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1938.

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Founded 1858.

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*Photo. by J. E. S. Dallas.*

THE CRESTED BUCKLER FERN.  
(*Lastrea cristata* Presl.)



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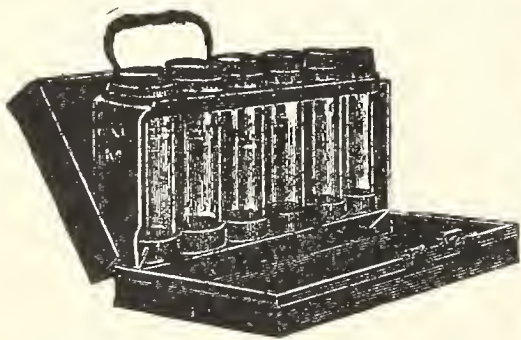
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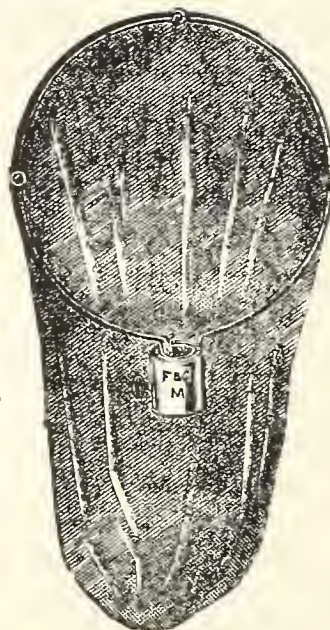
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# The London Naturalist.

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*The London Naturalist* and its supplement *The London Bird Report* are published annually, and provide a record of the activities of the Society during the year.

Contributions are welcomed from members of the Society on any topic of Natural History, and—space permitting—from non-members on any matter concerning the Society's Area. The "London Area," for the purposes of the Society, is that area which lies within a radius of twenty miles from St Paul's Cathedral, and includes the whole of the county of Middlesex.

Intending contributors are reminded that all matter for publication in *The London Naturalist* and *The London Bird Report* must be submitted in the first instance to the Sectional Secretaries, and not directly to the Editor.

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# The Distribution of the Grey Squirrel in the London Area.

By R. S. R. FITTER, F.Z.S.

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**T**HE Grey Squirrel (*Sciurus carolinensis* Gmelin) is now an outlaw in this country. A native of North America, it has been introduced into the British Isles at some thirty-five different points since 1876, and wherever it has become at all common has proved injurious to plant and bird life. So far as is known, all the Grey Squirrels released in this country have been of the subspecies, *Sciurus c. leucotus* Gapper, which inhabits the North-Eastern United States and South-Eastern Canada. On July 31, 1937, the GREY SQUIRRELS (PROHIBITION OF IMPORTATION AND KEEPING) ORDER, 1937, came into force, applying the provisions of the DESTRUCTIVE IMPORTED ANIMALS ACT, 1932, to the Grey Squirrel. This signifies that it is the declared policy of the Ministry of Agriculture to exterminate this recent addition to our fauna, though there is at present no intention of waging an official war on it.

## FOOD.

The Grey Squirrel is omnivorous. It has been recorded as having eaten an astounding variety of substances, from growing wheat and unripe walnuts to birds' eggs and parts of leaden statues. Its staple diet seems to be such vegetable matter as bark (particularly of sycamore), shoots, nuts, fruit and bulbs, but there can be no doubt that in the season it is partial to the eggs and young of birds. A. D. Middleton (13) lists fifteen different kinds of bird, ranging in size from domestic fowls to nuthatches, whose eggs the Grey Squirrel has been known to take, and eight birds on whose young it has preyed. One cannot help feeling that it is the fact that the Grey Squirrel occasionally eats the eggs and young of game-birds that makes the outcry against it in certain quarters so strong, but it cannot seriously be maintained that an animal is a national menace just because it interferes with the recreation of a small class of individuals.

Nor is there any real evidence that our song-birds are in danger on account of the Grey Squirrel's thieving proclivities. As Middleton (13) pertinently observes, "in such an area as Wychwood Forest there is no reason why the Grey Squirrel could not exterminate the entire resident bird population in the course of one breeding season, but the enormous squirrel population of Wychwood does not appear to have reduced the birds to any noticeable extent." Moreover, in most areas the Grey Squirrel has replaced the Red Squirrel, and the Red Squirrel, as some of its more sentimental champions seem to forget, is just as arrant an egg-thief as the Grey.



The real gravamen of the charge against the Grey Squirrel, therefore, must rest on the damage it does to agriculture, and especially to forestry. As already mentioned, the Grey Squirrel eats almost any kind of vegetable matter, and anybody who has visited Regent's Park with a bag of monkey-nuts can vouch for its taste for those. It may be of interest to quote some actual records, collected by F. V. Theobald (20), of its food in the London area. In the Limpsfield district Grey Squirrels were reported as having destroyed the young shoots of chestnuts, attacked an orchard and been "injurious to game." At Woldingham, Surrey, they did a good deal of damage to young trees and ate the eggs of game-birds, at Esher Place they stripped a tree of walnuts, and in Chevening Park, Kent, they entirely barked the butts of some large beeches. At Burnham Beeches they have also done considerable damage by peeling patches of the entire sap-bearing inner bark (13). Moreover, they are not the sort of animals to be encouraged in the neighbourhood of ripe fruit or nuts. In Kew Gardens, according to Sir Arthur Hill (9), many hundreds of lead tree-labels have been torn to shreds by Grey Squirrels. Further records of the food of the Grey Squirrel in the London area include eating haws in Hampton Court Park (3), and small mammals out of traps in the Mill Hill district (4), and attacking a mistle thrush's nest at the Zoo (3).

