority of European nations were found to be suffering infestation in their hives.

Whilst *cerana* has developed in the meantime an immune response against the parasite, no such response has yet appeared in European bees. The extent of infestation has been immense. In the Lebanon 90% of hives have been exterminated: Syria and Israel are also seriously affected. The focus of infection has extended throughout North Africa, whilst in 1975 practically all Romanian bees had been affected, while in Japan their native bees were exporting the parasite to Latin America.

Whilst the American continent ironically, was being threatened by a dangerous invasion of African killer bees, at the same time it was felt threatened by *jacobsoni*. In only a year the United States saw half of its bees affected by the insatiable parasite.

The geographical isolation of some countries, for example Britain, Scandinavia, Hawaii, New Zealand and Australia, for the meantime guarantees some protection from the parasite, but it is not known how long this state of affairs could last. Perhaps in the same way that *jacobsoni* reached the Americas and North Africa it could reach the aforementioned countries.

Of course the threat to bees is not just confined to the bees themselves, but to the production of honey. The bees' importance in the pollination of plants is not to be underestimated, which in turn affects the diet of no small number of birds and animals. According to investigations, the value of pollination is 20 to 40 times greater than the production of honey.

Indeed for the bees themselves the threat is monstrous. According to expert opinion, if bees are unable to find an antidote to the parasitic threat, within two or three years whole colonies of bees could be extinct. However, in the same way that *cerana* has immunised itself, sooner or later *mellifica* could do the same. But why has it taken more than a decade to do so?

How does the parasite affect the bee? Basically *jacobsoni* causes an infection which completely changes the bee's habits. For example, they are affected in the ease by which they can collect pollen, a direct consequence of which is a slowdown in the construction of honey-comb. Three to four years after initial infection the hive becomes susceptible to a whole range of secondary infections, with consequent loss of the hive itself. Once a hive is destroyed it cannot be successfully colonised by further bees without their contracting the parasite themselves.

The gravity of the threat resulted in the European Agriculture Commission, itself part of the EEC, organising a conference last November for the twelve member countries. The result of which was the organisation of an information campaign for all European apiculturists, including a pooling of resources used up until the present time against *jacobsoni*.

Of the diverse methods employed in combatting this parasite, those involving chemicals are most promising. Dr Raymond Borneck director of ITAPI (Institute of Apiculture) together with French researchers for CNRS (National Council for Scientific Research) are organising possible treatments. The chemical in which scientists place most hope is "Apistán" a recognised pesticide. "Apistán" has been demonstrated to knock out the parasite without killing the bee.

In 1986 Dr Borneck organised an experiment using a pesticide solution which covered the body of the bee in a uniform manner. At the end of the same year he repeated the experiment using "Apistán". The chemical was put on plastic strips and suspended in hives for 42 days, for optimum results, in the autumn before honey collection. But a vital factor in the eradication of *jacobsoni* was the placing of hives, already treated, in the vicinity of the territory of active male bees, which the parasite prefers.

Dr Borneck affirms that "If bee-keepers use this chemical it is possible that sooner or later bees will be cured".

Nevertheless, in certain areas, instead of "chemical warfare", other, different methods have been employed, based on more traditional apicultural methods. For example, in West Germany bee-keepers control the Queen bee's oviposition. Ova in excess are removed and burnt. Infestation rates are then considerably lower. On a large scale, however, this method can weaken the hive. Another method employed by minor apiculturists is to heat hives affected by *jacobsoni* for short periods of time, the parasites then leave the bee, but temperatures in excess of 40°C are harmful and could kill them.

As regards the life-cycle of *jacobsoni*, it reproduces itself very quickly inside the bee-hive attacking bee larvae as well as adults. The parasite is very small, in actuality about 1.1 to 1.2 mm in length and 1.5 to 1.6 mm in width. However in comparison to the bee it is rather large. It generally occurs on the abdomen of the bee near the thorax or more unusually between the thorax and head. The longevity of the parasite depends on its gender, the male is shorter-lived than the female, which can survive during those intervals when no oviposition occurs, around eight months during the winter and two or three months during the dry periods of summer (in southern Europe). In order to disseminate itself the parasite needs ideally to be in contact with adult bees on a frequent basis, often the bee becoming little more than an article of transportation for the parasite which can then spread its destruction far and wide.

The behaviour of *jacobsoni* is regulated by seasons and how long it has spent in the hive. At the end of the first year of infestation the number of parasites is low. The greatest concentration is found at the end of the summer and in the autumn, at least in temperate climates. However, periods of lesser hive activity do not see *jacobsoni* lying idle; these periods being used to begin infestations in other hives. It is at this time that the parasite is most visible on the bee. At the end of the season in badly-infested hives a lesson can be learnt on the disastrous effects of *jacobsoni*; for example, a cell with more than ten parasites affecting a single bee, the bee dies before even being able to leave its cell. Infested bees show certain malformations such as a much-reduced abdomen. Those individual bees not already dead, die at the end of the summer, after the nuptial flight or during the autumn or winter. A badly affected hive is a sorry sight indeed, with few bees and a helpless Queen being the only signs of life present.

Investigations developing at the present time are focussing on biological forms of control. Scientists are attempting to locate exactly what defences are taken up by those *A. cerana* bees proving capable of fending off an attack. To this end a search is on to seek out a solution. Those solutions that encompass bacterial "warfare" are also being looked into. And why not?

While at the present time Europe is feeling the disastrous consequence of *jacobsoni*, another bee parasite has appeared in Thailand, which fortunately for the moment has proved incapable of colonising areas of the world other than the Tropics.

UNSEASONAL WEATHER

by Peter W. Cribb (2270)

The autumn of 1988 was exceptionally warm and much drier than the summer had been and the Indian summer produced some unusual records. On the 28th October I observed a female Holly blue, *C. argiolus*, flying around the sprays of ivy fruits in my garden in Middlesex, apparently trying to lay eggs. At the end of July I had been gathering up full-fed larvae of the second generation on the same sprays, then in bud. A third generation of this species is not a common occurrence. On the following day on Ditchling Common I saw a freshly emerged female Green-veined white, *A. napi*, laying on hedgerow cruciferous plants. The following week we had several hard frosts which probably ensured that no progeny would result from these late comers.

As I write, the winter has been as mild as I can recall and on Christmas day my hives were quite active with bees clearing out dead sisters and excreting on my car parked near the hives. On the 10th January I found a *Bombus terrestris* bumble bee sitting on some potted hyacinths which had been placed outside the house. It was sluggish but conditions must have been good enough to enable it to leave its hibernation and fly. Normally I do not see the overwintered queens until March. Perhaps the greenhouse effect is already with us.

EARLY MOTH IN SOUTHERN IRELAND

by Tim A. Lavery (8677) and Diane Lavery

A specimen (male) of the Early moth (*Theria primaria* Haw.) was taken at an outside house light at Farnes, Castlemaine, Co. Kerry (Irish Grid Q 82 06) on the 25th January 1989. This appears to be the first recorded instance of its occurrence in Co. Kerry and indeed from the southern half of Ireland, although it is probably much more widespread than present information suggests.

DOES THE COMMA LARVA EAT SALLOW?

by J. H. Payne (5923)

In the note by Peter Cribb (*Bulletin* 48: 32) concerning a larva of *Polygonia c-album*, he does not state if he saw the larva actually eating the willow (*Salix caprea*)! I mention this point as I reared a large number last year and, when cutting some willow as food for some moth larvae I had, I found four Comma chrysalids suspended from the undersides of different leaves. There was no apparent attempt at concealment, there were nettles nearby and I thought they were escapees gone up to pupate. The note, however, raises an interesting point.

SIGHTINGS OF PAINTED LADIES (*CYNTHIA CARDUI*) DURING 1988 IN WARWICKSHIRE

by B.R. Mitchell (8086)

- 21st May — Stockton Railway Cutting N.R. almost midday, overcast.
 1st June — on Grendon Heath on lotus and broom, mobbed by Dingy skipper.
 15th June — small, faded, worn specimen on bank, Grendon Heath.
 19th June — in Nelson's Quarry (with RJS).
 22nd June — small, faded, worn specimen basking on bricks embedded in ground, top Slacky Lane at 4.45 pm.
 23rd June — one in same location as yesterday (not counted separately) plus another by stand of flowering bramble at edge of Top Folly bank.
 25th June — TWO — on same bank: one accepted as latter above; the other very worn, possibly same as former above, but counted as different.
 1st July — one briefly settled in Slacky Lane at 6.00 pm.
 18th July — one in field just beyond hedge top Slacky Lane — fresh.
 5th Aug. — one very fresh on bramble bush, behind Grendon Wood.
 7th Aug. — at Gratton Dale, Derbyshire.
 8th Aug. — one on bramble near Kingsbury Wood/Spoilheaps (with GAA and MAA) a further two seen separately on Grendon Heath: one where seen on 5/8, the other on bramble near the heath entrance.
 9th Aug. — one where seen previous day on bramble, heath entrance.
 14th Aug. — one settled on marigolds in back garden while overcast and beginning to rain. First seen in garden since 6th April, 1985.
 15th Aug. — TWO — one fresh, one faded within few feet of one another on thistles. This patch behind bramble on Top Folly area.
 16th Aug. — THREE — within small area of each other at 4.45 pm around Grendon Heath entrance: two were basking on ground separated by hedge, the other in flight amid fading light, Gypsy Lane.
 17th Aug. — THREE — at Wilnecote/Whateley (Tilcon/Stoneware) with GAA and MAA. Two within feet of each other, the other separately.
 22nd Aug. — TWO — one very fresh, Top Folly; the other, Stumpit, B.C.
 24th Aug. — one on B.C. (with GAA and MAA)
 26th Aug. — one, faded, wood edge, Grendon Heath.
 28th and 29th Aug. — one at Nether Whitacre N.R. — fresh.
 29th Aug. — one on bank, Top Folly, Grendon Heath.
 31st Aug. — one wood edge, Grendon Heath (where seen on 26/8 — counted as separate specimens).
 3rd Sept. — one at edge of bank, Top Folly.
 29th Sept. — one on sedum in front garden, 4.25 pm making the fifth and final Nymphalid that could be expected here since transplanted in this location three years ago.

Total of separate sightings for the year: 31

Previous years: 1985 — 2; 1986 — 0; 1987 — 1.

WASPS TAKING SMALL TORTOISESHELLS

by J. H. Payne (5923)

With reference to the note of wasps taking the Small white (*Bulletin* 48: 16), I have seen them chasing many flies, particularly hoverflies, and actually taking the Small tortoiseshell (*Aglais urticae*), especially the worn ones and mostly off *Sedum* in late summer.

IRISH LEPIDOPTERA RECORDS

by Tim A. Lavery

After many letters, discussions and meetings with lepidopterists, both professional and amateur, regarding the collection and utilization of data on the Irish Lepidoptera, it has been decided to compile and run a DATABASE for all such information. Since the demise of An Foras Forbatha, which was formerly responsible for the Irish Biological Records Centre, records of the lepidoptera have luckily been kept by a number of organisations and far-sighted individuals, all of whom have expressed their interest and support.

It is hoped that all entomologists working in or visiting Ireland (past and future) will assist the database by contributing their records, especially those of any microlepidoptera.

All records are stored on both a card index and computer disc. A library is being compiled of all Irish lepidoptera literature and information and progress will be reported in the Newsletter of the AES Irish Insects Study Group.

A stack of records is already filed and it is noticeable that there is a great lacuna of microlepidoptera records so it is obvious that these have been least studied so far in Ireland. Locality-wise, it appears that generally the midlands and north-west are the most under-recorded, principally due to the lack of local entomologists there, and yet it seems certain that many interesting species still await discovery.

The primary purpose of the database, therefore, is to store as much information as possible on the Irish lepidoptera and to work in conjunction with the relative authorities and organizations responsible for conservation and protection of habitats. Recording forms are free to anyone interested in sending in records, or information can be accepted in any other form and small collections can be sent for identification purposes if required.

Forms and further information are available from me, Tim A. Lavery, Irish Lepidoptera Records, Country Watch, Farnes, Castlemaine, Co. Kerry, Ireland.

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5226

LEPIDOPTERA LARVAE ON FRESH BIRD DROPPINGS

by Jan Koryszka (6089)

Over the years, in my rock garden, I have noticed that a number of lepidoptera larvae are to be found at dusk feeding on fresh bird droppings deposited on the stones. While some have not been identified (these mostly belonging to the cutworm (*Noctuidae*) family) others have been and these were: Large yellow underwing (*Noctua pronubae*), Heart and dart (*Agrotis exclamationis*), Dot moth (*Melanchra persicaria*), and once a garden tiger (*Arctia caja*). I also once found a larvæ of the Dot moth eating a piece of old newspaper blown into my garden one windy night. Other visitors to the bird droppings are slugs and snails together with some species, but very few individuals, of beetles and other insects. Perhaps the larva hunter may find other interesting species in this way.

AN OBSERVATION ON THE DAWN FLIGHT OF THE GHOST MOTH

by Jan Koryszka (6089)

During 1987 and 1988 the Ghost moth (*Hepialus humuli*) was quite abundant in and around my garden and other areas of Staffordshire. Quite large numbers were seen at dusk hovering and pendulating a few feet above the grass. Also noticeable was a very strong dawn flight, more so after a rainy spell of weather. Perhaps these conditions are favourable to this activity, for the males to emit their goatish scent. The females were also observed to be laying eggs over a number of different low-growing plants. I took a number of the females and these laid their eggs quite freely in their boxes, over 300 eggs in all. The last time I observed such a large dawn flight was back in the early 1970s. In *Moths of the British Isles* by Bernard Skinner, it is stated that the Gold swift (*Hepialus hecta*) also has a dawn flight in favourable conditions. It does seem as if this activity is governed by the right weather conditions.

NOTICE TO CONTRIBUTORS

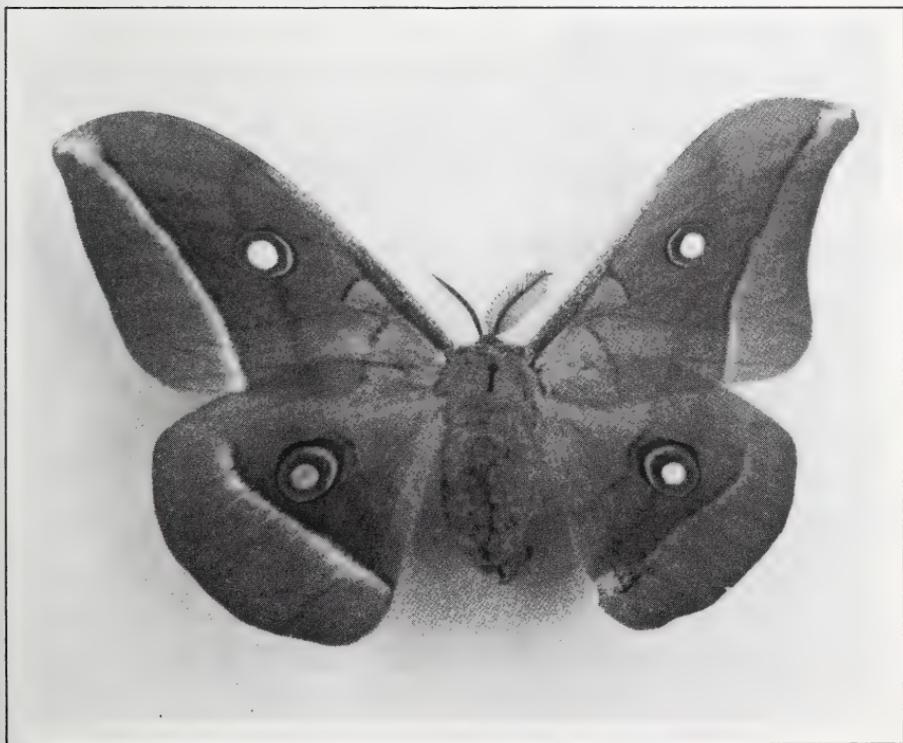
Will all authors sending me manuscripts for the *Bulletin*, particularly those using a word processor (as many of you now do) please send their offerings **IN DOUBLE SPACING** as this will save me the trouble of having to return them for re-typing. It is not only virtually impossible to make any editorial corrections to single spacing, but it also makes the work of our excellent printers that much more difficult and expensive.

A GYNANDROMORPH OF THE CHINESE OAK SILKMOTH

by *B. D. Baxter (6009)*

A batch of larvae of the Chinese oak silkmoth (*Antheraea pernyi*) was obtained in the summer of 1988 and raised purely for my enjoyment. Imagine my surprise when on 2nd August a halved gynandromorph emerged; a perfect specimen which is shown in the accompanying figure. Enquiries to date have not established the rarity of this specimen or whether this species is acknowledged in producing such abnormalities.

(I think such examples must be extremely rare. I have reared many thousands of silkmoths, a few thousand of which were of this species, and although I did once have a "windowless" *Rothschildia* and some gynandromorphic butterflies, I never had any gynandromorphs of any of the silkmoths. — Editor)



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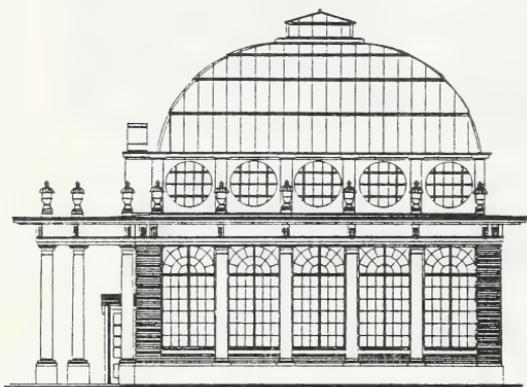
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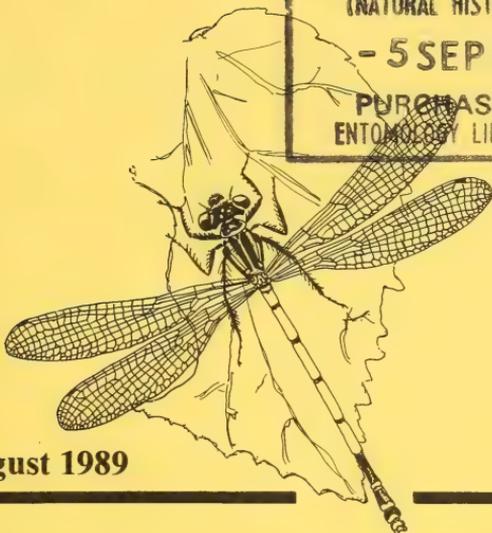
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The Bulletin of the Amateur Entomologists' Society

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

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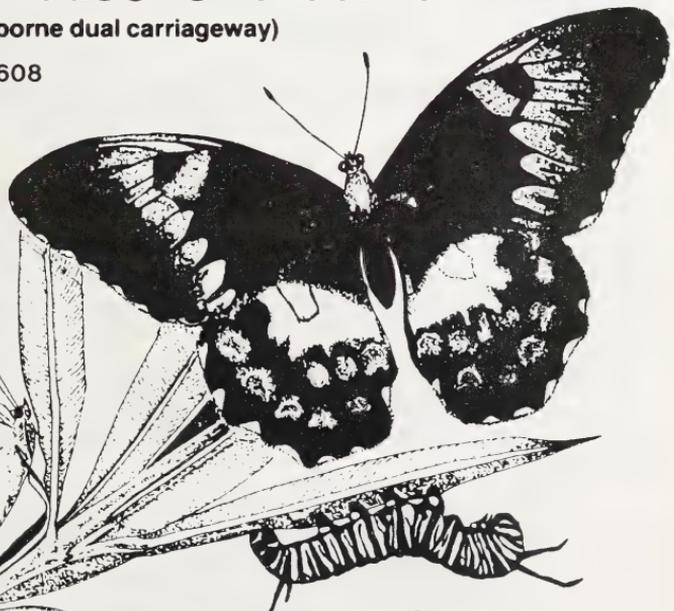


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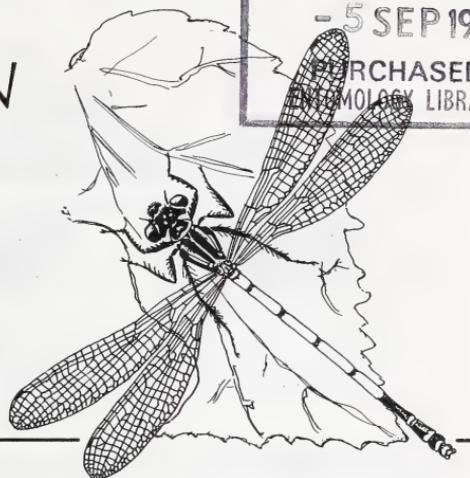
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AES BULLETIN

No. 365



EDITORIAL

It was the reading of two articles in my local journal, *Nature in Cambridgeshire*, which brought home to me the appalling potential disaster from a wildlife point of view that the Government's announced 12 billion pound "Road Improvement" scheme is going to be. The two articles were on some notes and records of plants and insects which have successfully colonised the cuttings and embankments which form the Girton interchange.

This is a complex spaghetti junction of three major roads and covers very many acres. Since the devastation of its building some years ago, many plants and insects have colonised it, and doubtless other wildlife as well. Any widening of this complex to three lanes from its present two will inevitably again eliminate most of the wildlife which has now found a haven there. I believe that the embankments and cuttings of many of our major roads are now a haven for much wildlife driven off the fields by the farmers' sprays and destruction of hedgerows. Any scheme to widen the roads must result in major disturbance, for clearly cuttings will have to be widened and embankments deepened by depositing the spoil from the cuttings down their sides. This time there may be no nearby refuge from which re-colonisation can occur. Since there are several thousand miles of major roads that are to be widened by the scheme, the threat to wildlife must be obvious. One wonders how many species that are allegedly protected under the Wildlife and Countryside Act will be wiped out. We, most of us, like a motorway when getting to work or travelling a long distance, but from my own experience, mainly up and down the two lane A1 (and I can remember when most of this road was but a single carriageway) it is the roadworks that cause the jams and hold-ups, not the number of lanes.

One perhaps needs to face up to the question of whether a short time saved in travelling is worth the sacrifice of much of our wildlife.

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**ANNUAL REPORTS FOR 1988
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OF THE COUNCIL

Council is pleased to report that 1988 has been another successful year for the Society. Membership at 31st December stood at 1957 members, and this comprised eight Honorary, 47 Life, 43 Affiliated/Exchange, 1708 Senior and 151 Junior Members.

The Society enrolled 217 new members and taking into account the loss of members each year, 1988 has shown a slight reduction compared with the previous year. The high turnover of members creates a particularly heavy administrative load and we are especially grateful to our Registrar, Mrs Cribb, for all her work on our behalf.

Four editions of the *Bulletin* were published in 1988 under the editorship of Mr B. O. C. Gardiner, containing 237 pages of text and numerous illustrations. At the beginning of the year Mrs Fry took over as the Publication Agent from Mrs Sokoloff who relinquished the post after eight years of loyal service to the Society and our thanks go to her.

The Council met on six occasions during the year at the Central Hall, Westminster. The AGM was held at the rooms of the Royal Entomological Society, Kensington. The meeting, chaired by our President, included a fascinating talk by Dr I. Woiwod, entitled "Monitoring Moth Diversity".

During the year a very successful third Junior Fieldweek plus the first two fieldweekends organised by Messrs Mann and Reavy was held and reports of these have already appeared in the *Bulletins*.

The Annual Exhibition was held at a new and more spacious venue this year at Kempton Park Racecourse. A full report will appear in this edition. The Fourth Jealott Photographic Competition sponsored by ICI was held with the winning entries displayed at the Annual Exhibition and a full report appears in this *Bulletin*.

C. E. Penny
Honorary Secretary

REPORT OF THE TREASURER FOR 1988

Last year was an encouraging one for the Society, with the General Fund income up by £1,196 and expenditure down by £589. As a result the Society recorded a surplus of £831 compared with a deficit of £954 the previous year. The General Fund now stands at £26,861, of which £15,000 is due to a very generous bequest from former member Peter Crow. Although subscriptions have been increased for 1989, the majority of this is required to fund improvements in membership services, viz: two additional *Bulletins* per annum, and the publication of a directory for Entomologists, which will also be distributed free to all members.

On the Publications front, although the gross value of sales was down from £7,160 to £6,376, the trading surplus was increased from £1,743 to £1,872. The Publications Fund now stands at £37,811, which includes a good cash reserve to finance new and revised publications.

R. A. Fry

REPORT OF THE CONSERVATION COMMITTEE AND OF THE SOCIETY'S REPRESENTATIVE ON THE JOINT COMMITTEE FOR THE CONSERVATION OF BRITISH INSECTS

Committee meetings and organisation

Two meetings of our own committee took place in 1988, in March and November. Mr R. A. Fry was co-opted as Editor of the Society's handbook on insect conservation, while the post of Conservation Field Meetings Organiser was left vacant by the resignation of Mr P. J. Holdaway, who has worked hard to develop this aspect of our work. The transfer of the Habitat Conservation Officer's responsibilities to Dr C. R. Betts was completed during the year. Dr Betts will be using a personal computer to handle correspondence and store the considerable amount of valuable information accumulated over the years. Dr D. Lonsdale was appointed to the joint post of Conservation Committee Chairman and AES Representative on the JCCBI with Dr Betts taking up the position of Deputy Representative.

There were two meetings of JCCBI in 1988, in March and September, both attended by Dr Lonsdale. JCCBI has in turn been represented on Wildlife Link by Mr S. Brooks who has attended most of the meetings, these taking place about once a month. Funding for the post of JCCBI Conservation Officer was approved by the Worldwide Fund for Nature (UK) in co-operation with the World Conservation Monitoring Centre (WCMC). The appointment will work for JCCBI and WCMC on a 50/50 basis and the funding from WWF will last for three years.

On a less positive note, we have to report that JCCBI Executive Subcommittee did not maintain an adequate level of activity. This is regrettable, since the Subcommittee has an essential role in giving practical effect to the work of JCCBI as the organisation to which we look as the main focus of insect conservation in the UK. Without it, the Representative on Wildlife Link is not in a good position to put our views to other conservation bodies. It is hoped that the new JCCBI Conservation Officer may eventually be able to convene meetings of the Subcommittee in the way possible during Dr Whalley's execution of this role, but proper establishment of the Conservation Officer will be difficult if the Subcommittee is not already active.

Local Representation

The new scheme for regional representation of JCCBI may have to await the restoration of an active Executive Subcommittee before its objectives can be realised. Meanwhile, there is a need for our own Committee to pursue a parallel scheme which could eventually complement the JCCBI network. To this end Dr Betts posted a notice in the May 1988 AES *Bulletin*, hoping to attract volunteers to act as local representatives throughout the UK. To date only three replies have been received, from Co. Kerry in Ireland, Hayes in Middlesex and Glossop, Derbyshire. A second notice has been placed in a forthcoming Wants & Exchange List in an effort to attract more interest.

Biological Records Centre

During the year we learnt that BRC had been designated "an area of least priority science" by its funding body, the Natural Environment Research Council. This would have led to a reduction in the already inadequate staffing of BRC, but the threat was averted (at least for now) by the support of letters from many individuals and organisations, including AES. We can reassure the members that their work for BRC is not in vain, but underfunding remains a serious problem.

JCCBI species surveys

The main survey achievement of 1988 was the completion of the study of previous introductions of butterflies to the wild, which is mentioned under the next heading. A survey of certain rare moth species by Messrs C. Hart and B. F. Skinner was postponed. Future surveys may include the High Brown Fritillary and members of non-lepidopterous groups such as dragonflies and the aculeate Hymenoptera.

Species introductions

The introduction of a Swedish race of the Large Blue butterfly to a site in SW England has met with continued success, with the appearance of a

second generation of free-flying adults. Other sites for possible release are being studied. The study of previous introductions of butterflies into the wild, carried out by Dr M. S. Warren and Mr M. R. Oates, was completed. Thanks are due to all the amateur entomologists who contributed records. Future releases should of course be carried out in accordance with the JCCBI Code for Insect Re-introductions. We understand that the existence of this Code is encouraging land managers and owners to give permission to individuals to release insects.

International Conventions: CITES and Berne

The CITES schedules consist of lists of species of plants and animals whose transfer across international boundaries is prohibited except under licence. Members of several invertebrate groups are included, one of which is an insect family (Papilionidae — Swallowtail butterflies and Birdwings). NCC has published a booklet giving information on all the invertebrate and fish species listed under CITES, and this is reviewed in the AES *Bulletin*.

Protection of European insect species in the wild is still being pursued under the Berne Convention, but it can be effected only through the laws of the individual signatory nations. These laws remain largely ineffective or inappropriate, and in the case of UK, where the Wildlife & Countryside Act operates, there have been difficulties over the acceptance of two species for listing; the Southern damselfly and the Marsh fritillary. NCC has expressed the view that UK should seek a derogation which would prevent these species from coming under the force of the Act, but our own Committee and JCCBI have accepted the idea that they should be included on the grounds that the UK's international role in conservation outweighs the difficulties which would result from this implementation of the Act.

Publications and displays

The long-embryonic AES handbook on insect conservation has begun its development, thanks to the efforts of Mr Fry who has taken most of the editorial duties. He has drafted a revised synopsis and secured offers of contributions from specialists in several fields. Drafting of the text began in 1988 and should be completed during 1989. The book will address the problem of neglect of insect habitats in a wide range of land management practices, and it is hoped that many non-entomologists will make use of it.

Insect Conservation News number 14 appeared in May 1988, but the separation of duties of ICN Editor and AES Habitat Conservation Officer did not release sufficient spare time to produce any further issues

during the year. It is planned that, during 1989, publication of ICN will be transferred to the centre pages of the main *Bulletin*. Separate copies will be available to non-AES subscribers, and the refund of outstanding subscriptions will be available on request to AES members. The resulting improvement in quality of reproduction and availability of ICN to all AES members should increase the impact of the Newsletter and encourage submission of articles.

Wildlife Link has produced a very useful leaflet on "Local Authorities and Wildlife" (supported by a grant from WWF-UK), which reached us during the drafting of this report, although dated 1986. It explains how specialist advice should be sought by authorities during planning procedures, and it should give strong support to entomologists who wish to have a say in these matters.

Sites

JCCBI received a further report on insect habitats on National Trust land following continued work by the survey team led by Mr K. N. Alexander. The survey has revealed some important sites, and volunteers are urgently needed for further fieldwork. Volunteers should contact Mr Alexander at the Trust's Cirencester office or the AES Habitat Conservation Officer.

Through JCCBI, we are aware of several sites where management practices or proposed developments have caused concern. These include: the M3 Winchester by-pass at St Catherine's Hill, Hampshire; a number of "secondary development" sites in the Channel Tunnel area; Orlestone Forest, Hamstreet, Kent, where there is a commercial interest in the establishment of a holiday leisure centre; Rannoch Moor, Scotland, where sale of land may perhaps have damaging consequences; Windsor Great Park, Berks, where arrangements not to burn dead wood have not been fully implemented; the M40 extension in the Bernwood Forest area of Oxfordshire; the Lyndhurst by-pass in Hampshire, which will now take the route most favoured by the conservation bodies; the East Thames crossing which still threatens Oxleas Wood in Kent.

Site evaluation was the subject of a one-day meeting organised by Dr Lonsdale on behalf of JCCBI. It took place in February 1988 by kind permission of the Royal Entomological Society of London who provided accommodation. About 40 entomologists and representatives from conservation organisations and university departments attended. Woodland habitats were emphasised and there was a strong contingent from the Forestry Commission. One of the aims of the meeting was to identify needs for funding and research, and these were summarised in a report which Dr Lonsdale submitted to JCCBI with advice from Mr

M. A. Anderson of the Forestry Commission. Further action will depend on the re-activation of the JCCBI Executive Subcommittee.

Conservation field meetings

The successful series of meetings in the Huntingdon area, organised by Mr J. E. Cooper, continued with a trip to the Ouse Valley. Two other meetings were held, at Castle Howard in Yorkshire and at Cranwich Heath in the Norfolk Breckland, these being organised in conjunction with the Yorkshire Naturalists' Union and the British Entomological and Natural History Society respectively. Our field meetings Organiser, Mr Holdaway, felt unable to continue in this post since the attendance of AES members at meetings has generally been too poor to justify his efforts. It is hoped that our scheme of local representation will encourage members to attend meetings in their own areas but, until this seems feasible, the only meetings planned are our task work sessions at Ditchling Common and the "Huntingdon series".

The task work comprised only one session at Ditchling Common, Sussex, and involved the clearance of scrub in an area some distance away from the main site for which we are responsible.

D. Lonsdale
C. R. Betts

EXHIBITORS AT THE 1988 EXHIBITION

by Roy F. McCormick (3375)

AES Fieldweek displayed a good selection of photographs showing the members of the event engaged in various entomological activities.

P. Baker (8640). 110 of the species of butterfly which are found in the State of New Jersey USA. Ten of these are migrants with the others being permanent residents; the best of these was the very local Skipper *Poanes viator* Edwards.

R. Barrington (6023). British Macros.

G. W. Beccaloni (8137). Hybrid hawkmoths. Eyed \times Poplar = *hybridus*. Lime \times Eyed = *leoniae* and Bedstraw \times Spurge = *gallieuphorbiae*; *leoniae* being a very rare hybrid with only one specimen in the BM (NH) R-C-K Collection. Also shown were British butterfly aberrations including ab. *radians* Orange tip and ab. *ochracea* Chalk-hill blue.

Simon Bryant (8997J). Pupae and larvae of British Macros.

T. Carter (6178). British butterfly aberrations including *A. urticae* L. (Small tortoiseshell) with bleaching one side, *P. tithonus* L. (Gatekeeper) ab. *multiocellata*, *A. cardamines* L. Orange-tip ab. *aureoflavescens* and *L. coridon* Poda. Chalk-hill blue abs. *fowleri* plus *ultrafowleri*.

M. E. Castle (2490) and J. Mulvany (8648). Photographs of butterflies and Mygal spiders with two adult spiders and glass tanks showing Tarantulas.

J. M. Chalmers-Hunt (1683). Microlepidoptera including *P. ornatella* D. & S. caught at light in Kent; the first of this local species noted by the exhibitor for more than 30 years. *P. fraxinella* Bjerk. Different forms including a deep fuscous black with pale costal patch taken again in Kent, a form not previously noted by the exhibitor.

David Copestake (8471). A dozen "cibachrome" prints of British beetles, some scarce and very rare.

Pat Cordell (8782). A selection of immigrant moths with examples of resident stock for comparison.

