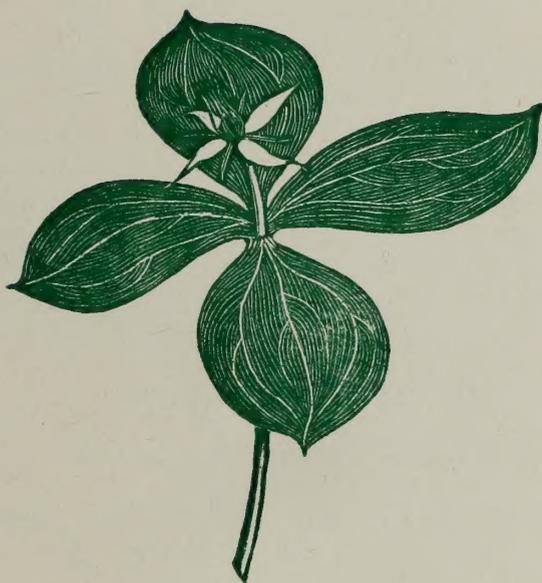




The Reading Naturalist

No. 34



Published by the Reading and District
Natural History Society

1982

Price to Non-Members 80p

THE READING NATURALIST

No. 34 for the year 1980-81



The Journal of
The Reading and District Natural History
Society

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Meetings and Excursions 1980-81

The Annual General Meeting on 16th October 1980 (attendance 51) was followed by Mr. R. M. Gambles' Presidential Address entitled 'The Stranger Within'. Other lectures during the winter were 'Sewage Purification', by Mr. J. I. Osborne (35); 'Ecology of Plants in the Western United States', by Dr. D. M. Keith-Lucas (47); 'Insects, Spiders and Photography', by Mr. N. Callow (60); 'The First Vertebrates and the Chinese Variation', by Dr. L. B. Halstead (53); 'Fallow Deer', by Dr. R. H. Smith (48); 'Orchids in Berkshire, Bucks and Oxon', by Mr. N. Phillips (65), and 'Bees and Honey', by Mr. G. W. Knights (45). On 22nd January, the films 'Habitats', 'Life of the Robin', 'On the Chalk', 'Life of the Grey Seal', and 'Seed Dispersal' were shown (50). A Members' Evening of films, talks and exhibits, at which coffee and biscuits were served, was held on 11th December (45), and another on 19th March (64) incorporated a Centenary Exhibition featuring aspects of the Society's history. A Dinner to celebrate the Society's centenary was held on 3rd April.

There were winter walks of general interest and to see deer in Englefield Park on 16th November (13), trees in Prospect Park, Reading, on 13th December (25), wildfowl on local gravel pits on 17th January (22), snowdrops in Welford Park on 14th February (22), lichens at Ufton Nervet and Mortimer (with BBONT) on 14th March (28) and mosses at Mapledurham on 28th March (27).

The first summer field excursion was a beginners' walk in the Streatley area, on 25th April (27). Others were to the Marlow and High Wycombe area, on 9th May, to see Coralroot (Cardamine bulbifera) (13); Sulham to study pond life and hear nightingales, on the evening of 19th May (24); the Hambledon area for beechwood and chalk flora, on 23rd May (12); the Kennet Canal and Burghfield Gravel Pits for water-side flora, birds and bats, on the evening of 2nd June (22); the Greenham area for orchids and general interest, on Sunday 7th June (15); Bramshill Forest for birds, on the evening of 11th June; Turville Hill and Bix (BBONT Reserve) for chalk flora and butterflies, with a barbecue, on 20th June (34); Moor Copse (BBONT Reserve) for moths, on the evenings of 26th June (16) and 17th July (18); Bisham Woods and Cookham Dean to study grasses, on Sunday 28th June (22); Arne and Corfe Castle, Dorset, by coach, for heathland and other flora and birds on 4th July (49); Buttlers Hangings and Bradenham Woods (BBONT Reserves) for chalk flora and butterflies on 18th July (11); Water-perry Wood and Shabington for butterflies and acid- and alkaline-loving plants on 1st August (17); Bix (BBONT Reserve) for general interest on 15th August (24); the Newbury area and Beacon Hill for geology, on 24th August, and urban habitats and waterside in Reading, on 26th September (14). There were Fungus Forays in Sulham Woods on 12th September (21) and in the Ipsden Heath area on 10th October (23).

The Stranger Within

The Presidential Address
to the Reading and District Natural History Society

16th October 1980

R. M. Ganbles

I cannot make a better start to a talk on "The Stranger Within" than quote a quatrain from Robert Louis Stevenson which he prefixed to a volume of verses that he entitled "Underwoods".

"Of all my verse like not a single line,
But like the Title, for it is not mine.
That title from a better man I stole.
Ah, how much better had I stol'n the whole!"

Many years ago, the late Professor T. W. M. Cameron of MacGill told me that he was writing two books on Parasitology, one a learned volume for Honours Students and Research Workers, and the other a popular account for the general reader, to be called "The Stranger Within", in which he hoped to awaken an interest in the fascinating and almost romantic aspects of this universal ecological phenomenon. The learned volume appeared in due course, but nothing further seems to have been heard of the popular book. So there is a perfectly good title going begging, and it seems a pity not to use it.

Tom Cameron hoped that such a title, with its familiar scriptural ring, would strike a more sympathetic chord in the reader, and not be so off-putting as a bare reference to parasites might. After all, parasitism is a universal phenomenon, and in a healthily balanced ecological community the parasite will not hurt its host. If it kills its host, it will destroy its own home and stand a very slender chance of finding another. Even if it does not destroy, but merely debilitates, the host will stand a poorer chance in the struggle for existence, and may well succumb and leave the parasite homeless. So it is obviously to the parasite's advantage to have a state of affairs where there are healthy parasites living in healthy hosts.

At the outset, we must be clear about our language. I mentioned what is to the advantage of the parasite, but I don't mean that the parasite consciously works out the wisest action to take and takes it. Still, those who do what is to their advantage are more likely to survive than those who do not, and any inborn instinct or adaptation - whether ecological, physiological, or anatomical - is likely to be perpetuated by natural selection. So it comes to very much the same thing in the long run. Let us not worry then about strict scientific language, and if I say anything that shocks you as hopelessly unscientific, please be sure that my tongue is firmly in my cheek.

To begin with, let us consider the role of both predator and parasite in controlling numbers. Today we are all ecologists, and realise that far from being a serious disadvantage, these forces are actually advantageous even to the populations of the hosts and victims, which in a healthily balanced ecosystem are kept down to optimum numbers. You have probably seen that excellent film about the wolf in Canada, which shows how an Island in the St. Lawrence River which happened to have no wolves was populated by a large colony of miserable unhealthy caribou, feeding on trees stunted by over-grazing, and how one severe winter when the river was frozen over, a pair of wolves crossed the ice and established themselves there; since when, the trees have grown to their proper stature, and the island is populated by a normal-sized herd of healthy caribou and a colony of contented wolves who remove the surplus and weakly members of the herd. We are all now used to such ideas, but we tend to concentrate our attention on the predator, and forget the parasite which plays a similar role in number control. So let us for a moment cast scientific precision to the winds, and admit that any fool can be a predator, but that it takes the most skilful ingenuity to lead a successful life as a parasite.

First, we must define parasite. Basically, the word means one who feeds at another man's table, and in the ancient world it was used mainly in a sociological sense, but with not quite the same pejorative overtones as now. The hangers-on of wealthy Roman families were usually welcome, and were distinctly useful. They lived on their wits, and while getting their livelihood at their patron's table, were always available to join in any intrigue, get up to any dirty work required, and always at hand to help the son of the house out of any scrape that his love-life or improvidence had led him into, just as Jeeves in a more respectable role helped Bertie Wooster. Parasitism must have begun by accident, a smaller animal getting engulfed by a larger one by chance, and only those with adaptability and powers of resistance to adverse circumstances could survive the ordeal. The more adaptable may even have found certain advantages in being a 'stranger within' and become so well suited to it that an independant life became impossible. So perhaps, the best definition we can make of a parasite is an organism that has lost the power to synthesise some substance vital to its metabolism (and not-available in its normal food) and so must rely on its host to provide it. Too-ready availability of all that is needed leads to further 'degeneration' of the parasite and atrophy of structures and functions that are no longer required. The climax of this line of developement - backward, rather than forward - may be found in the tapeworm, living in the digestive tract of the host, among foodstuffs that have already been fully digested and need nothing more than to be absorbed through the soft lining of the host's gut. So the tapeworm has no mouth, no gut, and no digestive enzymes. It lives bathed in the end products of the exertions of such organs and agents, and needs only a thin soft permeable

outer skin through which it can absorb them. But originally, it must all have started with the accidental swallowing of the smaller creature by the larger, which can very easily happen.

All tapeworms necessarily have complex life-histories, involving at least two species of host. Other forms of parasite, including some of the nematodes or roundworms, may have a direct life-history, in which the parasite lays eggs which are passed to the exterior, where they may be swallowed by the next host, and so the cycle repeats itself. Other roundworms, however, may require an intermediate host of another species, in which the immature stages can develop. In a way, the direct life-cycle may seem the obvious thing, and we may wonder how the life-cycle requiring an intermediate host ever developed. But there are several half-way stages that offer a possible answer to this. Some alternative hosts are purely optional and can be dispensed with. An example is offered by the gape-worm of poultry, a nematode which lives in the breathing passages, and in severe infestations may block the passages, and cause the bird to gasp for breath with its mouth wide open - hence the name of the disease. The worm's eggs are coughed up into the throat, swallowed, and passed out in the droppings. On the ground, a larva develops inside the egg and reaches the infective stage. It waits until picked up and swallowed. It is not, however, very resistant, and under dry conditions quickly dies. Poultry, of course, are not the only things wandering about and picking up food from the ground. Even when an egg is picked up by the wrong host, the story is not necessarily ended. Many of the ripe eggs will be swallowed by earthworms, which feed by shovelling soil into their mouths and passing it through the gut to absorb any organic matter that it may contain. The larva hatches and bores its way through the gut wall of the earthworm, and settles down in the body cavity in a state of suspended animation. It undergoes no further development here and remains exactly as it was when swallowed. So it is not a parasite in the ordinary sense, or the earthworm a true intermediate host. We therefore call the earthworm a 'collecting host' or 'transport host'. There is now no danger of the larva's drying up, and it can remain viable in the earthworm for years, instead of the short time it would have survived on the ground. If the earthworm is eaten by a fowl, the larva escapes as the worm is digested, bores its way through the gut-wall into the blood stream, and is carried to the lungs. Here it breaks out of the lung capillaries into the alveoli, and crawls up into the bronchial passages to become adult.

A rather similar form of collecting host is seen in Blackhead of turkeys, a protozoal disease comparable with amoebic dysentery in man, affecting both gut and liver. The infective stage of the parasite is passed with the droppings, but to produce the disease it must be swallowed by the next bird within 24 - 36 hours. There is a nematode worm called

Heterakis which is an almost universal parasite of all forms of poultry, living in large numbers in the caecum. Here the Blackhead parasites are often swallowed by the Heterakis, migrate through the body and infect the egg. Heterakis eggs are passed with the turkey droppings, and are viable for months, if not years. When picked up by another turkey, they hatch into further Heterakis worms, and the Blackhead parasite escapes in the process, to set up the disease in the new host.

But sometimes the second host of a parasite is essential, and it is not possible to infect the main host by feeding it with eggs. Here we have a true intermediate host, as opposed to a collecting host. One example that comes to my mind is a worm called Spirocerca, very common in the Mediterranean region, a parasite that lives in the dog as its main host. I saw hundreds of cases during my 14 years in Cyprus, where I carried out postmortems on all the dogs that died in the Veterinary Hospital, or were brought in for destruction for any reason. I never had any indication that the dogs suffered either sickness or pain, or even inconvenience as a result, although the worms caused tumours in the wall of the oesophagus, often very large, in which they lived in a tangle of tunnels. Similar tumours, but smaller, were found in the walls of the aorta. The tunnels communicated with the lumen of the oesophagus by a small opening through which the eggs were discharged, probably every time the dog swallowed, and these were eventually passed out with the droppings. If they were eaten by dung-beetles, which were numerous on the island, they hatched into larvae which encysted in the muscles or in the body-cavity. The dog became infected if it ate the beetle. One observation I made was that it was common - almost invariably found - in any Cypriot-owned dog I examined, but hardly ever in dogs with British owners. The Cypriots usually looked after their pets very well, and I am not implying any neglect, but they had a rather different outlook and expected a dog to fend for itself to a certain extent in addition to eating the food it was given, much as we expect a cat to hunt mice etc. in the house or garden, as well as feeding it ourselves. After I noticed this, I made a point of inquiring into the background of any British owned dog in which I found Spirocerca, and always found that it had previously been Cypriot-owned, or else adopted in puppyhood as a pathetic stray.

Of course, not all infected beetles get eaten by dogs. This is where collecting hosts come in. It appears that if the infected beetle is eaten by any other warm-blooded animal, it bores through the gut and encysts in the muscles or subcutaneous tissue. I several times found the larvae in the tissues of hedgehogs, and once in a duck, all potentially ready to infect any dog that ate them - unlikely, probably, in the case of the hedgehog, but quite possible with the duck. Doubtless the same thing happens with other small animals which may be eaten by dogs. So finding inter-

mediate stages of a parasite whose life-history is unknown does not necessarily imply that the animal it is found in is actually a normal part of the cycle. I have found a number of intermediate stages of tapeworms etc. in lizards and snakes, recognisable by the shape and arrangement of their hooks as species common in cats. The life-histories of these worms were then, and still are, unknown, as far as I know. But there is no evidence that the lizards are the intermediate hosts, and it seems unlikely that lizards would infect themselves by feeding on cats' droppings. The general opinion - unproved - is that the intermediate host is some dung-eating insect, so the lizards could well be merely collecting hosts. The exact status could be proved only by finding the insect involved, obtaining worm-free specimens (i.e. specimens born and bred in captivity and kept on a strictly censored diet), infecting these with eggs from a cat, and finally feeding them to worm-free cats and seeing whether tapeworms developed. Needless to say, experimental work on this scale is seldom carried out, owing to the expense, and the lack of practical importance of the final solution. So it gets left to be done as a sideline by those who are fully occupied with something more important. Hence the slow advance of our knowledge of such matters. The truth can only be found by slow accumulation of enough pieces of the jigsaw to make some kind of picture.

One worm which interested me greatly was a tapeworm found in dogs, called Mesocestoides, of whose life-history very little was known. This is common in the intestines of dogs in the Mediterranean region, and very rarely recorded from the intestines of cats, where it is always extremely undersized and never reaches maturity. About the turn of the century, an Italian worker, Alessandrini, found some worms encysted in the lungs and body-cavity of a hen, and noticed that the structure of the head was exactly similar to that of Mesocestoides of the dog, so concluded that poultry were the intermediate hosts of this worm. In 1927 someone called Schultz found similar larvae in the body-cavities of some rats, and either he or someone else actually produced adult Mesocestoides by feeding these or similar larvae to a dog. Schultz's paper annoyed me intensely when I read it, it seemed so pompous and dogmatic. He concluded "we must now abandon the hypothesis of Alessandrini that poultry are the intermediate hosts of Mesocestoides, now that the true intermediate hosts are shown to be rats and mice." There was nothing wrong with Alessandrini's work as far as it went, and I had in fact confirmed his observations several times during my first few years in Cyprus, and it was a long time before I was to find any larvae of this kind in rats or mice. And even if Schultz was right, and rats and mice could be intermediate - or collecting-hosts, that by no means precluded Alessandrini's poultry from playing the same role.

The larvae found by Alessandrini and Schultz were something that had long been known in various hosts, and called Tetrathyridium, at first not being recognised as larvae of a

tapeworm at all, let alone this one. Another thing that puzzled earlier workers, once the relationship was realised, was that it was often found in dogs and cats themselves, loose in the abdominal cavities. It was surprising to find these larvae in dogs, which should normally be housing the adults, and various guesswork theories were propounded to explain how they could have got into the body-cavity in the first place, and how they could get back into the intestine and complete their life-history. Many workers tried to produce larvae in dogs by feeding them with eggs, but unsuccessfully.

I always had a number of worm-free kittens available. My own cat was very productive, good homes were not readily found, so rather than drown the surplus I took them to the office and kept them in vacant quarantine kennels, of which we had plenty, and gave them a closely scrutinised diet with little or no opportunity to pick up worm infections. When I found Tetrathyridia during routine post-mortems, I often fed them to one of the kittens. Whatever their source, they appeared to pass through the gut-wall and settle down in the kitten's body-cavity, where it was like putting them into cold storage. They could always be recovered when the cat was finally put to sleep. They did no harm. It was so common in Cyprus that to find a cat without infection was the exception, not the rule. I could always easily infect worm-free dogs with typical fully grown Mesocestoides, either by feeding them with Tetrathyridium originally found in cats, or with ones originally found in poultry and stored in kittens until a dog was ready.

The first real step in the solution of the life-history of this worm was when a Russian worker found that he could infect a species of oribatid mite, a member of the soil fauna, with Mesocestoides eggs, and obtained a minute cyst with a head that matched the adult. I don't remember whether he tried to infect dogs with these cysts, but this has never been done successfully, to my knowledge. My own guess at the life-history is that the mite is just the first intermediate host, and that a second is still needed - either an insect or other invertebrate, in which case the bird or rodent is merely a collecting host, or else the vertebrates are the second intermediate host, infected by swallowing the mites. I was never able to find any oribatid mites, so I could not do any experiments myself. Tetrathyridia in the body-cavity of the dog certainly pose a problem. In birds and rodents these vary from small cysts the size of a peppercorn to free tapered oval bodies up to three-quarters of an inch long. In dogs, and sometimes in cats, they may be elongated, and I have found them in dogs up to $17\frac{1}{2}$ inches long. These forms are not segmented like the adult worm, and have no reproductive organs. I would attribute their presence in the dog to the dog having swallowed a first intermediate host, when the parasite is not yet ready to grow into the adult, so it just has to grow into a tetrathyridium, and dog has to play second intermediate host instead. The tetrathyridium can only become adult if it is swallowed and reaches the intestine. But the biochemical environment in the

body-cavity must be sufficiently doggy to stimulate it to elongate, even if this cannot be done in the orthodox way; or in the right place.