There is clearly a good case to be made out for exterminating a creature that is such a pest to the gardener and forester, especially as it has been gratuitously introduced from abroad. Nevertheless, the letter from the Chairman of the Forestry Commission in *The Times* of July 9, 1937, warns us to keep a proper sense of proportion. The Commissioners had found, he said, that the Grey Squirrel was "of far less importance than at least half-a-dozen other wild animals, including the Red Squirrel, which has done widespread damage, particularly in the pinewoods of the north-east of Scotland. Foresters, who have in any event to swallow the camel, *Oryctolagus cuniculus*, are not likely to strain at the gnat, *Sciurus carolinensis*." Other landowners, however, as later correspondence showed, were inclined to rank the Grey Squirrel higher as a forestry pest, and it has to be remembered that most of the Forestry Commissioners' land is purely coniferous, and as yet largely outside the range of the Grey Squirrel.

#### HABITAT.

In contrast to the Red Squirrel, which is essentially a denizen of coniferous woods and forests, the Grey Squirrel prefers open woodlands or parklands, with mainly deciduous trees, and is frequently found foraging in hedgerows far from any woods. Around London there are very few coniferous woods, but plenty of the deciduous woodland that is the natural habitat of the Grey Squirrel in America, and this is probably explains how the Grey Squirrel has succeeded in overrunning practically the whole of the Home Counties, while the Red Squirrel has experienced great difficulty in recovering its lost ground after its disastrous decline in numbers early in the century.

## INTRODUCTION TO THE LONDON AREA.

We are fortunate in being able to follow fairly closely and accurately the introduction and spread of the Grey Squirrel in the London area, thanks to the labours of Boyd Watt, Middleton, and Theobald. Boyd Watt's surveys of 1915 and 1923 (22, 23) throw valuable light on the early period, and Theobald's paper (20) tells us most of what we know about the squirrels of Kent and Surrey up to 1926. Middleton's four papers (13, 15, 16, 17) are invaluable, and I am much indebted to him and to Mr Charles Elton of the Bureau of Animal Population at Oxford for permission to make use of the records collected in the nation-wide Grey Squirrel surveys of 1934-35 and 1936-37.

So far as I have been able to discover, the Grey Squirrel was introduced at five or six points within the 20-mile radius of St Paul's Cathedral, between 1890 and 1916, and at one place outside it sufficiently near to affect the area. These are listed below in Table I, while in Tables II and III will be found the dates of the first known occurrences of Grey Squirrels at various points within the area. Apart from one or two isolated cases in Cheshire and Nottinghamshire in or before 1880, the veritable mania for setting loose Grey Squirrels that overtook British landowners and American visitors to this country between 1890 and 1920 may be said to have begun with the release of five specimens in Bushy Park, Middlesex, in 1890, by Mr G. S. Page of New Jersey. These apparently failed to establish themselves, for when the Office of Works was asked in 1923 when Grey Squirrels were first seen in that park, the date "about 1903" was given (23). At all events there is no direct evidence of their survival. With the main introduction of Grey Squirrels at Woburn, Bedfordshire, also in 1890, we need not concern ourselves, as it is almost certain that the northern parts of our area were populated by squirrels spreading up the Colne Valley from Farnham Royal, or out from Central London, and not from Woburn.

The continuous history of the Grey Squirrel in the London area, then, begins with the release of 100 animals at Kingston Hill, adjoining Richmond Park, by another American in 1902, or possibly a little later. It seems probable that the squirrels seen in Bushy Park about 1903 came from Kingston Hill, which is only two or three miles away. At all events, we can safely assume that all the Grey Squirrels subsequently seen in this part of Surrey and the adjoining parts of South Middlesex came from this important nucleus. In May 1908 two pairs were brought from Woburn and released in Kew Gardens, where they helped to swell the rapidly increasing Grey Squirrel population of the district.

Meanwhile, in 1905 and the two succeeding years 91 Grey Squirrels were brought from Woburn to the London Zoo, and released there, soon spreading into the adjoining Regent's Park. In 1908 and 1909 a number of Grey Squirrels from America and one from South Africa were released at Farnham Royal, Bucks, about two miles west of the edge of the area and according to Capt. C. W. R. Knight a number were set free at Sevenoaks, which is just on the boundary, about 1911. The setting





The large ringed figures indicate the year in which Grey Squirrels were introduced at the places marked and the smaller figures the year in which Grey Squirrels were first seen at places marked.

- ..... indicates a county boundary.
- indicates the boundary of the area occupied by Grey Squirrels up to 1920.
- indicates the boundary of the area occupied by Grey Squirrels up to 1930.
- indicates the boundary of the area occupied by Grey Squirrels up to 1938.

SPREAD OF THE GREY SQUIRREL IN THE LONDON AREA.

loose of a few Grey Squirrels in Kensington Gardens in the autumn of 1914, mentioned by Boyd Watt, was probably not of great importance, as they seem to have appeared there already about six years earlier. From the presence of Grey Squirrels in the Chislehurst-Bickley area at least as early as 1916, and the absence as late as 1926 of any apparent connection of this area with the lines of advance from Sevenoaks or Richmond, it seems possible that there was an unrecorded introduction here about this time. No records were kept of the number of squirrels sent from Woburn to be put down in various parts of the country, and there are probably several other unrecorded introductions. On the other hand, cases are known of a pair or a family of squirrels migrating for 10 or 20 miles, then settling down to form a new colony, and this may be an example of such a movement.

It will be best to deal with the spread of the Grey Squirrel to its present position of occupying practically the whole London area by taking each point of introduction in turn.