Cribb, P. W. (2270). A case of butterflies taken in the Pyrenees, Northern Spain and France in July 1988, including *Erebia gorge ramondi*, *E. lefebvrei pyreneae*, *E. gorgone*, *E. sthenno* and *E. hispania rondoni*. Specimens of *E. phegia* taken in Eastern Turkey. A case of *Eurodryas aurinia* showing examples from localities in England, Wales, Scotland and Ireland, many colonies now being extinct. Also examples of *E. a. aurinia* and *E. a. provincialis*.

Rob Dyke (4182). *Moths seen in Scotland 1988 the more interesting being*; *E. flavicinctata* Hb. Yellow-ringed carpet ab. *ruficinctata* Guen, *P. sobrinata* Dup. Cousin German, *P. blandiata* D. & S. Pretty pinion and *O. vittata* Borkh. Oblique carpet. Also taken in Barton Mills, Suffolk was a specimen of *S. apiformis* Cl. Hornet moth.

C. J. Gardiner (5249). Display case of British Macros.

N. M. Hall (7859). Moths from France and Spain including *Graellsia isabellae*, *Marumba quercus* and second brood specimens of *T. tritophus* D. & S. the Three humped prominent and *A. l-nigrum* Mull. Black V moth. Also shown was a bilateral gynandromorph of *A. euphorbiae* D. & S. Sweet-gale moth.

Ben Jameson (8690J). Odonata plus other orders.

Guy Knight (8040J). Some observations on the behaviour of solitary wasps, mainly *Sphecoidea* with monitoring of the courtship of *E. cavifrons* and nesting behaviour of other species. Also shown was a chart with collected specimens to show where wasps fit in, and set specimens of a few wasp mimics.

John Lavery (7469) and Tim Lavery (8677). Magazine "Irish Environment News" with special section on Irish butterflies, plus set specimens of Irish lepidoptera including *T. betulae* L. Brown hairstreak from the Burren.

B. J. MacNulty (4528). British Macrolepidoptera from the Gower Peninsular.

Darren Mann (8181). Display of Cockroaches in culture plus general information on their life histories, ranging from the common British species to the uncommon Tropical ones.

Mid-Devon Natural History Society (R. Hopper, 4848). Display of British and exotic Cockroaches, Millipedes, Scorpions, Plants, Fungi and Shells, supplied by 28 members of the society.

S.Nash (7088J). Migrant and local lepidoptera including *C. limbirena* Guen. Scar-Bank gem, which is believed to be the eighth British record; *P. unionalis* Hb., *S. exigua* Hb. Small mottled willow, *H. peltigera* D. & S. Bordered straw, and *R. sacraia* L., the Vestal, all from Fernham, Oxon. Also lepidoptera of the N.W. Highlands and interesting aberrations taken during recent years.

David Oram (7127). Spiny and Indian Stick insects plus children's work from "Downsend Lodge", Ashstead.

Sid Painter (2274). Collection of insects covering eight orders from several states of America. The insects were collected from mainly dry arid regions, and the lepidoptera ranged from the *B. exilis* Pigmy blue (14mm) to *P. cresphontes* the Giant swallowtail (100mm); three local specialities were *L. bredowii* ssp. *californica*, the California sister, *C. californica*, the California ringlet, and *C. eurydice*, the California dogface (the State butterfly).

A final inclusion was a lump of tar containing several beetle and dragonfly fossils dated from 25,000 years ago.

John Payne (5293). British Macro aberrations including a bred series of *A. urticae* L. Small tortoiseshell with late emergence ab. *semiichnusoides* Pronin. and a short series of *M. jurtina* White. Meadow brown from Dorset.

Tony Pickles (5050). British Macromoths taken or bred during 1988; *O. gothica*, Hebrew character taken at Loch Rannoch including ab. *gothicina* H. & S. and ab. *obseleta-rufescens* Tutt. *H. luteago barretti* Doubl. Barrett's Marbled coronet bred from pupae taken at Tintagel Castle, Cornwall. *T. carpinata* Bork. Early tooth-striped ab. *fasciata* Prout, a series taken at Loch Rannoch including a near ab. referable to *unifasciata* Rebel and a series of *A. distinctata* H-S. bred from eggs originating in Brockenhurst, Hants.

Malcolm Simpson (4859). Some historically-interesting British butterflies including two *A. paphia* L. Silver-washed fritillary taken by F. W. Frohawk.

Bernard Skinner (2470). Local and aberrant moths taken or bred during 1988 with special note of *A. exclamatoris* L. Heart and dart gynandromorph.

Ian Stacey (7653). Wild taken specimens of *C. palaemon* Pallas. Chequered skipper and bred specimens of the same species showing differences in colour and marking. Captive bred specimen of female *A. paphia* L. Silver-washed fritillary showing mild melanic increase caused by cold shock treatment.

St Ivo School (H. Berman, 2941). The usual excellent show of general livestock with 57 members of this enthusiastic natural history class in attendance.

Davis Stokes (7630). A small selection of *P. argus* L. Silver-studded blue from North Wales and Dorset showing that the so-called "dwarf race" repeated in so many books, is a nonsense. Also shown were two *M. cinxia* L. Glanville fritillary aberrations bred from Isle of Wight stock.

David Veevers (8910J). A mixture of general livestock including Stick insects, Mantids, Cockroaches, Land hermit crabs, Giant land snails, mixed specimen boxes, plus photographs and carvings of insects.

Paul Waring (4220). Display of photographs entitled "Conserving the rarer macro-moths". The pictures showed the survey work and captive rearing programmes started for the "Nature Conservancy Council" on the endangered species listed on the "Wildlife and Countryside Act" 1981 plus the 1988 amendment.

Of particular interest was the larva of *S. lineata* Scop. Black-veined moth, shown feeding on *O. vulgare* L. Marjoram. Also featured were *P. berberata* D. & S. Barberry carpet, *A. caliginosa* Hb. the Reddish buff, *T. smaragdaria* Fabr. Essex emerald and *H. irregularis* Hufn. Vipers bugloss. This last species has not been found in 1988 despite a full scale survey.

Also shown was some lepidoptera from the Yugoslavian island of Mljet with some tentative identifications. A brief account of this trip appears elsewhere in this issue.

Martin White (6003). Specimens of *H. semele* L. Grayling, showing the racial differences plus interesting captures local to the East Midlands.

David Young (5547). Lepidoptera caught or bred late 1987 to 1988 including *A. dissoluta* Treit. Brown-veined wainscot showing the uncommon typical form from Wolverhampton. *R. luticosa* Hubn, Large wainscot, streaked form and *P. fuliginaria* L. Waved black from Burghfield Common, Berks. *M. alpium* Osbeck. Scarce merville du jour, *S. luctuata* D. & S. White-banded carpet and *A. limacodes* Hufn. the Festoon from Ham Street. *D. bankiana* Fabr. Silver-barred and *P. castaneae* Hubn. from Chippenham Fen, Cambs. *A. sparganii* Esp. Webbs wainscot, bred from Dungeness, Kent.

The exhibits for 1988 were down 17% compared to 1987. There were 45 applications for table space last year with three or four of these not taken up, making a total of 42 entries. This year 34 applications were received of which two were not used. This makes the total Exhibits for this year only 32.

I hope that the reason for this decline in entries was due to the monumental error by our printers who omitted to include the booking leaflet for table space in the August *Bulletin*. The AES would like to see more Exhibits, especially as they are now given a more prominent position in our new venue. It does not matter if the material you would like to display is rare or common, anything that you think would be of interest to the other members will be welcome; of course please do not forget to include a brief description with your Exhibit, otherwise all your painstaking work will not be reported to its fullest advantage.

The compiler of these notes is not responsible for errors or claims made by the Exhibitors, however, an effort has been made to be as accurate as possible.

THE JEALOTT'S HILL PHOTOGRAPHIC COMPETITION

by Terence F. Knight (7611)

Calling all amateur photographers! Here's the chance to win a cash prize and visit a research station.

The AES, in conjunction with ICI Agrochemicals at Jealott's Hill Research Station at Bracknell in Berkshire is once again running a photographic competition.

This year the theme is Insect Habitat and Conservation. There are two sections, one for Junior members and one for Ordinary members with a £50 prize or the equivalent amount in books and a chance to visit Jealott's Hill Research Station going to the winner of each section.

All entries in the form of monochrome or colour prints should be sent to the competition organiser, Terence Knight, at 46 Swinburne Avenue, Hitchin, Herts SG5 2RL, to arrive no later than 31st August. They will be exhibited at the AES Annual Exhibition at Kempton Park on 7th October.

Last year's winner of the competition, which was on the theme of Insects and Water, was a monochrome print of a Giant water beetle (*Dytiscus marginalis* L.), submitted by Frances Smith (7985) of 157 Pilling Lane, Chorley, Lancs. She received £80 in prize money as there were no entries from Junior members, but she was unable to visit Jealott's Hill.

HONORARY INSECTS

by Don McNamara (5537)

Until recently I've never really liked spiders and except for early childhood, when there was time to stand and stare, I've been able to ignore them. And despite having been taught respect for spiders because in some mysterious way they were "useful", the best I've managed up to now is a momentary feeling of curiosity shaded with a touch of unease, coupled with a nervous admiration of their abstract "spiderness". I try not to bother them and, I am glad to say, they leave me alone too.

Even the early horror of "bathroom" spiders, black and skidding frantically around the empty bath or wash-basin hadn't entirely dispelled with age although now I can rescue and release them without feeling dizzy or entering a catatonic state.

I suppose that "living-room" spiders ("bathroom" spiders in a different guise) do make a contribution to gracious living when they massacre the omnipresent crickets, escapees, of which there is an abundance at the time of writing — it cuts down the need to Hoover them up. I pretend not to notice the odd ambush on the carpet and either stare fixedly at the television or continue to talk with voice slightly raised hoping my eyes will not stray downwards and fasten on such gruesome antics.

If I look back though, "September" spiders have always had a mesmeric power, providing that they were on the other side of the bedroom window. As a child I'd watch them literally for hours, they, fat, preoccupied, weaving their webs: struts, stringers and loops, with a matter-of-fact skill finally producing a timeless architecture of which even the Prince of Wales would approve. Add a few drops of dew and you have something quite beautiful.

And of course there is the world of field and garden, brimming over with them. All sorts of colours and forms. Swinging on invisible strands, paravanning, running, jumping — exploding nests of little golden ones, and all of them at one stage or another tigerishly trying to enter my insect cages. To be truthful, despite their interesting variety and fearful symmetry, I can do without them.

At least I thought so until my eldest daughter, Christine, upped and joined the British Tarantula Society.

Her logic was impeccable — the house and garden were already overrun with insects, cages even in the loft, jars, pill-boxes, setting-boards and all the wondrous paraphernalia of entomology gently suffused with the evocative niff of naphthalene, so another little corner housing a tarantula (only a small one) wouldn't be a particular problem

and at least he/she would have the regular supply of live food, and hadn't I always encouraged her to appreciate the wonders of nature, anyway?

So when she arrived home clutching a box containing the new love of her life, a smart little tarantula, *Avicularia avicularia* (Pink-toed bird-eater) with the innocent-sounding name of "Jessica" I had to admit it had a certain charm and could, with a stretch of the imagination, be described as beautiful. And I was not that surprised when her stable of theraphosids began to grow. "Jessica" was soon to be joined (but not in the same cage) by a delicately-marked *Brachypelma smithi* (Mexican red-leg), "Isobel", then a *Grammastola spatulatus* (Chilean rose) by the name of, you've guessed it, "Rosie"; again, such innocuous names. Perhaps all BTS members have this Vincent Price sense of humour, no-one seems to call their beasts "Godzilla" or "Fang", nearly always diminutive or feminine names usually reserved for cuddly toys. Whatever else you may think about tarantulas — cuddly they are not!

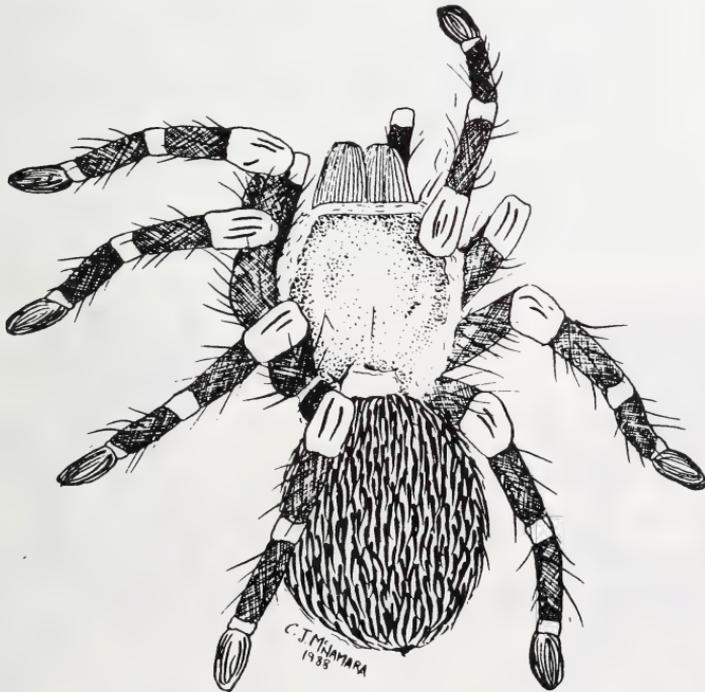


Fig. 1. *Brachypelma smithi* (Mexican red-leg tarantula). Drawn by Christine McNamara.

When Christine left and set-up home and menagerie elsewhere, an amicable parting — nothing to do with spiders — there was something indefinably missing. I wouldn't miss the loud music or door-slamming, nor the nameless young persons who came and went, pointing at the livestock and "ooh-ing" and "ugh-ing": could it be that I'd grown to like, be actually fond of . . . tarantulas? The urge to try my hand at rearing them, an alien skill, was overwhelming.

I'd come back to active entomology after a long gap, since school really, with a little revival during national service in Kenya, or "Keen-yah" as it was called in those days. So the decision to become a "born-again" entomologist, in an anarchic sort of way, may well have been the result of a need for an antidote against the increasing rigours of survival, a temporary return to the joys of childhood and, as the revolution has been put on hold for the time being, an exciting, academic and practical pastime (more like obsession). It seems that the earlier dialect had reasserted itself. Such hobbies are well-known to require a logistical approach of almost military proportions, but to get involved with tarantulas, however, would require a personal decision with Freudian undertones, a weighing-up of the forces of light — disinterested curiosity and the pursuit of knowledge, against those of darkness — irrational emotion, of, let's face it — fear.

All this may seem exaggerated and not exactly a giant step for mankind, but certainly a qualitative one for me.

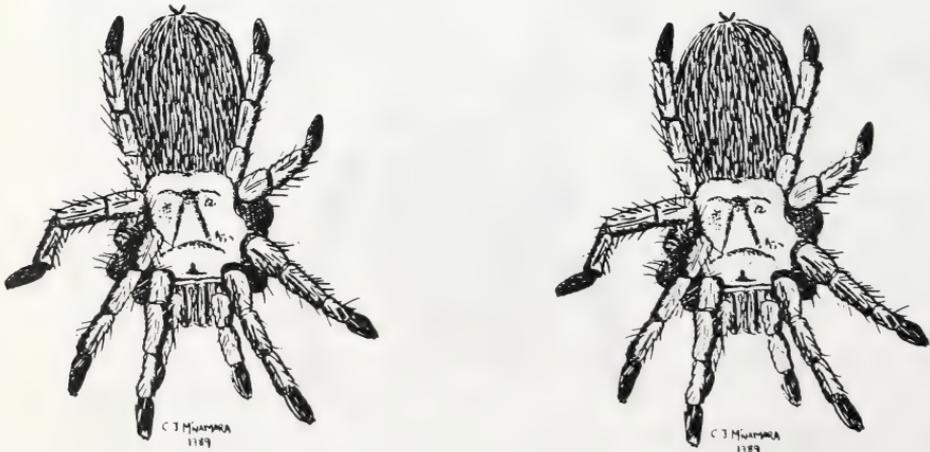


Fig. 2. *Grammostola spatulatus* (Chilean rose tarantula). Drawn by Christine McNamara.

What then should be done? As we used to say in the boy “sprouts” — be prepared! Go where the knowledge is. Join the learned societies, AES, BTS etc., read the handbooks, pester librarians, collar the experts, ask stupid questions. Above all — do it yourself. Rear, take care of, look after the actual animals. Gain, as they say in computers, “hands-on” experience, though hopefully not quite “hands-on” in this case.

Eventually and somewhat furtively, I obtained ten crisp, tiny, British-bred *Brachypelma vagans* (Guatemalan red-rump) spiderlings and installed each in his/her own little home, transparent plastic boxes 15cms x 10cms x 7cms (6 x 4 x 3 inches), with a base of vermiculite, a bottle-top drinking trough, crumpled tissues for hiding-places and a liberal supply of “greenfly” which, to my great relief, were pounced upon. The individual boxes were placed in a heated glass cabinet. The rules were to be: keep them warm with high humidity, clean, secure with as little disturbance as possible, and with the appropriately-sized live food near at hand.

I didn't tell my daughter about this clandestine exercise but would let her know in three or four months' time when, I hoped, I could nonchalantly report success. You've got to keep up the image. If they all died — who would need to know? A post mortem analysis with the inevitable soul-searching would be by my secret.

As it happens, it has been successful, the spiders have grown and have frequently moulted for over a year now, moving from feeding on “greenfly” to *Drosophila spp.* (fruit flies), to stick insects, mainly *Carausius morosus*, to the aforementioned crickets (*Acheta domestica*). Now I know why they call them “domestica”! The spiders have also been moved to larger accommodation, being over 5cms long (2 inches). I refused to give them sappy names though.

A relaxed routine gradually evolved which minimised my anxiety: feeding, watering, cleaning — periods of observation, without mishap. They were all alive and, as far as I could judge, healthy.

However, a couple of incidents occurred which disturbed the unexpected tranquility of “operation tarantula”.

I'd read in an early edition of the *Bulletin*, in an article on the breeding of crickets, that they were omnivorous. Also I'd been warned at some time or another to be careful when feeding crickets to spiders — as spiders slip into a vulnerable torpor prior to skin change. One of my *vagans* must have been in such a state, unnoticed by me, so when I checked some time after feeding — in the box only the tips of the spider's legs could be seen — and the crickets were still scurrying around. I was so disgusted at this event and at my own stupidity that I left them, with a lump of catfood, until such time as I would be in a reasonable state of



mind to deal with them. After a couple of weeks or so I saw that they had added insult to GBH — baby crickets were hopping about.

Another event, also connected with feeding might have made me pack the whole thing in had it not had a surprising and fortuitous conclusion.

Believing in a varied diet for tarantulas, I took a container, within which the largest *vagans* lived, towards the stick insect cage. The procedure, many times faultlessly executed, was to open the door of the insect cage, to the inside of which usually clung variously-sized stick insects. Holding the spider-box in the right hand with the lid pushed back about 2cms ($\frac{3}{4}$ ") I'd brush off a few stick insects with my left hand — they would fall into the gap, whereupon I'd close the lid, then the door of the phasmid cage. No problem. Guatemalan red-rumps often stroll sedately around their containers, cautiously testing the air, sensing their surroundings. They only seem to move quickly if they are suddenly disturbed or when live food is present and then only if they are hungry.

On this occasion as soon as I'd eased back the lid, the spider shot out, ran up my right arm, sped across my shoulder, around the back of my neck and skipped down the left inside of my shirt and nestled in the little hollow just above the collar-bone at the base of the neck.

Fleeting, nightmarish thoughts — what if it mistook a pulse for live-food? The worst you can get from most tarantulas is a bite equivalent to a bee-sting. What if I was allergic? What would Vincent Price have done? The attempt to keep calm while fighting-off a feeling not unlike vertigo and desperately trying to devise a strategy to displace the spider without harming it, or me having a coronary, seemed to be taking forever. The problem solved itself as quickly as it had arisen. The *vagans* suddenly surfaced and climbed onto the left point of my shirt-collar. Come now, be cool, reason — forces of light and all that. Gently, seemingly of its own volition, my right hand holding the container moved towards the spider, while my left hand, also of its own accord, coaxed it into the gap at the top. The lid was closed and I calmly returned and put it back into the heated cabinet. Things returned to normal. But something had subtly changed.



Fig. 3. *Brachypelma vagans* (Guatemalan red-rumped tarantula). Drawn by Christine MaNamara.

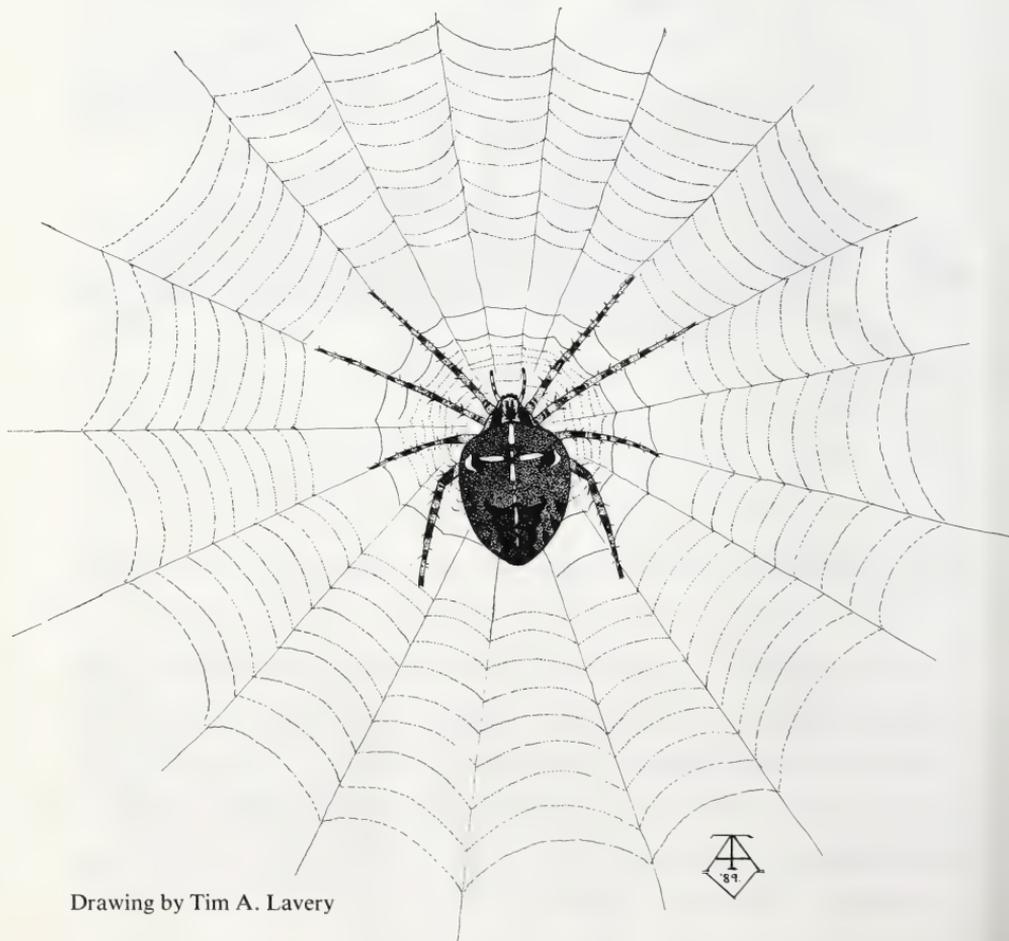
The phobia had gone. I'd cracked it — or rather the spider had. I felt in some way lighter. A feeling of benevolence swept over me. For a long moment I felt something akin to affection for the *vagans* who was responsible for this transition, who, in its moment of innocent flight had brought me to my senses. It had become a personality, had moved from the abstract to the concrete. It really ought to have a name — appropriate to the occasion.

So then . . . nice one, "Vincent".

SPIDER'S WEB

Arachne's thread of gossamer fine
She weaves an intricate design.
Delicately draped for all to view
Pearly in the morning dew.
Their work is done, the snares are set
A mirriad silken cups are spun
And from their green gorse arrow-heads
The dew bejewelled Goblets hung.
They sit and rest with closed eyes
Those two-faced, scarlet-throated knaves,
For some poor unsuspecting fly
Descending to their silken grave.

Diane B. Lavery



Drawing by Tim A. Lavery



**BUTTERFLIES OF THE YUGOSLAVIAN ISLAND OF MLJET
19 AUGUST - 2 SEPTEMBER 1988**

by Paul Waring (4220) and Rachel Thomas

A package holiday provided us with the opportunity to record some of the butterflies which occur on the island of Mljet in the Adriatic Sea. Mljet is a narrow outcrop of limestone 37km long, 30km offshore from Dubrovnik. The western part of the island was declared a Yugoslavian National Park in 1960 to protect the native forest of Aleppo Pine (*Pinus halepensis*), which forms the dominant vegetation cover of the park. A wide variety of other trees and shrubs occurs alongside the pine, including the strawberry tree (*Arbutus unedo*), holm oak (*Quercus ilex*), phillyrea (*Phillyrea variabilis*), carob (*Ceratonia siliqua*), mastic tree (*Pistacia lentiscus*), myrtle (*Myrtus communis*), laurustinus (*Viburnum tinus*), Mediterranean buckthorn (*Rhamnus alternus*), laurel (*Laurus nobilis*), Spanish broom (*Spartium junceum*), Alexandrian laurel (*Ruscus aculeatus*), the junipers (*Juniperus oxycedrus* and *J. phoenicea*) and the heaths (*Erica erforea* and *E. verticillata*).

We arrived in the middle of a typical dry Mediterranean summer; there had been no rain since June and, apart from a couple of heavy showers, none was expected until September. The pine trees rang with the song of the cicadas which were abundant wherever the pine trees grew. Most of our stay was hot and sunny with mid-day temperatures in the 80s and 90s.

Butterflies are not a major feature of the pine forest during August. The commonest species seen was the Tree grayling (*Neohipparchia statilinus**) which favoured the stony trails and rocky outcrops. One or two individuals would fly up from the bare ground every few hundred metres in such areas. The swathes of bare ground, that had been cut through the pine trees to act as fire breaks, provided additional habitat for the butterfly. Where the paths were shaded by pines a few Meadow browns (*Maniola jurtina*) were also seen.

Most other butterflies occurred on the edges of the pine stands and were most frequently seen in areas disturbed by man. Within the Park, agriculture is small-scale: there are little groves of fruit trees bearing olives, figs and pomegranates. On the red alluvial soils grapes, tomatoes, cucurbits and other vegetables are grown. These included brassicas which were frequented by Small whites (*Artogeia rapae**).

Around these small-holdings and the goat pens we saw a single Wood white (*Leptidea sp.** probably *L. duponcheli* — it was not captured) and several Red admirals (*Vanessa atalanta**), Cleopatra brimstones (*Gonepteryx cleopatra**) and Clouded yellows (*Colias crocea**).

Southern white admirals (*Limenitis reducta**) were seen throughout the Park; small numbers gathered around honeysuckle (*Lonicera sp.*) which is the food plant of their larvae. A fallow field, invaded by yellow thistles (*Centaurea sp.*), attracted several Painted ladies (*Cynthia cardui*) which were also seen elsewhere on the island. Taking nectar from the thistle flowers were Swallow-tails (*Papilio machaon*) and the Cardinal (*Pandoriana pandora*), a large greenish fritillary, marked with red on the underside of the forewing. In the same field one or two Brown argus (*Aricia agestis*), Small copper (*Lycaena phlaeas*) and a Mallow skipper (*Carcharodus alceae**) were seen.

Along the roadside we saw further Clouded yellows and more Painted ladies. The Two-tailed pasha (*Charaxes jasius**) was seen throughout the National Park. It was attracted to over-ripe fruit and two adults were seen enjoying rotten plums in a litter bin and on other occasions several were seen on split figs in the trees.

Two larvae of the Scarce swallowtail (*Iphiclides podalirius**) were found. The first was seen feeding on the leaves of an almond tree next to the unripe fruit. It was nearly full-grown and was spotted quickly when the damaged leaves were investigated. The second larva had changed from green to yellow and was wandering across the ground. It produced a fawn pupa with a silk girdle within three days.

The moths were not studied, but on the first day of our stay at the Hotel Odisej at Pomena, a Humming-bird hawk-moth (*Macroglossum stellatarum*) flew, exhausted, on to our balcony where it expired. Later during our stay, and in the full heat of the day, a female Humming-bird hawk-moth was seen laying eggs on parched bedstraw plants (*Galium sp.*) by the road-side. While we watched, she deposited about fifteen eggs, laying them singly on the plants (in just a few minutes) and flitting quickly from one chosen site to another. We collected three of the eggs for observation; they hatched within four days at the local temperatures. Over a dozen other Hummingbird hawk-moths were seen in the two weeks spent in the Park.

Near the hill-top observation post at Montokuc (275m a.s.l.) we found large groups of empty pupal cases and sloughed larval skins of the Gipsy moth, *Lymantria dispar* in light webs of rough silk on the spiky leaves of oak, pine and other trees and rocks in the vicinity.

The Vestal (*Rhodometra sacraria*), several Silver Ys (*Autographa gamma*) and a Passenger moth (*Dysgonia algira*) were attracted to lights around the hotel. The arrival of a moth, which later proved to be *Thaumetopoea pityocampa*, a processionary moth with larvae that feeds on pines, reminded PW of the autumnal moths of England to which he was soon to return, for it had a passing resemblance to the Pale oak eggar (*Trichiura crataegi*).

The species marked with an asterisk* have also been seen on Mljet by David Withrington (AES member 7110, pers.comm.) during a week's visit from 10-16 July 1986. Additional species recorded during David's visit were:—

The Wall (*Lasiommata megera*)

Freyer's grayling (*Neohipparchia fatua*)

Purple hairstreak (*Quercusia quercus*)

Silver-studded blue (*Plebejus argus*)

We would like to thank Messrs David Carter, Barry Goater, Norman Hall and Ted Wiltshire for helping us to identify the specimen of *Thaumetopoea pityocampa* and the skins and pupal cases of *Lymantria dispar* which were displayed for this purpose at the 1988 annual exhibition of both the Amateur Entomologists' and the British Entomological and Natural History Societies.

Reference

Cvetković, L. (1986). Mljet National Park, Stvarnost, Zagreb.

CREEPY CRAWLIES

from habitat

There is new permanent exhibition at the Natural History Museum, Cromwell Road, London SW7, revealing the more fascinating side of insects, spiders and other creepy crawlies that share our daily lives. Everything from flour mites in the deluxe kitchen to carpet beetles lurking under the fitted carpets. Details from: telephone 01-938 9388.

PONDS NEED HELP URGENTLY

from habitat

The Wildfowl Trust is calling on all schools to help in a nationwide investigation called **Pondwatch**. The Trust needs help to discover the whereabouts and health of the country's ponds and canals. This vital information will be added to the National Waterfowl and Wetlands Register being compiled by the Trust as an aid in the protection of wetlands. **Pondwatch** aims to reverse the loss of ponds, canals and their plant and animal life. Over 50% of ponds in Britain have been completely destroyed in the past 100 years, and many that remain are neglected and polluted. Schools can help by adopting a pond or stretch of canal. To join the scheme and obtain a free **Pondwatch** pack contact Doug Hulyer, Wildfowl Trust, Slimbridge, Glos. GL2 7BT. Foolsap SAE with 50p stamp please.

AN INTERESTING "ASSOCIATION COPY" BOOK FIND

by Roderick R. Irwin (1220)

The article "Another Interesting Book Find" by Malcolm Simpson in the August issue last year (*Bulletin* 47: 157) prompts me to relate a similar experience.

At a large used-book sale near Chicago in May 1983 I came upon a book entitled *A Companion to the Iliad* by Walter Leaf, published by MacMillan and Company in 1892. The volume contained the inscription "Eric C. Ansorge, September 1906, St John's Coll. Oxford."

Being interested in the subject and recognising the writer as an authority on Homer, I bought the book; but I thought the owner's name seemed somehow familiar. Later, of course, I recalled it as that of the Society's annual Junior Award. Still, I knew nothing of the man nor of how his name came to be associated with the award, to say nothing of whether or not this may have been his book. Mr Sidney A. A. Painter very kindly answered all of my questions and confirmed Sir Eric's ownership of the book. Sir Eric was indeed educated at St John's College according to *Who Was Who*. The volume is annotated in the same hand, but interestingly these notes end after the first 215 of the 400 pages. One wonders if the young Sir Eric abandoned his classical studies! As Mr Painter remarked, the story of how the book came to be this side of the Atlantic is sadly unrecorded. That a Society member should discover it here is vastly coincidental, there being so few of us in America and no other in the Chicago area to my knowledge.

THE MOTTLED GREY, A FIRST RECORD FOR SOUTHERN IRELAND

by Tim A. Lavery (8677)

A male specimen of the Mottled grey (*Colostygia multistrigaria*) was observed at an outside house light at Farnes, Castlemaine, Co. Kerry, on 24th March this year. The specimen, much paler than the typical form, was subsequently captured, and it appears that this geometer has not been recorded from any of the counties outside the northern half of Ireland, where it is considered local (Skinner, 1984). This is therefore the first record for County Kerry, and Southern Ireland, and it is possible that it occurs more widely than records presently suggest, since it is on the wing quite early in March and April, eluding collectors who are in the field later in the year.

REFERENCE

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

LITERATURE SOURCES FOR THE AMATEUR ENTOMOLOGIST

by Julie Harvey

One of the problems facing a keen Entomologist is not only finding useful references to a topic but then actually seeing the original works. In the bibliographies of books and journals are references to a whole range of published material ranging from 18th century works in Latin to modern and expensive journals held only in a few libraries. Many specialist books in print and antiquarian items can be prohibitively expensive and may be outside the pocket of the average person. Where then should he or she turn? In an attempt to answer this question I have noted a few possibilities.

PUBLIC LIBRARIES

Public libraries are always a good first port of call. Of course they vary considerably in the range of stock they hold, a small branch library is only likely to stock only a few books on Natural History but the main Central Library or the County headquarters library for an area will have a better selection. If a recently published work is not on the shelves it is always worth checking with the library staff and the main catalogue to check whether the book is held in another library within the same Local Authority Public Library Service. If it is held it should be possible to obtain in a matter of a few days.

Books and periodicals not in stock can be ordered through the Document Supply Centre of the British Library at Boston Spa, Yorkshire. This is the largest library in the world devoted to inter library lending and has a stock of over four million books and periodicals.

Many Public libraries now make a small charge to borrow items from the Document Supply Centre. If the item you have requested is not on loan you should receive the reference in a matter of a few days. However there may be a longer delay if the item is already on loan or if your request is sent to a back-up library. For further information it is best to speak to your librarian.

