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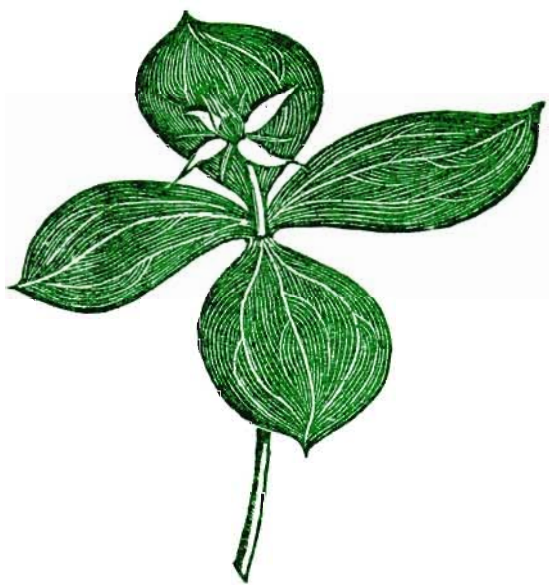

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Contents

Meetings and Excursions 1982-83

The Annual General Meeting on 14th October 1982 (attendance 51) was followed by Mr. B. R. Baker's Presidential Address entitled 'Some Thoughts on the Dangers of Discontinuity'. Other lectures during the winter were 'Charles Darwin' by Mr. K. G. V. Smith (54); 'Life Histories of Weeds', by Dr. J. Ackeroyd (41); 'Why Caddis?' by Dr. M. I Crichton (38); 'Wildlife of our Chalk Downs - conservation or extinction', by Mr. J. H. P. Sankey (48); 'Wildlife of North America's National Parks', by Mr. G. E. Wilson (47); 'St. Kilda past and present', by Mr. J. Hobson (51); 'A Bit about Mosses and Liverworts', by Mr. M V. Fletcher (31), and 'Animal Colour and Bodyform in Relation to Behaviour', by Dr. D. M. Broome (41). Members' Evenings of Slides, Talks and Exhibits, at which coffee and biscuits were served, were held on 9th December (52) and 17th March (55).

There was a winter walk of general interest in the Binfield Heath area on 20th November (14), others to study lichens at Bucklebury on 11th December (19), birds at Twyford Gravel Pit on 15th January (40), and mosses and liverworts in the Goring area on 5th March (17), and an excursion to watch birds at Farlington Marshes in Hampshire on 12th February (12).

Summer field excursions were to Swyncombe to see asarabacca and spring flowers on 23rd April (22); Ashampstead for spring flowers on 7th May (56); Little Wittenham Wood to survey the area on 14th May (15); Kennet-side at Theale for birdsong on the evening of 18th May (19); Bernwood Meadows (BBONT Reserve) for green-winged orchids and butterflies on 21st May (c. 18); Kiln Pond, Mortimer, for bats on the evening of 25th May (23); Warburg Reserve, Bix (BBONT), for chalk flora on 4th June (32); Whiteknights Park for plants, birds and noctule bats on the evening of 8th June (15); Berkshire Downs from Warren Farm for chalk flora on 18th June (13); the River Pang at Bradfield for birds and water flora on the evening of 22nd June (15); Hatchet Pond and Beaulieu Road in the New Forest, by coach, on 2nd July (51); Nuney Green chalkpit for chalk flora including cut-leaved selfheal on the evening of 6th July (16); California Country Park for flora, moths and a barbecue on the evening of 6th July (30); Silchester Common and Pamber Forest (Local Nature Reserve) with BBONT for heathland flora and butterflies on 30th July (16 + 6); Nettlebed Woods on 13th August (19); River Kennet from Tyle Mill for waterside flora on 27th August (13); and Cock Marsh, Cookham (with BBONT) for marshland flora on 24th September (23 + 13). Fungus Forays were held at Kingwood Common on 10th September (23), Cold Ash on 8th October (31) and Baynes Reserve (BBONT), Thatcham, on Sunday 23rd October (15).

The Dangers of Discontinuity

The Presidential Address

to the Reading and District Natural History Society

14th October, 1982

B. R. Baker

Some plants and animals are so widespread that they are very much taken for granted. Plants such as yarrow and daisy occur from Lands End to John of Groats, seeming to exist happily on a variety of soils A mammal such as the short-tailed vole, having grass as a staple food, occurs in abundance from north to south, birds such as the starling and chaffinch are catholic in their tastes and are termed successful species, and some moths such as the large yellow underwing and heart and dart would be recorded in their season wherever one operated a moth trap. There is no discontinuity in the populations of these few examples, their needs are simply met and we would seem to have them for keeps, but for plants and animals with specialised requirements and fragmented territories discontinuity can prove hazardous.

Discontinuity, or as the Concise Oxford Dictionary defines it, 'wanting continuity in space or time' can mean different things to different people. Take for example the case of the married couple for whom the prospect of the husband's forthcoming retirement has been the subject of more than one evening's stimulating conversation. Should they continue to stay put in their present surroundings maintaining the links with family, friends and familiar places, or should they stretch these links until the continuity is wanting? What might be the dangers of so doing? Would it make that much difference if the ever available baby sitter or committee member was no longer to hand, or if the view from the window was a different one from that to which we were so accustomed?

I leave those interesting speculations for some of you to resolve in due time and pass to a few other examples of discontinuity in plants and other animals and of some of the dangers that they face.

Orchids provide a good example for, as you will all be aware, we have some national rarities occurring within a few miles of where we are this evening. Now there is always danger when one is speaking of rarities, the obvious danger of predation by humans. Last month's Naturalists' Trust bulletin relates the sorry tale of the two military orchids which were dug up by some misguided person, but if these beautiful orchids were given a complete respite by plant hunters and the sites were not wardened or managed, would the plants survive? Orchid seed can only germinate successfully when infected by a fungus which combines with the embryonic roots to form mycorrhizas - hence the soil is of prime importance. But does the discontinuity with other

colonies have any effect? What happens when there are no other colonies? The local history of, for example, the monkey orchid leads one to believe that, provided there is a safe habitat, the plants will continue to exist in very low numbers. The interchange of genetic material would not seem to be as important as the ability to exist without flowering for a number of years. Doubtless cross pollination was more certain when, not only were there more plants on a given chalk slope, but there were more chalk slopes which supported the plants. According to Summerhayes the monkey orchid was first recorded from Britain in 1660 and the species was, until about 1835, locally plentiful on both sides of the Thames between Wallingford and Pangbourne and as far east as Henley. There are even records of hybridisation between the monkey and military orchid when both species were frequent around Goring and Streatley. However, those days are long past and perhaps the greatest assets possessed by the plants enabling them to survive despite discontinuity of colonies are a very lengthy period between germination and flowering (no records for the monkey but in the case of the burnt orchid 13 to 15 years) and an ability to survive by vegetative reproduction. It is interesting to note that when seed is produced in orchids not only is it produced in immense quantity but it is extremely small and dust-like and capable of being carried to very considerable heights by air currents and transported long distances in the upper atmosphere. Indeed, the sporadic occurrence of the monkey orchid in south-eastern seaboard counties has been attributed to germination of seed blown over from the European mainland.

In the animal kingdom the most isolated population of any mammal must surely be that of the wild white cattle of Chillingham in Northumberland. They are the sole survivors of their species to remain pure breeding and uncrossed with any domestic cattle and roam in their natural surroundings in the 300 acres of Chillingham Park. Though their origin is uncertain the existing herd and its predecessors have certainly been at Chillingham for the past 700 years. The dangers faced by this discontinuous population over this length of time must have been considerable. Originally corralled as a standby food supply and therefore likely to be predated by man, they have had to weather the results of inbreeding over these hundreds of years. One would have expected therefore some weakening of the stock and perhaps this was manifested and in some way eliminated but externally the only visible sign of change has been the production of a somewhat smaller animal. The numbers comprising the herd have fluctuated over the centuries - 28 in 1692, 80 in 1838, an all-time low of 13 in the awful winter of 1947 and about 60 in 1982.

Another mammal whose discontinuous populations have suffered in recent years is the otter. When Dr. Harrison Matthew's New Naturalist "British Mammals" was published in 1952 he was able to describe the otter as still fairly plentiful, perhaps partly because of its aquatic habits. Sad to relate that today we cannot place any reliance on the ability of the otter's habits to afford it total protection. Margaret Wood, the Otter Project Officer at the Royal Society for Nature Conservation wrote an enlightening article in

Natural World last autumn which she entitled 'A Future for Otters?' She tells us that in 1950 otters were abundant in every county and that a subsequent crash in numbers has been accurately dated to 1957 and 1958. As no sudden change in hunting practice had occurred only a new environmental factor could have been responsible. At this time significant developments in agricultural practice were taking place and it is now believed that pollution resulting from the use of persistent organochlorine pesticides was responsible for the otters' decline. It was to be hoped that with lesser use of these noxious chemicals the otter population might show signs of recovery but this has not happened and one now has to look for other dangers which have beset this highly intelligent mammal. The otter lies up in a burrow, the holt, among tree roots or rocks in the bank of a stream, but other than the holt in which the young are born the otter has no permanent home. A pair of otters therefore require a territory of many miles of river or stream bank and it seems that habitat destruction has been the other danger facing an already dispersed population. Marshy areas have been drained, rivers modified to take a larger volume of water and increased mechanisation has resulted in more ambitious engineering of rivers than ever before. Otters are secretive animals and need undisturbed places in which to live and breed.

Plants are essentially static organisms, incapable of avoiding a plough. White cattle are more mobile and, in any case, are ferocious fighters. Otters can at least attempt to seek undisturbed areas, but one would have thought that of all animals, those which can fly would stand the best chance of overcoming the dangers of a discontinuous population. Unfortunately such is not the case and we have rarities and losses in both birds and insects.

In 1971 the British Trust for Ornithology brought out their 'Status of Birds in Britain and Ireland' in which it was estimated that the breeding population of the chough, that black crow with red bill and legs, was 700 pairs. It is mainly a bird of rugged coastal sites though there are records from a few inland areas. We had our first view of choughs on the rocky coast opposite Cardigan Island and then, some years later, really good sightings in County Kerry including a nest site out on the Dingle Peninsula. This bird was once known as the Cornish Chough and it is still featured on that county's heraldic arms, but the story from Cornwall is a sad one. Choughs still bred on the rugged cliffs around Tintagel until 1952, but by late 1968 there was only one bird left. Choughs are sedentary birds, occasionally wandering from their centres of normal population but not breeding in new sites. Could it be therefore that human pressure on those much visited north Cornish cliffs put paid to the chough as the elite of Cornish breeding birds? Perhaps this is too easy a deduction for it was certainly not human pressure that led to the presumed extinction of that other west country speciality the large blue butterfly. Degradation of known sites by lack of grazing and destruction of suitable ground by ploughing led to the remaining large blue colonies being isolated and in one instance vulnerable to sudden climatic change. The tropical summer of 1976 is said to have been responsible for

the failure of this colony, but long before that time I have seen large blues quartering the ground away from their main centre and finding thereon completely unsuitable habitat.

A final example of an isolated population is that of the large copper butterfly at Wood Walton Fen, a locality visited by this Society a few years ago. The true British large coppers became extinct by 1847 or 1848 dus finally, so it seems, to persecution by collectors following destruction of much of their natural habitat. The closely related Dutch race was introduced into Wood Walton Fen in 1927, but although it has been there ever since it is always on a knife edge and standby breeding cages are required to supplement the hatchings out on the copper field. In 1930 an attempt was made to introduce large coppers into the Kennet Valley with chrysalids sent from the Wood Walton stock, the resultant butterflies being released near Woolhampton. Disaster struck the main stock at Wood Walton that autumn and there was a call for all available eggs to be returned. The experiment was never repeated.

Apart from the artificiality of the large coppers at Wood Walton, the locality itself is becoming something of an artificiality. To maintain the character of this marvellous fen, water has to be pumped back into it against the pull of the drier cultivated lands with which it is surrounded. Here we are concerned not with the discontinuity of populations of plants or animals, but with the discontinuity in both space and time of the locality itself.

From having cast my net widely to try and illustrate a theme I should now like to draw a few threads together and hope that in so doing not all the catch will escape through the meshes. We have spoken of some of the hazards besetting populations of plants and animals but the common factor linking all the examples I have chosen is that of loss of suitable habitat, and it is concerning a particular type of habitat, known to all of us, that I should like to confine my concluding remarks. I refer to the wetlands of the Kennet Valley and in particular to the few good Phragmites reed beds remaining there.

In times past what a place the Kennet Valley must have been, though doubtless our early ancestors would have been more preoccupied with survival than with appreciating the wealth of plants and animals that must have existed there. We read of "lakelets, created within the valley during previous epochs, becoming choked by peat-moss, sedges and stouter forms of vegetation, the valley bottom being by degrees converted into a morass", and much later on "live peat bogs no doubt existed in the marshes long after Newbury had come into existence about the approaches to a ford of the Kennet". Among the many animal remains found in the valley have been those of beaver to whose activities at least one authority has attributed the origin of the formerly massive deposits of peat, and imagine on this peat, reed beds for mile after mile. Why not bitterns in abundance? even large copper and swallowtail butterflies among their appropriate foodplants - and the entomological pin not yet invented!

This peat was the basis of a thriving industry at Newbury in the early 18th century as evidenced in a letter from the Countess of Hertford. The letter is dated from Marlborough, 25th June 1741. "...Every other beautiful appearance of nature vanished when we came to Newbury. There is just set up a manufactory there which, though it is said to bring considerable gain to the proprietors, adds neither beauty nor pleasure to the town and adjacent fields. There is a parcel of low ground about a mile before one comes to it, where, by uncovering the surface, they have found great quantities of peat, which they burn upon the place, and sell the ashes of it, to a great advantage, for manuring ground." Those peat deposits were later described as about a mile to half-a-mile in breadth and extended along the valley about nine miles westwards and about seven miles eastwards. The top of the true peat was found at depths varying from one to eighteen feet below the surface and the thickness of the deposit varied from one to nine feet where it rested upon an uneven bed of gravel. When the Kennet and Avon Canal was opened in 1810 peat-ash used as manure became of more importance than the peat dried for fuel, for the inhabitants could, by this new means of transport, obtain coal at a reasonably cheap rate.

During the last few centuries artificial control of the main and side streams in the Kennet Valley has checked the formation of peat and marl and such deposits of these kinds as are forming at the present day are confined to small swampy patches in the water meadows, to ditches and to the old turbaries. This last was a comment made in 1907.

What of the situation today? In 1982 the Kennet marshlands have become isolated areas - large lakes have been created, engineering works have straightened the river banks and industrial development around Woolhampton and Thatcham threatens the few remaining acres. Good Phragmites beds still occur at Kintbury, fortunately close to the sacrosanct domains of the trout fishermen to whom they doubtless owe their preservation. Remnants still occur at Thatcham but much has been lost there and replaced by the deeper lakes created from wet gravel workings. The only other good area is at Woolhampton where our newly elected President led us this last spring in our quest for nightingales. Here on the south side of the Kennet there are poplar plantations whose management does not jeopardise the existence of the reed beds. To the north of the Kennet and the railway is another good reed bed where BBONT is endeavouring to negotiate a reserve but progress is slow.