*Richmond Park—Kew Gardens.*—So far as we can tell, all the Surrey part of our area west of a line drawn from Croydon to Reigate, together with parts of South Middlesex, were colonised from here. Very soon after their release at Kingston Hill in 1902 Grey Squirrels seem to have been noticed in Bushy Park, but it is curious that they do not appear to have been noted at the adjoining Hampton Court until about 1916. In 1909 one was seen at Molesey, and before 1911 they were quite common in the grounds of Manresa House, Roehampton, which adjoins Richmond Park. One was seen at East Twickenham in 1914, and it was suggested that some had been brought there from Regent's Park. This, though possible, sounds rather like a suggestion by somebody who did not know they had been set free as near as Kingston Hill. By 1915 Grey Squirrels were very common in Kew Gardens, and were said to do little harm to the trees, apart from eating nuts and cones, often unripe, removing a little bark from trees such as *Sequoia sempervirens* for nest-building and gnawing leaden garden-labels (22). In Richmond Park they ate a quantity of St George's mushrooms in the spring of 1913 (22). By January 1923 there were estimated to be 150 to 200 Grey Squirrels in Richmond Park and about 15 at Hampton Court (23).

Up to the beginning of the War, the squirrels do not seem to have spread beyond a fairly limited area between Roehampton and Molesey, but thereafter they advanced more rapidly, and along three main routes, the valleys of the Mole and Thames and the South London parks and commons. From Wimbledon they were reported in 1915, from Clapham Park and Tooting about five years later, from Putney before 1923 and from Wandsworth and Streatham before 1930. That this line of invasion did not find the terrain suitable is suggested by the fact that in Middleton's 1934-35 and 1936-37 surveys no Grey Squirrels were reported in the south-west suburbs further east than Southfields, though in the Richmond-Kew-Wimbledon-Putney area they were reported by 26 different observers at this period.



The first evidence of spread along the Mole Valley was the Molesey record of 1909, which was followed by one from Arbroom, near Claygate, about 1918, and one from Leatherhead about 1920. A Grey Squirrel seen at Tadworth about 1920 probably also came from the Kingston Hill stock. About 1924 a Grey Squirrel was seen at Great Bookham, before 1926 they were in Chessington, Cobham, Esher, and Surbiton, and before 1930 at Epsom. Up the Thames there were records from Walton in 1915, from Weybridge before 1921, and from St Ann's Hill, Chertsey, before 1923. One seen at Wisley, just outside the area, in 1925, may either have come up the Wey Valley or across country from the Mole.

South Middlesex is largely flat, treeless, and agricultural, and so unsuitable for Grey Squirrels, but it was originally colonised from the Richmond-Kew area, and may be considered here. Boyd Watt saw a squirrel actually swimming the Thames near Eel-Pie Island in 1923. For some years the squirrels did not get any further than the Hampton-Twickenham area, and it was not until some time before 1926 that there was a record from Syon House. By 1934-37, however, they had extended their range to Osterley, Hanworth, Sunbury, Shepperton, and Laleham. There still seems to be a large area between these places and Iver, Uxbridge, Eastcote, Harrow, and Hanger Hill which is not yet colonised by Grey Squirrels, largely because of the unsuitable nature of the country.

*Kent.*—In Kent the early position is rather obscure. Before 1911 Grey Squirrels were reported from Greenwich and Deptford, and since then there have been very few records from the more built-up parts of suburban Kent. The two 1911 squirrels must have been either wanderers from Richmond or Regent's Parks, or isolated attempts at introduction. About 1911, on the evidence of Capt. C. W. R. Knight, some were set loose near Sevenoaks, and in 1913 they were reported from the district between there and Westerham. In 1915 there is a doubtful record from Chislehurst, and in the following year two definite ones from Bickley, which possibly represent a distinct and hitherto unrecorded centre of introduction. The Sevenoaks squirrels spread along the foot of the Downs and up the chalk valleys, being reported from Chelsham before 1918, from Brasted before 1919, from the Caterham Valley about 1920, from Warlingham in 1921, from Woldingham and Limpsfield before 1926, and from Nutfield in 1929. The Bickley centre provided definite records from Chislehurst and Keston before 1923 and from Hayes before 1927.

In 1926, when Theobald (20) collected records of Grey Squirrel distribution in the south-eastern counties, the Sevenoaks squirrels had spread right down the Darent Valley as far as Horton Kirby, and up on the hills on each side to Chevening, Kemsing, Crockenhill, Southfleet, and as far as Northfleet on the Thames estuary. In many of these places they were described as "abundant and harmful."

By the time Middleton came to collect further records in 1934-35 and 1936-37 the Grey Squirrels from the three centres south of the Thames (Richmond-Kew, Sevenoaks, Chislehurst-Bickley) had spread to such an extent that there were no longer any distinct territories, and prac-

tically the whole area south of the river, except for the inner built-up parts, was fairly thickly populated with Grey Squirrels. Only the strip along the Thames estuary in Kent, which has not much suitable country, produced no records, and even that may have been due to a lack of observers. The places nearest London where Grey Squirrels were seen during 1934-37 were Putney, Southfields, Carshalton, Croydon, Dulwich Wood, Beckenham, and Sidcup.