People are often quite reluctant to ask the help of library staff, which is a pity as trained professional librarians are a great source of help on a whole range of bibliographic problems, not least in helping you to obtain unusual works. As all libraries have a limited book purchasing account, by expressing your interest in Natural History and in particular Entomology more money might be directed into the subject with benefits to you and fellow enthusiasts.

LIBRARIES OF SOCIETIES

Some Entomology and local Natural History Societies have quite large book collections for members to consult and even borrow. For example the British Entomological and Natural History Society and the Derbyshire Entomological Society have libraries for the use of their members. Of course by joining such a society one can also meet people with similar interests who may be prepared to loan copies from their own collections, or share the cost of purchasing expensive books. The Royal Entomological Society, in London, has a most impressive library which includes many antiquarian items. The library is only available to Fellows of the Society, who may borrow books and can also use a postal service to borrow books.

LIBRARIES OF UNIVERSITIES AND POLYTECHNICS

University and Polytechnic libraries are another useful source of literature. Years ago such collections were only available to college staff, students and academic visitors. Nowadays many colleges have a far more enlightened view and are more sympathetic to the problems of keen adult amateurs. A letter to the Chief Librarian clearly explaining why one would appreciate access to the library can "unlock the doors". Although usually on a reference-only basis some libraries will also loan to local residents.

NATIONAL AND MUSEUM LIBRARIES

For the serious amateur another useful library for current literature is the Science Reference and Information Service, which is part of the British Library and is the national library for modern science and technology. The Life Science collection in London is available without an appointment. It is a library of "first resort" and for "those who have no adequate library resource in their field close at hand and for those whose needs would require visits to several libraries". Most of the stock is on closed access but items can be brought to readers usually in five to ten minutes. The library is open Monday to Friday, 9.30 am to 5.30 pm.

Some local Museums which have a Natural History section have interesting collections of books. This may range from a few shelved books in a visitor centre to an extensive reference library such as in the Horniman Museum, Forest Hill, London.

Another library available to the serious research Entomologist is the Entomology Library in the Department of Library Services, British Museum (Natural History), South Kensington, London. This library has an internationally renowned entomology collection. It is a library of "last resort" as its main function is to serve the requirements of the

Museum Scientific Staff. However visitors from other academic institutions and the serious amateur can request to use the library by applying for a reader's ticket on their first visit. An acceptable form of identification is required with the application. Further details including information on the photocopying service can be obtained by writing to The Entomology Librarian.

So when faced with the hunt to find that elusive reference there are a number of possible places to look. However, as anyone who has carried out such a search will know, the hunt can demand the patience and stamina of a dedicated insect collector!!

USEFUL ADDRESSES

- i. British Entomological and Natural History Society, The Alpine Club, 74 South Audley Street, London W1Y 5FF.
- ii. Derbyshire Entomological Society, Secretary Mr. D. Budworth, 121 Wood Lane, Newhall, Burton-on-Trent DE11 0XL.
- iii. Entomology Library, British Museum (Natural History), Cromwell Road, London SW7 5BD. Tel: 01-938 9491.
- iv. Horniman Museum, London Road, Forest Hill SE23 3PQ.
- v. Royal Entomological Society, 41 Queen's Gate, London SW7 5HU.
- vi. Science Reference and Information Service, 9 Kean Street, Drury Lane, London WC2B 4AT. Tel: 01-323 7288.

BOOK REVIEW

Hadleigh Great Wood by B. M. Spooner and J. P. Bowdrey. Pp.278, Paperback. South Essex Natural History Society 1988. ISBN 0 95114189 04. Price unstated.

This is a comprehensive review of the history and wildlife of the Belfairs Nature Reserve, Hadleigh, Leigh-on-Sea over the past fifty years. It is a monumental work and the authors are to be congratulated on both the format and content. The insects are dealt with fully in 75 pages, the history of the Heath fritillary being particularly interesting. The demise of all the fritillaries in the wood is commented upon though no cause is obvious. The high level of colonisation by the Wood ant, *Formica rufa*, may be relevant. In 1936, 133 nests were recorded and it is estimated that a nest can predate up to 100,000 insects per day at peak activity (mainly larvae). I observed a similar decline in the fritillaries in Abbots Wood, East Sussex which followed on an explosion of the wood ant population there. This book has something for all naturalists and must be a model for any future surveys of nature reserves.

P. W. Cribb

ACCOMMODATION WANTED

The British Entomological and Natural History Society is looking for a room in central London, of about 1000 sq. ft., for its exclusive use (to hold the Society's books and collections) together with use of a meeting room (to hold up to 80 people) available for three evenings a month. Offers to Frances Murphy, 323 Hanworth Road, Hampton, Middlesex TW12 3EJ.

RESCUE FOR ENDANGERED MOTHS

from "habitat"

At least 13 species of Britain's larger moths are now believed to be endangered or vulnerable. Six of these, the Black veined moth, Barberry carpet, Essex emerald, Reddish buff, Viper's bugloss and New Forest burnet are protected by the Wildlife and Countryside Act 1981 and its 1988 amendment. The Essex emerald and New Forest burnet are represented in Britain by distinctive races, found nowhere else in the world. Generally speaking little is known about their particular requirements for survival and to aid their conservation a moth specialist has been employed by the Nature Conservancy Council (NCC). He is concentrating on the effects of management on the moths of particular habitats, and on field surveys and ecological studies. Further details from Paul Waring, NCC Terrestrial Invertebrate Branch. Tel: 0733-40345.

MAKING PLANS FOR WILDLIFE

from "habitat"

"The wildlife of the Black Country has received a welcome boost with the launch of a project to prepare a Nature Conservation Strategy. The prime aim is to secure the long-term protection, enhancement and management of wildlife and wild spaces; not just for wildlife but for everyone. The three year work programme will be undertaken by the Urban Wildlife Group (the local Wildlife Trust) with the financial support of the four Black Country local authorities. The project will for the first time look comprehensively at wildlife and wild spaces throughout the Black Country; the potential, the threats and the needs in the region as a whole. Special emphasis will be placed on the role of nature conservation in the economic and wider environmental regeneration of the region. Further information from Mike Dando or Tom Slater, Urban Wildlife Group. Tel: 021-666 7474."

**SEX-RATIO OF EMERGING *BIBIO MARCI*
(DIPTERA: BIBIONIDAE)**

by Ray Poulding (7436)

The widespread swarming of the large bibionid *Bibio marci*, or St Mark's fly is an impressive sight on warm, sunny days in May and June. These dancing swarms over low herbage and shrubs consist entirely of males and it is only by searching nearby vegetation that the occasional female can be found, often in copula with a male attracted from the above aggregation. This apparent paucity of females in contrast to the abundant males at the same site poses the question as to whether this is indicative of the actual sex ratio. The sex of *B. marci* can readily be distinguished as the species shows a marked sexual dimorphism. The males are smaller than the females with large holoptic eyes, a different facial structure and with almost clear wings contrasting with the brown tinged wings of the female. The larval stages are spent in the soil where the larvae are reputed to feed on living subterranean stems and roots of plants although there is some evidence that they can develop in organic manures.

Quite by chance in the spring of 1988, I was able to obtain a reasonably accurate assessment of the sex ratio of emerging *B. marci* under almost laboratory conditions. Having erected a large greenhouse in a garden near Helston, Cornwall, I was faced with the normally expensive problem of filling the main bed at ground level with a suitable growing medium. Fortunately the previous owner had left in the garden a large undisturbed mound of vegetable compost formed over many years from garden refuse and now covered with a dense mat of nettles. After removal of the dead nettle stems and roots and other partially decomposed plant stems the resulting substrate was a fine friable compost. Two cubic metres of this compost was used to fill the main bed, measuring 4 x 1.25 metres, to a depth of about 0.3 metres. This was completed by mid-March when tomatoes were planted, necessitating the greenhouse to be heated overnight to maintain a minimum of 10°C. During the day the ambient temperature was controlled by opening and closing vents to give a temperature of 15° - 20°C but on some sunny days it was difficult to keep the temperature below 25°C particularly in the afternoons.

On April 1 five *B. marci* were found in the greenhouse, and when more were discovered the next day I realised that they were emerging from the compost, and crawling up the walls before attempting to fly around the apex of the greenhouse. The main emergence took place each day before noon and mostly after 09.00 hours with very few visible before that time. A minimum temperature of 12°C appeared necessary before the imagines appeared above the surface of the soil and they showed little

activity until an ambient temperature of 15°C was reached. The greenhouse was searched several times a day to collect the bibionids and after sexing were stored to be released away from the greenhouse on suitable days. Emergence continued until April 21 after which no further *B. marci* were found. The daily totals and numbers of each sex recorded over the emergence period are given in Table 1.

Of the 217 examined April 1 - 21, 84% were males and 16% were females giving a ratio of approximately 5 : 1 for the whole emergence period but the proportion of males to females decreased as the emergence progressed. In the first week the proportion was approximately 11 : 1, the second 5 : 1 and the third week 2 : 1. Notable days were the 4th when 30 males and no females emerged; the 9th when 22 males and a single female were located but on the following day a third of the emergents were female. The proportion of one female to every five males recorded in the total emergence sample is much higher than my own casual observations in the field of the sex-ratio of *B. marci* suggest.

In the Helston area the first *B. marci* was found on April 29 and the last on May 21 with the main swarming period from May 10 - 14. This emergence under natural conditions started about a month later than the emergence in the artificial environment of a partially heated greenhouse. *B. marci* was the only species of the genus *Biblio* found in the greenhouse but another bibionid *Dilophus febrilis* or Fever-fly also emerged in large numbers with *B. marci*. As *D. febrilis* is a much smaller fly than *B. marci* and consequently easily overlooked amongst plants and staging, no attempt was made to systematically retrieve and examine this species on a daily basis. Between the emergent dates of March 31 and April 22 over 200 were removed from the greenhouse. The first *D. febrilis* was found in the field on April 30.

Date	Male	Female	Total	Date	Male	Female	Total
April 1	5	—	5	12	17	4	21
2	5	—	5	13	8	—	8
3	15	2	17	14	4	—	4
4	30	—	30	15	5	1	6
5	3	3	6	16	13	4	17
6	15	1	16	17	4	5	9
7	7	1	8	18	1	—	1
8	6	3	9	19	3	1	4
9	22	1	21	20	1	—	1
10	10	5	15	21	1	1	2
11	7	3	10				

Total collected April 1 - 21	217
Number of Males	182 (84%)
Number of Females	35 (16%)

CAN THE PROBOSCIS OF A BUTTERFLY ALSO EXUDE FLUID?

by Basil Yates-Smith (7259)

Until recently it had not occurred to me to wonder whether a butterfly ever used its tubular tongue to conduct fluid in the reverse direction. After all, what purpose could that have?

We have all observed butterflies drinking at patches of damp ground. Less common, perhaps, is the sight of them apparently doing the same thing on very dry ground. Photographs I have of the latter show the proboscis to be fully extended and until now I had assumed it was probing microscopic reservoirs of moisture.

Among my last year's photographs of *Lopinga achine* (Woodland brown) is a series of a female, tongue extended, on a smooth, pale grey rock bordering a steep, very arid, track. In this series it moves forward a short distance and at the tip of the tongue can be seen a small dark patch at both the first and second positions. However, by reference to the first position pictures it is evident that no small dark patch existed at the second until the butterfly had moved forward and extended its tongue. That the butterfly had created it was the only possible explanation. It had apparently ejected a small amount of fluid from the tip of the tongue, almost certainly as a solvent to facilitate the ingestion of vital nutrients, minerals or whatever.

Near the rock is the exit of a small culverted mountain stream which could have provided easy access to water containing minerals and so forth, albeit more diluted, which suggests the further possibility that the butterfly either preferred to control the concentration or needed something which water lacked. The presence of the stream of course guaranteed that any loss of vital body fluid resulting from this activity could speedily be made good.

NATIONAL AUTHORITY NEEDED TO CONTROL INTRODUCTIONS

From "habitat"

An urgent call for a national authority to manage the introduction of species into the wild in Britain has been made in a report published by Wildlife Link on behalf of 15 major wildlife organisations and funded by the World Wide Fund for Nature. More than 1000 animals, birds, plants and insects have been introduced into Britain, some accidentally, some in a planned way; about half have become established. Conservationists are worried about the apparent lack of adequate control over the introduction of species which they say should be subject to licence after an evaluation set against conservation guidelines.

The report, *Towards An Introduction Policy* is by David Stubbs and is published by Wildlife Link, 45 Shelton Street, London WC2H 9HJ, from whom it is available, price £5 inc. p&p.

The report cites several examples of introductions which can damage the environment — alien, disease-carrying crayfish threatening native British species; pike perch which have colonised several river systems; and wild flower seeds, frequently from Europe, which are increasingly planted in Britain, that should not be used in the wild because of the risk of crossing strains and changing native populations. There are also fears about the impact of micro-organisms, some genetically manipulated, on the environment. However, re-introducing or translocating species can benefit the environment: there may be a case for trying to establish some of the rarer predatory animals such as the polecat, pine marten and wild cat in areas from where they have now disappeared. And the red kite, now restricted to Wales, could be re-introduced to Scotland.

THE HEATH FRITILLARY (*MELICTA ATHALIA* ROTT.): DID IT REALLY OCCUR IN IRELAND?

by *Tim A. Lavery (8677)*

Controversy over the possible existence of the Heath fritillary (*M. athalia*) in Ireland has spanned many decades since its first appearance in the literature. Entomologists in their turn have searched — without reward — and textbooks have frequently included this lovely fritillary as part of the Irish butterfly fauna.

The first and only report of its occurrence in this country was in an article on the Lepidoptera of Ireland by Edwin Birchall in 1865 (Birchall 1865), who claimed he found this insect “in plenty” three years earlier at Killarney, Co. Kerry. Birchall did not give any specific locality and it appears that he did not actually capture any specimens himself.

Further to this literature report there remains only one further record which could have provided independent substantiation of Birchall's record; this is to be found in the British Museum of Natural History (R.F. Haynes pers.comm.) where there is a specimen, worn and minus antennae, of the Heath fritillary labelled:—

Irlande
Co. Kerry
W. Savage
1895
Ex. Oberthur Coll.
Brit. Mus. 1927

The collector “W. Savage” is actually W. Salvage the notorious collector and dealer who apparently made a habit of selling non-Irish

insects as Irish to wealthy foreign collectors (Oberthur seemed to have bought quite a variety of these "Clonbrockian" styled specimens!)

Many collectors were in Ireland around the time of Birchall's record yet there have been no further sightings or confirmations of this butterfly's existence in Ireland.

It has been suggested that, had it been in the Killarney District, it might have become extinct mainly due to the problem of *Rhododendron ponticum* which has choked-up wide expanses of woodland, and may consequently have wiped out the fritillary. On checking-up on this possibility, I have found that *R. ponticum* was first introduced into this country only about eighty years ago and would not have become the problem that it is today for at least a further ten years, bringing us well into the 1920s, and further extending the period when it might have been "re-discovered".

Finally, I believe that this butterfly was initially recorded from here, by error, and that error was continued well into this century, through mis-judgement. I think therefore that there can be no further justification for having this butterfly considered as part of the Irish lepidoptera fauna.

REFERENCE

Birchall, E. (1865). Notes on the Lepidoptera of Ireland. *Entomologists' Monthly Magazine* 1: 270.

SAVE CAMLEY STREET

from "habitat"

"Camley Street Natural Park, London's most central wild area, is under threat from British Rail plans for a Channel Tunnel terminal at Kings Cross. British Rail has put forward a Private Bill in Parliament outlining plans to build a new terminal under Kings Cross. To do this they hope to construct a 'cut and cover' tunnel right through the Park area. This unique reserve represents probably the best example of urban wildlife regeneration in the Europe. Few nature reserves anywhere in the world have received such financial, moral and creative support from the local community and authorities. It receives visits from 5,000 inner city school children with an additional 5,000 visitors annually. Further details about the Campaign and how readers can help from London Wildlife Trust. Tel: 01-278 6612."

A CAGE CONSTRUCTED FOR STICK INSECTS

by *Phil Bragg (8737)*

Over the last seven years of rearing Stick insects I have finally developed a standard cage for my collection. It has the following features:—

- (i) very cheap
- (ii) simple to build
- (iii) stackable
- (iv) variable ventilation
- (v) easy to clean.

The main advantages of my type are low cost and simplicity. I can build a cage in 30 minutes including sweeping up!

The case consists of a chipboard base and top (Melamine coated for ease of cleaning), four corner posts, a glass (perspex front and cloth sides with polythene sheet outside the cloth, adjustable to vary humidity. My earlier cages were made using old sheets — I now use net curtain material. The cage is easily nailed together (or screwed, using screw caps for more aesthetic cages). The sides may be glued or stapled on. Polythene can be fixed with staples or drawing pins. Painting of uprights etc. can be done either before (best) or after construction.

Method

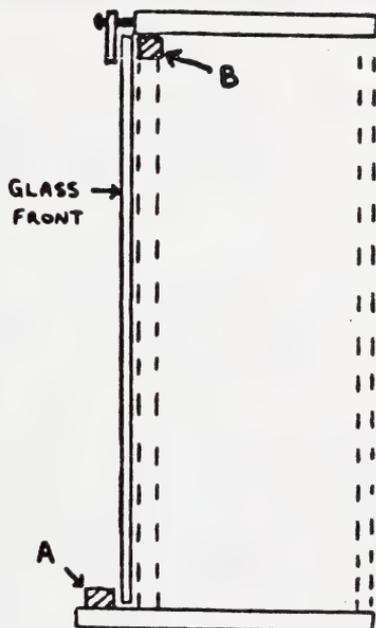
1. Nail or screw the corner posts to the base and top. The base should project forwards by 1½ cm as the glass rests on it.
2. Using panel pins fix the glass retaining strip (A) into position, making sure that the glass can easily be lifted out.
3. A similar strip (B), running the width of the opening is advisable to prevent escapes.
4. The catch is made from a piece of hardboard or plastic screwed into the chipboard with a few washers to allow for the thickness of glass.
5. Paint any parts which need painting.
6. Fix cloth to sides either with glue (Evo-stick Woodwork adhesive) or staples.
7. Fix polythene sheeting over the cloth. The amount used will determine ventilation. This can easily be altered if drawing pins are used for one side.

Requirements (gives a cage 1 x 1 x 2 feet)

- 1 piece of Melamine coated chipboard 300 mm x 300 mm
- 1 piece of Melamine coated chipboard 300mm x 285 mm
- 4 pieces of 600 mm long, 20 mm x 20 mm (or similar)



FRONT VIEW

SIDE VIEW
(CORNER POSTS DOTTED)

- 2 pieces of approx. 300 mm long 10mm x 10 mm
 - 1 scrap of hardboard 30 mm x 15 mm (for the catch)
 - 16 1½" nails, two for each end of each upright
 - 6 ⅜" panel pins
 - 1 ¾" round head screw and one or two washers
 - 1 piece of glass or perspex, the width of the base and the same height as the uprights.
- Cloth and polythene to cover three sides.

Alternatives/extras

1. Lights may be fixed to the roof or to a cross bar between the back corner posts.
2. A shorter piece of glass can be used and a vertical piece of chipboard can be put at the bottom to support the glass. This has the advantage of hiding the water jar but makes cleaning more difficult.

OBSERVATIONS ON THE EFFECT OF ABNORMAL WEATHER ON BUTTERFLIES IN SPAIN 1988

by Robin Booker (5776)

Devastating floods in south-east Asia, unparalleled drought in the United States and continuing drought in Africa. These are just a few of the natural disasters which occurred worldwide in 1988, fuelling the debate on climatic changes and "the greenhouse effect".

Closer to home there have been noteworthy, if less dramatic, changes in weather patterns but little discussion of the effect on insects and in particular, butterfly populations. It is too early to regard such changes as anything more than temporary phenomena but there is no doubt that they have an immediate and significant effect on the life cycles and survival of butterflies.

In northern Spain an unusually cloudy year in 1987 was followed by an exceptionally late summer in 1988. Crossing the Pyrenees at the Puerto del Pourtalet on the 10th July, it was soon apparent that summer had hardly arrived. On the high peaks, normally only streaked with white in July, there were large deposits of snow. Waterfalls, usually reduced to modest trickles, were roaring torrents.

Accustomed to seeing a wide variety of butterflies, including *Parnassius apollo pyrenaica* (Apollo), *Gonepteryx cleopatra* (Cleopatra) and *Heodes alciphron* (Purple-shot copper), crowding onto every thistle flower in the rocky gorge leading to Balneario de Panticosa, it was disappointing to find that the thistles were only in bud. The presence of *Anthocharis cardamines* (Orange-tip) confirmed that species usually on the wing in mid July were unlikely to be seen. At 1,650 metres there were pristine specimens of *Erebia epiphron* (Mountain ringlet) and *Erebia triaria* (de Prunner's ringlet), both late in emerging. On a second visit later in the year, *P. apollo pyrenaica* was flying, in good condition, on the 11th September.

Throughout northern Spain the story was the same. Snow was slow to melt in the mountains and cool conditions had delayed the emergence of some species by a month or more. In the Burgos area at the beginning of July, the daytime temperature had fallen to an unheard of 41°F.

Plants such as honeysuckle, dog roses and *Iris xiphoides*, whose deep blue blooms are normally withering by this time, were in full flower in the Sierra de la Pena. On the 11th July male *Limenitis reducta* (Southern white admiral) were just appearing and it was another two weeks before the first *P. apollo aragonicus* emerged. Active until early evening, when the orange sandstone rocks appeared almost to glow in the sun, *aragonicus* gradually became lethargic, eventually roosting on flower heads. They could then be approached and photographed quite easily.

In a broad upland valley south of the Puerto San Glorio, male *Erebia palarica* (Chapman's ringlet) were flying amongst Spanish broom, again several weeks later than usual. Later still were *Eurodryas aurinia* (Marsh fritillary) and *Issoria lathonia* (Queen of Spain fritillary).

Even in favoured localities, for example, Pozazal, near Reinosa, where the flower-covered hillsides are often alive with *Agrodiaetus damon* and *Lycaeides idas*, there was a dearth of butterflies. Only some well-marked *Melitaea didyma* and the ubiquitous *Melanargia lachesis* fluttered weakly in the wet grass.

The unsettled weather continued throughout July with dark clouds appearing regularly over the Sierra de la Demanda and the Picos de Europa, followed by violent thunderstorms. Although lasting for many hours, they were insignificant compared with the deluge which engulfed Mount Aitzgorri, neare Onate, on the 19th July.

Visible for miles around, the solitary peak of Aitzgorri, a symbol of Basque independence, rises to over 1,500 metres. Hopes of photographing the rare *P. apollo odriozolae* faded when the mountain came into view and lightning was already flashing around the village of Aranzazu near the summit. The ensuing downpour turned the road to the village into a river, tearing up tarmac, rocks and soil and gathering momentum until it crashed onto the towns in the valley below, causing widespread death and destruction. Bridges and buildings were swept away and roads blocked every few yards by mud slides and rock falls. It remains to be seen whether the already precarious population of *odriozolae* has survived.

Reaching Pourtalet again on the 22nd July, a single *P. apollo ossalensis* was seen just a few hundred yards from the frontier. Surprisingly, *Parnassius mnemosyne* (Clouded apollo), usually on the wing in June, was relatively plentiful.

In the short term, abnormal weather conditions, by interrupting life cycles, damaging foodplants and destroying habitats, are bound to have an adverse effect on butterfly populations. The predicted rise in temperatures generated by "the greenhouse effect" may have more profound consequences. Could it herald the end of some species in southern Europe which are adapted to cool conditions at high altitudes?

Subspecies of *P. apollo* such as *hispanicus* and *aizpuruae*, now found on high plateaux in Spain, could not retreat to greater altitudes and their extinction seems inevitable. It would be tragic for man-made climatic changes which, in evolutionary terms, have occurred in a moment, to destroy survivors from the Ice Age that have withstood environmental changes over millennia.

The writer is compiling a photographic record of the Spanish subspecies of *P. mnemosyne* and *apollo* and their foodplants and habitats. He would like to hear from any members who may have a similar interest of relevant information or material.

ENTOMOLOGICAL FAIRS

by *The Editor*

Perhaps because we, the AES, are the longest established in the field, having held an Annual Exhibition for some fifty years, or perhaps because many of both the traders and visitors to other Entomological Fairs are also members or attenders at our own, a number of people, even members, have assumed that we are also involved in the running of the various other Fairs that are now held. As a result of this confusion over who is organising these other Fairs, our officials have been getting enquiries, comments and criticism regarding them.

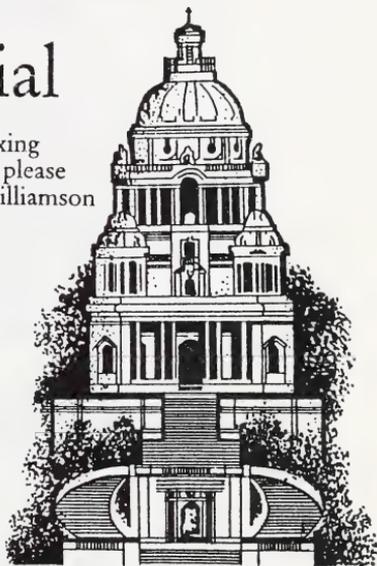
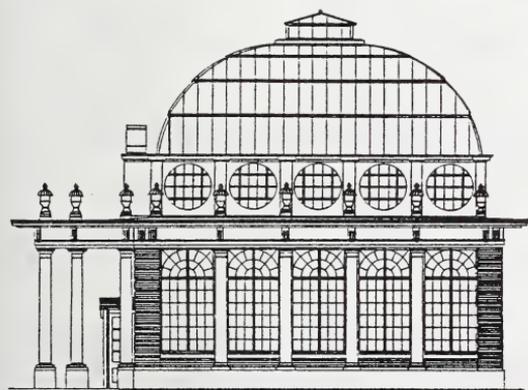
We recently received a spate of criticism over the fiasco of the North London Entomological Fair at Picketts Lock which was very poorly attended both by traders and visitors. This Fair was very inadequately advertised and the main criticism the AES received was "Why had we not advertised it?". We did not advertise it for the very good reason that we were not asked to. Even when it knows about them, no journal can carry definitive adverts for any trader or event unless it is sent appropriate copy and payment. I have in the past, when they were starting up, given space in the *Bulletin* to give notice of, and accounts of, these other Fairs, and if their organisers do not choose to take notice of such encouragement and take the trouble to give us the information concerning their future events that is their decision, not ours.

The only event of this nature that the AES organises is its Annual Exhibition, usually held in October, formerly at Hounslow and currently at Kempton Park Racecourse. Council wishes to make it quite clear to all and sundry, whether they be members or not, that the AES has no connection whatsoever with the organisation of any other Entomological Fair.

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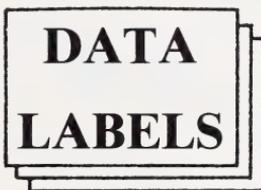
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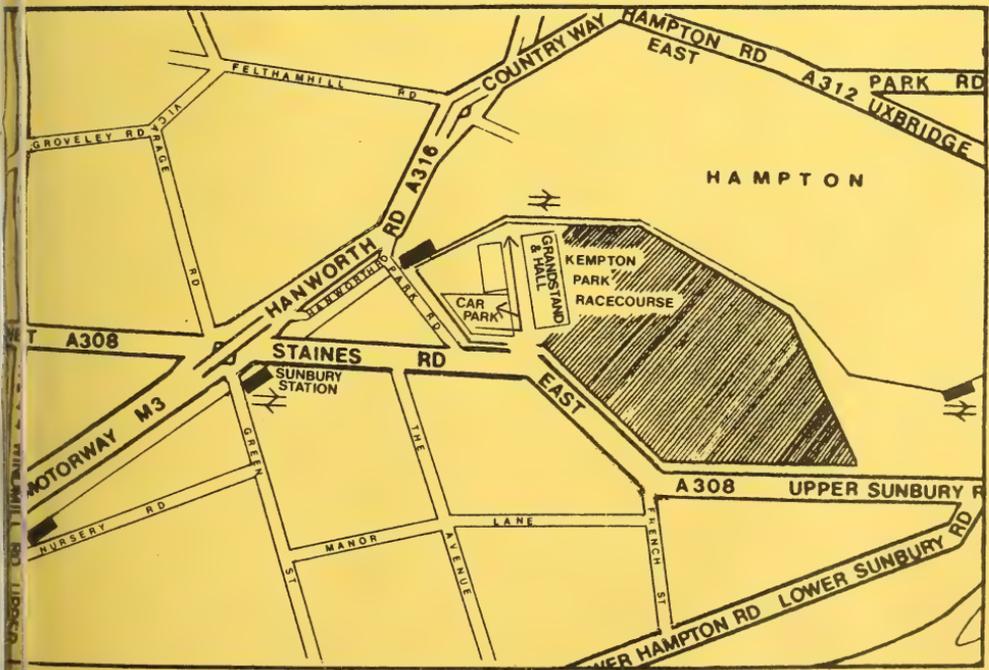
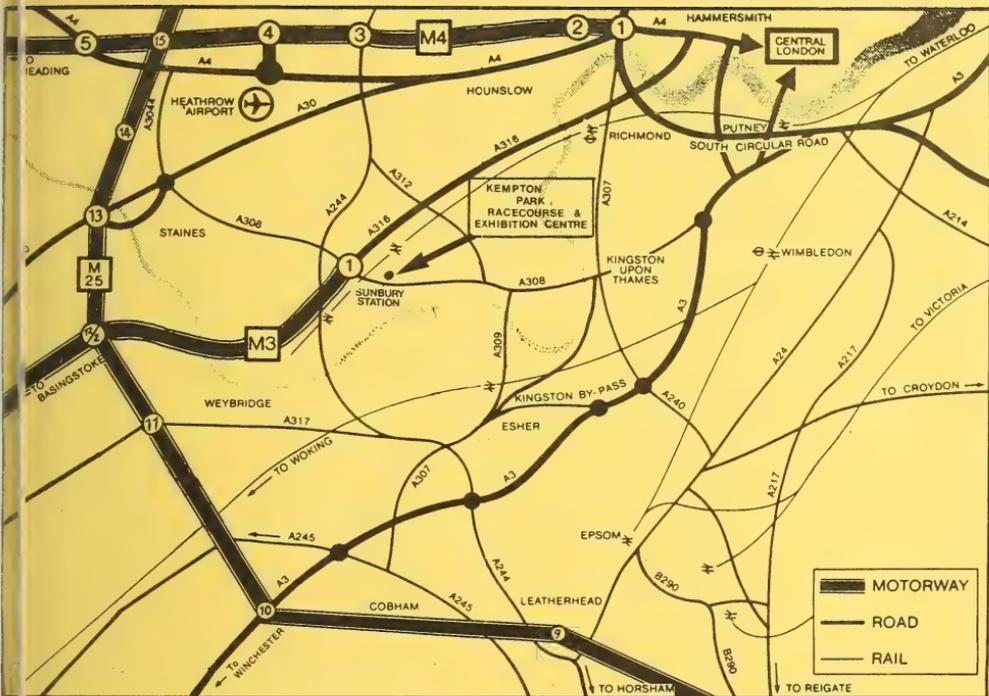
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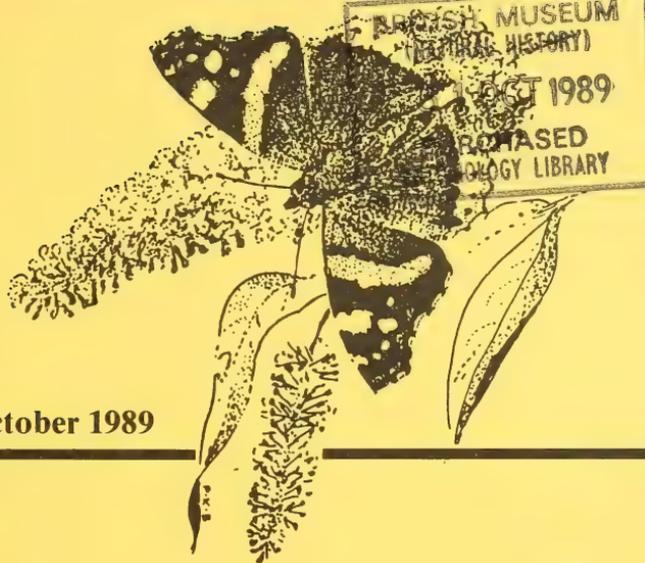
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Volume 48, No. 366, October 1989

**The Bulletin
of the Amateur
Entomologists'
Society**

EDITOR

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

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AES BULLETIN

No. 366



AN APOLOGY

from Norman Cravitz (Cravitz Printing Co. Ltd)

For the various errors and reversions which appeared on the inside front cover of the August edition of the AES Journal I must apologise.

The errors occurred whilst we were making one correction and was caused by the careless observation of the typesetter. Through technical mismanagement the remainder of the computer file had not been wholly brought up to date.

These errors have now been corrected.

FIFTY YEARS AGO

by The Editor

Just as the AES was getting into its stride, membership numbers increasing rapidly and the first printed instead of duplicated *Bulletins* were being published, along came the war which initially caused a distinct hiccup in our activities. Nevertheless a few stalwart souls led by the late Beowolf Cooper were determined to carry on and this resulted in the "Wartime Exchange Sheet" often only a single duplicated sheet, but this was later followed by several issues of the well-printed *Amateur Entomologist*. As it is now fifty years since these wartime events took place, and there are very few of us pre-war members left to remember the occasion, I thought it worthwhile to reprint the account of how our wartime organisation came about. This occurs in part of *Bulletin* No. 38 for September 1939 (the rest of the *Bulletin* is of an entomological nature!) and most of *Bulletin* No. 39 published exactly fifty years ago in October 1939. This number is reprinted facsimile in its entirety.

“

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

Vol. 4 No. 38

SEPTEMBER 1939

Dear Fellow Members,

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

Yours sincerely,

BEOWULF A. COOPER

(Hon. Editor)

61, Okenhampton Road, London NW10.

