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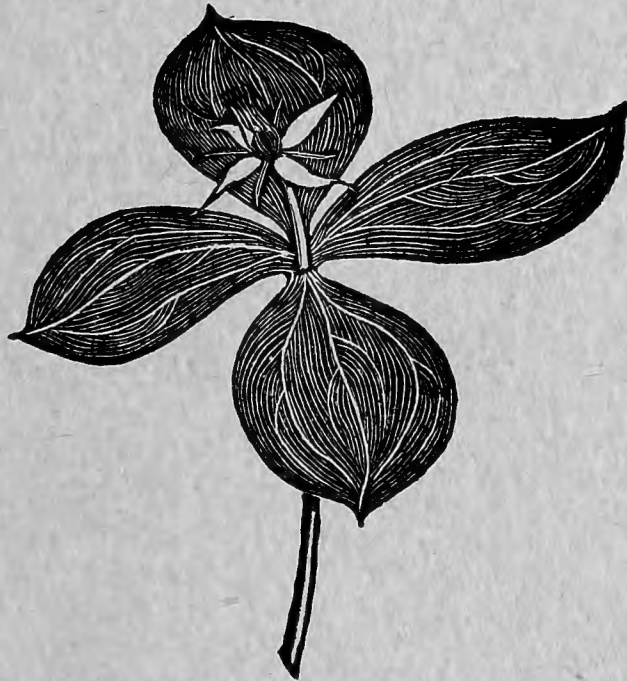




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NATURAL HISTORY

# The Reading Naturalist

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THE READING NATURALIST

No. 23 for the year 1969-70

The Journal of  
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Society

President:

Miss L. E. Cobb, B.A.

Hon. General Secretary:

Mrs. K. F. Rhodes  
65 Tilehurst Road  
Reading  
RG3 2JC

Hon. Editor:

Miss E. M. Neimes  
27 Westbourne Avenue  
Acton, W.3.  
6JL

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CONTENTS

	Page
Meetings and Excursions, 1969-70	3
Presidential Address:	
Our fish ancestors	C. J. Leeke 4
The successful mating of two full albino frogs ( <u>Rana temporaria</u> L.)	A. Price 9
A study of some beetles (Coleoptera-Polyphaga) found in cow dung (Abstract)	D. J. Weston 12
A letter from Canada	D. Leatherdale 18
The natives in my garden	K. F. Rhodes 22
Cothill and Dry Sandford Pits	M. R. W. Sell 25
An account of the Society's excursion on June 13th 1970. Grasses	M. V. Fletcher 28
Report on Aston Upton Reserve - 1970	M. R. W. Sell 30
Honorary Recorders' Reports:	
Botany	B. M. Newman 32
Entomology	B. R. Baker 37
Vertebrates	H. H. Carter 44
List of Members	52



Meetings and Excursions 1969-70

Mr. C. J. Leeke delivered his Presidential Address entitled "Our Fish Ancestors" at the Annual General Meeting (attendance 44). Two evenings were devoted to members' exhibits, talks and slides (29 and 31). The lectures delivered at the remaining indoor meetings were "A Look at Flowers of the South African Cape Region", by Mr. R. T. Pearl (38); "Trees in Towns", by Mr. W. J. Dulborough (33); "The Work of the Nature Conservancy", by Mr. H. J. Williams (49); "Bees", by Mr. G. R. Hawthorne (44); "Micro-organisms and the Leaf Surface", by Dr. H. Owen (32); "Bird Art and Illustration" by Mr. R. Gillmor (31); "Geology and Landscape in Britain with particular reference to Berkshire", by Mr. R. Jessup (49) and "Jungle on the Doorstep, or Wildlife in Trinidad", by Mr. M. Hardy (42).

Winter walks were held on 1st November, Aston Upthorpe Down (attendance 9); 6th December, Dunsden Chalk Pit (3); 3rd January, Emmer Green (8); 7th February, Theale and Burghfield for birds (11); 7th March, Englefield for lichens (4).

The summer field meetings were: 18th April, Mongewell Wood area (12); 2nd May, Clayfield Copse, Emmer Green (18); 14th May, Reading Corporation Nurseries; 16th May, Sulham Woods (13); 30th May, Chiltern Escarpment near Chinnor (c. 12); 7th June, coach excursion to Middlebere Heath and the Isle of Purbeck (28); 13th June, Sonning, Peppard and Gatehampton to study grasses (25); 24th June, Thames-side from Reading to Sonning (4); 27th June, Whitehorse Hill (16); 8th July, Horticultural Research Laboratory Gardens and Historical Rose Garden at Shinfield Grange; 11th July, Stanford Dingley, Blue Pool, and River Pang; 25th July, Pamber Forest, afternoon walk (15) and entomological evening (6); 29th July, ditch near Pangbourne (4); 8th August, Thames-side from Wargrave to Reading (15); 22nd August, Heath Pool, Finchampstead (fresh-water biology) (15); 5th September, Ashley Hill (14); 19th September, Theale, Kingsclere, Inkpen Beacon (Geology and land forms) (c. 25); and 3rd October, fungus foray at Kingwood (26).

The 12th Young Naturalists' Evening was held in the Large Town Hall on Wednesday, 11th February 1970. The Panel, consisting of Dr. H. J. M. Bowen, Dr. J. R. L. Allen, Mr. W. D. Campbell and Mr. C. J. Leeke, faced an audience of about 500 Reading schoolchildren. Mr. J. F. Newman was Questionmaster and about 30 of the 662 questions submitted were answered. Prizes for the 8 best questions were presented by the Right Worshipful the Mayor of Reading, Alderman Mrs. E. E. Lovett, who then joined the children to watch the Lincolnshire Naturalists' Trust film "Nature in Trust". Prizewinners were:- Elizabeth Brown, Abbey Junior School (10 yrs.), Geoffrey Crosson, Cintra Secondary School (14 yrs.), Teresa Flowers, Redlands Primary School (7 yrs.), Joanne Horwood, Norcot Primary School (10 yrs.), Paul Keep, E. P. Collier Primary School (11 yrs.), J. Matthews, Reading School (12 yrs.), Roger Thorne, Grovelands Primary School (10 yrs.) and Jane Woolford, Alfred Sutton Secondary Girls' School (12 yrs.).

OUR FISH ANCESTORS

The Presidential Address  
to the Reading and District Natural History Society  
16th October 1969

I suppose my interest in fish began soon after my introduction to their natural habitat, when, as a small boy, I fell into the paddling pond at Christchurch meadows; since then I have been fascinated by water and the organisms that live in it. If you have not lain down to gaze into the clear water of a flowing ditch, with its clumps of brilliant green starwort and its iridescent sticklebacks, then you have not lived.

Fishes were the ancestral vertebrates, having their origins more than 500,000,000 years ago. They have experienced several great adaptive radiations following the appearance of structural novelties. Since 1920 it has been thought necessary by eminent systematists to classify the group into several distinct classes. Jordan suggested six classes, Romer suggested four and Berg suggested twelve. That there has been such disagreement is indicative of the diversity of the group.

However, for the purpose of this address I have chosen to discuss some of the more important of the structural novelties which have been instrumental in producing the higher vertebrate classes. The following scheme shows the relationships of the classes of vertebrates to each other, after Romer.



Garstang's theory has been generally accepted that pre-vertebrates developed from echinoderm larvae probably in the Cambrian period. These larvae, like the pre-vertebrates, must have been very small and delicate and left no known fossils. The Ordovician fish fossils however were several inches long, with bony dermal plates and skeletons. The development of bone has been of fundamental importance to vertebrates, particularly in the attainment of large size and in conquering the land. Bone is a mixture of calcium phosphate and calcium carbonate, forty parts to sixty, it is consistent and peculiar to the vertebrates.

Since all the echinoderms have been and are marine it follows that the pre-vertebrates originated in the seas probably in some shallow coastal regions such as the long narrow seas which geologists tell us divided the N. American continent running from North to South and fed by rivers slowly flowing from East or West. The

gentle flow would enable the less dense freshwater to float over the more dense seawater for some time before mixing. The new little pre-vertebrates were not good swimmers and could be carried into estuaries by tides where they would find a rich manna falling as from heaven, from the freshwater above. As they increased their size and swimming power they would be able to penetrate further into the estuaries but they would then encounter an osmotic pressure which would cause them to absorb water and they would have to retreat or die.

Many of those who went too far probably did die, but it has been shown in a marine worm, Gunda, that the membranes become less permeable in the presence of divalent ions such as calcium and it is likely that such ions were available in and around the estuaries. In small creatures with a high surface-to-bulk ratio and isotonic with an aquatic medium, there is no need for sophisticated organs of excretion or of osmoregulation, therefore if some of them could absorb divalent ions they would tend to retain them and slowly build up a concentration which would decrease the permeability of their membranes. Such creatures could venture into increasingly fresh water for longer periods of time.

So far this is fine, our pre-vertebrates can now swim into rivers where there would be none of their marine predators and a plentiful supply of food, they being detritus feeders filtering small particles from the water by ciliated tracts. Their inability to excrete calcium ions would eventually however become an embarrassment, but calcium carbonate and phosphate can be precipitated and the thesis is that this happened in many of the body membranes or epithelia, particularly in the ectoderm in the less mobile head region and internally in membranes, where growing musculature exerted stresses. This would account for the bony skeletons and armour of the early fish fossils.

Further advantages would accrue from these structures. The surface would become much less permeable to water and increased skeletal strength would allow an increase in size and therefore better swimming power, which would buy time for the developing kidneys to cope with osmoregulation and to take over the increasing excretion of nitrogenous compounds and excesses of otherwise useful substances. Modifications in the nature of the nitrogenous compounds and in the structure of the kidney tubules is a story in itself.

It may be worth saying that pre-adaptation is probably the rule in all important structural innovations; they have to be available when the need arises, they cannot develop in time to be of use in response to a situation which creates a need. Thus the early pre-vertebrates could not live in freshwater nor even move into it for long without some protection from the osmotic pressure. Similarly it will be obvious that the subsequent developments

described here, occurred without prompting and stayed because they proved useful.

In a wide range of Ordovician fossils there was a mouth with no jaws or teeth and ten pairs of gill slits supported by bony gill arches. These animals were filter feeders as their forbears had been and the larvae of their descendants, the lampreys, still are. They belong to the class Agnatha and have several primitive features that distinguish them from all other fish.

The more advanced fish have jaws but none have more than seven pairs of gill arches. In the Gnathostomes, as all jawed vertebrates are called, the first two gill slits have disappeared completely, the mouth has moved back to occupy the position of gill slit number three and its pre- and post-trematic arches have become the upper and lower jaws respectively. There is good palaeontological and embryological evidence for this.

The attainment of jaws and teeth immediately allowed their possessors to turn their attention to different sources of food. They could now eat large pieces of plant or animal matter not available to filter feeders and they could obtain nourishment more quickly. Therefore this development was important in increasing their size.

An increase in size has far reaching results. It improves the individual's survival chances whether in interspecific or intraspecific competition and obviously improves the survival chances of the species as a whole. Further, the larger an animal is, the more cells it will have, not only for muscular power, but for more complex mental processes and the substitution of reason for instinct, thus allowing more varied responses to given stimuli.

So successful was the acquisition of jaws that there was a great radiation of types and the waters became crowded. Several groups of fish moved back into the seas where they gave rise to the sharks, rays and chimaeras of today. The remainder spread further into the lakes and rivers where another novelty arose.

With a further loss of the two posterior pairs of gill slits, one of these became a pair of closed pouches retaining its connection with the pharynx and its blood vascular system. Immediately, a new organ had arisen called a lung, which could be filled with air gulped from the surface and which enabled its possessors to survive in the Silurian and Devonian waters when generally warm climates reduced the oxygen content and evaporated the water to dangerously low levels. Once an organ is initiated and it confers a benefit under existing conditions, there is selection pressure which brings about improvement of efficiency in its function.

Again a successful novelty produced a great radiation of types, some returning to the sea while others like the Dipnoi

(lung fishes) and the Crossopterygii (coelacanths and an important extinct group called Rhipidistia) stayed in freshwater. Eventually, by the end of the Cretaceous period, the coelacanths too had moved to the sea and simply enlarged from about a foot to upwards of five feet in length.

To go back to the other groups, those that moved to the sea had no real use for lungs in a medium so vast and with so much wave action that there was never a shortage of oxygen. Further changes occurred and the lungs became sealed air chambers which could be inflated or deflated, within limits, to adjust the density of the fish and therefore, acting as a hydrostatic organ, enabling the animal to remain suspended effortlessly at any reasonable depth. Some of their descendants again entered the rivers and lakes to become the ancestors of such modern fish as pike, eels, minnows and sticklebacks.

The lungfishes, once widespread and numerous and now represented by only three species, one each from South America, Africa and Australia, are suffering a severe decline in face of competition from the more active hydrostatic teleosts and possibly changes in the habitat.

In the Dipnoi and Coelacanthini are found peculiar fins supported on short limbs which have, unlike any other living fish groups, a bony skeleton. Here now is an interesting situation. Certainly by the Devonian, and possibly in the Silurian, were creatures with bony skeletons, with jaws and teeth, with lungs and the rudiments of limbs, poised for the step onto land. However, it was neither the Dipnoi nor the coelacanths who took that step but some unknown member of the Rhipidistia.

Comparison of modern tetrapod, limb skeletons show them to have a common form, whether they be amphibian, reptilian, avian or mammalian. In all of these there is a single bone joined to two bones which then connect to a group of small bones and finally thereon depends no more than five digits. This wonderfully adaptable pentadactyl limb can be shown to be basically like the skeleton found in the proximal region of the rhipidistian fin.

This group of fishes became extinct over 250,000,000 years ago, but what earth-shattering descendants they left. The mighty dinosaurs who ruled the earth for over 100,000,000 years and man, who has only just arrived on the scene but has already made changes more far-reaching than were made by the whole of the dinosaur dynasty, are examples as also are the giant whales who rule the seas.

For 300,000,000 years our fish ancestors, moving between seas and rivers several times, diversified and innovated and collected together more important structural novelties than any

other vertebrate group has done. Perhaps the only novelty comparable to those discussed here is the development of the cerebral hemispheres in the primates, culminating in Homo sapiens who is able to consider his history as we have, but we must remember that these structures had their origin in the neopallium of an ancestral fish brain.

C.J. Leeke

Members will be sorry to learn that Mr. Moon, who for many years now has provided and commented on our meteorological data, is this year unable to do so because of illness. We hope that he will soon be quite recovered and will produce our weather reports for many years to come.

The Successful Mating of two Full Albino Frogs (*Rana temporaria* L.).

by Arthur Price

The two 1967 double recessive frogs were taken out of hibernation on 22nd February 1970. The male was 62 mm. in length and 26.4 g. in weight, the female 66 mm. and 39g. Both were in good condition; the male's nuptial pads were black. In spite of the failure of the 1969 mating of these two frogs, it was decided to give them another chance.