*Regent's Park.*—Three batches of Grey Squirrels were brought from Woburn to the Zoological Gardens in Regent's Park and released there, 5 in 1905, 36 in 1906, and 50 in 1907. It was not long before they were spreading outwards, for the first record from Hampstead was in 1908, and they appeared in Hyde Park about the same time, and in St. John's Wood before 1911. By 1913 Grey Squirrels were said to be commoner than their red congeners in Hampstead, and there was a doubtful record from Coldfall Wood, a mile and a half further north (7). In or before 1915 they were seen at Golders Hill, Ken Wood, Highgate, and Waterlow Park, and seem thoroughly to have colonised the surroundings of Hampstead Heath (22). At the same time they were reported to be disappearing in Regent's Park, "possibly from an excessive production of males," though Boyd Watt saw ten or a dozen along the Broad Walk in five minutes in November 1914 (22). By 1923 there were estimated to be about 250 Grey Squirrels in Regent's Park and about 20 in Hyde Park and Kensington Gardens (23). Grey Squirrels soon started appearing in squares and gardens all over Inner London, such as Kensington Square (1917), Earl's Court (1920), Euston Square (before 1923), Queen Square, Bloomsbury (before 1926), Woburn Square (before 1926), and Russell Square (before 1930). In March 1935 I saw one emerging from a drey in the south-west corner of Russell Square.

Eastwards the Regent's Park squirrels seem to have spread rather sporadically, and not to have secured a firm foothold east of the River Lea until as late as 1936. As early as 1917 one wanderer was seen at Wanstead, and there was a record from Clissold Park before 1923. Three records from the edge of Epping Forest before 1923 suggest an early unsuccessful effort to colonise it, one from Gaynes Park to the east of Epping in 1921, one from Loughton and a doubtful one from Chingford. Northwards the spread of the Grey Squirrel from Central London meets another line of invasion from the Colne Valley, and it will be useful to consider these two together.

*Farnham Royal.*—A number of Grey Squirrels were released at Farnham Royal, a mile or two outside our area, in 1908 and 1909. They were reported from Stoke Poges, still outside the area, in 1916, but not until 1919, when one was seen in Oxhey Wood, Herts, do we find any record inside the area which can be attributed to this stock. The Grey Squirrels seen at Harefield in 1921 and at Bushey Heath before 1927 had also probably come up the Colne Valley, but one at Hendon before 1923 was almost certainly from Hampstead, as were squirrels at Edgware and Enfield in 1928, at Whetstone before 1929, and at Hadley before 1930. A record from Little Berkhamstead, between Hatfield and



Hertford, in 1926 is more difficult to assign, but one at Rickmansworth before 1930 was certainly from the Farnham centre.

Thus by 1930 most of the country between the Lea and the Colne as far south as Harefield was already thinly populated with Grey Squirrels. The Middleton surveys of 1934-37 found them established everywhere between the Lea Valley and the western perimeter of the area, as far south as the line Iver-Uxbridge-Eastcote-Harrow-Hanger-Hill already mentioned. It is no longer possible to separate out the territories of the Central London and Farnham Royal stocks, though neither appear yet to have joined up with the stocks originating south of the river. In the suburbs there were more records of squirrels in the Finchley-Barnet-Southgate area than elsewhere, but this may well have been due to a concentration of observers in this area.

East of the River Lea the situation was very different. It seems probable that the treeless river valley, with its many reservoirs and glasshouses, itself formed quite a considerable barrier, for otherwise Epping Forest appears to be an eminently suitable Grey Squirrel habitat. The full story of the invasion of Epping Forest by the Grey Squirrels has already been told in *The London Naturalist* (12), so that here there can be only a summary. The Grey Squirrels previously recorded from Essex appear to have been only wanderers, which did not stay to breed, but the one that crossed the Lea at Roydon in 1933 was the first of a more successful invading army. During Middleton's 1934-35 survey the only Essex record was from Snaresbrook, though one from Waltham Cross was only just over the boundary. In December 1935, however, a pair were located in Bury Wood, Epping Forest. By 1936-37 Grey Squirrels were as well established in the Forest as anywhere else in the London area, and had appeared at Nazeing, a mile or two north of the Forest. The sector of Essex between the Forest and the Thames estuary still, however, appears to be free of the pest, and there is no evidence yet that it is spreading anywhere in Essex outside Epping Forest, much of the country being unsuitable for it.

#### THE PRESENT POSITION.

The present status of the Grey Squirrel round London is thus that of a common resident over the greater part of the area. Only in Essex outside Epping Forest, in a strip of South Middlesex westwards of Hounslow and Feltham, along the Thames estuary in Kent, and in parts of the eastern and southern suburbs, is it still unknown. Even in Central London it seems to appear wherever there are a few trees and plants for it to live on. Some idea of its numbers can be gained from the fact that in Kew Gardens, which are now said to be almost free of them, some 4000 Grey Squirrels have been shot since 1917 (9). In the other Royal Parks the order to shoot Grey Squirrels went out in 1930, and a similar decision was taken by the London County Council respecting Grey Squirrels in the open spaces under their control in 1931. In Richmond Park, where 2100 were shot in 1932-37, 300 of them in 1936 (2), the Grey Squirrel population is still estimated at five to ten pairs, and on the adjoining Wimbledon Common over 200 were shot in

the last few months of 1937. In the Central Parks (Hyde, Green and St James's Parks, and Kensington Gardens) 170 Grey Squirrels were shot within a few weeks of the issue of the order in 1930, since when only an odd specimen or two has been seen. In 1938 only one Grey Squirrel was seen in Kensington Gardens, and it may be taken that the Grey Squirrel has definitely been exterminated from the Central Parks. In Regent's Park not more than about six Grey Squirrels a year are now seen and destroyed, and in Greenwich Park only two have been shot since 1932. In the L.C.C. open spaces some 300-400 Grey Squirrels were shot annually between 1932 and 1937, and during the year ended September 30, 1938, they were only found on four of the open spaces under the Council's control, 293 being shot, as follows: Hampstead open spaces, 132; Marble Hill, Twickenham, 58; Beckenham Place Park, 102; Castlewood, Jackwood, etc., 1.