More than 20 years ago the Museum undertook a study of the Woolhampton reed beds and at that time there were positive records of the presence of otter, of harvest mice within the reed cover and of breeding grasshopper warbler and water rail. In the autumn, numbers of roosting pied wagtails could be flushed from the reeds and, entirely dependent upon these reeds, either the leaf, stem or rhizome, were some very localised species of wainscot moth. Indeed since that time another species of wainscot, normally maritime in distribution has colonised these reed beds. Much of this ground was cultivated for osiers in the 1930's but when the basket trade

declined just before the war the untended beds were invaded by the 'spires' as Phragmites is locally known and gave us the beds as they are known today.

It is an intensely interesting but fragile habitat, dangerously close to becoming totally isolated from its like.

In S. M. Haslam's scholarly work 'River Plants' published in 1978 common reed is but one of many plants for which a wealth of detail is given, but for our purpose this evening let us stay with the common reed. We learn of its intolerance of deep water but of its tolerance of shade, of its inability to withstand the scouring action of a fast current but of the value of the rhizomes in binding and stabilising a bank. Finally, concerning its ability in the long term to remain a continuing feature of a piece of countryside, we learn that it has been estimated that reed cover has continued in some large, undisturbed marshes for over 1,000 years.

Would that future field workers will still be able to say the same for those few acres which remain to us today within the Kennet Valley.

* *

Pamber Forest Local Nature Reserve

Dr. P. Brough

Pamber Forest was designated a Local Nature Reserve in October 1980 by agreement between the owners, the Englefield Estate, and the Basingstoke and Deane Borough Council. A management committee has been set up, consisting of conservationists, members of the Parish and Borough Councils, and a representative of the Englefield Estate. A full management plan is currently being drawn up, and we hope that a warden will be employed in the near future.

The area of the Reserve is about 470 acres, and it consists of primary oak woodland managed for centuries as hazel coppice with oak standards. It was once part of the Great Northern Oak Forest of Hampshire, including the Royal Forest of Eversley and probably parts of Windsor Forest. The early history is obscure, but the gradual inclosure of the original Pamber Forest began in about 1200 A.D., so that much of it was converted to pasture. The remaining area was used for hunting and for pannage, being later converted to the coppice structure. Although most of the coppice is hazel, there are also areas of chestnut, birch and oak coppice.

The soils of the area are fairly recent in origin, having been laid down during the Eocene period of abour 50 million years ago. The clays and gravels of Pamber arrived either by glacial processes or fluvial drift (river-borne). Almost the whole area is on an outcrop of the Bagshot sands, resting on London clay. North of Pamber lie the plateau gravels of Silchester Common; the soils here tend to be more acidic due to downward leaching, and form a podsol type of soil profile. Humus layers are thin here and the soil supports the characteristic vegetation of Calluna heath. In the lower-lying forest, however, the clay soils tend to be richer and less acid, although where the Bagshot sands break through to the surface a more heathy vegetation develops.

The richest assemblage of plants in the Forest occurs near the two streams which traverse from west to east. Many of the plants on these alluvial soils depend on regular coppicing of the hazel in order to let in sufficient light in the spring for them to flower. Such vernal plants include Primula vulgaris (primrose), Anemone nemorosa (wood anemone), Oxalis acetosella (wood sorrel), Viola riviniana (common violet), Orchis mascula (early purple orchid) and Adoxa moschatellina (moschatel). Glechoma hederacea (ground ivy) and Ajuga reptans (bugle) often become locally dominant. Later-flowering plants take advantage of the spring light by sending up early leaves during April and May, e.g. Platanthera chlorantha (greater butterfly orchid), Orchis fuchsii (common spotted orchid) and Listera ovata (twayblade), which are rarely found away from the base-rich alluvial soils near the streams. Platanthera is always found near ash, and there may be some mycorrhizal association with the roots of this tree.

Near one stream lies a colony of Ornithogalum umbellatum (Star of Bethlehem), a local plant whose status is unknown. Another unusual plant is Ophioglossum vulgatum (adder's tongue fern) under the hazel coppice, this plant is normally found in open meadows.

Hazel coppice is cut in a 7-10 year cycle, and towards the end of this cycle the heavy shade tends to prevent the ground vegetation from flowering. However, seeds will lie dormant for decades and as soon as the coppice is cut, the bloom of flowers is a joy to behold.

The banks of the streams also provide an interesting habitat, particularly for bryophytes. The liverwort Conocephalum conicum forms large yellow-green patches, and smells of bergamot oil when crushed. In the streams themselves, bullheads and three-spined sticklebacks can be seen swimming, whilst in the more open marshy areas, damselflies and dragonflies patrol the waters. Agrion virgo, Agrion splendens and Aeshna cyanea are seen regularly, and the flora includes Cardamine amara (large bitter-cress) and Chrysosplenium oppositifolium (opposite-leaved golden-saxifrage), the latter forming large patches with its tiny golden yellow flowers.

Away from the streams the hazel coppice is rather

species-poor. However, those areas not under hazel have a rather interesting heath vegetation with Calluna vulgaris (ling), Erica cinerea (bell heather), Erica tetralix (cross-leaved heather) and Vaccinium myrtillus (bilberry) growing in clearings and rides. The old coppice banks support interesting bryophytes such as Bartramia porriformis (the apple-fruited moss).

Pamber is justly famous for its insects. Unfortunately, the butterflies have diminished in the past 20 years due to lack of forest management. The only species which has increased is the White Admiral (Ladoga camilla), which spends its early stages on mature honeysuckle and is also tolerant of shaded woodland rides. Lack of coppicing allows the mature honeysuckle to increase.

The Purple Emperor (Apatura iris) still survives in good numbers, and its foodplant, Salix caprea (goat willow) is holding its own. The Silver-washed and Dark Green Fritillaries (Argynnis paphia and Argynnis aglaia) have both undergone a drastic decline, probably due to lack of ride management, and the High Brown Fritillary (Argynnis adippe) has probably disappeared from Pamber as it has from most other woods in southern and eastern England. Purple Hairstreaks (Quercusia quercus) remain plentiful on the oaks, whereas the Small Pearl-bordered Fritillary (Boloria selene) survives in small numbers on the wet edges of the Forest. The larvae of selene seem to prefer the marsh violet, Viola palustris as a foodplant instead of Viola riviniana. The Pearl-bordered Fritillary (Boloria euphrosyne) was always less common than selene in Pamber but now seems to have completely disappeared. There has been a marked decline of this species in southern England, possibly because it survives best in coppiced woodland.

Other insect groups are well represented in Pamber. There is a strong colony of Urocerus gigas, the wood wasp, along with its parasite, Rhyssa persuasoria, the largest ichneumon in the country. Urocerus adults are in flight from June until autumn; the males appear before the females, but are rarely seen because they stay at the top of trees. The females lay their eggs in the wood of larch trees, usually those which are dead or dying. The adults emerge two years later from circular exit holes in the bark. Rhyssa females are four inches long, and can detect Urocerus larvae in the wood; the long ovipositor bores a hole in the wood and deposits a single egg on each Urocerus larva detected.

There is a very impressive list of moths, and there is only room to mention a few. Some of the more notable species are Chloroclystis debiliata (Bilberry Pug), Drepana cultraria (Barred Hook-tip), Eupithecia plumbeolata (Lead-coloured Pug) Eilema sororcula (Orange Footman), Nola confusalis (Least Black Arches), Orthosia populeti (Lead-coloured Drab), Apamea scolopacina (Slender Brindle) and Elaphria venustula (Rosy Marbled).

Diptera are well represented, and there are nine Red Data Book species (i.e. those under various degrees of threat

in the country.) The rarest species is Cheilosia chrysocoma (RDB 2). Diptera are fond of open, marshy places (e.g. Beggar's Bridge Green) and open rides with mud.

An article on Pamber must include the bug Charagochilus weberi, for this is its only British site. It feeds on Melampyrum pratense (cow-wheat), a common plant in the forest and a semi-parasite on grasses.

The entomological interest of the Forest is enhanced because it is surrounded by undisturbed habitats - Silchester Common on the north side and rough pasture on the east and west. Such a woodland margin has been shown to be important for insects.

Both roe and fallow deer are seen in Pamber. Foxes and rabbits are common, but badgers are only seen in transit. No badger sets have been found. The small mammals have not been studied in recent years, but it is planned to compare populations in coppiced and non-coppiced areas. The dormouse (Muscardinus avellanarius) may still survive - it was last seen ten years ago. Apart from its round nest in coppiced hazel stools, the best sign of its presence is the stripping of honeysuckle stems.

In the space available it is only possible to give a glimpse of the considerable interest of Pamber Forest. Active management of the Forest will soon be restarted - rides opened up and coppicing resumed. In this way, we hope to restore Pamber to its former glory.

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Excursion to the New Forest, 2nd July, 1983

H. J. M. Bowen

About 45 members attended the coach trip, which began this year with overcast skies and occasional rain. The first stop was at Hatchet Pond, presumably so-named from its shape. On the pony-grazed margins of this pond was a most interesting community of plants including the rare bedstraw Galium debile, together with Bog Pimpernel, Lesser Water-plantain, Carex demissa, Water Horsetail, Marsh Pennywort, Juncus bulbosus and J. conglomeratus, Myosotis laxa, Red-rattle, Lesser Spearwort, Unbranched Bur-reed, Marsh Arrowgrass and Marsh Speedwell. These merged into the truly aquatic vegetation which had two rarities (Illecebrum verticillatum or Coral-necklace and Ludwigia palustris, the latter in quantity) with Marsh St. Johns Wort, Shoreweed, Bogbean, Water Chickweed, Myriophyllum alterniflorum, White Waterlily, Potamogeton

polygonifolius, Ranunculus omiophyllus, Floating Club-rush and Lesser Bladderwort. We now walked the length of the main pond to look at the valley bog at the least disturbed end. On the way we saw Mallard and Pied Wagtail by the pond, and Redshank and Black-headed Gulls over the bog. The heath vegetation was rather drab as the heathers were not fully in flower, but a few interesting grasses, sedges and rushes were seen, e.g. Agrostis canina, A. curtisii, A. setacea, Carex binervis, C. ovalis, Danthonia decumbens, Eleocharis multicaulis, Juncus squarrosus, Scirpus caespitosus, Nardus stricta and Lousewort. However, the bog itself was full of interest with two, if not three, species of Sundew, Cottongrass, Star Sedge, Meadow Thistle, Petty Whin, Bog Myrtle, Bog Asphodel, Pale Butterwort, Creeping Willow and Dactylorhiza maculata. Here we were able to photograph Silver-studded Blue butterflies. On the return journey round the south side of the pond, sandy tracks and roadsides were searched to reveal True Chamomile, Fairy Flax, Buck's-horn Plantain, Allseed, Aphanes microcarpa, Juncus tenuis and Trifolium micranthum.

After lunch the weather improved and an excursion was made to see Wild Gladiolus among bracken near Beaulieu Road Station. Here some hundreds of plants were seen in good flower near a large cottongrass bog. Ornithologists were lucky to see a hobby near here, and more redshank, probably nesting. Butterflies were scarce, apart from Large Skippers and the occasional Brimstone.

The final stop was made at Matley Bog in the hopes of seeing Impatiens noli-tangere, but the plant could not be found. However, we did see a number of new plants including Vervain, Hard-Fern, Marsh Ragwort, and Dactylorhiza incarnata. One of the best finds was made just as the bus was leaving; this was the distinctive moss Splachnum ampullaceum which has the unusual habitat of animal dung in this type of country.

Our thanks are due to our President, Martin Sell, for organising and leading this trip, together with Neville Diserens.

* *

The Fishlock Prize

The Fishlock Prize was awarded in March 1983 to Kerry Weller for her general keenness and interest in various branches of Natural History.

The Collections in Reading Museum

H. H. Carter

Most visitors to a museum are probably aware that the institution possesses collections of material other than what is currently visible on display, but few people realise the extent of this unless they are in the museum profession or are specialists who have occasion to study the reserve collections.

For every specimen displayed in Reading Museum there are approximately 100 in reserve, and most other museums are in a similar position. There are several reasons for this. The most compelling is undoubtedly sheer lack of space and money to do otherwise. The 99% of specimens in storage take up approximately the same amount of floor space as the 1% that are shown, so to show all would require a building 101 times the size with a corresponding army of staff and a budget running into millions. But there are other reasons no less valid although less daunting in practical terms. One is that to put objects on display is to subject them, not to the risk, but to the certainty of deterioration in the course of time. This may not be true of most geological specimens but it certainly applies to most biological items, and there is a slow but constant turnover of display material as old specimens are replaced by new ones. To subject the whole or even a large part of the collections to such wear and tear would be wholly irresponsible. The other two principal reasons are closely linked to each other and are concerned with quality and duplication. To obtain one specimen good enough to show, it is often necessary to collect a number, and there are good grounds for retaining many specimens which are not of the highest grade. Often they serve as voucher specimens. This means that they are good enough to be identifiable beyond doubt, and are kept as proof for future generations of the existence of a particular species at a given place and time.

A written record is not sufficient. In the first place there is the possibility of straightforward misidentification. To overcome this, bird-watchers have evelved an elaborate system of checks and procedures for naming living birds in the field, but even this has proved in practice to be far from infallible when checked by capturing individual birds in nets and examining them "in the hand". Plants are perhaps less elusive, though not every user of field guides or excursion floras might agree. With most invertebrates, safe field identification of any but the largest and most colourful is impossible, so specimens must be killed and studied under the microscope, and it makes sense to retain a certain number to convince future sceptics. There are many examples in the literature of British insects being named as a species familiar on the continent, going by the published descriptions of some French or German author, and later turning out to be something else. Conversely, a British species with a name of its own may prove in the end to be identical with a species long known in some other part of Europe under a different name. Such problems can only be resolved by examination of specimens.

The writer has often, through sheer lack of space, been

obliged to throw away specimens which were adequately named by the criteria available at the time, but whose identity is now subject to doubt which nothing will be able to dispel. This happens because a species is split into two - or it may be half a dozen - separate new species which may be quite easy to identify once their distinguishing characters have been pointed out. Very often one of the new species is much less common than the other - this indeed is the most usual cause of its having been overlooked in the past - and while there is a fair chance of being able to pick it out of a long series of insects supposed to be of the commoner species, only sheer luck would throw it up in a small sample of say six or ten. It would not be in any way unusual to find that the rare species turns up at the rate of one in a hundred or a thousand of the common one.

Turning from these somewhat theoretical considerations to more practical matters, what might an amateur naturalist expect to find in the collections at Reading? Let us start with the plants and work upwards. The enthusiastic botanist may cavil at the notion that the "lower" animals are higher than the "higher" plants, but I maintain that there are sound ecological reasons, if not evolutionary ones, for taking this stance. Non-vascular plants are represented by a few Victorian albums of seaweeds and more worthily by 1,200 lichen specimens deposited by Humphry Bowen. Vascular plants number about 2,600 specimens representing 1,305 species. The main collection was put together by the Rev. S. O. Ridley around 1927-1930 and the condition of the specimens is not all that it might be. They seem to have been dried in the open rather than under pressure, and are consequently rather shrivelled. Fortunately in 1974 we were able to acquire V. E. Murray's collection, which is in much better condition. As a young man Murray came from his native Herefordshire to work for Sutton's Seeds in Reading. Consequently many of his specimens are of local origin but others came from all over Britain. He had a number of micro-species of the difficult genera Rubus and Hieracium vetted by experts, and was in touch with the famous Oxford botanist George Claridge Druce who sent him duplicates of several rarities. Most of Murray's plants were collected between 1909 and 1920. In 1921 he bought a collection of alpine plants from Switzerland and kept a number of species to fill gaps in his British collection. Species are still being added and inferior specimens supplemented with better ones as opportunity offers.