On 1st March 1970 they were placed in the south enclosure of the froghouse and nine hours later they were in amplexus, remaining in this position for thirty-seven days. On 6th April 1970, 220 ml. of white spawn was laid. Later that day 90% of the eggs were seen to be dividing and by 11th April the neural ridges could be seen. About 700 DR tadpoles hatched on 8th April but they were not very vigorous and swam with difficulty. By 5th May all these tadpoles were dead. Again it seems that the sib relationship carried with it a lethal element.

Following oviposition by the 1967 DR female, the 1967 DR male was placed in the north enclosure of the froghouse with one of the 1968 DR females. Individual identification of the 1968 DR's was not possible. The two frogs went into amplexus the same day and ten days later 125 ml. of white spawn was laid containing approximately 750 eggs. After oviposition the female was 54 mm. long and weighed 11.65 g. Immediately after disengaging, the 1967 DR male went into amplexus with another 1968 DR female but no spawn was laid. This adds up to fifty-four days of continuous amplexus for the male. Who can say that all albinos are weakly creatures? Of the 750 eggs, 90% were fertile and by 17th April 1970 the neural ridges were visible. The tadpoles which hatched were all double recessives and quite vigorous. Only 1% showed the kinked tail. To lessen the chance of total loss of this valuable stock the tadpoles were widely dispersed. Some were given to the local schools and some to interested naturalists.

Twenty-four of these tadpoles were given to Pat Smallcombe who, in November 1970, still had five living DR frogs in an enclosure in her garden. Mr. B. Butcher, who took over his son's stock, also has four living DR frogs.

The majority of the tadpoles were kept in tanks on my study desk but later some were transferred to the froghouse where they made good progress. By 17th May 1970, I had 400 living tadpoles of this stock. This figure included the tadpoles which had been distributed. Nearly all of these DR tadpoles showed a progressive pigmentation of the gall bladder, ranging through pink, red, pale green, green, dark green to black. These were the stages in the development of the 'Black spot' reported earlier. In this case



the black spot did not persist and no tadpoles or frogs were lost as a result of it. During June/July some 200 DR frogs metamorphosed and again they were dispersed as a precaution against loss. The frogs were fed on aphids, spiders and insects and made very good progress. In November 1970 I still had twenty-nine living DR frogs of this brood ranging in length from 25 to 37 mm.

Three other 1968 DR females were successfully mated in the spring of 1970 and laid fertile, white spawn. One was mated with a normal male and all the tadpoles pigmented as expected:

CC male X cc female ----- Cc + Cc + Cc + Cc

The other two 1968 DR females were mated with Jim, ? SR male, and 1968/10, ? SR male. Both these pigmented males developed from white spawn which had been laid by a pigmented female and one could have expected

cc female X Cc male ----- cC + cC + cc + cc

That is to say, 50% DR tadpoles. This, however, was not the case, as both matings resulted in all the tadpoles pigmenting as they developed, suggesting that neither male was a simple single recessive. More than one gene could possibly be involved.

There are now in the froghouse twenty-four 1970 pigmented frogs which had a DR mother and 1968/10 ? SR for a father. When these frogs breed in 1972 a few questions could be answered.

Eight of the nine 1968 ? SR pigmented female frogs, which hatched from white spawn samples, laid black spawn. One clump was infertile whilst the other seven produced 100% pigmented tadpoles. This is not as expected if pigmented, white-spawn progeny are single recessives. We should have had

Cc male X Cc female ----- CC + Cc + cC + cc

These results suggest that frogs which develop from white spawn which was not laid by pink females are not all single recessives.

The ninth female, 1968/4, laid a mixed batch of spawn; one-third of the eggs were dark grey, one-third speckled grey and one-third were white. The male was a presumed single recessive and all the tadpoles pigmented. Pressure of work prevented detailed work on this mixed batch of eggs.

The two pigmented males, 1968/10 and Jim, together with the female 1968/4 who laid the mixed clump of spawn, have been retained for further breeding. All the other pigmented female frogs and their tadpoles have been released in the lake in Whiteknights Park.

A further attempt was made to mate Mickie, the DR male, with the Matriarch, who lays white spawn, but this was unsuccessful as they did not go into amplexus. The Matriarch was later mated with Jim, a ? SR male, and on 31st March 1970 laid 520 ml. of white spawn containing two black eggs. Only three eggs were fertile, two



hatched, none metamorphosed.

An earlier mating of Mickie and the Matriarch produced 'Arfer' who for obvious reasons was later renamed 'Marfer'. She is now 70 mm. long and weighs 37.5 g. and an attempt will be made in 1971 to cross her with the 1967 DR male. The result should be

cc male X Cc female ----- cC + cC + cc + cc

Only time will tell.

Frogs of the 1965 pigmented stock have now all been released with their tadpoles or have died.

A further series of visits was made to the pond in Highmoor Road in the spring of 1970. Owing to the prolonged cold weather in the spring no frogs were seen in the pond until 22nd March when seventeen single frogs and six pairs in amplexus were seen. They again resembled the recessive stock with the black patterns; no albino or partial albinos were seen in the pond. Even in the early days of the season there was a preponderance of males. A total of fifteen clumps of white spawn and twenty-six clumps of black were seen. Samples of the white spawn were taken just before a severe frost damaged the remaining white spawn in the pond. After this frost not one white tadpole was found in the pond. A total of 150 DR tadpoles were found in the 10,000 tadpoles which hatched from the samples. These tadpoles were typical textbook albinos, asymmetrical and swimming in circles. Not one metamorphosed. Half the samples were returned to the pond while the others were placed in the lake in Whiteknights Park. Ten mature and twenty-nine immature DR frogs were still alive in November 1970.

Thanks are due to many people who have assisted me in this work and to none more than my sister, Mrs. G. Beeching, whose interest and help is never failing.

#### Summary.

1. Five female DR frogs laid fertile white spawn.
2. The tadpoles which hatched from spawn resulting from the mating of 1967 female and male DR's again failed to metamorphose.
3. The mating of 1967 DR male with 1968 DR female was successful. Twenty-nine 1970 DR frogs survived in November 1970.
4. The frogs which develop from white spawn laid by pigmented females are not all simple single recessives.

#### References.

- Price, A. Reading Naturalist Nos. 19 (1967), 20 (1968), 21 (1969), 22 (1970).

A STUDY OF SOME BEETLES (COLEOPTERA - POLYPHAGA)  
FOUND IN COW DUNG. (ABSTRACT)

by D. J. Weston

Reading School, 1967

The objectives of this study were to try to find the optimum conditions for some of the species of beetle found in the dung of a herd of beef cattle, which was kept outside throughout the year near Sonning Common, Oxon., and to investigate the life history of one of them.

The species recorded, following Joy's nomenclature, were:-

Family Aphodiinae - Aphodius fossor (L.), A. fimetarius (L.), A. luridus (F.), A. depressus (Kug.) and A. rufipes (L.).

Family Aleochariinae - Aleochara villosa Mana.,  
A. lanuginosa Gr.

Family Sphaeridiinae - Sphaeridium scarabaeoides (L.),  
Cercyon haemorrhoidalis (F.) and  
C. melanocephalus (L.).

The study was centred on the Aphodiinae and it would seem that little is known about these beetles. Authoritative works, such as Fowler "Coleoptera of the British Isles", describe the adults but give little information about the larvae and none about the pupae. The life history of *Aphodius fossor*, one of the largest of the beetles, was investigated.

The habitat

Dung pats are microhabitats, but their ecology is closely connected with the more general habitat in which they occur. The area of the study consisted of three fields grazed in rotation by a herd of about 20 beef cattle, so that either fields 1 and 2 or fields 2 and 3 were in use at any one time.

The fields were on soil overlying chalk, which in the drier places came to within 3 ft. of the surface. Because of a gentle slope towards the centre of the area from both the north and the south the central region tended to be damper and it was here that most pats were found, possibly because of lush grass in this part.

The cattle tended to walk along some boundaries that were either near where they were given supplementary foods or that kept them from adjacent fields. They also used a telephone pole as a rubbing post and sometimes sought the shelter of a large hedge along the east boundary. In these parts also the occurrence of dung pats was above average.

Beetle populations were highest in the damper regions, perhaps because the desiccation of the pats was slower here. It was noticed that where larvae of the Tabanidae (Diptera) were found in dung, on the drier ground, the only beetles present were Staphylinids. So the different conditions may be important in reducing the competition between these various larvae for food.

Finally, the composition of dung of a given age is fairly constant from animal to animal over short periods of time, but differs slightly over longer periods due to the seasonal changes in the composition of the herbage.

### Methods

Dung pats were collected, weighed and dissected to remove the beetles, larvae and other animals which were then identified, counted and recorded with their position in the pat. The zones recognised were the outer crust, the centre and the bottom. The age of all pats taken for analysis was recorded. At first this was found by marking the fresh pat with a stick in the ground beside it and recording the date. This proved to be accurate when the stick was not trampled by the cattle, but very time consuming. However, it was found possible to construct a colour scale, which, in conjunction with texture, enabled the pats to be dated with reasonable accuracy at first sight. In general dung pats lasted 30 days before beginning to disintegrate, by which time they were straw-coloured and dry.

A suspension of 1g. dung in 2 cc. of freshly distilled water was tested for its pH value, which was recorded. A 50g. sample of the dung was then analysed for water, organic and mineral contents. The sample was weighed, then carefully heated to evaporate all the water, and the new weight was recorded. The sample was then ignited by fierce heating in a crucible to remove all organic matter. The residue is the ash or mineral content, which was weighed and recorded. The weights of water and organic matter were found by subtraction, and by doubling all these results the percentages were obtained.

In all, 2257 beetles and larvae were counted from 85 pats.

In order to try to discover the events in the life cycle of A. fossor a pat was selected in which this beetle predominated and a diary was compiled from observations taken over 7 weeks.

Results

Chart 1 Distribution of beetles and larvae in time and space.

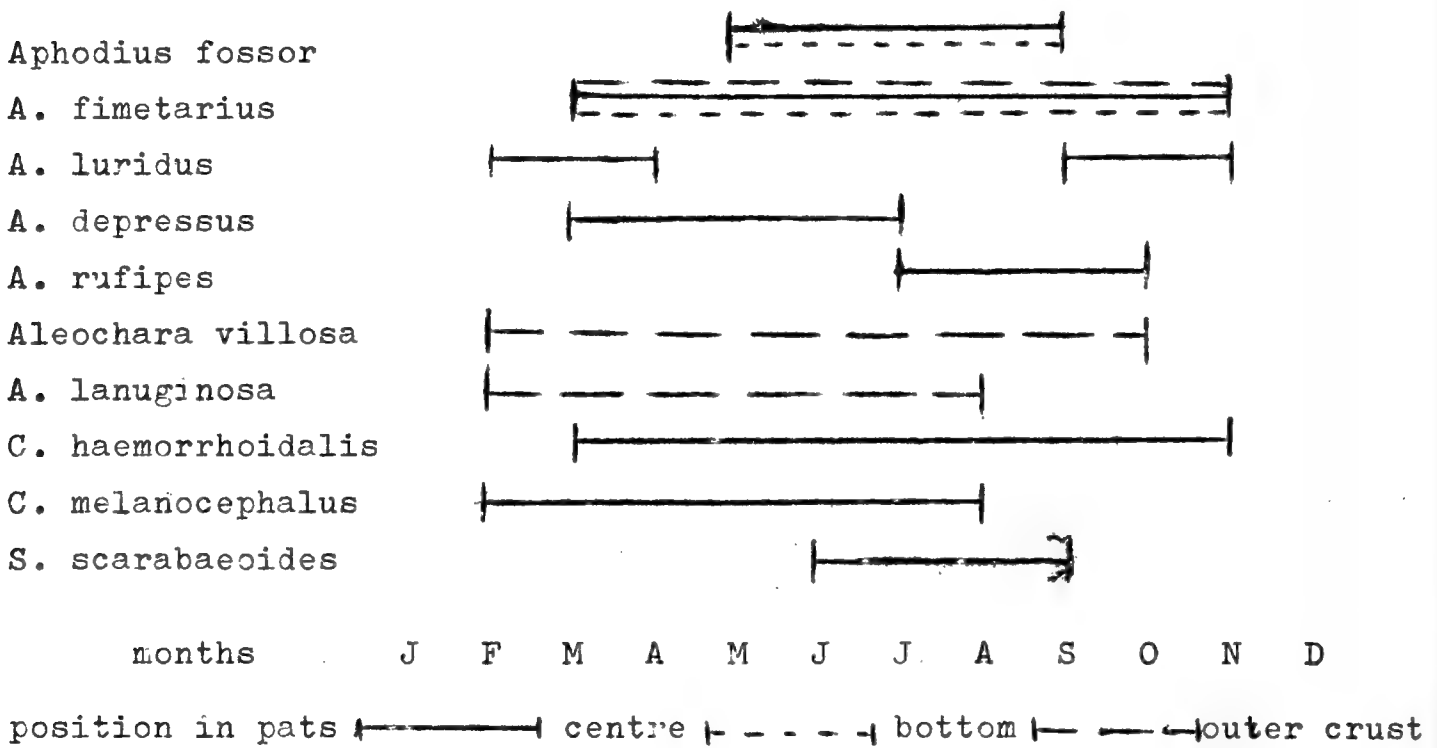


Chart 2. Variation of % Water and % Organic during first 14 days.