When I left Cyprus with this problem unsolved, I hoped to be able to continue my observations in Nigeria. But in all my time there I only encountered Mesocestoides once, and that was in the small intestine of a leopard.

This point, with the collapse of my youthful dreams of being the one to find the final solution of the riddle of Mesocestoides life-history, is probably the time to draw to a conclusion, so I will just pull together a few threads of what has had to be a somewhat rambling discourse, with such a vast field to be skimmed over in one brief talk. The examples quoted underline the central fact of how easy it is for the immature stage of the parasite to be eaten by the wrong species of host, but instead of being killed in the process penetrate the gut wall and settle down elsewhere to wait for another opportunity.

When I said that it was not to the parasite's advantage to kill its host I was referring to the adult parasite, whose sole object in life is to pour out an endless stream of eggs and so multiply the chance of survival of its offspring. With larval stages on the other hand, it is to their advantage if the intermediate host is eaten. One of the dog tapeworms has a larva which forms a cyst in the brain of a sheep. By the time it has reached its full size, the pressure on the brain leads to incoordination of the muscles. The sheep moves round in circles instead of straight, and finally falls to the ground in convulsions. If the flock is chased by dogs, wolves, or other canine predators, affected sheep will be the first to fall out and be killed and eaten, and so the parasite continues.

But I think the prize goes to the larva of the lesser liver-fluke of the sheep, Dicrocoelium. Flukes, unsegmented flatworms distantly related to the tapeworms, invariably have snails as the first intermediate host. In some of them, like the common liver-fluke, the snail alone is sufficient. Others require a second intermediate host as well, and with Dicrocoelium, at least some species of it, this is an ant. The snail involved is a land-snail, and the infective stages of the parasite (known as cercariae) are extruded in numbers, enclosed in a ball of slime, on the plants over which it crawls. These slime-balls are greedily devoured by certain species of ant, and if these are accidentally swallowed by sheep, set up the final infection. Normally ants busy themselves about ground level, so run little chance of being eaten by the grazing sheep. When the ant eats the slime-ball the first cercaria swallowed migrates at once to its brain and encysts there. The rest of the cercariae pierce the gut wall and settle down in the body-cavity. The presence of the parasite in the brain completely alters the ant's behaviour pattern. When the temp-

erature falls in the evening, and all good little ants automatically return to the nest for the night, infected ants climb to the top of grass stalks, grasp the tip with their mandibles and remain hanging there all night. Here they are especially liable to be eaten by early grazing animals. Later in the morning, as the temperature rises, and worker ants come out of the nests and start foraging, then the infected ants relax their grasp of the grass, come down and get about their normal business. So when you consider the whole story of how the parasite alters the behaviour pattern of the ant, and leads it instead of seeking out the normal safety of the nest, to climb into a vulnerable position, and issue an open invitation to the first passing sheep to come and eat it, you will see what I meant when I said at the outset that any fool can be a predator, but that it requires real ingenuity to be a successful parasite.

Centenary Year in Retrospect

Centenary year was a happy and successful one for the Society. The full and varied programme of indoor meetings and field excursions drew good attendances and included two special events and two other high-lights briefly described below. We were particularly pleased to see four Honorary Members and ten past presidents at one or other of these gatherings, some of whom had travelled considerable distances to join us.

Ed.

Members' Evening, March 1981

The Members' Evening on 19th March took a slightly unusual form. Following the traditional showing of slides, including some covering the Society's excursions over the last ten years by Mr. and Mrs. Ward, slides of the hummingbird hawk-moth by Mrs. Notton, and slides of spiders taken by Alan Hodges, the coffee break was graced by the appearance (and rapid disappearance) of a centenary birthday cake in the shape of a butterfly surrounded by 100 candles. The exhibits took the form of a historical display of the Society's Minute books and books and collecting equipment used by our Victorian predecessors - including a top hat into which specimens could be pinned in the field - in addition to modern specimens of insects and bones.

H.H.C.

Natural History Society Dinner - 3rd April 1981

The Centenary was celebrated by a dinner, held at the Ship Hotel Upper Deck, and attended by over 50 members and friends, among them seven ex-presidents and one member of long ago who had travelled from Kent with his family to be with us. Good food, drink and company, in a spacious room mellowed with flowers and music combined to make a happy commemorative evening. Mrs Vada Housden's table decorations included such a variety of spring flowers that some botanising began in situ. After dinner, Mr Baker rose and introduced the guest speaker, Dr E.V. Watson, with a short amusing speech. Dr Watson put the last 100 years in perspective, honouring many naturalists of the Society from William Holland, entomologist and founder member, onwards. He stressed that, although there are no longer cycle excursions, nor projects like the "Study of Colemansmoor" yet there is continuity. Many associated with the Society many years ago are still playing their parts. There is a change of emphasis now towards conservation, but as people still enjoy sharing their findings, and wonder at the mysteries of Nature, so the Society is likely to continue to flourish. Mr Gambles thanked the speaker.

S.J.W.

The Fishlock Prize

The Fishlock Prize for 1980 was awarded to Emma Cox for general interest in Natural History.

The Barbecue

There was a field excursion on 20th June to Turville Hill where members were able to compare the vegetation of horse-grazed and ungrazed chalk grassland. In both plots, Fragrant, Pyramidal and Spotted orchids were in good flower, and both Ladies' Fingers and Horseshoe Vetch could be found. As the afternoon was dull, only a few Common Blues were seen, although Adonis Blues have been seen on this hillside. In the evening, the party moved to Bix Bottom where the warden showed us the interesting plants which have recently appeared round his house (Geranium versicolor, Myrrhis odorata and Salvia pratensis), and Lesser Butterfly and Fly orchids were seen in good flower. Some 25 persons attended a barbecue organised by Humphrey Bowen and skilfully cooked by Hugh Carter, and a few remained for a moth-trapping session after dusk had fallen.

J.H.M.B.

Centenary Quiz

To include a special centenary event in the programme of winter meetings, it was decided to stage a Members' Brains Trust. This was held on Thursday 29th October. The panel comprised Mr. Nigel Phillips, Warden of the BBONT Warburg Reserve; Mr. Martin Sell; Mr. Hugh Carter, and Dr. Humphrey Bowen, author of 'The Flora of Berkshire'. Members were requested to submit questions in advance, and the Chairman, Mr. Brian Baker, made a varied selection from the many received. Topics covered a wide spectrum, including hedge removal and stubble burning, the occurrence of DNA in animals of the lower orders, the technique that enables birds to locate fresh food supplies by sight, the provenance of a puzzling infestation of wasps (Vespula vulgaris) indoors through the summer, the pros and cons of producing a key to flowers using scent as a character, and the ethical problem of whether or not to control a rare lily-eating beetle. The panel rose to the occasion to give their opinions on all these. There was, also, a certain amount of audience participation. In all - a memorable event.

S.Y.T.

Muntjac Deer wild in Britain

K. V. Pritchard

Of the six species of muntjac deer originally confined to south and south eastern Asia, two, the Chinese and the Indian muntjacs have been kept in parks and zoos in western Europe. The Chinese muntjac, Muntiacus reevesi, is now thriving in a feral state in Britain but actually originates from a main form that is indigenous to the subtropical forests of southern China. This species was brought into the Duke of Bedford's Woburn estate in the 1890's and the Indian species, Muntiacus muntjak, was similarly introduced a few years later. Since then small numbers of both of these animals have escaped into the surrounding countryside, mostly at the time when the larger parks were requisitioned during the second world war. Both species have bred ferally as a result, and it has been suggested that interbreeding has occurred between them. This could explain the more varied pelages that have been described. More recently however, since the very severe winter of 1962/63, there have been very few, if any, confirmed reports of the Indian muntjac as a pure species living wild in Britain. Positive identification of either species can only really be made on a dead or captured animal owing to their general similarity. While the Chinese muntjac appears to be hardier than the Indian, it now seems that our winter climate could well be the crucial factor limiting wild populations of these deer in Britain. A classic example of how the animals can be affected was shown during the very severe winter of 1947 when 70 muntjac were found dead in Hazelborough Forest. Despite this the Chinese muntjac has increased its numbers to such an extent that it can now be considered fairly common in many English counties. In spite of the difficulty of discerning the exact range here, because of the problems encountered when trying to locate and observe the animals, we know from sight records alone that from Bedfordshire it has spread north to Derbyshire, south to Hampshire, to East Anglia, and as far west as Breconshire. Recent reports suggest that it may even be present on Anglesey.

The Chinese muntjac is, excepting the similarly imported Chinese water deer, Hydropotes inermis, the smallest of our deer; its height at the shoulders rarely exceeds 45cm. The colouration of the upper parts is generally dark reddish brown, and the under parts are paler. The doe is often greyer than the male, or buck, who attains an orange red tinge to his face and chest in summer pelage which is developed by May and moulted out by October. The tail of both species is fairly long with a bushy tip, ginger above and distinctly white below. As in most other deer, only the buck develops antlers, and in the case of this species they are rarely longer than 10cm. In addition he also grows elongated upper canine teeth which when fully developed are distinctly curved and tusk-like. It has been said that they are used for fighting rival males. The antlers remain simple, being borne on long hairy pedicles that shorten with age. Only two spikes are present, these taking the form of a simple brow tine and terminal spike.

The brow tine will only be present on the antlers of fully mature animals. The pedicles of these antlers extend forwards meeting ridges on the face bordered lengthways with dark lines of hair. Beneath this hair the facial scent glands are situated. The general appearance of the buck's face has often been described as ugly and the alternative name of 'ridge-faced deer' is somewhat appropriate. In place of the buck's pedicles the doe has tufts of dark hair. In the British winter, both sexes grow a longer, shaggier greyer brown coat. The first coat of the fawn is dark brown with paler spots on the flanks but within two months of birth the adult pelage is assumed.

To study the breeding habits of the muntjac wild in Britain must surely be one of the greatest challenges facing our field naturalists. Practically all the observations that have been made were on captive animals. Muntjac will actually breed throughout the year here, although the main season is generally accepted to be from October to March, and it is at this time that a pair are most likely to be seen together. I have however seen adult pairs together until the end of May. At the beginning of the season the buck will attract a doe by marking vegetation along his regular runs with scent from his frontal and suborbital facial glands. Small trees present at these localities at this time will often show signs of fraying. The fraying of dock plants has also been recorded. During this time bucks have often been heard to utter low growling noises, frequently described as 'clicking'; it is believed by many that this sound is produced by rapid rhythmic expulsions of breath. The single, rarely twin, fawns are most often born in late summer and follow the doe closely to heel when she moves to feed. Needless to say she becomes extra suspicious and timid at this time of the year, carefully sniffing the ground even more than usual wherever she goes.

Owing to the distinctive nature of its call, the muntjac is often known as the 'barking deer'. The call can be likened to the yelp of a small dog, and because of the regular interval between the individual barks, it is easily identified when heard. Muntjac are most vocal in southern England from May through to July. During this time of the year animals are mostly heard calling late at night from about ten o'clock onwards into the early hours of the morning. Calling is most frequent on warm, still, dry nights. The repertoire consists of three to six individual yelps in succession followed by a pause for about a minute before the barks are continued as before. A single animal will continue this for half-an-hour or longer and can often be heard to move around a certain area as it does so. The animals concerned are probably territory-holding bucks. Like the call of the fox, the muntjac's yelp would seem to be somewhat ventriloquial. When disturbed in the open, a muntjac will bound away into the nearest cover with its tail held vertically upright, displaying the white underside. Whilst doing this, it will often give several short sharp yelps.

One animal that I disturbed after dark continued to do this for a short while after it had reached the cover of a dense bramble patch, foretelling my presence to any other deer nearby.

Muntjac in their native lands are solely forest deer, never venturing into the open or leaving the edge of the tree line where they feed. In Britain, in wintertime especially, they spend the greater part of the day lying up in woodland, relying on the dense cover of the brambles, bracken, or low tangled shrubs to conceal them as they rest. Sometimes however, surprisingly for such a shy animal, they will venture into large suburban gardens close to human habitation. Generally though, because of their largely crepuscular and nocturnal habits, muntjac are probably the most overlooked of the larger mammals wild in Britain today. They are notoriously difficult to observe and in many areas their presence will go completely undetected.

Apart from their call, the second most obvious sign of muntjac's presence is the tracks or 'slots'. These are differentiated from those of all our other deer by their odd cleave length and small size. The longer cleave on any foot will normally leave a slot of under 3 centimetres in firm mud. Tracks of this kind can be found wherever the 'badger-like' paths or runs break cover. One path that I followed ran directly alongside a hedge where no other cover was available. Some others have led along the bottoms of dry ditches, and most inevitably end by entering a bramble thicket or similar dense vegetation. Some of the areas that border these lying up places have included; young fir plantations, rough grassy fields, and other fields that yield cereal crops in summer. It seems likely that these are the principal feeding sites of the deer for most of the year.

Very few people, it seems, have actually watched wild muntjac feeding in Britain for any length of time. Reports that have been made suggest that they both browse and graze, and whilst doing so are always extremely alert. With the slightest sound, movement, or scent of a human within a long range, the muntjac will bolt for cover. Despite this I have watched a pair of adult muntjac continue feeding completely indifferent to a family of foxes close by.

From notes taken, it appears that muntjac will feed on a wide variety of things here, including grass, leaves of herbs and shrubs, mushrooms, bark, and low-growing berries. From the undigested stomach contents of dead animals, it has been established that they will also take acorns, crab apples, and both sweet and horse chestnuts. In view of the animal's largely solitary nature, it causes negligible damage to either cereal crops or young fir trees. In country gardens, however, muntjac can sometimes make a nuisance of themselves. In Berkshire a buck was shot for damaging rose bushes and destroying camellias. They are also said to have partially eaten strawberry plants.

This then is the muntjac, probably the most fascinating and elusive of the deer commonly wild in Britain today.

Some observations on the behaviour and breeding
of the British newts

P. R. Cox

After several years of observing freshwater life in general and establishing two small but successful garden ponds, I became particularly interested in newts. We had introduced the smooth newt, Triturus vulgaris, as a small tadpole, and many emerged in the autumn to overwinter on land. But it was a visit to the large pond at Burghfield Common which really fired my enthusiasm. It was a cold, bright day in early March 1981 when the whole water surface seemed to heave with the weight of writhing toads, Bufo bufo, clutched in amplexus. Some unfortunate females were practically submerged by clusters of up to six males, violently kicking off rivals. The whole scene was so engrossing that had we not made several sweeps of the net we might have missed the palmate newt, T. helveticus. Several 'odd'-looking newts appeared - slim, about 7/9 cm long with extraordinary tails and feet. The hind feet of the males were webbed, unlike those of the smooth newt, and black, resembling frogmen's flippers. The tail was clubbed and ended in a fine filament, unlike the tapered appendage of the smooth newt. The female was fatter with less spotted markings; and lacked the marked dorsal ridges of the male, which gave it a triangular appearance. Both had amber eyes, with a black pupil which coincided with an eye-stripe on the skin.

I thought it would be instructive to observe their breeding cycle and so 'borrowed' two pairs to install in a large aquarium specifically arranged for their comfort with Daphnia, Cyclops and other small organisms thriving in the water, which was well oxygenated with weed. They were fed with Tubifex worms and chopped up earthworms - a favourite delicacy.

They were introduced on the 16th March 1981, and display behaviour was in progress within hours and continued day and night. The male approached the female from the front, bending his tail back parallel to his curved body and flicking it rapidly. Often the female ignored his advances and turned away or floated gently up or down. But if she remained still, the male would continue fanning and then move rapidly in to nuzzle her cloacal region for several minutes whilst performing fanning movements with his front feet. Fertilization occurs without amplexus, but it is internal. In all the British newt species the male deposits a tiny 'packet' of sperm on the gravel, having first established that the female is ready by her response to his advances. She then follows him from behind, pressing her belly to the gravel and collecting the packet in her cloaca. The sperm travel from here to a receptacle, the spermatheca, where they are stored until required. This behaviour was only observed once, but the display continued for another month.

Egg-laying was first observed on the evening of the 17th March. The female was hunched in a strange position, scrabbling at the water weed with her hind feet. The cloacal region was swollen and whitish in colour, obviously different from the male's which was black. She clutched a leaf on either side with her hind feet and bent it forward towards the centre of her body. The egg, white, glistening and the size of a pinhead was extruded and appeared to adhere to the bent leaf. The female then moved away and the operation was complete. She spent a lot of time 'examining' leaves, although it was difficult to establish her criteria of suitability. She would lay on a dead stick exposed to predators, yet bury an egg under four curved leaves. Incidentally the bent leaves often sprang open and the eggs were fairly obvious to the naked eye. However, as each female can lay up to 450, nature is evidently compensating for possible losses.

As well as breeding activities, I was able to watch the adult newts shedding their skins - a fascinating procedure. The front legs were rubbed over the muzzle and the body deliberately scraped over vegetation whilst turning slowly. Soon the transparent skin was seen, loosely hanging around the neck. Violent contortions ensued during which the old skin was brushed on weeds and slipped backwards by limb movements. As it hung towards the tail, the hind limbs rubbed gently until the whole thing floated quietly off and was discarded. It hung like a ghost newt - transparent and perfectly formed.

Displaying and egg-laying continued until early April when the males particularly tried persistently to climb out of the tank. So on the 11th April they were returned to Burghfield pond and the eggs placed in a small aquarium to hatch.

A visit to Sulham ponds to observe the thriving colony of T. vulgaris provided the next subject for study. We were amazed to find five magnificent great crested or warty newts, Triturus cristatus. These appeared huge after the dainty palmates. The male was $13\frac{1}{2}$ cm long and the female 12 cm. As in the other species the female was more subdued in colouring and lacked the obvious breeding dress of her partner. Both were almost black with a rough, warty skin. The underside of the male was vivid orange, irregularly marked with black blotches, and there were white spots on sides of head and flanks. The head and body were longer than the tail, which had a white stripe in the middle and a large crest. Most dramatic of all was the enormous, denticulated crest of the male giving him the appearance of a miniature prehistoric monster.

