

The Reading Naturalist

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Editorial

Owing to the high cost of printing, it has unfortunately become necessary to reproduce this year's issue of "The Reading Naturalist" by a process of duplication. We hope to be able to return to a printed journal in the near future.

Mr. M. Parry, of Reading University meteorological station, has kindly provided the data on weather conditions during 1950, a valuable addition to the section of the journal dealing with local records. To our other contributors also, we wish to express our thanks, and especially to Mr. P.A. Betts for designing the block of the Herb Paris which appears on the cover.

L.H. WILLIAMS.

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SOME TREES AT CAVERSHAM COURTT. VEAR

There is nice little collection of trees at Caversham Court, the public pleasure ground by the Thames. It contains a fine old Yew tree (Taxus baccata). All ancient yews are commonly reputed to be a thousand years old, but what is the age of a tree? If we had documentary evidence that a tree still standing was planted in the year 951 A.D. we should call it a thousand years old. But only the centre ring, about a quarter of an inch in diameter would be 1000 years old, the next 999, and the outermost ring only one year old. If hollow, as is often the case with old trees, no part of it would be 1000 years old.

It is often said that yews were planted in churchyards to provide wood for bows for the army, but English yews do not grow straight enough for bows. Spanish-grown trees were much preferred and a law was passed requiring that a cask of wine should come with each consignment of yew. The empty casks or butts were used as targets, the bunghole being the bullseye. St. Mary's Butts therefore was the ground by St. Mary's Church where the archers practised shooting at the wine butts.

On the river bank is a row of Lombardy Poplars (Populus nigra, variety italica) which I estimate are about ninety feet high. The first tree of this species to reach England was brought by coach from Turin by Lord Rochford in 1758 and planted at Park Place, Henley-on-Thames. It grows very fast but the wood is worthless. Like all poplars the leaves are very restless, due to the long leafstalk being flattened at right angles to the plane of the leaf, so the slightest breath of air affects them. This is most noticeable in the Aspen (Populus tremula).

The Cedar of Lebanon (Cedrus libani) is a handsome, stately tree. There are three species of true cedar, but botanists say they are only geographical varieties. They are C. libani from Syria, C. atlantica from Northern Africa and C. deodara from India. There is a rough-and-ready method of distinguishing the species:-

libani L has level branches
atlantica A has ascending branches
deodara D has descending branches

but you mustn't press this too hard.

The wood of all three is light coloured, scented, and fairly soft. The organ of the University Hall is cased in Lebanon Cedar from a tree grown close by.

Many scented woods throughout the world are wrongly called cedars. The so-called pencil cedar is really a juniper.

There is a good Acacia (Robinia pseudacacia) with handsome feathery foliage and racemes of white flowers. This tree used to bear a couple of large bunches of Mistletoe (Viscum album) under which the attendant placed chairs for the ladies, but some miscreant stole the bunches.

Ivy, (Hedera helix) is often called a parasite, but it is not. It is rooted in the ground and uses trees and walls for support holding on by tiny

rootlets in the same way as the rose does by thorns and the traveller's Joy by twining its leafstalks.

In a wood you will often see a long cable hanging from a tall tree with perhaps loops or coils of the cable on the ground. These are stems of the Traveller's Joy (Clematis vitalba) which when young attached itself to the branches of a seedling tree and was carried up with it as the tree grew. I have a piece of one of these cables which grew at Emmer Green that is three inches in diameter. Evidently this is about its limit. The limit for Ivy, as far as my experience goes, is about six inches. Ivy wood is somewhat soft and is of an unpleasing dirty greenish white colour.

The Wellingtonia (Sequoia gigantea) looks far older than it is; for the species was not introduced into this country until 1853. It is the American Big Tree, which attains a greater bulk than any other species in the world, though it is surpassed in height by some of the Eucalypts of Australia. The largest found was forty feet in diameter. The red wood, though soft, is practically indestructible. It grows very fast. I have a piece that I cut from a tree that grew at Burghfield which has rings two inches wide. The slowest-grown tree of which I have any knowledge is a Pine which grew on the timberline in Western U.S.A. It was three feet high, four inches in diameter and 255 years old. It had evidently had a hard struggle for existence. A while ago, at Mr. Smalcombe's suggestion, I made some investigation into the growth of wood in relation to the weather. I found that the years in which it grew fastest were wet years and that those years coincided with the appearance of sunspots. I don't suppose it was either a new discovery or a valuable contribution to the science of dendrology.

Near the entrance is a wellgrown young Mulberry tree. There are older ones at Reading University and in various gardens in the town. King James I had the idea of introducing the rearing of silkworms in this country and advised his subjects to plant mulberry trees. They planted the Black Mulberry (Morus nigra) which bears a pleasant fruit. But silkworms prefer the leaves of the White Mulberry (Morus alba) whose fruit is white and insipid, so the silkworm industry didn't make much headway. Mulberry has a hard yellow wood.

There is a remarkable Box tree (Buxus sempervirens). It has a trunk about a foot high which throws out long arms all round, which lie on the ground and then shoot upwards, forming a dome-like arbour which would make an ideal hiding-place for the merry plotters in Twelfth Night. Boxwood is yellow and hard and is the ideal wood for turnery, rules &c.

The Strawberry Tree (Arbutus unedo) has a very distinctive light red bark and is remarkable for shewing flowers and fruit at the same time. The flower is a little greenish urn-shaped bell. The fruit, about the size of a cherry, is rough and strawberry-like in appearance but decidedly different in taste.