“**ANNOUNCEMENT** — A correspondent suggests that members able to continue with their collecting would still like to receive communications from the Society. In order not to reduce finances (so that we shall be in a position on the cessation of hostilities to resume advertising and publishing activities unhampered by lack of funds), he suggests that, meanwhile, members wishing to receive temporary Bulletins should pay one shilling and receive six or eight single-sheet communications (exchanges, address changes, reports of captures and queries). The balance of other subscriptions would be retained intact, and no member's name would be removed from the membership list until this had been expended or until such time after our fully resumed activities as would allow members who had moved to contact us once more. **BUT** — Only one or two members of the Committee will now be able to give any help towards the Society's activities. In consequence, if these are to be carried on meanwhile, offers of assistance, principally typing, duplicating and posting, will be required. Since it will in any case be difficult for a Committee to meet, this should serve as an opportunity for members away from the metropolis to do their bit for the Society. With two-side only Bulletins and few correspondents the work entailed would not be large. Will members wishing to subscribe to such a scheme, or offering to give assistance please communicate with the Editor at once. Any other suggestions are welcome. **B.A.C.**”

THE BULLETIN
OF THE
AMATEUR ENTOMOLOGISTS' SOCIETY

Vol 4 No 39

OCTOBER 1939

As stated in the last Bulletin, it has been found impossible for us to carry on our former activities unaltered. In order to regularise the position, it has been decided to hold a General Meeting at once, on October 29th next. The absence on service of several members of the Committee should not, we feel, justify their being deprived of office. It is therefore proposed to "freeze" the Society's present state, that is, to leave the present funds untouched and the same Committee in office until a General Meeting called sufficiently long after the cessation of hostilities for a new and representative Committee of younger entomologists to be elected and restart activities. Until then it is proposed to constitute a temporary organisation with a new Committee, to be elected on October 29th; this organisation is to be self-supporting, and it is suggested that it should be financed by a small sum (say £5) donated by the General Account, and subscriptions (say 1/- per year) collected by itself, and should borrow the present Society's duplicator and other property for its use. The new organisation would send small regular duplicated Bulletins to present A.E.S. members and others who intimate their desire to receive them. Present A.E.S. members will remain members of the existing organisation until after the resumption of our full activities whether they subscribe to the temporary organisation or not.

Owing to the exceptional nature and hurried calling of this meeting, no fixed agenda has been decided on, but it will include: General statement of progress 1938-9, present position and accounts, discussion and motions on the future of the Society during hostilities, election of temporary officers, and any other business.

The Annual General Meeting will be held at 3 p.m. on Sunday October 29th 1939 at 61, Okchampton Road, Kensal Rise, N.W.10, and it is hoped that all members able to do so will attend. Other members with suggestions to offer should communicate with the Editor before the meeting. Nearest stations: Kensal Rise (L.M.S.), Willesden Green (Met.), and Queen's Park (Bakerloo and L.M.S.). Buses: 6, 46, 52 (Mill Hill) and 231 to Kensal Rise, trolleybuses 660 and 666, buses 26, 8 and 1 to Willesden Green Library.

If you still wish to receive Bulletins (exchanges, notes, queries and membership changes), remember to drop us a card saying so. We thank those members who have already sent 1/- as their sub. for 1940 - receipts will be sent as soon as our future plans have been settled.

It is now proposed to proceed at once with the publication of the remaining two numbers of Vol. 4 of the Journal, and short notes of general interest are very welcome.

BEOWULF A. COOPER
(Hon. Editor)
61, Okchampton Road,
London, N.W.10.

oOo

RESIGNED: A.H.Pickett (37) and W.A.Christianson (170).

CHANGE OF ADDRESS: A.N.Branham (18) to 12, Warham Road, South Croydon, Surrey. Letters to the Editor requiring immediate reply should be addressed to 2, Chestnut Avenue, Slough, Bucks.

PORTSMOUTH NOTE: I have just had given me a Death's Head Hawk (*A. atropos*), found sitting on a garden wall in the centre of Portsmouth. As the wings were very small and crumpled at first and the moth ejected a fluid when handled, it had evidently only just emerged (Sept. 1st). Underneath was a small patch of potatoes, but it was odd that no one had noticed the larva feeding, as the patch had been examined regularly about once a week. Mr. Baker was also telling me some time ago of a *Convolvulus* Hawk that last year flew into a lighted window in the centre of the town. The larvae of both of these hawks are found regularly near here at Lee-on-Solent, where there are potato fields and *Convolvulus* is a very common weed in them.

D.N.PURSER (125)

THE AUSTRALIAN BUTTERFLY SANCTUARY

For many of us the idea of collecting butterflies conjures images of tweedy, gentlemen-naturalists, wielding a dainty butterfly net as they crash around the country-side in pursuit of their colourful and exotic quarry, then poring for hours over mounting cases with tweezers in hand and mumbling in Latin about species, order and type.

Modern-day, amateur naturalist and obsessed lepidopterist, Paul Wright, from Kuranda in tropical, Far North Queensland, admits to almost a lifetime of fitting that usual image of a butterfly collector. Since childhood he has been fascinated by butterflies, their species and varieties, their habits and behaviour. For twenty years he has been a regular visitor to the rainforests on the mountain escarpment overlooking Cairns, to collect the exotic and spectacular butterflies of the region.

These days, ex-advertising executive and businessman, Paul, has seen a long thought-out live butterfly exhibition come to reality, with the completion and opening of his Australian Butterfly Sanctuary, on several acres in his beloved Kuranda rainforest.

Like many butterfly fanciers, Paul has amassed his knowledge of butterflies, not from formal, scientific study, but from devotion to what has become more than a hobby. The Australian Butterfly Sanctuary is the largest in the world devoted totally to butterflies.

Including the word Australian into the Sanctuary's name is significant apart from the location, as a large proportion of Australia's 380 species are to be found in North Queensland, and almost all of the largest and most colourful tropical varieties are native to Kuranda and Paul exhibits many of these, in their natural habitat, enclosed by his huge flight aviary. The Guinness Book of Records has recognised Paul's farm as the largest in the world, in terms of volume enclosed.

The 4000 cubic metre, aluminium framed aviary was a massive construction undertaking, being 120' long, 60' wide and averaging 35' high, supporting a unique, one-piece shade-cloth dome, providing enough room for epic butterfly flights. The giant, cyclone-proof, glass-roofed structure is supported by aluminium RSJs which, with a span of 60' are believed to be the largest, free-standing spans in Australia.

"Queensland Institute of Technology looked at the design concept and produced 48 pages of computer print-out to calculate wind load factors and stresses", Paul detailed. "Everything checked out and we commissioned Queensland Glass Houses P/L. to build the structure and it is the biggest glass-house this company has ever built. The nearest in size, in the world, is the entomological enclosure in Stratford, U.K. and by comparison, the much publicised Butterfly Aviary at the Melbourne Zoo is only about half the size of ours."

In addition to conceiving the idea of the million dollar sanctuary complex, Paul has been personally involved with the design and construction of the aviary. "As there is no similar structure of such a scale, anywhere, we had to design many aspects from scratch", he said. "We designed and built a ventilation system in the roof to maintain an even temperature in the enclosure, as close as possible to the rainforest. Also an irrigation system had to be incorporated into the roof to provide a misty "rain", both for watering the lush vegetation and to maintain the right level of humidity, suitable to the butterflies. We even designed a special hook mechanism to secure extension ladders to the roof beams, to access for servicing all this equipment" Paul continued.

According to Paul the design of the cavernous aviary had to take into account the natural habitat, foodplants, flight paths and behaviour of the butterflies. The vast space is particularly suited to two of the most spectacular exhibits — the Australian Birdwing and the Ulysses — both prodigious flyers. There is balance between shaded and light areas, still and moving water, sandy and rocky areas and there are no sharp corners which tend to baffle butterflies, due to their unidirectional vision.

Inside the mammoth shade-cloth dome a condensed rainforest environment has been created with extensive landscaping that includes pathways, pools, waterfalls and creeks and the rainforest vegetation and the food-plants essential to the life-cycle of the butterflies. Approximately \$150,000 has been spent on landscaping alone.

At any one time there will be up to 350 butterflies living in the aviary and some of the species that Paul exhibits include the red Lace-wing, Blue Triangle, Orange Aeroplane, Blue Tiger and the well known Fluro-green Birdwing and electric-blue and black Ulysses. In the wild the life-span is up to two months with some butterflies living as long as six months. With an intensive, self-designed breeding programme conducted, using rigorous checks and controls to safeguard the growing butterfly population, Paul has made his Australian Butterfly Sanctuary a self-sufficient breeder. The breeding and construction programme has kept him and his wife Sue, fully occupied, seven days a week for over two years.

The timing for the fulfilment of Paul Wright's dream was near perfect with the burgeoning tourist industry taking off in Far North Queensland and the Australian Butterfly Sanctuary has received a high level of acceptance from both visitors and locals. "Butterflies are harmless to humans, stunningly beautiful and absolutely fascinating", says Paul enthusiastically. "Most people are aware of the spectacular Ulysses, which has become the unofficial logo of the rainforest region of the Far North and the opportunity to see the Ulysses and many other

species, live, in their natural habitat, has great appeal. I suggest that our Sanctuary will enhance the rainforest experience, the way the submersible viewing vessels have offered greater access to the Great Barrier Reef experience. Both the Reef and the Rainforest are unique attractions of the region and both are now quite accessible to almost everyone, in complete safety and regardless of physical health or skills."

He continued: "We took a leaf out of the Japanese Garden concept, when we designed the rainforest walks throughout the aviary, giving the impression of strolling some distance in the space available. Each path is screened from the other by rock formations and jungle growth and the impression of rainforest is very real while frequently sighting many brilliantly coloured butterflies. In fact they become very tame around people and it's not unusual for them to gently alight on your clothing — they are very inquisitive, usually attracted by bright colours."

While the flight aviary is the centrepiece of the Australian Butterfly Sanctuary, the complex comprises support infrastructure such as breeding aviaries, foodplant nurseries, a laboratory, entrance foyer and kiosk and an air-conditioned de-humidified museum which visitors enter as they emerge from the aviary.

The museum displays and explains the life-cycle of the butterflies, feeding habits, their protective mechanism against predators, their physiology, their incredible unidirectional and multi-coloured vision and their unparalleled flying ability. Also there are static displays of the most interesting, colourful and exotic species from around the world. In addition to being a unique and fascinating tourist attraction, Paul intends his Sanctuary to become a national and international centre for both amateur and professional lepidopterists.

For Australian butterflies Kuranda is the place", says Paul as he proudly surveys the reality of his Sanctuary, that has been a dream so long. "The lepidoptery fraternity, whether they are amateur collectors or professionals with a scientific interest, is close-knit, with an almost fanatical obsession about anything to do with butterflies and I think the Australian Butterfly Sanctuary will attract fanciers from around the world."

So Paul Wright, butterfly collector, gentleman-naturalist, butterfly farmer and tourist entrepreneur has put Australia and Far North Queensland on the world map with his Australian Butterfly Sanctuary. "What we have created is a rare experience that will be attractive to many people — the only problem encountered so far is that visitors don't want to leave the beautiful and restful atmosphere of the aviary", Paul concluded.

CRETE — JULY/AUGUST 1988

by Rob Parker

To get the most out of a family summer holiday, the amateur entomologist needs to plan ahead and to make a few compromises. After all, the aim is to enjoy the holiday and the butterflies without allowing the collecting to wreck family relationships.

Often the first compromise comes in the choice of dates; if you have to go during the school holidays you will miss the best of the season in the Mediterranean, so it is even more important to read up on the entomology of your destination and sort out what species might still be on the wing and where to find them. Back issues of the AES and BENHS publications are worth searching to find an account by someone who has collected there before. Perhaps the following lines will be of interest to any future visitor to Crete. We stayed at Elounda from 21st July to 12th August 1988.

We awoke to the call of an exceptionally loud and insistent cicada and emerged onto our balcony for our first daylight view of our chosen location. Only an olive grove separated us from the sea — the open Mediterranean to the right and the sheltered Elouda basin, once used by Imperial Airways seaplane service to our left. Ahead a causeway led to the offshore island of Spinalonga which cut an attractive skyline with its intensity felt. The first species noted in the hotel garden were the ubiquitous Small white, *Artogeia rapae*, and a very large Meadow brown, *Maniola jurtina corfiothispulla*, as the Corfu/Cretan race is known (Graves, 1933). A walk across the causeway revealed a couple of Swallowtails, *Papilio machaon* and a Clouded yellow, *Colias croceus*. Growing at sea level was an attractive purple-flowered salt-resistant herb, which looked from a distance like thyme, but was probably a *Viburnum* sp. Painted ladies, *Cynthia cardui*, were common on these flowers for the first week, but faded out thereafter. Also common thereabouts were some very large black solitary bees, probably *Xylocopa violacea*. Evident from a great distance, fluttering between the olives, was a single Scarce swallowtail, *Iphiclides podalirius*. We had arrived!

Snorkelling was interesting too, with sea-cucumbers, spiny starfish, sponges, loofahs and enormous clams in evidence, even of the fisherman if the family was more interested in the sea bream in the flooded salt ponds beside the causeway.

The island of Spinalonga yielded some snakes and the endemic Cretan Small heath, *Coenonympha pamphilus thyrsis* which was distinctively different from the normal European *pamphilus*, and too large to be mistaken for it. Unfortunately, the first example I found had been

pecked by a bird, and most of the others were badly worn, being towards the end of their season. At the northern tip of the island is another with the same name (Little Spinalonga) which has an interesting history, having been intensely fortified before serving as a leper colony until 1951. Here I watched a female *P. machaon* laying on the fennel stems with just a few flower/seed heads still edible. I was interested to note that the insect was laying on the tiny yellow-green buds which were presumably going to emerge if the plant could find any moisture. Although I searched extensively, I recovered only one larva.

Elouda itself is a fishing port which has developed for tourism to an agreeable degree. There were more than 21 tavernas, giving us one each night with choice to spare, but there was not the overcrowded hustle-bustle of overdeveloped Ayios Nikolaos just seven kilometres to the south. Every day for a week we walked past a front garden with a clump of healthy looking (irrigated) fennel, without noticing the eight final instar *P. machaon* larvae to whom it was home. As we were on our way out for the day I decided to leave them until the following day. That was a mistake, as only two were to be found the next morning, the others having presumably found pupation sites out of my reach! Despite extensive searching on the other fennel clumps around the island, I found larvae nowhere else, but that particular garden yielded another five before the holiday was out, clearly laid in later batches from their size. None of them were parasitised — a satisfactory contrast with my experience with *P. machaon* from Cyprus (Parker 1983). Rearing them in the hotel room was fraught with hazards — their chosen pupation sites were on the balcony and in the window sliding gear, whilst the maid turned out to be another predator!

Naturally enough the seaside is not the best August biotope, so excursions to the hills are the order of the day. We hired a mini-moke, which turned out to be an ideal vehicle for an insect patrol. I had pre-surveyed likely spots by looking for drives near perennial water en route to other attractions of interest to the rest of the family. At about 450 metres, approaching Kalamafka we spotted dark shapes flitting across the road, and I set off in pursuit of the endemic Grayling (following Kudrna 1977) (*Hipparchia cretica*). This was not easily caught as it is so well camouflaged when settled on inaccessible pine trunks. Its behaviour was similar to *Hipparchia* in Cyprus, but I found it less abundant. Soon I added the Southern comma *Polygonia egea* to my collection, an insect that has evaded me in the past. By 10.30 a.m. I had noted 15 species including the Brown argus, *Aricia agestis*, the Bath white, *Pontia daplicice*, the Red admiral, *Vanessa atalanta*, the Common blue, *Polyommatus icarus*, the Speckled wood, *Parage aegeria* and a couple of Hesperiiids — the Mallow skipper, *Carcharodus alceae* and the Pigmy skipper, *Gegenes pumilio*.

All those picture postcards of Cretan windmills are taken on the Lasithi, a protected plateau set high up in the hills (950 metres was higher than I expected). We drove up via Mesopotomos (700 m) and found greenery, water and butterflies. I particularly remember standing at the edge of a glade and thinking that it looked just right. At that moment my son jumped off a wall at the far side and charged towards me disturbing a veritable cloud of butterflies, comprising thousands of *P. icarus* and *A. agestis*. In all, Mesopotomos yielded 18 species, including the Holly blue, *Celastrina argiolus*, the Small copper, *Lycaena phlaeas*, the Long-tailed blue, *Lampides boeticus*, a large but very tatty Purple hairstreak, *Quercusia quercus* on evergreen oak and a single specimen of the Oriental meadow brown, *Hyponephele lupina*. Higher up, near the Dikti Cave at Psychro we enjoyed staining our faces by eating delicious mulberries whilst *I. podalirius* flew around. Nearby we saw our first Cleopatra, *Gonepteryx cleopatra*, a Hummingbird hawkmoth, *Macroglossum stellatarum* and got excited chasing a tiny blue that turned out only to be a dwarf *P. icarus*.

Charles and Nick Derry had been on the island in June 1981, and gave me some tips and a list of 37 species, one of which, the Cretan argus, *Kretania psylorita* they found locally abundant on Mount Ida. As an endemic, it was a species I was keen to find, although my chances by August were slim. Mount Ida rises to 2456 m and we spent one day exploring the barren reaches above the Nidha plateau, but we saw more eagles (six) than *K. psylorita* (none). At one point we negotiated a descending turn to find two enormous eagles standing on the road ahead. We had a couple of minutes to watch them before they ambled to the roadside and threw themselves off the precipice into an upcurrent. Thereafter, they circled around us and at one point one swooped down over the top of the open convertible — so close that we could hear the rush of air through its wings! Well, never mind *K. psylorita*, it will provide an excuse to go back another year.

The Palace of Knossos and the Iraklion Museum are both magnificent and memorable, but are unfortunately overrun with tourists. The public gardens near the museum reminded me of Nicosia and despite their small size, gave me a viewing interlude that was much like one of the indoor butterfly houses. I watched a couple of *I. podalirius* feeding at a bed of zinnias where *P. machaon*, *G. cleopatra* and *C. cardui* brought colour, and the Mediterranean Skipper, *Gegenes nostradamus* added another species. Further along the Venetian city wall I found the nursery of the City's Parks Department. It was hot, and nothing much was seen until I spotted a number of blues flying strongly around the cream coloured flowers of a laburnum-like tree. These turned out to be Lang's short-

tailed blue, *Syntarucus pirthous*, but it took me some patience and a couple of snags in my net to be sure.

On another day we returned to Kalamafka and found a taverna beside a stream where we sat under the shade of walnut trees cooling our bare feet in the water. A glimpse of gold told me that the Cardinal, *Pandoriana pandora* was around, and I walked up the river bed in pursuit, displacing swarms of large damselflies as I went. On returning I found that the *P. pandora* had obligingly allowed my son to box it whilst it settled on a walnut leaf. Thereafter we had the pleasure of seeing three of them in mating flight swirling around our heads in the dappled shade.

Driving to the eastern end of the island we found a strip of the north coast road that we dubbed "the Oleander Coast". A strip of at least 10 km had Oleander bushes planted at the roadside in one continuous blaze of colour. Naturally we stopped to look for larvae of the Oleander hawkmoth, *Daphnis nerii* and I soon discovered their droppings under every third bush. Clearly the larvae had pupated, but there were plenty of grasshoppers, locusts, praying mantis and an enormous bush cricket as well as some odd spiders — one large one that looked like the underside of a crab, and one tiny white one that looked more like a hermit crab without its shell. Generally the eastern end of the island was arid and entomologically disappointing, although we made a point of visiting Europe's only natural palm fringed beach at Vai. By way of compensation for the lack of *D. nerii*, we found a perfect Striped hawkmoth, *Hyles lineata livornica* in the dining room at breakfast next morning.

So all in all, it was a holiday enriched by a little collecting. If you get a chance to go to Crete, then go in June and you should see more than I did. I can recommend Ouzo as a "relaxing fluid". The species list below incorporates the species taken by the Derry brothers and should prove useful for holiday reference. I took only two species they missed. Another species, *Pyrgus armoricanus*, confirmed by Rutherford (1984), escaped our attention entirely. Crete and its butterflies is very like Cyprus and its.

SPECIES LIST — CRETE

	Endemic Form	Derry June 1981	Parker Jul/Aug 1988
<i>Papilio machaon</i>		x	x
<i>Iphiclides podalirius</i>		x	x
<i>Allancastria cerisyi cretica</i>	E	x	
<i>Artogeia rapae</i>		x	x
<i>Artogeia ergane</i>		x	
<i>Pieris brassicae</i>		x	

<i>Pontia daplidice</i>		x	x
<i>Euchloe ausonia (simplonia)</i>		x	
<i>Colias croceus</i>		x	x
<i>Colias erate (*)</i>		x	
<i>Leptidea sinapsis</i>		x	
<i>Gonepteryx cleopatra</i>		x	x
<i>Charaxes jasius</i>		x	
<i>Nymphalis polychloros</i>		x	
<i>Pandoriana pandora</i>		x	x
<i>Vanessa atalanta</i>		x	x
<i>Cynthia cardui</i>		x	x
<i>Polygonia egea</i>		x	x
<i>Pararge aegeria</i>		x	x
<i>Lasiommata megera</i>		x	x
<i>Maniola jurtina corfiothispulla</i>	E	x	x
<i>Hyponephele lupina</i>		x	x
<i>Hipparchia cretica</i>	E	x	x
<i>Pseudochazara anthelea</i>		x	
<i>Coenonympha pamphilus thyrasis</i>	E	x	x
<i>Kretania psylorita</i>	E	x	
<i>Lycaena phlaeas</i>		x	x
<i>Aricia agestis</i>		x	x
<i>Quercusia quercus</i>			x
<i>Polyommatus icarus</i>			x
<i>Lampides boeticus</i>		x	x
<i>Syntarucus pirthous</i>			x
<i>Pseudophilotes baton schiffermulleri</i>		x	
<i>Celastrina argiolus</i>		x	x
<i>Freyeria trochylus</i>		x	
<i>Thymelicus acteon</i>		x	x
<i>Carcharodus alceae</i>		x	x
<i>Gegenes nostrodamus</i>		x	x
<i>Gegenese pumilio</i>		x	x

(*) The single specimen taken is apparently a *croceus x erate* hybrid (Derry C., pers. comm.). Further information is needed on *erate* in Crete.

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WHY NOT STUDY COCKROACHES?

by George Beccaloni (8137)

Cockroaches (Order Blattodea) are an ancient group of primitive omnivorous insects which have existed since the Upper Carboniferous period some 250 million years ago. To date approximately 4000 species have been described and there are probably at least twice this number still to be discovered worldwide. Although a high proportion of the species are found in the tropics a few occur in temperate climates. There are about 72 native European cockroaches and Britain boasts three small wild *Ectobius* species plus three common introduced pests.

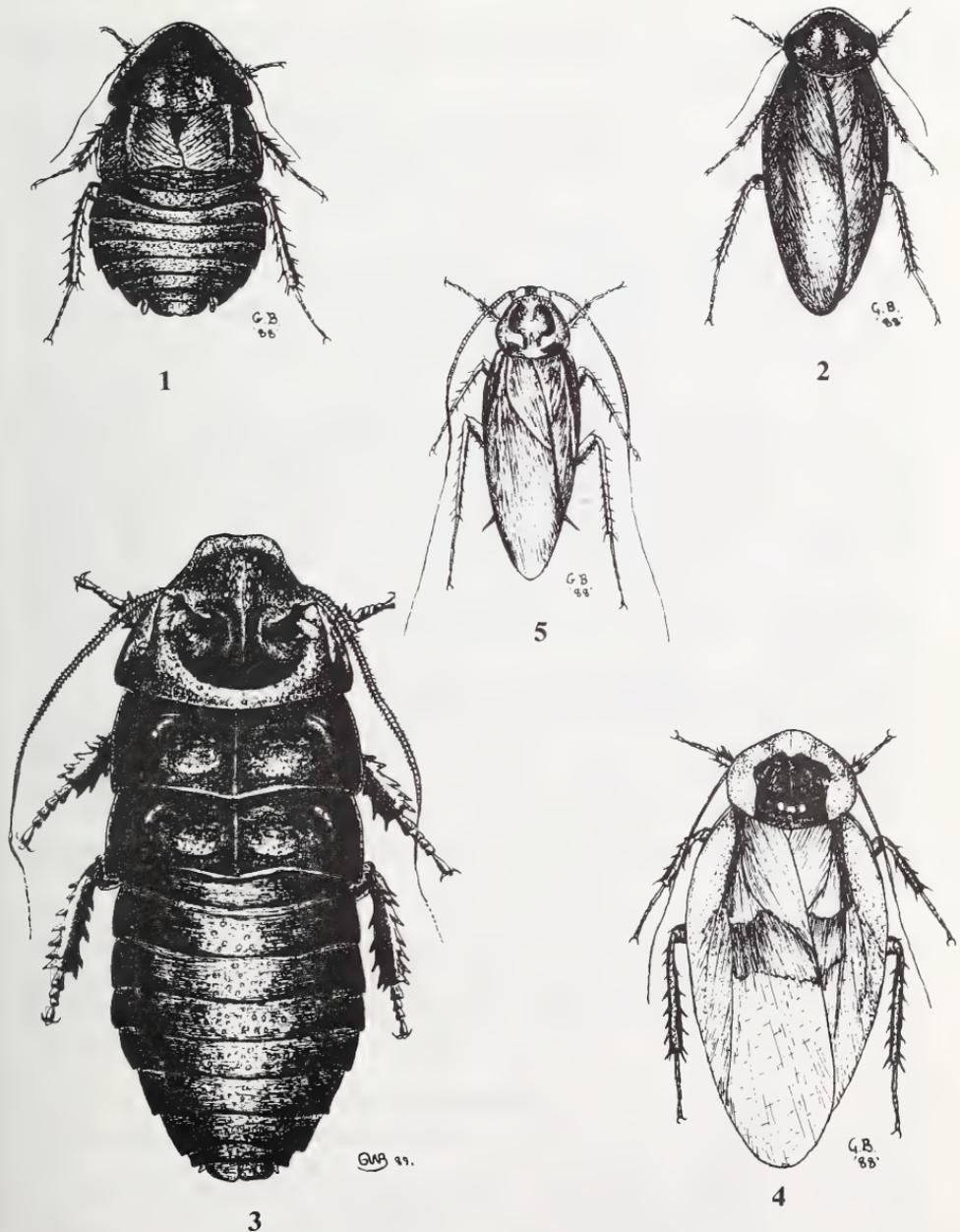
Unfortunately most people (including many entomologists!) seem to regard *all* cockroaches as offensive and destructive vermin. However, this reputation is justly deserved by less than 1% of the species total; the vast majority being secretive insects which never associate with man.

As a group cockroaches exhibit a remarkable diversity of size, form, coloration and behaviour and occupy a very wide range of habitats from caves to mountains, from rainforests to deserts. Some tropical cockroaches are known only from bird's nests and there are even semi-aquatic species which live in epiphytic bromeliad plants.

An Australian cockroach *Macropanesthia rhinoceros* and the Madagascan *Gromphadorhina grandidieri* (Fig. 3) are among the world's bulkiest insects and have body lengths of 8cm and 8.5cm respectively. The largest wingspan is possessed by the Central American *Megaloblatta blaberoides*, which has a spread of up to 20cm. Others like *Attaphila fungicola* (a North American species found in the fungus gardens of leaf-cutting ants) are less than 3mm long.

Many cockroach species are wingless or have vestigial wings and some, eg. *Bryotria fumigata* (Figs. 1 and 2) have fully winged males and burrowing females whose wings are reduced to small flaps. The burrowing Asian *Panesthia* species develop wings upon becoming adult but these are then broken or chewed off about one third of the way down their length, presumably once the insects have dispersed.

Sexual dimorphism occurs in many cockroaches and is especially striking in the *Elliptorhina* and *Gromphadorhina* genera of Madagascar. The males of these insects have well developed horns on their pronota and use them to do battle with rival males — the largest specimen usually emerging as the victor. These two genera (in common with the other members of the family Blaberidae) are interesting because the females give birth to live nymphs. The



Figs. 1-5. Some cockroach species kept in British culture. (All life size): 1, *Byrsotria fumigata* Cuban burrowing cockroach) female; 2, *Byrsotria fumigata* male; 3, *Gromphadorhina grandidieri* male; 4, *Blaberus craniifer* (Death's-head cockroach) male; 5, *Periplaneta americana* (American cockroach) male.

membranous ootheca containing the ova is incubated in the brood pouch within the female's body.

Cockroaches of the other families, Cryptocercidae, Polyphagidae, Blattellidae and Blattidae, produce hardend oothecae which they carry for varying lengths of time, sometimes for the whole of the incubation period.

More commonly the females deposit their oothecae on the ground or attach them to substrate with a cement produced by their mouths. Some cockroaches eg. *Pycnoscelus surinamensis* are capable of parthenogenesis, but males are found in most if not all species.

Cockroaches have evolved a wide variety of techniques to avoid being eaten by predators. Many like the leaf green *Panchlora* species rely on crypsis, while others have warning coloration or mimic distasteful insects. *Trichoblatta magnifica*, a metallic green Chinese species, rolls up like a Pill Millipede when molested, but most depend on speed and agility to escape. A few possess active defence mechanisms. These include spraying repellent fluid from abdominal glands like *Diploptera punctata* and producing startling noises by expelling air rapidly through abdominal spiracles, as in *Gromphadorhina portentosa* (Hissing Cockroach).

Apart from extensive studies of the major pest species very little work has been done on the group as a whole and they remain relatively neglected by both amateur and professional entomologists alike. The majority are easy to keep in culture and they don't require tedious changes of foodplant like Phasmids or livefoods like Mantids!

Few books exist which deal exclusively with cockroaches, but the interested reader is referred to those listed in the bibliography.

To facilitate the study and rearing of these fascinating insects the "Blattodea Culture Group" was formed in 1986. To obtain more information about the BCG, please send a SAE to the author (G. Beccaloni), BCG Membership Secretary, 35a Church Road, Hanwell, London W7 3BD.

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SOME NOTES ON THE REARING OF THE OWL BUTTERFLY (*CALIGO BELTRAO*)

by Andrew Booth (8498)

During the summer of 1988 I attempted to breed the Owl butterfly in my greenhouse. Despite the flight area being only 11 ft x 8 ft, with a maximum height of 10 ft, I was hopeful that I would succeed. Owl butterflies are surprisingly good fliers in confined spaces, and as an earlier experiment in 1986 had produced much courtship activity, although at that time I had no banana plants for the butterflies to lay on. By spring 1988, I had acquired a potted banana plant, which was about three feet tall.

However, despite the butterflies (ten in all) settling down well, they produced no eggs, though there was, at dusk, much furious chasing. Whether this was courtship or territorial behaviour, I could not tell; in any case, I saw no pairing, and found no eggs on my banana plant. When the last butterfly died in November, aged four months, I still had no ova to continue the colony.

I had instead bought some 50 ova, described as "Probably *Caligo memnon*, could be some *C. euilochus*", and a further two potted banana plants. Obviously, I had nowhere near enough foodplant for all these, so I was somewhat relieved when only 18 proved fertile. These hatched during the third week of October.

Caligo larvae grow to about 5½ inches in length, and are nearly an inch thick at their broadest point, when fully grown, and I was doubtful whether my three plants, which by this time had almost stopped growing, could sustain all eighteen. Further supplies of foodplant proved extremely difficult to find.

Exactly how much a *Caligo* larva eats during its lifetime does not seem to be well known. Expert opinions varied from "An awful lot" to "A tremendous amount". The most specific estimate I could find was "A four foot banana plant each". But exactly how big is that? Surely it depends on the amount and size of the leaves on the plant in question. As a banana grows, its leaves become progressively larger, but on the other hand it has fewer of them. An eight foot plant, for instance, may have only five or six leaves, but they may each be seven or eight feet long. My plants, at about three feet in height, had between eight and ten leaves, the largest leaf being only eighteen inches long and twelve inches wide.

As I was fairly certain that I did not have enough foodplant, I put my 18 larvae on one of the plants in an unheated room, as I had heard that they could be reared over a period of months at low temperatures. I hoped I would be able to find some more foodplant by the time they had

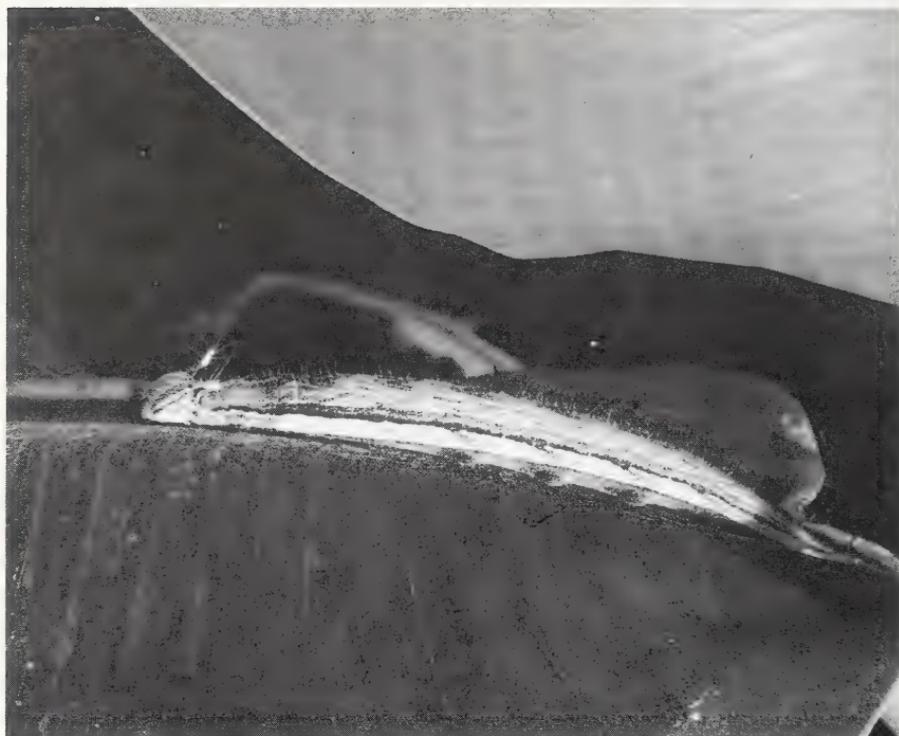


Fig. 1. Larva of *C. beltrao* on banana leaf.

reached their final instar, when they would be at their hungriest. To confirm that they really did grow more slowly at low temperatures, I moved one larva to another plant in a heated room (on top of the television). After about two weeks it was noticeably bigger than its brothers.

In the third week of November, winter temporarily set in. Temperatures in the unheated (though sunny) room, previously around 55°F, dropped by around ten degrees. Slowly the larvae began to die, although the one on the television still flourished. Initially I suspected that the deaths were due to the larvae eating a withered leaf, but, convinced that the falling temperatures were to blame, I switched the heating on. The temperature stabilised at 62°F. At this stage, I had a total of five larvae left, which seemed a much more reasonable number, bearing in mind my supply of banana leaves.