We introduced a pair, plus two smooth newts into the now empty tank. The smooth newts, although less flamboyant, were attractive creatures with proportionally longer tails, olive backs and bellies spotted orange and yellow. The male had a silvery tail stripe and an undulating crest. Both species settled down immediately, enjoying nothing better than a severed earthworm which they approached with alacrity. T. cristatus would attack prey of any size and occasionally both would attack the same unfortunate worm from opposite ends, resulting in a lengthy tug of war.

Sometimes a newt would get the centre of a worm in its mouth, and two ends were left hanging out to attract the others. However, several large gulps solved the problem. It was obvious that movement attracted the newts, as by shaking the tweezers holding the worm, their attention could be alerted. Also, scent would appear important as cut earthworm was more readily found than whole.

The breeding display behaviour was basically similar in all three species, with a few minor differences. The male T. cristatus approached the female from the front, arching his back violently with his tail moving from side to midline, unlike the parallel movements of T. helveticus. Positioned like this, his legs spread wide apart, he would remain for about three minutes, blocking her forward progress. If his efforts produced no response from his mate, he emitted a stream of bubbles and swam leisurely off. However, if she remained he would arch his back even more grotesquely and come along parallel to the female and stroke her back with his gently undulating tail. All the time he would produce 'shivering' movements with his crest.

The smooth newt, closely related to the palmate, has similar behaviour except that the tail movements of the male are confined to the area behind the hind legs, whilst the palmate curves the body and moves the tail parallel.

Egg-laying was observed in both T. vulgaris and T. cristatus. The female smooth often laid her eggs with her belly uppermost, grasping the weed with her hind feet and humping her body to place the leaf correctly. Otherwise, her behaviour was much like that of the palmate. The female great crested was seen laying a few eggs in a similar fashion.

After egg-laying had ceased - in early May for T. vulgaris and June for T. cristatus - they were returned to their pond. Meanwhile on 6th May the first two tadpoles emerged in the aquarium, to be followed over the next few weeks by many more. These tiny creatures hung in the weed at first, but within a week were moving rapidly around. They kept well supplied with Daphnia and grew fast, but it was impossible to distinguish the species. However, by July the great crested tadpoles were considerably larger, although development was somewhat behind that of the others which were losing their external gills. At this stage, they were placed in the outside pool where observation was continued. The first miniature adults emerged to shelter under stones on 29th July.

Newts normally hibernate on land and creep into holes in logs or walls in October or November. Those which have not metamorphosed can overwinter in the water and complete development the following year. They have not the directional sense of toads and wander haphazardly if placed too far from water.

Although I have not had time to study in detail the ponds in the Reading area, several interesting facts on populations have emerged. T. vulgaris is most common, occurring in most suitable natural locations and garden ponds. T. cristatus was found in only two sites, both deep and on alkaline soil, and in association with larger numbers of T. vulgaris. T. helveticus has been found at only one site, an acid heath pond which would accord with the description of this as a 'montane' species. It would be interesting to know if pH is important or whether other ecological requirements determine distribution.

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The Tree and the Soil

H. H. Carter

In 1978-79, the Berkshire, Buckinghamshire and Oxfordshire Naturalists' Trust (BBONT) with the help of the Nature Conservancy Council (NCC) carried out a survey of natural history sites within the Trust's area (Bellamy, Reading Naturalist no. 32 p.4). The majority of the sites surveyed in detail were woodland. Copies of the data sheets relating to Berkshire and parts of Oxfordshire were made available to the Berkshire Biological Record Centre in Reading Museum. Here they were correlated with data on soils and geology which at present are available for only part of the Trust area. To make the coverage more complete, further survey work was done in some Oxfordshire woods which were either omitted from the detailed BBONT survey as being insufficiently interesting, or were situated on a variety of soil types not differentiated in the survey, so that tree numbers could not be correlated with soil type from the data to hand. In the BBONT survey it was not found practicable to assess the abundance of any but the woody plants, so these alone form the basis of the following analysis, in which 62 species are included. Some of these are very uncommon in our area. A few others are omitted because more often than not they are planted and it was not always possible to distinguish between natural and artificial occurrences. The Soil Survey has recognised 41 different soils in the Reading area, of which 16 supported surveyed woods. These were sorted in various ways to find the closest possible correlation with the plant distribution, and the most satisfactory arrangement proved to be to group them in accordance with a range of familiar everyday soil types as shown in the tabulation on pages 24 to 27. . It was found desirable to separate the clay soils into sandy and heavy clays, but the gravels (which could have been subdivided in a similar way) had so much in common with each other that they were left as a single grouping. The soil of the Colthrop series, described as 'marl', is unique in being both strongly calcareous and very wet. It occupies a small area in the Kennet valley and only one surveyed wood occurs on it, but I felt I must include it in the analysis because so many plants generally thought of as lime-loving are really only drought-loving (or drought-resistant). At the opposite end of the range the same applies to the peat of the Sulham series with only two woods. With such small samples, many trees are missing purely by chance, but the presence of other species on either or both of these two extreme soil types is good evidence of their range of tolerance.

Characteristics of the soil groups.

Peat (Sulham series). A very wet soil consisting of clay mixed with undecomposed organic plant remains, rather acid but not nearly so much so as typical bog peats, and acidicolous species are missing.

Sand (Shedfield series). Light dry soils containing a little clay mixed with the sand and capable of cultivation, but strongly acid, well-drained and liable to form iron-pan. Of 10 woods on this soil, only two exhibited dominant species (one birch, one hazel; one would expect pine, but this species was excluded from the analysis because it is so often planted). This lack of dominance shows up on other poor soils where tree growth is slow and the more usual dominants fail to develop a canopy.

Gravel (Southampton, St. Albans and Berkhamstead series). These soils contain a high proportion of flint pebbles, up to 50% of their total volume, set in a matrix which may be sandy or clayey. They vary in moisture content and acidity, but when under woodland are always more acid than otherwise. All the woods on gravel had a dominant species, beech, holly and silver birch being the most common; when holly is dominant it forms an understory, birch is a colonist and in time would most likely be supplanted by some more long-lived species. Spring Wood in Peppard was clear-felled in 1922 when it was a pure beech hanger, colonised by birch, and now has birch and beech co-dominant.

Sandy Clay (Bursledon, Curdrige and Wickham series). Always acid when under woodland, mostly poorly drained. Each of the 8 woods on soil of this group has a dominant species, but a different one in each case! Here the oak and ash to be expected on clay vie with the typical dominants of acid soils such as holly and the two birches.

Heavy Clay (Swanmore, Windsor and Woolhampton series). These clays are invariably wet, but only slightly acid. They tend to support mixed woodland. Oak, ash, hazel, hawthorn and cherry are to be found in nearly all of them. Each of these species occurs in at least 16 out of the 19 surveyed woods on these soils. Other species present in more than half such woods are beech, downy birch, blackthorn, holly, goat willow, dogwood and elder. Oak, ash and cherry are the most usual dominant species, but more than a third of these woods are so mixed that no dominant species emerges - our closest approach in this area to tropical rain forest! Perhaps in time oak or ash would come to dominate all of them if left undisturbed.

Clay with Flints (Charity, Wallop and Winchester series). Despite their clay content these soils are always dry. They are very stony clays thinly spread over a chalk subsoil, neutral or acid in the top few inches but calcareous below, so that seedlings of calcicole species, if they can survive the critical first year or two on the acid surface, or have the good fortune to establish themselves on a patch of chalk exposed by the falling of a beech tree or the digging of a pit or burrow, can then send their roots down to find conditions to their liking. Here oak is always common but never dominant; beech is the characteristic dominant species in 8 out of 17 woods, hazel and holly coming next with 3 woods each.

Typical calcicole species which flourish on clay with flints are traveller's joy, spurge-laurel, privet, buckthorn, whitebeam, yew and wayfaring-tree. Species present on chalk but missing on clay with flints are juniper, small-leaved and large-leaved lime, and sweet briar.

Chalk (Coombe and Icknield series). These dry, thin, strongly calcareous soils tend to carry open scrub rather than true woodland. Out of 15 woods 2 are dominated by beech, 2 more by hawthorn and hazel respectively, and the rest have no dominant species. Oak is common in 7 woods but nowhere dominant, and ash, beech, maple and sycamore are common in 3 woods each (in addition to the two where beech is dominant). The remaining species are shrubs or at best small trees. This applies to all the typical calcicoles already mentioned with the exception of yew, which is capable of forming pure stands on chalk. The yew woods of Watlington Hill lie outside the area of mapped soils and therefore could not be included here.

Species Groups.

The composition of these groups is arbitrary in that many species might with equal justice be included in more than one group. On the whole I have tried to let my choice be guided more by distribution (the number of woods in which the species grows) than by abundance. A plant's preference for one or another soil type is a matter of degree, and often an odd specimen or two may be recorded as present or occasional in a habitat not considered typical for the species. Some of these occurrences may be due to the soil's not being entirely homogeneous, so that for example a gravel may contain a pocket of almost pure sand or clay. Others may perhaps result from the interaction of different soil factors, so that the influence of high acidity might be counteracted by high water content or by particularly favourable conditions of light or warmth. Most are probably caused by the fact that few soil factors are 100% effective, so that one set of conditions will permit 90% of seedlings to germinate and the contrary set only 10%, of which one might survive to maturity.

Plants preferring acid soils. Silver birch, holly and cherry laurel show only a moderate degree of preference. Cherry laurel indeed is absent from the most strongly acid soils. Bilberry seems to be particularly favoured in this district by sandy soils. The heathers, sessile oak and dwarf gorse are confined to areas of high acidity and apparently prefer gravel to sand.

Plants preferring chalky soils. Juniper and sweet briar are obviously so exacting in their requirements that they are scarce even in an area so well provided with chalk as ours. The two 'wild' limes are also very scarce, and their apparent predilection for chalk may be accidental as their distribution in Bowen's Flora of Berkshire by no means coincides with that of the chalk. Buckthorn also grows on clay with flints though less commonly. Spurge laurel, spindle and dewberry are less selective. My impression is that most of this group are refugee species which survive on the chalk because

competition there is less intense than elsewhere.

Plants preferring clay soils. This is a rather ill-defined group, none of whose members is strictly confined to clay. Alder buckthorn and black currant appear to be so but probably only by reason of their scarcity. The rest have been selected because they appear with greater frequency or exert a greater degree of dominance on clay than elsewhere. The reasons for their preference are equally ill-defined. Some species are attracted by the high water content and might almost as well be placed in the sixth group. Oak and downy birch are the most obvious of these. The remaining species tolerate a wide range of water content and pH but presumably enjoy a high level of nutrients.

Plants avoiding acid soils. This group is separable from the last only by the frequency with which its members appear on the chalk. Whitebeam, dogwood and wayfaring tree avoid acid soils with such eagerness that they are often thought of as calcicole. Cherry and guelder-rose on the other hand tolerate quite a high degree of acidity and would have been placed in the previous group if they had not shown themselves even more at home at the opposite end of the pH range.

Plants preferring dry soils. As already mentioned, several of these are generally considered calcicole, i.e. traveller's joy, privet and yew, and even beech though this tree does best when separated from the chalk subsoil by a layer of gravel or clay with flints. The group as a whole is distinguished by the occurrence of its members with equal frequency on chalk and clay with flints, and in the case of the more acid-tolerant species on gravels or even sands, but less commonly on the clays. There is no record of cherry plum from the chalk, but this species outside the flowering season (which is very early in the year, around the end of March) is difficult to distinguish from blackthorn and was, I believe, under-recorded in consequence by the BBONT surveyors.

Plants preferring wet soils. Alder and crack willow require very wet soils (though planted alders will grow well in drier situations, their seeds cannot germinate there), grey poplar, field rose and rhododendron are less exacting. Rhododendron is often thought of as acid-loving, but though it is notoriously sensitive to lime, it will grow happily on neutral soils if they are damp and dislikes conditions of extreme acidity.

Plants preferring poor soils. Like the fifth group, these plants prefer gravel and chalk, sometimes also clay with flints, to the wetter clays, but differ from them in tolerating wet conditions, None of the three is really quite convincing or meets all the conditions for inclusion in the group, but they are equally hard to fit in elsewhere. Gorse is extraordinary for the way in which it flourishes on the most acid soils and yet manages to grow in profusion on the thinnest and driest chalk soils, scorning the deeper and moister ones.

<u>Soil names as used by the Soil Survey</u>	Peat	Sand	Gravel
	(2 woods)	(10 woods)	(16 woods)
	Sulham series	Shedfield series	Southampton St. Albans and Berkhamstead series
	d c o p	d c o p	d c o p
<u>Plants preferring acid soils</u>			
Betula pendula - Silver Birch	1 2 3 .	2 4 5 .
Calluna vulgaris - Heather 1 .	1 1 3 1
Erica cinerea - Bell Heather 1 1
E.tetralix - Cross-leaved Heath 1 1
Ilex aquifolium - Holly	. . . 1	. . 2 2	3 3 3 3
Prunus laurocerasus - Cherry Laurel 3 3
Quercus petraea - Sessile Oak 1 .	. . 1 1
Ulex minor - Dwarf Gorse 1 .
Vaccinium myrtillus - Bilberry 1 . 1	. . . .
<u>Plants preferring chalky soils</u>			
Daphne laureola - Spurge-laurel
Euonymus europaeus - Spindle 1
Juniperus communis - Juniper
Rhamnus catharticus - Buckthorn
Rosa rubiginosa - Sweet Briar
Rubus caesius - Dewberry
Tilia cordata - Small-leaved Lime
T.platyphyllos - Large-leaved Lime
<u>Plants preferring clay soils</u>			
Betula pubescens - Downy Birch	. . 1 .	. 1 2 1	. 2 1 .
Carpinus betulus - Hornbeam	. . . 1	. . . .	. . 1 .
Frangula alnus - Alder Buckthorn
Populus tremula - Aspen 1 .	. . 1 .
Quercus robur - Pedunculate Oak	. . 2 .	. 2 5 .	1 9 6 .
Ribes nigrum - Black Currant
R.sylvestre - Red Currant 1 . .	. . . 1
Salix cinerea - Grey Willow	. . . 1	. . 2 .	. . . .
Sorbus aucuparia - Rowan 2 .	. . 2 2

Key: d = dominant
c = common
o = occasional
p = present (in very small numbers, often only one)

The figures denote the number of woods in which each plant has the status indicated. Thus of the 16 surveyed woods on gravel soils, Silver Birch is dominant in 2, common in 4, occasional in 5 (and not recorded from the remaining 5.)

	Peat (2 woods)	Sand (10 woods)	Gravel (16 woods)
	d c o p	d c o p	d c o p
<u>Plants avoiding acid soils</u>			
Prunus avium - Wild Cherry	. . . .	. . 1 .	. 1 9 2
Salix caprea - Goat Willow	. . . .	. . 2 .	. 1 1 2
Sambucus nigra - Elder	. . 1 1	. . 3 1	. 4 8 .
Sorbus aria - Common Whitebeam	. . . .	. . . .	. . . 2
Thelycrania sanguinea - Dogwood	. . . .	. . . 1	. . 1 1
Ulmus procera - English Elm	. . . .	. . . 1	. . 4 2
Viburnum lantana - Wayfaring-tree	. . . .	. . . .	. . . 1
V. opulus - Guelder-rose	. . 1 .	. . 1 .	. . . 1
<u>Plants preferring dry soils</u>			
Acer campestre - Field Maple	. . . .	. . 2 .	. 2 7 .
Castanea sativa - Sweet Chestnut	. . . .	. . . 1	. . 2 1
Clematis vitalba - Traveller's Joy	. . . .	. . . .	. . 2 .
Crataegus monogyna - Hawthorn	. . 2 .	. 1 3 .	1 2 10 1
Fagus sylvatica - Beech	. . . .	. . 3 .	4 4 1 2
Ligustrum vulgare - Wild Privet	. . . .	. . . 1	. . 1 1
Prunus cerasifera - Cherry Plum	. . . .	. . . .	. . 1 1
Sarothamnus scoparius - Broom	. . . .	. . . .	. . 3 1
Taxus baccata - Yew	. . . .	. . . .	. . 3 3
<u>Plants preferring wet soils</u>			
Alnus glutinosa - Alder	. . 2 .	. . . .	. . 1 .
Populus canescens - Grey Poplar	. . . .	. . . 1	. 1 . .
Rhododendron ponticum - rhododendron	. . . 1	. . . .	. . . .
Rosa arvensis - Field Rose	. . . 1	. . . .	. 1 1 .
Salix fragilis - Crack Willow	. . 1 1	. . . .	. . . .
<u>Plants preferring poor soils</u>			
Prunus spinosa - Blackthorn	. . . 1	. . 2 .	1 . 3 1
Ribes uva-crispa - Gooseberry	. . . 1	. . . .	. . 3 3
Ulex europaeus - Gorse	. . . .	. 1 3 2	. 3 2 2
<u>Plants showing no preference</u>			
Acer pseudoplatanus - Sycamore	. . 1 .	. . 2 .	. 2 7 .
Corylus avellana - Hazel	. 2 . .	1 1 2 1	1 5 6 .
Fraxinus excelsior - Ash	. . . 1	. . 4 .	. 4 8 1
Hedera helix - Ivy	. 1 . 1	. 1 6 .	1 3 4 .
Lonicera periclymenum - Honeysuckle	. . . .	. . 5 .	1 2 6 2
Malus sylvestris - Crab Apple	. . . .	. . 1 1	. . . 3
Rosa canina - Dog Rose	. . 1 1	. . 2 1	. 2 9 3
Rubus idaeus - Raspberry	. . 1 .	. . . .	. . 5 .

Sandy Clay
(8 woods)

Heavy Clay
(19 woods)

Clay with Flints
(17 woods)

Chalk
(15 woods)

Marl
(1 wood)

d c o p

d c o p

d c o p

d c o p

d c o p

1 . 4 .
. . 3 1
. 1 5 1
. . . .
. 1 1 1
. . 1 .
. . . .
. . 3 1

2 3 9 2
. 2 6 3
. 2 6 7
. . . .
. 1 7 3
. 1 3 3
. . 2 3
. 1 3 .