There is also a Catalpa or Indian Bean (Catalpa speciosa) from North America. It has large yellowgreen leaves and conspicuous spikes of flowers. The fruit is a very long and very narrow pod, hence the name of Indian Bean. The wood is a warm brown and though soft is very durable, gate-posts being recorded as lasting nearly a century. There is a fine Catalpa bignonioides in St. Mary's churchyard.

The Thames Promenade, on the opposite side of the river, has some interesting trees, among them being the American Red Gum (Liquidambar styraciflua). It has handsome, deeply-cut leaves, not unlike narrow ivyleaves and they turn deep red in the autumn. The wood is reddish, often prettily marked, and it is used for furniture. In this country it is sold under the absurd names of Satin Walnut and Hazel Pine. About fifty years ago a quantity of it was laid as street paving in London, but it soon had to be taken up as it was quite unsuitable for the purpose. The authorities were able to claim on the contractor on the ground of misdescription. He undertook to supply Californian Red Gum and it does not grow in California.

Although the Elm (Ulmus procera) is such a common tree all over the South of England it is not a native. It was probably introduced by the Romans. It grows fast and tall and is very prone to be blown down as its root system is very shallow. In this it is followed at no great distance by Spruce and Cedar. I remember a clump of four Elms in Bulmershe Park some years ago which were blown down simultaneously to north, south, east and west, so that they lay like a cross on the ground.

A nouveau riche was showing visitors round his estate and, pointing to a row of Elms he said "These won't be much use to me but they may come in for my posteriors". One of the party suggested that Birches might be more appropriate. This is probably a chestnut. The origin of chestnut for an oft-told tale is said to come from a play a century or more ago in which a man returning from Spain brought a Spaniard back with him. He was fond of telling a story about a tree in Spain. "This tree" he began "was a cork-tree". "No, no" said the Spaniard "it was a chestnut. I have heard you tell this tale forty times and it was always a chestnut".

The Insectivora

Dr. N.B. Eales.

One of the most ancient orders of Mammals, as their fossil history shows, is the order Insectivora. Living in the world to-day are more than three hundred species, belonging to ten families, and at least ten other families have become extinct. In Britain only three families are represented, the mole family (Talpidae), the hedgehog family (Erinaceidae) and the shrew family (Soricidae). These include the mole, the hedgehog, and five species of shrew.

Insectivores are all small, agile mammals, the largest being only sixteen inches long (Centetes, a native of Madagascar), the smallest only one and half inches (an Italian shrew, the smallest of all mammals). Most species live on land, and feed on small creatures, such as worms, insects, mice, frogs, snails, slugs and carrion. Some are entirely carnivorous, others take fruit and succulent roots, hence the name of the order expresses only in a very general way their feeding habits. Although well known by name, few people have seen them alive, since they are active by night, rarely appearing in the daytime. Some burrow in the soil, others hide in ditches beneath leaves and grass, or utilise the burrows made by other animals. The non-burrowers hibernate in winter. Their sight is poor, but smell and hearing are acute. All have a voice, but their shrill squeaking is in some cases outside the range of human perception. Structurally

they exhibit both primitive and specialised characters. Their five clawed toes, plantigrade method of walking, collar bones, numerous teeth, large noses and smooth brains indicate a primitive or generalised structure, but individual members show specialisations coupled with this primitiveness, as in the flexible sensitive snout and spade-like, burrowing fore-limbs of the mole.

Modern Insectivores inhabit the continents of North America, Africa, Europe and Asia; they are not found in Australasia or in South America, except near the borders of Central America. Some species are confined to remote islands, such as Madagascar, while other islands, such as Ireland, are poor in species.

Although not, as a rule, afraid of man, members of the order are difficult to tame, and still more difficult to keep as pets. A diet of insects, worms and slugs has not a high food value, and enormous quantities have to be eaten daily to maintain life. Some will die in a few hours if not frequently fed, others are so delicate that they will succumb if held in the hand for long. Little is known of the length of life in the various species; in the shrews it is stated that fourteen months is probably the limit of their existence, and that they die in early autumn of old age, or when food is getting scarce.

Nearly all insectivores exude a disagreeable odour from skin glands situated either on the side of the body or near the anus. The secretion is so pungent in the shrew that cats will not eat the shrews they kill.

A short description of the British species may now be given. The hedgehog (Erinaceus europaeus) is our largest British insectivore, measuring from 8 to 9 inches in length, and weighing up to one and a half pounds. Though typically nocturnal in its habits, it will leave its sleeping place in a ditch or under leaves, after a heavy shower of rain or at dusk, to hunt for the snails and slugs which emerge under similar conditions. Its food, however, is varied, and unlike the other British insectivores, it is omnivorous, taking both plant and animal food. Worms, insects, rats and mice, lizards, snakes and frogs, bird's eggs, fruit and succulent roots are eaten, and everyone knows that a hedgehog will drink fearlessly from a saucer of milk. It will attack both the grass snake and the viper, and is said to be immune to viper poison. In winter it hibernates, and prepares its sleeping place by lining the burrow with moss and leaves, though it makes no attempt to store food.