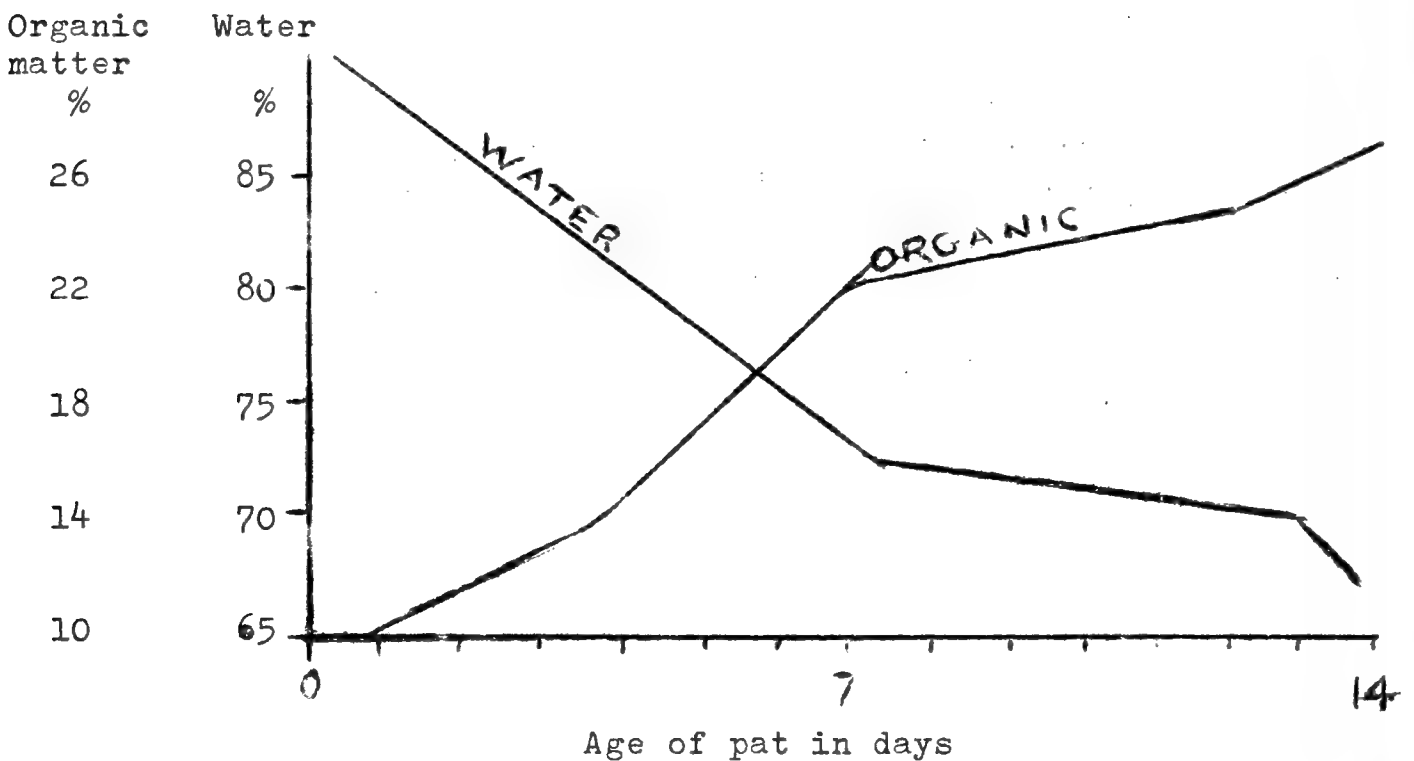
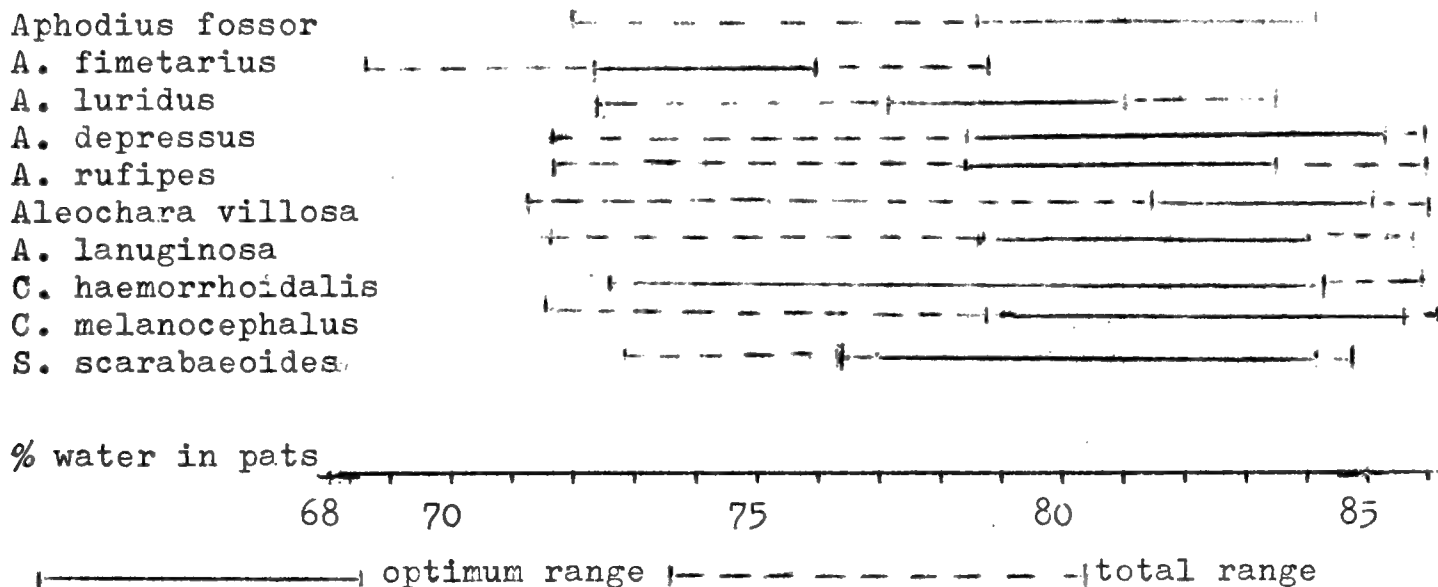


Chart 3. Preferences of beetles for different humidity levels.



Diary of observations on *Aphodius fossor*

26 viii 66 5 adults in pat  
 29 " " " "  
 1 ix 1 dead beetle  
 5 No apparent activity  
 11 " " "  
 14 2 small larvae lying curled and close together, length 8mm.  
 18 4 larvae, length 11mm., in centre of pat.  
 21 Larvae 13mm. long. Basal segments rather swollen in appearance. Blue-grey colour, head brown.  
 25 Larvae at the bottom of the pat. Some larvae 1 or 2 ins. deep in the soil. The dung had dried and could be lifted, exposing some larvae in cells on the soil surface.  
 28 2 larvae found 4 ins. deep in the soil, others probably present at this depth.  
 5 x 6 larvae found 9 ins. deep in soil. Smaller in size than those seen on 28 ix.  
 12 3 larvae found 1 ft. deep. No pupae.  
 15 Careful digging to a depth of 3 ft. and 1 ft. radius from the pat, no pupae.

## Conclusions

The two factors which seem to have most effect on the occurrence of beetles are humidity and temperature. pH appeared to have little effect, its range being narrow and varying only from 6.7 for water contents above 72.3% to 6.4 for lower ones.

### Humidity

There are interesting interacting factors here. Different species have preferences for particular positions in the pat and the humidity varies in these different zones (see Chart 1). All estimations were made on material from the central zone which was wetter than the other two zones. The humidity decreased with age due to drainage and evaporation. No beetles were found in dung with water contents above 86%, that is in 1-day pats where this condition would have obtained, nor below 68%, which was reached after 14 days.

### Temperature

Presumably December and January are too cold for any beetles to occur. The four species occurring in February are among the earliest insects to emerge and are probably aided by being underground for pupation and also by the temperature of the dung, which is 1 - 3°C. above the air temperature. It may be significant that A. luridus occurs in the spring and autumn but not in summer and that A. rufipes, the only beetle taken on the wing, is the last to emerge. The average air temperature in spring and autumn was 10.5°C. while the average for May to September inclusive was 12.5°C.

### Organic Matter

Obviously as the percentage of water drops, the percentage of organic matter increases (see Chart 2). The shape of the graph is so symmetrical as to suggest that the percentage of organic matter remains almost constant. It is certain that some will be converted by the various larvae present as well as by the bacteria and fungi that occur in the dung, as demonstrated in sterile cultures. Since the weights of the 85 pats were within the range 624 - 1886g. and 10% of this was organic matter, there seems to be a rich source of food here. It seems therefore very unlikely that the percentage of organic matter has any effect at all on the occurrence of the beetles.

### General

Through the year different species occurred at different times (see Chart 1). It can also be seen that, of the ten species discussed, no more than six can occur at any one time in the same zone of a pat and then only from June to August. In February only two species occur together and in November only three species



A LETTER FROM CANADA

From Donald Leatherdale

Manotick, Ontario

20 November 1970

One of the risks of writing about the natural history of a region after scarcely a year's acquaintance is that of producing little more than a list of species. This I hope to avoid; yet so much is new that the danger has to be resisted intentionally. Another problem is that of appearing to be a "know-all", but I feel that first impressions have a particular interest, even if later on one sees things in truer perspective.

We are living in southeastern Ontario, some sixteen miles south of Ottawa and forty miles north of the border with New York State at the St. Lawrence. Our house is on the banks of the Rideau, a tributary of the Ottawa river about the size of the Thames at Reading. (By comparison, the Ottawa is often more than two miles wide.) The landscape is rolling by local standards but flat by ours, and is predominantly agricultural in use. The mixed forest that covered this area in the days of the pioneers has vanished, floated downstream on its way to Europe and New England in the mid-1800s. That was our first disappointment. A second was in the widespread use of wire fences. One can drive for mile after mile without finding an opening into woodland or other inviting spot.

Fortunately for us, the landscape and its cover undergo an abrupt change on the northern shore of the Ottawa, in the province of Quebec. The edge of the Canadian Shield rises from the valley as the Laurentian Hills, 1500 ft. high, forested, sparsely inhabited, and the object of many of our weekend jaunts. Sizeable rivers cut through these hills, floating a harvest of cut timber down to the sawmills and paper mills of the Ottawa valley from distances of as much as 600 miles.

Our first acquaintance with the wild life of Canada was on our very first day, when we were surprised and delighted to see squirrels and chipmunks playing around our temporary motel on a busy street in Ottawa. They are ubiquitous creatures. Both red and grey squirrels occur here, the latter most commonly in an attractive black phase. The chipmunks are closely related to the true squirrels; the eastern species is the one we see most commonly. They play all day in the tall maples at the edge of the garden, scolding our cats and defying the dog. Like most animals here, they have developed no fear of man, which makes the energetic, striped little bundles of fur appear to be tame when in fact they are utterly wild.

Our favourite mammal, which also happens to belong to the



squirrel family, is the groundhog, woodchuck, or wombat. So often one of them rears up inquisitively into a begging position as you walk past its hide-out. The ground-hog hibernates, as do nearly all mammals here, but is reputed to come out of its burrow on Groundhog Day (2nd February) to see how the winter is progressing: if it sees its shadow, it will go back for another month. (Judging by our first winter - which, ironically for us, tended to break some coldness records - the groundhog is an optimist.) The groundhog is much larger than the squirrels, being about 2 ft. long.

Next to the chipmunks, the most attractive animal in these parts is the striped skunk. We have seen many of them, and once the car was surrounded by a family of Mum, Dad and five small offspring. Needless to say, we didn't move while they were in the vicinity! But the erectly held tail and the broad white body-stripe against glossy black make a beautiful picture. Their smell when attacked or frightened is another thing, and something that (touch wood!) we have only encountered at a distance. Joan had the presence of mind to call the dog and cats indoors on one occasion when a full-grown skunk sauntered around the garden. Bigger animals are the racoon and porcupine, and unfortunately one sees fewer of them alive than dead by the roadside. I don't see how a driver can accidentally hit creatures 2½ to 3 ft. long. The porcupine, poor thing, probably imagines that his built-in protection of quills will defend him from vehicles, for he never seems to hurry across the road. Racoons ate a good part of our maize crop this year. The black bear, brush wolf or coyote, and timber wolf all occur in the Laurentian Hills, but so far we have seen only the first and that was one that had been captured by Indians about 80 miles to the north.

When the snow has really come and the temperature drops below 0° F., there is little activity outdoors except for the birds. Virtually all the birds here are migrants, and in the winter we have the company of the raucous but glorious blue jay and the evening grosbeak with black and white stripes upon startling yellow, both sojourners from much further north. I must tell you of a gathering of Canada geese that we saw a short while ago: there were several thousands of them on the banks of the St. Lawrence, where they had broken their southerly flight to Maryland. A few of them were honking, but the general sound from the assembly was of a lot of people all talking at once. Another winter visitor is the red-winged blackbird, a little larger than ours and without the yellow bill, but remedying the lack with prominent scarlet shoulders. Indeed, most of the many birds here have brighter colours than those in Britain. Not so, however, the American robin: he has a very watered-down breast, and we still can't get used to people saying "Oh, look at that robin" and pointing to a bird that looks like a blushing thrush.

A completely different bird population arrives from the south for the summer, and I will mention only one species: the ruby-throated hummingbird. In our garden, they were especially attracted to petunias, and sometimes we would surprise one at window boxes as we opened the front door. The body colour is an iridescent dark green, the flash of red on the throat only being apparent when the light catches it from certain angles. I never cease to wonder at the summer presence of hummingbirds in a land with such stark winters.

The great blue heron is a frequent visitor at the edge of our river (and just downstream is a colony of beavers, who are very active in their tree-felling operations this week); this river is a source of all sorts of interesting things. The boys catch monster fish, notably the muskel-lunge, a larger relative of the pike, and revel in the antics of many sorts of turtles. We all go swimming in the summer evenings, and in winter the river looks like a flat snow-covered meadow until the thaw comes. Then we have the thudding of ice-floes over the mill dam for two weeks, until the croaking of frogs announces the fact that spring is arriving with a rush as though in a hurry to make up for lost time.

Spring is with us in the week that the snow finally goes, for on 4th April we had one of the heaviest falls of the season. The familiar spring flora of home is but a nostalgic memory, yet there are plenty of flowers here too. They appear in carpets in woodland, and I wonder at the appearance of such fragile beauty in so inhospitable an environment. The majority of them are old gardening friends - Trillium grandiflorum (the wake-robin, emblem of Ontario, perhaps the most attractive of all with its three, large, pure white petals), bloodroot (Sanguinaria canadensis, that I nurtured so carefully at Whitchurch), and dogtooth violets (Erythronium), followed by the delicate foam-flower (Tiarella cordifolia), true violets of many species, strawberries, and the red-and-yellow columbine Aquilegia canadensis. Later still is a purple-flowered raspberry with blooms 1½ ins. wide (Rubus odoratus), acres of golden-rod (mainly Solidago canadensis), and Michaelmas daisies of various species. (I see that I am beginning to run into that problem of making a list.)

Old enemies of the vegetable garden appear in the guise of fellow exiles - Galinsoga, Cirsium arvense, Plantago major (tellingly referred to by the Indian as 'White-man's Footprint'), Solanum nigrum, Glechoma hederacea (known here as Creeping Charlie), and so on. It is an ecological quirk that these European plants are even more successful in North America. The orange hawkweed (Hieracium aurantiacum) colours roadsides for miles, presumably earning its trans-Atlantic name of Devil's Paintbrush.

There is so much I could write to you about, but I think our Editor will be getting a little impatient if I spread myself too

widely. So I will wait awhile before letting myself go on the abundance of insect life here - and believe me, there are many more things than blackflies and mosquitoes. Can you imagine a land where the Camberwell Beauty (Vanessa antiopa), under its pseudonym of Mourning Cloak, can sometimes be considered a pest?