Invertebrate phyla other than insects are on the whole not well represented. There are small and very incomplete collections of spiders (with some other arachnids) and molluscs, not more than 200 of each. The insect collections on the other hand are quite impressive. Some of the smaller or more obscure orders are represented by only a few specimens but the main orders are well covered. Although the museum has only 750 grasshoppers and 100 dragonflies, these include almost all the British species. We have 530 caddis flies, and though there are some gaps here, they are mostly northern or upland species so that our local caddis fauna is almost complete. This caddis collection is almost entirely the work of Brian Baker. Of the larger orders, the bugs are perhaps the worst represented. The museum has over 600 specimens. These include

167 species of the suborder Heteroptera which has over 500 British members, but only 40 Homoptera out of more than 900 including all the aphids of which we have very few. The situation in Hymenoptera is somewhat similar on a larger scale. There are 3,600 specimens representing 651 species. Of the latter, sawflies account for 154 out of a possible 430 British members, parasitic wasps 142 out of a daunting 5,000 odd (I do not believe anybody knows just how many) and aculeates (ants, true wasps and bees) a comparatively respectable 355 out of 531. This last group was extensively collected by W. L. Rudland locally and in Dorset (then a hymenopterist's paradise) in 1940 to 1944, working chiefly on wasps, and Dr. Eric Burtt (of whom more later) working on bees. The Museum's collection of 9,800 beetles, comprising 1,720 species was amassed by F. W. Cocks in 1913-1924, with the addition of a number of water beetles by Arthur Price and a few odd specimens of more recent date. Unlike the collections previously mentioned this one remains a separate entity in Cocks's original cabinet and is exceedingly cramped, with the minute data labels frequently impaled by the pins of neighbouring specimens. The specimens come from all over Britain, many having been contributed to Cocks by W. R. Le B. Tomline. Even so we have less than half of the 3,729 British species.

The museum's true flies (Diptera) number some 15,000 specimens (a few more will have been added by the time you read this) but again the British total, now about 6,000, far outnumbers our 1,060 species. Again, the foundations of this collection were laid by Dr. Burtt, who introduced the writer to the group in the late 1960's, with a substantial contribution from Jonathan Cole collecting around Goring in the late 1950's and early 60's.

The moths and butterflies (Lepidoptera) have always been popular with collectors, so it is not surprising that the museum's holding of 33,500 specimens outnumbers all the other groups put together, even though the British list at 2,495 makes this the smallest of the "big four" insect orders. Though there are gaps among the "micros" our British "macro" collection is wellnigh complete. More than half the total of specimens is taken up by L. M. Parlett's collection of foreign butterflies. When we admire these spectacular insects which fill drawer after drawer of his cabinets, we do well to remember that the depredations of collectors are on a par with natural predation and could be compensated by the natural fecundity of the species whereby to maintain a steady level of population it is necessary that something like 90% of adults reaching maturity be eaten before they breed. The very real threat to these beautiful creatures is habitat destruction which in many tropical countries as in our own goes on apace. The British Lepidoptera collections are those of Cocks (again - most of our Mollusca were his too), H. L. Dolton (mainly "micros"), W. Holland and R. D. Sitwell, all of whom were active in the early years of this century and some in the late 1800's also. The "macro" collections remain as separate entities, but the "micros", tiny insects of clothes-moth size or smaller, are now being combined into a single collection.

Before turning to the vertebrates, I should make some

further mention of Eric Burtt who for a number of years was the museum's honorary curator of entomology. Born in 1908, as a young man in the 1930's he collected mainly grasshoppers and wasps in the Slough area. Entering the colonial service as it then was, he worked on tsetse flies in Central Africa. Following a severe motor cycle crash he never fully recovered his former degree of activity, and by the time I knew him in the early 60's he was obliged to restrict his collecting to areas within easy reach of a bus route. He was now concentrating on the larger Diptera, particularly crane flies and hover flies, while still maintaining an interest in bumble bees. As his disability increased, it became impossible for him to mount the steep stairs to the museum's entomology store or to board buses. I was called in to serve as chauffeur and assistant collector, conveying him to and from his favoured collecting grounds and transporting drawers out of the collection to and from his lodgings. He found movement of any kind increasingly difficult and distressing, and it was noticed that ready access to his favourite beer became an essential factor in his choice of site. Through his generosity, additional cabinets were purchased to house the ever-growing collection and even when he was unable to get about except in a wheel-chair, he would still have me wheel him to some choice spot where flowers and flies abounded while I ranged further afield with net and tube.

In comparison with the teeming invertebrates, the vertebrate collections are modest in point of numbers both of species and specimens. Fish are few, and these mainly anglers' trophies which though spectacular in size are not really typical of their kind. Reptiles and amphibia are fewer still. Such is the scarcity of these "Herptiles" as some now call them and so intense the pressure on their favoured wetland and heathland habitats that collecting is impossible in the foreseeable future.

Despite what I have said above about predation, these animals are now so near the brink that positive efforts must be made to increase them rather than the opposite. Road casualties which now maintain our supply of birds and mammals occur among "Herptiles" too, but no amount of doctoring will make them look lifelike after being run over.

There are something like 2,500 birds including a number of bird bones in the reference collection, and 3,000 birds' eggs. The nucleus of the mounted skin ("stuffed bird") collection was the gift of Councillor Bland in 1882 when the museum was founded. Many specimens have been added since, including 75 supplied by George Bristow of Hastings between 1897 and 1913. This taxidermist's activities became the subject of a lively controversy in 1962 when an article in "British Birds" analysed the pattern of occurrence of his "Hastings Rarities" and compared it with that which emerged from nation-wide visual observations 1925-1954. A second article in the same issue came to the conclusion that Bristow had been obtaining specimens from abroad in cold storage, mounting them and passing them off as British. A book has been written since, championing Bristow's integrity, but be

that as it may, Reading Museum has one of the finest collections of "Hastings Rarities" in the world! The egg collections are something of a mixed bag. Because of the wide range of size in birds' eggs it is much easier to leave such collections in their original cabinets with their graded ranges of shallow and deep drawers, and this has been done. Pride of place must certainly go to the collection of Arnold W. Hughes despite its paucity of local material. The cabinets are so constructed that there is no necessity to place the shallow drawers at the top, and an arrangement in keeping with modern taxonomic ideas is feasible. Hughes's very complete card index has been preserved, and with it many of the original labels used by other collectors and dealers from whom he obtained material, making it a sort of rogues' gallery of eminent Edwardians like A. G. W. Sladen and J. Walpole-Bond. Frequently eggs can be traced through the hands of two or three collectors, perhaps back to the man who though not in the usual sense a collector himself supplemented his income by gathering eggs for those who were.

The mammal collection is comparatively scanty, really only a reserve for the displays where all the best material is concentrated. There is however a more extensive bone reference collection of about 1,500 items for identifying the bones of domestic mammals and the commoner wild species.

* *

Mothing

N. M. Hall

I would guess that for every thousand people who can identify butterflies well enough for the purpose of recording, there are only about fifty who can identify the larger moths (macrolepidoptera or "macros'), and one who can identify the smaller moths (microlepidoptera or 'micros'). The larger moths are nevertheless one of the best recorded of all the insect groups, and the smaller moths, though currently grossly underrecorded, are increasing in popularity. A consequence of the discrepancy in interest is that the national recording scheme for larger moths is on a 10km square basis, whereas for the smaller moths it is still on a vice-county basis. That more people are not interested in the smaller moths is a great pity, because their study is not too difficult and can be very rewarding.

Many of the people who study the larger moths are collectors who have 'moved on' from butterflies. There are only about 40 butterflies that they are likely to encounter.

Consequently, most collectors soon reach a point where they rarely acquire anything new, and though some begin to specialise (e.g. in genetic studies) or move on to foreign butterflies, many move on to larger moths. They can then, of course, reach a similar situation with these and move on again, either to microlepidoptera or to other orders of insects. Many regret not having developed this final interest earlier, especially as that is where they are most likely to make original contributions in fields other than that of the knowledge of the distribution of species. However, the move from butterflies to larger moths is the first step in the right direction.

The move is not too difficult, largely for the following reasons:

1) There are only about 750 species of larger moths to contend with. This is a manageable number.

2) They can usually be identified on wing pattern alone.

3) There is a field guide in which all the species likely to be encountered are illustrated (South's Moths of the British Isles. Vols. 1 & 2. Ref. 1).

4) It is usually possible to find someone living locally who will gladly help you get started.

5) Most specimens are large enough to set easily, if you want to start a collection.

6) You can be lazy if you want to and get a moth trap to do your collecting for you while you are in bed - and species of considerable interest can turn up even in urban areas.

7) The larger moths all have well established English names.

There are one or two problems, however:

1) The division between microlepidoptera and macrolepidoptera is a totally arbitrary one. Some of the micros are much bigger than some of the macros. (For example, the mother-of-pearl moth frequently seen around nettles at dusk is a very large micro!) Consequently, there is a danger of spending hours looking through South for species which are not illustrated.

(It is convenient to consider moths as macros if they are dealt with in South, and as micros if they are not. The micros are then precisely those dealt with in the extremely useful recent publication "A Field Guide to the Smaller British Lepidoptera" (Ref. 2). If, however, we look at a recent checklist of all British lepidoptera, by Bradley and Fletcher of the British Museum (Ref. 3), in which the ordering of families is done according to which are considered to be the most primitive, and which the most advanced (relative to the original scale-winged insect), we find that the division between macros and micros is as much between primitive and advanced as between small and large. Most of the primitive moths happen to be small. However, some primitive moths were large enough, or pretty enough, to be considered collectable

and these became 'honorary macros'. (These are the swift moths, the leopard moths, the goat moth, the foresters, the burnets, the festoon, the triangle and the clearwings.) Others, like the mother-of-pearl, were large, but belonged to families of moths which were in general 'too small', and somehow missed out.

2) Editions of South published since 1961 have drawings of all the species rather than photographs. Using these, it is almost impossible to be sure of an identification. Usually one finds no illustration that looks like one's own or twelve that vaguely like it.

The photographic plates in the first edition of South were much better than those in the later editions. However, even using these the beginner will have trouble because moths are often variable in pattern or colour and one frequently encounters worn specimens in which the features critical to identification are obscured. In any case, the critical features are not specifically pointed out in South. What is needed is a Peterson system of arrows pointing to 'field marks', as used in his "Field Guide to the Birds of Britain & Europe".

3) South's illustrations are of set specimens. This is because forewing and hindwing patterns can both be helpful in identification, as can wing shape. The illustrations are also life-size. However, it is difficult for a beginner to compare a live moth in resting position with a picture of a set moth.

Seven points were listed above which were considered helpful when 'moving on' from butterflies to larger moths. Let us now look at the possibility of moving on directly from butterflies to micros, and consider some parallel points.

1) There are some 1,400 microlepidoptera. This is a lot. However, one can always start by studying one small group only. Many groups contain similar species with different food-plants. The effect of the larvae on the different food-plants is however often very characteristic of the group.

For example, in the genus Phyllonorycter, there are about 50 species, most of which are food-plant specific. The eggs are laid on a leaf and on hatching the larva bores straight in. It appears to consider the leaf as green meat (the parenchyma), sandwiched between two colourless skins (the cuticles). It separates the cuticle from the parenchyma either on the upper side of the leaf or the underside (the side chosen being constant for each species) and then spins silk on the cuticle. The silk contracts thus forming a hollow chamber in the leaf in which the larva feeds and subsequently pupates. Larvae such as these that feed entirely inside leaves are called leaf-miners and the chambers or tunnels (galleries) they create are called leaf mines. The 'pucker' mines formed by Phyllonorycter larvae are very distinctive and very common.

2) Microlepidoptera frequently cannot be identified on

wing pattern alone. However, if a moth has been bred from a known food-plant, the family to which it belongs may be obvious from its effect on the food-plant, and knowledge of the food-plant itself may reduce the possibilities to only one or two species, which may be distinguishable on wing pattern. For recording purposes, it may not be necessary to breed the adult out at all - the mine may be so characteristic that there is simply no need. And if the adult is bred out, there will be no need to kill it.

In the case of the species of Phyllonorycter, the wing patterns are all similar, but, even so, some are instantly recognisable. It is just about possible to key out the species on wing pattern alone, and two keys have been published (Refs. 4, 5).

Sometimes, however, species are so similar that it is necessary to examine the genitalia to be certain of an identification. For this purpose, the abdomen must be removed and boiled in caustic soda, and the genitalia dissected out and examined under a binocular microscope. However, with Phyllonorycter, this is only necessary for some of the species that feed on rosaceous trees and here there is much pleasure to be gained in breeding out the moths and trying to identify the species without going to such lengths.

3) There are no illustrated field guides covering all the microlepidoptera. A series of books "Moths and Butterflies of the British Isles" (Ref. 6) is in course of production and these will eventually cover all the species. Of the published volumes, only one deals with microlepidoptera.

However, if one intends to specialise, there are already illustrated guides on several groups worthy of study. The species of Phyllonorycter, for example, are illustrated in Ref. 4.

4) There are not many microlepidopterists around to help you get started. However, there is a reference collection in Reading Museum which is immensely useful.

5) Most adult microlepidoptera are small and are consequently very difficult to set in the traditional manner, without a great deal of practice. Phyllonorycter moths are only about 4mm long and have wingspans of about 8mm. To set these, use of a binocular microscope is desirable, but a headband magnifier as used by watchmakers will do. If anyone wishes to learn how to do it I am willing to help him get started.

On the other hand, it is not essential to make a collection at all, and if you do, it is not essential to set the moths in a formal manner. There is much pleasure to be obtained just in breeding them and examining them before release.

6) There are no good moth traps designed with micros specifically in mind.

Micro hunting is a sport for the man who likes to be out in the field. Note that he is usually out in the field during the day, not at night.

7) There are no recognised English names for most micros, but this may be a good thing. With macros some people know the Latin names only, others know the English names only and some know both. This is confusing. With micros there is only the Latin name.

It should be clear from what has already been written that I would recommend to anyone who feels that he is potentially interested in moths to go out and try to find some Phyllonorycter mines. In winter, before April, I would recommend looking on young beech trees that have retained their leaves, or young oak trees, or holm oak. Look for anything that may fit with the earlier description of a pucker mine. The pucker is often between two lateral veins. Break the chamber open and see if you can find a pupa case. This will most likely be in a cocoon or pupal chamber, possibly incorporating a lot of droppings (frass). Remember that all larvae have their enemies. Sometimes the mine is split open and the occupant is eaten. Sometimes a small insect bores its way in and eats it. Others die before they have grown enough to pupate. And many are attacked by parasitic hymenoptera, and the mine will then contain a parasite cocoon in instead. The best chance will be with mines where both surfaces of the leaf are still intact.

Once you begin to find them, collect a few and take them home. Put them in a jar (or a transparent plastic box) out of direct sunlight, and examine them from time to time. Moths should emerge soon after being brought indoors. They normally do not emerge until April or May but will respond to a rise in temperature, especially if they are kept slightly damp. They are extremely beautiful little moths despite their small size and are well worth looking at with a hand lens.