It can neither attack its enemies nor run away from them, but it has adequate protection in its spiny coat. The spines, which are sharp and hard, yet elastic enough not to be brittle, are confined to the upper or dorsal surface, and are interspersed with normal hairs, but the under surface and the legs have hairs only. When attacked the animal can either stand firm and erect the spines, or it can tuck in its head and legs, together with the short tail, and roll up into a ball, with spines projecting on all sides, as in the spherical sea urchin, Echinus. These two movements are brought about in the following way. Beneath the skin lies a highly developed skin muscle, corresponding to the twitching muscle of the horse and other mammals, but much more extensive. The muscle is very slack, and forms a kind of sheath encircling the back. Its action will depend upon the attitude of the animal when the muscle is brought into action. If the head and tail are extended, as when the hedgehog is standing, then the muscle in contracting acts only on the dorsal skin, causing erection of the spines. If, however, the head, limbs and tail are flexed, four pairs of muscle slips from them to the edges of the skin muscle pull it down over the head limbs and tail so that they lie in a sort of bag formed by the relaxed skin muscle,

which then contracts, pulling the spiny skin into a circular covering for the vulnerable parts of the body. Two dissections of the hedgehog to exhibit this muscle will be found in the Museum of the Zoology Department of the University of Reading. Foxes and badgers can kill the hedgehog if they are able to reach its ventral surface, but when once it has rolled itself into a ball, attack is much more difficult, and the spines can cause serious wounds, as many a fox terrier has discovered. Occasionally a hedgehog will fall from a height by rolling itself into a ball and hurling itself over the edge, then after a short rest unrolling itself and proceeding on its way.

The hair of the hedgehog harbours innumerable parasites, chiefly lice and fleas, and though these will not transfer themselves to a person handling the animal, they are unpleasant.

The hedgehog has thirty six sharply pointed teeth. The lower incisors are directed forwards, the canines small.

A litter of several young is born in early autumn. They are pink in colour, and their spines are soft and flexible, but soon harden.

Twenty species of hedgehog occur in the tropical and temperate regions of Europe, Asia and Africa. The European species does not extend as far as the north of Scotland, though it has been introduced into the Shetland Islands.

The mole (Talpa europaea) is a burrowing form which does not hibernate, but remains underground and feeds throughout the winter. It is highly specialised for this mode of life. The stream-lined shape, without neck or external ears, the flexible probing snout, soft silky fur set vertically in the skin so that individual hairs do not slope backwards as in other mammals, the powerful digging fore-limbs with broad palms turned outwards and long sharp nails, are all adapted for burrowing, and at this laborious task the mole excels. The hand can cut through the roots of plants or shovel away the earth, acting both as a hoe and a spade. Long runs are made underground and considerable quantities of earth are turned up in the process, resulting in the mole-hills commonly seen in infested pastures. Along these runs the mole hunts its food, throwing up new mole-hills as it advances. The Old English name of the mole, still retained in some northern parts of the country, is mouldwarp, which means "the creature that throws up mould". An enlarged chamber in the burrow forms its bed, usually lined with grass and leaves. In this it sleeps for most of the day, but hunts actively for food in side burrows and on the surface at night. In early spring, males and females pair; the first brood of young, from five to seven in number, are born naked and blind in May or June. Before the birth of the young a nest is constructed, usually remote from the ordinary sleeping chamber. The elaborate pictures of the mole's fortress and galleries, copied from a French author of the early 19th century are now known to be incorrect. The mole is an opportunist, burrowing wherever the earth is soft and food abounds, and the runs are built on no regular symmetrical architectural plan.

Smell and hearing in the mole are acute senses, but sight is very poor, though the animal is not blind, as many people suppose. The eyes are hidden in the fur and are no larger than the head of a pin, the eyelids are open for only part of their length. This little creature, weighing only four ounces, has, however, a prodigious appetite. It consumes a large number of earthworms and

insect larvae below ground, and comes to the surface for mice, lizards, frogs, young birds and occasionally carrion. The forty four sharp little teeth can tear flesh from bones.

Moles are beneficial in so far as they consume many insect pests, but the disturbance of the earth in grasslands and cornfields causes them to be hunted and destroyed as a nuisance, as well as for the beautiful silky pelt.

Moles inhabit the temperate regions of Europe, Asia and North America, but many islands, such as Ireland, the Isle of Man and the western Scottish Islands are without them. Four species are found in Europe.

The shrew, also called shrew-mouse because of its mouse-like fur, and mole-mouse on account of its mole-like flexible snout, belongs to a large family, of which five species are British. All are very small, ranging from three and three quarter inches in the water-shrew to two and a quarter inches in the lesser shrew. They are less adapted for burrowing than the moles; all four legs are slender and are formed for running. The eyes are bright, though small, the external ear rounded and shaped rather like a human ear. They exude a disagreeable musky secretion from glands between the elbow and the thigh. Owls are less fastidious than cats, and will eat them.

The teeth of shrews are reduced in number in the lower jaw, the single incisor and the canine lying flat, and only one premolar being present. The teeth are tipped with red or brown.

All male shrews are fighters, and fight to the death.

The common shrew, Sorex araneus, is less than three inches in length, or four and a half inches including the tail. It can burrow, but often makes use of runs constructed by other animals. It does not hibernate. The breeding nest is built in a bank, a hole in the ground, or in tall grass. Several litters are produced during the summer, with from four to seven young in each. The length of life is probably not much more than a year. As in the mole, the shrew's food consumption is enormous; in 36 hours a single animal will consume four times its own weight of worms, insects, woodlice, snails or carrion.