. . 10 2
1 . 5 .
. 9 8 .
. . 2 2
. . 7 2
. 1 6 1
. . 2 3
. . 1 .

. . 4 1
. . 3 1
. 3 9 1
. . 3 2
. 1 8 0
. 1 3 2
. . 6 1
. . 3 1

. . . .
. . . .
. . 1 .
. . . .
. . 1 .
. . . .
. . . .
. . . .

. . 3 2
1 . 1 1
. . . .
. 1 5 1
1 1 2 .
. . . .
. . . .
. . . 1
. . . .

. . 9 3
. . 2 5
. . . 1
. 4 9 5
1 1 6 3
. 1 . .
. . . .
. . . 1
. . . 3

. 4 7 3
. . 1 .
. 2 4 .
. 5 7 .
8 2 1 2
. . 5 .
. . 1 .
. . 2 .
. 1 5 2

. 3 5 1
. . 1 1
. . 4 1
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Plants showing no preference. This is really a misnomer as most plants of this group show some degree of preference. Hazel is a difficult case. Obviously it is not choosy, but its status in any wood may be the result of planting and management. Many, perhaps the majority of woodland hazels are evidently outgrown coppice stools. Sycamore and ash obviously enjoy clay soils, but every gardener knows how readily their seeds will germinate and make strong growth no matter where they fall. For some reason this group has more than its fair share of the scramblers and climbers, and bramble would have been included also but for being taxonomically impossible; with so many microspecies, who could tell what the soil preferences of each might be?

Agaricus around Reading, 1981

P. Andrews

Field mushrooms (Agaricus campestris) and horse mushrooms (A. arvensis) grew in unusual abundance in the autumn of 1976, following the hot dry summer and subsequent heavy rains. This year, a long dry spell again inhibited the growth of fungi until rain came in September, and I wondered if there would be an abundance of Agaricus again. In the event, field mushrooms were as difficult to find locally in 1981 as in most years, but the autumn was remarkable for the diversity of Agaricus species that appeared, including several of exceptional interest.

In his classification of Agaricus, Møller (1950, 1952) divided the genus into two sections: Rubrescentes, in which the species have flesh which turns red to a greater or lesser extent when broken, and a smell which is described as acidulous; and Flavescentes, in which the species have a cap cuticle which turns yellow to a greater or lesser extent when touched, and a smell like almonds, except for species of the xanthodermys group which smell of ink or faintly of carbolic. Division of the sections into groups of species is based mainly on the size and shape of the cystidia and spores. Identification of the species is based on macroscopic and microscopic characters, and on habitat, with reference to a detailed description of the fruiting body and an authentic illustration. However, Agaricus is regarded as a difficult genus, colour changes are not always obtained and some species are rather alike, especially those with brown scaly caps.

The following species were identified this year; a brief description is given where the information is not available in

the general fungus literature.

RUBESCENTES

A. bitorquis group

A. bisporus On a straw-heap near Mapledurham (7.11.81). This species was much in evidence in the autumn of 1976, growing in bare soil at roadsides, but not since.

A. bitorquis On bare soil at roadside, Earley (7.10.81) and Bramshill (25.10.81).

A. ingratus Several large to very large specimens under yew in bare soil, amongst ivy, at the roadside, Farley Hill (19.10.81). They had white, thick-fleshed caps, rather smooth and silky at the centre, but broken into thin scales nearer the margin. The microscopic characters fitted both A. bernardii and A. ingratus, which are indistinguishable in this respect, but A. bernardii has a cap covered with coarse, thick scales and grows in grass, whereas A. ingratus has a smoother cap and grows in bare ground under trees. The specimens found were therefore identified as A. ingratus, a species not in the Check List (Dennis, Orton & Hora, 1960).

A. silvaticus group

A. fuscofibrillosus Three specimens in Shinfield Churchyard (30.9.81). They had brown, densely fibrillose caps, 4 cm in diameter, slender stems without a bulbous base, and reddening flesh.

A. haemorrhoidarius Several specimens on the roadside under oak at Farley Hill (10.10.81, also 1980) and in Whiteknights under hornbeam (7.11.81, also 1976). The flesh of fresh young specimens turns bright blood-red almost immediately when broken, a rather startling reaction when first observed.

A. silvaticus A specimen which fitted the description of A. silvaticus, both as regards macroscopic and microscopic characters, except that the flesh showed only slight signs of reddening, was found under deciduous trees on a roadside verge near Shinfield (14.10.81). Although A. silvaticus is usually described as growing under pines and having reddening flesh, at least in fresh specimens, some Continental literature indicates that it also occurs under deciduous trees in a non-reddening form. The Shinfield specimen may therefore be this form. I found A. silvaticus with strongly reddening flesh growing under Scots pine at Heckfield Heath in 1980, but not this year.

A. variegans Two groups, containing about a dozen specimens, in grass alongside a farm road at Shinfield. This species has a brown scaly cap, flesh which shows little tendency to redden, and an unpleasant smell reminiscent of Lepiota cristata.

A. bresadolianus group

A. bresadolianus Several specimens on a roadside verge near Theale (9.10.81) and near the road at North End, Newbury (11.10.81). The first British record for this species is in 1969, when it was found on a lawn at Kingston Bagpuize by Mr. G. McLean. It has occurred there several times since, including this year. Finding it now at two other places in the county is remarkable. It would be interesting to know the origin of the material photographed by Phillips (1981), who rightly describes it as very rare.

A. campestris group

A. campestris A few specimens, in meadows and on lawns in the Shinfield area during October.

FLAVESCENTES

A. augustus group

A. augustus In a hedge-bank in Earley (16.10.81), near Ball Hill, Newbury (19.10.81) and at Shinfield (27.10.81).

A. arvensis group

A. abruptibulbus A specimen very similar to A. silvicola, but with an abruptly marginate bulb and spores larger than is usual for A. silvicola, was found near Bramshill (25.10.81). These characters indicate that it was A. abruptibulbus, if the latter is regarded as distinct from A. silvicola.

A. arvensis Appeared at intervals during the autumn in meadows near Shinfield and elsewhere. A specimen found in a hedge bank near Shinfield very late in the season (16.11.81) had the cap cuticle entirely broken into small, adpressed white scales. This may be the commonest Agaricus species around Reading.

A. silvicola In woodland, Ipsden Heath (Reading Natural History Society foray, 10.10.81).

A. xanthodermus group

A. phaeolepidotus Several specimens on a roadside verge at Wash Common, Newbury. This species is rather similar in appearance to A. silvaticus but it has a smooth stem and the cap cuticle yellows when rubbed.

A. xanthodermus Growing in quantity in private grounds, Farley Hill (4.11.81). A few also appeared at intervals in Shinfield Churchyard. My observations suggest that this species occurs in two different forms, but I need to examine more material. I think one form has a thick-fleshed, solid-looking cap as in A. arvensis, and the diameter of the expanded cap exceeds the length of the stem, whereas the other form has a smaller cap

relative to the length of the stem, with thinner flesh, and it somewhat resembles a long-stemmed A. campestris. The two forms may grow in different habitats.

A. macrosporus group

A. macrosporus On a roadside verge near Tadley (12.10.81), on a lawn at Wash Common, Newbury (12.10.81) and in a meadow near Ball Hill, Newbury (19.10.81). This species is normally white, yellowing with age, but the specimens found at Wash Common were yellow even though the caps were still expanding.

A. semotus group

A. comtulus In grass near Shinfield (31.10.81).

A. lutosus Three specimens (cap diameters 3-4 cm) near Shinfield (30.9.81), in turf laid less than six months before. This pale cream-coloured species has small, faint yellowish brown scales on the cap and a stem which tapers towards the base. Both cap and stem discolour on handling.

A. porphyrizon Several specimens (cap diameters 5-8 cm) under oak on a roadside bank, Shinfield (23.11.81). This species has a cap which is dark brown at the centre and whitish towards the margin, with the whitish area sparsely covered with purplish-brown scales and fibrils. The pale, clavate stem discolours to dark brown after being handled. The large floppy ring is floccose beneath, as is the stem just below the ring. The smell is unpleasant.

A. sagatus One specimen on a roadside verge at Farley Hill (23.10.81). The authors of the Check List (Dennis, Orton & Hora, 1960) regarded the existence of A. sagatus as a distinct species and its occurrence in Britain as needing confirmation, and it was not included. The Farley Hill specimen resolves the uncertainties, since it showed excellent agreement with the description and illustration of A. sagatus in the old literature. It had a convex cap (diameter 6 cm) covered with fibrils and small scales, reddish-brown with a faint purplish tinge. The smooth, slender stem (length 9 cm) had an abruptly swollen base. The cap, stem and ring turned yellow when rubbed, and the fungus had a faint smell of almonds.

The list above contains twenty species, a large number for one season because the majority of Agaricus species found in this country are regarded as occasional, uncommon or rare. The Flora of Berkshire (Bowen, 1968) records eighteen Agaricus species for the county, of which six (A. langei, A. nivescens, A. placomyces, A. purpurellus, A. semotus, and A. vaporarius) are not in the list. Eight of the species in the list (A. bisporus, A. ingratus, A. fuscofibrillosus, A. bresadolianus, A. phaeolepidotus, A. porphyrizon, A. lutosus and A. sagatus) are not recorded in The Flora of Berkshire. A. bernardii is another species recently found in the county (see the Reading Naturalist no. 29 p. 19). The Check List (1960) gives forty Agaricus species for Great Britain and, since it was published, at least two more have been added,

A. bresadolianus from Berkshire and A. fissuratus from Warwickshire. If no prior records exist, another two can be added on the basis of material collected this year at Farley Hill - A. ingratus and A. sagatus.

About half of the species recorded this year, including most of the rarer ones, were found because they were visible from the road. The sites where uncommon species were found have been noted and I shall be pleased to hear from any Members of the Society who would like to look out for the recurrence of these species. I shall also be very interested to see specimens of Agaricus found by Members if they would be kind enough to let me know about them. The possible existence of two distinct forms of A. xanthodermus, the characteristics of A. silvaticus from different habitats, and the distribution of Agaricus species in Berkshire are subjects which seem worthy of further attention if the material becomes available.

I am very grateful to Dr F. B. Hora for the many hours he spent discussing the identification of Agaricus species with me and for introducing me to the literature on the subject. My thanks go to Mr Terry Bryant, Dr Bill Evans and Dr Don Stead for finding some of the specimens, and to Mr Gerald Leach for showing me A. xanthodermus growing at Farley Hill.

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- Bowen H.J.M. (1968) The Flora of Berkshire, p.86.
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Notes on some uncommon fungi found in the Reading area
in 1981

P. Andrews

The area around Reading produces a number of uncommon fungi every year, and 1981 was no exception. In my experience it is worth looking for fungi almost anywhere in the autumn, for there are many interesting species to be found in places never visited by foray parties.

The St. George's Mushroom, Tricholoma gambosum, has appeared for several years in succession on the grass verge of a residential road in Earley. This year in May it grew in three separate places within a hundred yards of each other. A related autumnal species, Lepista luscina (L. panaeola), was observed last year and again this year growing in Shinfield Churchyard. This greyish-brown member of the blewit group has no trace of violet or blue in its colouration, and has dark markings on the cap which look as if they were caused by water drops.

Amanita verna was found amongst specimens of the superficially similar A. citrina var. alba collected in woods at Farley Hill in October, and a further search revealed four more fruiting-bodies of this deadly poisonous white species in the same area. The common A. citrina var. alba has a volva with a very short upper limb and it smells of raw potatoes, whereas A. verna has a large bag-like volva and a sweet sickly smell. The latter has been regarded as a variety (var. verna) of A. phalloides which it resembles in having a convex cap without an umbo and subglobose spores. These features help to distinguish it from another deadly poisonous white species which may also occur in local woods, A. virosa, which has an umbonate cap and globose spores, and may also have scales on the stem. A. phalloides gives a pinkish-lilac colour on the gills with concentrated sulphuric acid, whereas A. verna gives no colour.

Members who attended the foray at Ipsden Heath may recall the Lepiota found growing on a roadside verge, which rapidly turned red on the gills when handled. This was L. badhami, which is also characterized by the remarkable property that the gills turn bright green in ammonia vapour. A single specimen of L. puellaris was found in the hedgerow of Church Lane, Shinfield, in October. The cap of this rare little species is covered with relatively large retroussé scales. Although sometimes classified as var. puellaris of L. rhacodes, it has microscopical characters which establish it as a separate species. A pale form occurs in greenhouses, and Dr. Hora tells me that it was once found in a greenhouse in Whiteknights. L. friesii is occasional rather than rare, but it was still a surprise to see it in considerable numbers this autumn in a shrubbery in private grounds at Farley Hill.

The small species of Volvariella are certainly rare, but fruiting bodies of V. parvula appeared in the woods at Heckfield Heath in October. These fungi have delicate little volvas about half a centimetre in diameter. Bottom Wood near Mapledurham produced a specimen of the odd-looking Cortinarius humicola in November.

Both cap and stem of this species are covered in prominent, erect, rusty-brown scales, and not only does the fungus look like a Pholiota but at one time it was placed in that genus.

Two more uncommon species were found growing near each other under oaks just off the Farley Hill - Swallowfield Road. One was Russula pseudointegra, which has a bright red cap and a white stem but is easily distinguished from more familiar species with these characters by its yellowish gills and ochre spore-print. The other was Boletus porosporus, which at first sight can easily be mistaken for B. chrysenteron or B. subtomentosus, but it has a darker cap than is usual for the other two species and a narrow yellow band at the stem apex. B. porosporus, is the only European bolete with a germ pore in the spore but although it is easy to see that the spores are truncated it is not as easy to see the pore.

Agrocybe cylindracea grows on wood, unlike other Agrocybe species, and during the autumn a large dead willow trunk near the River Loddon at Swallowfield produced many large tufts of this fungus. Schizophyllum commune, which also grows on wood, was collected in a garden in Earley. This remarkable little fan-shaped fungus, which is said to be restricted mainly to South-East England, is easily recognized if examined with a lens. As the gills dry they split longitudinally and the edges roll back, a device which might preserve the spores in dry weather.

Lycoperdon caelatum (now Calvatia utriformis) appears every year on a lawn in Shinfield which is used as a putting green, and nearby the meadows regularly contain giant puff-balls (Lycoperdon giganteum, now Langermannia gigantea) for weeks on end. This year one meadow produced an unusual abundance of puff-balls with diameters ranging from 10 to 30 centimetres, and a number of people ventured to eat them for the first time.

Most of the species mentioned in these notes are illustrated and described in Mushrooms and other fungi of Great Britain and Europe by Roger Phillips.

I am very grateful to Dr. F. B. Hora for his help with the identification of the fungi, and to Dr. Don Stead for collecting some of them.

The Recorder's Report for Fungi, 1981

A. Brickstock

This has been a very good year for Fungi, 320 species having been recorded in 1981, compared with 254 in 1980, 227 in 1979 and 134 in 1978. Several quite rare species were found and in addition a number of normally uncommon ones were wide-spread and found in considerable numbers. The Society's Forays produced 29 species at Sulham on 12.9.81 (after prolonged dryness) (N.H.), 61 species at Ipsden on 10.10.81 (Angela Hamilton - A.H.) and 72 species at Sulham on 7.11.81 (N.H.). About a third of the species recorded have been chosen for inclusion in this report.

I am particularly grateful to Mr. & Mrs. Diserens (D) for their extensive lists and also to Mr. H. H. Carter (C), Dr. P. Andrews (A), Mr. P. M. R. Jinks (J) and Mr. J. H. F. Notton (N) for their records. Entries marked (B) are from the recorder and from Mrs. I. M. Brickstock. More contributors would be very welcome, particularly those who make records on the Forays - it is often difficult for leaders to keep complete lists. I am most grateful to Dr. F. B. Hora for his unflinching patience and kindness in identifying specimens; also to Dr. Derek Reid, Alick Henrici and Barrie Bristow for a number of identifications. Names of the Agarics usually follow the British Mycological Society's "New Check List of British Agarics and Boleti" (1960) but in some cases are updated by reference to Roger Phillips' "Mushrooms" (1981).