I still, however, wasn't sure if I had enough or not. I wouldn't find out until they were half way through their final instar, when it might be too late to find more supplies.

By mid December, I still hadn't moved the isolated larva back onto the plant with the other four, although it was by then abundantly clear that *Caligo* larvae grow faster in the warm. The position on top of the TV seemed to suit it; by December 24th it was about 90mm long, and it cast its skin for the last time that afternoon. Its companions next door were only just past their second moult, about 20mm in length.

It then occurred to me that this isolation of a single larva was an excellent opportunity to discover precisely the intake of these fine caterpillars. I could see what it had eaten up to this point, and it would not be too difficult to measure in, say square centimetres, the area of the missing leaf.

I made a scale drawing of each leaf on graph paper, and marked out the portions eaten. *Caligo* larvae don't seem to wander much, and the feeding had mostly been confined to two leaves. At the time of the last moult, it had eaten 335 cm². *Caligo* larvae feed mostly at night, and from 25th December onwards, on each morning a new section of leaf was missing. I ticked off the square centimetres on my graph papers. It seemed, in the final instar, to eat between 70cm² and 200cm² a night. I guessed that in the final instar it would eat about four times the area of leaf it had done in the first four instars (355cm² x 4 = 1,460cm². See Table 1).

By 3rd January it had consumed 1,320cm² and was very restless, being found twice that day on the carpet. It was wet, the moisture apparently coming from its mouth. I concluded that it was ready to pupate, and placed it in a cardboard box. It remained motionless for 24 hours, then began exploring the new environment. In case it should require a last feed I put a small piece of banana leaf, in a pot of water, in with the caterpillar. On the morning of 5th January, the leaf segment had been eaten.

I decided that the caterpillar was not after all about to pupate, and returned it to the plant on the TV and it began feeding enthusiastically.

On the 8th January it was again restless, producing the same brownish fluid, which became smeared along the length of its body.

This is normal pupation behaviour for some large caterpillars (Hawk and Silkmoth), so I returned the larva to the pupation cage, again with a small piece of banana leaf. It was another false alarm, so I put it back on its plant, where it continued to feed until the 18th January.



Fig. 2. Head of *C. beltrao* larva viewed from above.

Date	Leaf consumed (cms ²)	Length of larva (mm)
25/12	115	91
26/12	121	105
27/12	63	114
28/12	53	128
29/12	100	
30/12	121	
31/12	146	136
1/1	76	
2/1	159	145
3/1	12	
4/1	28	
5/1	113	
6/1	211	
7/1	251	138
8/1	—	
9/1	40	
10/1	181	146
11/1	219	
12/1	268	
13/1	253	
14/1	156	148
15/1	138	
16/1	135	
17/1	71	135
18/1	—	123
20/1	—	85

Table 1. Amount of banana leaf consumed by and size of *C. beltrao* larva kept on top of television set.

Over the previous four nights its appetite had begun to diminish, and by the evening of the 18th, it was once again restless. This time there was no voiding of fluid. I put it in the pupation cage for the third time.

On the afternoon of 20th January, it began spinning a silk pad, and by 8.00 pm it was hanging. It was not very firmly attached, and fell off when the box was moved in order to take a photograph. It was replaced, and pupated on 22nd January, falling off again when trying to free itself from the old skin. I managed to replace it for a second time without damage, and over the next three days the pupa hardened. The butterfly hatched on 7th February, after 16 days at approximately 80°F. It was a female *C. beltrao*, not *C. eurilochus* or *C. memnon*, as I had expected.

The remaining four larvae were now enjoying temperatures around 70°F, and by January 19th had all reached the fourth instar. The first larva had reached that stage five weeks earlier. I could now calculate the amount of food the remaining four would need and this amounted to 12,696cm².

This would be the total area of leaf the four would eat in their lifetime; the total for the last two instars would not be significantly less than this.

My three potted plants were by this time looking rather the worse for wear. I measured the area of leaf they had left between them; it came to less than 4,000cm² — clearly not enough. I debated whether to destroy two or three larvae, to ensure that the survivors would have enough to eat.

Luckily, I didn't have to. By the 1st February I had finally located some potted banana plants, six in all, with a total leaf area of 32,000cm². Plenty.

When the third of the remaining four reached the fifth instar, I moved the three to the first of the new plants, leaving behind the one larva which was due to moult within the next day or two. Within an hour the three on the new plants were showing signs of distress. I put them back on their original plant, but they died, one by one over the next week without resuming feeding. It seemed that my new plants were harbouring some powerful insecticide. The sole survivor also failed to reach the pupal stage, despite not coming into contact with the new plants. When it moulted it was unable to detach its old head case, which caused the new soft jaws underneath to be deformed. It was therefore unable to feed.

Despite the fact that all but one of the larvae failed to reach the adult stage, the experiment was at least a partial success, as I now know how much I can expect future larvae to eat. Assuming that the insecticide on the new plants wears off, I estimate that I have enough food for about twelve larvae, possibly more as the plants grow larger.

OCCURRENCE OF THE PURPLE HAIRSTREAK (*QUERCUSIA QUERCUS*) AT KENMARE, CO. KERRY

by John W. Lavery (7469)

On Sunday 7th May 1989, while beating mature oak trees at Urragh wood, near Kenmare, Co. Kerry, I obtained the larvae of the Purple hairstreak. These were found on the lower branches and were fully grown.

BOOK REVIEW

Local lists of lepidoptera or a bibliographical catalogue of local lists and regional accounts of the butterflies and moths of the British Isles, by J.M. Chalmers-Hunt. Pp.247; 8vo. Hedera Press, Uffington 1989. Hardback. Price £21.00.

One of the advantages of a book of lists such as this is that attention is drawn to the gaps in our knowledge. There are some surprising differences in the number of lists that have appeared for the various counties. This undoubtedly reflects the lack of appeal, or under-population, of the county concerned rather than a lack of lepidoptera to record.

As an example, Inverness-shire, which is after all a very populous and pleasant part of Scotland, is as well-recorded as any southern English county, but Peebleshire has but one list recorded for it, in 1897, and Clackmannanshire only two, both dating back to 1845 and then only as part of a study of a larger area. Has no-one bothered to entomologise in these counties over the past 100 years? Could such a lack of appeal be due to pure chance and the "follow-my-leader" attitude of past collectors? Had the Rannoch brindled beauty (and the other two "Rannoch" specialities been first discovered in Peebleshire instead of on Rannoch moor, which straddled Argyshire and Perthshire, both well listed counties, then I strongly suspect Peebleshire would have had as many listings as Rannoch, for it was to Rannoch that the collectors flocked (and still do) after the first report of a choice rarity.

Even in England there are anomalies. Bedfordshire and Leicestershire have been very poorly listed, particularly when compared to their neighbours. Why has Cambridgeshire been favoured with some two and a half times as many listings as Oxfordshire? Could it be that Cambridge was always regarded as being "Scientific" while Oxford was "Classical"? To make this difference even odder is that while Oxford has had a professor of entomology for very many years presiding over a thriving and well-known Department of Entomology no such post or separate department exists in Cambridge. A possible explanation of course is that in the past lists have been compiled by "amateur entomologists" not "professionals".

The author of this book, Michael Chalmers-Hunt, must already be known to many, not only as a former editor for many years of our contemporary *The Entomologist's Record* but also as the meticulous recorder of the lepidoptera of Kent, a massive work published over some 20 years, and of that useful compilation *Natural History Auctions*". The same meticulous attention to detail shown in his previous publications is evident here. Quite clearly a systematic search has been made, almost

certainly page by page, for indices, when present, would not always give the correct information. Clearly a labour of love and dedication, coupled with his own interest in collecting, not just the lepidoptera themselves, but the literature about them, which must have involved corresponding widely with collectors, librarians and bookdealers, for a reading of this book reveals that a considerable number of manuscript lists now repose in his library. A number of other records are also unique, with their present owners given. At the moment, this is useful information, but items such as these will eventually move on and may become untraceable, although we express the hope that they will eventually end up in an accessible library, or even be published. Useful are the comments on some lists as to where, often in a commonly available source, they have been reviewed.

Although many of the lists are to be found in the pages of the more common and available journals, others are in obscure and rare publications. This shows both the thoroughness of the author in seeking them out and the difficulties the reader who wishes to consult them faces. This book now shows where the knowledge of the past is to be found and for anyone setting out to compile a modern list or to confirm the present states of species in an area, this book is an indispensable tool.

This is yet another example of a small private press producing a quality product, for this book is well printed on a good quality white matt paper in an easy to read typeface and is conventionally bound as a hardback. Checking a few obscure publications from my own library, which I knew listed a few lepidoptera although not obviously so from the title, I found they had been recorded. In a difficult layout as this list is, using three typefaces and innumerable abbreviations, an extensive use of the book while writing this review failed to bring any typographical errors to my notice. Author, publisher and printer are to be congratulated.

Brian Gardiner

SOME OBSERVATIONS ON BREEDING SSP *HIBERNICA* OF THE ORANGE-TIP BUTTERFLY

by John W. Lavery (7469)

Since 1978 I have annually bred *Anthocaris cardamines* ssp. *hibernica* from the egg stage. It is a most interesting and very predictable insect, and for anyone who would like to study camouflage then the breeding of *cardamines* on a growing plant of *C. pratensis* — Cuckoo flower, where it blends in with the seed pods, is an excellent choice.

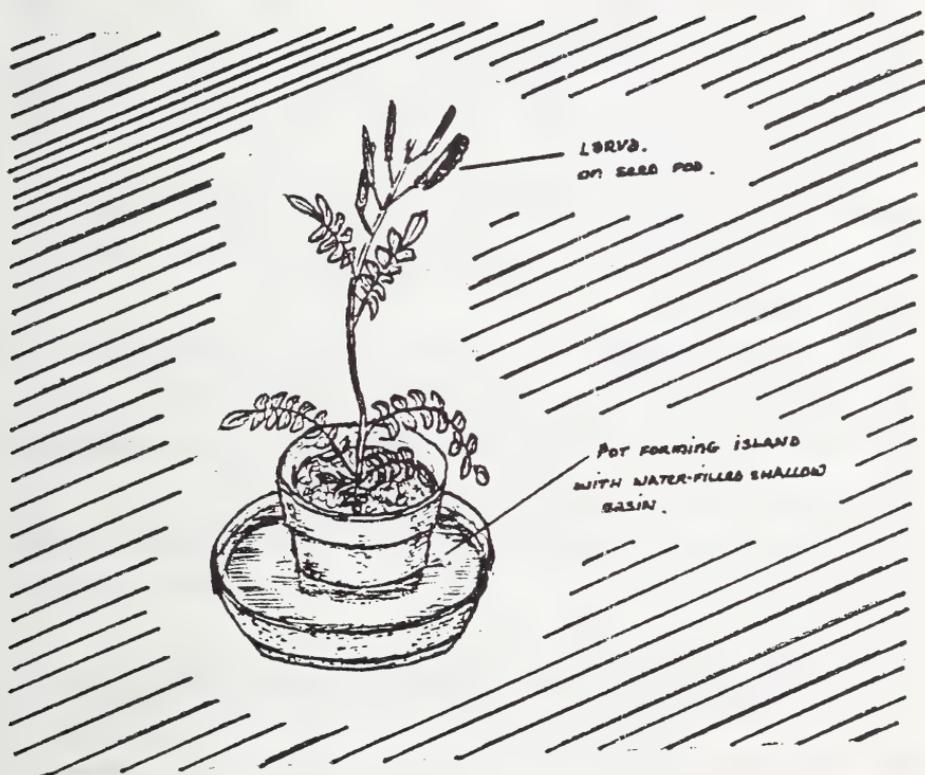


Fig. 1. Method of isolating the larvae.

One plant stem and side leaves is sufficient to breed one larva to full size. Because of the tendency towards cannibalism especially when the larvae are near or full grown (larvae will even attack and eat freshly-formed pupae) I isolate each one on an artificial island (Fig. 1). This serves a second perhaps more important purpose, namely to prevent wandering and loss of stock at time of pupation. The larvae will wander about their pots and remaining plant stems, eventually to settle down and pupate safely.

This method is best maintained outdoors where, depending on weather temperature, ovum to pupa will be completed in about six weeks.

Finally netting of the sort gardeners use should be kept over the pots of foodplants as these can be occasionally inspected by House sparrows (*Passer domesticus*), who readily devour the growing larvae.

GYPSY MOTHS — A NO-GO AREA FOR AMATEURS

by Duncan Reavey (6934)

Most people know something about the Gypsy Moth (*Lymantria dispar*), whether it's the history of the species in this country and the United States or the fact that Gypsy livestock has been about the cheapest available to amateurs for years.

But the point of this particular story is to make it clear that **it is now illegal to hold, transfer or import stock of the gypsy moth without a licence from MAFF**. A licence is only granted for special scientific purposes and the Ministry lays down strict conditions on how the stock should be maintained.

We stress that in order to comply with the law, all unlicensed stock should be destroyed and no trade in this species can be allowed.

A booklet *Guide for Importers - Importing Invertebrates* outlines plant health legislation covering the import of invertebrates and includes a list of species that can only be imported under licence. It can be obtained free of charge from the Ministry of Agriculture, Fisheries and Food, Plant Health Division, Nobel House, 17 Smith Square, London SW1P 3HX. Tel: 01-238 3000. This is also the address for general enquiries on this area of law.

VAR *HOSPITA* OF THE WOOD TIGER IN NORTH YORKSHIRE

by N. W. Harwood (825)

On Tuesday 20th June this year, seven virgin female Wood tiger moths (*Parasemia plantaginis*) were taken on Danby Low Moor, North Yorkshire. It was a fine warm evening and in the hour and a half between 6.00pm and 7.30pm 53 males had arrived of which six were var *hospita*. These were allowed to pair with the females. Three days later I again took four females onto the Moor and this time three *hospita* assembled. I may add that the larvae of the Wood tiger are common here during April and May.

MOTHS ATTRACTED INTO BOWLS OF WATER

by J. M. Waring (9193)

Having recently joined the AES, I was reading the April issue this year and was most interested in Jan Koryszko's account of finding large numbers of moths in puddles on moonlit nights (*Bulletin* 48: 79). Now I have a couple of pet cats which like to stay out of doors and because of this I keep two large bowls of water by the side of the lawn for them to partake of at night.

Situated high on the wall above the bowls is a large ex NCB mercury vapour sunflood lamp which obviously attracts large numbers of moths when my own trap is not in use. Like Jan I have also noticed many moths apparently taking a moonlit dip in the cat bowls, always doing the backstroke. After observing the phenomenon for several nights I decided that any of the families of moths were prone to do this. The position of the bowls seems to be quite critical though, for if they are placed close together the moths seem to get confused as to which light source to follow and if they are too far away from the main light source the intensity of the reflected light is not great enough to attract them.

The size of the bowl also seems to be important, for if more than ten inches across, finding a sub-aqua moth is a rare occasion. Six inches diameter seems to be ideal. I took some measurements and when viewed from a height of 12 feet above the ground a 6 to 8 inch diameter bowl looks about the same size as the moon when viewed from earth. Could this be the beacon the moths are looking for?

INSECTS AND GOLF COURSES

by C. Lock (7669)

In the January *Bulletin* this year (*Bulletin* 48: 35), in considering the matter of the extension of a golf course to take in part of Ickenham Green Common, the question was posed — “Is the course at Sandwich still good entomologically?” I will try to answer this.

There is no doubt that a golf course is preferable to most other alternatives, except leaving it as nature intended it to be, but there are drawbacks due to continual mowing and trimming. More important is access. Even as a golfer, one cannot concentrate for long or easily follow a particular insect on busy courses like these here, but for non-golfers or non-club members creeping enclosure is a greater threat. The report below from the local paper I think makes this point clear.

I still find a variety of species along the perimeter of the courses, along the river bank and in the Nature Reserves which adjoin this corner of the Bay. Not to be hit by flying golf-balls is a bonus.

“*Walkers beware!*”

Fears of flying golf balls causing a fatal accident have forced the Royal Cinque Ports Club to fence off part of its course at Sandown.

The club is worried about more people using its land, especially since development in the Golf Road area has increased.

‘We are greatly concerned at the risk in which members of the public are putting themselves and their dogs by walking on the golf course’ said secretary Nigel Phillips.

He is appealing to strollers to keep to the footpaths and not walk on the course.

'The undulating fairways can hide walkers wandering on the course and a flying golf ball can be at least painful and at the worst fatal.

'The treatment of greens, fairways and bunkers involves the use of fertilisers and approved weedkillers which are poisonous to animals. It is dangerous to stray from the identified public rights of way,' added Mr Phillips.

Apart from fencing along the Sandown end of the course, the club is putting up warning notices beside footpaths.

Mr Phillips said the public rights of way run just inside the sea defences, except where indicated by steps, across the course from The Chequers to the beach and along the Ancient Highway.

'We are very anxious to avoid any accident,' added Mr Phillips.'

BOOK REVIEW

Butterflies of the British Isles: The Pieridae by Michael Easterbrook. Pp.24 (8 coloured), other illustrations. A5 (card cover). Shire Publications, Aylesbury, 1989. Price £1.75.

Once again we have to welcome another birth from the Shire stables and our only regret on this one is that inflation has finally caught up with them and the price has had to be increased, but even so, excellent value.

This booklet, of the same size and format as those reviewed previously in these pages (*Bulletins* 46: 129, 47: 60, 48: 69), is up to their usual standard with the colour photographs, of the various whites and their early stages taken in the field and not from posed specimens being particularly good.

For such a small booklet the author has managed, with some clarity, to cram in an amazing amount of information. Migration, butterfly folklore, pests, diseases and predators all get included as do theories of extinction and attempts at re-introduction in respect of the Black-veined white. Rearing, conservation and the butterfly monitoring scheme all get a mention.

To find fault with such a book as this at so reasonable a price would be merely nit-picking. Messrs Shire have now produced over 50 booklets of this size and format, ranging from groups such as we have here, The Pieridae, to single individuals, as The Starling; in size and range from parasitic worms to seals. I have studied some of these and as a general introduction to various aspects of botany and zoology feel that a collection of them serves a far better introduction to the subject than do many of the expensive, large and more generalised books on the market. If one's interest is only on the one group, then one does not want a book that is wide-ranging, nor necessarily one that is fully comprehensive.

That can come later as one's interest and enthusiasm increases. Although much is left out (variation, detailed distribution and life-histories), this is often available elsewhere and is not required in the first instance by members of the general public who may be starting to become interested as naturalists. It is always as well to bear in mind to whom a particular series of books is being aimed. Well displayed and publicised in many shops and outlets visited by the public, this series is an excellent introduction to a particular natural history subject, whatever it may be, and is probably doing more to bring about a public awareness of animal and plant life than are many far more erudite tomes and conservation bodies.

S.A.C.

A CHANCE TO HELP SAVE TROPICAL RAIN FOREST: PROGRAMME FOR BELIZE

by John A. Burton

Self-governing since 1964 and an independent nation since 1981, Belize has a long tradition of stable government going back through its years as the former British Honduras. It is a place of great natural beauty with a rich heritage of Mayan, African, Hispanic, Caribbean and European cultures.

Largely covered by tropical forests, the country teems with wildlife . . . jaguars, hundreds of species of birds and a flora and fauna larger than one would expect in a country of only 8800 square miles, roughly the size of New Hampshire.

At this moment Belize has its natural resource base virtually intact. It has 90% of its original vegetation cover, 70% of which is forest. Its barrier reef — the second largest in the world — is largely unspoiled. Astonishingly, there is a population of less than 200,000, with a literacy rate of 90%. The government is keenly aware of the need to plan ahead. This means Belize has an unparalleled opportunity for sustained yield development of its resources, while at the same time preserving and managing critical natural areas.

There are many places in the world needing positive action, but it is increasingly important to focus on projects with realistic chances to achieve something of lasting value. Belize is just such a place. Here there is both the opportunity and the desire to do it right. They are willing, but they need help. There *is* time . . . but not very much.

Without question one of the earth's most valuable resources, the regions of tropical forest are under enormous pressure and indeed are threatened with obliteration. Home to 60% of the world's plant and animal species and the near majority of human population, this 6% of

earth's surface is being damaged at a horrendous rate. We have already destroyed more than one half of the tropical forests, and at the current rate of destruction of 50 acres per minute, less than quarter will remain by the year 2000. The importance of this to our future is just being realised.

In January of 1988, a consortium of international organisations, including existing conservation and education groups within the country, announced the formation of the Programme for Belize. Each organisation had projects or interests in Belize or strong interests in tropical forests, and each recognised the need for a co-operative and co-ordinated approach.

The primary goal of the Programme was to respond to the invitation of the Government of Belize to participate directly in the effort to link development and conservation in ways that advance the objectives of both while building the economy and helping Belizeans achieve a better standard of living.

No less important was the goal of acquiring for future generations a superb tract of tropical forest to demonstrate that such a property can be kept intact and generate significant economic return as it is properly utilized for natural history and archeological tourism, long term research and appropriate agro-forestry projects.

Additional goals included continued efforts to sustain and enlarge the capacity of existing private sector organisations to educate and to influence public policy on conservation matters. Last but not least was the expectation that the Programme would promptly describe the funding needed to accomplish its aims and launch a campaign outside Belize to raise the money.

The Programme for Belize was launched in this country on 8th May, by Gerald Durrell and his wife, Lee. Also present at the launch were the Hon. Dean Lindo, Minister of Agriculture and Environment in Belize and His Excellency Sir Edney Cain, the High Commissioner for Belize, based in London. The Programme also has the support of Dr David Bellamy and Sir David Attenborough along with many other eminent conservationists.

Initiated in 1988 by the Massachusetts Audubon Society, the Programme is now a legal entity in Belize, and works closely with the Belizean Government and the local people. Earlier this year I was appointed the UK Representative for the Programme and am responsible for fund-raising in Great Britain and the Commonwealth. Formerly Executive Secretary of the Fauna and Flora Preservation Society I have the support of the FFPS, as well as the UK branch of the International Council for Bird Protection, the Jersey Wildlife Preservation Trust,

the Zoological Society of London and the recently established ARK Trust. Other supporters include World Wildlife Fund, National Audubon Societies and the New York Zoological Society in the USA.

The Programme for Belize offers everyone a unique opportunity to save a magnificent tract of tropical rainforest, containing a wealth of wildlife. There are five species of cats, ranging in size from the diminutive margay to the mighty jaguar; over 250 species of birds have already been identified on the property and there are many endangered species including both spider and howler monkeys, Morelet's crocodile and Baird's tapir. Around 70% of the migratory song birds found in North America spend the winter in Belize and adjacent parts of Central America. For the entomologist the rainforest is a paradise.

For £25 you can "purchase" and endow an acre of this rainforest. A target of £150,000 has been set in the UK for 1989 and this got off to a flying start when *Today* newspaper donated £25,000. But we need your acres too. Donations can be as large or as small as you wish — we are encouraging companies to sponsor larger areas and helping school children raise money for an acre, through jumble sales etc.

All donors will receive a signed certificate of "purchase" and news updates from time to time. Please support us by sending a donation, or asking for further particulars to Programme for Belize, P.O. Box 99, Saxmundham, Suffolk IP17 2LB, UK.

BOOK REVIEW

A key to the adults of British water beetles by L. E. Friday pp.151; numerous figures, small 4to. An AIDGAP publication. Field Studies Council 1988. Price (post inclusive) hardback £12.50; paperback £7.50. Available from Nettlecombe Court, Williton, Taunton, Somerset TA4 4HT.

This latest in the AIDCAP series of identification keys ranks as one of the best yet. Although titled "water-beetles" the work embraces several families not principally noted for their aquatic habits. This is an eminently practical approach which will enable the beginner to detect *Donacia* or similar genera likely to be encountered whilst pond-netting. In such cases identification is usually to genus or family only (e.g. the Curculionidae), but references are given for further guidance.

The introductory remarks on structure, collecting and even the use of the keys have been kept to a minimum and the bulk of the work is taken up by the keys themselves. A family key gives access to fourteen families

of which the nine main aquatic groups are dealt with further. These keys are excellently presented with numerous clear line illustrations adjacent to the relevant couplet. Advice on the best means of observing difficult characters is frequently given with notes on the preparation of genitalia where this is necessary. There are some very useful tables comparing critical features in genera such as *Agabus*, *Helophorus* and *Hydroporus*. There are also descriptive colour guides to the smaller species amongst the Colymbetinae, Dytiscinae and Hydroporinae, added as appendices after the keys. All of these increase the chance of a correct determination in these often difficult groups.

The final section of the book gives distribution and habitat information in a compact account which serves also as the species' checklist and index. I felt that with only a single half-column line for each species the information had been rather over-condensed.

However this can be the only minor quibble with a volume that will otherwise be indispensable to fresh-water biologists or coleopterists at every level. C.G.

WHY NOT EAT WOGAN?

by Don McNamara (5537)

Members may have seen the T.W. Show (BBC TV) in early '89 featuring Dick Vane-Wright of the BM (NH), where he attempted light-heartedly to present the topic of "Why Not Eat Insects?"

No doubt an idea for amusement but surely containing some potentially revolutionary ideas and worthy of consideration (mass reproductive potential of a valuable protein source — locusts etc.), though don't tell the Min. of Ag. and Truth, they'd probably cock it up.

However "El Tel", whose job, after all, is to entertain, "hammed-it-up" so much that Dick could hardly finish a sentence — let alone get any decent points across. Perhaps "Blue Peter" would have been a better venue.

BUTTERFLIES IN THE GARDEN

by Paul Wright

As much as we like to see our efforts in the garden rewarded with healthy blooming plants, most of us would agree there is an added pleasure when birds and other creatures are attracted to, and choose to stay in, the natural environment that we have created or enhanced.

One of these creatures which is harmless to both plants and people and provides both colour and life in our gardens is the butterfly.

In Australia there are some 385 different species of indigenous butterflies and these can differ from area to area, forming subspecies or geographical races. The region richest in species is the north Queensland rainforests, north of Mackay, where the largest and most colourful butterflies are found. The southern part of the continent and Tasmania have fewer species, though still distinctively coloured and easily identifiable, but many are temperate forms which do not occur anywhere else. Most of the interior is too dry to have many butterflies.

During the winter, butterflies are generally dormant and humidity is more crucial than temperature, so most butterfly species tend to be more active during summer rains in the temperate regions or the wet season in the tropical north.

There are two ways of attracting butterflies to your garden. One is to supply the adult butterfly with its main food source, i.e. nectar from flowers, the other is to plant the food or "host" plant upon which the butterfly lays its eggs and the resultant caterpillar feeds.

The best flowers to plant are Pentas. They flower all year round and the actual flower throat always contains a good quantity of nectar. Penta grows as a small bush and plants may be readily purchased from nurseries throughout Australia.

Pentas flowers bloom in a wide range of colours and as all are ultra-violet bright, you may choose any colours to please your sense of aesthetics and overall garden theme, while attracting any number of butterflies to feed on the colourful flowers.

Pentas is fairly hardy and likes uninterrupted sun. However, in times of prolonged rain, the plant can develop a fungal disease which turns the leaves slimy and shrivelled. This problem is simply overcome by the application of the fungicide Benlate. Benlate is non-toxic to butterflies and will quickly cure any fungal diseased Pentas plant.

There are, of course many other plants and flowers which attract butterflies, but none have the all-round advantages of Pentas for fast growth, constant flowering and good nectar production.

In southern and western Australia there are a number of attractive butterflies and two of the most striking are the Orchard and the Monarch. The Orchard (*Papilio ageus ageus*) caterpillar feeds on any type of citrus leaf, so if you have planted orange, lemon or grapefruit trees, these would attract the female Orchard butterflies to lay her eggs. The caterpillars only eat a few leaves on the tree and will not touch the fruit. The female Orchard is a large butterfly and is quite colourful, though predominantly black and white with beautiful red and blue spots

on her hind wings. The male is slightly smaller and is jet black with vivid white patches on his wings.

The Monarch or Wanderer (*Danaus plexippus*) is originally a North American butterfly which arrived in Australia late last century. It is quite large and its predominant colour is bright orange with black veins and white spots on the wing margins. The Monarch caterpillar's food plants are milkweed and the Swan plant. Milkweed is something you are unlikely to request from your nursery, as its name suggests it is actually a weed, however, Swan plants are more likely to be available.

For gardeners living along Australia's eastern seaboard, the number of butterfly species increases dramatically, and the further north one goes, the more spectacular the butterflies become. One of the most well-known is the striking, electric-blue and black Ulysses (*Papilio ulysses*), also called the Mountain Blue; its range is the forests from Mackay to Cape York and the caterpillars feed on the leaves of the Euodia trees.

Almost as brilliant in colour and much further ranging is the Blue Triangle (*Graphium sarpedon*). Found from Sydney to Cape York, it is bright blue with black edges on the definite triangular shaped fore and hind wings. The Blue Triangle caterpillar lives on camphor laurel, water gum, Oliver's sassafras amongst others.

There is a true fascination with butterflies and with over 380 different species it would be difficult to detail each species' characteristics and preference in food plants.

Kuranda, in Far North Queensland, in the mountain rainforests overlooking Cairns, is recognised as the principal region for butterflies in Australia. It is here that developer and self-taught lepidopterist Paul Wright has established the Australian Butterfly Sanctuary. The Sanctuary is not only a tourist attraction exhibiting hundreds of spectacular tropical butterflies, live in their natural rainforest habitat, enclosed by the world's largest, walk-through flight aviary, but also a study centre researching and breeding many of the species. Keen gardeners visiting the Far North should take the opportunity to visit the Sanctuary and enjoy the lush rainforest environment and unique plant-life while observing the wonderful display put on by the butterflies.

For those wishing to find out more about Australian butterflies, their range and preferred foodplants of the various species, Paul Wright has available a beautifully detailed poster/reference, simply called "Australian Butterflies", which is published by Domino UK, but primarily available from the Australian Butterfly Sanctuary, Kuranda, Queensland.

AN EXPEDITION TO SPAIN AND EASTERN FRANCE, 1987

by P. W. Cribb (2270)

On 7th July we, David Marshall and myself, sailed from Portsmouth with my Dodge camper van at 11.30 pm by Britannia Ferries, sleeping in reclining chairs, very uncomfortable. We arrived at Caen port, some miles north of Caen, at 6 am and then drove off via Caen southwards towards Bordeaux. By evening we had reached Pons, north of Bordeaux, where we camped at the municipal camp site. As the sun was setting, David and I walked out of the town to where the main road, newly constructed, ran through a cutting. The banks were quite thick with marjoram and I spotted several Large blues roosting on the grasses by the roadside. In a small meadow below the road there were quite a few more roosting and we put them up as we walked through the long grass. I went back to the campsite for nets and we were able to take several specimens, one of which was male and aberration *unicolor*. Also present were *T. lineola* and *P. icarus*.

On the morning of the 9th we left to drive through the Landes towards the town of Pau, taking the road leading to Col du Portalet. As we drove into the mountains we entered thick mist which reduced visibility to about fifty yards until we came over the top of the Col where we came out into sunshine. Below the Col we took the road leading to Balneario di Panticosa to the east of the pass and commenced to climb a narrow and tortuous road which culminated in a cirque at the foot of which was a lake with the small village of Balneario beside it. It is obviously a place to which trippers come as there were several coach-loads of senior citizens present. We pulled off onto a flat area just short of the village to camp for the night.

Next morning in bright sunshine, which quickly cleared the mists, we explored the slopes above the lake. P. apollo was common and we were able to take females for egg laying. Then on a dwarf willow we found two groups of larvae of N. antiopa in their penultimate instar. Also observed were P. machaon, at 7,000 ft, A. crataegi, P. rapae, L. sinapis, P. daplidice, A. cardamines, G. rhamnii, P. callidice, M. aglaia, A. urticae, B. euphrosyne, M. didyma, M. parthenoides, E. meolans, E. epiphron pyraica, L. megera, L. maers, M. galathea, P. tithonus, M. jurtina, L. bellargus, P. argus, M.alcon, E. eumedon, P. hippothoe, L. tityrus subalpina, H. alciphron, L. virgaureae and O. venata.

Here we had our first and only meeting with the Spanish police as two of them drove up to ask us what we were doing and inspected our passports. All was quite amicable and after lunch we drove down the winding road back to the main road leading towards Huesca and Zaragoza. Much of the lowlands which had previously been fairly wild

were now ploughed and planted with grain crops, most of which seemed of low quality with fairly poor levels of germination. Near Calatayud we stopped and had a look at local species, finding *B. circe* males, *H. alcyone*, *P. icarus*, *I. lathonia*, *P. cecilia*, *M. galathea* and a few *M. stellatarum*.

We camped the night in a rock quarry beyond Calatayud where we observed a family of Black wheaters which were catching insects in the quarry and feeding them to their young. Next morning we drove on towards Madrid and turned south at Alcala de Henares toward the village of Loeches. Just beyond the village in a valley beside the road where there were olive plantations we stopped and crossed the valley to search the bushes of *Colutea arborescens* which were growing on the dry slopes above. Only a few still had pods which had not dried out and in these we found larvae of *L. boeticus* and pupae of an *Apanteles* wasp. It was extremely hot and few butterflies were on the wing and we found that those that were present were resting in the shade of the trees. *H. fidia* was quite common and we recorded *G. cleopatra*, *A. cramera*, *P. icarus* and *L. boeticus*, *P. cecilia*, *M. jurtina*, *C. croceus* and some migrating specimens of *P. daplidice*.

The heat had become oppressive so we decided to make for the mountains, the Sierra de Cuenca, and drove north-east, taking the road towards the village of Tragacete.

This led into the mountains, passing a huge lake and then climbing up into the mountains dense with pine forest. Above the village of Una we stopped beside clearings on the roadside and found them to be alive with butterflies in the evening sunshine. The time was 6 pm yet everything was on the wing. The species which we recorded included *P. rapae*, *C. australis*, *C. crocea*, *A. crataegi*, *P. daplidice*, *G. rhamnii*, *F. chlorodippe*, *A. paphia*, *M. aglaia*, *B. hecate*, *B. ino*, *M. phoebe*, *M. parthenoides*, *M. didyma*, *A. urticae*, *C. cardui*, *I. lathonia*, *C. briseis*, *H. alcyone*, *H. semele*, *M. lachesis*, *M. russiae*, *H. lupinus*, *P. bathseba*, *B. circe*, *C. dorus*, *C. arcania*, *A. damon*, *L. bellargus*, *P. icarus*, *A. montensis*, *L. albicans*, *P. argus*, *P. dorylas* (syn. *argester*), *P. nivescens*, *L. phleas*, *H. alciphron*, *L. coelestissima*, *S. sertorius*, *S. proto*, *T. actaeon* and *H. comma*. Both *H. alcyone* and *H. semele* were present in thousands, several perching on the boles of the small pine trees. I took one extreme aberration of *F. chlorodippe*

Eventually we arrived at the village of Una where we stopped for a beer and found some *Colutea* bushes full of fresh pods upon which *L. boeticus* was laying her eggs. The flowers were spattered with eggs and there were small larvae also present. Just outside the village lies a fish farm which breeds thousands of rainbow trout and here we camped for the night beside the car park in front of the farm. No sooner had we

sorted ourselves out when a huge storm broke with torrential rain and thunder and lightning. Behind the pools of the fish farm which is fed by a stream coming down the valley there is a spectacular gorge of reddish rock, and in the morning we hoped to collect here as Martin Gascoigne-Pees had told me that this was a very good spot.