The lesser or pigmy shrew, Sorex minutus, the smallest British mammal, has a length of barely two and a quarter inches. Usually it inhabits wooded country and reaches the summits of our highest mountains, having been seen running about on the snow on Ben Nevis. It makes a nest for the young, which are born in the summer in two litters each up to eight in number. It dies in the autumn after breeding. This shrew is not as abundant in this country as the former species, but it is widespread in Ireland, where S. araneus does not occur. It is also found on many of the Hebridean islands and on Ailsa Craig. Fraser Darling considers that the presence of the lesser shrew is evidence of "an era of woodland now long gone".

The water shrew, Neomys fodiens, is a handsome shrew, with a back of silky black or dark brown fur and an underside of grey or white. The feet and tail bear long stiff hairs to assist in swimming, though it is by no means confined to the water, but will travel on land also. Its movements in water are very graceful. It feeds on aquatic insects, snails, worms, frogs, young fish and freshwater shrimps. A burrow is made in the river bank and leads to the nest, where litters of from four to eight young are reared in early and late summer.

The dentition differs from that of the genus Sorex; there is one premolar fewer in the upper jaw.

The water shrew is confined to England, Scotland and Wales. It does not occur in Ireland or the western isles. It is the largest of the shrews, measuring three and three-quarters inches, with a tail of about four inches. The Islay shrew, Sorex granti, and the Scilly shrew, Crocidura cassiteridum, were formerly regarded as sub-species, and are found only on the islands from which they are named.

Insectivores can be regarded by the farmer as beneficial mammals, owing to the very large number of harmful insects which they consume. To the zoologist they are of profound interest. They are an ancient group, appearing in early tertiary times as small, active forms with generalised structure. In some of their characters they link the higher mammals with the more lowly marsupials, in other features they resemble those orders of mammals which retain the five-toed condition, such as the bats and the primates. They may provide the basis, through certain arboreal families of Insectivores, for the evolution of the lemurs, monkeys, apes and man.

Wood Ants

E. Nelmes

Most people have seen the heaps of vegetable debris piled up in woods by the large brown and red ant, Formica rufa L., over its underground nest. This ant, called popularly the wood, hill or horse ant, is closely associated with trees and most frequent in woods of pine, provided they are not very dark, and of oak and birch, though it also occurs under other trees and even on heaths. Since it is found chiefly on light, dry soils and rarely on chalk or heavy clay, its distribution in the Reading area is localised. There was formerly a colony on sand at Caversham Warren, but the nearest existing one known to me is at Ufton Park, near Mortimer, though I have a record from Breach Copse, Wokingham. Both places lie at the western end of a chain of woods on the light soil of the Bagshot and related beds that extends discontinuously from Kingsclere to Windsor Park and forms, with the New Forest region on similar geological formations, the main head-quarters of F. rufa in southern England. North of Reading, the nearest colonies are on the dry ridge formed by the Corallian deposits southwest of Oxford

F. rufa is a northern species, and the purpose of its heaps appears to be to conserve warmth. They are composed of bud scales, pine needles, small pieces of twig, bracken or heather, and similar materials and are usually supported by a tree stump, which, however, they frequently hide. They may be low mounds or cones five or six feet high, and as much as ten feet in diameter but seem to be tallest and most conical in the north and in shady situations, though their shape is partly influenced by the material of which they are composed. They frequently face east, south-east or south, and are generally made along the edges of woods and woodland paths and in clearings. While collecting preliminary data on the physical requirements of this ant, I made rough measurements of the temperature within occupied nests in various parts of southern England during April-September 1938 and found a range of 60-76° F., with corresponding air temperatures of 50-67° F.

Wood ants may appear above ground as early as February during a warm spell and are active in all weathers during the summer until about October. Those usually seen are the workers (imperfect females), which are about $\frac{1}{4}$ in. long and mainly dark brown in colour, though the thorax and parts of the head are red. They collect building materials and food, and in doing so leave and enter the heap by a number of well defined holes in it, which are guarded, and work over very large areas, moving jerkily along in trails extending between the nest and the foraging ground. Their numbers are often so great that their feet wear tracks in the ground and make a perceptible rustling sound. They are fierce, courageous and strong and bring back all kinds of insects, living and dead, in such numbers that the surrounding vegetation may be cleared of insect life. For this reason, they are sometimes encouraged by foresters and were once protected by law in Germany. Other foods are honey-dew excreted by Aphids, the oily food reserves contained in special bodies on the seeds of plants such as violets, gorse and broom, which they collect and incidentally help to disperse, and the nectar of flowers. When searching for nests in beechwoods near Stroud early in the year, I found that plants of Helleborus foetidus, which were conspicuous against the bare floor, provided reliable indicators, since if any wood ants were present, there were invariably some at the flowers. They will also feed on carrion, and workers from a moderate-sized nest cleaned a dead grass snake to the bone in 20 minutes.

These ants will not brook interference and are quick to defend themselves, not, as popularly believed, by stinging, but by biting, when one may allow itself to be pulled in two rather than release its grip, or by discharging formic acid at the aggressor from the tip of the abdomen, which is directed forward between the legs for the purpose. This acid may cause painful burns, or even blisters, if received in any quantity on the hands or face, and its pungent smell is often noticeable near nests. Nevertheless, the ants can be safely approached without undue discomfort, and a large number of different insects as well as several spiders and mites, a false scorpion and a wood louse live unmolested in their nests.