There is also a second generation of Phyllonorycter in August/September. Hence there is a second opportunity to collect mined leaves in June or July. If gathered early the mines will still contain larvae (open one or two and find out) and it will be necessary to prevent the leaf from drying up or going mouldy before the larva finishes feeding. This can usually be done by keeping it in a plastic bag-from-a-roll for about ten days.

The larvae produced by this second generation have usually pupated by October and this is a good time to collect mines from trees that are going to shed their leaves.

The problem then is how to keep them over the winter so that the pupae survive. The principle is to keep them in as natural conditions of temperature and humidity as possible. Emmet suggests stuffing them into an old pair of ladies' stockings or tights (these are earwig proof), throwing them on the garden and forgetting about them till Spring. Jacobs suggests putting them in cotton bags and hanging these up out

of doors in a shady place 'which is neither too sunny nor bleak, but where there is ample moisture', or alternatively put the mines in flower pots in autumn and stand them in a shady place. Shaw thinks that putting them in the wet is a waste of time. Just put them in cardboard boxes and put these somewhere where there will be normal temperatures and humidities (e.g. on the garage floor). He himself uses a garden shed where the door has been replaced by chicken wire!

I have tried all these mothods with equal success, and ought to get down to doing a controlled comparison. However, the most important thing, I have decided, is to obtain viable unparasitised mines in the first place!

In my experience, the commonest species of Phyllonorycter are the following:

harrisella	oak	messaniella	evergreen oak
quercifoliella	oak	rajella	alder
maestingella	beech	blancardella	apple
oxyacanthae	hawthorn	lantanella	wayfaring tree
salicicolella	sallow	spinolella	sallow
ulmifoliella	birch	schreberella	elm
viminiella	osier	sylvella	maple

Other species can be found with persistence on hornbeam, hazel, sloe, cherry, rowan, whitebeam, wild service, pear, honeysuckle, sycamore, Norway maple and snowberry .... and if you find anything on broom, gorse, Salix repens, Vicia sepium, Ononis sp., Scabiosa columbaria, poplar or aspen, you may have a rarity. Please let me know!

Finally, I would like to say that mothing has broadened my interests in Natural History in ways that I would never have anticipated. My knowledge of plants in general, and trees in particular, has greatly improved. Though our native lepidoptera feed mostly on native trees, I suddenly became interested in all trees, including street plantings. Through searching for Phyllonorycter mines on rosaceous trees I suddenly became aware of the marvellous varieties of Japanese flowering cherries. This sort of thing may well happen to you too if you take up mothing. What you think is a Phyllonorycter mine may turn out to be no such thing - perhaps something even more interesting. And botanists beware, for there is a danger of looking to see not just what plants are, but what are eating them!

1) South, R. The Moths of the British Isles Frederick Warne & Co. First Edition 1908. New Editions 1923, 1939. Revised Edition (drawings) 1961.

2) Emmet, A. M.,Ed. (1979) A Field Guide to the Smaller British Lepidoptera. The British Entomological and Natural History Society.

3) Bradley, J. D. & D. S. Fletcher (1979) A Recorder's Log Book or Label List of British Butterflies and Moths. Curwen Books.

4) Jacobs, S. N. A. (1942) On the British Species of the Genus Lithocolletis, in Illustrated Papers on British Microlepidoptera The British Entomological and Natural History Society.

5) Bradley, J. D., S. N. A. Jacobs & W. G. Tremewan (1969) A Key to the British and French Species of Phyllonorycter Hubn. Ent. Gaz. 20 pp. 3-33.

6) Heath, J., Ed. Moths and Butterflies of Great Britain and Ireland, Harley Books, Colchester. Vols. 1, 9, 10 published. Vol. 2 to appear 1984.

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An Introduction to Nature Photography

A. R. Hodge, ARPS

I have been asked to write, in simple terms, about photographing nature and have tried to avoid too many technicalities so as not to put off would-be novices. Whether I have succeeded is another matter. Keywords are underlined for ease of reference.

A suitable class of subject to start with is habitats. These can be recorded with any type of camera e.g. Instamatic, Compact, Polaroid, Disc etc. as well as the more advanced types such as the single lens reflex (known universally as 'SLR'). It is sometimes impossible to include in a photograph enough of a scene to give an adequate impression of its nature e.g. the immediate foreground flora as well as more distant features. This is because of the restricted angle of view offered by most simple cameras. SLR cameras feature interchangeable lenses and by fitting a wide angle lens the problem of restricted angle can be overcome. The same problem can exist when photographing trees where it can be difficult or impossible to move far enough away from a tree to get it all in the picture. Most simple cameras will focus close enough to record adequately the leaves, blossom and fruit of trees, but for more detail one must focus even closer to the subject.

Many cameras, even the so-called simple models, have automatic exposure control built in, which is adequate for most purposes, but it can be fooled by unusually light or dark subjects. For instance, white flowers amongst grass will require less exposure than that measured by the camera, otherwise they might not show any detail. Similarly, very dark fungi will require more exposure. Some automatic cameras have an exposure 'override' control. If not, the film speed

setting can be temporarily altered, but do not forget to reset it otherwise your subsequent exposures will be wrong.

The type of film used is often decided by availability or habit, whereas the correct choice can make a world of difference. If you want slides (transparencies) for projection Kodachrome 25 (or 64) is probably the best choice for quality. The number refers to the speed of the film, i.e. ISO 25. 'ISO' is replacing the old 'ASA' rating and is numerically the same. One limitation of Kodachrome is its fairly 'slow' speed (i.e. it requires more light than 'faster' films with a higher ISO number). Kodak 'Ektachrome' slide film (also Japanese and German makes) is available up to ISO 400 and for some branches of nature photography, e.g. birds, a fast film is very desirable. Prints can be readily made from slides but if prints are the main consideration then a colour negative film such as Kodacolor is the type to use. These are now available up to ISO 1000 but tend to be rather grainy. For general use a speed of ISO 200 is adequate.

For much of nature photography it is essential to be able to focus closer than simple cameras allow (e.g. for flowers and especially insects). This is where the ubiquitous 35mm SLR type of camera comes into its own and I make no excuse for describing it and its ability to focus closely, in some detail. The basic feature of the single lens reflex, as its name implies, is that the same lens is used for viewing and taking. This means that the view you see in the viewfinder will be virtually the same as that in the final picture, without parallax error, whereas this is not the case with other types of camera. Also, focussing is simple - if the subject looks in focus in the viewfinder then the image on the film will be in focus.

There are two basic methods of close focussing. One is to fix a supplementary lens (or lenses) on to the main lens. The other is to move the main lens further from the film by using extension tubes. The first method is cheap and the added lenses do not reduce the light reaching the film. The second method offers potentially better quality but is more expensive and light is lost. One can approach the realms of photomicrography by this method. Macro lenses, although pricey, are by far the best way of focussing close because they have, in effect, their own built-in variable extension tube and are capable of focussing from infinity down to a few inches.

The majority of SLR cameras have a built-in exposure meter which will automatically compensate for any additions or changes made to the lens system for close-up work.

When focussing very close to a subject set the camera to the distance required and then focus by moving the whole camera to and fro until the subject appears sharp in the viewfinder.

For field work there are two main sources of light that can be used: daylight and electronic flash. The latter comes into its own for fungi when these are in dark habitats. Also

for insects where very close focussing is necessary. The reason is that when focussing close, in order to maintain an adequate depth of field (i.e. the 'Zone of sharpness' in front of and behind the focussed distance) a small aperture is needed (e.g. f16 or f22). Unfortunately this reduces the light getting to the film to such an extent that without using flash a shutter speed of a few seconds would be required.

Because of the depth-of-field problem butterflies are difficult subjects. Try to arrange the camera so that the plane of at least one wing is at right-angles to the camera lens axis. If possible wait until the wings are fully open, but with some species this rarely occurs.

Exposure calculations for electronic flash are based on a guide number (GN) which depends on the power of the flash and the speed of the film in use. GN is the product of the distance (gun to subject) and the lens aperture. Knowing the GN and the distance, the aperture required can be calculated. Extra calculations are needed if flash is used very close-up.

Some subjects benefit from side lighting rather than frontal. Subjects with interesting texture and mammal tracks would benefit from this technique. When subjects have a lot of contrast, e.g. pure white flowers surrounded by dark green leaves, avoid lighting with full sun. Either wait for a cloud or use a diffuser such as tracing paper to shield the subject. Alternatively, use a reflector (white paper or silver foil) to brighten the dark areas and fill in the shadows. If you are using flash, a second gun of lower power fitted close to the camera lens will reduce the contrast. The reason for contrast reduction is the inability of films to reproduce widely differing lighting levels.

For stationary subjects the use of a tripod will enable relatively long shutter speeds (longer than about 1/30th of a second) to be used without fear of camera shake.

Whereas habitats and trees often require the use of a wide-angle lens, birds and small mammals need a narrow angle or telephoto lens so that the image size is adequate when photographing from a distance. A lens of 300 or 400mm would be suitable but beware of camera shake. Use a shutter speed of at least 1/250th of a second. The neglected monopod is used by bird photographers to reduce camera shake. A monopod is light in weight and manoeuvrable and more suitable for use over difficult terrain than a tripod.

Dragonflies and damselflies can be photographed using a telephoto lens in conjunction with extension tubes. By this means one can achieve an adequate image size at a distance of a few feet which is preferable to wading into water for this group of insects.

Wind sway is often a problem with flora. It can be partly overcome by anchoring the stem part way up. Use a length of stiff (but bendable) wire pushed into the ground, with a wire plastic bag closure fixed at the top end. It does

no damage and is easily removed, also is easily forgotten and left behind.

Aquatic subjects are often best photographed in a small aquarium. Flash is useful here but must be angled carefully so as to avoid reflecting light into the camera lens.

There are obviously many points I cannot cover in a short article and I hope those that I have covered will be useful.

If your appetite has been whetted for more information I would recommend any of Heather Angel's books and I list some below.

Nature Photography, Its Art and Techniques (Fountain Press)

Photographing Nature (series) (Fountain Press): Trees; Seashore; Fungi; Flowers; Birds; Mammals; etc.

Book of Nature Photography

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Some Bryophyte Records

The following records of interesting Bryophytes found to the south and south-west of Reading have been received from Dr. Peter Brough.

Bartramia pomiformis Hedw., Pamber Forest and Silchester Common, 1982.
Plagiothecium undulatum (Hedw.), B., S. & G., Silchester Common, 8.1983.
Anthoceros punctatus L., edge of field near Wheathold, Wolverton.
Sphaerocarpos texanus Aust., edge of field near Wheathold, Wolverton.
Riccia glauca, L., Greenham Common, 3.1983.
Riccia fluitans, L., River Whitewater, 8.1983.
Ricciocarpus natans (L.) Corda, Basingstoke Canal, 8.1983.
Riccardia sinuata (Dicks.) Trev. Near Kingsclere, 6.3.1983.
Blasia pusilla L., old railway line, Woolmer Forest, 2.1983.
Lophozia vectricosa var. ventricosa (Dicks.) Dum. Headley gravel workings.
Barbilophozia attenuata (Mart.) Loeske, Newtown Common, 1982.
Nowellia curvifolia (Dicks.) Mitt., Skyers Copse, near Ramsdell, 2.1983.

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The Recorder's Report for Fungi, 1983

A. Brickstock

The Fungus season this year was slow to get under way, as a result of an exceptionally long spell of dry, mild weather.

Although many species were found, few of these appeared in any great numbers, and they required more careful seeking out than usual. Despite this the Society's Forays again showed very good results; 52 species at Kingwood Common on 10.9.83, 81 at The Slade, Bucklebury and 69 at Newtown Common, Newbury, both of these on 8.10.83, a total of 125 species for the day, and finally 90 species at Baynes Reserve on 23.10.83. Together with a preliminary Foray two days previously, the last venue gave a total of 102 species.

The season was brought to an abrupt halt by a series of heavy frosts on consecutive nights in mid November.

The total number of species recorded in the (rather elastic!) Reading area was 362.

My thanks to those who have provided lists containing some particularly interesting finds, especially Mary and Neville Diserens (again not forgetting their help with identification both during and after Forays), Peter Brough, and Mrs. Kerstine for her lists from Baynes. Also thanks once more to Dr. Hora for identifying a few of the more puzzling species.

Several genera yielded particularly good species lists, including Boletus, Inocybe, Leccinum, Mycena and Russula, but the outstanding find for the season must surely be Amanita virosa, found on the Newtown Common Foray by Peter Brough.

AGARICALES

Agaricus augustus
Redhatch Drive, 3.10.83 (D).

Agaricus bitorquis
Wellington Country Park (D).

Agaricus fuscofibrillosus
Harpsden, 2.10.83 (D).

Agaricus macrosporus
Sulham, 26.9.83 (B); AWRE, 26.10.83 (B).

Agaricus placomyces
Northcourt Avenue, 9/10.83 (LC).

Agaricus porphyrocephalus
Virginia Water, 15.10.83 (MS)

Agaricus semotus
Newtown Common, Newbury, 8.10.83 (NH).

Agaricus subperonatus
Redhatch Drive, 26.1.83 (D).

Amanita excelsa
College Wood, Woodcote, 18.9.83 (B).

Amanita pantherina
College Wood, Woodcote, 18.9.83 (B).

Amanita phalloides
Sulham, 6.10.83 (B); AWRE, 26.10.83 (B).

Amanita virosa
Newtown Common, Newbury, 8.10.83 (NH).

Asterophora lycoperdoides
Virginia Water, 15.10.83 (MS).

Asterophora parasitica
Newtown Common, Newbury, 8.10.83 (NH)

Baeospora myosura
Newtown Common, Newbury, 8.10.83 (NH); Heckfield, 13.11.83 (B).

Boletus appendiculatus
The Slade, Bucklebury, 8.10.83 (NH).

Boletus fechneri (pallescens)
Virginia Water, 15.10.83 (MS)

Boletus parasiticus
Bucklebury Common, 11.9.83 (D).

Boletus pruinatus
Kingwood Common, 10.9.83 (NH); Davenport Wood, 24.9.83 (B).

Boletus queletii
Sulham, 16.10.83 (B).

Boletus spadiceus (lanatus)
Newtown Common, Newbury, 8.10.83 (NH).

Boletus truncatus (porosporus)
Virginia Water, 15.10.83 (MS).

Chroogomphus rutilus
Sulham, 6.10.83 (B).

Clitocybe phyllophila
Virginia Water, 15.10.83 (MS); AWRE, 28.9.83 (B).

Clitopilus prunulus
Newtown Common, Newbury, 8.10.83 (NH); Baynes Reserve, Thatcham, 23.10.83 (NH).

Coprinus auricomus
Baynes Reserve, Thatcham, 2.10.83 (H & K).

Coprinus impatiens
Harpsden, 2.10.83 (D).

Coprinus lagopus
Davenport Wood, 24.9.83 (B); The Slade, Bucklebury, 8.10.83 (NH); Virginia Water, 15.10.83 (MS); Sulham, 16.10.83 (B).

C prinus macrocephalus
Harcourt Hill, Nuffield, 14.5.83 (D).

Cortinarius armillatus
Bear Wood, 6.11.83 (B).