Scientific names of vertebrates mentioned in the text

Red squirrel	Tamiasciurus hudsonicus
Grey squirrel	Sciurus carolinensis
Eastern chipmunk	Tamias striatus
Groundhog	Marmota monax
Striped skunk	Mephitis mephitis (How apt!)
Raccoon	Procyon lotor
Porcupine	Erethizon dorsatum
Black bear	Ursus americanus
Brush wolf	Canis latrans
Timber wolf	" lupus
Blue jay	Cyanocitta cristata
Evening grosbeak	Hesperiphona vespertina
Canada goose	Branta canadensis
Red-winged blackbird	Agelaius phoeniceus
American robin	Turdus migratorius
Ruby-throated hummingbird	Archilochus colubris
Great blue heron	Ardea herodias
Beaver	Castor canadensis
Muskellunge	Esox mosquinongy (The specific name is Ojibway Indian in origin.)

THE NATIVES IN MY GARDEN

by K. F. Rhodes

The garden, about one-third of an acre, lies in inner West Reading where there has been a garden since before Tilehurst Road became the name of Pig's Green Lane. This was some time in the first half of the nineteenth century. The Deodars, which overlook on the West side, were the subject of a covenant in 1860 and it is almost certain that the garden was an established orchard at that date. It is a fact that there was a very old specimen of Blenheim Orange apple gracing the garden fruitfully into the 1960s. This apple first appeared in the nurseryman's catalogue about 1818, having been discovered at Woodstock at an unknown date before that. The present house was built in 1904 and the garden has been cared for consistently ever since. The soil is a light sandy valley gravel in which, as in most gardens, crop plants and natives vie for success and the natives still put up a good show in spite of all repressive measures, which of recent years include in turn all the modern herbicides. They are a successful crew, the weeds that grow in our gardens.

A success story is always worth telling and so here are some of the more persistent characters among my friends the weeds. There is no trace of Ivy-leaved Speedwell (Veronica hederifolia) from mid-June till its vigorous dark cotyledons appear all over the paths and cultivated ground in early March. The plant is economical of stem and of floral parts but it succeeds handsomely in leaving enough seed each year to furnish the garden afresh. The dead plants form an untidy straggle until they disappear without trace sometime in July. The Red Dead Nettle (Lamium purpureum) is on the other hand always with us and figures in the list of flowers in bloom on Christmas Day year after year. It turns up in various areas wherever it has been able to establish itself. It is a well-mannered and welcome native. The white-flowered species Lamium album is a handsome plant, a perennial and gently persistent, but amenable to stern measures. It would be sad to see it go and it has served in more than one flower piece though its strongly expressed reaction to gravity is a hazard the flower arranger had better allow for. The true nettles (Urtica dioica) are too aggressive to be tolerated for long but the plant turns up from time to time from the stray seeds. Taken in time it does not become noxious and the plant has a stylish beauty when young and in isolation. The annual relative is a persistent and unrepentantly invasive neighbour. For many years the plant provided the source of chlorophyll for botany students, but it is a trial among the vegetables and leaves its sting for hours after the crop has been gathered.

The Lesser Celandine (Ranunculus ficaria) shares with the

Speedwell the annual disappearing trick but never fails to intrigue when the perennating clusters of root-tubers, each with its single bud, turn up during summer weeding; so dormant and yet so vital. They are said to form from buds at the lower nodes but they have not been caught at it yet. It is a brave, gay friend and often the first to bloom in the spring. Talking about brave, gay friends, what about the Dandelion? Taraxacum officinale was much encouraged during rabbit-keeping days and tended then to multiply. It is a fine plant with its glorious rosette of leaves and brilliant inflorescences and who can resist a perfect clock? In the age of herbicides, selective and otherwise, this plant need never present problems. This is not true of the Willow-herbs: these are very regrettable neighbours and probably in this garden Epilobium parviflorum is the worst offender. Of their springing to life there is no end, and though individuals are not difficult to eradicate, the seeds are everywhere and come up like mustard and cress. Enough mature and escape destruction to resow the crop and they do not give in either to cultivation or weed-killer. Their tufted air-borne seeds are bad for local relations, too.

The ephemerals, Groundsel (Senecio vulgaris), Shepherd's Purse (Capsella bursa-pastoris), Chickweed (Stellaria media) and Thale Cress (Arabidopsis thaliana) are wonderful plants and in such a hurry; six weeks from germination to death is the rule in high summer. What productivity, and how handsome a batch is as it comes up to bloom and what a nuisance - real street arabs. Fumitory (Fumaria purpurea) together with Scarlet Pimpernel (Anagallis arvensis) make one wonder why we trouble with seedsman's catalogues. Woad is another happy native with a respectable history counted in centuries. This plant, Isatis tinctoria, is very handsome in youth and glorious in bloom but regrettably untidy later, though its elegant siliques go a spectacular black at maturity. In this same group of large architectural natives can be included Mullein (Verbascum), Belladonna (Atropa belladonna) and Foxglove (Digitalis purpurea) among the herbaceous plants and Juniper (Juniperus communis), Mountain Ash (Sorbus aucuparia) and Hazel (Corylus avellana) among the trees, all naturally occurring as seedlings. The fruits are brought in and sometimes carefully buried by the squirrels or dropped by the birds. Their enthusiasm has to be curbed, but a fine young seedling Holm Oak (Quercus ilex) is a cherished intruder.

So far the story is one of success against all that the cultivator can do, for, though these plants rouse interest and even affection, if there is to be a garden and crops then they must be constantly kept in check. There would soon be no garden and the site would be poorer if it were not so. It does seem however as if near success can be achieved in some cases and the common Daisy (Bellis perennis), that belligerent invader of

lawns, and the Ground Elder (Aegopodium podagraria), a wicked weed, are really suppressed. As the reservoir of these species seems inexhaustible, perhaps we may be permitted to do our worst in gardens. If the conservators will warn when they seem to be hard pressed we could let up, but they are both so aggressive as to stifle both native and cultivated species.

The author acknowledges with thanks help received from Dr. A. G. Erith, who read and commented on the manuscript.

COTHILL AND DRY SANDFORD PITS - B.B.O.N.T. RESERVES

by M. R. W. Sell

For those who do not know it, Cothill and the surrounding area is a naturalist's paradise, and includes some of the original marsh and fenland, so little of which is now left in this part of the country. In fact, on approaching the locality from any side, there certainly does not appear to be a marsh of any sort, surrounded as the area is by trees of some considerable age and size, mainly elms, but also a mixture of willows, ashes, pockets of beech, and some beautiful oaks, whose trunks are of enormous girth.

Walking down the footpath from Cothill village, the only clue that one has to the proximity of marshland, is the low-lying land just behind the village, with deep ditches bordered by pollarded willows, and the rich, black spongy soil on the verges of the path. About a quarter of a mile down this path, the vista opens out somewhat, a water-meadow is visible on the right, and just beyond this there is a sudden glimpse of tall reeds blowing in the breeze, and a generally exciting look about the place. This is Cothill Reserve, or Parsonage Moor, to be more exact, and one starts making interesting discoveries almost at once.

Just inside the Reserve, there are several large clumps of Comfrey (Symphytum officinale) the food-plant of the Scarlet Tiger Moth, which can be seen flying around in July. Meadowsweet, (Filipendula ulmaria), Wild Raspberries (Rubus idaeus), and Common Spotted Orchids (Dactylorhiza fuchsii) are to be found on this drier part of the Reserve. Further in, the reeds grow well above head height, and, in a small depression, the ground becomes very spongy and is carpeted with Marsh Helleborines (Epipactis palustris), Red Rattle (Pedicularis palustris) and frequent plants of Tubular Water Dropwort (Oenanthe fistulosa). Still further into the Reserve, the ground rises again slightly, and gives way to coarse tussocks of grass, with a little stream flowing down the middle. Here there are large numbers of the Larger Scented Orchid (Juncus densiflora), with its distinctive smell of cloves, and more Common Spotted Orchids. Earlier in the year, there are large colonies of Marsh Orchids, both (Dactylorhiza incarnata) and Southern (D. praetermissa) with hybrids between the two, as well as Spotted Orchid hybrids. Later on, occasional plants of Round-leaved Sundew (Drosera rotundifolia), Grass of Parnassus (Parnassia palustris) and Bog Pimpernel (Anagallis tenella) are to be found here. Devil's Bit Scabious (Succisa pratensis), the food plant of the Marsh Fritillary, also abounds in this part of the Reserve.

It was this area which suffered from a disastrous fire last June, and when I went there on my first visit this year, it was a very sorry sight indeed - the whole of the rear part of the Reserve had been completely blackened and considerable damage had been done

to the bushes of Silver Birch (Betula pendula) dotted at intervals throughout this part of the Reserve. On a later visit, in August, the situation had improved, and young growth was just beginning to re-emerge, but it is probable that the plant life has been badly affected for a season or two, at least, and the variety of moths and butterflies breeding on the Reserve has certainly been reduced, temporarily, if not permanently.

Further down the path beyond Parsonage Moor is the Ruskin Reserve, under National Trust and Nature Conservancy auspices, in the middle of which is an extremely deep bog, hidden by a fringe of trees. The depth of this bog is not known, but I did hear that on one occasion a forty-foot pole disappeared without trace, nearly taking its owner with it! There is a small island in the middle of the bog, with a few shrubs on it, but it is round the edges that the most interesting flora grows. Early in the summer Marsh Valerian (Valeriana dioica) abounds among the clumps of rushes, and a large variety of Marsh Orchids, Early, Southern, and hybrids between these and the rare Pugsley's Marsh Orchid (D. traunsteineri), whose spotted leaves, hollow stems and fewer flowers distinguish it from the other varieties to be found here. Red Rattle, Heath Spotted Orchids (D. maculata) and Common Spotted Orchids are also in evidence.

At the other side of the village is another fascinating habitat - Dry Sandford pits, a disused quarry, with a stream flowing through the middle of it. Here, there is a strange mixture of limestone plants growing right down to the water's edge, promptly succeeded by a rich variety of water plants on the quarry floor. Among the ground flora is Blue Fleabane (Erigeron acer), Canadian Fleabane (Conyza canadensis), Ploughman's Spikenard, (Mula conyza), Wormwood (Artemisia absinthium), Pyrenaean Cranesbill (Geranium pyrenaicum), Purple Toadflax (Linaria purpurea) (probably an escape) and, in the wetter ground, an abundance of Marsh Helleborines, Bulrushes (Scirpus locustris), a small colony of Tall Mint (Mentha smithiana), with characteristic red-veined leaves and purple stems, Water Plantain (Alisma plantago-aquatica), Common Spotted Orchids, and other typical flora.

On the top of the original quarry cliffs there is a stretch of rough grass, among which there are a number of thorn bushes, and one very beautiful wild Berberis (Berberis vulgaris), particularly attractive in the Autumn with its brilliant scarlet berries.

On the quarry cliffs themselves, there is a colony of Sand Martins, and other bird life includes Reed Buntings, Sedge Warblers and a variety of other small birds, particularly Warblers in the summer months, Whitethroats, Willow Warblers and Blackcaps



being much in evidence.

Together, Cothill and Dry Sandford Pits provide an extremely wide variety of species, and habitats ranging from woodland to open marshland, scrub and grassland within the space of one square mile. Visits at any time of the year to either Reserve can produce many discoveries, and in the summer, as described above, the varied flora is of particular interest. Permits are required for access to both Reserves, and can be obtained from the Oxfordshire County Secretary of the Berks., Bucks. and Oxon. Naturalists' Trust.

The plant names in this account are taken from Collins Pocket Guide to Wild Flowers by D. McClintock and R. S. R. Fitter.

AN ACCOUNT OF THE SOCIETY'S EXCURSION ON JUNE 13TH 1970.

GRASSES

by M. V. Fletcher

Three areas were visited during the day, all in South Oxfordshire. Since relatively few naturalists are confident in identifying grasses, it was pleasing that over twenty members attended the excursion, held in magnificent weather, enthusiastically and expertly led by Dr. C. E. Hubbard, of Kew.

Time did not allow a visit to any acid habitats in the South Chilterns, and the Thames-side areas visited proved rather poor in waterside grasses. Nevertheless, forty-three species were recorded, and several records of interest were made. In this account, all the grass species seen are mentioned, though usually only at their first appearance. The nomenclature used is that in the 1954 edition of Dr. Hubbard's "Grasses", published by Penguin books.

The party met at the French Horn, Sonning, and walked over the footbridge and about half a mile eastwards along the north bank of the Thames. It was not expected that any rarities would be found here. The following species were noted: Agrostis stolonifera L. var stolonifera; A. gigantea Roth.; A. tenuis Sibth.; Alopecurus pratensis L.; Arrhenatherum elatius (L.) J. & C. Presl., with the young seed heads often infected with a smut; Agropyron repens (L.) Beauv.; Cynosurus cristatus L.; Dactylis glomerata L.; Festuca gigantea (L.) Vill.; F. rubra L. subsp. rubra; Holcus lanatus L.; Hordeum murinum L. and Bromus sterilis L., both on disturbed ground by the footbridge H. secalinum Schreb., of which only a few plants were seen, though it is generally common in suitable meadows near the Thames; Lolium perenne L.; Phalaris arundinacea L.; Phragmites communis Trin., in small amounts among nettles; Poa annua L.; P. angustifolia L., on hard trampled ground by the footbridge; and P. subcaerulea Sm. Two plants, superficially different, from damp wall bases near the bridge, both appeared to be this last species.

The next visit was to Peppard Common, and to a banked lane and old chalk quarry nearby (O.S. reference 707817). On the common, species added to the list were Festuca pratensis Huds. and Koeleria cristata (L.) Pers. Sheltered chalk banks at the sides of the lane yielded Anthoxanthum odoratum L., Bromus erectus Huds., B. ramosus Huds., Brachypodium sylvaticum (Huds.) Beauv. and Melica uniflora Retz. Chalk turf in the quarry contained Helictotrichon pratense (L.) Pilger, Trisetum flavescens (L.) Beauv. and Briza media L. Poa Compressa L., on disturbed ground at a lane junction, was perhaps the best find so far. This species has not often been recorded in the Reading area.

After a picnic lunch on the common, the party drove to Goring. While waiting for the bus party to arrive, some members explored the station car park, and found Vulpia bromoides (L.) S. F. Gray; and V. myuros (L.) C. C. Gmel. These two annual grasses, characteristic of waste ground in towns, railway tracks and similar places, were not seen elsewhere on the excursion.

The party then drove and walked along a lane south-eastwards past Gatehampton Farm (O.S. reference 615797). A steep chalk slope overlooking the river was of interest, and had been largely seeded in the past. Four additional species were seen in abundance. These were Helictotrichon pubescens (Huds.) Pilger, Phleum nodosum L., Bromus mollis L., and Festuca arundinacea Schreb.. The relatively small area of natural turf near the top of the hill contained all the distinctive chalkland grasses seen at Peppard, and members also saw a small colony of bee orchid, Ophrys apifera Huds.