Besides the workers, there are in each nest a number of queens (perfect females) and, in summer, males. Both sexes are larger than the worker and winged. They emerge from the heaps in June or July, take short flights, and mate on the heap or the ground, after which the males die and the females bite off their wings and either return to the same nest or enter one belonging to ants of the same or even a different species, by which they are adopted. They are unable to initiate a colony unaided.

If undisturbed, a nest may persist in the same spot for many years. Prosperous nests are often accompanied by subsidiary ones, made by the bodily removal of building materials, larvae and pupae from the main one, with which they remain in communication. Fires, felling operations and game preservation affect them adversely, and the ants were exterminated at Elsfield, near Oxford, through the heaps being opened by keepers to enable the young pheasants to feed on them. They are sometimes introduced into preserved woods and, if game preservation ceases, may become established. Green woodpeckers eat them, making characteristic funnel-shaped holes in the heaps, and the cocoons ("ants' eggs") are collected and sold as fish-food.

During a short visit to Ufton Park in March 1951, some 16 nests were found, but there are doubtless more. Some were on open bracken-covered ground along Grim's Bank, one large one was at the edge of a dense pine wood to the south of Grim's Bank and separated from it by a path, and three others were a few yards within it; of these, one was some 6 ft. in diameter but showed no sign of activity, and the others were evidently recent off-shoots from it. Other nests were about 200 yards away in an oak-hazel wood extending northwards from Grim's Bank, but no more were found in the pine wood. The day was cold and cloudy, and the ants were gathered together in motionless clusters on the heaps, many of which had been attacked by green woodpeckers. The soil on the open ground was a thin layer of humus and sand over gravel that gave a slightly acid reaction (pH 5.5-6.0) with Johnson's Universal Indicator, and fell within the range of pH values (5.0-6.2) obtained by colorimetric methods for soils taken near nests on seven other geological formations; a wider range is tolerated, however, since soil at nests near Stroud was slightly alkaline (pH 7.5-8.0).

Neither of the other two species of Formica recorded from the Reading district heap debris over their nests, though F. fusca L. sometimes adopts heaps made by other species or constructs earthen mounds and F. sanguinea Latr. covers its nest with a layer of grass or other litter.

Weather records for 1950

Data supplied by M. Parry.

Note:

All temperature and rainfall figures, as well as frequency of days with air frost, ground frost, snow or sleet, snow lying, days of thunder and hail, were recorded at Reading University meteorological station. The sunshine figures refer to the sunshine recorder kept at Suttons Seed Trial Grounds. The temperature averages refer to the period 1900-1935 and the rainfall averages to the period 1800-1915.

Mr. Parry would be glad to contact any persons in the Reading district who are interested in weather recording.

STATION - Reading.														
Averages.														
MEAN DAILY TEMPER- ATURES °F		JAN.	FEB.	MAR.	APR.	MAY.	JUN.	JULY.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR
	Max.	45.7	46.1	50.6	55.5	63.7	68.1	71.4	70.5	66.0	58.7	49.4	45.9	57.5
	Min.	34.2	33.8	35.1	38.2	44.6	49.2	52.8	52.3	48.2	43.1	36.9	35.4	42.0
	Mean	39.7	39.9	42.9	46.9	54.1	58.7	62.1	61.4	57.1	50.5	43.1	40.7	49.7
PRECIP- ITATION INS.	Amount	1.90	1.64	1.71	1.46	1.65	1.95	2.03	2.09	1.70	2.98	2.30	2.59	24.0
	Rain Days	15	13	13	12	10	10	12	13	11	15	12	15	153
STATION - Reading.														
YEAR - 1950														
MEAN DAILY TEMPER- ATURES °F		JAN.	FEB.	MAR.	APR.	MAY.	JUN.	JULY.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR
	Max.	44.7	49.9	54.3	55.2	62.4	73.1	70.4	69.8	63.5	56.7	48.4	39.0	57.3
	Min.	35.6	37.1	39.3	40.0	45.9	53.8	55.4	53.7	49.9	43.4	38.6	30.8	43.6
	Mean	40.1	43.5	46.8	47.6	54.1	63.5	62.9	61.7	56.7	50.1	43.5	34.9	50.5
EXTREME TEMPER- ATURES °F	E. Max	54	60	61	66	74	88	82	79	71	70	56	51	88
	date	3	17	24,25	21	12	6	9	7	1	5	28	1	June 6
	E. Min	25	25	24	33	37	45	50	49	37	27	28	24	24
	date	26,28,29	28	1	16,25	5	15,16	1,2,13	14,18,29	27	28	25,26	6,7	Mar. Dec 1 6,7
DAYS WITH	Frost	12	6	4	0	0	0	0	0	0	2	3	18	45
	Ground Frost	14	11	3	6	0	0	0	0	0	5	11	23	73
SUNSHINE HOURS	Sum	27.7	61.3	122.5	158.4	172.6	245.1	187.2	166.5	105.0	81.5	47.3	38.3	1412.7
	% Poss	11	22	34	38	36	49	37	37	28	25	18	16	32
	Daily Mean	0.87	2.19	3.95	5.28	5.57	8.17	6.04	5.37	3.50	2.63	1.58	1.24	3.87
PRECIP- ITATION INS.	Amount	0.55	3.91	0.83	2.10	1.47	1.60	4.74	3.20	3.13	0.51	5.01	1.49	28.54
	Rain Days	5	19	11	17	13	9	15	17	22	9	20	16	173
	Max Rain in 1 Day	0.37	0.79	0.22	0.51	0.37	0.52	1.15	0.74	0.44	0.20	0.81	0.28	1.15
	date	31	2	16	17	19	21	3	28	8	30	20	31	July 3
	Snow or Sleet Days	0	0	0	3	0	0	0	0	0	0	0	11	14
	Days Snow Lying	0	0	0	0	0	0	0	0	0	0	0	6	6
	THUNDER- STORM ACTIVITY	Days of Thunder	0	0	0	2	2	3	2	0	1	0	0	0
Days of Hail		0	2	0	2	0	1	0	0	0	0	1	0	6