Cortinarius caerulescens
Baynes Reserve, Thatcham, 2.10.83 (H & K).

Cortinarius calochrous
Sulham, 16.10.83 (B).

Cortinarius purpurascens
Baynes Reserve, Thatcham, 2.10.83 (H & K).

Crepidotus variabilis
The Slade, Bucklebury, 8.10.83 (NH).

Entoloma rhodopolium
Heckfield, 13.11.83 (B).

Gyroporus castaneus
Virginia Water, 15.10.83 (MS).

Hohenbuehelia geogenia
Harpsden, 2.10.83 (D).

Hygrophoropsis pallescens
Newtown Common, Newbury, 8.10.83 (NH).

Hygrophorus cossus
Baynes Reserve, Thatcham, 2.10.83 (H & K).

Hygrophorus lucorum
Stonor Park, 5.11.83 (D).

Hypholoma polytrichi
Wellington Country Park, 6.11.83 (D).

Inocybe flocculosa
The Slade, Bucklebury, 8.10.83 (NH).

Inocybe griseolilacina
Virginia Water, 15.10.83 (MS); Baynes Reserve, Thatcham, 23.10.83 (NH).

Inocybe hirtella
The Slade, Bucklebury, 8.10.83 (NH).

Inocybe petiginosa
The Slade, Bucklebury, 8.10.83 (NH)

Inocybe pyriodora
Kingwood Common, 10.9.83 (NH).

Lactarius cilicioides
Baynes Reserve, Thatcham, 2.10.83 (H & K).

Lactarius deterrimus
Virginia Water, 15.10.83 (MS).

Lactarius fuliginosus
Kingwood Common, 10.9.83 (NH); College Wood, Woodcote, 18.9.83 (B).

Lactarius hepaticus
Benyon's Enclosure, Mortimer, 30.10.83 (B).

Leccinum aurantiacum
Tadley Water Tower, 14.10.83 (B).

Leccinum holopus
Snelsmore Common, 9.83 (PRB).

Leccinum melaneum
Baynes Reserve, Thatcham, 2.10.83 (H & K).

Leccinum quercinum
Sulham, 9.10.83 (B); Virginia Water, 15.10.83 (MS)

Leccinum roseofractum
Baynes Reserve, Thatcham, 23.10.83 (NH).

Lentinus tigrinus
Davenport Wood, 24.9.83 (B).

Lepiota cristata
Sulham, 26.9.83 (B).

Lepiota lucina
Virginia Water, 15.10.83 (MS).

Lepiota ventriosospora
Harpsden, 2.10.83 (D).

Leptonia serrulata
Virginia Water, 15.10.83 (MS).

Lyophyllum loricatum
Fence Wood, Hermitage, 5.11.83 (B).

Marasmius calopus
Newtown Common, Newbury, 8.10.83 (NH).

Marasmius cohaerens
Virginia Water, 15.10.83 (MS).

Marasmius splachnoides
Baynes Reserve, Thatcham, 2.10.83 (H & K).

Marasmius undatus
Newtown Common, Newbury, 8.10.83 (NH).

Melanoleuca grammopodia
Davenport Wood, 24.9.83 (B).

Melanophyllum echinatum
Harpsden, 2.10.83 (D).

Micromphale brassicolens
Harpsden, 2.10.83 (D).

Mycena filopes
Baynes Reserve, Thatcham, 2.10.83 (H & K).

Mycena haematopus
The Slade, Bucklebury, 8.10.83 (NH).

Mycena leptocephala
Virginia Water, 15.10.83 (MS)

Mycena olivaceomarginata
Virginia Water, 15.10.83 (MS).

Mycena pelianthina
Kingwood Common, 10.9.83 (NH); Sulham, 26.9.83 (B).

Nolanea farinolens
Newtown Common, Newbury, 8.10.83 (NH).

Oudemansiella mucida
Davenport Wood, 24.9.83 (B).

Pholiota adiposa
Newtown Common, Newbury, 8.10.83 (NH).

Pholiota ochrochlora
The Slade, Bucklebury, 8.10.83 (NH); Fence Wood, Hermitage, 5.11.83 (B).

Pleurotus pulmonarius
Pamber Forest, 9.10.83 (PRB).

Pluteus petasatus
The Slade, Bucklebury, 8.10.83 (NH).

Pluteus salicinus
Kingwood Common, 10.9.83 (NH).

Psathyrella candolleana
The Slade, Bucklebury, 8.10.83 (NH).

Psathyrella gossypina
Benyon's Enclosure, Mortimer, 30.10.83 (B); Wellington Country Park, 6.11.83 (D).

Psathyrella multipedata
Baynes Reserve, Thatcham, 23.10.83 (NH).

Pseudohiatula esculenta
Virginia Water, 15.10.83 (MS).

Psilocybe semilanceata
Blacknest, Brimpton Common, 2.11.83 (B); Wellington Country Park, 6.11.83 (D); AWRE, 3.11.83 (B).

Rhodotus palmatus
Davenport Wood, Marlow, 12.11.83 (D).

Russula alutacea
Kingwood Common, 10.9.83 (NH).

Russula betularum
Newtown Common, Newbury, 8.10.83 (NH).

Russula brunneoviolacea
AWRE, 7.10.83 (B).

Russula caerulea
Heckfield, 6.11.83 (D).

Russula cessans
Benyon's Enclosure, Mortimer, 30.10.83 (B).

Russula claroflava
Newtown Common, Newbury, 8.10.83 (NH).

Russula cyanoxantha var. peltereaui
Virginia Water, 15.10.83 (MS).

Russula foetens
Newtown Common, Newbury, 8.10.83 (NH).

Russula lepida
College Wood, Woodcote, 18.9.83 (B); Nettlebed, 9.10.83 (D).

Russula nitida
Newtown Common, Newbury, 8.10.83 (NH); Sulham, 16.10.83 (B); Baynes Reserve, Thatcham, 23.10.83 (NH); Wigmore Common, Tadley, 16.11.83 (B); AWRE, 24.10.83 (B).

Russula parazurea
The Slade, Bucklebury, 8.10.83 (NH).

Russula sanguinea
Newtown Common, Nowbury, 8.10.83 (NH).

Russula sardonia
AWRE, 12.10.83 (B).

Russula sardonia
AWRE, 12.10.83 (B).

Russula velenovskyi
Newtown Common, Newbury, 8.10.83 (NH).

Russula xerampelina
Heckfield, 13.11.83 (B)

Tricholoma atrosquamosum
Harpsden, 9.10.83 (D).

Tricholoma cingulatum
Heckfield, 13.11.83 (B)

Tricholoma columbetta
Sulham, 6.10.83 (B); Warburg Reserve, 19.11.83 (B).

Volvariella bombycina
Wellington Country Park (D).

Volvariella parvula
Newtown Common, Newbury, 8.10.83 (NH)

Volvariella speciosa
Virginia Water, 15.10.83 (MS).

APHYLLOPHORALES

Coltricia perennis
Newtown Common, Newbury, 8.10.83 (NH).

Ganoderma lucidum
Cothill, 4.10.83 (PRB)

Hapalopilus nidulans
Davenport Wood, 24.9.83 (B).

Hericium erinaceus
Virginia Water, 15.10.83 (MS)

Hirschioporus abietinus
Wellington Country Park, 6.11.83 (D).

Hydnum repandum
Virginia Water, 15.10.83 (MS).

Inonotus dryadeus
Basildon Park, 29.8.83 (D).

Inonotus radiatus
Baynes Reserve, Thatcham, 23.10.83 (NH).

Merulius tremellosus
Virginia Water, 15.10.83 (MS).

Polyporus badius
Kingwood Common, 10.9.83 (NH).

Polyporus varius
Kingwood Common, 10.9.83 (NH); Warburg Reserve, 19.11.83 (B).

GASTEROMYCETALES

Cyathus striatus
Virginia Water, 15.10.83 (MS).

Geastrum [illegible]
Harpsden, 2.10.83 (D).

Geastrum triplex
Davenport Wood, 24.9.83 (B); Sulham, 9.10.83 (B).

ASCOMYCETES

Cordyceps canadensis
Newtown Common, Newbury, 8.10.83 (NH).

Cordyceps militaris
Virginia Water, 15.10.83 (MS).

Cordyceps ophioglossoides
Pamber Forest, 9.83 (H & B); Newtown Common, Newbury, 8.10.83 (NH).

Elaphomyces granulatus
Pamber Forest, 9.83 (H & B); Newtown Common, Newbury, 8.10.83 (NH).

Geoglossum cookeianum
Frilford Golf Course, 4.10.83 (PRB).

Helvella lacunosa
The Slade, Bucklebury, 8.10.83 (NH); Baynes Reserve, Thatcham, 23.10.83 (NH).

Humaria hemisphaerica
Newtown Common, Newbury, 8.10.83 (NH).

Mitrula paludosa
Silchester Common, 5.83 (PRB).

Morchella semilibera
Kingsclere, 4.83 (PRB)

Neobulgaria pura
The Slade, Bucklebury, 8.10.83 (NH).

Otidea alutacea
Newtown Common, Newbury, 8.10.83

Otidea onotica
Harcourt Hill, Nuffield, 14.5.83 (D).

Peziza vesiculosa
Harcourt Hill, Nuffield, 14.5.83 (D).

Tarzetta cupularis
The Slade, Bucklebury, 8.10.83 (NH); Sulham, 16.10.83 (B).

Xylaria polymorpha
Kingwood Common, 10.9.83 (NH).

Contributors

Ivy and Alan Brickstock, (B), Peter Brough (PRB), Leonie Cobb (LC), Neville and Mary Diserens (D), Dr. Hora and Mrs. Kerstine (H & K), Bill Helyar and Peter Brough (H & B). Society Forays are designated by (NH) and the Mycological Society Foray at Virginia Water by (MS).

The Recorder's Report for Botany 1982-83

B. M. Newman

Many records have been received this year and, in addition, some members have sent lists of plants seen on the Society's walks. All these additions to the Society's archives are gratefully acknowledged. If a record has been published in the Reading Naturalist in the last ten years it is not usually printed again, the limited space being given to newer records or to very old ones. Nevertheless, all such records are useful to confirm that a species still exists in a particular locality, and they are carefully preserved.

The nomenclature and order used in this Report are according to the "Flora of the British Isles" by Clapham, Tutin & Warburg (1962). An alien taxon is indicated by an asterisk (*). Most of the English names are from "English Names of Wild Flowers", the recommended list of the Botanical Society of the British Isles.

List of Members' Records

POLYPODIACEAE

Adiantum capillus-veneris L. Maidenhair Fern
Still on Sonning Bridge, Berks (HJMB).

Asplenium adiantum-nigrum L. Black Spleenwort
Ufton church, 6.83 (PRB); growing out of a brick wall, Brownlow Road, Reading (MRH).

Asplenium trichomanes L. Maidenhair Spleenwort
Ufton church, 6.83 (PRB).

Dryopteris cristata (L.) A. Gray Crested Buckler-fern
Very rare in Molinia bog at Deer Rock Hill, Camberley, Surrey; no plants seen on the Berkshire side of the county boundary (HJMB).

Thelypteris limbosperma (All.) H. P. Fuchs Lemon-scented Fern
Crookham and Silchester commons, F. Rose (PRB).

MARSILEACEAE

Pilularia globulifera L. Pillwort
Present in very large quantity at Bramshill, 26.8.83 (PRB).

AZOLLACEAE

*Azolla filiculoides Lam. Water Fern
Abundant in shallow pools, Sheffield Bottom pit, Theale (MRH).

OPHIOGLOSSACEAE

Ophioglossum vulgatum L. Adder's-tongue
Pamber Forest, 6.83; in a meadow in Tadley, (PRB); three plants in a group, one with spore-bearing spike, near the Transport and Road Research Laboratory, Crowthorne, 7.6.82, did not re-appear in 1983 (MJD); meadow near Moor Copse, Tidmarsh; meadow near Herridge's Copse, Tidmarsh (MRH).

RANUNCULACEAE

Helleborus foetidus L. Stinking Hellebore
Sulham Woods, 31.3.83; Swyncombe, 23.4.83 (AB).

Aconitum anglicum Stapf Monk's-hood
Plastow Green, 6.83 (PRB).

FUMARIACEAE

Corydalis claviculata (L.) DC. Climbing Corydalis
In rides, Carbins Wood, Bucklebury, Berks. (HJMB).

CRUCIFERAE

Lepidium heterophyllum Benth. Smith's Pepperwort
On gravel track by Sheffield Bottom pit, Theale (MRH).

Cardamine amara L. Large Bitter-cress
Hill's Meadow, Reading, last recorded in 1967 (HHC).

HYPERICACEAE

Hypericum androsaemum L. Tutsan
By a footpath past Tadley Lodge, Wasing, 31.8.83 (AB).

Hypericum montanum L. Pale St. John's-wort
In wood clearings near Hammons Farm, Woodcote, Oxon. (HJME).

CARYOPHYLLACAE

Saponaria officinalis L. Soapwort
By a footpath past Tadley Lodge, Wasing, 31.8.83 (AB).

Moenchia erecta (L.) Gaertn., Mey. & Scherb.
Upright Chickweed
Re-found by tracks at Pound Green and Snelsmore Common, Berks. (HJMB).

LINACEAE

Radiola linoides Roth Allseed
In quantity on a track at Bramshill 26.8.83 (PRB).

OXALIDACEAE

*Oxalis europaea Jord. Upright Yellow Sorrel
In the grounds of St. Andrew's Hall, Reading University (HJMB).

PAPILIONACEAE

Medicago polymorpha L. Toothed Medick
On an old tip, Dry Sandford pit, Berks. (HJMB).

Trifolium medium L. Zigzag Clover
In a meadow in Tadley (PRB); on waste ground between Metal Box and St. George's Road, Reading, 15.6.83 (HHC).

*Galega officinalis L. Goat's-rue
A single plant on a gravel track, Sheffield Bottom pit, Theale (MRH).

ROSACEAE

Potentilla palustris (L.) Scop. Marsh Cinquefoil
Fleet Pond (PRB).

Geum rivale L. Water Avens
In a meadow by Horsemoor Copse, near Tidmarsh (MRH).

Sanguisorba officinalis L. Great Burnet
Tyle Mill, Sulhampstead, NHS walk, 27.8.83 (AB); the embankment of Theale by-pass; in meadow by Wigley Copse, Tidmarsh; in meadow by Horsemoor Copse near Tidmarsh (MRH).

Rosa rubiginosa L. Sweet Briar
Little Wittenham 14.5.83 (AB).

Sorbus torminalis (L.) Crantz Wild Service-tree
Nuney Green, NHS walk, 6.7.83 (AB).

SAXIFRAGACEAE

Chrysosplenium oppositifolium L. Opposite-leaved Golden-saxifrage
On bank of river Loddon near Sandford Mill (MRH).

Chrysosplenium alternifolium L. Alternate-leaved Golden-saxifrage
Baynes Reserve, Thatcham 20.3.83 (AB).

DROSERACEAE

Drosera rotundifolia L. Round-leaved Sundew
Abundant in a small damp area at the foot of an embankment near the Transport and Road Research Laboratory, Crowthorne (MJD).

THYMELAEACEAE

Daphne mezereum L. Mezereon
One bush at Park Wood, Bisham (HJMB).