I. AGARICALES

Agaricus	comtulus	Ipsden 10.10.81 (A.H.)
"	silvicola	Great Wood, Hambledon 31.10.81 (D)
Agrocybe	cylindracea	Swallowfield (A)
"	paludosa	Hambledon 23.5.81 (B)
Amanita	excelsa	Bramshill 27.9.81 (D)
"	pantherina	Aldermaston 29.10.81 (B)
"	phalloides	Satwell 6.9.81 (D); Kingwood 3.10.81 (B,D); Hambledon 31.10.81 (D); Goring Heath 31.10.81 (B); Sulham 12.9.81 (N.H.), 25.10.81 (B), 7.11.81 (N.H.)
"	verna	Farley Hill (A)
Boletus	porosporus	Farley Hill (A)
"	pruinatus	Great Wood, Hambledon 31.10.81 (B)
"	queletii	Satwell 6.9.81 (D)

<i>Cantharellus infundibuliformis</i>	25 Cockney Hill 15.11.81 (B)
<i>Chroogomphus rutilus</i>	Burghfield 8.11.81 (D)
<i>Conocybe lactea</i>	Whitley Wood 24.9.81 (J)
<i>Coprinus niveus</i>	Sulham 27.9.81 (B)
" <i>radiatus</i>	Burghfield 4.10.81 (D); Northend (D)
" <i>xanthothrix</i>	Kingwood 3.10.81 (B,D)
<i>Cortinarius armillatus</i>	Satwell 12.9.81 (D)
" <i>auroturbinatus</i>	Sulham 25.10.81 (B)
" <i>elatior</i>	Tadley Water Tower 18.11.81 (B)
" <i>humicola</i>	Mapledurham (A)
" <i>infractus</i>	Kingwood 3.10.81 (B)
" <i>pseudosalor</i>	Wasing 18.10.81 (D)
" <i>semisanguineus</i>	Five Oaken, Mortimer 1.11.81 (B); Aldermaston 4.11.81 (B); Heckfield 14.11.81 (B)
<i>Craterellus cornucopioides</i>	Sulham 7.11.81 (N.H.)
<i>Entoloma porphyrophaeum</i>	Sulham 29.11.81 (B)
" <i>rhodopolium</i>	Great Wood, Hambledon 31.10.81 (D)
<i>Gomphidius roseus</i>	Aldermaston 2.10.81 (B)
<i>Hebeloma radicosum</i>	Great Wood, Hambledon 31.10.81 (D)
<i>Hohenbuehelia geogenia</i>	Sulham 29.10.81 (B); 7.11.81 (N. H.)
<i>Hygrocybe ceracea</i>	Kennylands playing field 26.11.81 (C)
<i>Hygrophorus chrysaspis</i>	Sulham 25.11.81 (B)
<i>Hypoloma squamosum</i>	Ipsden 10.10.81 (A.H.)
<i>Inocybe asterospora</i>	Northend (D)
" <i>godeyi</i>	Sulham 25.10.81 (B)
" <i>lacera</i>	Heckfield 14.11.81 (B)
" <i>patouillardii</i>	Sulham 7.11.81 (N.H.)
<i>Lactarius fulvissimus</i>	Hambledon 31.10.81 (D)
" <i>pallidus</i>	Aldermaston 21.10.81 (B)
" <i>pubescens</i>	Burghfield 4.10.81 (D)
" <i>uvidus</i>	Bramshill 8.11.81 (B)
" <i>vellereus</i>	Kingwood 3.10.81 (B.D)
<i>Lepiota badhamii</i>	Ipsden (A)
" <i>bucknallii</i>	Ipsden 10.10.81 (B)
" <i>clypeolaria</i>	Kingwood 3.10.81 (B, D); Mortimer 22.10.81 (B)

<i>Lepiota friesii</i>	Sulham 7.11.81 (N.H.), 29.11.81 (B) Farley Hill (A)
" <i>leucothites</i>	Sulham 7.11.81 (N.H.)
" <i>mastoidea</i>	Sulham 7.11.81 (N.H.)
" <i>puellaris</i>	Shinfield (A)
" <i>ventriosospora</i>	Northend (D)
<i>Lepista luscina</i>	Shinfield (A)
<i>Lyophyllum connatum</i>	Sulham 25.10.81 (B)
" <i>loricatum</i>	Sulham 25.10.81 (B)
<i>Micromphale brassicolens</i>	Sulham 12.9.81 (N.H.)
<i>Mycena capillaris</i>	Lambridge 21.11.81 (D)
" <i>crocata</i>	Northend (Blackmoor Wood) (D)
" <i>galopus</i>	Five Oaken, Mortimer 22.10.81 (B), 1.11.81 (B)
<i>var. candida</i>	Sulham 29.11.81 (B)
" <i>inclinata</i>	Church End Copse 15.11.81 (B); Sulham 29.11.81 (B)
" <i>leucogala</i>	Lambridge 21.11.81 (D)
" <i>metata</i>	Aldermaston 2.10.81 (B)
" <i>pelianthina</i>	Kingwood 3.10.81 (B, D)
" <i>stylobates</i>	Ipsden 10.10.81 (A.H.)
<i>Oudemansiella mucida</i>	Goring Heath 31.10.81 (B); Five Oaken, Mortimer 1.11.81 (B), Sulham 7.11.81 (N.H.)
<i>Panellus mitis</i>	Eversley 28.11.81 (D); Sulham 29.11.81 (B)
" <i>serotinus</i>	Sulham 7.11.81 (N.H.); Whitchurch Hill 28.11.81 (B)
<i>Paxillus atrotomentosus</i>	Burghfield Common 13.9.81 (D), 4.10.81 (D); Bramshill 27.9.81 (D)
<i>Pholiota adiposa</i>	Great Wood, Hambledon 31.10.81 (D)
<i>Pluteus salicinus</i>	Heckfield 14.11.81 (B); Northend (D)
<i>Psathyrella candolleana</i>	Heckfield 14.11.81 (B)
" <i>multipedata</i>	Redhatch Drive, Earley 24.11.81 (D)
<i>Rozites caperatus</i>	Kingwood 3.10.81 (B, D)
<i>Russula claroflava</i>	Burghfield 4.10.81 (D)
" <i>heterophylla</i>	Sulham 12.9.81 (N.H.)
" <i>parazurea</i>	Aldermaston 21.10.81 (B)
" <i>pseudointegra</i>	Farley Hill (A)
" <i>sardonica</i>	Aldermaston 29.10.81 (B), 4.11.81 (B); Hambledon 31.10.81 (D)

<i>Schizophyllum commune</i>	Luxters Farm, Skirmett (770890) 14.11.81 (D), Earley (A)
<i>Strobilomyces floccopus</i>	Satwell 6.9.81 (D); Kingwood 3.10.81 (B, D)
<i>Tricholoma atosquamosum</i>	Great Wood, Hambledon 31.10.81 (D)
" <i>cingulatum</i>	Heckfield 14.11.81 (B)
" <i>columbetta</i>	Goring Heath 31.10.81 (B)
" <i>gambosum</i>	Earley (A)
" <i>ionides</i>	Sulham 27.9.81 (B); Ipsden 10.10.81 (B)
" <i>saponaceum</i>	Sulham 29.10.81 (B)
" <i>sulphureum</i>	Sulham 7.11.81 (N.H.); Tadley Water Tower 18.11.81 (B); Blackmoor Wood, Northend (D), Hambledon 31.10.81 (D)
" <i>ustale</i>	Sulham 25.10.81 (B)
" <i>virgatum</i>	Sulham 7.11.81 (N.H.)
<i>Volvariella parvula</i>	Heckfield Heath (A)

II APHYLLOPHORALES

<i>Clavariadelphus pistillaris</i>	Satwell 4.10.81 (D)
<i>Coltricia montagnii</i>	Sulham 25.10.81 (B)
<i>Coniophora puteana</i>	Goring Heath 31.10.81 (B)
<i>Daedalea (Heteroporus)</i> <i> biennis</i>	Five Oaken, Mortimer 22.10.81 (B), 1.11.81 (B)
<i>Hydnum rufescens</i>	Great Wood, Hambledon 31.10.81 (D)
<i>Hymenochaete rubiginosa</i>	Sulham 12.9.81 (N.H.)
<i>Incrustoporia semipileata</i>	Lambridge 21.11.81 (B)
<i>Leucogyrophana mollusca</i>	Warren Heath, Bramshill 8.11.81 (B)
<i>Phaeolus schweinitzii</i>	Bramshill 8.11.81 (B); Heckfield 14.11.81 (B); Aldermaston 19.11.81 (B)
<i>Phellinus ferreus</i>	Kingwood 3.10.81 (B)
<i>Polyporus brumalis</i>	Sulham 2.1.81 (B), 5.4.81 (B), 29.11.81 (B)
<i>Schizopora paradoxa</i>	Five Oaken, Mortimer 1.11.81 (B); Ufton Nervet 15.11.81 (B); Tadley Water Tower 18.11.81 (B); Whitchurch Hill 28.11.81 (B)

Sparassis crispa Heckfield 14.11.81 (B)
Tyromyces caesius Five Oaken, Mortimer 1.11.81 (B),
Goring Heath 31.10.81 (B)

III GASTEROMYCETALES

Crucibulum laeve Chalkhouse Green 22.11.81 (N)
Geastrum triplex Sulham 12.9.81 (N.H.),
29.11.81 (B)
Langermannia gigantea Shinfield (A)
Lycoperdon echinatum Aldermaston 28.10.81 (B)
Mutinus caninus Satwell 12.9.81 (D)
Scleroderma verrucosum Eversley 28.11.81 (D)

IV HETEROBASIDIOMYCETES

Ditida peziziformis
(*Femsjonia luteo-alba*) Five Oaken, Mortimer 22.10.81 (B)

V ASCOMYCETES

Chlorosplenium aeruginascens Aldermaston 28.10.81 (B);
Ipsden 10.10.81 (N.H.)
Cudoniella acicularis Five Oaken, Mortimer 1.11.81 (B);
Goring 31.10.81 (B)
Geoglossum fallax Aldermaston 30.10.81 (B)
Helvella lacunosa Sulham 25.10.81 (B);
29.11.81 (B)
Humaria hemisphaerica Northend (D)
Hypoxylon nummularium Lambridge 21.11.81 (B);
Frilsham 22.11.81 (B);
Whitchurch Hill 28.11.81 (B);
Sulham 29.11.81 (B)
Leotia lubrica 25 Cockney Hill, Tilehurst (B)
Neobulgaria pura Northend (D);
Goring Heath 31.10.81 (B);
Whitchurch Hill 28.11.81 (B)

Xylaria polymorpha

Sulham 12.9.81 (N.H.);
Church-end Copse 29.11.81 (B)

VI MYCETOZOA

Lycogala epidendrum

Sulham 29.10.81 (B)

The Recorder's Report for Botany 1980-81

B. M. Newman

Many records were collected during our centenary year, and more members than usual contributed. The selection listed below is taken from an area roughly within a twenty-mile radius of Reading. An interesting record this year, new to the Society, is Lepidium latifolium L., Dittander, which is usually found in salt marshes.

The nomenclature and order are according to the "Flora of the British Isles" by Clapham, Tutin and 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, but if a different name is commonly used locally it has been added in brackets.

Records sent in by the following members are gratefully acknowledged:- Dr. H. J. M. Bowen (HJMB); Dr. A. Brickstock (AB); Mr. H. Carter (HC); Miss L. E. Cobb (LEC); Miss J. Clapton (JC); Mr. and Mrs. Diserens (N & MD); Mrs. D. Dye (DD); Dr. R. J. Grayer (RJG); Mr. W. Helyar (WH) and Mr. M. R. Hughes (MRH).

Members' Records 1980-1981

<u>Equisetum fluviatile</u> L. Headley, 7-6-81.	Water Horsetail	AB
<u>Equisetum sylvaticum</u> L. Acid woodland, Pamber Forest.	Wood Horsetail	HJMB
<u>Asplenium trichomanes</u> L. Canal between Burghfield Bridge and Aldermaston, 30-8-81.	Maidenhair Spleenwort	AB
<u>Athyrium filix-femina</u> (L.) Roth New Copse, Gallowstree Common, 10-5-81.	Lady-fern	HC
<u>Dryopteris carthusiana</u> (Villar) H. P. Fuchs Ipsden Heath, 10-10-81.	Narrow Buckler-fern	HC
<u>Dryopteris dilatata</u> (Hoffm.) A. Gray Ipsden Heath, 10-10-81.	Broad Buckler-fern	HC
<u>Polypodium vulgare</u> L. Hambleton, 23-5-81.	Polypody	AB
<u>Ranunculus arvensis</u> L. New roadside near Thame by-pass, Oxon.	Corn Buttercup	HJMB
<u>Ranunculus auricomus</u> L. Whiteknights Lake, Reading, 22-3-81; 27-4-81.	Goldilocks Buttercup Near Stratfield Saye,	JC
<u>Ranunculus lingua</u> L. Caversham Park (B.B.C.) Lake, per Margaret Notton, 21-7-81.	Greater Spearwort	HC
<u>Ranunculus flammula</u> L. Heath Pool, Finchampstead. Dinton Pastures, Hurst, 17-4-81; Headley, 7-6-81 (NHS walk); Edgebarrow Wood, Growthorne, 26-7-81; Silchester Common, 16-8-81.	Lesser Spearwort	DD RJG
<u>Ranunculus hederaceus</u> L. Emmbrook, near Chapel Green, S.Wokingham, 8-7-81.	Ivy-leaved Crowfoot	RJG
<u>Myosurus minimus</u> L. New roadside near Thame by-pass, Oxon.	Mousetail	HJMB
* <u>Papaver somniferum</u> L. Hedge, Redlands Road, Reading, 15-6-81.	Opium Poppy	JC
<u>Lepidium campestre</u> (L.) R. Br. Roadside, N. of Greathouse Wood.	Field Pepperwort	HJMB

<u>Lepidium latifolium</u> L.	Dittander	
Fobney, 26-7-81. Our first record of this scarce plant.		LEC
<u>*Coronopus didymus</u> (L.) Sm.	Lesser Swine-cress	
Woosehill, Wokingham, 9-8-81.		RJG
<u>Arabis hirsuta</u> (L.) Scop.	Hairy Rock-cress	
Buttlers Hangings, Bucks., on chalk grass with <u>Iberis amara</u> .		HJMB
<u>Rorippa islandica</u> (Oeder) Borbás	Marsh Yellow-cress	
Canal between Theale and Aldermaston, 23-8-81; Dinton Pastures, 1-9-81.		AB
<u>*Hesperis matronalis</u> L.	Dame's-violet	
Headley, 7-6-81.		AB
<u>Hypericum humifusum</u> L.	Trailing St. John's-wort	
Silchester Common.		WH
<u>Hypericum pulchrum</u> L.	Slender St. John's-wort	
West side of Wither Copse, Gallowstree Common, 15-3-81.		HC
<u>Hypericum montanum</u> L.	Pale St. John's-wort	
Turville Hill, Bucks, June 1981.		HJMB
<u>Hypericum elodes</u> L.	Marsh St. John's-wort	
Burnt Common, Mortimer, August 1981.		WH
<u>Silene alba</u> (Mill.) E. H. L. Krause	Pink Campion	
x <u>dioica</u> (L.) Clairv.		
Whiteknights Park, Reading.		JC
Headley, 7-6-81 (NHS walk).		RJG
<u>Arenaria serpyllifolia</u> L.	Thyme-leaved Sandwort	
Winter Hill, 28-6-81 (NHS walk).		AB
<u>Spergularia rubra</u> (L.) J. & C. Presl	Sand Spurrey	
Dinton Pastures, 1-9-81.		AB
Benyons Inclosure and Silchester Common, August 1981.		WH
<u>*Phytolacca americana</u> L.		
Corner of Cranbury Road and Oxford Road, Reading, 1-10-81.		HC
<u>Malva neglecta</u> Wallr.	Dwarf Mallow	
Brookside, Wokingham, 7-8-81.		RJG
Sonning Common, 22-8-81.		HC
<u>Geranium pyrenaicum</u> Burm.f.	Hedgerow Crane's-bill	
Hurley chalk pit, 16-6-81.		RJG
Whiteknights Park, June 1981.		MRH
<u>Erodium cicutarium</u> (L.) L'Herit.	Common Stork's-bill	
In car park and on gravel near Plant Science building and in grass near Earley Gate, Whiteknights Park, 18-4-81.		JC

<u>*Oxalis europaea</u> Jord. Garden weed, Brook Close, Wokingham,	Upright Yellow Sorrel 4-6-81.	RJG
<u>Frangula alnus</u> Mill. Edgbarrow Wood, Crowthorne, 26-7-81; 16-8-81.	Alder Buckthorn Silchester Common,	RJG
<u>Genista tinctoria</u> L. Water meadow, Tadley, August 1981.	Dyer's Greenweed	WH
<u>*Medicago arabica</u> (L.) Huds. Lawn weed, Meadow Road, Wokingham,	Spotted Medick July 1981.	RJG
<u>*Melilotus officinalis</u> (L.) Pall. Canal between Theale and Aldermaston,	Ribbed Melilot 23-8-81.	AB
<u>*Melilotus alba</u> Medic. Canal between Theale and Aldermaston,	White Melilot 23-8-81.	AB
<u>*Trifolium hybridum</u> L. Canal between Theale and Aldermaston, Pastures, 1-9-81.	Alsike Clover 3-8-81; Dinton	AB
<u>Trifolium striatum</u> L. Silchester Common, August 1981.	Knotted Clover	WH
<u>Astragalus glycyphyllos</u> L. Sulham Woods (not in flower),	Wild Liquorice 19-5-81.	JC
<u>Hippocrepis comosa</u> L. Hurley chalk pit 16-6-81; Turville,	Horse-shoe Vetch 20-6-81 (NHS walk).	RJG
<u>Onobrychis viciifolia</u> Scop. Turville, 20-6-81 (NHS walk).	Sainfoin	RJG
<u>Lathyrus nissolia</u> L. Church End Copse, Tilehurst, 13-6-81. Roadside near Hurley chalk pit, 16-6-81.	Grass Vetchling	AB RJG
<u>Lathyrus montanus</u> Bernh. Persisting in its old station at Clayfield Copse, Emmer Green, May 1981.	Bitter Vetch	HC
<u>Agrimonia odorata</u> (Gouan) Mill. Blewburton Hill, by rough track.	Fragrant Agrimony	HJMB
<u>Rosa rubiginosa</u> L. Pamber Heath, North Hants.	Sweet Briar	HJMB
<u>Sorbus torminalis</u> (L.) Crantz North edge of wood, Pamber Forest, North Hants. Seedling in New Copse, Gallowstree Common, 10-5-81.	Wild Service-tree	HJMB HC
<u>Sedum telephium</u> L. Near A.327 at Whiteknights Park,	Orpine 4-7-81.	JC

<u>Drosera intermedia</u> Hayne Silchester Common, August 1981. Edgarrow Wood, Crowthorne, 26-7-81.	Oblong-leaved Sundew	WH RJG
<u>Daphne laureola</u> L. Hambleton, 25-5-81. Mapledurham Woods, 28-3-81.	Spurge-laurel	AB JC
<u>Epilobium roseum</u> Schreb. Sulham Woods, 5-7-81.	Pale Willowherb	AB
* <u>Epilobium adenocaulon</u> Hausskn. x <u>tetragonum</u> L. Forbury Gardens, Reading, June 1981.		HC
<u>Epilobium palustre</u> L. Canal between Theale and Aldermaston, 23-8-81.	Marsh Willowherb	AB
* <u>Oenothera stricta</u> Ledeb. ex Link In pavement cracks, Wallingford.	Fragrant Evening-primrose	HJMB
<u>Viscum album</u> L. Hambleton, 23-5-81. Park by Thames, Caversham, 16-4-81.	Mistletoe	AB JC
* <u>Smyrniolus olusatrum</u> L. Still at Upton Nervet, February 1981 (NHS walk).	Alexanders	HJMB
<u>Apium graveolens</u> L. Silchester, 26-5-81; Sulham, 5-7-81.	Wild Celery	AB
<u>Sison amonum</u> L. Roadside N. of Greathouse Wood; Knights Farm, Pingewood. Woosehill, 9-8-81.	Stone Parsley	HJMB RJG
<u>Oenanthe aquatica</u> (L.) Poir. Pond near Sulham Woods, 19-5-81 (NHS walk).	Fine-leaved Water-dropwort	RJG
<u>Silaum silaus</u> (L.) Schinz & Thell. Dinton Pastures, 1-9-81. Whiteknights Park, August 1981.	Pepper-saxifrage	AB MRH
<u>Angelica sylvestris</u> L. Devil's Highway, Crowthorne, 31-8-81.	Wild Angelica	AB
<u>Rumex maritimus</u> L. Theale, 23-8-81.	Golden Dock	N & MD
<u>Parietaria diffusa</u> Mert. & Koch Between E. Ilsley and W. Hagbourne, 30-5-81. Hambleton, 3-5-81; Cliveden, 4-10-81. Silchester, decreasing, July-August.	Pellitory-of-the-wall	AB RJG WH
<u>Populus nigra</u> L. Bradford's Brook, Wallingford.	Black Poplar	HJMB