EXTRACT FROM BOTANY REPORTK.I. Butler

Last year attention was drawn to the precarious existence of ORCHIS SIMIA (Monkey Orchis), and now that those fears have been realised, the sad tale must be told of the fight for its preservation.

During the war the plant was threatened from the felling of trees which were being hauled across the chalk slope on which it grew on the north side of the Thames near Reading. Although the owner of the land showed no co-operation, the Berks Regional Committee (Society for the Promotion of Nature Reserves) contacted the Timber Control Officer (Ministry of Supply) who was most helpful, and the danger was averted. Visits have been made to the slope every year since to make observations. In 1949 the slope was ploughed up, but only as far as the scattered bushes among which the Orchis grew. A letter written to the farmer who rents the land was ignored, and a further ploughing in 1950 included the whole of the slope. When Mr. W.A. Smallcombe, B.Sc., Director of the Reading Museum, visited the slope to see the extent of the damage done, he found that a large piece of turf turned up by the plough and containing two plants, had been carefully removed by some knowledgeable person, and hidden in an adjacent hedge. After leaving a note of thanks to the unknown benefactor of science for his or her care and attention, the clod of earth containing the two plants was taken away and despatched to Kew, with the hope that they may be preserved in the safety of the Gardens. Thus ORCHIS SIMIA has shared the same fate as its near relative ORCHIS MILITARIS, which has long since become extinct in the Berkshire and Oxfordshire localities.

As if in compensation for the loss of Orchis Simia, another Orchis has been rediscovered - ORCHIS USTULATA (Burnt Orchis), found by Miss M. Tomkinson growing on the Berkshire Downs near Streatley. In the 18th century this Orchis grew plentifully upon Caversham Hill, and in Caversham Warren along with Orchis militaris and Orchis Simia, but it is not found there today. Druce records it for Streatley Hill and the Berkshire Downs.

The following plants of special interest have been recorded by members during the past year.

CORYDALIS CLAVICULATA (Climbing Corydalis) a much rarer and a more slender plant than Corydalis lutea, was found on Bucklebury Common by Mr. L. Williams.

JASIONE MONTANA (Sheep's Bit) a plant of the heaths and moors, and very uncommon locally, found by Mr. L. Williams growing near Ambarrow Hill Crowthorne.

CORNOPUS DIDYMUS (Swine or Wart Cress) a plant of the coast which was found in 1949 at Emmer Green, seems to be fast establishing itself inland, for it has been seen at Coleman's Moor, and near the river at Purley.

HOTTONIA PALUSTRIS (Water Violet) is surviving with difficulty in a pond at Grazeley, but Mrs. A.M. Simmonds has found it growing profusely in some ditches between Marlow and Remenham.

DROSERA LONFIFOLIA (Oblong Sundew) large patches were seen on the dried up bed of Kingsmere Lake.

BOTRYCHIUM LUNARIA (Moonwort) has been recorded for Mortimer Common.

Among the interesting alien plants noted were -

AZOLLA FILICULOIDES seen on the River Pang. This Cryptogram is becoming naturalised in several ponds and streams in England.

VERBASCUM BLATTARIS (Moth Mullien) is generally regarded as an introduced plant except near the southern coast. Mrs. Simmonds noted a plant growing on a bank along the Wargrave-Henley Road.

ARTEMESIA ABSINTHUM (Common Wormwood) although to all intents and purposes native only along the sea coast, it does grow inland in a variety of places, being found on waste ground, and in the vicinity of gardens, where it is evident that man has planted it for medicinal purposes. Mrs. Simmonds has found it on the roadside at Sheperd's House Hill, Earley.

LOTUS SILIQUOSUS a forage plant of South Europe is spreading rapidly on Remenham Hill.

TRAGOPOGON PORRIFOLIUS (Purple Goat's Beard or Salsify) was found by Mr. J. Bowden growing near a builder's yard opposite the University Horticultural Ground at Shinfield.

Extract from Report for Entomology 1950

L.H. Williams

There is little outstanding to report this year for, on the whole, 1950 has been, entomologically, an average season with no notable invasion of any immigrant. The numbers of most Lepidoptera appear to have increased to about normal figures after the bad summer of 1949 when many species fell below their usual concentration.

I received notes from only six members of the Society. Most people should be able to supply data on such simple observations as the date when the first Honey-bee was seen in the garden or the first stridulating grasshopper heard in the field. Such observations are often very valuable when collected and compared for a number of seasons.

The following are the most interesting records from my report. Owing to space limitations it is not possible to give more than the briefest mention in most cases. Where not otherwise stated the contributions are from my own observations.

Order DICTYOPTERA

Ectobius lapponicus (Linn.) Pamber Forest, on tree-trunks by day in some numbers. Occasionally seen on sugar patches at dusk. July.