ONAGRACEAE

*Epilobium nerterioides A. Conn. New Zealand Willow-herb
A large number of plants in a garden at Thatcham 10.8.83 (AB).

CALLITRICHACEAE

Callitriche intermedia Hoffm. Intermediate Water-starwort
In Upper Lake, Royal Military Academy, Sandhurst, Surrey (HJMB).

UMBELLIFERAE

Anthriscus caucalis Bieb. Bur Chervil
Near Reading prison, F. J. Rumsey (HJMB).

*Smyrnium olusatrum L. Alexanders
A long-established small colony at the corner of Southcote and Tilehurst Roads, Reading (KR). The plant was recorded for the Society in this area in 1900, and has been noted several times in the last thirty years.

Physospermum cornubiense (L.) DC. Bladderseed
Many plants at Burnham Beeches 8.82 (PRB).

Oenanthe fistulosa L. Tubular Water-dropwort
In a meadow in Tadley (PRB).

POLYGONACEAE

Polygonum bistorta L. Common Bistort
Plaistow Green 6.83 (PRB)

BETULACEAE

*Alnus incana (L.) Moench Grey Alder
Pamber Forest 8.83 (PRB)

SALICACEAE

Salix repens L. Creeping Willow
Tadley Common 18.5.83 (AB).

PRIMULACEAE

Hottonia palustris L. Water-violet
Fleet Pond 8.83 (PRB).

*Lysimachia punctata L. Dotted Loosestrife
On roadside verge near College Wood, Oxon. (HHC).

APOCYNACEAE

Vinca minor L. Lesser Periwinkle
Ashampstead 7.5.83 (SW).

*Vinca major L. Greater Periwinkle
Warren Farm, Streatley, NHS walk, 18.6.83 (AB).

BORAGINACEAE

*Symphytum orientale L. White Comfrey
By police post, Buckingham Drive, Caversham, last reported in 1968 (HHC).

SOLANACEAE

Atropa bella-donna L. Deadly Nightshade
In felled woodland, Bottom Wood, Hardwick, Oxon. (HJMB).

LENTIBULARIACEAE

Utricularia neglecta Lehm. Bladderwort
Fleet Pond 8.83 (PRB).

PLANTAGINACEAE

Plantago coronopus L. — Buck's-horn Plantain
On bare, dry places at Pound Green & Silchester Common, Berks. (HJMB); Osborne Road, Reading (MRH).

CAMPANULACEAE

Campanula patula L. — Spreading Bellflower
St. Lawrence's churchyard, Reading (HHC).

CAPRIFOLIACEAE

*Lonicera japonica Thunb.
In an old garden, Barkham Ride, Berks. First Berkshire record (HJMB).

COMPOSITAE

*Senecio cineraria DC — Silver Ragwort
Wall of Holy Brook, Kings Road, Reading. First Berkshire record of this grey-leaved garden alien (HJMB).

Inula conyza DC. — Ploughman's-spikenard
On chalk banks at Park Wood, Bisham, Berks. (HJMB); Nuney Green, NHS walk, 6.7.83 (AB).

Pulicaria vulgaris Gaertn. — Small Fleabane
In a meadow near Bramshill, 8.83 (PRB).

Chamaemelum nobile (L.) All. — Chamomile
Nuney Green, NHS walk, 6.7.83 (AB).

Cirsium eriophorum (L.) Scop. — Woolly Thistle
Little Wittenham, 14.5.83 (AB); Beacon Hill, Highclere 1982 (PRB).

Cirsium dissectum (L.) Hill — Meadow Thistle
In a meadow in Tadley (PRB).

Silybum marianum (L.) Gaertn. — Milk Thistle
Harcourt Hill, Nuffield, 30.4.83 (N & MD).

Centaurea cyanus L. — Cornflower
One plant on new roadside verge, Dorchester by-pass, Oxon. It was mown off later (HJMB).

Lactuca serriola L. — Prickly Lettuce
Warren Farm, Streatley, NHS walk, 18.6.83 (AB); Watlington Hill, 7.8.83 (HHC).

ALISMATACEAE

Sagittaria sagittifolia L. — Arrowhead
Tyle Mill, Sulhampstead, NHS walk, 27.8.83 (AB); Basingstoke canal, 8.83 (PRB).

HYROCHARITACEAE

Hydrocharis morsus-ranae L. — Frogbit
Basingstoke canal, 8.83 (PRB).

Stratiotes aloides L. Water-soldier
Basingstoke canal, 8.83 (PRB).

LILIACEAE

*Allium paradoxum (Bieb.) G. Don Few-flowered Leek
Hazelmoor Lane, opposite Lilac Cottage, Gallowstree Common 4.83 (HHC).

JUNCACEAE

*Juncus tenuis Willd. Slender Rush
Along tracks, Wasing Wood and Long Moor, Berks. (HJMB).

AMARYLLIDACEAE

Leucojum aestivum L. Summer Snowflake, Loddon Lily
New Lodge Reserve, 24.4.83 (AB); near Basing, the only known Hampshire site, 4.83 (PRB); a single plant on the bank of the river Thames east of Streatley (MRH).

IRIDACEAE

Iris foetidissima L. Stinking Iris, Gladdon
Swyncombe, 23.4.83 (AB); road edge, Quick's Green, near Ashampstead, NHS walk (MRH).

ORCHIDACEAE

Spiranthes spiralis (L.) Chevall. Autumn Lady's-tresses
Three plants in Franklin Avenue, Tadley, 8.9.83; about two hundred plants on frnnt lawns of two houses in Burnham Road, Tadley, 12.9.83 (AB); a group of nineteen flowering spikes near the Transport and Road Research Laboratory, Crowthorne 23.6.83 (MJD).

Ophrys apifera Huds. Bee Orchid
On chalk grassland, Seven Barrows, Lambourn, Berks. (HJMB); sixty-four plants on roadside verge, Burnham Road, Tadley, 27.6.83 (AB); a group of nineteen flowering spikes near the Transport and Road Research Laboratory, Crowthorne 23.6.83 (MJD).

Orchis morio L. Green-winged Orchid
Bernwood meadow, 21.5.83 (AB); in a meadow in Tadley (PRB).

LEMNACEAE

Lemna polyrhiza L. Greater Duckweed
In a pond in St. Patrick's Hall grounds, Reading University (HJMB).

CYPERACEAE

Schoenoplectus tabernaemontani (C. C. Gmel.) Palla
Fleet Pond 8.83 (PRB). Grey-Club-rush

Isolepis setacea (L.) R. Br. Bristle Club-rush
In a meadow in Tadley (PRB).

Cyperus longus L. Galingale
Bucklebury Common, 11.9.83 (N & MD).

Rhynchospora alba (L.) Vahl White Beak-sedge
Snelsmore Common, 3.9.83; Hawley Lake area, Hants., 4.9.83 (PRB).

Carex laevigata Sm. Smooth-stalked Sedge
In wet rides, Carbins Wood, Bucklebury, Berks. (HJMB); in a meadow in Tadley (PRB).

Carex binervis Sm. Green-ribbed Sedge
On heaths at Silchester Common and Deer Rock Hill, Berks. (HJMB)

Carex demissa Hornem. Common Yellow-sedge
On wet heaths at Long Moor, Berks. (HJMB).

Carex pseudocyperus L. Cyperus Sedge
On margin of Upper Lake, Royal Military Academy, Sandhurst, Surrey (HJMB).

Carex vesicaria L. Bladder-sedge
Long Moor, Berks., I. Dicker (HJMB); Ashford Hill (PRB).

Carex strigosa Huds. Thin-spiked Wood-sedge
In wet wood, Padworth Gully, Berks. (HJMB); Horsemoor Copse, near Tidmarsh (MRH).

Carex pallescens L. Pale Sedge
In a meadow in Tadley (PRB).

Carex muricata L. Prickly Sedge
On dry verge of gravel pit near Wasing Wood, Berks. (HJMB).

Carex curta Good. White Sedge
Locally abundant in shaded, iron-rich bogs at Long Moor, Berks. (HJMB); Fleet Pond, 8.83 (PRB).

Carex ovalis Good. Oval Sedge
In dry ride in old Deerpark Wood, Bradfield, Berks. (HJMB); Heath Pond, Finchampstead (MRH).

Carex pulicaris L. Flea Sedge
Very local in bog, Inkpen Common, Berks. (HJMB).

GRAMINEAE

Hordelymus europaeus (L.) Harz Wood Barley
In wood near Hammons Farm, Woodcote, Oxon. (HJMB)

Agrostis setacea Curt. Bristle Bent
On heath near Deer Rock Hill, Berks. (HJMB).

*Phalaris canariensis L. Canary Grass
Warren Farm, Streatley, NHS walk, 18.6.83 (AB).

*Echinochloa crus-galli (L.) Beauv. Cockspur
In the grounds of St. Andrew's Hall, Reading University (HJMB).

*Setaria viridis (L.) Beauv. Green Bristle-grass
In the grounds of St. Andrew's Hall, Reading University (HJMB).

Contributors:

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The Recorder's Report for Entomology 1982-83

B. R. Baker

The order and nomenclature used in this Report are those given in Kloet and Hincks, A Check List of British Insects, Part 1: Small Orders and Hemiptera, 1964; Part 2: Lepidoptera, 1972; Part 3: Coleoptera, 1977; Part 4: Hymenoptera, 1978; and Part 5: Diptera, 1975.

ORTHOPTERA Grasshoppers, Bush Crickets, Ground-Hoppers

Tetrix undulata (Sowerby) Common Ground-Hopper

Baynes Nature Reserve (Parklodge Gully), 14.5.83. Adults common in leaf litter (BRB).

ODONATA Dragonflies

Coenagrion puella (L.) Common Coenagrion

Brimpton Gravel Pit, 25.6.83 (MRH).

Agrion splendens (Harris) Banded Agrion

Moor Copse Nature Reserve, 9.7.83 (MRH).

A. virgo (L.) Demoiselle Agrion

Brimpton Gravel Pit, 25.6.83 (MRH).

Gomphus vulgatissimus (L.) Club-tailed Dragonfly

North bank of Thames close to Reading Bridge, 3.6.83, one newly emerged specimen (BRB); Thames east of Goring, 11.6.83, one female (MRH).

Aeshna grandis (L.) Brown Aeshna

Moor Copse Nature Reserve, 9.7.83 (MRH).

A. mixta Latr. Scarce Aeshna

Moatlands Gravel Pit, near Theale, 16.10.83 (MRH).

Libellula depressa L. Broad-bodied Libellula

Brimpton Gravel Pit, 25.6.83, common; Theale Gravel Pits, 14.8.83, very common (MRH).

PSOCOPTERA Psocids, Book-lice

Liposcelis paetus Pearman

Reading, 10.2.83, Pennycroft Road, Upper Basildon, 25.11.78, Earley, 20.7.83 (HHC).

LEPIDOPTERA Butterflies and Moths

Adscita geryon (Hübn.) Cistus Forester

Aston Upthorpe, 5.6.83 (BRB, PS).

Apoda limacodes (Hufn.) The Festoon

Surley Row, Caversham, 16.7.83 (PS).

Erynnis tages (L.) Dingy Skipper

Crog Hill, 11.6.83 (HJMB).

Pyrgus malvae (L.) Grizzled Skipper

Aston Upthorpe, 4.6.83 (HJMB).

Colias croceus (Geoffr.) Clouded Yellow

Many records have been received of this beautiful immigrant butterfly which had its best year in this country since 1947. The October records indicate that there was a partial second British-bred generation.

Dry Sandford Pit, 19.6.83, Silchester Common, 30.7.83, Mapledurham, 5.10.83 (HJMB); Aston Rowant, 19.6.83, Brimpton Gravel Pit, 25.6.83, Theale Gravel Pit, four on 14.8.83, two on 20.8.83, four on 25.9.83, two on 2.10.83 (MRH); Woosehill, 30.7.83, Twyford Gravel Pit, 14.8.83 (RJG); Crowthorne, 3.9.83, 16.9.83, 19.9.83, Bracknell, 4.10.83 (MJD); Pamber Forest, two on 26.7.83, 28.7.83, Turville Hill, three on 14.8.83, Aston Upthorpe, 20.8.83 (NJ & MD); Aldermaston, twenty-three including one white var. helice between 29.7.83 and 20.10.83, Hemdean Bottom, 13.8.83, 23.10.83, Hardwick, four on 30.8.83, Aston Upthorpe, two on 25.9.83 (PS); Aston Upthorpe, 30.7.83, Theale Gravel Pit, (four, all males), 23.10.83 (BRB).

Gonepteryx rhamni (L.) Brimstone

Padworth Gully, 8.5.83, Park Wood, Bisham, 14.5.83, Little Wittenham Wood, 19.6.83, Long Moor, larvae on Frangula alnus, 16.7.83, Pamber Forest, 30.7.83, Nettlebed, 13.8.83 (HJMB); Wokingham, 16.4.83, Whiteknights, 6.6.83 (RJG).

Anthocharis cardamines (L.) Orange-tip

Park Wood, Bisham, 14.5.83, Nuney Green, larvae on Alliaria petiolata, 6.7.83 (HJMB); Theale Gravel Pit, males common,

8.5.83 (MRH); Caversham Warren, 31.5.83 (PS); Northcourt Avenue, one female, 16.5.83, one male, 5.6.83, Bix, 4.6.83 (LEC); Wokingham, frequently between 14.5.83 and 12.6.83, Whiteknights, frequently between 15.5.83 and 10.6.83, Dinton Pastures, 22.5.83 (RJG).

Quercusia quercus (L.) Purple Hairstreak

Bucklebury Lower Common, frequent on one oak, 24.7.83, Pamber Forest, common, 30.7.83 (HJMB); Crowthorne, 3.8.83 (MJD).

Lycaena phlaeas (L.) Small Copper

This species had a good season, the October dates indicating a third brood.

Wasing Wood Pits, 1.8.83, Bucklebury Upper Common, 2.10.83 (HJMB); Aldermaston, 4.10.83, 11.10.83, 17.10.83 (PS); Theale Gravel Pit, several, 23.10.83 (BRB).

Cupido minimus (Fuess.) Small Blue

Aston Upthorpe, 5.6.83, 30.7.83, second brood, (BRB).

Plebejus argus (L.) Silver-studded Blue

Silchester Common, 30.7.83 (HJMB); Pamber Heath, 30.7.83 (MRH); near Crowthorne, over a hundred on 14.6.83 and over a hundred on 21.6.83 in another part of the same area (MJD).

Aricia agestis (D. & S.) Brown Argus

Alexandra Road, Reading, one on 14.8.83 (MRH).

Celastrina argiolus (L.) Holly Blue

Ride in Carbins Wood, 24.7.83, Pamber Forest, 30.7.83, Toad Hall, Fawley, 6.8.83, St. Andrew's Hall, Reading, 30.7.83, Windmill Hill, Nettlebed, 14.8.83 (HJMB); Chazey Heath, 3.8.83, Alexandra Road, Reading, 14.8.83, Theale Gravel Pit, 14.8.83, (MRH); Caversham Warren, 31.5.83 (PS); Christchurch Road, Reading, 16.5.83, Northcourt Avenue, Reading, 21.5.83, 26.7.83, (LEC); Dinton Pastures, 22.5.83 (RJG); Matlock Road, Caversham, 8.5.83 (HGB); Matlock Road, Caversham, 4.6.83, female ovipositing on an ornamental Cornus (BRB).