The path by the river Thames and the escarpment woods above were the last objective. Wet ground by the river was examined first. Common at the water's edge was Festulolium loliaceum (Huds.) P. Fourn., the sterile intergeneric hybrid between Festuca pratensis and Lolium perenne. Phalaris arundinacea was seen again, but no other waterside grasses of interest. One odd new record was P. canariensis L., normally a birdseed alien. One large solitary plant was seen on a bonfire site.

The party then moved up the chalk scarp and explored the clearings, pathsides and dry, deeply shaded ground in the hanging woods of beech and yew. Though vegetation was generally sparse, Melica uniflora and Brachypodium sylvaticum were seen again. However, two more species were found, both characteristic plants and of considerable interest. These were Hordelymus europaeus (L.) Harz, and Bromus benekenii (Lange.) Lindm. The last is a rare grass that may not have been seen in Oxfordshire before. It is, however, known in Berkshire, and may be under-recorded. One plant was seen here, in open woodland on shallow soil over chalk, near the summit of the hill.

We offer our grateful thanks to Dr. Hubbard for leading this excursion. It is hoped that this account of the grasses of three areas, readily accessible from Reading, will assist people to become better acquainted with this rather neglected family of plants.

REPORT ON ASTON UPTHORPE RESERVE - 1970

by M. R. W. Sell

A late season again in 1970, and grass-cutting was again done with "Flymo's", this year two being in use simultaneously for most of the time. In fact, we had to wait until the beginning of March for the snow to clear before mowing could start. During the early part of the year, the Short-eared Owls were much in evidence, and our President, Mr. C. J. Leeke, took some fine shots with cine film.

During March, six complete days were spent grass-cutting on the Reserve, and my thanks are due to the small band of stalwarts who gave so much of their time and energy to clear the grass. This year about two-thirds of the Reserve was cut, and later in the season it was noticeable how much thinner Bromus erectus (Erect Brome) had become where the area had been mown. In general the flora appeared to do much better, with a few exceptions, and the net result was to bring this particular area back much closer to its original grazed state than for several years.

Pulsatilla vulgaris (Pasque Flower) had a very poor year, however, probably due to the lateness of the season; the first signs of foliage being noticed only on April 23rd. On this date also, two very large colonies of Primula veris (Crowslip) were in bloom on the Reserve, far more being seen than in previous years, again probably due to grass cutting.

A very warm May brought everything on very rapidly, and by 14th there were fifteen flowering heads of Pulsatilla vulgaris in the small enclosure (some already spent) and four outside. No increase on this number was noticed on later occasions, but an encouraging sign was the large number of non-flowering plants, many in places where they had not been previously observed. A few plants of Fragaria vesca (Wild Strawberry) were also seen. By May 20th Polygala calcarea (Chalk Milkwort) was in bloom all over the Reserve, having apparently increased considerably over last year.

Senecio campestris (Field Fleawort) also did fairly well, though it was not so prolific as last year, but the fact that only seven spikes of Orchis ustulata (Burnt-tip Orchid) were seen this year was a disappointment. Filipendula vulgaris (Dropwort) made an even better show than last year, and one of the phenomena this year was the appearance of clumps of Iberis amara (Candytuft) on bare ground where the "Flymo's" had taken the top off defunct anthills. Here also the occasional colony of Thymus (Wild Thyme) was to be found. One considerably diminished species, which it is hoped to re-establish in its former quantity by mowing, is Hippocrepis comosa (Horseshoe Vetch), the food-plant of one of the

Blue butterflies (the Chalkhill), whose numbers have been sadly reduced in recent years.

The season was also exceptional in that, after a very late spring indeed, things then rushed along at such a pace that by July the flora was in advance of normal flowering time. This could well account for varied performance between species, some doing far better than others. An exceptional performer this year was Campanula glomerata (Clustered Bellflower), and I. amara also did magnificently on the approaches to the Reserve. Also in evidence on the edges of cornfields nearby was a small colony of Valerianella dentata (Lamb's Lettuce), Legousia hybrida (Venus' Looking-Glass), still flowering well in early September, and Linaria repens (Pale Roadflax).

Coeloglossum viride (Frog Orchid) on the Reserve produced eight flowering spikes this year, but far more flowers of Anacamptis pyramidalis (Pyramidal Orchid) were seen than in the last three years, probably again due to cutting.

Other notes of interest - our local Kestrels raised a family of three, and these were to be seen in August and September practising their hovering techniques! Early in the season, a Badger's sett was noticed in the middle of the Reserve, with 'bedding' strewn about, but later in the year it appeared that it had been abandoned. Rabbits in the area also appear to be on the increase, despite shooting to preserve the game on the Estate - this includes numerous Hares, although it is hard to see how they or Rabbits could interfere with young Pheasants.

The nomenclature for the plant names in this Report is that followed in Collins' Pocket Guide to Flowering Plants by D. McClintock & R. S. R. Fitter.

THE RECORDER'S REPORT FOR BOTANY

1969-70

by B. M. Newman

Records sent in by the following members, all regular contributors to this list, are gratefully acknowledged:- Mr. B. R. Baker (BRB); Dr. H. J. M. Bowen (HJMB); Mr. H. Carter (HC); Miss L. E. Cobb (LEC); Miss J. Housden (JH); Mrs. E. M. Trembath (EMT); Dr. J. Toothill (JT); Mr. M. R. W. Sell (MRWS); Miss J. M. Watson (JMW).

The nomenclature and order are, as in last year's report, according to the "Flora of the British Isles" by Clapham, Tutin and Warburg, 2nd edition 1962. An alien taxon is indicated by an asterisk. English names in common use have been given where possible, and more recently invented names are put in quotation marks.

Mrs. A. M. Sandels has very kindly written to correct a record of 1963. A Cudweed from the Old Chalk Pit, Henley Road, was identified by several botanists as Filago spathulata C. Presl. Owing to the revision of the Oxfordshire Flora the plants have been compared with material in the Oxford Herbarium, collected by Druce from the same site. His identification, Filago apiculata G. E. Sm. has now been accepted as correct.

List of Members' Records

Helleborus foetidus L. 'Stinking Hellebore'

Hurdleshaw, near Streatley, old colony re-establishing itself well; many young plants appearing. (MRWS)

Helleborus viridis L. 'Green Hellebore'

Gidley's Wood, Peasemoor (Sir G. Nicholson); (HJMB)  
Mongewell Woods, very large colony. (MRWS)

Ranunculus fluitans Lam.

Well established for the first time in eight years off the Berkshire bank in the Thames at Pangbourne. (EMT)

Aquilegia vulgaris L. Columbine

Farley Hill. (HJMB)

\*Papaver somniferum L. Opium Poppy

Ashridge Wood, a fair-sized colony on edge of cornfields. (MRWS)

\*Papaver lateritium C. Koch

Whiteknights Park. (HJMB)

Cardamine amara L. 'Large Bitter-cress'

Sulham, three separate locations in the Pang-Sul valley. N.H.S. walk. (MRWS)

- \* Hesperis matronalis L. Dame's Violet  
Between Sul stream and woods, Sulham. (EMT)
- Viola odorata L. Sweet Violet  
Uncommon in S. Oxfordshire, but found in woods at Purley (just  
on the Berks. side) by Mrs. Young. (HC)
- Polygala serpyllifolia Hose 'Common Milkwort'  
High Wood, Bulmershe. (HJMB)
- Hypericum androsaemum L. Tutsan  
Cliver's Copse, Little Heath, Tilehurst. (JMW)
- Hypericum humifusum L. 'Trailing St. John's Wort'  
High Wood, Bulmershe. (HJMB)
- Malva neglecta Wallr. 'Dwarf Mallow'  
Rocky Lane Farm, Rotherfield Greys. 30.6.70. (HC)
- \*Impatiens capensis Meerb. Orange Balsam  
South Stoke, by the river. (MRWS)
- Euonymus europaeus L. Spindle-tree  
Whiteknights Park, probably self-sown. (HJMB)
- Rhamnus catharticus L. Buckthorn  
Scours Lane, 12.9.70, R. Bell. (HC)
- Frangula alnus Mill. Alder Buckthorn, Black Dogwood  
Aldermaston. (HJMB)
- \*Tetragolobus maritimus (L.) Roth.  
Near Henley. (JT)
- Potentilla anglica Laichard. 'Trailing Tormentil'  
Ashley Hill. N.H.S. walk. (LEC)
- Geum rivale L. Water Avens  
Sulham. Frequent in new B.B.O.N.T. reserve, (Moor Copse).  
Also a cross between G. rivale and G. urbanum L. (MRWS)
- Prunus cerasifera Ehrh. Cherry-Plum  
Hedges at Purley, Berks. 10.6.70, Mrs. Young. (HC)
- \*Cotoneaster simonsii Baker  
One bush at High Wood, Bulmershe. (HJMB)
- Saxifraga granulata L. 'Meadow Saxifrage'  
Lowbury Hill. (EMT)
- Drosera intermedia Hayne 'Long-leaved Sundew'  
Englemere pond, near Ascot - plentiful. (HJMB)
- Daphne laureola L. Spurge Laurel  
Whiteknights Park, probably self-sown. (HJMB)
- \*Ammi visnaga Lam.  
A bird-seed alien. Cholsey. W. D. Campbell. (HJMB)

Oenanthe fluviatilis (Bab.) Coleman

Reappeared after a long interval in the Pang at Pangbourne.  
(EMT)

Foeniculum vulgare Mill. Fennel

In the garden of 5 Thames Avenue, Pangbourne - from 'Swoop',  
perhaps? (EMT)

\*Euphorbia cyparissias L. 'Cypress Spurge'

Sulham Woods - large colony. N.H.S. walk. (MRWS)

\*Cannabis sativa L. Hemp

From bird-seed of Spanish origin, Binfield. 8.9.70. (HC)

\*Quercus phellos L.

A scarce American alien. One tree at Snelsmore. (HJMB)

\*Gaultheria shallon Pursh

Englemere pond, near Ascot. (HJMB)

Hottonia palustris L. Water Violet

Great Lea Common, near Grazeley. An enormous increase in the  
colony this year, the whole pond covered with flowering spikes.  
(MRWS)

Gentianella amarella (L.) H. Sm. Felwort

Near Woodcote 11.9.70, Mrs. Matthews (HC)  
Ashley Hill. N.H.S. walk. (LEC)

\*Symphytum orientale L.

Frequent in lane near Earley church. (HJMB)

\*Borago officinalis L. Borage

On dumped soil, Binfield Lane, Sonning Common. Sept., 1970.  
(HC)

Calystegia sepium (L.) R. Br. Bellbine, 'Larger Bindweed'

Pink form, Gipsy Lane, Tilehurst. (JMW)

Cuscuta epithymum (L.) L. 'Common Dodder'

On Origanum near Home Farm, Pangbourne. (HJMB)

Atropa belladonna L. Dwale, Deadly Nightshade

Blount's Court Farm, Peppard Common 30.9.70. Mr. Taylor (HC)  
Garden in Redlands Road. (HJMB)

\*Datura stramonium L. Thorn-apple

Waste ground, centre of Tilehurst. (JMW)  
Farley Hill. (HJMB)

Beside temporary road near the Black Boy, Shinfield Road.  
This ground previously carried a cereal crop. (JT)

Antirrhinum orontium L. Weasel's Snout

Waste ground, centre of Tilehurst. (JMW)

Kickxia spuria (L.) Dum. Round-leaved Fluellen

Fields near Hurley chalk-pit. (HJMB)



- Kickxia elatine (L.) Dum. Pointed-leaved Fluellen  
Fields near Hurley chalk-pit. (HJMB)
- \*Mimulus guttatus DC. Monkey-flower  
A good clump on the Kennet bank close to Burghfield Bridge.  
(BRB)  
On banks of the Pang, Bradfield. (EMT)
- Odontites verna (Bell.)Dum. 'Red Bartsia'  
Caversham Park, September. (HC)
- \*Odontites lutea (L.) Reichb.  
Survives in good quantity at Aldermaston. (HJMB)
- Utricularia vulgaris L. 'Greater Bladderwort'  
In profusion in ditch through Thames meadow, Childe Beale  
Trust, Basildon. (EMT)
- Campanula glomerata L. 'Clustered Bellflower'  
Goring. Two white-flowered specimens with foliage much paler  
than normal. (MRWS)
- Legousia hybrida (L.) Delarb. Venus's Looking-glass  
Fields near Hurley chalk-pit. (HJMB)
- \*Xanthium spinosum L. Spiny Cocklebur  
From bird-seed. St. Anne's School, Caversham. 21.9.69 (HC)
- Senecio vulgaris var. radiatus Koch. Groundsel  
Building site in Castle Hill - fine specimens completely  
fringed with ray florets. (JMW)
- Achillea ptarmica L. Sneezewort  
Ashley Hill. N.H.S. walk. (LEC)
- Chrysanthemum segetum L. Corn Marigold  
Marshy ground by river Loddon near Arborfield Hall Farm. (JT)
- Carlina vulgaris L. Carline Thistle  
Ashley Hill. N.H.S. walk. (LEC)
- Centaurea scabiosa L. 'Greater Knapweed'  
Goring - one white-flowered plant. (MRWS)
- Lactuca serriola L. 'Prickly Lettuce'  
Waste ground, Shinfield. (JT)
- Sagittaria sagittifolia L. Arrow-head  
Well established for the first time in eight years, off the  
Berkshire bank in the Thames at Pangbourne. (EMT)
- Butomus umbellatus L. Flowering Rush  
Two separate clumps with several flowering heads in Thames  
between Pangbourne and Purley. (EMT)
- Potamogeton perfoliatus L. 'Perfoliate Pondweed'  
Well established for the first time in eight years, off the  
Berkshire bank in the Thames at Pangbourne. (EMT)