E. lividus (Fabr.) Owlsmoor Bog near Sandhurst. Flying feebly in bright sunshine. August 2nd.

Order ORTHOPTERA

Tettigonia viridissima Linn. (Great Green Grasshopper) Cothill Bog. N.W. Berks. July 22nd. A number of adults in good condition observed in dull weather. August 4th. A search in bright sunshine failed to produce a single specimen. This insect is said to become active towards the end of the afternoon, but it seems probable that a light intensity reaction is involved.

Gomphocerus rufus (Linn.) Hardwick Hill, Oxon. September 17th. Miss E.M. Nelmes. Also near Whitchurch, Oxon. October 4th. (Both sexes present) One of our most locally distributed grasshoppers, being practically confined to the chalk downs. It is one of the last British species to reach maturity.

Order ODONATA

Coenagrion pulchellum (van der Linden) Cothill Bog. N.W. Berks. July 22nd. Only known Berkshire station.

Platycnemis pennipes (Pallas) Banks of Kennet between Theale and Burghfield meadows. Miss L.E. Cobb. Formerly known in this district only from the Thames.

Ceriagrion tenellum (de Villiers) Cothill Bog. August 4th, Heathlake, Nr. Crowthorne, August 6th.

Orthetrum coerulescens (Fabr.) Cothill Bog. August 4th, Owlsmoor Bog. Nr. Sandhurst, August 6th. These are, at present, the only known Berkshire stations for this interesting dragonfly which passes its life history in acid bog hollows.

O. cancellatum (Linn.) This insect appears to be extending its range in Berks. judging from collected records from such widely separated spots as Abingdon, Reading, Crowthorne and Mortimer.

Order HEMIPTERA

Reduvius personatus (Linn.) Two records are at hand for this interesting bug. Mr. Betts took one at Caversham and one came to light in the recorder's home at Tilehurst. This insect is nowadays regarded as scarce, being predaceous on bed-bugs in all its stages. It has been known to attack man and inflict severe pain with its well developed stylet-like mouthparts. It is a close relative of the Assassin-bug Triatoma Spp. which is the principal carrier of trypanosomiasis in South America.

Order LEPIDOPTERA

Vanessa atalanta (Linn.) (Red Admiral). Unusually plentiful in local gardens during the autumn.

Cupido minimus (Fuessly) (Small Blue). Tilehurst. June 4th. A fresh female specimen. It seems probable that it had bred in the immediate district although its normal food-plant, Kidney Vetch (Anthyllis vulneraria) does not occur.

Colias croceus (Four). (Clouded Yellow). Beech Hill. August. Mr. P. Beauchamp, Silchester. August.

Thecla betulae (Linn.) (Brown Hairstreak). Hambleden, Oxon. June 1st.
Mr. B. Baker. Larvae.

Acherontia atropos (Linn.) (Death's Head Hawk-moth). Several larvae taken to Reading museum.

Herse convolvuli (Linn.) (Convolvulus Hawk-moth). Reading. August 30th.
Mr. P. Beauchamp, Forbury Gardens, Reading. September. Mr. B. Baker. Others taken to the Museum. The most notable immigrant moth recorded this year.

Macroglossa stellatarum (Linn.) (Humming-bird Hawk-moth). Caversham. January 8th. Mr. P. Betts. An unusual date.

Panaxia dominula (Linn.) (Scarlet Tiger). Near Bradfield (in water meadows of Pang.) July 21st. Many at rest on thistle-heads.

Leucania straminea Treitschke. (Southern Wainscot). Thatcham. July.
Mr. B. Baker (at light).

Celaena leucostigma (Huebner). (Crescent) Thatcham. August.
Mr. B. Baker (at light).

Craniophora ligustri (Schiffermueller) (Coronet) Pamber Forest, Hants. July 29th. Mr. B. Baker (at sugar).

Oria musculosa (Huebner) (Brighton Wainscot) Tilehurst. August 5th (at light). This moth was considered to be a rare immigrant until as recently as 1940 when it was discovered to be not uncommon on the Wiltshire Downs near Salisbury. Collectors have, during recent years, devised a number of ingenious methods to disturb the moths as they rest by day among the stubble of cornfields. Among them is a weighted rope dragged along just above the soil surface by two men. This causes sufficient disturbance to the stubble to make the moths become active. A third party, equipped with a net catches them as they fly up. This is the first known record of the moth in Berkshire although it has recently been taken on the Hampshire Downs near Highclere. It is probable that this insect is extending its range as did the Pine Hawk Moth during the war years.

Plusia chryson (Esper) Cothill Bog. N.W. Berks. July 22nd. Mr. P. Betts (disturbed by day).

Parascotia fuliginaria (Linn.) (Waved Black) Crowthorne. March 25th. The best way to collect this moth is to breed it from the larval stage. The larvae hibernate while young so are best searched for in early spring. They feed on the bracket-fungi growing on rotten tree-stumps and appear to show a preference for partially burnt stumps. This moth was first observed in this country in 1831 when it was found in a London warehouse. After this it was regularly taken in the City warehouses where it apparently fed on a black fungus growing on rotting timberwork. In 1904, the insect was taken at light in the Camberley district and since that time it has been found to occur not uncommonly all over the heathy tracts of the Bagshot Sands. A specimen was taken at sugar in Pamber Forest, Hants. by Mr. B. Baker on July 26th.