The morning broke with brilliant sunshine and we went up the valley to the area immediately under the cliffs. There were lots of tall thistles and clumps of brambles which were attracting masses of butterflies. All the species which we had seen the evening before above the town were present plus a few extras. These included a lot of *L. roboris* in good condition, *P. c-album*, *L. reducta* in plenty, *N. polychloros* and a single female *M. deione*, and a lot of *B. daphne* which swarmed on the brambles.

After spending some time here and watching the antics of some large edible frogs in a pool formed by the stream, we went back and inspected the trout farm. There were round pools with trout ranging from small fry to huge specimens of several pounds, while in long tanks there were thousands of medium fish which rushed towards us as we approached, anticipating a meal. The farm attendant was feeding some of the pools with trout pellets. As we came out we met two Spaniards who had driven up in a car and produced butterfly nets. The younger man could speak English quite well and we were able to exchange notes. He suggested that we should try the countryside near to Tragacete which he said was rich in butterflies. We drove along the valley of the river Jucar and then north to Tragacete where we were able to fill up with petrol after the lady keeping the petrol station came back from her siesta. The sun was now very hot and we drove back south a short distance from the village to collect in some meadows beside the road. There was a lot of field scabious in flower and these were literally smothered in butterflies, most of which we had seen at Una. *L. reducta* was very common, the females being in perfect condition. David took some of these and subsequently managed to get them to lay on bush honeysuckle shoots placed in a plastic ice-cream tub covered with netting. They remained alive for the rest of the trip, in marked contrast to our experience with *L. camilla* which seems to die very quickly in captivity.

While we were there our Spanish friends arrived and after exchanging greetings we left to drive back to the Cuenca/Teruel road at Canete. The road to Moscardon via Toril appeared to be closed as it was unsignposted and we took the much longer way round via Torre Baja and short of Teruel we drove off the road into maquis-like country where we decided to spend the night, the sun now being well down. Near the site we chose were a lot of beehives, some of which were made of hollowed out tree trunks.

In the morning the weather was still fine and we had a short look around, recording *S. sertorius*, *S. proto* and *T. actaeon*. In brilliant sunshine we by-passed Teruel and took the road to Albarracin to stop just below the tunnel above Gea de Albarracin. Here we found *P. prieuri* to be common along the roadside and several were of the female form *uhagonis*. With them were a few *P. briseis* and also flying were a few *L. albicans*, *H. lycaon* and *C. australis* and *croceus*. The little meadow which in previous years had been so fruitful in blues was now ploughed and devoid of butterflies. Passing through Albarracin, we took the road to Moscardon and drove into the valley where there is now a series of barbecue stands and there were a lot of trippers preparing meals on them. We stopped and walked across to the spring which is now piped and filled our water bottles. We drove up to the end of the valley where in past years the valley and its little stream have produced an abundance of butterfly species. When we got there we found that a wide forest road had been driven up the valley, completely destroying the stream and a lot of the habitat. It was also noticeable that the whole area was much more heavily grazed than in the past and we could find little on the wing in the surrounding clearings which had once been so rich in species. The *Hippocrepis* carpet which had been the basis for the large population of *Lysandra* species was eaten to the ground and it was obvious that sheep had been present in large numbers. In previous visits the area had been grazed by cattle.

We decided to move on and drove through Moscardon on the new forest road towards Torres de Albarracin. Here, by the roadside, we camped the night in the spot which Russell Bretherton, Ron Dyson, Howard Phelps and David Lonsdale and I had camped on our previous trip. On that occasion the place abounded in butterflies but despite a sunny evening there was little on the wing.

The morning of the 13th broke dull and overcast so we drove down through Torres and then back towards the meadows at Griegos. After buying some post-cards at Bronchales and finding that the post office did not open on Mondays, we drove out towards the meadows near Griegos. Here we were again in for a disappointment. The meadows, so rich in species in previous years, were also heavily grazed and those in the valley beyond were in the process of being ploughed with a new dirt road having been driven in to allow machinery to reach them. Only the wet bottom land seemed to have been left ungrazed and here there were lots of *B. ino*. David took a fine female aberration. We wandered up the road and collected several species of burnet moth on the flower heads and one or two *P. apollo*. We heard an eagle calling from the high pine trees above the road and after entering the trees we spotted an eagle's nest in the top of a tall pine. As we approached, a young eagle flew from the nest and settled on the branch of a nearby tree. I was able to take a

distant photograph of it and the glasses indicated that it was a young short-toed eagle. The parents continued to call and fly around while we were there.

At the end of the afternoon we drove back to the pine forest nearer to Bronchales and camped for the night. Heavy cloud had now blown up and we were obviously in for rain. As we had supper a shepherd appeared with a huge flock of sheep and four mangey dogs which skulked around the camper. I threw a stale loaf to one which it crept up to and carried off. There was a spring (*fuenta*) on the far side of the clearing and I watched the shepherd drink from this, along with the dogs, before he walked in the rain away up the valley with his sheep.

In the morning we drove back towards Orihuela and entered the village to buy bread and find the post office. The post office was found at last and we entered. A winding stair was inside the door and we had climbed about three storeys before a man came out on one of the landings and indicated that the post office was on the ground floor. We went down and he unlocked the door and proceeded to stick stamps on our cards. He worked out the cost twice on a calculator and then on a piece of paper. We paid the necessary pesetas which he put in a drawer and took our cards. He then wanted to know why David had not paid him and was only convinced that he had after re-opening the drawer and seeing his notes. One wonders how he would cope in an English post office. We then drove back to collect in the little hidden valley below Orihuela where I had once taken *I. iolas*. Here again a wide forest road had been driven up the valley above the stream and this had not changed. There were a lot of *H. alciphron* of both sexes, also *C. iphioides*, *P. nivescens*, a few *P. apollo* and all the large fritillaries, including *P. pandora*. There were spotted orchids in profusion, and we were able to enjoy a sunny morning.

We then drove back towards Orihuela and took the road towards Orea. At a stop by the roadside I spotted a pair of Hornet clearwings in copula on a poplar trunk and the female subsequently laid a mass of eggs. These were loose and looked like the seeds of tobacco. We approached Orea and noticed some large *P. apollo* on some thistle heads by the road. We stopped to take one or two females and some photographs when a thunderstorm broke above us with torrential rain. After a while the rain stopped and the sun came out. We found that the Apollos were still sitting on the thistle heads with their wings open so that the rain had run off them. Here I also took a single specimen of *P. amandus*, a perfect male.

The road wound on through the Sierras towards the town of Molina de Arragon, a walled town on the side of a hill. In indifferent weather we continued and eventually were able to pull off the road into a barley field



Dave Marshall at Moscardon 1987.



C. priouri near Albarracin July 1987.

on a high plateau. The grain was so thin that one could walk through it without treading on the barley. There were a lot of quail calling and the evening sunset framed by the clouds was quite spectacular. We were no sooner bunked down for the night when a huge blast of wind struck the van, rocking it and for the rest of the night we experienced a heavy storm. The village below us was called Medinaceli. On the morning of the 15th we woke to grey skies and watched several large vultures flapping across the plateau. We left in the direction of Soria and with fitful sunshine we stopped at the village of Abejar beyond Soria to collect by the roadside behind the village on the road to the Black Lake. I was able to take a few fresh specimens of *Aricia morronensis* which were flying around their foodplant, a pink storksbill. We then drove on towards the lake in the hope of finding the spot where Col. Manley had taken *M. nausithous* but we found that the lake had been taken over by campers, wind-surfers and other aquatic activities and it is unlikely that any suitable habitat remains. After lunch we left for Burgos and then took the road northwards towards the coast.

At Portilla del Fresno we took the road to Sedano to the site where we had camped on our previous trip. Although a new road for forestry work had been driven along the southern side of the valley and there was a lot of new planting of pines, the area had not changed and in the cool evening we walked along the new track which was thick with new vegetation, including a lot of field scabious of two species, one with a broad indented leaf and the other with a heavily divided leaf, the parts of the leaf being filiform. The former seemed to be the main foodplant for *E. desfontainii* and we found a lot of webs with young larvae. David also found some on the latter plant. In the fitful evening sunshine I also recorded quite a few species of butterfly roosting on the grasses. These included *C. croceus* and *C. australis*, of which I took females for egg-laying, *M. russiae* and *M. lachesis*, *P. podalirius*, *P. argester*, *A. ripartii*, *P. argus*, *M. jurtina*, and *A. damon*. We also found a lot of arctiid larvae and some small larvae in a web feeding on *Euphorbia*. It rained hard in the night and the morning was again overcast. The wind was cold from the south-west and it was obvious that there would be nothing on the wing.

We decided to drive on towards the Picos and at the village of Escalada we took the road towards the west along the valley of the Ebro. The river runs through a spectacular gorge with high cliffs on each side. Above these cliffs we watched as many as sixteen vultures at one time soaring — a spectacular display. With the weather still not improving, we drove on through Aguilar de Campo and Cervera de Pisuera towards the village of Riano on the River Esla. Just short of the village we were stopped by police who indicated that there was some impediment ahead.

As we approached the village we saw heavy smoke and bulldozers which were knocking down the houses. There were police everywhere and we were witnessing the destruction of the village in readiness for the flooding of the valley above the dam which had been built many years earlier. Above the valley is a new road on high stilts and we were diverted towards this and the beginning of the Puerto de Ponton. As we passed under the viaduct a load of cement fell from it onto the van, partly obscuring the windscreen. Fortunately it did no damage and we drove on in the heavy drizzle up the pass to stop and camp by the side of the river. In the rain I tried to attract a trout with some grasshoppers as bait but without success and we went to bed, somewhat fed up with the weather.

(to be continued)

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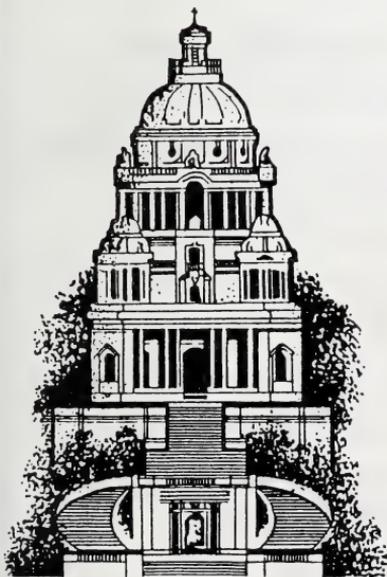
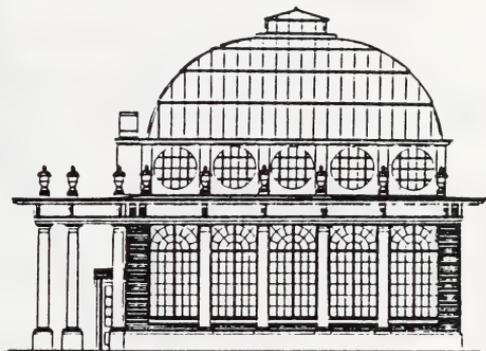
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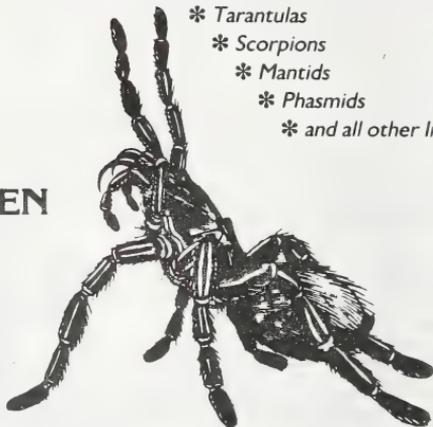
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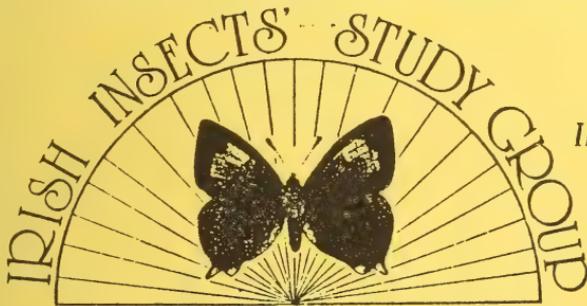
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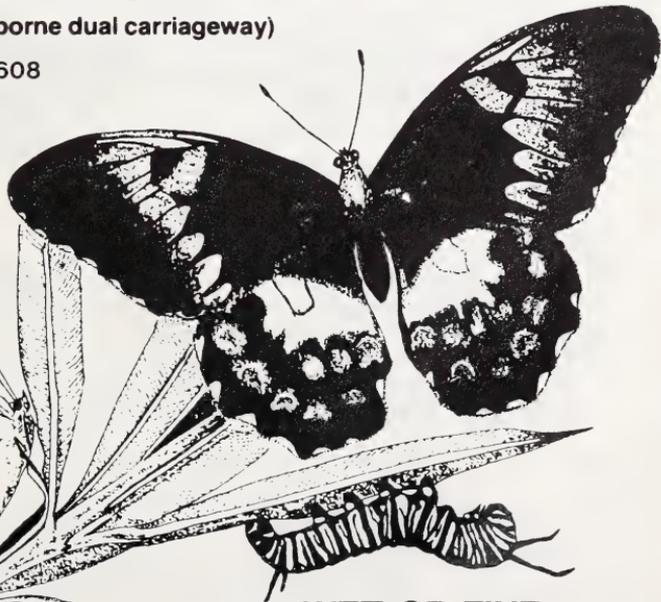


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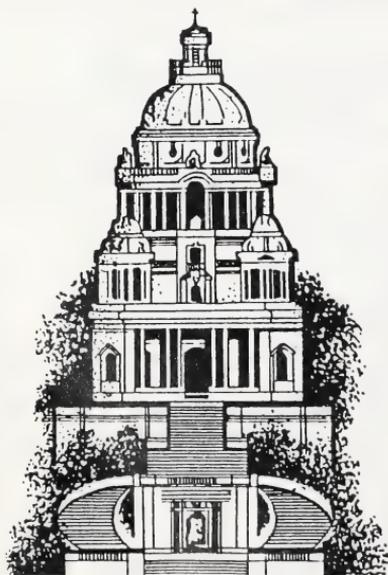
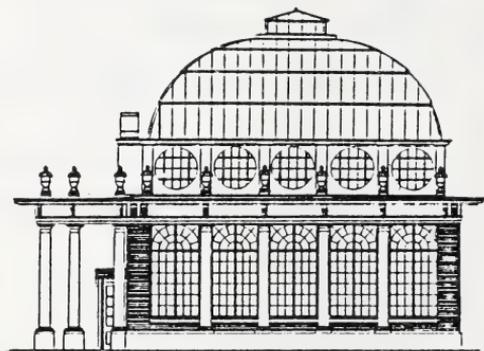
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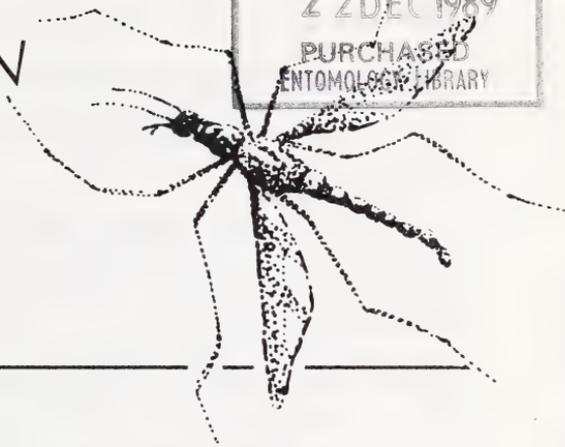
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AES BULLETIN

No. 357



EDITORIAL

Keeping up with changes in nomenclature is no easy task, particularly for an editor. Should he, or should he not, follow every change of fashion as and when it is promulgated? Be like the Vicar of Bray and change his allegiance at every passing "expert" opinion? Or should he stick to his principles, stick to an already existing taxonomic list and, rightly or wrongly, stay with it throughout his period of editorship? Whichever choice he selects there will be those who disagree with his choice and pressure or directives from those publishing or financing the journal he edits will also have an influence.

For over 50 years I have known the Large, Small and Green-veined white butterflies to be in the genus *Pieris*. For some ten years now it has been argued and gradually accepted that the Small and Green-veined white butterflies be removed from *Pieris* and placed in the genus *Artogeia*. Just as I have got used to this ruling and carefully altered the generic name in papers sent me, what do I now find? That the latest carefully researched opinion of the taxonomists is that the use of *Artogeia* for these butterflies is untenable and they should revert back into the genus *Pieris*.

I have now come to a couple of conclusions. The first is that the International Committee on Zoological Nomenclature should be encouraged to widen the scope of names that should, because of regular and sustained usage, be retained. Surely, both in view of its nearly 200 years of use and the fact that there exists a vast literature on these species, a directive of retention should have been made to prevent the confusion that the use of *Artogeia* will already have caused.

The second conclusion is that having selected to follow a particular already-published list of names, then no journal should be allowed to take any notice of name changes, which are so very often a matter of opinion rather than fact, until at least ten or twenty years have elapsed and the change has either been reliably confirmed, or again rejected. A

good example of changing name-changes is the case of the Dark green fritillary. In my life-time it has been *Argynnis aglaia*, *Mesoacidalia aglaja*, *Mesoacidalia charlotta* and now I again see it as *Argynnis aglaja*! Note the alternative use of 'i' or 'j'. Which is correct? In the original description by Linnaeus 'j' was used, but at that time printing usage was to make them interchangeable while modern usage is to 'fix' on the one or the other. Victorian and later usage was to 'fix' on the 'i', while modern opinion feels we should revert to the original, possibly accidental, use of 'j'.

EYED HAWKMOTH AT WATERLOO STATION

by D. A. Booth (8524)

On 26th June 1989 at about 5.20 pm, I was (as on any normal working day) mounting the steps leading up to platforms 5 and 6 at Waterloo Station in order to catch my home-bound train. Out of the corner of my eye I half saw an unusual shape on the riser of one of the steps. I looked again and discovered sitting there a large female Eyed hawkmoth (*Smerinthus ocellata*) in fine condition.

Amazed that she had already managed to survive at ground level (since, presumably, the previous dusk) through two rush hours at one of the busiest main line stations (it was not a Wednesday!) I was worried that the odds were against her further survival. I therefore gently encouraged her onto my finger and manouvred her into my document case for the journey home to Surbiton.

On getting indoors I discovered that she had laid three eggs, so I quickly sent out my young son to get a willow twig from nearby. Within ten or fifteen minutes she had deposited a further 30 eggs onto the twig. At dusk I placed her on the branch of the tree and the following morning she had gone.

My first question was whether the eggs were fertile, thus indicating the existence of a colony within the area and my second was what would the larvae feed on, as the only trees in the vicinity did not appear to include willow trees. The answer came quite quickly with 32 larvae hatching on 5th July at almost exactly the same time of day as they had been laid. I offered them willow and happily they took to it.

It seems to me that the prophets of doom and gloom are now some way from the mark if a successful colony of Eyed hawkmoths can exist at Waterloo, London SE1 in this supposed polluted City. My opinion was further fortified on the 7th July when an Old lady moth (*Mormo maura*) in perfect condition had to be shepherded out of the Abbey National Building Society branch in Queen Street, EC4, in the centre of the City of London on Friday 7th July.

GYNANDROMORPHS OF THE STICK INSECT *HETEROPTERYX DILATATA*

by Paul D. Brock (4792)

Summary

Two captive gynandromorphs of the West Malaysian stick-insect *Heteropteryx dilatata* (Parkinson) are described and illustrated. One specimen in particular shows mostly male characteristics, whereas the other is almost a halved gynandromorph. A discussion section links one specimen with a similar gynandromorph described in the literature, and points out that gynandromorph characteristics can be identified during early nymphal stages.

Introduction

Gynandromorphism is the presence in one sex of characteristics belonging to the other sex. These abnormal insects are known in a number of orders (Imms 1925). Examples have rarely been recorded in the Phasmatodea, viz. from the stick-insects *Clonopsis gallica* (Charpentier) (Chopard 1918, Cappe de Baillon et de Vichet 1935), *Carausius morosus* (de Sinéty) Nachtsheim 1923), *Extatosoma tiaratum* (MacLeay), (Rumbucher 1975, Carlberg 1981); and in the leaf-insect *Phyllium bioculatum* (Gray) (Ziegler 1989).

In this paper two examples of gynandromorph specimens of the West Malaysian stick-insect *Heteropteryx dilatata* (Parkinson) are described. A preliminary account of those gynandromorphs has been published by Holloway (1988).

Material and methods

H. dilatata is now a popular pet, in Britain and Europe in particular and exhibits aggressive behaviour in captivity (Carlberg — in press). Stock was originally imported as eggs from the Cameron Highlands, West Malaysia in the early 1980s and inter-bred with stocks from other cultures. Both insects described were reared in the same generation by Michael Lazenby and Frances Holloway (London). Rearing conditions were normal — temperatures in the region of 21 - 24°C with a mixture of bramble (*Rubus* sp.) and evergreen oak (*Quercus ilex*) as the major foodplants. These specimens spontaneously appeared during 1988.

Normal specimens have the following coloration:—

The female is bright apple or leaf green on the upper surface, whilst the underside is counter shaded in dark green. Rarely varies, although mustard yellow specimens have been noted. Elytra darker green — hindwings (hidden by elytra) range from pink to plum. Body length normally 140-150 mm, although larger examples can reach 165 mm.

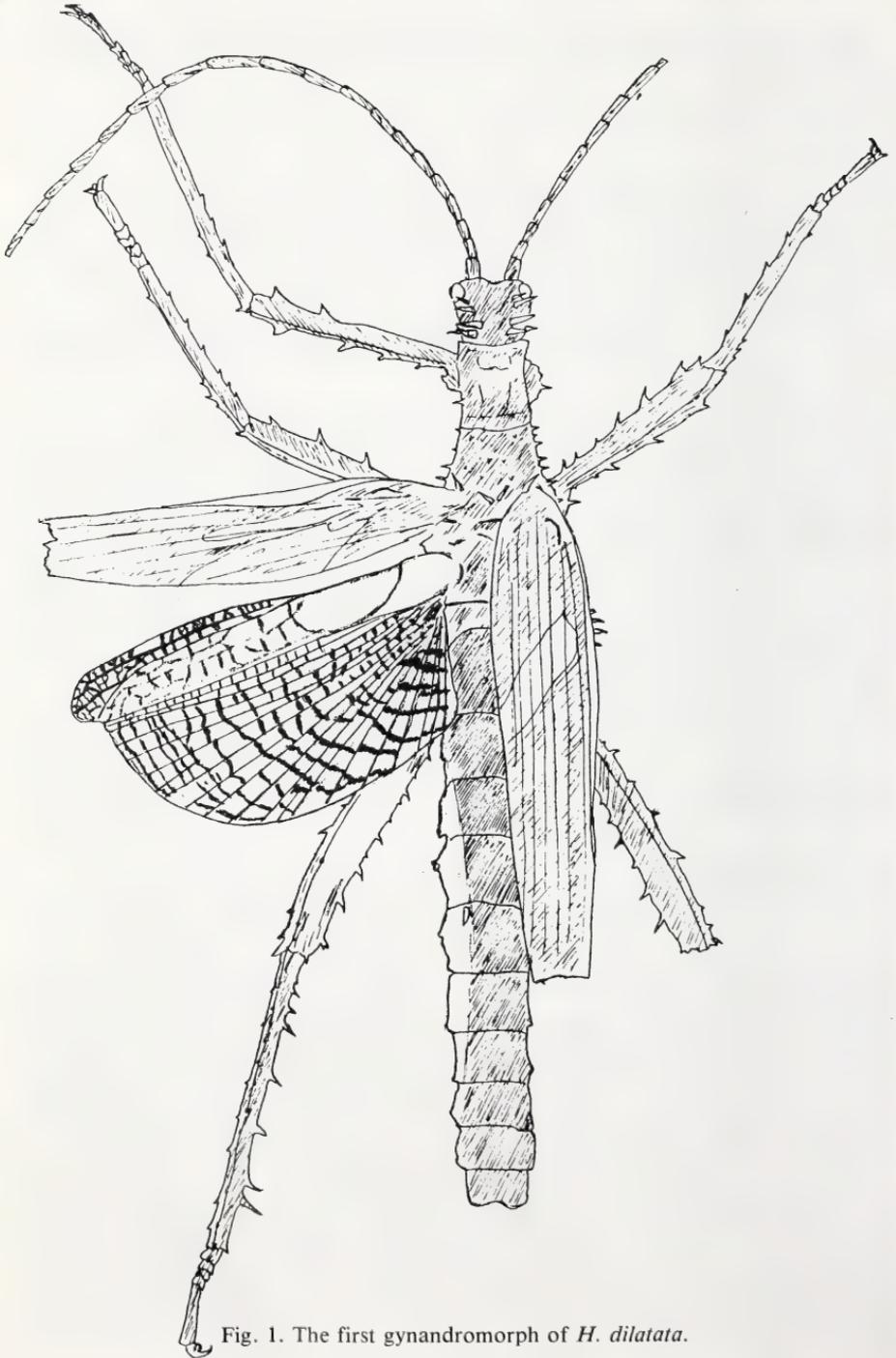


Fig. 1. The first gynandromorph of *H. dilatata*.

The male is mottled brown with white or very pale green edging to the elytra. The large hind-wings are attractively coloured in dark plum with black markings. Body length usually in the region of 90 mm.

Gynandromorph 1.

Died October, 1988. A specimen where the male predominates, but certain areas of the left hand side of the body clearly show female characteristics (Fig. 1). The general shape of the insect is that of a male. The body length is 92 mm (average) and the head like that of a typical male. The thorax and abdomen are of mixed sexes. The very left hand margin has the coloration of a female — apple green. Abdominal segment 5 possesses a large spine, typical of a female. Legs on the left hand side are slightly thicker than those on the right and partly green. Hind-wings appear to be mostly male. Both sides have elytra the typical size for a male (although damaged in this specimen). However, the left side elytron has a dark green margin, which is a more typical white on the right side elytron. The hind-wings are much reduced. The left side hind-wing at 41 mm would normally be some 65 mm in length and it includes a significant transparent area without typical dark veins on the costal region, almost absent in a normal male. The right side hind-wing is slightly wider than the left, without such a transparent area. The hind-wings are otherwise typical male with dark plum colouring and black markings. The final four abdominal segments including genitalia (Fig.2) appear to be normal male, except for traces of green colouring.



Fig. 2. The genitalia of the first gynandromorph.

Gynandromorph 2.

Died January, 1989 after making seven moults. This example of a halved gynandromorph more closely resembles the body shape of a miniature female (Fig.3) with a body length of 95 mm. Unfortunately the insect died after failing to make its final moult and so the wings failed to develop to maximum length. The left hand side of the head, thorax, abdomen, legs and wings is typically female. These female characteristics extend to just over half of the body width and include the formation of

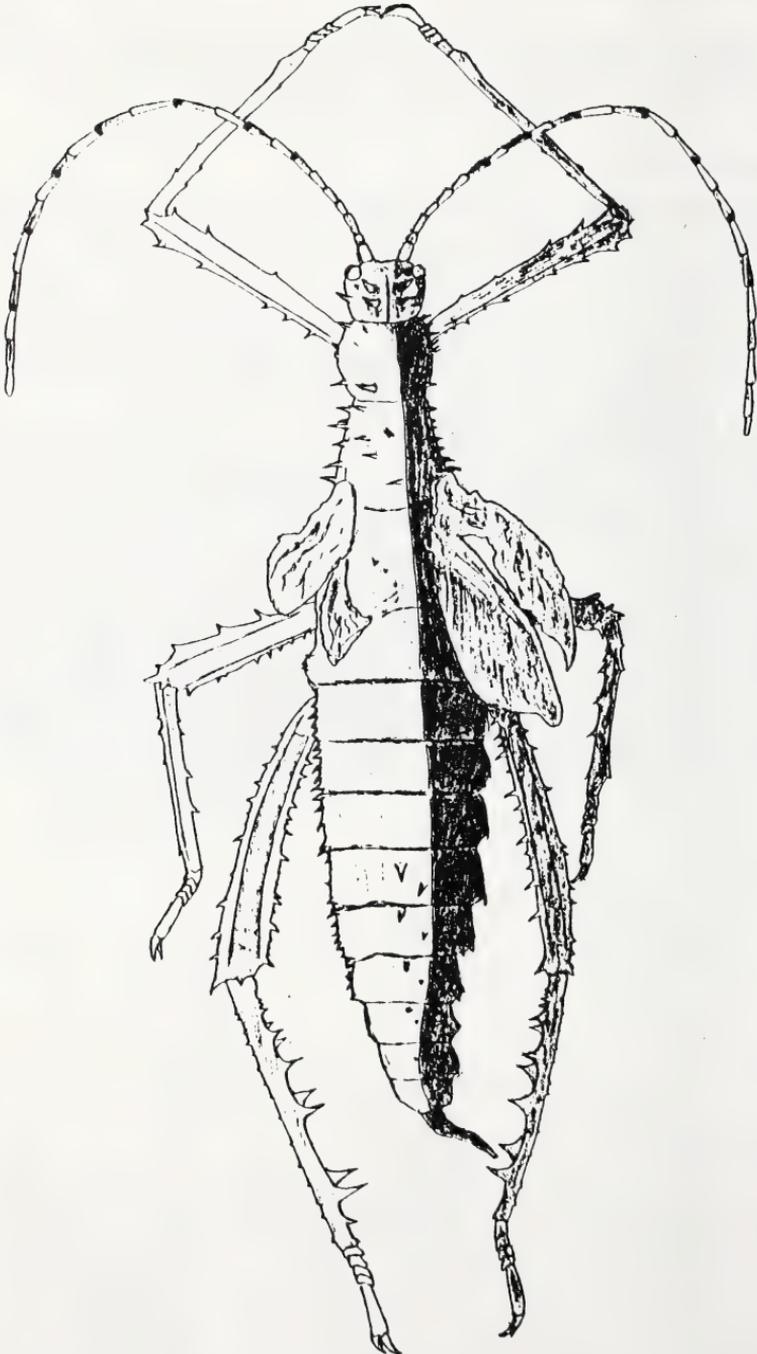


Fig. 3. The second gynandromorph of *H. dilatata*.

an ovipositor. The legs are typically much thicker than those of the male and the female half of the abdomen has spines on segments 5, 6, 7 and 8 (as in a normal female). The right hand side is completely brown, typical male coloration, but unfortunately the wings have not developed. The genitalia, although damaged during the moult, clearly show characteristics of both sexes. This specimen — in its sixth instar, was exhibited live by Michael Lazenby at the 1988 AES Exhibition.

Discussion

I have a photograph of a halved gynandromorph of *H. dilatata* (Michael Yeh — personal communication) which was sold by a Malaysian insect dealer along with at least two other gynandromorphs of the same species. The photograph clearly shows a full-size male hind-wing on the right-hand side, which agrees with the type of gynandromorph described by Rumbucher (1975). Gynandromorph 2 is similar but failed to develop its hind-wings during the final moult.

It is interesting to note when the gynandromorph characteristics first appeared in the case of gynandromorph 1 it was not until the specimen's pre-adult instar that the green patches appeared. However, gynandromorph 2 had an unusual appearance when newly hatched and was considered a likely gynandromorph from the second instar stage.

Acknowledgements

I am very grateful to Michael Lazenby and Frances Holloway (fellow members of "The Phasmid Study Group") for providing the specimens described above; also to Ulf Carlberg (Nacka, Sweden) for critical reading of the manuscript.

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BOOK REVIEW

How to keep stick insects by M. Byron. A4, pp.20, illustrated. Fitzgerald Publications, 1989. Price £2.00.

This is a handy book for those wishing to breed stick insects, and who have had little or no previous experience. There are sections on physiology, choosing stick insects, care of eggs and nymphs, and housing. The species' descriptions include all the common ones, with a very useful table distinguishing the three *Eurycantha* species usually available in Britain. Distribution maps are given, as well as drawings of eggs, nymphs, adults and, for most of the nine or so species, the male and female genitalia are figured, which is very useful for specific determination.

Altogether a good little book, although some of the drawings are somewhat poor. It will be of use for both novice and experts alike.

D. J. Mann

ENTOMOLOGICAL EXPEDITION TO MADAGASCAR

In January 1990 Louise Holloway and David Lees hope to go on an important scientific expedition to Madagascar to study a particular moth — *Chrysidirida ripheus* — inhabiting the endangered rainforests. Not only is *ripheus* among the world's most spectacular and beautiful insects, it also sequesters some chemicals effective against human viruses. Many of the Madagascan plants and animals are endemic. As everywhere though, the rainforests of Madagascar are disappearing at an alarming rate, and with them hundreds of species are becoming extinct. This is a great loss in itself, but it is a tragedy if we are also losing species of potential importance to us (the Madagascan Rosy periwinkle is used with success to treat leukemia). Currently, thousands of *ripheus* are collected from the remaining forests to be sold in the capital's markets for ornamental purposes.

The expedition therefore has three aims:

1. To study the chemical ecology of *C. ripheus*.
2. To study the feasibility of setting up a butterfly farm which would be commercially viable, benefitting the local community and preventing further depletion of this important moth from the wild.
3. To use *ripheus* as an emblem in a conservation campaign to attract publicity and funds for the plight of the dwindling rainforests of Madagascar.

We need to raise an absolute minimum of £3,000 to enable the expedition to take place and are looking to businesses for sponsorship of this important expedition. Those interested in making a contribution should contact Louise Holloway, Benallan, Kingston, Near Lewes, East Sussex BN7 3JY.