#### GREY V. RED.

The question of the relationship between the Red Squirrel and the Grey Squirrel seems to arouse the strongest passions, and the legend of the "wicked" grey exterminating the red is a flagrant piece of *post hoc propter hoc* reasoning. Middleton, in his very fair discussion of it (14) concludes that the Red Squirrel, by reason of the elimination of nearly all its natural enemies, such as martens and wild cats, had become extremely common in most parts of the country by 1900, not only in its natural habitat of coniferous woods, but also in mixed and deciduous woodlands. At about the turn of the century, when the Grey Squirrel was only just beginning to find its feet in a few restricted areas, there ensued among the Red Squirrel population one of those catastrophic epidemics to which wild animals are periodically subject, and which seem to be brought on by over-population, and within two decades the Red Squirrel was accounted a rarity over a large part of the country. It became just as scarce in those parts of the country where there were no Grey Squirrels as around London, where the newcomers were common. In the New Forest, for example, where only one Grey Squirrel was reported in the 1934-34 survey, the annual bag of Red Squirrels fell from 2281 in 1889 to 35 in 1927. The most violent partisan of the Red Squirrel must acquit the Grey of any blame for that.

There remains the charge against the Grey Squirrel of actually attacking and driving out the Red in some places, of which there are now many well-authenticated records. What seems to have happened is that the Grey Squirrel, whose natural habitat is in deciduous woodlands, has taken possession of the niche in the British fauna left vacant by the decline of the Red, and is resisting the efforts of the remaining Reds to regain their lost ground, which is in any case not their normal habitat. In many places, especially where there are no Grey Squirrels, the Red Squirrel is increasing again, and the next few years may well see the final struggle between the two Squirrels for possession of the deciduous wood habitat. If the Grey wins, as it very possibly will, it remains to be seen whether it will challenge the Red on the Red's



own ground, the coniferous forests of the north. Thus, though the Grey Squirrel cannot justly be blamed for the great decline in the Red Squirrel population, which was almost entirely due to disease, it is probably responsible for the slowness of the recovery of the Red after the epidemic, and may well prevent it from regaining its former position in the deciduous woodlands.

#### DISTRIBUTION OF THE RED SQUIRREL ROUND LONDON.

A few notes on the distribution of the Red Squirrel (*Sciurus vulgaris leucourus*, Verr.) in the London area may be of interest. In the *Victoria County Histories* at the beginning of the century it was described as common in the wooded parts of Kent, Surrey, Essex, and Hertfordshire. In February, 1902, one was seen on Clapton Common (28) the date rather suggesting it may have been an escape. In 1903 it was said to be not common at Harrow, but nests were seen at Oxhey in that year (37). It was said to occur at Kitchener's Meads, St Albans, in 1904 (30), and was still regarded as "fairly abundant" in St Albans district by Oldham in 1911 (36). In Kew Gardens it was common in Queen's Cottage grounds and the Arboretum in 1906 (33) and was apparently still plentiful in 1917 (40). In Richmond Park Red Squirrels were stated to be not numerous in 1909 (29), and occasionally appeared on Wimbledon Common (32). In 1917, however, they were said to be "abundant" in Richmond Park (40), and in 1919 were reported as often seen, even in October, November, February, and March, but decreasing (38). In the Wandle Valley they were said to be "common in woods" in 1914 (31), and at Hayes and Keston, Kent, "not uncommon" in 1909 (41). On Hampstead Heath and in Ken Wood, both Red and Grey Squirrels appear to have been common in 1913 (7). According to Beadell, Red Squirrels were once abundant in the Chelsham-Warlingham district, and were much persecuted, organised weekly Squirrel hunts being held (1). They were, however, already scarce when the Grey Squirrel first appeared in 1918.

Since the War Red Squirrels have almost disappeared from the London area, except in Epping Forest and the area for a mile or two round. The only records I have between 1919 and 1935 are from Abbey Wood in 1925 (35), and from near Leatherhead (34) and on Wimbledon Common (27) in 1927. In the past four years, however, the Red Squirrel seems to have been slowly regaining ground. One or more were seen in Richmond Park in 1935 (2, 34), in Ken Wood in 1936 and 1937 on at least four occasions, on Shirley Hills in 1936 and 1938, on Ranmore Common in 1937, at Cuffley in 1938 (34), and at Kenley in 1938-39 (39). It has also been recorded as breeding in Barnthorns Wood, Effingham, just outside the area, in 1937 (34). Some of these records no doubt relate to escaped animals, but it seems very unlikely that they all do.

Why has Epping Forest remained immune from the disease which swept the rest of the area, and most of the country? A possible explanation is to be found in two interesting notes of F. J. Stubbs (14, 30). He was of the opinion that the true Red Squirrel was decreasing in Essex after 1909 and was practically extinct in the western

part of the county by 1917. About 1910 Mr C. E. Green, an Epping landowner, purchased a number of Continental Red Squirrels (probably *Sciurus vulgaris vulgaris*) in Leadenhall Market and released them on his estate, and Stubbs considered that the Red Squirrels to be seen in Epping Forest in 1917 and 1923 were really of this sub-species. At all events the Red Squirrel has flourished in Epping Forest and languished everywhere else, and if the present Epping Red Squirrels really are from a Continental stock—which it should be fairly easy to prove by shooting one or two—that would explain how they came to escape the scourge that decimated the native Red Squirrels.\*

## SUMMARY.

1. An account is given of the introduction and spread of the Grey Squirrel in the area within 20 miles of St Paul's Cathedral, with some notes on its feeding habits in the area.