- Convallaria majalis L. Lily-of-the-Valley  
Still survives at Englemere pond, near Ascot. (HJMB)
- Polygonatum odoratum (Mill.) Druce 'Angular Solomon's Seal'  
A sterile clump in Whiteknights Park. (HJMB)
- Ruscus aculeatus L. Butcher's Broom  
Whiteknights Park; probably self-sown. (HJMB)
- Ornithogalum pyrenaicum L. Spiked Star of Bethlehem, Dath  
Asparagus  
Ashridge Wood. Considerable increase in size and spread of  
colony this year. (MRWS)
- \*Juncus tenuis Willd.  
Aldermaston. (HJMB)
- Leucojum aestivum L. Loddon Lily, 'Summer Snowflake'  
Loddon Bridge. Colony of about eight plants flowering and  
several more non-flowering specimens. (MRWS)
- Galanthus nivalis L. Snowdrop  
Hurdleshaw, -near Streatley - well away from human habitation.  
(MRWS)
- Epipactis purpurata Sm. 'Violet Helleborine'  
Hazel copse, Mapleash Wood, Snelsmore. (HJMB)
- Epipactis phyllanthes var. vectensis (T. & T. A. Steph.)  
D. P. Young  
Three plants found by Miss Hartes Jackson near Brimpton.  
(det. Dr. D. P. Young) (HJMB)
- Spiranthes spiralis (L.) Chevall. 'Autumn Lady's Tresses'  
Ashley Hill, near Maidenhead. N.H.S. walk. (JH)
- Platanthera chlorantha (Cust.) Rchb. Greater Butterfly Orchid  
Homefield Wood, Marlow (MRWS)
- Ophrys apifera Huds. Bee Orchid  
Goring. Four plants. (MRWS)
- Ophrys insectifera L. Fly Orchid  
Homefield Wood, Marlow. (MRWS)
- Orchis mascula (L.) L. Early Purple Orchid  
Sulham. Several plants in new B.B.O.N.T. reserve (Moor  
Copse) (LEC, MRWS)
- Dactylorhiza fuchsii x praetermissa  
Snelsmore. (HJMB)
- Carex vesicaria L. 'Bladder Sedge'  
Whiteknights Park. (HJMB)
- Carex acutiformis Ehrh. 'Lesser Pond-sedge'  
Padworth, May 1970. (M. J. Hitchcock) (HC)

- Carex pallescens L. 'Pale Sedge'  
Hazel copse, Mapleash Wood, Snelsmore. (HJMB)
- Vulpia bromoides (L.) S. F. Gray 'Barren Fescue'  
Goring Station car park. N.H.S. walk.
- Vulpia myuros (L.) C. C. Gmel. 'Rat's-tail Fescue'  
Goring Station car park. N.H.S. walk.
- Zerna benekenii (Lange) Lindm.  
Edge of Hartslock Woods. N.H.S. walk. (MRWS)
- \*Zerna inermis (Leyss.) Lindm.  
Near Henley bathing place, on the Berkshire side of the  
river. (HJMB)
- Nardus stricta L. Mat-grass  
High Wood, Bulmershe. (HJMB)

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THE RECORDER'S REPORT FOR ENTOMOLOGY

1969-70

by B. R. Baker

Order Odonata (Dragon-flies)

Agrion splendens (Harris), Banded Agrion

This splendid insect, instantly recognisable in the male by the presence of a large, elliptical dark opaque patch across each wing, is a common denizen of Kennet and Thames banks from mid-summer onwards. In 1970, however, the species appeared in the greatest profusion ever witnessed by the Recorder on the Kennet at Woolhampton, where, on the evening of 1st June, clouds of resting splendens would rise from the almost impenetrable vegetation bordering a half mile or so of river bank.

Cordulegaster boltoni (Donovan), Golden-Ringed Dragon-fly

An occurrence of this species at the Mill Pond, Bracknell, was reported to the Museum by Mr. S. O. Danek, a resident of Bracknell. Previously recorded in the Reading Naturalist mainly from streams in S. Berkshire and N. Hampshire.

Order Orthoptera (Grasshoppers, Bush Crickets, etc.)

Tetrix subulata (L.) Slender Ground-hopper

The continuance of the colony of this unobtrusive little ground-hopper was indicated by the finding of a single specimen

amongst dead leaf-litter bordering the stream below Beggar's Bridge Green, Pamber Forest, on 30th April.

Order Hemiptera (Plant Bugs, etc.)

Cyphostethus tristriatus (F.) Juniper Shieldbug

This prettily marked shieldbug overwinters as an adult and may therefore be found in its favoured localities early in the year. By tapping juniper bushes at Aston Upthorpe on 12th April (a bitterly cold spring day when few other insects were seen) a number of tristriatus were dislodged into the beating tray. This insect appears to feed only on ripe juniper berries.

Order Lepidoptera (Butterflies and Moths)

1970 has proved a poor season for immigrant species and we have only had notice of the following records:

Colias croceus (Geoffr.) Clouded Yellow Butterfly

A single specimen, seen by the Recorder on 18th September as it was flying across some waste ground close to Reading Station.

Vanessa atalanta (L.) Red Admiral

Few noted during the year, an early arrival being seen at Caversham on 21st June and an end-of-season example in the same locality on 11th October.

Vanessa cardui (L.) Painted Lady

Mr. Roy Leeke has supplied the record of two specimens of cardui at Chapel Hill, Tilehurst, on 27th June.

Herse convolvuli (L.) Convolvulus Hawk-moth

A single specimen of this large hawk-moth was found at Tilehurst in early autumn and submitted to Mr. Cyril Leeke for identification. A 'wild pairing' was attempted but no male was forthcoming!

Resident Species

Celastrina argiolus (L.) Holly Blue

1970 has been a good year for this butterfly, which was reported on several occasions in early spring from local gardens and shrubberies. There are normally two broods per year, caterpillars of the first brood feeding upon the young buds of holly and those of the second upon ivy. The following records were made:-

21st June        Nine larvae from a thick holly hedge near Crays Pond, Oxon.

- 23rd June A further three larvae from the same locality. (Parasitisation of larvae was high and only four butterflies resulted in early July - see note under Hymenoptera).
- 7th August Several eggs noted on ivy buds on plants near St. Lawrence's Church. (The resultant pupae should have overwintered to produce butterflies in spring 1971).
- 8th - 11th September Six of the above pupae hatched from a batch of seven to produce an abnormal third brood of the Holly Blue - none of the eggs had been parasitised.

Apatura iris (L.) Purple Emperor

Several males of this splendid insect were observed soaring round the oaks in Pamber Forest on 18th July and a female was seen settled high up on a willow in the same locality.

Limenitis camilla (L.) White Admiral

Seen frequently from the end of June and throughout July both at Pamber Forest and in woodland near Tidmarsh. Members attending the Forest excursion on 25th July have Christopher Dyczek to thank for pointing out eggs of the White Admiral freshly laid upon trailers of honeysuckle.

Strymonidia w-album (Knoch) White-letter Hairstreak

Although records of this little hairstreak have frequently been received for the Chiltern woodlands a few miles north of Reading, the record of a single specimen taken, and released, in a Caversham garden (Dovedale Close) on 17th July seems to indicate that colonies of the butterfly are existing, unnoticed on urban wych elms much closer to the Town than previously supposed.

Ptilophora plumigera (Schiff.) Plumed Prominent Moth

This Chiltern speciality was recorded for the first time from The Warburg Reserve at Bix on 21st November 1969, when two males were attracted to mercury-vapour light.

Leucoma salicis (L.) White Satin Moth

This species is decidedly uncommon in the Reading area, our few local records concerning occasional specimens from Woolhampton in the Kennet Valley. On 18th June 1970 a single moth was attracted to light in a remnant of old Thames' marshland one mile east of Mapledurham.

Sphecia bembeciformis (Hubn.) Osier Hornet Clearwing Moth

The continuance of the Beenham colony initially reported in Reading Naturalist No. 22, was observed, and a further

colony was discovered among shallows bordering the river Kennet close in to Reading. Adults were observed on 12th, 15th and 16th July. One female was discovered in Pamber Forest on 18th July.

Aegeria andrenaeformis (Lasp.) Orange-tailed Clearwing

Evidence of larval borings in wayfaring trees below Christmas Common, Oxon., was found in early May, and from a cutting taken on 9th May an adult emerged on 16th June.

Gypsitea leucographa (Schiff.) The White-marked Moth

Several specimens on willow bloom in woodland near Crays Pond, Oxon., on 29th April - previously only known to us from the Chilterns above Medmenham, Bucks.

Leucania obsoleta (Hubn.) Obscure Wainscot

This species still continues to flourish in the Kennet marshes at Woolhampton and was well in evidence on 12th June when some thirty examples were counted at light.

Oria musculosa (Hubn.) Brighton Wainscot

This species is now well established over the cereal-growing areas of the Berkshire Downs, particularly so on the higher ground above Cholsey in the direction of Kingstanding Hill. During the past twenty years there has been a steady spread northwards from the great stronghold of the species upon Salisbury Plain. Several specimens were noted by Mr. T. J. Homer and the Recorder at the Berkshire Downs locality on 14th August.

Apatele alni (L.) Alder Moth

Before the advent of mercury-vapour light this species was but rarely taken in any locality - to-day alni is known to be much commoner than formerly supposed. It is still considered a 'good species' and had a bumper year in 1970, twenty-one examples being counted at light near Crays Pond, Oxon., on the night of 8th June.

Haplotis venustula (Hubn.) The Rosy Marbled

This species continues to flourish at Pamber where specimens were seen flying at dusk on 25th and 27th June. An extensive fire on Silchester Common threatened its habitat, but more ground was saved than had at first seemed possible.

Polychrisia moneta (F.) The Golden Plusia

Mrs. Rhodes reports the successful breeding of three specimens of this beautiful species from caterpillars found by Mrs. Hawkins in her garden in Tilehurst Road. These larvae had been found feeding on Delphinium. The Golden Plusia was first recorded as a British insect in 1890 and the Reading

collector, William Holland, took the third British example on July 2nd of that year, the moth being attracted to a gas lamp near Reading. Since that time moneta spread rapidly over southern England and is to-day recorded from as far north as Cheshire and Durham.

Colostygia multistrigaria Haw. Mottled Grey

A decidedly uncommon species in our district to judge by local records prior to 1970. The species, however, exists in some strength across Heckfield Heath, Hants., from which locality it was first reported to us by Commander W. Gilchrist, and specimens were first seen there by the Recorder on 11th and 13th April.

Selenia lunaria (Schiff.) Lunar Thorn

Two examples of this local species were noted in woodland at Crays Pond, Oxon., on 8th June.

Order Hymenoptera (Bees, Ants, Wasps, Ichneumon-flies, etc.)

Ichneumonidae

Listrodromus nyctemerus (Grav.)

This Ichneumon-fly is parasitic upon larvae of the Holly Blue butterfly and must constitute an ever present check against populations of the 'blue' ever continuing high. Eight emerged between 11th and 16th July from a breeding stock of twelve Holly Blue larvae.

Hepiopelmus variegatorius (Panzer) A male on 17th August 1968, Goring Heath. This is a rare species.

Apidae

Apis mellifera L. Honey Bee. Noted nesting in a hollow Scots Pine, Heckfield Heath, 26th May, 1970.

Order Diptera (True Flies)

The following records all relate to collecting undertaken by Dr. E. Burt on behalf of Reading Museum, except where otherwise indicated. The bulk of the material was taken during 1969 but not determined until the winter of 1969/70. Several apparently common species have been included because they are new to the Reading Museum collection although the groups in which they occur have been well worked; hence it is to be supposed that they are less common locally than one would have expected.

Tipulidae

Tipula yerburyi Edwards Males 14th - 26th July 1969, females 15th June - 5th July 1969, all at Wokefield Common, Berks. - probably a new County record.

T. staegeri Nielsen

A single male at Wokefield Common on 6th October 1969.

T. unca Wiedemann

Males 2nd July 1969, females 26th June - 20th July 1969, all at Wokefield Common.

T. livida Van der Wulp.

A single female taken by the stream opposite the site of the Three Firs Inn, Wokefield Common, on 2nd August 1969. This is the highlight of the 1969 year as far as Diptera are concerned and the record has been eagerly awaited since J. Cole recorded the species from Coneyberry Hill, Goring, Oxon., (Reading Naturalist Vol. 17). A new Berkshire record.

Syrphidae

Platychirus discimanus Loew

A single male, 19th April 1969 at Goring Heath, Oxon.

Syrphus vittiger Zett.

A single male, 3rd June 1969 at Wokefield Common.

S. quadrimaculatus Verrall

Females 12th - 16th April 1969 at Goring Heath. In the same area, at Nuney Green, males were taken on 26th March 1970 and females from 22nd - 26th March 1970.

Cheilosia antiqua Meig.

A single male on 29th May 1970, Wokefield Common.

C. grossa (Fallen)

Males on 16th and 28th April 1969, Goring Heath.

Trypetidae

Xyphosia miliaria (Schrank)

A single male, 22nd July 1969, Wokefield Common.

Psilidae

Psila fimetaria (L.)

A single female, 13th July 1969, Wokefield Common.

Tachinidae

Compsilura concinnata Meig.

A single male, 10th July 1970, Bishopsland Farm, near Sonning Common, Oxon., coll. H. H. C.

Calliphoridae

Lucilia sericata (Meig.)

A female, 8th July 1970, St. Peter's



Avenue, Caversham, coll. B.R.B., and a female, 9th August, 1970 at Kennylands Road, Sonning Common, coll. H.H.C. Always considered a very common species, but all older records of Lucilia in this area are L. caesar (L.) or L. illustris (Meig.).

L. richardsi Collin

Several males and one female, 24th - 31st July 1970 at Caversham Park, coll. H.H.C. Also considered to be very common, but see remarks above.

Sarcophaga albiceps Meig.

One female, 30th July 1970, Caversham Park, coll. H.H.C.

Muscidae

Phaonia incana (Wied.)

Females on 3rd July 1970, Bishopsland Farm near Sonning Common, Oxon., coll. H.H.C.

P. erronea (Schnabl)

Female, 25th June 1969 at Wokefield Common. New to Berks.

Myospila meditabunda (Fabr.)

Males 19th May and 3rd July 1970, Bishopsland Farm, coll. H.H.C. A common species but new to the Reading Museum collection.

Mydaea electa (Zett.)

Female, 5th October 1969, Wokefield Common. New Berks. record.

Helina impuncta (Fallén)

Female, 7th October 1969. A common species but new to the Reading Museum collection.

H. depuncta (Fallén)

Female, 5th October 1969, Wokefield Common. Male, 16th July 1970, Chalkhouse Green, Oxon., coll. H.H.C.

Hydrotaea tuberculata Rondani

Male, 5th September 1969, Wokefield Common.

H. cyrtoneurina (Zett.)

Female, 4th October 1969, Wokefield Common.

Gymnodia humilis (Zett.)

A hibernating swarm of pregnant females reported from a house at Finchampstead Ridges, 28th October 1970., coll. Wokingham R.D.C. Public Health Dept.

Pogonomyia decolor (Fallén)

Female, 6th October 1969, Wokefield Common.

The Society's Entomological Evening 25th/26th July, 1970

Six members braved a somewhat chilly night at Pamber Forest where it was decided to run the mercury vapour lamp well into the Forest (a) to sample a new area and (b) to be out of gusty winds. The Recorder would like to thank Michael Fletcher and Christopher Dyczek for manfully helping with voluminous items of equipment to the site of operations and the always harder struggle back in the small hours. Species of Lepidoptera attracted were far fewer than last year (37 species as against 86) but this was to be expected in view of weather conditions. A good run of Lymantria monacha L. Black Arches cheered the night watches.

The several members who have sent in records are mentioned in the text and to them the Recorder expresses his best thanks. We again acknowledge our indebtedness to the Director of Reading Museum for allowing us every facility to incorporate such Museum records as we wished.