SOME OBSERVATIONS ON THE DISTRIBUTION AND FOOD-PLANTS OF SEYCHELLOIS STICK INSECTS

by Pat Matyot (9029)

Introduction

Five species of stick insect, all endemic, have been described from the granitic islands of the Seychelles in the western Indian Ocean. Over the past 18 months I have encountered three species, *Carausius sechellensis*, *C. alluaudi*, and *C. gardineri* in a number of localities on the island of Mahé. *Graeffea sechellensis*, however, has been observed in only one locality. In spite of my best efforts I have not found the fifth species, *Carausius scotti*, on Mahé. Only one specimen of this species, a male, was found by Hugh Scott in 1908. It was collected in high damp forest near Mont Pot-à-eau on the island of Silhouette, which I have not yet been able to visit.

Key to the females of Seychellois stick insects

(except *Carausius scotti*, the female of which has not yet been found)

1. General colour green; wings present; antennae shorter than femora of front legs, distinctly articulated *Graeffea sechellensis*
- General colour brown; no wings; antennae much longer than femora of front legs, not distinctly articulated 2
2. No spines or granulations; mouthparts and eyes tinged with brick-red in life *Carausius gardineri*
- Spines and/or granulations on head and thorax; mouthparts and eyes not tinged brick-red 3
3. Less than 10 cm in length; two spines between the eyes; eyes greyish *Carausius sechellensis*
- More than 10 cm in length; no spines between the eyes; eyes black *Carausius alluaudi*

Key to the males of Seychellensis stick insects

1. General colour green; wings present; antennae shorter than femora of front legs, distinctly articulated *Graeffea sechellensis*
- General colour not green; no wings; antennae much longer than femora of front legs 2
2. General colour brick-red *Carausius alluaudi*
- General colour not brick-red 3
3. Yellowish brown with black at the articulations; spines on head, thorax and abdomen *Carausius scotti*
- General colour brown to black; spines may be present on head and thorax, but never on abdomen 4

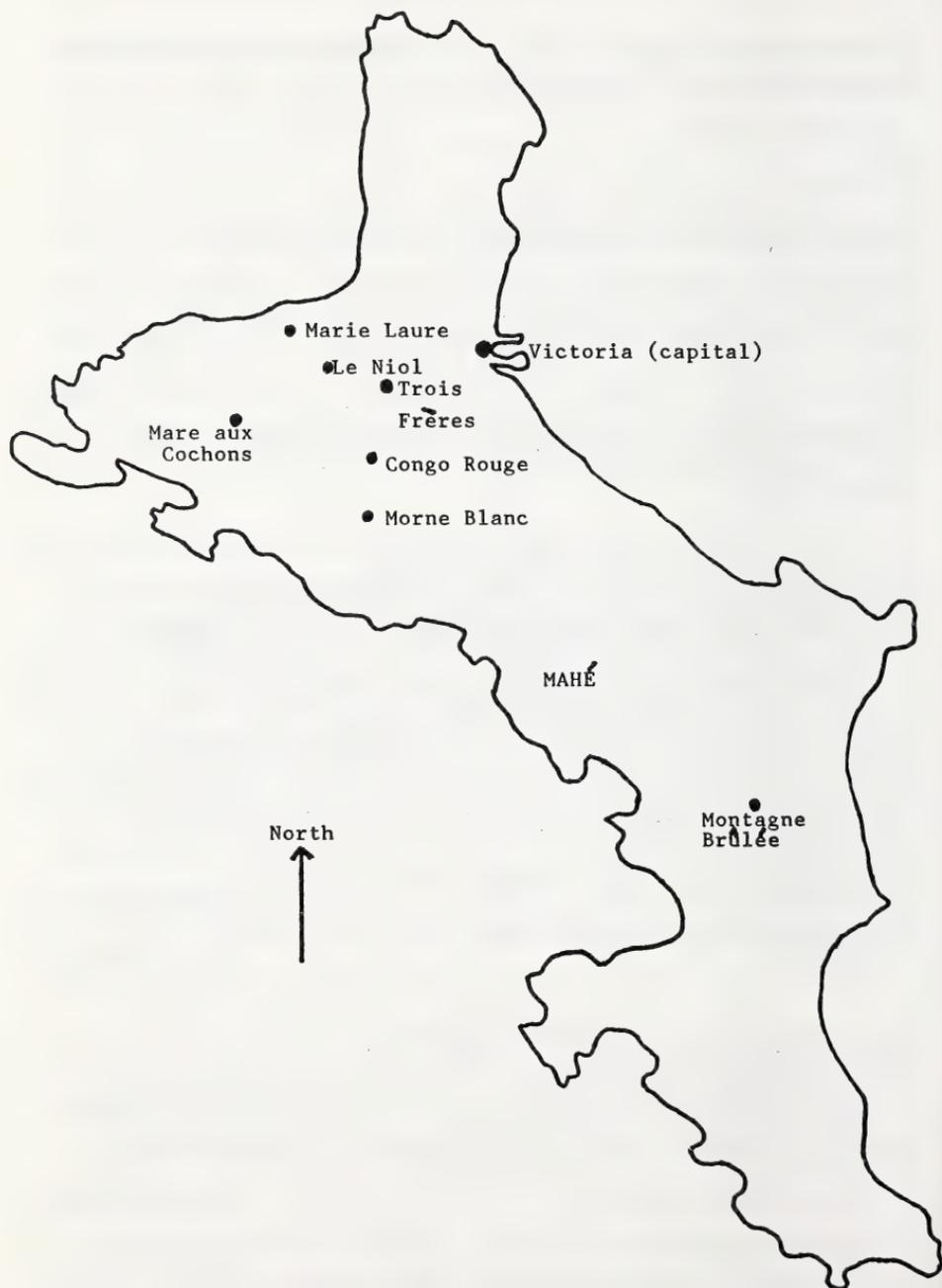


Fig. 1. Map of Mahé island showing localities mentioned in the text. Silhouette is 17 kilometres to the north-east of Mahé.

4. Brown to very dark brown, sometimes almost black; two spines between the eyes and usually minute spines along each side of meso-thorax; eyes greyish; mouthparts not tinged brick-red.....*Carausius sechellensis*
 — Dark brown to black; no spines; eyes and mouth tinged brick-red in life*Carausius gardineri*

1. *Carausius sechellensis*

This is the species with the greatest altitudinal range. I have found it from around 55 metres above sea level at Marie Laure in the district of Bel Ombre to elevations of nearly 700 metres on the slopes of Trois Frères, Morne Blanc and Congo Rouge. It occurs in and around wooded areas where relicts of the original vegetation of the island persist.

C. sechellensis is found mainly on the various species of fern that it feeds on. Most of these still need to be identified, but they include *Nephrolepis* sp. and *Gleichenia linearis*. Although the latter seems to be quite tolerant of exposure and invades deforested areas, the majority of these ferns grow in damp (usually shaded) areas. Sometimes they grow as epiphytes on the trunks of palms, or on top of granite boulders, and it is interesting that *C. sechellensis* is often found on them even in these situations.

I have occasionally seen this stick insect resting on very young "santol" trees (*Sandoricum* sp.), on "larourout-de-lenn" (*Tacca leontopodioides*) and on the pitcher plant or "lalyann pot-a-o" (*Nepenthes pervillei*). However, I have not observed it feeding on any of these plants, the first two of which are introduced species, while the third is an endemic.

In artificial conditions *C. sechellensis* does feed on other plants if ferns are not available. Two adult females that escaped from the cages in which they were being kept were later found on two exotic ornamentals, *Cordyline fruticosa* (= *C. terminalis*) and *Sansevieria trifasciata laurenti* respectively. The leaves of both plants had been nibbled in the manner characteristic of phasmids.

C. sechellensis appears to be quite tolerant of habitat disturbance. The locality at Marie Laure mentioned above is a residential area, and there I have found this species on ferns growing beside a drive not far from several houses. It also occurs in the vicinity of houses in the residential area of Le Niol.

C. sechellensis is currently being reared in Britain by members of the Phasmid Study Group. The culture originates from specimens collected on Mahé in 1983 by Allan Harman.

2. *Carausius gardineri*

This species appears to be confined to damp forest at altitudes above 300 metres, where it also feeds on ferns, living in sympathy with *C.*



Fig. 2. *Carausius alluaudi* is the largest Seychellois stick insect. The female, shown here, reaches 11.5 cm in length.

sechellensis (individuals of the two species are sometimes found on the same fern). I have observed it on the slopes of Trois Frères, Morne Blanc and Congo Rouge, and in the area between Le Niol and Mare aux Cochons. This stick insect, too, is occasionally encountered on ferns growing as epiphytes.

3. *Carausius alluaudi*

This species has been observed from around 100 metres above sea level in the area between Marie Laure in Bel Ombre and Le Niol to altitudes of around 500 metres at Mare aux Cochons and on Montagne Brûlée. In all these localities, *C. alluaudi* has been found mainly on “kalis-di-pap” (*Tabebuia pallida*). This small to medium-sized tree of the Bignoniaceae family is not part of the indigenous vegetation of the Seychelles — it is a native of Central America and was introduced at the beginning of the 20th century for reforestation to combat erosion.

At Mare aux Cochons I have come across *C. alluaudi* on young specimens of another tree, possibly indigenous, which I have not yet been able to identify. In the La Réserve/ Brûlée area, I have found it on ferns growing beneath a large specimen of the same tree. In lower Le Niol very young nymphs have sometimes been collected on “bwa dir” (*Canthium* sp.), a red-veined plant of the Rubiaceae family. At Mare aux Cochons one adult female was found on a very young plant of the guava *Psidium cattleianum*. The leaves of all these plants had been nibbled, possibly by the specimens of *C. alluaudi* found on them.

In captivity I have fed *C. alluaudi* on both *Tabebuia pallida* and on the *Canthium* sp. mentioned above. When provided with leaves of both plants, it seems to prefer *Tabebuia pallida*. I have also observed this stick insect on the fronds of the endemic palms *Nephrosperma vanhoutteana* (“lantannyen milpat”) and *Phoenicophorium borsigianum* (“lantannyen fey”), but in captivity it refuses to feed on palm leaves.

4. *Graeffea seychellensis*

I have found this species only in the palm forest that clothes the slopes of La réserve and Montagne Brûlée (between 250 m and 500 m above sea level). It feeds on the leaves of at least three endemic palms: *Phoenicophorium borsigianum*, *Nephrosperma vanhoutteana*, and *Deckenia nobilis* (“palmis”). *Graeffea seychellensis* is difficult to detect because of its highly effective camouflage: its green colour blends with that of the palm fronds on which it is resting or feeding.

Conclusion

At least four of the five species of stick insect described from the Seychelles are still found there in and around surviving areas of indigenous vegetation on the island of Mahé. One species, *Carausius alluaudi*, seems to have successfully adapted itself to a new foodplant, the introduced *Tabebuia pallida*. The fifth Seychellois stick insect, *Carausius scotti*, may still survive on Silhouette, where a male specimen was collected in 1908.

There is a lot of scope for research into the ecology of all the species. In particular, the details of their life cycles need to be worked out.

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BOOK REVIEWS

Provisional Atlas of the Sepsidae (Diptera) of the British Isles by A. Pont, pp.23.

Provisional Atlas of the Ticks (Ixodoidae) of the British Isles by K. P. Martyn, pp.62.

Provisional Atlas of the Centipedes of the British Isles by A. D. Barber and A. N. Keay, pp.127.

Provisional Atlas of the Harvest-Spiders of the British Isles by J. H. P. Sankey, pp.42.

All Biological Records Centre, Huntingdon, 1989.

These atlases by no means give the complete picture of the distribution of their respective groups and the species within them. However, they do show areas which lack active recording and it is to be hoped that people in those areas will be stimulated into filling in the gaps, and so in a few years time, a much more accurate picture of the distribution will be known. They also give a good way of assessing the relative abundance of fauna in a given area. Any one who is interested in knowing the distribution of these insects and their relatives ought to think about purchasing these publications.

Each atlas gives a map for most species on which each 10 km square is plotted as a dot. There is also at least a paragraph of text for each species giving remarks and notes about their biology and ecology.

D. J. Mann

AN EXPEDITION TO SPAIN AND EASTERN FRANCE, 1987

by P. W. Cribb (2270)

(continued from page 204)

On the morning of the 17th it was still raining and there seemed no point in staying near Riano as the old sites were no longer accessible and would soon be under water. We drove over the pass, a low one compared with the San Glorio but with the same broom-covered slopes which undoubtedly would have yielded *E. palarica* had there been any sunshine. We then entered a spectacular defile at the bottom of which flowed a wide turbulent river in which trout and salmon swim. At Cangas we turned towards Santander and at Cabezon de la Sal we took the road southwards to Reinosa. South of that town the road leads into hilly country and eventually passes under the railway line. At this point we took the left-hand road in the direction of Escalada and after a short distance stopped to collect on the slopes above the road. The sun was now fitful and we found several *L. boeticus* laying on the flower-heads of everlasting pea growing on the banks. There were also larvae present in various stages. A surprise was to take *M. daphnis*, the females being of the brown form. There were hundreds of *A. ripartii*, a few *A. damon* and *A. ainsae*, *L. thersites*, *C. croceus* and *C. australis*, *P. bathseba*, *P. briseis*, *P. tithonus*, *M. galathea* (not *laschesis*), *L. coridon* and *H. semele*. We camped for the night in a hay meadow beside the road and were able to watch a family of red-backed shrike and also saw some hoopoes, and corn buntings. In the morning the sun was again rather fitful and we collected for a while on the same slopes. David found two larvae, almost full-fed, of *M. stellatarum* on yellow bedstraw. After some discussion as to weather prospects, we decided to leave the Asturias with their cloud and rain and try the Hautes Pyrenees. Back at Reinosa we took the road across country towards Cabanes de Virtus along the north side of a huge lake. Beyond the village of Soncillo we came upon an area of limestone pavement which stretched along the north side of the road. Fortunately the sun had shown its face and on the flower-strewn slopes we found a wealth of butterflies on the wing. These included *B. circe*, *H. semele*, *H. alcyone*, *P. briseis*, *M. jurtina*, *C. arcania*, *C. iphioides*, *M. galathea* (several of the form *leucomelas*), *B. hecate*, *B. ino*, *M. aglaia*, *M. parthenoides*, *M. didyma*, *S. spini*, *L. thersites* (one of the form *caecilia*), *M. daphnis*, *P. argus* (the females being small and heavy with blue scaling), *T. silvestris* and *C. lavaterae*. The sun left us and we drove on via Miranda de Ebro, Vitoria and Pamplona and then up the defile of Val Carlos to camp for the night on the top of the pass. Looking back towards the Asturias we saw that they



Larva of *I. iolas* at Loesche.

were still enveloped in heavy cloud but the view to the north and the Pyrenees looked more promising. In retrospect we would have been better served by staying south of the Pyrenees but not being clairvoyant we decided to push on to try the Cirques above Lourdes.

On the morning of the 19th we drove on towards the French border where we had a brief conversation with the border police on the merits of bearded vultures and then on through Salies de Bearn where Eric Gill and his family had stayed for holidays. Then via Orthez and Pau to take the road through Lourdes and into the valley leading towards Gavarnie. At the town of Luz we crossed the Gave de Pau and continued on a narrow winding road to the junction where the road divides, right to Gavarnie and left to the village of Heas and the Cirque de Troumouse. Gavarnie is now a no-go area for collectors so we took the left fork and found the road even narrower with steep banks above and the gorge below. There were a lot of cars coming up and down the road making driving difficult and about half way up we stopped to have lunch beside the road. On the steep bank above the road were several *P. apollo* flying and two species of *Erebia*, *E. meolans* and *E. manto constans*. At the end of the valley we came to a large car park and to drive further meant paying a toll to go on by road to the Cirque. We parked here and climbed up the path leading towards the Cirque, only to meet a notice informing us that the Cirque is

now a National Park and no collecting is allowed within the fenced area. We then did some exploring of the slopes outside the Park and recorded dozens of Apollos. Also present were *E. epiphron*, *E. meolans*, *E. hispana rondoui*, *H. virgaureae*, *L. maera*, *M. parthenoides*, *M. didyma*, *M. galathea*, *C. pamphilus*, *C. arcania*, *M. diamina*, *C. croceus*, *C. cardui*, *A. urticae*, *P. argus*, *P. escheri*, *P. machaon* and *A. crataegi*. The sun was fitful but most species were flying strongly. We went down the valley a little way and observed masses of *Pyrgus* specimens drinking at a wet patch above the stream. They were all of one species and there must have been as many as twenty at a time.

We then drove back to Luz St Sauveur and took the road to Bareges. Here we found a camping spot on the old road above the town beside the torrent and settled in for the night. It had been a hot sunny day but cloud came in to cover the sky about 6 pm. In the morning we woke to thick mist which enveloped the mountains and we spent some time along the banks of the torrent searching the nettles for larvae of *V. atalanta* and found a few with thousands of *A. urticae* larvae. We saw a deer or steinbok run up the slope opposite us. We crossed the stream on a small bridge and I searched the grasses for roosting butterflies. There were dozens of *M. galathea* and other species included *P. amanda*, *T. lineola*, *T. actaeon* and *M. jurtina*. At 10.30 the sun broke through fitfully and we drove down into the town, only to find the funicular to the Pic d'Ayrie closed on a Monday. We then drove up the Col du Tourmalet and stopped near a café which had been erected since my last visit here with Leo Coleridge and my father. We parked and walked up a track which led to alpine meadows and observed two golden eagles circling overhead. They quickly rose in the thermals and disappeared. The path was signed "Le Laquet" and we came on ski lifts. *Saxafraga aizoides* was growing on the damp sides of the path, the foodplant of *P. phoebus*, which does not occur in the Pyrenees. We observed *E. meolans*, *E. epiphron*, *C. minimus*, *C. pamphilus*, *L. maera*, and thousands of *urticae* larvae, many of which were dying from some bacterial or viral disease, though several had pupated already, the chrysalids being a brilliant gold in some cases. Suddenly mist swept down upon us and the sky filled in with cloud.

We decided that the weather did not look like improving and drove back through Lourdes and Tarbes, heading for the Dordogne. Beyond Auch we drove through mile upon mile of sunflowers, the whole countryside being ploughed and planted, maize being the only alternative to the sunflowers. Cultivation was so intense that we were hard pressed to find anywhere to park for the night. On the morning of the 21st we were awakened by a road gang who arrived at 6.30 am to start heating up tar for the day's operations.

We left after breakfast in the direction of Cahors, passing through the village of Lauzerte and about six miles short of Cahors we stopped briefly to collect over some limestone pavement beside the road. Here I found *M. dryas* and a lot of *M. galathea*, *H. hermione* and *H. semele*. Driving further on we came upon a large island of wild terrain (past Cahors) which lay between the new road and the old, now forming a lay-by. This was rich with flowers and we stopped for about three hours in bright sunshine to collect. These spots seem to be few and far between now in this part of France, but the wealth of insect life here showed what the potential was and what the area had been before the massive ploughing programme had started with the EEC.

The species on the wing included both *C. australis* and *C. croceus*, *L. sinapis*, *G. cleopatra*, *P. rapae*, *M. aglaia*, *F. niobe* (form *eris*) and *F. adippe*, *B. daphne*, *C. dia*, *I. lathonia*, *C. cardui*, *P. c-album*, *H. hermione* (*fagi*), *B. circe*, *L. maera*, *L. megera*, *M. dryas*, *M. jurtina*, *C. pamphilus*, *M. galathea*, *H. semele*, *M. arion*, *L. bellargus*, *P. icarus*, *P. thersites*, *P. baton*, *N. ilicis*, *O. venata*, *E. tages*, *T. sylvestris*.

I caught a fine mantis and we spotted a female *I. podalirius* in the act of laying an egg on a small bush of the *Prunus mahabel* which was quite common here. Search produced about two dozen eggs and larvae in all stages, including full grown. This indicates the almost continual presence of the Scarce swallowtail from the first emergences in spring to the late summer. The eggs hatched on our return home and the larvae resulting from them pupated in the last week in September and will overwinter. The full-fed larva turns yellow prior to pupation and looks like a dying leaf and the pupae are a straw-colour.

We then drove on through the town of Figeac and above the town on the hillside we stopped in the evening sunshine to explore the majoram-strewn banks. Here we found several *M. arion* roosting on the marjoram heads. They were fine large specimens and in good condition. There were also dozens of *B. circe*, mainly males, which were sitting on tree trunks and on the rocks above the meadows. *M. galathea* was also common with *M. jurtina* and a few *L. coridon*.

The sun was now setting so we drove on towards St Clere and passed through densely wooded hills to camp in a small hay meadow surrounded by deciduous woodland. In the meadow on some figwort I found several larvae of the Water betony shark, *C. scrophulariae*, feeding on figwort. The farmer came by on a tractor and gave us his permission to spend the night in the meadow and we settled down for the night, greatly suffering from the swarms of mosquitoes, the woodland being very damp.

In the morning, in heavy mist, we drove north via St Cere, Tulle, Gueret, toward Le Chatre. It rained intermittently with heavy cloud cover. Towards evening the sun shone for a while and by the roadside we



Cirque de Tramonaie, Pyrenees



Picos d'Europe, Puerto de Pouton

observed *F. adippe*, *M. aglaia*, *M. jurtina*, *L. camilla*, *I. io*, *P. c-album*, *M. galathea* (several of a form similar to *M. lachesis*), *A. crataegi*, *G. rhamni*. All the way we passed through areas of fairly heavy woodland of oaks, chestnut, conifers, birch and beech, interspersed with poplar plantations.

There was plenty of willow but we found no sign of *A. iris*. We camped the night in a lay-by formed by the old road, nicely screened from the main road by a copse. Here I found several ova of *L. camilla* and small larvae on the honeysuckles under the trees and also netted a queen hornet. We were just north of Gueret and south of La Chatre. We were up early next morning and in fitful sunshine we drove on north via Issoudan, Vierzon, Sousmes, Isdes, Tigy and Jargeau. En route we stopped at likely woodland areas, the remainder of the countryside being heavily cultivated. At one pleasant spot we stopped for lunch and recorded *N. antiopa*, *L. camilla*, *A. paphia*, *B. daphne*, *P. tithonus*, *A. hyperantus*, *L. sinapis*, *A. levana*, *B.io*. At a later stop we saw two *iris* flying and I found a single egg on a goat willow growing on the roadside. We then crossed the Loire and drove via Pithviers, Angerville, Dourdan and Rambouillet to camp for the night in the forest south of St Leger, by the cross of St Vipert. The normally busy campsite was totally deserted.

On the morning of the 24th we were again greeted with clouded skies but we were able to find a good number of ova of *L. camilla* on the honeysuckles in the woodland around the camp. We then drove off towards Lac St Hubert and the sun came out strongly. By the lake we saw *A. levana*, *P. c-album* and *V. atalanta*, *A. hyperantus*, *P. tithonus* and *P. aegeria* but no *L. camilla*, nor were there any signs of their eggs nor any *A. iris*. On previous occasions *L. camilla* had been abundant here and we had also found some trace of *A. iris*. The woodland did not appear to have changed but within it there was nothing on the wing. We then went back to the St Leger road to the corner of the road to Poigny le Forêt and here we took several females of *H. morpheus* which subsequently laid a few eggs for us. The males were worn. I also took two female *A. levana* and we saw a few *A. paphia* but again the abundance of species which we had observed here previously were no longer here and it was obvious that something had happened in the forest to drastically reduce the butterfly population.

David found a few full-fed larvae of *S. pavonia* on bramble in the clearing and there were a few *I. io* visiting the thistles, which had previously been the attractant for so many species. We then drove up beyond St Leger to look at the woodlands there but again they produced nothing of interest. We slept the night again at St Vipert and in the morning left via Dreux eastwards to explore the forests of the National Park of Normandy. We found the Forêt d'Ecouves to be mainly conifer and beech and again

devoid of butterflies of any note and the same can be said of the Forêt des Ardaines. Here, by chance, I went down a track into the forest and found a large open area of coarse grassland, newly planted with pine. Here I netted a female *H. morpheus* and when David joined me we found further specimens, though not in any number. The sun was still fitful and the butterfly only flies in sunlight, plunging into the grasses when cloud covers the sun or when chased with the net. We had to be back at the Caen port on the 27th so decided to spend a night at a campsite with shower facilities, and so slept the night at the municipal site at Flers.

On the morning of the 26th we drove north to Bayeux where we spent the best part of the day visiting the cathedral and the Hotel de Ville where there was an exhibition of engravings, etc. In the afternoon we drove on towards Caen, intending to camp the night near the port and take the 8.30 am boat on the 27th as booked. However, when we got near to the port David suggested we might try to get on a boat that evening and without any trouble we were able to drive straight on to a boat which had been delayed. We got to Portsmouth about 10.30 pm and drove through the night to Hanworth, arriving soon after midnight.

We had covered almost 3,000 miles on the trip and made some assessment of the terrain, particularly in respect of eastern France. The massive cultivation has meant that apart from forest it is difficult to find any wild areas and certainly all the downland and lowland has been put to the plough. Much of the lowland in Spain appears to be going the same way, and the resultant pockets of wild life will mean that there will be no intercommunication between colonial species, and a set of adverse conditions in a locality which destroys one or more species means that the chances of re-colonisation are almost impossible without human intervention. There are few, if any, linking routes which species can use and isolation like this has proved in Britain to be disastrous for some of our fauna.

GLOSSARY OF ENGLISH NAMES

<i>A. ainsae</i>	Forster's furry blue	<i>B. daphne</i>	Marbled fritillary
<i>A. cardamines</i>	Orange-tip	<i>B. euphrosyne</i>	Twin-spot fritillary
<i>A. crameri</i>	Southern brown argus	<i>B. hecate</i>	Lesser marbled fritillary
<i>A. crataegi</i>	Black-veined white	<i>B. ino</i>	Pearly heath
<i>A. damon</i>	Damon blue	<i>C. arcania</i>	Berger's clouded yellow
<i>A. hyperantus</i>	Ringlet	<i>C. australis</i>	The hermit
<i>A. iris</i>	Purple emperor	<i>C. briseis</i>	Painted lady
<i>A. levana</i>	Map butterfly	<i>C. cardui</i>	Clouded yellow
<i>A. montensis</i> *	Large argus	<i>C. dia</i>	Violet fritillary
<i>A. morronensis</i>	Spanish argus	<i>C. croceus</i>	Pearl-bordered fritillary
<i>A. paphia</i>	Silver-washed fritillary	<i>C. iphioidae</i>	Chestnut heath
<i>A. ripartii</i>	Ripart's anomalous blue	<i>C. Lavalerae</i>	Marbled skipper
<i>A. urticae</i>	Small tortoiseshell	<i>C. minimus</i>	Small blue
<i>B. circe</i>	Great banded grayling	<i>C. pamphilus</i>	Small heath

<i>C. priouri</i>	Southern hermit	<i>M. deione</i>	Provençal fritillary
<i>C. scrophulariae</i>	Water betony moth	<i>M. diamina</i>	Fasle heath fritillary
<i>E. desfontainii</i>	Spanish fritillary	<i>M. didyma</i>	Spotted fritillary
<i>E. epiphron</i>	Mountain ringlet	<i>M. dryas</i>	Dryad
<i>E. eumedon</i>	Geranium argus	<i>M. galathea</i>	Marbled white
<i>E. hispana</i>	Spanish brassy ringlet	<i>M. jurtina</i>	Meadow brown
<i>E. manto</i>	Yellow-spotted ringlet	<i>M. lachesis</i>	Pyrenean marbled white
<i>E. meolans</i>	Piedmont ringlet	<i>M. nausithous</i>	Dusky large blue
<i>E. palарica</i>	Chapman's ringlet	<i>M. parthenoides</i>	Meadow fritillary
<i>E. tages</i>	Dingy skipper	<i>M. russiae</i>	Esper's marbled white
<i>F. adippe</i>	High brown fritillary	<i>M. stellatarum</i>	Hummingbird hawkmoth
<i>F. chlorodippe</i>	High brown fritillary (??)	<i>N. antiopa</i>	Camberwell beauty
<i>F. niobe</i>	Niobe fritillary	<i>N. ilicis</i>	Ilex hairstreak
<i>G. cleopatra</i>	The Cleopatra	<i>N. polychlorus</i>	Large tortoiseshell
<i>G. rhamnii</i>	Brimstone	<i>O. venatus</i>	Large skipper
<i>H. alciphron</i>	Purple-shot copper	<i>P. aegeria</i>	Speckled wood
<i>H. alcyone</i>	Rock grayling	<i>P. amanda</i>	Amanda's blue
<i>H. comma</i>	Silver-spotted skipper	<i>P. apollo</i>	Apollo
<i>H. fidia</i>	Striped grayling	<i>P. argester</i>	Turquoise blue
<i>H. galathea</i>	Marbled white	<i>P. argus</i>	Silver-studded blue
<i>H. hermione (fagi)</i>	Woodland grayling	<i>P. bathseba</i>	Spanish gatekeeper
<i>H. lupinus</i>	Oriental meadow brown	<i>P. baton</i>	Baton blue
<i>H. lycaon</i>	Dusky meadow brown	<i>P. briseis</i>	Hermit
<i>H. morpheus</i>	Large chequered skipper	<i>P. c-album</i>	Comma
<i>H. semele</i>	Common grayling	<i>P. callidice</i>	Peak white
<i>H. virgaurea</i>	Scarce copper	<i>P. cecilia</i>	Southern gatekeeper
<i>I. io</i>	Peacock	<i>P. daphidice</i>	Bath white
<i>I. iolas</i>	Iolas blue	<i>P. dorylus</i>	Turquoise blue
<i>I. podalirius</i>	Scarce swallowtail	<i>P. escheri</i>	Escher's blue
<i>L. albicans</i>	Spanish chalk-hill blue	<i>P. hippothoe</i>	Purple-edged copper
<i>L. bellargus</i>	Adonis blue	<i>P. icarus</i>	Common blue
<i>L. boeticus</i>	Long-tailed blue	<i>P. machaon</i>	Swallowtail
<i>L. caelestissima</i>	Azure chalk-hill blue	<i>P. mnemosyne</i>	Clouded apollo
<i>L. camilla</i>	White admiral	<i>P. nivescens</i>	Mother-of-pearl blue
<i>L. coridon</i>	Chalk-hill blue	<i>P. pandora</i>	Cardinal
<i>L. maera</i>	Large wall brown	<i>P. phoebus</i>	Small apollo
<i>L. megera</i>	Wall butterfly	<i>P. rapae</i>	Small white
<i>L. phlaeas</i>	Small copper	<i>P. sertorius</i>	Red-underwing skipper
<i>L. roboris</i>	Spanish purple hairstreak	<i>P. thersites</i>	Chapman's blue
<i>L. sinapis</i>	Wood white	<i>P. tithonus</i>	Gatekeeper
<i>L. thersites</i>	Chapman's blue	<i>S. pavonia</i>	Emperor moth
<i>L. tityrus</i>	Sooty copper	<i>S. proto</i>	Sage skipper
<i>L. virgaurea</i>	Scarce copper	<i>S. sertorius</i>	Red under-wing skipper
<i>M. aglaia</i>	Dark green fritillary	<i>T. acteon</i>	Lulworth skipper
<i>M. alcon</i>	Alcon blue	<i>T. lineola</i>	Essex skipper
<i>M. arion</i>	Large blue	<i>T. sylvestris</i>	Small skipper
<i>M. daphnis</i>	Meleager's blue	<i>V. atalanta</i>	Red admiral

HOVERFLIES AND OTHER DIPTERA IN SOUTH WALES DURING 1988

by P. M. Pavett (8263)

With the release of the book *British Hoverflies* by Stephen Falk and Alan Stubbs, and with the encouragement of a friend, Ian Morgan, I decided that in 1988 I would try sampling some of the hoverflies of the South Wales area.

This being the first year with this group I was encouraged both by the number of species caught, a total of 110 out of the 250 or so species, and by the number of local or rare species found. Most surprising of all to me was the number of species, both common and local, which were found within a two or three mile radius of my home.

With the release of the excellent book mentioned above, with its simple keys (in the main) and its beautiful and accurate plates, I would recommend this group to any who are perhaps interested in trying their hand at a new group.

Below are listed the species caught from March to September in 1988. Collecting was done at a variety of localities but as will be seen, three localities were visited frequently, these being Coed Gwaenydd Bach, a wood near Cwmbach in the Cynon valley, Nicholaston Woods on the Gower and Dinefwr Deer Park, near Llandeilo in Dyfed. Also in July I visited the New Forest for a week but this proved disappointing.

Tribe Bacchini

Baccha obscuripennis. Found commonly at two sites, Coed Gwaenydd Bach (32-029007), and Nicholaston Woods (21-516881). A common hoverfly which is probably common in most districts in South Wales.

Melanostoma mellinum. Again a common species, being seen in many of the localities visited, specimens being taken from Coed Gwaenydd Bach and Merthyr Mawr sand dunes (21-856772).

Melanostoma scalare. Another common species often seen flying with *M. mellinum* in the same localities.

Platycheirus ambiguus. A very local species which however was found quite commonly in late April at two sites, Coed Gwaenydd Bach and Nicholaston Woods.

Platycheirus albimanus. A very common hoverfly found in most, if not all, of the sites visited in 1988.

Platycheirus clypeatus. Again a common species at three sites, Coed Gwaenydd Bach, in damp fields in Penywaun, Cynon Valley (22-975050) and around a pond in Dinefwr Park in Dyfed (22-609222).

Platycheirus manicatus. A common species found at Nicholaston, Pembrey (22-388040), Machynys (21-514980) and Whitford (21-447953). Probably a species which will be found throughout the South Wales region in suitable habitats.

Platycheirus peltatus. A common species which was found in all (with the exception of Dinefwr), localities listed above.

Platycheirus scutatus. Record at Cwm Ivy Woods (21-441938), Merthyr Mawr and also at 2000m up on the Brecon Beacons.

Platycheirus stictus. Very little is known about this species and records are scattered. I found it at one locality, this being the Brecon Beacons, at 2000m, in June, on the flowers of Hawthorn.

Platycheirus tarsalis. An uncommon species which was found in low numbers at two wooded sites, Coed Gwaenydd Bach and Nicholaston Woods.

Pyrophaena granditarsa. Found commonly in damp situations at Cwmbach (32-024072), Dinefwr and Cwm Ivy.

Pyrophaena rosarum. Found at two localities, Coed Gwaenydd Bach (only one seen) and Dinefwr where it was flying with *P. granditarsa*, but although common, not as *granditarsa*.

Tribe Paragini

Paragus haemorrhous. The commonest species of this tribe. However only one was found, this being at Vinney Ridge enclosure, (41-266059), in the New Forest.