<u>Calluna vulgaris</u> (L.) Hull	Heather (Ling)	
Now virtually extinct on the open part of Kingwood Common, but surviving in some quantity in the wooded northern part, June 1981.		HC
<u>Erica tetralix</u> L.	Cross-leaved Heath	
Behind Great Davids, Kingwood Common, June 1981.		HC
<u>Vaccinium myrtillus</u> L.	Bilberry	
Edgbarrow Wood, Crowthorne, 26-7-81.		RJG
<u>Monotropa hypopitys</u> L.	Yellow Bird's-nest	
Under pines, Ambarrow. Grove and Kingston Woods, near Stokenchurch.		HJMB N & MD
<u>Hottonia palustris</u> L.	Water-violet	
Winter Hill, 28-6-81 (NHS walk)		AB
* <u>Lysimachia punctata</u> L.	Dotted Loosestrife	
Roadside by Holme Grange; Rummierhedge Wood, Gallowstree Common, Oxon. N.S. Isaacs.		HJMB
By pond, Chestnut Avenue, Wokingham, 7-7-81. Edgbarrow Wood, Crowthorne, 26-7-81.		RJG
<u>Anagallis tenella</u> (L.) L.	Bog Pimpernel	
Abundant in water meadow, Tadley, July 1981.		WH
* <u>Vinca major</u> L.	Greater Periwinkle	
Sulham, 22-8-81.		AB
<u>Gentiana pneumonanthe</u> L.	Marsh Gentian	
Still doing well at Bartley Heath, Hook, 10-9-81.		LEC
<u>Gentianella amarella</u> (L.) Börner		
x <u>germanica</u> (Willd.) Börner		
In chalk grass, Chinnor Hill, Oxon		HJMB
<u>Nymphoides peltata</u> (S.G.Gmel.)	Fringed Water-lily	
O. Kuntze		
Caversham Park (B.B.C.)lake, 24-7-81.		HC
<u>Pentaglottis sempervirens</u> (L.)	Green Alkanet	
Tausch		
Erleigh Road, Reading, 1-1-81.		LEC
Bank near Stratfield Saye, 19-4-81.		JC
<u>Echium vulgare</u> L.	Viper's-bugloss	
Downs, Warren Farm, 9-8-81.		AB
Many plants in Whiteknights Park, Reading, 21-6-81.		JC
<u>Atropa belladonna</u> L.	Deadly Nightshade	
Hambleden, 23-5-81.		AB
* <u>Solanum pseudocapsicum</u> L.	Jerusalem Cherry	
In waste ground with <u>Galinsoga</u> and <u>Coronopus didymus</u> , Whiteknights Park, Reading. A new record for Berks.		HJMB

- Verbascum thapsus L. Great Mullein
Sulham, 5-7-81; Downs, Warren Farm, 9-8-81; Between
E. Ilsley and W. Hagbourne, 26-9-81. AB
- Verbascum nigrum L. Dark Mullein
Hambleden, 23-5-81. AB
- Antirrhinum orontium L. Lesser Snapdragon (Weasel's Snout)
Woodley allotments, Pitts Lane, 3-7-81. JC
- Linaria repens (L.) Mill. Pale Toadflax
Downs, Warren Farm, 9-8-81; Sulham, 22-8-81. AB
- Kickxia spuria (L.) Dum. Round-leaved Fluellen
Frequent in arable, N. of Greathouse Wood. HJMB
- Kickxia elatine (L.) Dum. Sharp-leaved Fluellen
Frequent in arable, N. of Greathouse Wood. HJMB
- *Mimulus guttatus DC Monkeyflower
Canal between Burghfield Bridge and Aldermaston, 30-8-81. AB
- Veronica catenata Pennell Pink Water-speedwell
Winter Hill, 28-6-81 (NHS walk); canal between Theale and
Aldermaston, 23-8-81. AB
- Veronica scutellata L. Marsh Speedwell
Canal between Theale and Aldermaston, 23-8-81. AB
- Veronica polita Fries Grey Field-speedwell
Footpath near Sewell Avenue, Wokingham, 7-5-81; Clivedon,
4-10-81. RJG
- *Veronica filiformis Sm. Slender Speedwell
By Thames, central Reading/Caversham, 16-4-81. JC
Buscot, 11-4-81. RJG
- Pedicularis sylvatica L. Lousewort
Edgbarrow Wood; Crowthorne, 26-7-81. RJG
- Orobanche elatior Sutton Knapweed Broomrape
Kingsclere, 4-9-81. AB
- Orobanche minor Sm. Common Broomrape
Reservoir N. of Kingwood Common, June 1981.
Woosehill, Wokingham, 9-8-81. HC
RJG
- *Acanthus mollis L. Bear's-breech
Railway bank between Cholsey and Moulsoford, 1978. A new
record for Berkshire. HJMB
- Verbena officinalis L. Vervain
Downs, Warren Farm, 9-8-81. AB

<u>Acinos arvensis</u> (Lam.) Dandy Watlington Hill, 17-7-81.	Basil Thyme	RJG
<u>Clinopodium vulgare</u> L. Hambleton, 23-5-81; Sulham Lane, 22-8-81.	Wild Basil	AB
<u>Nepeta cataria</u> L. Downs, Warren Farm, 9-8-81.	Cat-mint	AB
<u>Campanula trachelium</u> L. Hambleton, 23-5-81; Sulham, 22-8-81. Crowsley Lane, not yet in flower, May 1981. Wood, Whiteknights Park, 20-8-81; Cliveden, 4-10-81. Chazey Heath road from Mapledurham, May 1981.	Nettle-leaved Bellflower	AB HC RJG MRH
<u>Campanula glomerata</u> L. Devil's Highway, Crowthorne, 31-8-81. Winter Hill, 28-6-81 (NHS walk).	Clustered Bellflower	AB RJG
<u>Asperula cynanchica</u> L. Winter Hill, 28-6-81 (NHS walk). Hurley chalk pit, 18-7-81.	Squinancywort	AB JC
<u>Galium cruciata</u> (L.) Scop. Dinton Pastures, 14-4-81. Whiteknights Park, June, 1981. Footpath under railway near Mill Close, Wokingham, 27-4-81.	Crosswort	JC MRH RJG
<u>Valerianella locusta</u> (L.) Betsche Between E. Ilsley and W. Hagbourne, 30-5-81. Bank of A.4 near Carlile's Corner, Charvil.	Common Cornsalad	AB JC
<u>Valeriana dioica</u> L. Winter Hill, 28-6-81 (NHS walk).	Marsh Valerian	AB
<u>Dipsacus pilosus</u> L. Silchester.	Small Teasel	WH
<u>Bidens cernua</u> L. Canal between Theale and Aldermaston, 23-8-81.	Nodding Bur-marigold	AB
<u>Bidens tripartita</u> L. Canal between Theale and Aldermaston, 23-8-81. Whiteknights Park Lake, 21-8-81; Sindlesham Mill, 30-8-81. Wet field near Chapel Green, Wokingham, 16-7-81.	Trifid Bur-marigold	AB JC RJG
<u>Senecio sylvaticus</u> L. On wall, Aston Tirrold. (A curious habitat).	Heath Groundsel	HJMB
<u>Senecio viscosus</u> L. Cleared Hazel coppice, Chinnor Hill, Oxon.; Whiteknights Park, Reading, 6-8-81.	Sticky Groundsel	HJMB JC
<u>Senecio integrifolius</u> (L.) Clairv. Ladle Hill, Burghclere, 7-6-81.	Field Fleawort	LEC

<u>Inula conyza</u> DC.	Ploughman's-spikenard	
Between E. Ilsley and W. Hagbourne, 26-9-81.		AB
Cliveden, 4-10-81.		RJG
<u>Solidago virgaurea</u> L.	Goldenrod	
Silchester Common, 16-8-81.		RJG
<u>Erigeron acer</u> L.	Blue Fleabane	
Between E. Ilsley and W. Hagbourne, 26-9-81.		AB
Watlington Hill, 27-9-81.		RJG
<u>Matricaria recutita</u> L.	Scented Mayweed	
New roundabout, Purley.		HJMB
<u>Chrysanthemum segetum</u> L.	Corn Marigold	
Wet field near Chapel Green, Wokingham, 8-7-81.		RJG
<u>Chrysanthemum vulgare</u> (L.) Bernh.	Tansy	
Roadside near Nettlebed, Oxon., 9-8-81.		JC
<u>Carlina vulgaris</u> L.	Carlina Thistle	
Downs, Warren Farm, 9-8-81.		AB
Hurley chalk pit, in bud, 18-7-81.		JC
Watlington Hill, 27-9-81.		RJG
<u>Carduus tenuiflorus</u> Curt.	Slender Thistle	
Beech Lane, Earley, 12-6-81. A rare plant in Berkshire.		N & MD
<u>Carduus nutans</u> L.	Musk Thistle	
Winter Hill, 28-6-81 (NHS walk); Sulham Woods, 5-7-81.		AB
Hedge near Wallingford, Oxon., 28-6-81.		JC
Watlington Hill, 17-7-81.		RJG
<u>Cirsium acaulon</u> (L.) Scop.	Dwarf Thistle	
Rifle range near Henley, Oxon., 21-7-81.		JC
<u>Cirsium dissectum</u> (L.) Hill	Meadow Thistle	
Headley, 7-6-81.		AB
<u>Serratula tinctoria</u> L.	Saw-wort	
In rides, Pamber Forest, N.Hants.		HJMB
<u>Cichorium intybus</u> L.	Chicory	
Sulham, 5-7-81; Downs, Warren Farm, 9-8-81; between E. Ilsley and W. Hagbourne, 26-9-81.		AB
Verges near Woodcote, 28-6-81; Whiteknights Park, 28-8-81.		JC
Verges near Arborfield, and at Pamber End.		BMN
<u>Picris echioides</u> L.	Bristly Oxtongue	
Dinton Pastures, 21-6-81.		RJG
<u>Lactuca serriola</u> L.	Prickly Lettuce	
Canal between Theale and Aldermaston, 23-8-81; between E. Ilseley and W. Hagbourne, 26-9-81.		AB
Lower Earley, very common, 30-8-81; Whiteknights Park, 6-8-81; Goring-by-Thames, 2-9-81.		JC

- *Cicerbita macrophylla (Willd.) Blue Sow-thistle
Wallr.
Binfield Heath, per Mrs Drover, 22-7-81. HC
- Senecio viscosus L. Sticky Groundsel
Canal between Theale and Aldermaston, 3-8-81; Dinton
Pastures, 1-9-81. AB
- Sagittaria sagittifolia L. Arrowhead
Canal between Theale and Aldermaston, 3-8-81; Dinton
Pastures, 1-9-81. AB
Power station channel of river Thames, E. of Reading,
September 1981. MRH
- Potamogeton crispus L. Curled Pondweed
Caversham Park (B.B.C.) lake, 24-7-81. HC
- Narthecium ossifragum (L.) Huds. Bog Asphodel
Edgbarrow Wood, Crowthorne, 26-7-81; Silchester Common,
16-8-81. RJG
- Convallaria majalis L. Lily-of-the-valley
Benyon's Enclosure; Silchester Common, Pamber Forest. WH
- Polygonatum odoratum (Mill.) Druce Angular Solomon's-seal
Whiteknights Park, Reading, May 1981. MRH
- Ruscus aculeatus L. Butcher's-broom
Whiteknights Park, 14-3-81; Pepper Lane, Reading, 21-3-81;
Mapledurham Woods, 28-3-81. JC
- Ornithogalum umbellatum L. Star-of-Bethlehem
Pamber Forest. WH
- Leucojum aestivum L. Summer Snowflake (Loddon Lily)
Dinton Pastures, Hurst, 12-4-81. AB
- Narcissus pseudonarcissus L. Wild Daffodil
Sherfield-on-Loddon. DD
- *Crocoshia x crocosmiflora Montbretia
(Lemoine) N.E.Br.
Edgbarrow Wood, Crowthorne, 26-7-81. RJG
- Cephalanthera damasonium (Mill.) White Helleborine
Druce
Sulham Woods, 19-5-81 (NHS walk). LEC
- Epipactis helleborine (L.) Crantz Broad-leaved Helleborine
Canal between Burghfield Bridge and Aldermaston, 30-8-81. AB
Buttlers Hangings, Bucks., beech wood; Ambarrow Hill,
pine wood. HJMB
- Epipactis purpurata Sm. Violet Helleborine
Roadside and grassy glade, New Copse, 17-8-81; Ipsden Heath,
in fruit, 10-10-81. HC

Grove and Kingstone Woods; Nettlebed Woods. Brocas Plantation, Mortimer West End, August 1981.	N & MD WH
<u>Epipactis leptochila</u> (Godf.) Godf. Narrow-lipped Helleborine Howe Wood, near B481 to Watlington; Grove and Kingstone Woods, 13-8-81.	N & MD
<u>Epipactis phyllanthes</u> G.E.Sm. Green-flowered Helleborine Benyon's Inclosure (10); Wasing (30+); Five Oaken, Mortimer (3).	WH
<u>Listera ovata</u> (L.) R.Br. Common Twayblade Hambleden, 23-5-81.	AB
<u>Neottia nidus-avis</u> (L.) Rich. Bird's-nest Orchid Sulham Woods, 19-5-81 (NHS walk).	LEC
<u>Coeloglossum viride</u> (L.) Hartm. Frog Orchid Watlington Hill, 17-7-81.	RJG
<u>Gymnadenia conopsea</u> (L.) R.Br. Fragrant Orchid Turville Hill, Bucks, 20-6-81 (NHS walk).	HJMB
<u>Ophrys apifera</u> Huds. Bee Orchid Turville Hill, Bucks, 20-6-81 (NHS walk). Hurley chalk pit, 16-6-81; Watlington Hill, 17-7-81.	HJMB RJG
<u>Orchis morio</u> L. Green-winged Orchid Headley, 7-6-81 (NHS walk).	RJG
<u>Anacamptis pyramidalis</u> (L.) Rich. Pyramidal Orchid Rifle range, Henley, Oxon., 21-7-81; Hurley chalk pit, 18-7-81. Turville, 20-6-81 (NHS walk).	JC RJG
<u>Carex hirta</u> var. <u>sublaevis</u> Hornem. Whiteknights Park, Reading (Confirmed by HJMB)	MRH
<u>Carex muricata</u> agg. Prickly Sedge Whiteknights Park (Confirmed by HJMB)	MRH
<u>Carex x pseudaxillaris</u> K. Richter Whiteknights Park (Confirmed by HJMB)	MRH
<u>Carex divulsa</u> Stokes ssp <u>divulsa</u> Grey Sedge Whiteknights Park (Confirmed by HJMB)	MRH
<u>Carex echinata</u> Murr. Star Sedge Edgbarrow Wood, Crowthorne, 23-8-81.	RJG
<u>Carex ovalis</u> Good Oval Sedge In rides, Pamber Forest, N. Hants.	HJMB
<u>x Festulolium loliaceum</u> (Huds.) P.Fourn. Dinton Pastures, 21-6-81; Winter Hill, 28-6-81 (NHS walk).	RJG

<u>Agropyron caninum</u> (L.) Beauv. Winter Hill, 28-6-81 (NHS walk).	Bearded Couch	AB
<u>Koeleria cristata</u> (L.) Pers. Winter Hill, 28-6-81 (NHS walk).	Crested Hair-grass	AB
<u>Helictotrichon pratense</u> (L.) Pilger Winter Hill, 28-6-81 (NHS walk).	Meadow Oat-grass	AB
<u>Apera spica-venti</u> (L.) Beauv. Abundant in arable near Holme Grange; Thame by-pass, Oxon.	Loose Silky-bent new roadside near	HJMB
<u>Alopecurus geniculatus</u> L. Winter Hill, 28-6-81 (NHS walk).	Marsh Foxtail	AB
* <u>Phalaris canariensis</u> L. Winter Hill, 28-6-81 (NHS walk).	Canary-grass	AB

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B. R. Baker

Order Ephemeroptera (May-flies)

Ephemera lineata Eaton

Caversham, July 9th/10th, 1 female taken in mercury-vapour light trap. The night had been humid and thundery with a minimum temperature of 16°C, ideal conditions for insect activity, and it is almost certain that the specimen originated from the river Thames. E. lineata is said to be a rare species known only from the rivers Thames and Wye. The Museum collection has two examples taken in a light trap at Tilehurst in August, 1953.

Order Odonata (Dragonflies)

Ceragrion tenellum (de Vill.) Small Red Damselfly

Pamber Forest, 5 observed August 5th (W.G.H.)

Pyrrhosoma nymphula (Sulz.) Large Red Damselfly

Silchester Common, 4 observed July 29th (W.G.H.)

Ischnura elegans (van der Lind.) Blue-tailed Damselfly

Kennet and Avon Canal beyond Ufton Nervet, July 29th many specimens (W.G.H.)

Gomphus vulgatissimus (L.) Club-tailed Dragonfly

Thames bank beyond Pangbourne. The hatch of this Thames speciality was observed during May by D.G. who is undertaking a study of this species.

Aeshna mixta Latr. Scarce Aeshna

Tadley, August 22nd and 26th (W.G.H.)

Cordulegaster boltonii (Don.) Golden-ringed Dragonfly

Padworth, July 29th (W.G.H.)