2. There is a brief discussion of the relations between the Grey and Red Squirrel, with some notes on the distribution of the Red Squirrel in the London area.

TABLE I.

## GREY SQUIRREL INTRODUCTIONS IN OR NEAR THE LONDON AREA.

Year.	County.	Place.	Source.	No. introduced.	Source of information.
1890	Middx.	Bushy Park	U.S.A.	5	6
c. 1902	Surrey	Kingston Hill (Richmond Park)	U.S.A.	100	13
1905	Middx.	Regent's Park	Woburn	5	13, 26
1906	Middx.	Regent's Park	Woburn	36	13
1907	Middx.	Regent's Park	Woburn	50	13
1908	Surrey	Kew Gardens	Woburn	4	23
1908	Bucks	Farnham Royal	U.S.A.	?	13
1909	Bucks	Farnham Royal	U.S.A.	5	13
1909	Bucks	Farnham Royal	S. Africa	1	13
c. 1911	Kent	Sevenoaks	?	?	23
1914	Middx.	Kensington Gardens	?	?	22
[? 1915	Kent	Chislehurst-Bickley	?	?	—]

TABLE II.

## FIRST OCCURRENCES OF GREY SQUIRRELS IN LONDON AREA, originating from introduction points south of the Thames, up to 1930.

a. = ante; c. = circa.

Year.	County.	Place.	Source of Information.
c. 1902	Surrey	Kingston Hill (Richmond Park)	13
c. 1903	Middx.	Bushy Park	23
1908	Surrey	Kew Gardens	23
1909	Surrey	Molesey	22
a. 1911	Surrey	Roehampton	8
a. 1911	Kent	Deptford	25
a. 1911	Kent	Greenwich	25
c. 1911	Kent	Sevenoaks	23

\*Since this was written a Red Squirrel skin picked up in the Forest by Mr F. J. Johnston in January 1936 has been definitely identified by the British Museum authorities as *S. v. vulgaris*. It is hoped to be able to submit further skins to them to establish the above hypothesis definitely.

Year.	County.	Place.	Source of Information.
1913	Kent	Sevenoaks-Westerham	13
1914	Middx.	East Twickenham	23
1915	Surrey	Walton-on-Thames	13
1915	Surrey	Wimbledon	11
[ ? 1915	Kent	Chislehurst	22]
1916	Kent	Bickley	13 (two observers)
c. 1916	Middx.	Hampton Court	23
a. 1918	Surrey	Chelsham	1
c. 1918	Surrey	Arbrook	20
a. 1919	Kent	Brasted	13 (two observers)
c. 1920	Surrey	Clapham Park	11
c. 1920	Surrey	Tooting	11
c. 1920	Surrey	Leatherhead	23
c. 1920	Surrey	Caterham Valley	23
c. 1920	Surrey	Tadworth	13
a. 1921	Surrey	Walton-Weybridge	13
1921	Surrey	Warlingham	13
a. 1923	Surrey	St Ann's Hill	23
a. 1923	Surrey	Putney	23
a. 1923	Surrey/ Middx.	Eel-Pie Island (swimming river)	23
a. 1923	Kent	Chislehurst	23
a. 1923	Kent	Keston	23
c. 1924	Surrey	Great Bookham	13
[ 1925	Surrey	Wisley (outside area)	20]
a. 1926	Surrey	Surbiton	20
a. 1926	Surrey	Chessington	20
a. 1926	Surrey	Esher	20
a. 1926	Surrey	Cobham	20
a. 1926	Surrey	Chertsey	20
a. 1926	Middx.	Syon House	20
a. 1926	Surrey	Woldingham	20
a. 1926	Surrey	Limpsfield	20
a. 1926	Kent	Chevening	20
a. 1926	Kent	Greatness	20
a. 1926	Kent	Shoreham	20
a. 1926	Kent	Kemsing	20
a. 1926	Kent	Lullingstone	20
a. 1926	Kent	Eynsford	20
a. 1926	Kent	Crockenhill	20
a. 1926	Kent	Horton Kirby	20
a. 1926	Kent	Southfleet	20
a. 1926	Kent	Northfleet	20
a. 1927	Kent	Hayes	13
1929	Surrey	Nutfield	13
a. 1930	Surrey	Epsom	13
a. 1930	Surrey	Streatham	10
a. 1930	Surrey	Clapham Common	10
a. 1930	Surrey	Wandsworth	10

TABLE III.

FIRST OCCURRENCES OF GREY SQUIRRELS IN LONDON AREA,  
originating from introduction points north of the Thames, up to 1930.

a. = *ante*; c. = *circa*.

Year.	County.	Place.	Source of Information.
1890	Middx.	Bushy Park (died out)	6
1905	Middx.	Regent's Park	13, 26
c. 1908	Middx.	Hyde Park and Kensington Gardens	23
1908	Middx.	Hampstead	22, 23



Year.	County.	Place.	Source of Information.
a. 1911	Middx.	St John's Wood	25
[? 1913	Middx.	Coldfall Wood	7]
a. 1915	Middx.	Golder's Hill	22
[ 1908	Bucks	Farnham Royal (outside area)	13]
a. 1915	Middx.	Ken Wood	22
a. 1915	Middx.	Highgate	22
a. 1915	Middx.	Waterlow Park	22
[ 1916	Bucks	Stoke Poges (outside area)	13
1917	Middx.	Kensington Square	
1917	Essex	Wanstead Park	13
1919	Herts	Oxhey Wood	23
1920	Middx.	Earl's Court	18
1921	Middx.	Harefield	13
1921	Essex	Gaynes Park	23
a. 1923	Middx.	Hendon	23
a. 1923	Middx.	Euston Square	23
a. 1923	Middx.	Clissold Park	23
a. 1923	Essex	Loughton	23
[?a. 1923	Essex	Chingford	19]
a. 1926	Middx.	Bloomsbury, Queen Square	24
a. 1926	Middx.	Woburn Square	20
1926	Herts	Little Berkhamstead	13
a. 1927	Herts	Bushey Heath	13
1928	Middx.	Edgware	13
1928	Middx.	Enfield	13
c. 1929	Middx.	Whetstone	13
a. 1930	Herts	Rickmansworth	13
a. 1930	Middx.	Hadley	13
a. 1930	Middx.	Russell Square	10
1933	Essex	Roydon	12

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## Mammal, etc., Recording in 1938.