Hamearis lucina (L.) Duke of Burgundy Fritillary

Aston Upthorpe, 5.6.83, ova on Primula veris, 8.8.83, partial second brood (PS; BRB).

Ladoga camilla (L.) White Admiral

Long Moor, 16.7.83, Chapel Row, 17.7.83, Carbins Wood and Bucklebury Lower Common, 24.7.83, Pamber Forest, 30.7.83 (HJMB).

Apatura iris (L.) Purple Emperor

Pamber Forest, 30.7.83 (HJMB); Pamber Forest, two on 30.7.83 (MRH); Pamber Forest, 17.8.83 (NJ & MD); Pamber Forest, 27.7.83 (BRB).

Vanessa atalanta (L.) Red Admiral

Pamber Forest, 30.7.83, Nettlebed Woods, 13.8.83, Theale,

25.8.83 (HJMB); Wokingham, 9.8.83, Harcourt Drive, Reading, 19.9.83 (RJG); Moor Copse Nature Reserve, 23.7.83, six on 24.9.83 (BRB); Matlock Road, Caversham, 14.10.83, four on 24.10.83, 27.10.83 (HGB).

Cynthia cardui (L.) Painted Lady

Toad Hall, Fawley, 6.8.83 (HJMB); Surley Row, Caversham, 8.8.83, Aldermaston, 3 8.83, 11.10.83, 19.10.83, 20.10.83 (PS); Bracknell, 7.6.83, Wokingham, 7.8.83 (RJG); Leighton Park, 7.6.83 (TDH); Moor Copse Nature Reserve, 30.8.83, 24.9.83 (BRB).

Boloria selene (D. & S.) Small Pearl-bordered Fritillary

Padworth, 10.7.83, very late (BRB).

Argynnis paphia (L.) Silver-washed Fritillary

Pamber Forest, 30.7.83 (HJMB); Nuney Green, 9.8.83 (LEC).

Eurodryas aurinia (Rott.) Marsh Fritillary

Near Lambourn, 11.6.83 (HJMB).

Hipparchia semele (L.) Grayling

Silchester Common, 30.7.83, Wasing Wood Pits, 21.8.83, Deer Rock Hill, Sandhurst, 4.9.83 (HJMB); Wellington College grounds, several on pine trunks, 24.7.83 (BRB).

Rhodometra sacraria (L.) The Vestal

This irregular immigrant moth, like the Clouded Yellow butterfly referred to earlier, also had its best year in this country since 1947 and some of the records span many weeks suggesting a British-bred generation.

Didcot, six on 26.9.83 (RL); Emmer Green, (JHFN); Matlock Road, Caversham, 25.9.83, 27.9.83 (BRB); Burghclere, thirty-five recorded in light trap between 17.7.83 and 2.10.83 (GE-F).

Xanthorhoe quadrifasiata (Cl.) Large Twin-spot Carpet

Surley Row, Caversham, 17.7.83 (PS).

Plagodis pulveraria (L.) Barred Umber

Baynes Wood Nature Reserve, 4.6.83 (NMH).

Aspitates ochrearia (Rossi) Yellow Belle

Baynes Wood Nature Reserve, 4.6.83 (NMH).

Agrius convolvuli (L.) Convolvulus Hawk-moth

This immigrant hawk-moth was widely recorded over southern England, particularly on the coast. A locally found specimen was brought to the Museum by Mr. K. Stephens during the second week of September.

Hyloicus pinastri (L.) Pine Hawk-moth

Long Moor, 16.7.83 (TJGH; BRB); Baynes Wood Nature Reserve, 6.8.83 (NMH).

Macroglossum stellatarum (L.) Humming-bird Hawk-moth
Surley Row, Caversham, 19.7.83 at 7.30 p.m., 17.8.83 (PS).

Deilephila porcellus (L.) Small Elephant Hawk-moth
Surley Row, Caversham, 26.6.83 (PS).

Ptilodontella cucullina (D. & S.) Maple Prominent
Surley Row, Caversham, 13.7.83, 15.7.83, 11.8.83, 13.8.83 (PS).

Odontosia carmelita (Esp.) Scarce Prominent
Baynes Wood Nature Reserve, 16.4.83 (NMH).

Leucoma salicis (L.) White Satin Moth
Surley Row, Caversham, 12.7.83 (PS).

Callimorpha dominula (L.) Scarlet Tiger
Surley Row, Caversham, 5.7.83, a wanderer (PS); Sul Stream banks near Moor Copse Nature Reserve, 7.5.83, larvae; Kennet banks at Milkmaid's Bridge, Southcote, 6.7.83 (BRB).

Rhyacia simulans (Hufn.) Dotted Rustic
Surley Row, Caversham, 6.8.83 (PS).

Hadena compta (D. & S.) Varied Coronet
Surley Row, Caversham, 19.6.83 (PS).

Orthosia miniosa (D. & S.) Blossom Underwing
Surley Row, Caversham, 23.4.83 (PS).

Mythimna vitellina (Hubn.) Delicate Wainscot
Burghclere, 16.9.83, a rarely recorded immigrant at inland locations (GE-F).

Lithophane semibrunnea (Haw.) Tawny Pinion
Baynes Wood Nature Reserve, 15.5.83 (NMH).

L. socia (Hufn.) Pale Pinion
Baynes Wood Nature Reserve, 16.4.83 (NMH).

L. leautieri (Boisd.) Blair's Pinion
Surley Row, Caversham, 25.10.83, 26.10.83, 1.11.83, 3.11.83 (PS).

Xanthia citrago (L.) Orange Sallow
Surley Row, Caversham, 27.9.83 (PS).

Mormo maura (L.) Old Lady
Surley Row, Caversham, 31.8.83 (PS).

Diachrysia chryson (Hubn.) Scarce Burnished Brass
Baynes Wood Nature Reserve, 6.8.83 (NMH).

Parascotia fuliginaria (L.) Waved Black

Long Moor, 16.7.83 (BRB).

COLEOPTERA Beetles

Pterostichus niger (Schaller)

Near Shinfield Grange, 2.5.83 (TDH).

P. nigrita (Paykull)

Near Hall Farm, Shinfield, 17.9.83 (TDH).

Sphaeridium lunatum Fabr.

Near Hall Farm, Shinfield, 17.9.83 (TDH).

Nicrophorus vespilloides Herbst.

Leighton Park, 28.4.83 (TDH).

Lucanus cervus (L.) Stag Beetle

Erleigh Road, Reading, one male, one female, 9.6.83, Donnington Road, Reading, one male, 11.6.83, Erleigh Road, Reading, one male, 17.6.83, one female, 10.7.83 (MRH).

Dorcus parallelepipedus (L.) Lesser Stag Beetle

Priory Lane, Bracknell, 22.6.83 (MJD).

Trox scaber (L.)

Leighton Park, 11.7.83 (TDH).

Typhaeus typhoeus (L.)

Aldermaston, one female in light trap, 23.3.83 (GE-F).

Lampyris noctiluca (L.) Glow Worm

Theale, near edge of Kennet Canal, one larva feeding on Lymnaea palustris water snail 5.83 (MRH).

Subcoccinella 24-punctata (L.)

Leighton Park, 8.5.83 (TDH).

Anatis ocellata (L.)

Crowthorne, 18.7.83 (MJD).

Prionychus ater (Fabr.)

Leighton Park, 5.7.83 (TDH).

Tetratoma fungorum Fabr.

East Ginge, near Wantage, 25.9.83 (TDH).

Crioceris asparagi (L.)

Leighton Park, 5.7.83 (TDH).

Galerucella grisescens (Joannis)

Leighton Park, 30.6.83 (TDH).

Cassida rubiginosa Müller, O.F.

Leighton Park, 15.5.83 (TDH).

Phyllobius roboretanus Gredler

Whiteknights Park, 21.5.83 (TDH).

P. calcaratus (Fabr.)

Benyon's Inclosure near Mortimer West End, 6.7.83 (TDH).

Sitona lepidus Gyllenhal

Leighton Park, 10.9.83 (TDH).

Cionus tuberculosus (Scop.)

Whiteknights Park, 11.9.83 (TDH).

HYMENOPTERA Sawflies, Ichneumons, Bees and Wasps

Arge ochropus (Gmel.)

Larvae brought to the Museum by Colin Ravening during August. They were found in his garden at St. Peter's Road feeding on rose bushes and when bred out in the Museum proved to be a species of sawfly new to our collections.

Fenusa pusilla (Lepeletier)

Crowsley, 27.7.83 (HHC).

Ichneumon insidiosus Wesmael

Forbury Gardens, 9.11.82 (HHC).

I. bucculentus Wesmael

Pamber Forest, hibernating in clump of Polytrichum, 22.2.67 (BRB).

Lasius brunneus (Latr.)

White Ladies Park, Ascot, in felled pine trunk containing old nest of Green Woodpecker (HHC).

Vespa crabro (L.) The Hornet

A thriving nest discovered in a thatched roof at Burghclere and several specimens brought to the Museum during August. Rarely recorded in our district (GE-F).

Lasioglossum villosulum (Kirby)

Crowsley, 27.7.83 (HHC).

DIPTERA True Flies

Crypteria limnophiloides Bergroth

Maize field by Crowsley Forest, 5.10.83 (HHC).

Paratanytarsus laetipes (Zetterstedt)

Bred in Museum fish tanks, 3.83 (HHC).

Empis picipes Meigen
Crowsley Forest, 16.6.83 (HHC).

Alophora hemiptera (Fabr.)
Shiplake College, 6.80 (R. G. Leeke).

Ceromya nigrohalterata (Villeneuve)
Fence Wood, 25.5.82 (HHC).

Nilea hortulana (Meigen)
Crowsley Forest, 5.9.83 (HHC).

Chirosia parvicornis (Zett.)
Fence Wood, 25.5.82 (HHC).

C. albifrons Tiensuu
Fence Wood, 25.5.82 (HHC).

Pegomyza praepotens (Wiedemann)
Maize field by Crowsley Forest, 5.10.83 (HHC).

Fannia subsimilis Ringdahl
Crowsley Forest, 7.7.83 (HHC).

The Society's Entomological Night

This annual event was held at California Country Park on 16th July 1983, and had been preceded by a guided walk around the heathland and lake led by the Warden, Mrs. Iris Dicker. The Barbecue, organised by Dr. Bowen, fully occupied us during the evening and then two mercury-vapour moth lamps were operated from 10 p.m. until shortly after midnight. Weather conditions were perfect for insect flight and the sheets were soon covered with numerous caddis-flies and a single, much bemused toad. Among the fifty-two species recorded the following were indicators of a varied and interesting habitat:-

Thyatira batis (L.)	Peach Blossom
Ochropacha duplaris (L.)	Common Lutestring
Xanthorhoe quadrifasiata (Cl.)	Large Twin-spot Carpet
Mesoleuca albicillata (Hubn.)	Beautiful Carpet
Euphyia unangulata (Haw.)	Sharp-angled Carpet
Hyloicus pinastri (L.)	Pine Hawk-moth
Deilephila elpenor (L.)	Large Elephant Hawk-moth
Miltochrista miniata (Forst.)	Rosy Footman
Parascotia fuliginaria (L.)	Waved Black

Our thanks are due to Mrs. Dicker for permission to work this interesting site, to Mr. Homer for supplying a second generator and to Miss Cobb and Mrs. Ward for listing our records.

Contributors

The Recorder would like to thank the following members and friends for records received

Mrs. H. G. Baker (HGB), Dr. H. J. M. Bowen (HJMB), H. H. Carter, (HHC), Miss L. E. Cobb (LEC), J. N. Diserens (JND), Mrs. M. Diserens (MD), Dr. M. J. Dumbleton (MJD), Lt. Col. G. G. Eastwick-Field (GE-F), Dr. R. J. Grayer (RJG), N. M. Hall (NMH), T. D. Harrison (TDH), T. J. G. Homer (TJGH), M. R. Hughes (MRH), R. Lewington (RL), J. H. F. Notton (JHFN), P. Silver (PS).

Our thanks are additionally due to the Director of Reading Museum & Art Gallery for allowing us to incorporate any relevant records from the Museum's collections.

The following records of invertebrates other than insects are contributed by H. H. Carter.

SPIDERS

Cyclosa conica (Pallas)

Female with web in Passiflora, 82, Kennylands Road, Sonning Common. First seen May 1983 but disappeared after some weeks.

Moebelia penicillata (Westring)

Crowsley Forest, 10.3.83.

CENTIPEDES

Geophilus electricus (L.)

82, Kennylands Road, Sonning Common, 16.3.83.

Lithobius forficatus (L.)

82, Kennylands Road, Sonning Common, 11.3.83 and many later dates.

L. variegatus Leach

82, Kennylands Road, Sonning Common, 3.3.83 and many later dates.

L. melanops Newport

82, Kennylands Road, Sonning Common, 23.3.83.

L. duboscqui Brolemann

82, Kennylands Road, Sonning Common, 26.4.83.

MILLIPEDES

Cylindroiulus londinensis (Leach)

82, Kennylands Road, Sonning Common, 2.3.83, 5.4.83.

Ophyiulus pilosus Newport

5, Pages Orchard, Sonning Common, 26.3.83.

Polydesmus gallicus Latzel

82, Kennylands Road, Sonning Common, 28.2.83.

P. angustus Latzel

82, Kennylands Road, Sonning Common, 28.3.83 (sic).

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The Recorder's Report for Vertebrates, 1982-83

H. H. Carter

FISH

Cottus gobio L. Bullhead

Common in the Pang at Hogmoor Bridge, 5.3.83

Gasterosteus aculeatus L. Three-spined Stickleback

Common in the Pang at Hogmoor Bridge, 5.3.83.

AMPHIBIANS

Triturus cristatus (Schr.) Great Crested Newt

Present at Sulham Pond from 19.3.83 onwards, maximum two males, four females, one at Cock Marsh, 24.9.83 (PRC). The same observer found large numbers in an unlikely locality, a small shallow (250mm deep) pond full of rotting straw at Sulham, 24.7.83. In ten minutes she caught fifteen, all about 80mm long, which is unusually large for the time of year. All had external gills, which are normally lost towards the end of August in the first year of life.

Triturus vulgaris (L.) Smooth Newt

About twelve found hibernating in a compost heap on the outskirts of Wallingford, 2.83 (MRH). Present from 19.3.83 onwards at Sulham Pond, where tadpoles were found in June and July, and breeding in ponds at Burghfield, Cockney Hill, Tilehurst, and Westwood Road, Tilehurst (PRC).

Triturus helveticus (Raz.) Palmate Newt

Male and female present at Burghfield Pond, 12.2.83, a male and three females (the first record from this site) at Sulham Pond, 19.3.83 (PRC). Present in Wasing gravel pits, 6.3.83.

Rana temporaria L. Frog

Six pairs and much spawn in garden pond, Alexandra Road, Reading, 5.3.83, tadpoles began to hatch, 5.4.83 (MRH). Four pairs spawned in garden pond, Westwood Road, Tilehurst, 17.3.83, and at The Laurels primary school at the same date, also bred at Burghfield pond where hundreds of froglets emerged, 9.7.83, two froglets at Moor Copse, 14.8.83 (PRC). Eighty to ninety frogs in garden pond at 24 The Square, Spencers Wood, (Mr. Colebrook). A few frogs and no spawn in the Upper Pond, many frogs and much spawn in the Lower Pond at Greenmoor Hill, Woodcote, 19.3.83, some spawn a few days old and some freshly laid in the Horse Pond, Gallowstree Common, 18.3.83. A 40mm (second year) frog in Clayfield Copse, 24.5.83. Two first-year frogs at Cock Marsh, 24.9.83 (RDNHS Excursion).