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THE RECORDER'S REPORT FOR VERTEBRATES

1969-70

by H. H. Carter

PISCES

The coarse fish in Hambridge Lake (a disused gravel pit near Newbury) were poisoned and the lake re-stocked with Rainbow Trout (Salmo irideus Gibbons) and possibly a few brown trout (S. trutta L.) in September 1969.

AMPHIBIA

Rana temporaria L. Common Frog

Ten freshly killed on New Lane Hill, Tilehurst, 21.3.70; twenty-five there and one on Chapel Hill, 23.3.70 (ZK). These are road casualties during the annual migration to the breeding grounds. (Compare Reading Naturalist No. 18 1966). Five killed near St. Michael's Church, Tilehurst, 9.10.70 (ZK).

Bufo bufo L. Toad

A pair seen on various dates in mid-April 1970 and in

previous years at Netherleigh, River View Rd., Pangbourne. (CF) Dozens of very small toads crossing a road in the direction of Cranemoor Lake, Englefield, early on a fine evening, 28.7.70, after emerging from a cornfield (PG).

Triturus vulgaris (L.) Smooth Newt.

CF sees about twelve annually at Netherleigh (see above).

REPTILIA

Anguis fragilis L. Slow-worm.

Breeds regularly in long grass at Netherleigh (see above) where nests are uncovered by Rotoscythe in August and September. (This species, like the Common Lizard and Adder, is ovo-viviparous, laying eggs which hatch at once or within a day or two at most.)

MAMMALIA

INSECTIVORA

Erinaceus europaeus L. Hedgehog.

Five killed along St. Michael's Rd., Tilehurst, in the latter part of 1969 (ZK). One seen alive in October 1969 at Chapel Hill (ZK,ZJK) and one dead there, 25.7.70 and 4.10.70 (ZK).

One dead, Cockney Hill, Tilehurst, 12.6.70 (ZK). Dead ones seen in Emmer Green, 4.5.70 and 18.8.70, and in Caversham, 7.70. One dead on Burghfield Rd., 4.10.70 (ZK).

Road deaths are clearly many fewer than in previous years, as observers in other areas have also noted, although the numbers of hedgehogs present have increased if anything. Evidently the selection pressure against curling up as a response to approaching vehicles has been strong enough to bring about a substantial change in habits.

Talpa europaea L. Mole

A mole or moles remained active in my garden (Sonning Common) during the early part of 1970, since when I have seen no trace of them. They are not usual in that area. One seen trying in vain to bury itself in hard soil near Sulham Woods, 7.6.70 (PG), also in an area generally devoid of moles, EMT found moles active along the Thames (at Pangbourne?) 11.69. Many mole-hills on the Downs from Streatley to Lowbury, 25.3.70.

Much work remains to be done on the distribution of moles in this area before the key factors can be isolated. Most of my own observations are on hill tops or in the Thames and other valleys.

Sorex araneus L. Shrew.

One dead at Cockney Hill, 18.3.70 and two at Chapel Hill, 22.10.70 (ZK, PG), three alive at Lowbury, 25.3.70. One or two in Kennylands Rd., Sonning Common, 23.4.70 and 7.7.70, two at Bishopsland Farm (Dunsden), 17.6.70.

Sorex minutus L. Pygmy Shrew.

One at Manor Farm Sewage Works, 30.3.70 (ZK), one or two seen on several days at the end of 4.70 near Theale gravel pits (PG).

Unidentified dead shrews at Sulham Woods, 7.6.70 and Vincent's Lane, 9.10.70, and two at Chapel Hill, 10.70 (PG).

CHIROPTERA

The bat caves at Park Place near Henley are reported to be derelict and gradually collapsing - the usual fate of artificial excavations in chalk if not actively maintained.

Plecotus auritus (L.) Long-eared Bat.

A female with a dependent infant found at Lower Basildon, 20.7.70.

Pipistrellus pipistrellus (Schreber) Pipistrelle.

CF sees single Pipistrelles each year at Netherleigh (see under Amphibia) and two were present 5.70. One flying repeatedly along a stretch of road at Clay Copse, Tilehurst (a habit of this species), 6.6.70 and two there on 12.6.70; one at Mud House, Tilehurst, 7.6.70; one at Hill Copse, 14.6.70; one at Chapel Hill through most of the summer (ZK).

CARNIVORA

Meles meles (L.) Badger

One found dead near a sett in the garden of Mr. Beavers, 8 Grass Hill, Caversham, 1.11.69 (an offshoot of Kelmscott Close sett). Present on West End Farm, Mattingley, Hants., 30.1.70 (Mr. Denton). Sett in use on Mr. Hollick's land at Park Place near Henley, close to the Thames on the Berkshire side, 13.3.70 (Mr. Angus).

One-hole sett in use at Gravel Hill, Caversham Heights, 17.1.70.

Probable sett at Nuney Green chalkpit, 26.3.70.

Old sett at South Lake, Earley, in use 5.70 (Mr. A. Price).

New setts discovered at Mosshall Wood, Purley; three adults seen here early 11.69, two adults, 3.4.70 (ZK, ZJK, PD).

Adults and young at the Sulham Lane sett: one cub at the entrance 6.6.70, one adult 7.6.70, one scratching vigorously, 12.6.70; two visitors from a nearby sett, 12.7.70 (ZK, ZJK).

Rectory Lodge; no sett could be found here (ZK, PD). I have a similar report from another observer, and either this record was erroneous from the start, or the sett has long been abandoned.

Barefoot Barn, Sulham; this sett is now abandoned (ZK). Sulham Wood; the two groups of setts here are partially occupied (ZK).

Beal's Plantation; this sett has been greatly enlarged to cover a large area of the hillside. People claim to have hand-fed badgers here with cheese, etc. (ZK, PD).

Mount Skyvers Wood; this sett is also being extended and now has about twelve holes (ZK).

Green Dean Wood; a dead female found here by police, 20.9.70.

Mustela erminea L.      Stoat.

One opposite Hardwick, 24.10.69 (EMT).

One adult at Barefoot's Barn, Sulham, 22.2.70 (ZK, ZJK).

One seen to capture a young rabbit in Park Wood, Marlow, 25.8.70 (ZJK).

Mustela nivalis L.      Weasel.

One in Firs Rd., Tilehurst, 1.11.69 (CJL).

One dead on the Meadway, Tilehurst, 7.6.70 (BRB).

One dead in Denmark Rd., 16.9.70.

One hunting around the sludge pits at Manor Farm (where rats may be the attraction) on 26.3.70 and on other dates in spring and autumn (PG) and one in the same locality, 27.9.70 (ZK).

One dead on the road by Caversham Laundry, 22.6.70.

One crossing Bird Lane, Sonning Common, 17.5.70.

One adult followed by a young one on Ipsden Common, 12.7.70 (ZJK).

One at Purley Hall park on 17.10.70 emerged from a hole in the base of a stump, retreated, but reappeared after some thirty seconds to make a

thorough inspection of the observer before again withdrawing into the hole (ZK).

Vulpes vulpes (L.) Fox.

The earth in Beal's Plantation (see Reading Naturalist no. 21) was re-used in 1969, and foxes were seen there on 15.1.70 and 11.4.70 (ZK, ZJK) and in Boxgrove Wood, 5.1.70 (ZK). A fox, recognisable by its grey shoulders and the large amount of white in its tail, was seen near Beal's Plantation on 7.9.70 and again, at 7.45 a.m. carrying a blackbird along Chapel Hill, Tilehurst (about a kilometre away) on 11.9.70. (ZK)

PG found a recently dead fox impaled on brambles in Sulham Woods, 21.3.70. The cause of death was not evident, and the carcass was still there in June (ZK). A pair reared five cubs in the same locality, seen on 29.7.70 by PG, who thought them to be a month old. A family, presumably the same, was seen there during the next few days up to 4.8.70 when there were only four cubs (ZK). This is unusually late for breeding in Britain, though comparable records exist for France.

An adult in poor condition was seen walking along a path in Sulham Wood on 12.6.70, and one was sitting at the edge of the wood on 8.8.70, ignoring the presence of a group of people in full view (ZK, ZJK).

An adult was carrying food in Clay Copse, Tilehurst on 22.4.70, and another was seen there on 25.7.70 (ZK).

A very dirty fox was walking along Chapel Hill, on the morning of 24.8.70 (ZK).

MJH saw a cub at Padworth Common in April 1970 and a dead adult on the M4 near its junction with the A4 at Maidenhead Thicket, reported 29.6.70.

ARTIODACTYLA

Cervus dama L. Fallow Deer.

Tracks at Nuney Green, 26.3.70.

Two feeding at the edge of a field near Dolesden, Turville and four near Fingest (both in Bucks.) 7.7.70 (ZJK).

Two undated records for Crowsley Park.

Muntiacus reevesi (Ogilby) Muntjac.

Skeleton of female found at Lower Hook End Farm received 10.2.70 per JSHM. Young male found dead at Dunsden, 30.3.70, by Mr. Morgan.

LAGOMORPHA.

Lepus capensis Pallas      Brown Hare.

One in fields east of Marley Tile gravel pit, Beenham, 25.5.70 and 27.10.70 (PG).  
Two on fields at Manor Farm, 18.7.70; three, 23.7.70; one, 26.9.70 (PG, ZK).  
Tracks after snowfall at Chalkhouse Green in February 1970 and two seen there 27.4.70.  
Many records from Bishopsland Farm, Dunsden, 2.3.70 to 9.9.70 with a maximum of seven animals on 5.3.70 (all records but the last were for March or April).  
Several records from the adjacent Bryant's Farm in March and October, with a maximum of four animals on 14.10.70 and 19.10.70.  
Two on Lowbury Hill, 25.3.70.

Oryctolagus cuniculus (L.)      Rabbit.

Common on Englefield estate and around Burghfield gravel pits (PG). Still tolerably common in the Sulham Woods area but definitely fewer than in 1968 (PG). Further details for these areas are given by ZK as follows:  
Two at Englefield, 5.8.70.  
Several records for Burghfield gravel pits July-Sept., maximum four or more on 2.8.70.  
One dead on Burghfield Road, 8.8.70.  
Seen at Cornwell Copse in March - April and September - October, maximum five on 23.3.70 and 25.9.70. Two on 18.4.70 showed symptoms of myxomatosis.  
Scattered records at Beal's Plantation from March to September, maximum on 15.5.70, when several young were seen.  
One at Sulham Riding Stables, 30 and 31.3.70.  
One young one at Purley Park, 8.8.70. One there 17.10.70.  
Four or more adults at Sulham Wood, 15.5.70, singles June and July (ZK).  
One by Thames at Westwick Farm, 26.4.70 (ZK).  
One Streatley Warren, 25.3.70.  
One in Juniper Valley, Aston Upthorpe, 24.1.70 affected by myxomatosis (ZK).  
Fourteen, possibly more, on Heckfield Heath, 26.5.70 (ZK).  
Tracks after snowfall at Chalkhouse Green, February 1970.  
One at Toker's Green, 17.1.70. Droppings at Nuney Green, 26.3.70.  
One Bur Wood, Sonning Common, 2.3.70. Three Sonning Common, 23.4.70.

Two Bishopsland Farm, Dunsden, 19.3.70.  
Several records in March and October from Bryant's  
Farm adjoining the above, maximum six on 20.10.70.  
Four Sonning Eye, 20.3.70.

RODENTIA

Sciurus carolinensis Gmelin      Grey Squirrel.

This species is present in nearly all the woods in  
the Sulham area (PG).  
Five or more seen together in winter (January) at  
Cornwell Copse (PG).  
Four or more early in January 1970 in Boxgrove Wood,  
Sulham (ZK).  
One early in January 1970 and one 27.3.70, at Beal's  
Plantation (ZK).  
One in Clay Copse, Tilehurst, 8.3.70; two, 12.4.70;  
one 5.8.70 (ZK).  
One in Sulham Lane, 30.3.70 (ZK).  
One in Barefoots Copse, 30.3.70 and 12.4.70 (ZK).  
One in Sulham Wood, 27.7.70 (ZK).  
One in same area on arable land far from nearest  
wood, August 1970 (PG).  
One on Hardwick Farm, 26.4.70 (ZK).  
Five in Purley Hall park, 17.10.70 (ZK).  
One at Stoneham School, Tilehurst, 23.3.70; one,  
1.10.70; two, 9 and 17.10.70 (ZK).  
Seen through the year at Reading School, one or more  
pairs present (PG).  
One in Kennylands Road, Sonning Common, March - June  
1970 and 18.10.70.  
Two in Bur Wood, Sonning Common, 23.4.70.  
Three or four in woods east of Kingwood Common,  
23.6.70.  
One in strip of wood bordering Peppard Road, Chalk-  
house Green, 8.9.70.  
One at Emmer Green, 10.3.70; one dead there, 17.6.70  
and 21.10.70.  
Six Clayfield Copse, Emmer Green, mostly young,  
30.4.70.  
One dead on Peppard Road, Caversham in July 1970.

Rattus norvegicus Berkenhout      Brown Rat.

One at a rubbish tip in Sulham Woods, 2.5.70 (PG).  
One dead on Burghfield Road, 10 inches (250 mm.)  
long, 19.10.70 (ZK).  
Two at Theale gravel pit, 7.3.70 (ZK).  
One dead on Peppard Road, Chalkhouse Green,  
16.4.70 and 19.6.70.



Mus musculus (L.) House Mouse

One dead at Chapel Hill, Tilehurst, 8.6.70 (ZK, ZJK).  
The same observers found an albino mouse in a chicken  
run at this locality, but this is likely to have  
been an escaped domesticated mouse.

One found running (or rather attempting to run) in a  
much weakened condition across a floor in the Town  
Hall in September 1970 was caught by hand, and lib-  
erated later near Sonning Common, by which time it  
was fully recovered.

Arvicola amphibius L. Water Vole.

Common on the Kennet and Avon Canal at Theale, and  
one seen there on 30.4.70, swimming in a gravel pit  
where they probably breed (PG).

One on Kennet and Avon Canal at Thatcham Marsh,  
22.3.70 (ZK, ZJK).

One at Manor Farm, 28.3.70 (ZK).

Common along the Thames between Pangbourne and Purley,  
probably scarcer on the Pang around Tidmarsh. (PG).

Microtus agrestis (L.) Short-tailed Vole.

One at edge of sludge pits, Manor Farm, 11.10.70  
and 18.10.70 (ZK, PG).

Muscardinus avellanarius (L.) Dormouse.

One hibernating at Padworth Common, December 1969  
(MJH)

One female caught at Aldermaston Court, May 1970  
(Mrs. Gash).

Contributors to this Report

B. R. Baker (BRB), Peter Dunn (PD), Mrs. C. M. Frank  
(C<sup>M</sup>), Peter Gipson (PG), M. J. Hitchcock (MJH), Zbigniew  
Karpowicz (ZK), Zdzislaw J. Karpowicz (ZJK), C. J. Leeke  
(CJL), Mrs. E. M. Trembath (EMT), J. S. H. Lorrish (JHSL).