By R. S. R. FITTER, F.Z.S.

GOOD progress has been made with the recording of mammals, reptiles, and amphibia in the London area in 1938. Practically all the existing printed records have now been traced, and 24 observers have sent in records or promised help.

During 1939 records of all mammals, reptiles, and amphibia will be welcome, but the gaps which most need filling are for the shrews, especially the water-shrew, the bats, the dormouse, and the harvest-mouse. There is still no definite record of the harvest-mouse within 20 miles of London since 1920.

Attention is also specially drawn to the national survey of reptiles and amphibians in the British Isles, which is being conducted by Mr H. W. Parker under the auspices of the Association for the Study of Systematics in relation to General Biology. All records, however apparently unimportant, of frogs, toads, newts, snakes and lizards are wanted in order to make this survey as complete as possible.

# Archæological Inspections.

By G. J. B. Fox.

1937.

ST PETER AND ST PAUL, CHALDON.

Visited 5th June.

**T**HE name was usually spelt up to XVIIIc. as "Chalvedon"; in XVIc. "Chaldon" occurs; in XVIIIc. "Chaldron."

The meaning usually given is "chalk-down"; really it is "chalves'-down."

The village is situated on the chalk-downs, and the church stands 500 ft. above sea level.

Land in the parish is said to have been granted to Chertsey Abbey in 675, and confirmed in 967 and 1062. Dernic held the manor of Edward the Confessor; Domesday Book states Ralph held "Chalvedon" of the Bishop of Bayeux; in 1585 the manor was said to be attached to the honour of Rochester Castle. Merton Priory possessed land in Chaldon in 1201; later the manor was held by the Covert family till 1475 . . .

Chaldon is said to have supplied roofing slabs ("healing") for Westminster Abbey.

A church is merely mentioned in Domesday Book (1086); the original plan of the present buildings (XIc.) showed an aisleless nave and chancel, now indicated by the west wall of the nave and the east angles of the nave and chancel. A south aisle was added at end of XIIc. (a lancet remains in its west wall), with an arcade of two arches, and a low tower at the west end; probably the chapel of St Katharine was then added to the east end of the aisle; a north aisle followed, c. 1220, also with a chapel at its east end (destroyed); a south porch (c. XIIIc.); a modern vestry. In 1843 the tower was raised with a shingled spire; in 1870/71 the church was restored.

Little remains of the original chancel; the three-light east window is c. 1460 (the date 1827 is cut on the sill); the chancel arch, built with large stones, is also XVc., pointed, with semi-octagonal columns. A square piscina, XII/XIIIc., with a circular bowl is at the south end of the east wall, an unusual position; on the north wall are remains of an Easter Sepulchre, possibly the tomb of Baldwin Covert (d. 1350); also a firestone tablet showing a sun-face with initials I.R.E., the date 1562, and an inscription beginning with "Good. redar. warne. all. men. and woomen . . ." There are indications of a "blind arcade," as at Merstham, Merton, etc. The nave has a round-headed window, but no doorway, in its west wall, and a very high-pitched roof; the south arcade has a circular central column with round base and capital, the abacus having a rectangular upper member; each east and west respond has an



impost; the north arcade also has a circular column with moulded capital and base, and chamfered orders, the imposts of the responds being pierced in an unusual manner; a mutilated XII/XIIIc. piscina is in the east respond. A consecration cross is painted on the west wall, and another on the column of the south arcade. The font, of local stone, with square bowl is XIIIc., but altered later. A rare example of a Commonwealth pulpit has an inscription — “Patience Lambert. 1657”; she was the widow of William Lambert of Tullsworth, buried in the nave, 1656. The south aisle:—a lancet in the south wall was replaced in XVIIc. by a two-light window. St Katharine’s Chapel—the aisle arch and the south window were rebuilt in early XIVc.; the east window is c. 1330; there are remains of a XII/XIIIc. piscina; the windows have fragments of XIIIc. and XIVc. glass. The north aisle:—c. 1330 the lancets were replaced by two-light windows; the north doorway is also of that date. The north chapel:—only part of an arch remains, with a moulded corbel, in the chancel wall. The plate includes a cup with paten-cover of 1703; the registers commence in 1564.