Order HYMENOPTERA

Rhyssa persuasoria (Linn). Pamber Forest. October 1st. These Ichneumonids are parasites of Wood Wasps (Siricidae) and are notable for the female's long ovipositor which reaches a length of $1\frac{1}{2}$ inches and is used to bore into the wood of trees infested with Wood Wasp grubs. Observers claim that the female parasite can bore a hole $1\frac{1}{4}$ inches in depth in solid wood in less than twenty minutes, an amazing feat when one considers the delicacy of her tool. She deposits her egg on the skin of the grub and then withdraws her ovipositor.

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Extract from Geology Report

Prof. H.L. Hawkins, D.Sc., F.R.S., F.G.S.

During the past four years I have been keeping a record of the standing level of ground-water in the gravel of the "Christchurch Road" terrace. The free margin of this terrace lies on the hill-side, past the top of Kendrick Road, just below the Mount, near the junction of Allcroft and Redlands Roads, and across the Upper Redlands Road just east of Chalk Hill. This line is marked by a chain of seasonal springs. The water-levels are taken weekly in a shallow well in my garden at 68, Elmhurst Road. The well is about 13 feet deep, penetrating 9 feet of gravel resting on stiff London clay.

My records date from May, 1948. That year was a dry one, and the winter 1948-49 did not become wet until January. The summer of 1949 was very dry and hot, but winter weather set in at the end of October and lasted until late in February, 1950. The summer of 1950 was dull and rainy, but no heavy rain occurred until the middle of November. Since then (until the end of March, 1951,) the rain has broken all records in amount and persistence.

Over the whole period the average level of the standing water in my well has been at about $7\frac{1}{2}$ feet from the surface (i.e. the lowest $1\frac{1}{2}$ feet of the gravel saturated). During 1948, this level was only exceeded in the last fortnight of December, and from July to November (inclusive) the water was more than 8 feet down, reaching its lowest level (8 feet 8 inches) in mid-October. In 1949, for the first three months the water-level was above the average, reaching a peak of 6 feet 7 inches in January. But from March to September it fell steadily, reaching its lowest level (8 feet 9 inches) in the first week of October. During the winter 1949-50 (October to March) the level was consistently above the average, and reached 6 feet 1 inch in mid-February. During the summer months of 1950 it remained at or near the average level, touching 8 feet at the end of October. By the beginning of December the level was above 6 feet for the first time since recording began; during the winter it has never fallen below 7 feet and on three occasions has been as high as 5 feet 6 inches.

Whenever my records show the water to stand at a level above 6 feet 4 inches the springs along the margin of the gravel-terrace are flowing; when it falls below that level they dry up. Hence, when the water-level is high, it fluctuates very rapidly in response to rainfall and leakage. But when it is below "spring-level", it may rise rapidly but falls very slowly.

Heavy summer rainfall rarely raises the level by as much as 4 inches, whereas comparable rainfall during the period October to March may cause a rise of as much as 2 feet in a week. There is a time-lag of about two days in the reaction of the water-level to the onset of rain.

EXTRACT FROM ORNITHOLOGICAL REPORT.

J. BOWDEN.

Mild weather continued right through November which on the whole was a beautiful month for the autumn tints, coloured leaves remaining on the trees very much longer than usual. While at Grazeley during this month, saw a flock of about 50 Fieldfares. Shoveller drake seen at Englefield in company with Mallard on Cranesmoor Lake. November 30th - two flights of Green Plover seen near Wokefield Park, probably 600 birds altogether.

January - Thrushes have been singing practically all day for weeks, but did not hear any Blackbirds. Heard a Missel Thrush at Arborfield on 11th, singing lustily; large flock of Fieldfares flying overhead, chattering as they went. Saw a Treecreeper for a moment (how well they can keep out of sight), and in the crevices of the bark of several oak trees, found oak apples and hazel nuts firmly wedged, the work of Nuthatches, which with their strong pointed beaks easily crack open the hard nut shells.

Saw three Meadow-Pipits at Earley on January 16th. The first cold spell seems to have driven them from the northern moorlands. Meadow-Pipits are partly migratory. Some always appear to remain throughout the year. The Tree-Pipit, however, does not spend the winter in this country.

January 20th - The cold spell persists, the ground being well frozen and birds hard put to to find food and water. Rooks and Jackdaws frequent rick yards and search eagerly for what grain etc. is available. One notices how birds flock together more in severe weather; one sees large flocks of Larks, Chaffinches etc. On the roadside near Swallowfield, I saw a flock of Greenfinches - probably 200 or more.

January 29th - About 30 wild Geese flying from Bulmershe Lake. Black-throated Diver seen at Whiteknights on February 7th and Green Sandpiper by the Holybrook. Fieldfares and Redwings at Waltham on February 14th. April 5th - Redshank seen and heard at Wargrave.

The plaintive notes of the Willow Warbler heard on April 25th. As this frail little bird was singing and searching in the branches of an acacia, it was snowing heavily.

Whitethroat, Wood-Lark, Willow Warbler, Blackcap and Cuckoo heard at Checkendon on May 2nd. Sedge-Warbler near the Kennet at Newbury on May 9th, within a few yards of a busy street.

Wheatear seen at Maidenhead on May 16th and Hoopoe reported at Kidmore End.

Mrs. Simmonds heard Grasshopper Warbler near Earley Power Station on June 18th. Wood Warblers heard at Mortimer on June 20th. Yellow Wagtail seen at Newbury on October 3rd. No Sand-Martins to be seen now near the streams but Swallows and House-Martins still with us.

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