Sympetrum scoticum (Don.) Black Sympetrum

Wokefield Common Pond, August 26th, about half a dozen observed (W.G.H.)

Order Psocoptera (Booklice)

Liposcelis bostrychophilus Bad.

Reading, January 13th. Specimen discovered in porridge oats (H.H.C.)

Cerobasis guestfalica (Kolbe)

Earley, Reading, May 6th. Specimen discovered in a house (H.H.C.)

Psococerastis gibbosa (Sulz.)

Moor Copse Nature Reserve, July 25th. Several examples beaten from alders.

Amphigerontia contaminata (Steph.)

Kennylands, September 10th. Specimen on fence post (H.H.C.)

Order Hemiptera (Plant Bugs, Aphids etc.)

Ledra aurita (L.)

Padworth, November 1st. Nymph beaten from oak.

Order Hymenoptera (Ants, Bees, Wasps and Saw-flies)

Andricus quercusradicis (Fabr.)

Sulham Woods, September 12th. The subterranean gall of this Cynipid gall-wasp was found during one of the Society's Fungus Forays. The gall contained fully-formed agamic females which would normally have emerged early in 1982. (H.H.C.)

H.H.C also writes that 1981 was notable for the early emergence of bumble bees from hibernation viz:

Bombus pascuorum (Scop.) Common Carder-bee

Abbey Rugby Football Ground, Chalkhouse Green, April 3rd (queen)

B. lapidarius (L.) Stone Humble-bee

Forbury Gardens, Reading, April 7th (queen)

B. pratorum (L.) Early-nesting Humble-bee

Kennylands, April 8th (worker, implying a queen active at the end of March)

Vespula vulgaris (L.) Common Wasp

School Service Section, Yeomanry House, Reading, January 22nd. A queen disturbed in one of the workrooms, the day being exceptionally warm for January (S.Y.T.)

Order Coleoptera (Beetles)

Lucanus cervus (L.) Stag Beetle

Reading Road, Wokingham, 1 male noted June 18th (R.J.G.)

Lilioceris lili (Scop.)

'Ashdown', Spencer's Wood. A rare species, to which reference was made at the Society's Brains Trust (S.J.W.)

V.L. collected the following species new to the area in Surrells Wood near Shurlock Row, mainly from decaying vegetable matter:-

Philonthus varians (Pay.)

March 29th in leaf litter

Mycetoporus clavicornis (Steph.)

March 29th in leaf litter

Myllaena minuta (Grav.)

September 11th among damp leaves near lake

Autalia impressa (Ol.)

September 11th

Atheta

The species of this genus are very small, very numerous and identifiable with certainty only by genitalia:

A. castanoptera (Mann.)

September 11th in decaying fungus

A. crassicornis (Fabr.)

March 29th on old bone; September 11th in decaying fungus

A. laticollis (Steph.)

September 11th in decaying fungus

A. repanda (Muls.)

September 11th in decaying fungus

A. gagatina (Baudi)

September 11th in decaying fungus

A. setigera (Sharp)

September 11th in leaf litter

A. fungi (Grav.)

March 29th on old bone; September 11th in leaf litter

Oxypoda annularis Mann.

September 11th in leaf litter

O. lividipennis Mann.

February 8th in leaf litter

Synaptus filiformis (Fabr.)

June 30th 1977

Necrobia violacea (L.)

March 29th on old bone

Order Lepidoptera (Butterflies and Moths)

Sesia apiformis (Clerck) Hornet Clearwing

Battle Hospital grounds, June 27th, 1 newly emerged female at 10 a.m. and a further 2 empty pupal cases protruding from a black poplar trunk. Moulsoford, June 28th, 1 male at rest at 9.30 a.m. on black poplar trunk.

Bembecia scopigera (Scop.) Six-belted Clearwing

Lardon Chase, Streatley, July 12th, male swept from herbage

Hesperia comma (L.) Silver-spotted Skipper

Aston Upthorpe Nature Reserve, August 15th (L.E.C.)

Erynnis tages (L.) Dingy Skipper

Hartslock Nature Reserve, May 27th (B.T.P.)

Pyrgus malvae (L.) Grizzled Skipper

Aldermaston, May 15th (P.S.)

Colias croceus (Geoffr.) Clouded Yellow

One example in a field bordering the river Kennet between Tyle Mill and Ufton Bridge, August 23rd (N. and M.D.). A welcome record of this attractive immigrant butterfly and the first in this Journal for many years

Gonepteryx rhamni (L.) Brimstone Butterfly

Bradfield, March 26th; Martimer, March 28th; Pamber Forest, April 2nd; Hartslock Nature Reserve, May 27th, eggs observed; Silchester Common, June 3rd, larvae (B.T.P.)
Northcourt Avenue, Reading, March 28th (L.E.C.)

Anthocharis cardamines (L.) Orange-tip

Padworth Gully, April 17th, 3 seen flying on this very early date. Sulhamstead, April 20th, visiting cuckoo-flowers (Cardamine pratensis) (B.T.P.)
Aldermaston, May 15th (P.S.)

Callophrys rubi (L.) Green Hairstreak

Hartslock Nature Reserve, June 4th and 15th (B.T.P.)

Quercusia quercus (L.) Purple Hairstreak

Pamber Forest and Padworth, fairly plentiful (W.G.H.)

Surrell's Wood near Shurlock Row, July 27th (J.A.L.)

Moor Copse Nature Reserve, July 25th

Upper Woolhampton, June 7th, a full grown larva on oak (B.T.P.)

Plebejus argus (L.) Silver-studded Blue

Silchester and Tadley Commons, July 29th (W.G.H.)

Edgbarrow Wood, Crowthorne, August 23rd, 1 only (R.J.G.)

Lysandra coridon (Poda) Chalkhill Blue

Streatley, August 5th, (P.S.)

Hartslock Nature Reserve, August 6th, 7 males at rest on grasses;

August 11th, about 25 males and 6 females, already worn and some rather small (B.T.P.)

Celastrina argiolus (L.) Holly Blue

Tadley, only 3 noted in a poor year for this species (W.G.H.)

Ladoga camilla (L.) White Admiral

Surrell's Wood, July 5th and 27th (J.A.L.)

Moor Copse Nature Reserve, May 10th, 1 larva on honeysuckle (B.T.P.)

Pamber Forest, July 29th, fairly numerous.

Apatura iris (L.) Purple Emperor

Padworth, July 26th, a female observed egg-laying on willow

Also at Padworth, July 29th, a female observed egg-laying (W.G.H.)

(probably the same specimen as seen by the Recorder on July 26th)

Vanessa atalanta (L.) Red Admiral

Pangbourne, May 15th (D.G.)

Wokingham, August 12th and 13th on buddleia, and 1 almost daily
September 15th to 29th in pear tree (R.J.G.)

Earley, August 25th, September 22nd and 23rd (B.T.P.)

Caversham, September 5th, 27th, October 5th (H.G.B.)

Pangbourne, September 7th, (J.A.L.)

Hartslock Nature Reserve, August 11th, very fresh on teasle,

Upper Woolhampton, August 11th, 1 settled on blue and white
clothing (B.T.P.)

Cynthia cardui (L.) Painted Lady

Reading, 1 during August (J.A.L.)

Wokingham, 1 daily from August 15th to 21st on buddleia (R.J.G.)

Aglais urticae (L.) Small Tortoiseshell

Museum School Service Section, Yeomanry House, Reading, January
22nd, a very warm day (S.Y.T.)

Very few broods of larvae noted this year (B.T.P.) (Indeed, 1981
was a very bad year for this usually common species.)

Inachis io (L.) Peacock

Bath Road, Reading, February 12th, a specimen disturbed when
moving rabbit hutch (Mrs Abbott).

Whitnights Park, Reading, July 10th, only 1 brood of larvae
observed (B.T.P.)

Polygona c-album (L.) The Comma

Northcourt Avenue, Reading, March 28th (L.E.C.)

Surrell's Wood, July 27th (J.A.L.)

Wokingham, July 20th and August 23rd, one specimen noted fre-
quently on buddleia; between September 17th and October 5th 1
specimen in pear tree on ripe fruit; Dinton Pastures, July 25th
(R.J.G.)

Boloria selene (D. and S.) Small Pearl-bordered Fritillary
Silchester Common, June 21st (W.G.H.)

Hipparchia semele (L.) Grayling
Silchester Common, August 18th; Upper Woolhampton, August 23rd,
1 feeding on mauve viola flowers (B.T.P)

Saturnia pavonia (L.) Emperor Moth
Tadley Common, 2 observed on June 9th (W.G.H.)

Gastropacha quercifolia (L.) Lappet Moth
Gipsy Lane, Earley, January, one small larva found and reared to
adult moth (female) (N.M.H.) Most of the suitable blackthorn
bushes have now been destroyed by building operations.
Emmer Green, 2 recorded in light trap (J.H.F.N.)

Ochropacha duplaris (L.) Common Lutestring
Aldermaston, July 9th (G.E-F.; K.H.P.; P.S.)

Archiearis notha (Hübner.) Light Orange Underwing
Great Wood near White Waltham, March 27th, flying around aspens,
more in evidence on April 3rd

Scotoperyx bipunctaria (D. and S.) ssp. cretata (Prout) Chalk Carpet
Streatley, August 5th (P.S.)

Pelurga comitata (L.) Dark Spinach
Surley Row, Caversham, August 13th (P.S.)
Emmer Green, 2 recorded in light trap (J.H.F.N.)

Eulithis prunata (L.) The Phoenix
Moor Copse Nature Reserve, July 17th (N.M.H.)

Plemyria rubiginata (D. and S.) Blue-bordered Carpet
Surley Row, Caversham, July 12th (P.S.)
Aldermaston, July 10th (G.E-F; K.H.P; P.S.)
Emmer Green, 1 recorded in light trap (J.H.F.N.)

Melanthia procellata (D. and S.) Pretty Chalk Carpet
Chazey Wood, July 13th (P.S.)

Rheumaptera hastata (L.) Argent and Sable
Nr. Baughurst, June 4th (P.S.)

Philereme transversata (Hufn.) ssp. britannica Lempke. Dark Umber
Surley Row, Caversham, July 7th (P.S.)

Perizoma flavofasciata (Thunb.) Sandy Carpet
Chazey Wood, July 13th (P.S.)
Emmer Green, 1 recorded in light trap (J.H.F.N.)

Cepphis advenaria (Hübner.) Little Thorn
Upper Common, Upper Bucklebury, May 16th, 1 disturbed from
Vaccinium

Plagodis pulveraria (L.) Barred Umber
Aldermaston, June 12th (G.E-F; K.H.P; P.S.)

Lomographa bimaculata (Fabr.) White-pinion Spotted
Aldermaston, June 5th (G.E-F; K.H.P; P.S.)
Emmer Green, 1 recorded in light trap, (J.H.F.N.)

Sphinx ligustri L. Privet Hawkmoth

Tadley, June 9th (W.G.H.)

Caversham, June 21st/22nd.

Emmer Green, 1 recorded in light trap (J.H.F.N.)

Hyloicus pinastri (L.) Pine Hawkmoth

Pamber Heath, July 20th (W.G.H.)

Ptilodontella cucullina (D. and S.) Maple Prominent

Caversham in light trap June 23rd/24th.1, 24th/25th 1,

July 2nd/3rd.1, 16th/17th 1.

Odontesia carmelita (Esp.) Scarce Prominent

Caversham, April 12th/13th 1 in light trap.

Cybosia mesomella (L.) Four-dotted Footman

Emmer Green, 1 recorded in light trap (J.H.F.N.)

Rhyacia simulans (Hufn.) Dotted Rustic

Aldermaston, August 4th, September 8th (G.E.F; K.H.P; P.S.)

Emmer Green, September 2nd, 18th (J.H.F.N.)

Caversham, August 5th/6th, September 3rd/4th, 15th/16th, all

as singletons in light trap, September 1st one female found resting on cabbage leaf in garden after dark. She was kept alive for 1 month, fed and cared for but refused to lay.

Until 1980 this species had not been recorded in the Reading area though long known from the extreme west of Berkshire; it therefore seems to be extending its range.

Xestia ditrapezium (D. and S.) Triple-spotted Clay

Aldermaston, July 29th (G.E.F; K.H.P; P.S.)

Hadena compta (D. and S.) Varied Coronet

Tadley, July 10th (W.G.H.)

Surley Row, Caversham, July 4th, 7th (P.S.)

Emmer Green, 8 recorded in light trap (J.H.F.N.)

Caversham, 6 recorded in light trap.

Orthosia miniosa (D. and S.) Blossom Underwing

Caversham, April 12th/13th, 1 in light trap.

O. populeti (Fabr.) Lead-coloured Drab

Caversham, March 28th/29th, 1 in light trap;

Emmer Green, 1 in light trap (J.H.F.N.)

Aldermaston, March 25th, 29th (G.E.F; K.H.P; P.S.)

Lithophane semibrunnea (Haw.) Tawny Pinion

Emmer Green, October 4th (J.H.F.N.)

L. ornitopus (Hufn.) Grey Shoulder-knot

Aldermaston, November, 1 specimen (G.E.F; K.H.P; P.S.)

L. leautieri (Boisd.) Blair's Pinion

Caversham, October 19th/20th 1, November 2nd/3rd 1;

Emmer Green, October 7th (J.H.F.N.)

Acronicta alni (L.) Alder Moth

Moor Copse Nature Reserve, August 1st, 1 early instar larva beaten from alder.

New Reserve record bringing the macro-lepidoptera list for Moor Copse to 320.

Ipimorpha subtusa (D. and S.) The Olive
Surley Row, Caversham, August 3rd (P.S.)
Caversham, July 27th/28th, 1 specimen.

Apamea sublustris (Esp.) Reddish Light Arches
Surley Row, Caversham, July 10th (P.S.)

Bena prasinana (L.) Scarce Green Silver-lines
Surley Row, Caversham, July 4th (P.S.)

Polychrysia moneta (Fabr.) Golden Plusia
Surley Row, Caversham, July 10th (P.S.)
Emmer Green, 1 specimen in light trap (J.H.F.N.)

Parascotia fuliginaria (L.) Waved Black
Tadley, July and August 7 specimens recorded (W.G.H.)

Order Diptera (True Flies)

Chaetocladus dissipatus (Edw.)
County Lock, April 4th (H.H.C.)

Paraphaenocladus impensus (Walk.)
Kennylands, March 17th (H.H.C.)

Glyptotendipes pallens (Mg.) f. glaucus (Mg.)
Whiteknights Lake, May 2nd (H.H.C.)

Bibio reticulatus Loew
Whiteknights, April 18th 1976 (R.G.L.)

Harmandia glotuli (Rübs.)
Gall on leaf of Populus tremula L. at Maidensgrove Scrubs,
September 20th (H.H.C.)

Platypalpus laticinctus Walk.
Halls Copse, Tilehurst, May 23rd/27th 1975 (R.G.L.)

Rhamphomyia umbripennis Mg.
Pamber, May 4th 1975 and May 22nd 1977 (R.G.L.)

Heleodromia immaculata Hal.
Pamber, May 4th 1975 (R.G.L.)

Dolichocephala guttata (Hal.)
Pamber, May 4th 1975 (R.G.L.)

Dolichopus signatus Mg.
Pamber, July 16th 1972 and Finchampstead Ridges, June 17th
1976 (R.G.L.)

D. wahlbergi Zett.
Pamber, July 16th 1972 (R.G.L.)

Hercostomus brevicornis (Stgr.)
Whiteknights Lake, August 22nd 1976 (R.G.L.)

Syntormon sulcipes (Mg.)
Finchampstead Ridges, June 17th 1976 (R.G.L.)

S. tarsatus (Fall.)
Whiteknights, August 25th 1975 (R.G.L.)

Chrysotus cilipes Mg.

Whiteknights Lake, August 22nd 1976 (R.G.L.)

Tomosvaryella palliditarsis (Coll.)

Whiteknights Lake, August 22nd 1976 (R.G.L.)

Phytomyza crassiseta Zett.

Finchampstead Ridges, June 17th 1976 (R.G.L.)

P. primulae Gour.

Halls Copse, Tilehurst, May 26th 1975 (R.G.L.)

Scathophaga lutaria (Fabr.) var. maculipes (Zett.)

Forbury Gardens, April 2nd (H.H.C.)

Craspedochoeta cannabina (Stein)

Kennylands, April 30th (H.H.C.)

Delia cardui (Mg.)

Goring, August 1959 (E.B.)

D. nuda (Strobl)

Reading, 1972 (E.B.)

Fannia nidica Coll.

Tilehurst, July 30th 1975 (R.G.L.)

Azelia triquetra (Wied.)

Bishopsland Farm, September 23rd (H.H.C.)

The Society's Entomological Evenings

These took place on June 26th and July 17th. The venue was Moor Copse Nature Reserve on both occasions, and 12 members attended on both visits. We were unfortunately dogged with unsuitable weather conditions throughout. This accounted for the low number of species (30 and 36), which is well below what we have come to expect in previous years. Interesting species included the Lobster Moth, the Phoenix and the Twin-spotted Carpet, whilst in the early hours of the second visit those members who stayed late were rewarded by an influx of Poplar Hawkmoths.

Contributors

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

Mrs H.G.Baker (H.G.B.); H.H.Carter (H.H.C.); Miss L.E.Cobb (L.E.C.); N. & M.Diserens (N. and M.D.); Lt. Col. G.G.Eastwick-Field (G.E.F.); Dr. R.J.Grayer (R.J.G.); D.Goddard (D.G.); N.M.Hall (N.M.H.); W.G.Helyar (W.G.H.); R.G.Leeke (R.G.L.); Dr.J.A.Lorimer (J.A.L.); V.Lorimer (V.L.); J.H.F.Notton (J.H.F.N.); K.H.Pinnock (K.H.P.); B.T.Parsons (B.T.P.); P.Silver (P.S.); Miss S.Y.Townend (S.Y.T.); Mrs S.J.Whitfield (S.J.W.). In addition, several specimens captured by the late Dr. Eric Burttt (E.B.) have recently been identified and appear here.

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

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H. H. Carter

No records of fish have been received this year.