Tribe Syrphini

Chrysotoxum arcuatum. Four of these hoverflies were seen in Coed Gwaenydd Bach in May. This record must be one of the most southerly records for this essentially northern and western species.

Chrysotoxum bicinctum. Quite a common species recorded at Coed Gwaenydd Bach and Oxwitch (21-503860).

Chrysotoxum cautum. Probably the commonest member of the genus, it was recorded at three coastal (sandhill) sites, Nicholaston Burrows, Whitford Burrows and Oxwitch.

Chrysotoxum elegans. A scarce species which was found quite commonly along the coastal footpath and chalk downs of Durlston Country Park (40-018772) Dorset, in July. R.D.B. cat. 3.

Dasysyrphus albostriatus. Only found at two localities, and then sparingly. Two were caught at Nicholaston and one at Cwmbach (32-023012).

Dasysyrphus lunulatus. Primarily a northern species, it was nevertheless

found at four localities, these being Pembrey Forest, Whitford, Coed Gwaenydd Bach and the Brecon Beacons at 2000m.

Dasysyrphus tricinctus. Found commonly in Pembrey Forest and Coed Gwaenydd Bach.

Dasysyrphus venustus. Quite common at the following localities: Dinefwr, Aberdulais, Penywaun and Coed Gwaenydd Bach.

Didea fasciata. This scarce and local species was recorded as a single specimen caught in a Spruce plantation near Mountain ash in the Cynon Valley.

Epistrophe eligans. A common species which was found in numbers at Coed Gwaenydd Bach and Nicholaston Woods.

Epistrophe grossulariae. A local species which was found at four sites, Aberdulais, Dinefwr, Penywaun (22-972052) and Crymlyn Bog (21-717941). At Crymlyn two females of this species were seen laying eggs in the seed heads of Water dock, plants which were infested with some sort of blackfly.

Epistrophe nitidicollis. Only one found. Pembrey Forest (22-388040).

Episyrphus balteatus. Very common in all localities and all habitats.

Leucozona glaucia. Found at two sites, Cwmbach (32-018015) and Dinefwr. At both localities it was very common especially towards the end of August-September.

Leucozona laternaria. Again found at two sites, in moderate numbers, these being Cwmbach (32-018015) and Aberdulais.

Leucozona lucorum. The commonest member of the genus. The species was found in good numbers at Pembrey Forest, Parc Gitto, near Llwynhendy (21-542986), Nicholaston Woods and Penywaun (22-972052).

Melangyna labiatarum. Only found at two localities, and then not in any numbers. Penywaun and Aberdulais.

Melangyna lasiophthalma. Very common early in the year in all the woods visited.

Melangyna cincta. Quite a common species which I was only able to find in two woods, Coed Gwaenydd Bach and Nicholaston. However at these two sites it was a common species.

Meliscaeva cinctella. A common species at three localities, these being Brecon Beacons at 2000m, Penywaun and Cymbach in the Cynon Valley.

Metasyrphus corollae. This hoverfly was found commonly in August around Llangorse Lake, Pembrey Forest (22-388040) and at Godshill (41-165153) in the New Forest.

Metasyrphus latifasciatus. Only found at two sites both in the Cynon Valley, Coed Gwaenydd Bach and Penywaun.

Metasyrphus luniger. Quite a common species around the Cwmbach area of the Cynon Valley and also found in the dune systems of Merthyr Mawr and Whitford.

Parasyrphus punctulatus. Only two specimens found, one at Tywyn Burrows (22-367050) and a female at Hawthorn flowers on the Brecon Beacons.

Scaeva pyrausti. A very uncommon species in 1988, only one being found at Whitford Dunes.

Sphaerophoria spp. *S. scripta* was found commonly at most localities visited. *S. menthastri* and *S. philanthus* need confirmation of identity.

Syrphus ribesii. Common in all sites visited.

Syrphus vitripennis. Common in all sites visited.

Syrphus torvus. Found at two sites as singles, Dinefwr Deer Park and Coed Gwaenydd Bach. No doubt overlooked at other sites amongst the two other species of the genus.

Xanthogramma citrofasciatum. An uncommon hoverfly which was found quite commonly at times at Coed Gwaenydd Bach.

Xanthogramma pedissequum. Commoner than *X. citrofasciatum* but only found at two sites Coed Gwaenydd Bach and Machynys ponds, Llanelli.

Tribe Cheilosini

Cheilosia albitarsus. Quite frequent at Nicholaston Woods, Dinefwr Deer Park, Merthyr Mawr and Strady Woods, Llanelli.

Cheilosia bergenstammi. One of the commonest of the tribe being found at Pembrey Forest, Nicholaston Woods, Ffrwd Fen, Penywaun and Whitford.

Cheilosia chrysocoma. One of the rarer members of the genus and one of the most striking with its foxy-red colouring. Three were seen, one at Coed Gwaenydd Bach and two in the damp fields below Penywaun (22-975050).

Cheilosia illustrata. A common species often found on the flowers of Umbelliferae. It was found commonly at Coed Gwaenydd Bach, Penywaun, Whitsand Bay in Pembroke and Parc Gitto, Llwynhendy.

Cheilosia impressa. A few individuals were found at Nicholaston Woods and Coed Gwaenydd Bach.

Cheilosia nebulosa. This uncommon species turned up quite frequently and in numbers in the damp fields along the Cynon River below Penywaun. R.D.B. cat. 3.

Cheilosia pagana. Turned up commonly in Nicholaston Woods and a singleton captured at Machynys ponds.

Cheilosia variabilis. Quite common at Coed Gwaenydd Bach.

Cheilosia vernalis. This is probably the most common and widespread species of the genus which I found. It was common at Coed Gwaenydd Bach, Nicholaston Woods, Merthyr Mawr, near Aberdare and Whitford.

Cheilosia vulpina. One found at Dinefwr Deer Park.

Ferdinandea cuprea. This local species which to my mind is the most beautiful of the hoverflies was found quite commonly in Nicholaston Woods and a singleton at Dinefwr Deer Park.

Portevinia maculata. Again a local species, being associated with Ransoms, was found commonly in Nicholaston Woods.

Rhingia campestris. Common almost everywhere.

Tribe Chrysostrini

Brachyopa insensilis. Found on a Beech sap run at Dinefwr Deer Park. This is interesting as Stubbs states "Though regarded as a rarity, it would possibly be found in most southern districts with suitable large Elms. Unfortunately, Dutch Elm disease has widely destroyed the habitat of this hoverfly and it has yet to be clarified whether sap runs on other trees can be utilised".

Chrysogaster chalybeata. Common on the flowers of Umbelliferae in damp woodland at Dinefwr Deer Park and Penywaun (22-972052).

Chrysogaster solstitialis. One female caught in damp woodland at Swan Green in the New Forest (41-288082).

Chrysogaster hirtella. Quite a common species of woodland at Nicholaston, Dinefwr Deer Park and Cwm Ivy (21-441938).

Lejogaster metallina. Found only in small numbers at one site, Dinefwr Deer Park.

Lejogaster splendida. A singleton of this uncommon species was found at Machynys Ponds (21-514980).

Myolepta luteola. A male and female were caught of this rare hoverfly at Bramble in the woods at Swan Green (41-288082). R.D.B. cat. 3.

Neoascia podagrica. This is a common species but may easily be overlooked. It was found in abundance at Penywaun, Nicholaston Woods and Merthyr Mawr.

Neoascia tenur. Again a relatively common species which was found flying with *N. podagrica* at Nicholaston Woods but was also found alone on Fairwood Common (21-576923).

Orthonevra nobilis. Only found at Penywaun but quite commonly.

Orthonevra splendens. This lovely hoverfly was found commonly on the flowers of Umbelliferae at Penywaun, Cym Ivy and Machynys ponds.

Sphegina clunipes. Again this species is easily overlooked but was found commonly at Cym Ivy and Aberdulais (21-781995).

Sphegina kimakowiczi. Equally as common as *clunipes* at Cym Ivy, flying together. Also found at Godshill in the New Forest (41-165151).

Tribe Eristalini

Anasimyia contracta. Common around the ponds of Machynys and Dinefwr Deer Park.

Anasimyia lineata. Equally as common as *contracta* at the same two sites.

Anasimyia lunulata. A rarer species — only a singleton being found at a ditch in Penywaun (22-912052).

Eristalinus sepulchralis. Common at the woodlands of Nicholaston and Dinefwr and also found around Machynys ponds.

Eristalis abusivius. Quite common in the Penywaun area.

Eristalis arbustorum. Very common at all localities visited.

Eristalis horticola. Common in Nicholaston Woods and also at Whitford sand dunes (21-437940).

Eristalis intricarius. Common in the Penywaun area and at Coed Gwaenydd Bach. A singleton caught at Ffrwd Fen (22-420024).

Eristalis nemorum. Only one found, at Penywaun. Probably overlooked amongst other more common *Eristalis* species.

Eristalis pertinax. Common at most localities visited.

Eristalis rupium. A singleton of this rarer species was caught at Aberdulais (21-784995) probably the most southerly record to date for this essentially northern and western species.

Eristalis tenax. Common at all localities visited.

Helophilus hybridus. A local species of which two were caught at Dinefwr Deer Park and in the autumn was found exceptionally commonly at Machynys ponds.

Helophilus pendulus. Common at most localities visited.

Helophilus trivittatus. A large and impressive hoverfly but a local one. It was found at only one site, Machynys Ponds, and then in low numbers.

Myathropa florea. Quite common in most of the woods visited.

Parhelophilus frutetorum. Two found along the river at Cwmbach (32-026008) and one at Crymlyn Bog (21-717944).

Parhelophilus versicolor. A common species at Cwmbach, Nicholaston, Machynys and Dinefwr.

Tribe Merodontini

Eumeres strigatus. Only found at one site, Nicholaston Woods.

Merodon equestris. One caught in Cwmbach, two in Aberdulais and found commonly at Nicholaston Woods.

Tribe Pipizini

Pipiza austriaca, *P. fenestrata*, *P. noctiluca*. All three need confirmation of identity.

Pipizella varipes. Quite common at Machynys ponds and Coed Gwaenydd Bach.

Tribe Sericomyiini

Sericomyia silentis. Common in Coed Gwaenydd Bach and Aberdulais. One seen of Fairwood Common (21-576923).

Sericomyia lappona. Much scarcer than *silentis*. It was found in low numbers at an alder carr at Aberdulais (21-795999), and two were found on the flowers of Hawthorn bushes growing along a stream on the Brecon Beacons.

Tribe Volucellini

Volucella bombylans. This masterly Bumble Bee mimic was found commonly throughout the Cynon Valley. Singletons also turned up on Whitford dunes and the coastal footpath near Whitsand Bay in Pembroke.

Volucella inflata. A single specimen was taken at bramble flowers in the woods at Godshill in Hampshire (41-165153).

Volucella pellucens. Common in most of the woodlands visited.

Tribe Xylotini

Brachypalpoides lenta. A very striking species and a decidedly uncommon one being associated with mature woodland with dead wood, as are most of the family. Two of these hoverflies were taken, one, on the flowers of "buttercups" at Aberdulais (21-795999) and one on bramble at Godshill (41-165154).

Chalcosyrphus nemorum. Again a local species which turned up quite frequently at Dinefwr, Aberdulais and Cwm Ivy.

Criorhina berberina. All the four species of this genus are uncommon but this is the commonest. It was found in the following woods: Dinefwr Deer Park, Nicholaston Woods, Coed Gwaenydd Bach and near Symonds Yat (32-558154).

Criorhina ranunculi. This handsome and impressive hoverfly was caught at two sites. At Coed Gwaenydd Bach, over two days, eight were seen

feeding at Sallow blossoms, usually high up. At Aberdulais a singleton was seen on Blackthorn flowers. All sightings were in early April. A very local species.

Syritta pipiens. A commoner member of the family, it was found in numbers in the Cynon Valley and Nicholaston Woods.

Tropidia scita. A local species which was found in very large numbers along the woodland edge/marsh at Nicholaston.

Xylota abiens. A male and female caught at Dog Kennel Bridge in the New Forest (41-239052).

Xylota florum. Found in low numbers at Dog Kennel Bridge, Dinefwr and Aberdulais.

Xylota segnis. This the commonest member of the family was found in the woods of Dinefwr, Cwm Ivy, Dog Kennel Bridge and Coed Gwaenydd Bach.

Xylota sylvarum. Found in low numbers in woodland throughout the Cynon Valley and also at Aberdulais.

Xylota xanthocnema. This rare species was found singly at two localities, one, Symonds Yat (32-558154) and two, Dinefwr Deer Park. The record at Dinefwr is probably the only Welsh record for the species.

Diptera caught during 1988

Having turned my hand as it were to collect hoverflies in my area, I felt it would also be worthwhile to collect and sample some of the other dipteran families for which I had keys, these being; Conopidae, Tabanidae, Asilidae and Stratiomyidae.

The following species were found.

Family Conopidae

Out of a total of twenty-four British species only four of the commonest species were caught.

Conops flavipes. Caught on Umbelliferae quite commonly at Pembrey Forest (22-388040), Godshill in Hampshire (41-165151) and Whitford (21-442947).

Conops quadrifasciata. Common in Nicholaston Woods (21-517880) and singletons turning up at Dinefwr Deer Park (22-609222) and Cwmbach (32-023012).

Physocephala rufipes. A single specimen was taken in Coed Gwaenydd Bach, Cwmbach (32-029008).

Sicus ferrugineus. Common at Nicholaston Woods and Coed Gwaenydd Bach.

Family Tabanidae

Out of a total of twenty-nine British species, eleven were caught.

Atylotus fulvus. A single specimen was taken in Coed Gwaenydd Bach.

Chrysops caecutiens. A very common species at Dinefwr Deer Park and was also frequently seen at Godshill.

Chrysops relictus. A single specimen was taken near Pembrey Forest (22-388040).

Haematopota crassicornis. Singleton taken at Dinefwr Deer Park.

Haematopota pluvialis. A very common species at Coed Gwaenydd Bach, Aberdulais, Dinefwr Deer Park and Pembrey Forest.

Hybomitra montana. Three males were found sunning themselves on the roof of the pump house in Dinefwr Deer Park.

Hybomitra distinguenda. A singleton was caught in Coed Gwaenydd Bach.

Tabanus autumnalis. A single specimen was taken in Pembrey Forest (22-373039) when it landed on the car.

Tabanus sudeticus. This, the most impressive to my mind of all the British Diptera, was taken in low numbers at the following sites: Aberdulais (21-776996), Vinney Ridge Enclosure in the New Forest (41-260059) and Dinefwr Deer Park.

Tabanus bromius. One caught at Vinney Ridge Enclosure and quite a common species in Dinefwr Deer Park.

Tabanus cordiger. Again, quite a common species in Dinefwr Deer Park and a singleton was found on the window of my house in Cwmbach.

Family Asilidae

Out of a total of twenty-six British species, nine were found.

Dioctria atricapilla was common on logs and ferns along the woodland edge at Vinney Ridge Enclosure (41-266059).

Dioctria rufipes. Two females were caught by sweeping long grass along the coastal footpath near Whitsand Bay, Pembroke (12-734274).

Leptogaster cylindrica. A singleton was caught by sweeping tall grass in Dinefwr Deer Park.

Machimus coweni. A single specimen was caught by sweeping long grass in Vinney Ridge Enclosure.

Neoitamus cyanurus as *M. coweni*.

Lasiopogon cinctus. Very common on the dune systems of Nicholaston (21-522880) and Merthyr Mawr (21-853769).

Pamponerus germanicus. This very local and splendid insect was found quite commonly on the dune systems of Nicholaston and Whitford (21-438945).

Philonicus albiceps. Another species associated with sand dunes. It was found commonly at Pembrey (22-403047) and Whitford.

Dysmachus trigonus. A singleton caught at Whitford (21-437940).

Family Stratiomyidae

Out of a total of forty-seven British species, twelve were caught.

Stratiomys potamida. This local species was found quite commonly around Abingdon (41-535976) and Appleton (42-430014) in Oxford. A singleton was caught at Penywaun (22-973051) and also at Coed Gwaenydd Bach.

Stratiomys singularior. A rarer species than the above, a singleton was caught in Pembrey Forest (22-388040).

Oxycera rara turned up as singletons at two sites, Corfe Castle (30-960824) in Dorset and Brownhill Enclosure (41-233014) in the New Forest.

Oplodontha viridula. A few were seen in damp meadows near Godshill (41-165153) in Hampshire but in Whitford (21-447953) and near Pembrey Forest (22-403047) it was extremely common.

Beris clavipes. Two were beaten from Hawthorn growing alongside a ditch in Parc Gitto near Llwynhendy (21-544986).

Beris vallata. Common along some water filled ditches near Pembrey Forest (22-403047).

Beris morrisii. A singleton was caught in wet meadow at Godshill in Hampshire (41-165153).

Beris chalybeata. Common in Coed Gwaenydd Bach, near Cwmbach (32-029008).

Nemotelus notatus. Common along water-filled ditches near Pembrey Forest (22-403047).

Nemotelus uliginosus. As *notatus* but not as common.

Microchrysa polita. Picked up singly at two sites in Cwmbach (32-023026, 027026).

Chloromyia formosa. Found commonly about hedgerows in Cwmbach (32-027026) and at the woods around Symonds Yat (32-558154). A singleton caught in Whitsand bay in Pembroke (12-734274).

FURTHER THOUGHTS ON THE QUESTION OF ABERRATIONS

by Graham R. Smith (4950)

I find Mr P. Tebbutt's article "When is an aberration not an aberration" (*Bulletin* 48: 7-9), very interesting reading. I must admit that I have pondered over this subject many times before and, to my knowledge, no standard definitions have been adopted. Many authors of publications choose to create their own interpretation of forms, varieties etc. A good example is contained in L. H. Newman's *Complete List of British Butterflies*, where the summer form of the Comma, *Polygonia c-album* is referred to as ab. *Hutchinsoni* rather than the form *hutchinsoni* Robson.

When does an aberration count as an aberration? To simplify matters, all deviations from the norm could count. Insects like other fauna and flora are living organisms which are subjected to a multitude of differing circumstances, either natural or otherwise, and are prone to malformation or disease. Whatever the influences may be, lepidoptera and many other insect orders readily manifest these deviations, whether accidentally or intentionally, in wing/body coloration of adult and, to a lesser extent, in the earlier stages. Reasons for the occurrence of deviations from the norm may range from being obvious to very obscure and it may be impossible to categorise every deviation as, for many cases, the reasons must be unique.

Many species of butterfly and moth lend themselves to such a range of minor variation, both in colour and markings, that nearly every individual is different. The Small tortoiseshell *Aglais urticae*, the Marsh fritillary *Euphydryas aurinia* and the Garden tiger *Arctia caja* are to name but a few. More extreme aberrations of these species are not that uncommon.

It is worth considering some other aspects of British lepidoptera oddities often classified as aberrations. Dwarfing of specimens is a frequent occurrence in many species of butterfly especially the Pieridae, although I have met with dwarfs of the Speckled wood *Parage aegeria*, Marbled white *Melanargia galathea* and Adonis blue *Lysandra bellargus*.

South's *British Butterflies* by T. G. Howarth states that the dwarf confined area in Hampshire, where its larval foodplant *Cardamines pratensis* is also dwarfed. It has even been considered as a separate species. However, I have met dwarf *A. cardamines* on several occasions in Avon and they could possibly occur throughout its range. Björn Dal's *Butterflies of Northern Europe* refers to these dwarfs as form *minora*. Many dwarfs are almost certainly the result of less suitable larval foodplants or disease. Of course, there are the dwarf Large blues, *Maculinea arion*, aberration (note!) *occidentalis* le Chamberlin, believed to be caused by a

larva being adopted by a wrong species of ant. The dwarf form *thyone* Thompson of the Grayling *Hipparchia semele* is a peculiar geographic race, but is it a form or a subspecies?

At the other end of the size scale is the very large form of the Small blue *Cupido minimus* referred to as aberration *alsoides* Gerhardt. I must mention that a small colony which produced this variety/form/aberration/race, once existed on the side of a disused railway line to the south of Bath until the early seventies. The size of these aberrations was comparable to the Silver-studded blues *Plebejus argus* of the Hampshire Heaths. Unfortunately, the site was at the foot of a large retaining wall which collapsed on to half of the breeding area and the colony subsequently vanished.

Another remarkable species is the Northern brown argus *Aricia artaxerxes*. Last year, in late July, I discovered by chance a thriving colony of this butterfly ssp. *salamis* Stephens, in the South Lake District. Considerable variation was apparent between individuals. They appeared to range from a close resemblance of the Brown argus *Aricia agestis* to near ab. *unicolor* Lempke (almost plain brown upperside). Interestingly ab. *snelleni* Ter Haar of the double brooded *A. agestis* is occasionally met with in the south of England. These are specimens with the upper forewing discoidal spot narrowly ringed with the white, orange lunules reduced on the upper side margins and the underside black spotting is also slightly reduced. The insect resembles *A. artaxerxes* ssp. *salamis*. I caught an example of this aberration on the Wiltshire Downs on the 15th June 1981. Ten years before, I reared a number of specimens from ova which exhibited this variation. I fed the larvae on cut leaves of the cultivated Lancastrian rose growing conveniently in the back garden. Nearly all survived the winter successfully in an outhouse. However, for some reason, I did not retain any specimens; instead I liberated all the imagines in the field from which I took the ova. Fortunately, the ranges of the two species, as far as we know, do not overlap in this country. However, the various aberrations and forms have led to great difficulties regarding positive identification of these two *Aricia* species on the continent, where the ranges overlap.

The extremely variable Hedge brown *Pyronia tithonus* whose genetical scale malformation and temperature aberrations have been well documented. However, the aberrant forms can be considered the normal form in some localities. This may be due to the sedentary habits of these butterflies, where certain characteristics are inbred over a period of years despite the species being so generally common and widely distributed. It is interesting to note that "Crying gatekeepers" ab. *tithonellus* Strand (one or more black spots below the optical one on the upper side) often replaces the typical form in certain limited areas and is rarely found in

the surrounding district. A more notable aberration occurred in 1978 over part of a hillside to the west of Bath. Nearly all the males were ab. *post excessa* Leeds boasting as many as five ocelli on the upper sides of the hindwings. By coincidence, the Meadow Brown *Maniola jurtina* occurred in the same location with much enlarged ocelli on the underside of the hindwings. Specimens of both these species exhibiting obvious bleaching, which are not genetic ground colour aberrations that also occur (either due to the lack of pigment or scale deformation), are often labelled by yet another term — freaks.

Aberrations of sexually dimorphic butterflies are of interest but can be thoroughly confusing. Form *valesina* Esper of the Silver-washed Fritillary *Argynnis paphia* is referred to in publications either as a variety or aberration. Therefore, when form *valesina* has been subjected to violent temperature fluctuations and the black pigment is spread over the wings (ab. *nigrizina* Frohawk) it could count twice as an aberration. Similarly the female form *helice* Hübner of the Clouded Yellow *Colias croceus* exhibits a wide graduation in the shade of colour although this form is controlled by a single gene and all should be referred to collectively as form *helice* Hübner. The names which have been bestowed on these graduations are a little confusing. Dr E. B. Ford's book, *Butterflies*, states that the only conceivable justification for naming arbitrary stages in such a series such as this is the pleasure of doing so. He is probably right as several East European *Colias* spp. have *helice* equivalents that could add further complications. The creamy intermediate aberration is known either as *helicina* Ob. or *helice* Hübner. The pure white forewing with orange upperside hindwing discoidal spots present is known as ab. *alba* Lempke or *pallida* Tutt. However, ab. *pallida* is a synonym of the aforementioned *helice* Hübner, where the forewings are deep cream. The extreme of the colour range is the pure white ab. *albissima* Ragusa, where the upperside hindwing discoidal spots are also whitish. All these nevertheless striking colour variations were in evidence during the summer of 1983 — "The Great *Edusa* Year" of modern times. In fact, I took an *albissima* with enlarged marginal spots in the suburbs of Bath. Later, in almost the same location, I managed to secure, in my pullover, a very yellowish *helicina*, which I first mistook for a Pale clouded yellow *Colias hyale* on the wing. Incidentally the date was as late as the 27th October; a bright but blustery morning of that year.

One other aberration which may not be an aberration deserves a mention. The mysterious rare male ab. *polonus* Zeller, which is believed to be a natural hybrid between the Chalkhill Blue *Lysandra coridon* and the Adonis Blue *Lysandra bellargus*. The fact that it always occurs where the two fly together may prove to be irrelevant. At the four sites where I

know *L. bellargus* occurs, *L. coridon* is also present, as both species have almost the same ecological requirements, although the former is more restricted. Perhaps examination of the genitalia of *polonus* would indicate what it really is. It may prove to be a mere colour variation, but it would be interesting to see if a *Lysandra hybridus* could be produced in captivity.

Finally, one could summarise by saying that all deviations from the norm count as items of interest. It is a vast but fascinating topic. Like the previous article, all examples discussed are British butterflies and is by no means exhaustive. Macromoths of course are a much larger study and no doubt less understood, particularly the Noctuidae and Geometridae.

BOOK REVIEW

The Observers Series: Butterflies, by Paul Morris. 1989. Frederick Warne (Penguin Books). 192pp. Price £3.99. Paperback. ISBN 0 7232 1686X.

This excellent new pocket book on the British Butterflies replaces the earlier publication on the subject in this series. It is completely new in its content, the text dealing with the biology of butterflies, their habitats in general terms, conservation and the Law, observing, recording and photographing them. Butterflies in gardens are briefly considered and their foodplants are detailed. The descriptions of all stages and distribution are well covered and up-to-date, including knowledge recently acquired as to habits, etc. Each species is illustrated in colour by A. D. A. Russwurm, figuring egg, larva in the final instar and the adult, carefully copied from F. W. Frowhawk's original illustrations.

There are so many books now available on our butterflies but I do not hesitate in recommending this one as a handy field guide, and more, the price makes it within the reach of the most junior member.

BOOK REVIEW

Life at the Edge by J. L. and C. G. Gould. W. H. Freeman & Co. (New York). 1989. 162pp. 108 illust. Paperback. Price £7.95 (W. H. Freeman & Co. Oxford). ISBN 0-7167-2011-6.

This book comprises a series of separate articles showing how some species manage to eke out an existence under the most adverse conditions. The sections of interest to the entomologist are entitled *Thermoregulation in Winter moths*, *Insect-eating Plants*, *Communication between Ants and their guests*, and *Slavery in Ants*. The illustrations are very good and the text very readable, including the chapters on other forms of animal life.

BOOK REVIEW

Scuttleflies, Diptera, Phoridae Genus Megaselia by R. H. L. Disney, pp.155; 526 Figs., 8vo (card cover), *Handb. Ident. Br. Insects. Vol. 10, part 8*. RESL, London 1988. Price £14.00 (plus £1.40 postage; 30% price reduction RESL Fellows).

This is the second part of the Phoridae key, the first, by the same author, was published in 1983 (Vol. 10, part 6). The latter is needed to be able to use the *Megaselia* key, as the morphology, methods of collecting and preservation and the key to genera are included in it.

This book follows the same format as the other recent R.E.S. keys. There is a checklist, in which there are many new additions to Kloet & Hinks, and some species have been removed. The key only includes the males as not enough information, or reliable characters to determine females, is available at the present time.

The phorids seem to be a difficult group to get to grips with. They are not a group for the novice, but I am sure that with a little time and patience most people familiar with other dipteran groups will manage them.

D. J. Mann

NOTES ON CAMBRIDGE BUTTERFLIES IN 1989

by *Brian O. C. Gardiner (225)*

Having moved house towards the end of last year, it is not possible to make a direct comparison with the butterflies noted in my garden over previous years, even though my present house is a bare half mile away. My new garden is larger and is surrounded by similar properties spaciouly laid out. It is laid mainly to lawn with a profusion of well-established trees, shrubs and flowers. Indeed, apart from not having a few allotment plots on one side it is not too dissimilar.

The first pleasant surprise was to see the abundance of Holly blue butterflies in April and May, flitting around a holly tree and basking in the sun for many minutes on end. In all some 70 to 100 were estimated to be present.

Also seen not uncommonly have been Small and Green-veined whites; indeed these could be seen up and down our road throughout most of the summer and were particularly common during the very hot July we experienced. Large whites on the other hand have been distinctly rare, only the occasional one having been seen. This could possibly be due to lack of the allotment plots, all of which used to grow cabbages and which adjoined the garden of my former house. An unusual sighting has been that of a number of Meadow browns, never seen in my last garden. Small tortoiseshells and Peacocks have been more notable by their absence,

tortoiseshells and Peacocks have been more notable by their absence, only the occasional specimen having been seen. Elsewhere, however, both these and Red admirals (especially the larvae) were really abundant.

During August an actinic light-trap was run and night after night some 40 - 70 Large yellow underwings, quite 80% of the total catch, put in an appearance. Other regular visitors were Copper underwings, Mouse moths, numerous Codling moths and a selection of the genus *Crambus*.

PARTHENOGENETIC MANTID NAMED

by *Phil Bragg (8737)*

The parthenogenetic mantid I referred to in a previous note (*Bulletin* 46: 160) has since been identified by Judith Marshall of the British Museum (Natural History) as *Sphodromantis viridis*.

HELL COPPICE/BERNWOOD FOREST MOTH RECORDS WANTED

This area of Buckinghamshire, which includes Hell Coppice, Shabington wood and the Bernwood meadows is, like so many other important wild-life habitats, in danger from road schemes and other forms of development. A provisional annotated list of the macro-moths of the area has been compiled by Paul Waring of the Nature Conservancy Council, about whom we had a notice in the July *Bulletin*. Paul is now anxious to convert his provisional list into a definitive one, and anybody who has collected macro-moths in this area, or in Waterperry wood, Oxfordshire, either in the distant past or lately, is asked to get in touch with Paul at the Nature Conservancy Council, Northminster House, Peterborough PE1 1UA.

SOME MOTH NOTES FROM TRALEE, CO. KERRY, EIRE

by *D. Norris (9175)*

On the evening of 5th July 1989 I recorded in my moth trap at Tralee a number of moths which, since records from my part of the world are few, I feel are worth recording. In addition to those at the trap, one Drinker (*Philudoria potatoaria*) was taken from the house and an Old lady (*Mormo maura*) was taken at sugar.

In the trap:-

- 1 Lilac beauty; 1 Small emerald; 3 Large yellow underwings;
- 1 Broad-bordered yellow underwing.

In the month of July I obtained 8 Magpie moths, 1 Peach-blossom, 6 White ermines, 2 Buff-tips, 1 Poplar Hawk, 1 Flame shoulder, 1 Heart and Dart, 3 Lobster moths, 1 Lackey moth, 1 Autumn green carpet.

A NOCTURNAL RED ADMIRAL

by Michael J. O'Sullivan (7592)

On occasions, I have noted from various books and magazines that Red admirals (*Vanessa atalanta*) have been found to occur at MV light traps. On the night of 9th August 1988, I was surprised to note a specimen of this species on a windowsill which was dimly illuminated by light shining through drawn curtains. When I made an approach to investigate the matter further and attempted to pick it up with my fingers, I was startled to find it quite active and it rapidly flew away from the window onto the roof of the house. However, after a short interval, it soon returned to the same position. I again tried the same procedure with somewhat similar results but with a more extended absence on this second occasion. Having secured my net, it was taken at the third attempt and turned out to be a particularly good specimen.

I found it strange enough to make this capture, but given the fact that it was taken at 1.00 am on a totally exposed situation in strong winds during heavy rain, it seems that the sighting is all the more unusual. Have any other members had similar experiences with this or other species?

DEARTH OF BUTTERFLIES IN CAMBRIDGESHIRE — 1989.

by Malcolm Simpson (4859)

For the past few years I have been keeping a record of sightings on my travels but more particularly of those encountered in the vicinity of my home in Wistow, Cambridgeshire. Wistow is a small rural village on the edge of the fenlands between Huntingdon and Peterborough. It is completely surrounded by farmland, mainly arable but a few fields are reserved for cattle. Since 1976 I have sighted 23 different species of butterfly in and immediately around the village.

Although my records are of little interest or value to anyone other than myself it is through keeping such information that the extreme dearth of even the most common butterflies, this year, is highlighted.

To the end of June 1989 I have seen only a very small number of hibernatory butterflies such as Brimstones, Peacocks and Small tortoiseshells. Orange-tips, Large, Small and Green-veined white, normally plentiful, and certainly the last three abundant over the past few years, could be classed as infrequent sightings this year. Both Wall and Meadow brown are appreciably down in numbers and not a single Holly blue seen. Even the Black hairstreak seems to be greatly reduced in numbers at the locality where it is usually a healthy colony.

I am aware that two successive mild winters can have an adverse effect on our butterfly population as does the cumulative force of constant use

by farmers of chemicals, particularly in this predominantly agricultural area. Urbanisation of our villages, enlargement of our towns, new roads and road widening schemes must all play their part in destroying habitat. But these activities are not new and I doubt that they would create such a marked decline in butterflies as noticed this year. So what is the cause?

Are we experiencing the effects of the Chernobyl disaster? I am no scientist and have no knowledge of the likely effects of such an incident. However, I cannot help but think that if deer, cattle and sheep, fish and plantlife can be affected, it is just possible that our butterflies have been the victims of the same Chernobyl accident.

Having posed the question, can those more knowledgeable and better qualified than myself, and that would not be difficult, please take up this discussion? It may well be left to amateurs like us to bring to the attention of authority, exactly what is happening to our ecology through their sometimes blinkered plans undertaken in the so-called name of progress.

So please air your views. Something has caused the present situation in my part of Cambridgeshire. Is it, or is it not, Chernobyl?

HELP WANTED TO IDENTIFY KENYAN BUTTERFLIES

by John Woolmer (7193)

I should be grateful if anyone with a knowledge of Kenyan butterflies, especially those from the Kakameya Forest, could help me identify some clear slides. Even with the help of d'Abrera's book I have not been able to complete the work. — John Woolmer, The Rectory, Shepton Mallet, Somerset BA4 5BL. Telephone: 0749-2483.

GREEK INSECT RECORDS WANTED

The Hellenic Zoological Society is preparing a Red Data book of the rare and threatened animals of Greece. They are in need of lists of species of various animals that occur in Greece and are currently publishing, in the series *Fauna Graeciae* catalogues of Greek animals. So far only the Siphonaptera and Orthoptera have been dealt with. If anyone has collected in Greece could they please send a list of their records to Prof. C. Krimbas, Laboratory of Genetics, Agricultural University of Athens, Iera Odos 75, 118 55 Athens, Greece.

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