Bufo bufo (L.) Toad

Much spawn at Burghfield Pond, 26.3.83, two adult females, an adult male and many toadlets emerging there, 9.7.83 at 2100 to 2200 on a warm dry night, also breeding at Moor Copse (PRC). The same observer reports that adult toads are fairly frequent in gardens in the Tilehurst area. One dead in Binfield Heath Lane, 27.2.83. Eighty-two dead toads counted in Kiln Road and Binfield Heath Lane near the Coach and Horses, but none in the ponds there, 14.3.83. One dead in Woodlands Road, Sonning Common, 12.3.83. Few toads and no spawn in the Upper Pond, many toads and no spawn in the Lower Pond at Greenmoor Hill, Woodcote, 19.3.83. One seen crossing road in Harpsden Bottom, 6.7.83. Five dead in Kiln Road after heavy rain in the night, 3.10.83. One dead on road in Emmer Green, 2.9.83. A second-year toad under a log in Whiteknights Wilderness, 6.11.83 (MRH).

REPTILES

Anguis fragilis L. Slow Worm

One dead on road by Crowsley Park, (south side), 16.5.83.

Natrix natrix (L.) Grass Snake

Four or five first-year snakes, about 150mm long and 15mm wide, in garden at Stanford Dingley (Mr. Lang).

MAMMALS

Talpa europaea L. Mole

Molehills on Watlington Hill, 26.12.82, and at Watlington Park, 13.3.83. A dead mole at Warren Farm, 18.6.83 (BFC). A dead mole near Tyle Mill by the Kennet, 28.7.83 (LEC).

Sorex araneus L. Common Shrew

One under board, 82 Kennylands Road, Sonning Common, 3.3.83. A few heard in the Sonning Common area through the year, perhaps less than usual.

Sorex minutus L. Pygmy Shrew

One dead at Langley Hill, Tilehurst, 26.10.82 (PRC).

Erinaceus europaeus L. Hedgehog

Juvenile dead in garden at 45 Circuit Lane, Reading, 13.12.82 (CAS). One regularly in garden, Alexandra Road, Reading, (MRH). Road casualties rather few in most areas; single animals dead on roads at Bix, 11.11.82; Emmer Green, 12.11.82; Burghfield Road south of M4, 29.6.83 (MJH); Sonning Common, 29.8.83; four dead between Nettlebed and Cookley Green, 7.8.83. One dead on playing field near Swainstone Road, Reading, 18.5.83 (BFC). Skin of one at Aston Upthorpe, 4.6.83 (HJMB). One curled up dead on lawn of University Health Centre, Northcourt Avenue, Reading, 8.8.83 (LEC). Regular visitor to Tilehurst gardens, adult and two young seen separately on one night, 29.9.83, frequent road casualty (PRC).

Myotis daubentonii (Kuhl) Daubenton's Bat

Present at Kiln Pond, Mortimer, on several dates from 25.5.83 onwards, and at Whiteknights Lake, 8.6.83 and 15.6.83 (identification from flight pattern, supported by Michael Hardy)(PRC).

Pipistrellus pipistrellus (Schreber) Pipistrelle

Small bats assumed to be of this species seen at Tilehurst, 28.3.83 and on many later dates, two summer roosts in roof spaces occupied for short periods, a juvenile found clinging to a school wall, 7.83, many around Pang at Moor Copse, 14.5.83, one at Kiln Pond, Mortimer, 25 5.83, at Whiteknights Park, 8.6.83, at Sulham Woods 4.7.83, feeding over water at Burghfield Pond, 9.7.83 (PRC).

Nyctalus noctula (Schreber) Noctule

Three or four over Fox and Hounds gravel pit, Theale, 24.5.83 (RDNHS Excursion). Several at Cane End, 25.5.83. One over Victoria Recreation Grounds, Tilehurst, 24.5.83, roost in oak tree in Whiteknights Park, 8.6.83, bats there but not at roost site, 15.6.83 (PRC).

Vulpes vulpes (L.) Fox

One at Padworth on five dates from 1.1.83 to 26.9.83, one dead on road 21.6.83, one on Burghfield Road, 12.1.83 (MJH). One in Northcourt Avenue, Reading, 22.1.83 (LEC). One found dead at 15 Wychwood Crescent, Earley, 8.2.83 (MM). One heard in Hagpits Wood, Sonning Common at 5 a.m. 16.2.83. Tracks in snow, 2.83, some of which led to an earth near The Laurels Primary School, and to earth in bracken at Moor Copse (PRC). One seen on several dates in Warwick Road, Reading (CG). One seen attacking a cat near Blake's Lock, 27.5.83. Vixen and three cubs in Emmer Green, early June (Mr. Cowling). Vixen and cubs in Tilehurst Road, Reading, 13.6.83 (CAS). One smelt in Crowsley Park, 12.6.83 (EMC). Dog fox seen in garden, Alexandra Road, Reading, 31.7.83 (MRH). One calling in wood by Sonning Common sewage works, 3.8.83.

Meles meles (L.) Badger

New sett in hedge near Cucumber Plantation, Sonning Common, 5.1.83. Badger disturbed in daylight near Sonning Common sewage works, 16.6.83. One seen crossing road at night near California Country Park after the mothing evening, 16.7.83 (NMD).

Mustela erminea L. Stoat

One found dead at Sonning, 17.6.83 (BT).

Mustela nivalis L. Weasel

One seen crossing Reades Lane near Gallowstree Common, 19.4.83.

Cervus nippon Temminck Sika Deer

Two small deer with large white rumps at Bucklebury Upper Common, 2.10.83 (HJMB) were perhaps of this species.

Dama dama (L.) Fallow Deer

"Groaning" of males in rut heard in the Sulham area, 10.82, and two deer seen vanishing into woods at the edge of the bracken patch in Moor Copse, 12.12.82 (PRC). One seen in Kiln Road, Emmer Green, 1.83 (DMD). Slots at Crowsley, 9.1.83 and a doe seen in Crowsley Park, 10.3.83. Three or more at dusk in field by Cane End, 25.5.83.

Muntiacus reevesi Ogilby Muntjac

Tracks frequent at Moor Copse, and droppings found most months (PRC). One calling in Chalkhouse Green, 6.1.83. Tracks at Crowsley Forest, 10.3.83 and one calling there, 26.7.83. One in garden, Kidmore End Road, Emmer Green, 11.4.83 (JM). One near Kidby's works, Sonning Common, 8.5.83 and one at compost heap, 82 Kennylands Road, Sonning Common, 9.9.83 (EMC). One calling at Kidmore End, 17.9.83. One seen crossing road at Stoke Row, 28.9.83 (JC).

Oryctolagus cuniculus (L.) Rabbit

A total of 663 sightings in the Sonning Common area, very few reports from elsewhere but clearly another peak year for rabbits.

Lepus capensis Pallas Hare

One in field by gravel pit at Theale, 18.5.83 (PRC). Four sightings of single animals in the Sonning Common area, Binfield Heath Lane, 30.1.83, Chalkhouse Green, 13.5.83, Crowsley, 16.6.83 and near Sonning Common in late July. As usual, hares have been scarce in a peak rabbit year.

Clethrionomys glareolus Schreber Bank Vole

A small example 70mm long found dead at Sulham, 1.83, and animals frequently seen beside Sulham Pond, often on a track between brambles (PRC). The species especially favours wet habitats with dense undergrowth, and young born late in the year normally overwinter at about 90mm long, reaching adult size in April after a period of renewed growth.

Arvicola amphibius (L.) Water Vole

One found partly eaten by the Pang at Moor Copse, the skin pulled up over the head, the skull and backbone exposed, the limbs eaten but not the viscera, 4.5.83 (PRC). No evidence as to the predator (but a small Mustelid seems most probable). "Lawns" of this species were found rather evenly spaced twenty metres apart along the Pang and a side stream joining it at Hogmoor Bridge, 5.3.83.

Apodemus sylvaticus (L.) Wood Mouse

Evidence of breeding in garden shed at Tilehurst (a habitat more typical of A. flavicollis), and often seen there in daylight, apparently avoiding predation by the numerous local cats (PRC). Road casualties SE of Sonning Common in Peppard Road, 12.9.83 and Blounts Court Road, 5.10.83.

Apodemus flavicollis Melchior Yellow-necked Mouse

One male sent in from Newbury district, 14.6.83.

Rattus norvegicus Berk. Brown Rat

Traditionally this species was supposed to winter indoors and move out into the countryside in summer. Either present-day rats are hardier or present-day buildings less hospitable as the following records show.

Adult male dead on Dark Lane, Tilehurst, 29.3.83, and rats are frequent visitors to gardens and outhouses in Earley (PRC). North-west of Sonning Common, one in New Copse 24.12.82 and two at Bishopswood School, 24.1.83 (EMC). South-east of the village the nuisance has abated with the demolition of derelict buildings on the site of Kennylands School, nevertheless a few road casualties, one 23.12.82, two, adult and juvenile, 29.3.83, also one in St. George's Road, Reading, 17.1.83.

Sciurus carolinensis Gmelin Grey Squirrel

One in garden at Northcourt Avenue, Reading, 22.1.83, 25.1.83 and 9 9.83 (LEC). Seven road casualties in Tilehurst during the year, and live squirrels active in Westwood Road during the same period but most in evidence in September when three squirrels spent most of the daylight hours burying hazel nuts (PRC). One at Whiteknights, 15.5.83 and one dead near Ashampstead, 17.5.83 (BFC). Four road casualties in Emmer Green, one in Sonning Common and one at Nettlebed. Single live squirrels in St. Lawrence's churchyard, Reading, 10.11.82, in Emmer Green, 10.12.82 and 14.3.83, Clayfield Copse, 14.4.83, and in the Sonning Common area at Bur Wood, 23.10.82, Morgan's Wood, 7.11.82, Devil's Hill, 6.3.83, and Kennylands, 25.9.83 and 30.9.83. Two in Crowsley Forest, 10.3.83. Many in New Copse, 27.5.83 and in 1982 (EMC).

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WEATHER RECORDS : 1983

contributed by M. Parry

STATION : READING UNIVERSITY (WHITEKNIGHTS)

		Jan.	Feb	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Mean Daily Temperatures °C	Max.	9.6	5.0	10.0	11.5	14.6	19.6	26.7	23.8	18.3	14.2	10.5	8.6	14.4
	Min.	3.9	-0.9	2.8	2.8	6.6	10.6	14.5	12.4	10.1	6.9	4.7	2.3	6.4
	Mean	6.8	2.1	6.4	7.2	10.6	15.1	20.6	18.1	14.2	10.6	7.6	5.5	10.4
	Range	5.7	5.9	7.2	8.7	8.0	9.0	12.2	11.4	8.2	7.3	5.8	6.3	8.0
Extreme Temperatures °C	Extreme Max.	13.2	12.5	14.1	17.2	21.4	25.2	31.6	29.5	23.4	21.5	16.2	12.7	31.6
	Date	4, 5	26	19	16	31	7	16	19	26	4	8	24	July 16
	Extreme Min.	-3.4	-6.8	-1.5	-1.4	3.0	5.8	7.5	5.1	4.4	-2.8	-8.3	-5.0	-8.3
	Date	20	4	28	3	11	13	3	30	22	30	23	7	Nov 23
	Ex. Grass Min.	-11.3	-14.3	-7.8	-5.5	-1.8	-1.7	1.2	0.0	-0.9	-9.6	-12.5	-10.0	-14.3
	Date	20	4	5	9, 20	4	13	3	30	22	30	23	7	Feb 4
Days with frost		3	19	3	3	0	0	0	0	0	2	6	9	45
Days with ground frost		13	24	20	19	3	1	0	0	1	11	11	15	120
Sunshine Hours	Sum	50.7	78.5	82.3	144.2	128.7	188.0	269.3	219.3	114.5	103.8	42.7	56.3	1478.3
	% of possible	19	28	22	35	27	38	54	49	30	31	16	23	33
	Daily Mean	1.6	2.8	2.7	4.8	4.1	6.3	8.7	7.1	3.8	3.3	1.4	1.8	4.1
Precipitation	Amount in mm	52	21	40	96	72	31	34	17	44	55	42	57	561
	Rain Days	15	12	16	21	20	10	4	6	11	13	7	16	151
Maximum rain in one day	"	13.0	3.4	5.8	12.6	22.5	13.4	13.9	8.9	7.0	21.3	23.8	10.6	23.8
	Date	31	5	31	27	31	23	24	22	13	15	26	20	Nov 26
Longest run of consecutive rain days		7	5	4	5	9	5	3	2	3	6	4	12	12
Longest run of consecutive dry days		9	10	8	4	4	8	21	17	6	12	7	6	21
Snow or sleet days		2	6	1	1	0	0	0	0	0	0	0	1	11
Days with snow lying		0	2	0	0	0	0	0	0	0	0	0	1	3
Visibility	Days with fog at 0900 GMT	0	2	0	0	0	0	0	1	1	3	5	1	13
Thunderstorm Activity	Days of thunder	0	0	0	3	5	2	6	4	1	0	0	0	21
	Days of hail	0	0	2	3	2	0	0	0	0	0	0	0	7

JANUARY — Very mild (more than 3°C above average), one of the three mildest Januaries in the University record (with 1921 and 1975) and the fourth mildest January of the century over England and Wales as a whole. Also dry (rainfall 20% below average) and sunny.

FEBRUARY — Rather cold with frequent frosts and a snowy spell around mid-month, but only half the normal rainfall and quite sunny.

MARCH — Fairly average temperature and rainfall but dull.

APRIL — Rather cold, but more notable for yielding over twice the average rainfall. The wettest April since at least 1921 (when University records began: some thundery outbreaks with hail.

MAY — Again on the cool side, very dull and again wet (50% more than average) and with frequent thunderstorms.

JUNE — Average temperatures and again rather dull, but rainfall was well (25%) below normal. Nearly half the monthly total fell in one day. No rain was measured from the 6th to the 22nd, giving an absolute drought.*

JULY — Decidedly hot! (4°C above average)! In fact, the warmest July in the station's history and also the warmest this century over England and Wales generally. Also very dry (half average), all the rain falling on only four days; a second absolute drought reigned from 30th June to 21st July. Sunshine hours were 40% above average.

AUGUST — Still warm and even drier than July, with only 30% of normal rainfall. A third absolute drought lasted from 2nd to 18th.

SEPTEMBER — A return to something near normal.

OCTOBER — Near-normal temperatures, a cold second half balancing a mild first half. Rather dry for October, with 40% of the total falling on one day.

NOVEMBER — Mild, dry and dull. Also foggier than usual - more fogs at observation time (09 GMT) than any November since 1961.

DECEMBER — Again generally mild, despite some sharp frosts and one day of snow. Rainfall a little below normal.

* Reminder - an absolute drought is a period of at least fifteen consecutive days, none of which has 0.2mm (0.01in.) of rain or more. The latter figure defines a "rain day".