AMPHIBIANS

Triturus cristatus (Sohr.) - Crested Newt. Breeding in the Aston Upthorpe dewpond, 5.4.81 (N. & M. D.).

T. helveticus (Raz.) - Palmate Newt. Present in large numbers in the Wokefield Common fishpond, a typical habitat with records going back to 1966. Specimens taken on 14.3.81 began courtship in captivity on 16.3.81 and duly laid eggs (P. R. C.).

T. vulgaris (L.) - Smooth Newt. Bred in the Sulham pond 1979 - 80; 2 females there 28.2.81 (P. R. C.). Present in the Aston Upthorpe dewpond 5.4.81 (N. & M. D.). One in garden at Crawshay Drive, Emmer Green 23.8.81 (M. N.).

Rana Temporaria L. - Frog. Two second-year frogs (presumably males) emerged from hibernation in a garden pond at Tilehurst 3.2.81 (a very early date) and 5 frogs remained for a week at The Laurels infant school in a small pond where spawning began 10.3.81 (P. R. C.). Frogs were breeding in the Horse Pond, Gallowstree Common, and in the lower pond at Green Door Hill, Woodcote, on 14.3.81. A female was seen at Crawshay Drive 23.3.81 and a frog at Highdown School 2.4.81 (both Emmer Green) (M. N.). Breeding at Allcroft Road, Whitley, 30.7.81. One in waterless garden in Kennylands Road, Sonning Common 27.8.81. One in garden at 'Firlands', Burghfield Common 24.9.81.

The following notes by two pupils at St. John's School, Kidmore End, are given in full because of the complete picture which they provide of the early stages of the breeding cycle:

Date	Weather	Observations
9.3.81	Wet and mild	5 male frogs in pond.
10.3.81	Mild wet & dull	10 male frogs, one goes away in afternoon.
11.3.81	Dull not so wet	A duck disturbs frogs. Two females came mating.
12.3.81	Mild and bright	3 lots of spawn 5 female and 8 male frogs.
13.3.81	Bright some rain	10 male frogs 5 female frogs.
14.3.81	Mild and damp	13 frogs 4 clumps of spawn.
16.3.81	Mild and damp	4 frogs and spawn.
17.3.81	Mild and damp	No frogs but spawn.
18.3.81	Dry and sunny	4 frogs and spawn.
19.3.81	Warmish	Around 10 frogs lots of spawn.
20.3.81	Bright dry and warm	9 frogs 8 lots of spawn. Duck disturbs frogs.
23.3.81	Very wet	No frogs today.
24.3.81	Dry warmish	We have put rocks to stop fish getting at the spawn.

On the 30th eggs hatched out. From Anthony Griffiths and Mark Taplin.

Bufo bufo (L.) - Toad. Two dead on road in Sonning Common 7.3.81. Breeding in both upper and lower ponds at Greenmoor Hill 14.3.81. Many pairs in amplexus and a number of unmated croaking males in the fishpond, Wokefield Common, 14.3.81 (P.R.C.). Breeding in garden at Allcroft Road 30.7.81. Occurs in garden at "Firlands" (Mrs. Stuckey).

REPTILES

Anguis fragilis L. - Slow Worm. One at 11 Brook Close, Wokingham (R.J.G.).

Lacerta vivipara Jac. - Lizard. Seen at the Warburg Reserve, Bix, on the Society's excursion 20.6.81.

Natrix natrix (L.) - Grass Snake. One tempted out by strong sunlight at Moor Copse 31.1.81 had been attacked by a predator (B.T.P.). Perhaps it was too sluggish to make its escape.

MAMMALS

Macropus cf rufogriseus - Wallaby. A wallaby (presumably the Red-necked, which is known to be feral in several parts of Britain) was seen in the Chilterns in November this year, but unfortunately I have lost my note of the details. If any reader can help, I should be grateful if the record could be re-submitted so that it can take its proper place in next year's report. The last record of this species in our area was in 1969, also in the Chilterns.

Talpa europaea L. - Mole. One found dead in Moor Copse 11.5.81 by S. Y. T. is further evidence (of in particular my report for 1977-78) that this species, normally associated with open ground, is in fact not uncommon in woodland.

Sorex araneus L. - Common Shrew. One killed by cat, Crawshay Drive, 15.1.81 (M. N.). Heard in Binfield Heath Lane 15.3.81. One dead on road between Reading and Eversley in March or April (Mrs. D. Coleman).

Erinaceus europaeus L. - Hedgehog. One active in Rosehill Park, Emmer Green, very early in the year, 28.1.81, one fed on sultanas at Crawshay Drive 25.8.81 (M. N.). Two courting at 13 Brook Close, Wokingham 21.8.81 (R. J. G.). One dead on road at Streatley 2.4.81 (L. E. C.). One dead in road at Woodcote 1.7.81. One dead on road at Nettlebed 1.8.81. Five living, 14 dead in the Sonning Common and Emmer Green areas from April to August (M. N. and recorder).

Pipistrellus pipistrellus (Schr.) - Pipistrelle. There were 12 - 15 in summer roost under timber cladding of Selway Cottage, Goring, 24.8.81 (Lady Harwood).

Plecotus auritus (L.) - Long-eared Bat. Reading Golf Course
3rd week of March

Vulpes vulpes (L.) - Fox. One at Rectory Road, Padworth, 31.3.81 (M. J. H.). One walking in a garden, Northcourt Avenue, Reading, 18.6.81 (L. E. C.). Juvenile with rabbit at Great Wood, Twyford, 18.7.81 (B. R. B.). One dead on road between A.W.R.E. and Aldermaston 21.8.81 (Mr. Richter). Frequent visitor to "Firlands", Burghfield Common, and said to attack young lambs there (Mrs. Stuckey). Not heard at all in the Sonning Common area this year, but a detailed description of one found dead at Cane End 7.1.81 by E. M. C. may be of interest:

Head and body 740 mm, tail excluding hairs 415 mm, hind foot 160 mm, ear 100 mm (a large male). Upper parts normal foxy brown with usual dark streak from eye to whiskers. Ears black behind as normal but spotted with white. Shoulders with a darker transverse band. Hindquarters brindled, the hairs being black at the base, white on the distal half with red tips. Underparts various shades of smoky grey. Legs with the front surface black, spotted with white, the hind surface deep chestnut brown, and the inner surface grey. Tail brindled, with hairs pale at the base and tips reddish brown or, especially on the lower surface, black. Tag white. The overall effect is reminiscent of the "Cross Fox" of the fur breeder.

Meles meles (L.) - Badger. Signs at Watlington House woods 12.4.81. Two at Bradfield Ride in August (Mr. Tipton). One in Moor Copse 12.9.81 (B. R. B.). An extensive sett under a concrete-floored shed at "Firlands" with associated tracks and signs 24.9.81. One dead on St. Peter's Hill 14.10.80 (J. le M.).

Mustela nivalis L. - Weasel. One dead on Bath Road near Prospect Park 8.11.80 (A. P.). One dead on road between Whitchurch and Birch Copse school, Tilehurst, 4.11.80 (Mr. Smith). Female dead on Whitchurch Hill 13.12.80 (Mr. Sandford). Two records of weasels dead on road without details, March and/or April 1981. One dead on road between Theale and Pangbourne 8.7.81 (Mrs. East). One seen crossing road at Rotherfield Greys 9.7.81. One dead in Kennylands Road 25.7.81, one seen crossing Peppard Road at Bishopsland 11.9.81.

M. evermanni Less. - Polecat Ferret. One seen at Bracknell brick works 20.8.81 (P. Wilcox).

Oryctolagus cuniculus (L.) - Rabbit. One seen dead in road at Streatley 2.4.81 (L. E. C.). The recorder saw 10 at Winnersh 10.4.81 and 4 at Sandford Lane, Woodley 29.7.81 and had 282 sightings in the Sonning Common area from January to October (maximum 13 at an overgrown pit, Chalkhouse Green 24.7.81). Numbers seem to be much as last year.

Lepus capensis Pall. - Hare. Six beside the Portway near North Stoke (E. M. C. and M. J. C.). One in Lady's Shaw, Sonning Common, 5.5.81. One at Kennylands, 19.5.81.

Arvicola amphibius (L.) - Water Vole. Two in the Emm Brook at Woosehill, Wokingham, 30.6.81 (R. J. G.).

Microtus agrestis (L.) - Short-tailed Vole. One dead on road at Bishopsland (female) 11.11.80. One killed by cat at Crawshay Drive 22.11.80 (female), 9.2.81, 14.2.81, 14.3.81, 26.4.81 (female), 29.6.81, 30.7.81 (male), 2.9.81 (female) (M. N.). One at Kennylands 22.5.81, one dead there 22.9.81.

Apodemus sylvaticus (L.) - Wood Mouse. One at Cutbush, killed by cat 10.12.81 (Mrs. Bray). One or more killed by cat at Crawshay Drive 21.11.80 (female), 30.12.81 (juvenile female), 1.1.82 (female pregnant with 4 young), 2.1.81 (female), 17.1.81, 27.1.81 29.1.81 (female), 3.3.81 (three), 11.3.81, 20.3.81 (four juvenile females), 22.3.81 (male) 1.4.81 (male), 2.7.81, 3.7.81, 13.7.81, 26.7.81 (female), 4.8.81 (female), 25.8.81 (male), 27.9.81 (female), 29.9.81 (female), 30.9.81 (female) (M. N.). One at Peppard Common 15.3.81. One dead at Gallowstree Common 17.4.81.

A. flavicollis Mel. - Yellow-necked Mouse. Male caught by cat at Crawshay Drive 22.11.80 showed characteristic markings of this species. Unfortunately the carcass could not be made available to me for making the measurements which would have confirmed this identification. I am curious to know what Margaret Notton's cat is fed on. Does it eat all the Yellow-necked Mice it catches, leaving less succulent prey for its mistress?

Micromys minutus (L.) - Harvest Mouse. An old nest at Gipsy Lane 24.1.81 (B. T. P.).

Rattus norvegicus Berk. - Brown Rat. A small colony at Kennylands Road most of the year, re-established itself after poisoning. One dead on Peppard Road 7.1.81. One adult, one juvenile at Dinton Pastures 29.7.81.

Sciurus carolinensis Gmel. - Grey Squirrel. Seen at Highdown School, Emmer Green 20.11.80 (two), 28.11.80, 31.3.81, 24.8.81 (two) and 25.9.81, in Courtenay Drive, Emmer Green, 22.9.81 and at St. Mary's Butts 26.9.81 (M. N.). One at Stoke Row 17.1.81. One at Riseley 4.7.81. One at Whiteknights 2.5.81. Three at Kingwood Common 27.9.81 (E. M. C.). One in Northcourt Avenue, Reading, 4.4.81 and one in Vicarage Road, Reading 8.10.81 (L. E. C.). Four dead and 19 living in the Sonning Common and Emmer Green areas from January to September, maximum 5 in Old Copse, Sonning Common 2.5.81.

Dama dama (L.) - Fallow Deer. Doe at Mill Lane, Tokers Green 11.2.81. Two in Flowercroft Wood 18.4.81. One in Wyfold Wood 19.4.81.

Capreolus capreolus (L.) - Roe Deer. Two in wood above Bucklebury Slade 16.5.81 (B. R. B.).

Muntiacus reevesi Og. - Muntjac. One in the Warburg Reserve at Bix, 14.5.81 (R. J. G.). One seen in his garden at Chapel Hill 27.5.81 (R. Leeke). One in New Copse, Gallowstree Common, 9.1.81. One calling to the south of Sonning Common 11.2.81. One heard near Blackmore Lane, Sonning Common, 1.3.81. Tracks at Watlington House 12.4.81. One calling Wyfold Wood 15.4.81. Two in Crosscroft Wood, Peppard 16.4.81. One calling south of Kennylands Road 22.9.81.

Contributors:

Mr. Brian R. Baker, Mrs. Elizabeth M. Carter, Miss Mary J. Carter, Miss Leonie E. Cobb, Mrs. Paula R. Cox, Mr. Neville & Mrs. Mary Diserens, Dr. Renee J. Grayer, Mr. Malcolm J. Hitchcock, Mrs. Joy le Mare, Mrs. Margaret Notton, Mr. Basil T. Parsons, Mr. Arthur Price, Miss Shirley Y. Townend and others whose names are given in full in the text.

Monthly Weather Notes, 1981

M. Parry

- JANUARY Mild, sunny and much drier than usual: only a little over half the average rainfall.
- FEBRUARY On the cold side, due to Easterly winds settling in after a mild first week. Again very dry ($1/3$ average rainfall) and quite sunny.
- MARCH Surprisingly warm, due to dominant South-westerly winds, 2.5°C above average and only one air frost: the warmest March since 1961. Also very unsettled, with rain on all but 5 days: the wettest March since 1947 and the dullest since 1964.
- APRIL Temperature, rainfall and sunshine all a little below average.
- MAY Near-average temperatures but an unsettled month, with much rain and little sunshine: included the year's longest spell of consecutive rain days (a fortnight!).
- JUNE Rather cold, very dry (and half its rain fell in 1 day) but also very dull.
- JULY Average temperature and rainfall, but rather deficient in sunshine. Nearly all the rain fell in the last week.
- AUGUST A mainly anticyclonic month, on the warm side, dry and sunny. Included the warmest day of the year. Two-thirds of the rainfall arrived on one day.
- SEPTEMBER A little warmer than usual. After a dry start (together with the end of August an absolute drought i.e. 15 consecutive days, none of which has 0.2 mm of rain, was established by the 4th) the month became unsettled and rainy, with rainfall finally 50% above normal.
- OCTOBER Cold (2°C below average), windy, with average sunshine and a little above average rainfall.
- NOVEMBER On the mild side, dull but with only half the average rainfall.
- DECEMBER A dramatic month! The coldest December mean since records began at the University in 1921, fully 3.7°C below average, and including a record low minimum temperature -13.4°C (or just under 8°F) beating the -12.8°C on 23rd January 1963 and 15th February 1929.

WEATHER RECORDS : 1981

contributed by M Parry

STATION : READING UNIVERSITY

		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Mean Daily Temperatures °C	Max.	7.8	6.6	11.1	12.2	15.4	17.5	20.9	22.0	19.4	12.2	10.9	3.9	13.3
	Min.	1.8	-0.7	6.0	4.1	7.5	9.6	11.7	11.8	9.9	4.9	4.3	-2.3	5.7
	Mean	4.8	3.0	8.6	8.2	11.5	13.6	16.3	16.9	14.7	8.6	7.6	0.8	9.6
	Range	6.0	7.3	5.1	8.1	7.9	7.9	9.2	10.2	9.5	7.3	6.6	6.2	7.6
Extreme Temperatures °C	E. Max	11.5	13.5	16.2	21.2	21.2	24.9	26.1	27.7	24.8	18.1	15.9	9.7	27.7
	Date	2	6	28	10	11	14	8	5	6	1	1	3	Aug. 5
	E. Min.	-2.3	-7.0	-0.1	-0.7	-0.4	5.5	8.0	6.5	5.7	-1.8	-1.3	-13.4	-13.4
	Date	13	21	18	28	5	29	25	17	14	16	6	13	Dec. 13
E. Grass Min.		-7.5	-13.3	-5.2	-6.0	-5.7	0.5	2.7	-0.2	-0.7	-7.0	-6.6	-16.1	-16.1
	Date	5	21	18	21	3	29	19	17	29	16	6	13	Dec. 13
Days with frost		12	18	1	2	1	0	0	0	0	1	4	19	58
Days with ground frost		19	22	6	14	2	0	0	1	3	12	14	23	116
Hourly Flows	Sum	55.8	73.4	66.1	135.6	119.8	165.0	165.0	225.5	149.9	103.9	48.6	52.3	1360.9
	% Poss.	21	26	18	33	25	33	33	50	40	31	18	21	30
	Daily Mean	1.8	2.6	2.1	4.5	3.9	5.5	5.3	7.3	5.0	3.3	1.6	1.7	3.7
Precipitation mm.	Amount	35	15	111	44	79	29	67	38	107	73	37	85	720
	Rain Days	14	7	26	9	24	7	9	4	13	21	13	14	161
	Max. rain in one day	6.9	5.6	12.6	14.9	11.8	14.9	26.9	23.5	21.1	14.7	9.8	17.6	26.9
	Date	6	27	12	25	24	1	31	6	25	19	16	13	July 31
Longest run of Consecutive Rain Days		6	2	12	3	14	2	3	3	4	9	6	3	14
Longest run of Consecutive Dry Days		10	11	2	7	3	12	6	11	9	3	11	5	12
Number of Sleet Days		5	5	0	2	0	0	0	0	0	0	0	9	21
Days snow Lying		0	1	0	0	0	0	0	0	0	0	0	14	15
Fog at 0900 GMT		3	1	0	0	1	0	0	0	0	0	0	2	7
Thunderstorm Activity	Days of Thunder	0	0	1	0	3	1	2	1	1	1	0	0	10
	Days of Hail	1	0	1	0	0	0	0	0	0	2	0	0	4

Membership

The following changes in membership have occurred since the publication of the Reading Naturalist no. 33:-

Loss through Death

Mrs. C. D. R. Flower

Resignations and Lapses

C. L. Brown, Nicola Brown, S. M. Brown, Mr. & Mrs. M. G. Bryant, Mr. & Mrs. G. A. Bull, Peter Cuss, P. G. Eastwick-Field, Mrs. M. Ewing, Lt.-Col. & Mrs. Ferguson, Colin and Katherine Fletcher, Mr. & Mrs. R. Gentle, Emma & Toby, Mr. & Mrs. H. Gentry, Sanjeev Gupta, Mr. & Mrs. J. A. Guymmer, Mr. & Mrs. A. G. Harrison, Mrs. J. D. Harrison, E. Hemken, Philip Hooper, C. W. Jeffery, Mrs. R. Pauline, Mrs. J. Preece, Mrs. W. Norman Taylor, Miss M. S. Terry, G. E. A. Titcomb, Miss Frances Vleugels, Mrs. M. L. Vybiral, Mr. & Mrs. Van der Watt, Mrs. P. Whish, Mrs. P. M. Whittaker, Reading Geological Society.

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Beard, Daniel, " " "
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