MEMBERSHIP LIST

Honorary Members

Chandy, Mrs. A., Clarence Lodge, 93 London Road, Reading  
RG1 5BY  
Hora, Dr. F. B., Dept. Botany, The University, Reading  
Sandels, Mrs. H., Stonecroft, 33 Walterbush Road, Chipping  
Norton OX7 5DP  
Vear, T., 134 Shinfield Road, Reading

Ordinary and Junior Members

Adlam, K. W. H., Moonrakers, Busgrove Wood, Stoke Row, Henley,  
Oxon.  
Annereau, E. A., 272 Silverdale Road, Earley, Reading  
Annereau, Mrs., " " " " "  
Ashwell, Mrs. K. M., 7 Woodland Drive, Tilehurst, Reading  
Baker, B. R., B.Sc., F.M.A., F.R.E.S., 5 Dovedale Close, The  
Mount, Caversham, Reading  
Baker, Mrs. H., " " " "  
Baker, Miss A., " " " "  
Bateman, Miss J. C., 2 Tilehurst Road, Reading  
Beesley, A., 27 Western Elms Avenue, Reading  
Bentall, Miss E. M., Crooksbury, 144 Upper Woodcote Road,  
Caversham, Reading  
Blackwell, Mrs. E. R., 81 Wilderness Road, Earley, Reading  
Bland, S. E., 49 Grosvenor Road, Caversham, Reading  
Bowen, H. J. M., M.A., D.Phil., 20 Winchester Road, Oxford  
OX2 6NA  
Broom, Dr. D. M., Dept. Zool., The University, Reading  
Bull, G. A., 12 Warwick Road, Reading  
Bull, Mrs., " " " "  
Bunting, Prof. A. H., M.Sc., Dept. Agric. Botany,  
The University, Reading  
Bustin, Miss J. M., 2 Stoneham Close, Cockney Hill, Reading  
Butler, Miss K. I., 54 Alexandra Road, Reading RG1 5PP  
Cadbury, C. J., M.A., Leighton Park School, Reading  
Carter, H. H., M.A., B.Sc., A.M.A., 82 Kennylands Road,  
Sonning Common, Reading RG4 9JT  
Chavasse, Rev. S. E., 18 College Road, Reading  
Cheke, Miss V. E., 50 Petworth Court, Bath Road, Reading  
RG1 6PH  
Clements, Miss M. J. W., 108 Kenilworth Avenue, Reading  
Cobb, Miss L. E., B.A., 55 Northcourt Avenue, Reading RG2 7HE  
Cole, J. A., M.Sc., 30 Nicholas Road, Henley-on-Thames, Oxon.  
Cole, Mrs., B.A., " " " " " " "  
Corrall, L. N., 8 Greenleas Avenue, Emmer Green, Reading RG4 8TA  
Corrall, Mrs., " " " " " " "  
Davies, J. R., M.P.S., F.B.O.A., 50 Elmstone Drive, Tilehurst,  
Reading

Dicker, Miss M. J., 23/193 Wensley Road, Reading RG1 6EA  
Diserens, J. N., 14 Avalon Road, Earley, Reading  
Diserens, Mrs., " " " " "  
Dowman, Miss I., 52 Vine Crescent, Burghfield Road, Reading  
Dyczek, Christopher, 24 Anstey Road, Reading  
Eagar, S., 76 Redhatch Drive, Earley, Reading  
Erith, Miss A. G., B.Sc., Ph.D., 70 Highmoor Road, Caversham,  
Reading RG4 7BG  
Fishenden, Dr. Margaret, 2 Cleevemede, Cleeve Road,  
Goring-on-Thames, Reading  
Flack, Miss O., 198 Reading Road, Wokingham, Berks.  
Fletcher, M. V., B.A., 70 South Street, Reading RG1 4RA  
Fletcher, Mrs. I., " " " " "  
Fletcher, Colin, " " " " "  
Flower, Mrs. C. D. R., S.R.N., F.Z.S., 77 Whiteknights Road,  
Reading RG6 2BB  
Foat, N. J. W., Flat 2, 40 Redlands Road, Reading  
Foley-Fisher, Dr. J. A., 18 Betchworth Avenue, Earley, Reading  
Foley-Fisher, Mrs., " " " " "  
Foley-Fisher, David, " " " " "  
Frank, Mrs. C. M., Netherleigh, Riverview Road, Pangbourne,  
Berks.  
Gambles, R. M., West Warren, Warren Road, Woodley, Reading  
Gambles, Mrs., " " " " "  
Goldring, Dr. R., 4 Falstaff Avenue, Earley, Reading  
Goldring, Mrs. A. B., B.A. " " " "  
Goold, Mrs. E. M., 15 St. Bartholomew's Road, Reading  
Greenup, Miss R. B., Ashton, Heatherdene Avenue, Crowthorne,  
Berks.  
Gwatkin, T. L., M.A., 14 Courtenay Drive, Emmer Green, Reading  
Hall, Mrs. M. E., B.Sc., Garth House, St. John's Road,  
Mortimer, Reading  
Harding, J., Bellapais, 31 Folder's Lane, Bracknell, Berks.  
Harding, Mrs. J. C., Ph.D., " " " "  
Hardy, M. G., M.A., Dept. Zoology, The University, Reading  
Harper, R. E., 6 Fernbrook Road, Caversham, Reading  
Harris, Prof. T. M., M.A., F.R.S., F.L.S., Dept. of Geology,  
The University, Reading  
Harrison, Mrs. J. D., 42 Lea Road, Sonning Common, Oxon.  
Hawkins, Mrs. S., 63 Tilehurst Road, Reading  
Heather, F. L., 6 Pembroke Place, Caversham, Reading RG4 OHU  
Heather, Mrs., " " " " "  
Hemken, E., Audley House, Station Road, Earley, Berks.  
Hill, Miss M. N. J., 159 Kentwood Hill, Tilehurst, Reading  
Homer, T. J. G., M.A., St. Timothee, Pinkneys Green, Oxon.  
Horwood, Colin, 21 Glenrosa Road, Tilehurst, Reading  
Housden, Mrs. H. V., 9 Knowle Close, Upper Woodcote Road,  
Caversham, Reading RG4 7LH

Housden, Miss J. M. V., B.Sc., 9 Knowle Close, Upper Woodcote  
Road, Caversham, Reading RG4 7LH  
Irving, D., 28 Grosvenor Road, Caversham, Reading  
Irving, Mrs., " " " "  
Johnson, Toby, 54 Albert Road, Caversham, Reading  
Jones, Stephen, 162 Kentwood Hill, Reading  
Kay, Mrs. B., 2 Christchurch Gardens, Reading  
Kemp, B. R., B.A., Ph.D., St. Patrick's Hall, Northcourt Avenue,  
Reading  
Knowles, John, 17 Broomfield Road, Tilehurst, Reading  
Lambden, Mrs. H. D., B.Sc., 74 Beech Lane, Earley, Reading  
Lappin, G., 45 Gloucester Road, Reading  
Lawton, F., 20 Fawcett Crescent, Woodley, Reading  
Lawton, David, " " " "  
Leatherdale, D., F.L.S., F.R.E.S., P.O. Box 352, Manotick,  
Ontario, Canada  
Leeke, C. J., B.Sc., A.M.I.Biol., 1 Heathway, Chapel Hill,  
Tilehurst, Reading  
Leeke Mrs., " " "  
Levy, B. G., B.A., Ph.D., Southridge House, Streatley, Berks  
Lewis, B. E. C., 13 Buxton Avenue, Caversham, Reading  
Lewis, Mrs., " " " " "  
Loam, Miss I., 72 Recreation Road, Tilehurst, Reading  
Lockwood, J., 20 Drayton Road, Reading  
Lockwood, Mrs. D., " " "  
Lush, Miss G. M., 32 Matthews Green Road, Wokingham, Berks.  
Lush, R., " " " " "  
Lynton, Miss Linda, 22 Talbot Close, Caversham, Reading  
McKenzie, Mrs. I. J., B.Sc., Penard, 96 Elvendon Road,  
Goring-on-Thames, Reading RG8 ODR  
Major, Mrs. J., 2 Eldon Road, Reading RG1 4DH  
Mallett, Miss Sara, 42 Kidwells Close, Maidenhead, Berks.  
Mason, Miss D., 4 Selva Court, Kendrick Road, Reading RG1 5DT  
Meek, Mrs. P. A., 42 Alexandra Road, Reading  
Meek, Miss C., " " " "  
Merrifield, Miss E. N., 2 Morton Court, Christchurch Road,  
Reading  
Moon, A. E., F.R.Met.S., Flat 22, Leighton Court, Pepper Lane,  
Earley, Reading, RG6 2SG  
Moore, Mrs. M. L., 26 Shepherds Lane, Mapledurham, Reading  
Needs, Miss B., 6 Prospect Street, Reading  
Nelmes, Miss E. M., M.A., 27 Westbourne Avenue, Acton,  
London W.3. 6JL  
Newman, J. F., B.Sc., F.R.E.S., Earley Cottage, 25 Beech Lane,  
Earley, Reading RG6 2PT  
Newman, Mrs. B. M., B.Sc., " " " " "  
Newman, John, " " " " "  
Owen, Dr. H., Dept. of Agric. Botany, The University, Reading  
Padley, F. C., 2 Eldon Place, Reading

Parkinson, Miss I. N., B.A., 10 Fern Close, Goring-on-Thames,  
Reading RG8 OAR

Parry, Miss R., Bunkum Cottage, Highclere, Newbury, Berks.

Paterson, Mrs. K., 53 Alexandra Road, Reading

Paul, Mrs. V. N., B.Sc., Overdale, Peppard Common, Oxon.

Pearce, E., 9 Amity Road, Reading

Pearce, Mrs., " " "

Phillips, Mrs. V. A., 3 Longleaze, Wootton Bassett, Wilts.

Pointon, E. F., 29 Lockstile Way, Goring-on-Thames, Oxon.

Pointon, Mrs., " " " " " "

Potts, T. A., Bockhampton Manor, Lambourne, Berks.

Price, A., 6 Mansfield Road, Reading

Rand, Miss Beryl, 2 St. James Close, Pangbourne RG8 7AP

Reiss, Mrs. M. C., Ridgeways, Wantage Road, Streatley, Reading  
RG8 9LA

Reynolds, Miss D., 26 Shepherd's Lane, Mapledurham, Reading

Rhodes, Mrs. K. R., B.Sc., 65 Tilehurst Road, Reading RG3 2JC

Sell, M. R. W., B.A., 72 Westwood Glen, Tilehurst, Reading

Sell, Mrs. J. R., " " " " " "

Sheringham, J. G. T., 14 Shooters Hill, Pangbourne, Berks.

Stapleton, Peter, 14 Bramber Mews, Caversham Park Village,  
Caversham, Reading

Street, Mrs. H. A., Vienna, New Road, Holyport, Maidenhead,  
Berks.

Surplice, Kenneth, 3 Savernake Close, Tilehurst, Reading

Tarrant, Paul, 109 Norfolk Road, Reading RG3 2EQ

Taylor, Mrs. W. A. Norman, 143 London Road, Reading

Thiel, Mrs. H. M., Torbreck, Oatlands Road, Shinfield,  
Reading RG2 9DN

Timmins, J. E., 65 Fairway Avenue, Tilehurst, Reading

Timmins, Mrs. M., " " " "

Timmins, Miss Judith, " " " "

Timpson, F. E., 53 Kidmore End Road, Emmer Green, Reading

Timpson, Miss Ruth, " " " " " "

Timpson, Miss Sarah, " " " " " "

Tobias, Miss J. M., 17 Ramsbury Drive, Earley, Reading RG6 2RT

Tofield, Mrs. O., Ingaro, Stuart Road, Wash Common, Newbury,  
Berks.

Toothill, Dr. Joyce, 15 Birdhill Avenue, Reading

Towers, Mark S., 24 De Beauvoir Road, Reading

Townend, Miss S. Y., B.Sc., 6/74 Wensley Road, Reading RG1 6DN

Trebath, Mrs., 5 Thames Avenue, Pangbourne, Berks.

Trickett, Miss S., 44 Inglewood Court, Liebenrood Road, Reading

Vincent, W. R., Cray House, Harpsden Woods, Henley-on-Thames,  
Oxon.

Vincent, Mrs. V., " " " " " " " "

Vincent, Charles P., " " " " " " " "

Vincent, Louise, " " " " " " " "

Vincent, Clare, " " " " " " " "



Vincent, S. A., Woodlands, 46 Cockney Hill, Reading  
Vincent, Mrs., " " " " "  
Waight, Miss F. M. O., F.L.S., 139 St. Peter's Road, Reading  
Ward, D. J., 31 Elsley Road, Tilehurst, Reading  
Ward, Mrs. K., " " " "  
Ward, Penelope, " " " "  
Ward, Richard, " " " "  
Watson, E. V., B.Sc., Ph.D., F.L.S., Little Court, Cleeve,  
Goring-on-Thames, Oxon.  
Watson, Miss J. M., 30 Westwood Road, Tilehurst, Reading  
White, Mrs. D., 66 Berkeley Avenue, Reading  
White, Jeremy, " " " "  
White, J. H., 13 Honey End Lane, Reading  
White, Mrs., " " " "  
Whittaker, Mrs. P. M., 67 Inglewood Court, Liebenrood Road,  
Reading  
Whittall, Dr. G. W., M.B., B.Ch., 10 Westcote Road, Reading  
Whittall, Mrs., " " " "  
Wilkins, Miss J., B.Sc., 194 Reading Road, Wokingham, Berks.  
Wilkinson, W., 6 Cedar Close, Wokingham, Berks. RG11 1EA  
Williams, L. H., B.Sc., Ph.D., 164 Lower Higham Road, Chalk,  
Gravesend, Kent  
Williams, Mrs. R. D., 22 New Road, Reading  
Winter, R. L., B.Sc. (Econ.), A.C.A., 19 Courtenay Drive,  
Emmer Green, Reading

### Schools

Abbey School, Kendrick Road, Reading  
Bulmershe School, Chequers Way, Woodley, Berks.  
Carmel College Natural History Society, Carmel College,  
Mongewell Park, Wallingford, Berks.  
Highdown Comprehensive School, Emmer Green, Reading  
Forest School (The Biology Society), Robinhood Lane,  
Winnersh, Berks.  
Kendrick School, London Road, Reading  
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Reading School, Erleigh Road, Reading RG1 5LW  
Redlands Primary School, Lydford Road, Reading  
The Science Department (Dr. A. M. B. Whitaker), Reading College  
of Technology, Kings Road, Reading  
Southlands Girls' School, Northumberland Avenue, Reading  
(The Head Mistress)