The Painting. The speciality of the church is the painting in tempera on the west wall, measuring 17 ft. by 11 ft. high; it dates from the end of the XIIc., and is the work of a man well read in the subject of the judgment, punishment, and salvation of the human soul; it appears to be based upon the “Guide to Painting of the Greek Church” (a “Byzantine Guide to Painting”; see Didron’s “Christian Iconography, II, 1886”). At the restoration of 1870/71, three figures on the west portion of the north wall were found and destroyed; fortunately the then Rector, the Rev. H. Shepherd, was alert, and when indications of a larger painting on the west wall were evident, measures were taken for its preservation and restoration. The title given to it, “The Ladder of the Salvation of the Soul and the Road to Heaven” is taken from the “Guide to Painting.” It is in four divisions formed by a vertical ladder and a horizontal nebuly band, showing four major subjects and various minor details. The ladder starts from a palmette (the emblem of life), and ends in a circle with Christ giving the benediction, flanked by the sun and moon; little nude figures, typifying souls, attempt to climb the ladder, some succeed, some fail. The lower right hand section commences with the Tree of Knowledge of Good and Evil, with Satan as the Serpent entwined among its branches; this portion is probably a continuation of the scene destroyed on the north wall which doubtless portrayed Adam and Eve with Satan in human form; the major scene shows two huge hideous demons holding a spiked bridge, which is being crossed by five souls—a man with a bowl of milk, two females with a ball of wool and uncarded flax, a mason with his pick, a smith with pincers, horse-shoe and hammer, but no anvil; these probably represent sins of withholding tithes or offerings to the Church; below this bridge is a usurer crouching amid flames, money bags round neck and waist, right hand holding up a coin, left hand catching other coins which he is vomiting, while two demons thrust pitchforks into his head; minor figures are demons tempting man and woman, and man

and youth. The lower left half division has the Hell Cauldron, a three-legged pot heated by flames, in which two demons stir up the souls of parricides and fratricides; another soul is falling headlong into it; another demon with a soul transfixed by a pitchfork plucks others off the ladder; minor figures include three dancing women whose feet a demon is biting, a pilgrim with staff and flask, who had been drunk, a woman whose hand a dog is biting, and a man and woman to indicate the sin of Ananias and Sapphira. The upper left hand division has St Michael weighing souls; one soul is trying to depress a pan, while Satan holding a group with a rope behind him, has a claw in the other; one angel holding a book conducts a soul, probably that of the penitent thief, to heaven, and another directs three more (the three Marys) toward the ladder. The upper right hand division contains the "Harrowing of Hell;" Christ with cross and banner is thrusting a staff into the jaws of Satan who lies bound in the jaws of hell; from flames come many spirits, headed by Adam and Eve; over them flies an angel with a scroll, while another, also with a scroll, conducts two souls, said to represent Enoch and Elijah, to the ladder. The painting was fully described by J. G. Walker in Volume V of the Surrey Arch. Coll'ns.

The large south porch was added in XVIc. with a west window; the oak roof remains; the inner doorway has a square head; the outer doorway shows a curious splay on a jamb. Removed from elsewhere are a grave slab with a plain cross (XIIc.), and another of Purbeck marble with a cross-patée (XIIIc.). The bell formerly in the tower is the oldest in Surrey, c. 1190, and is inscribed "+ Capena: Beati: Pauli."

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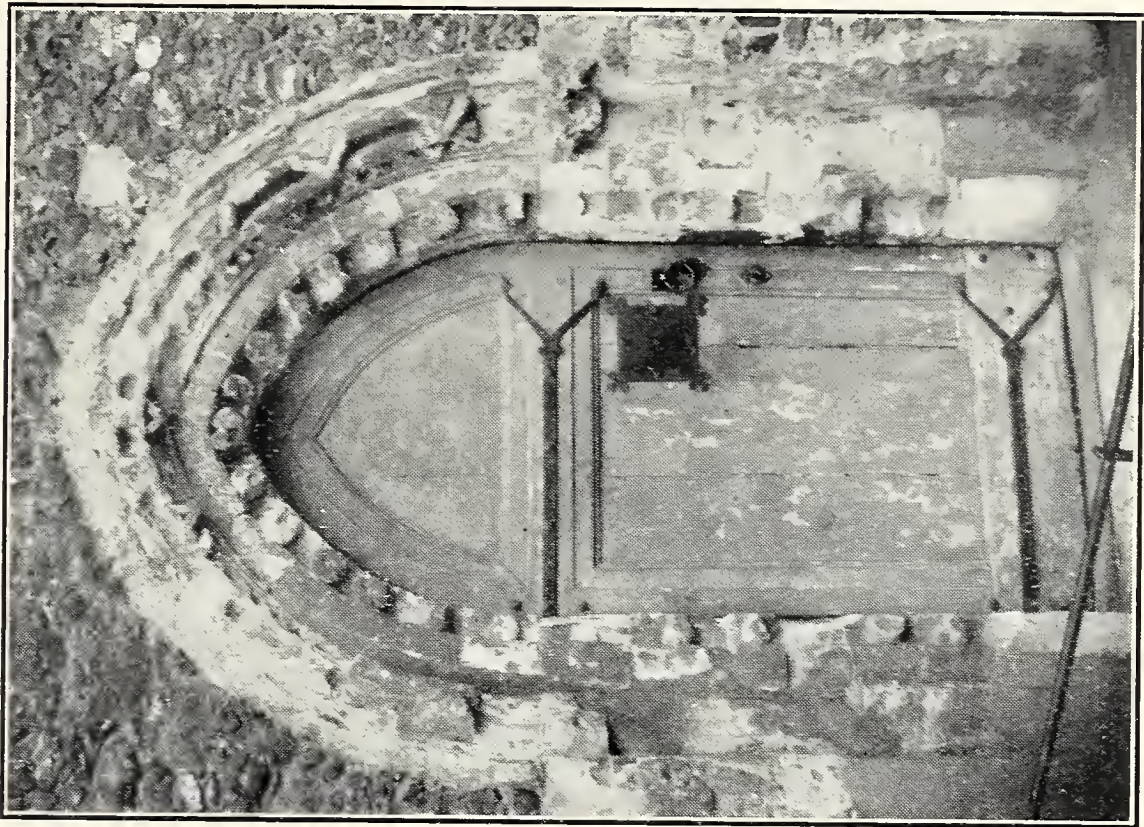
### ST DUNSTAN'S, STEPNEY.

Visited 13th November.

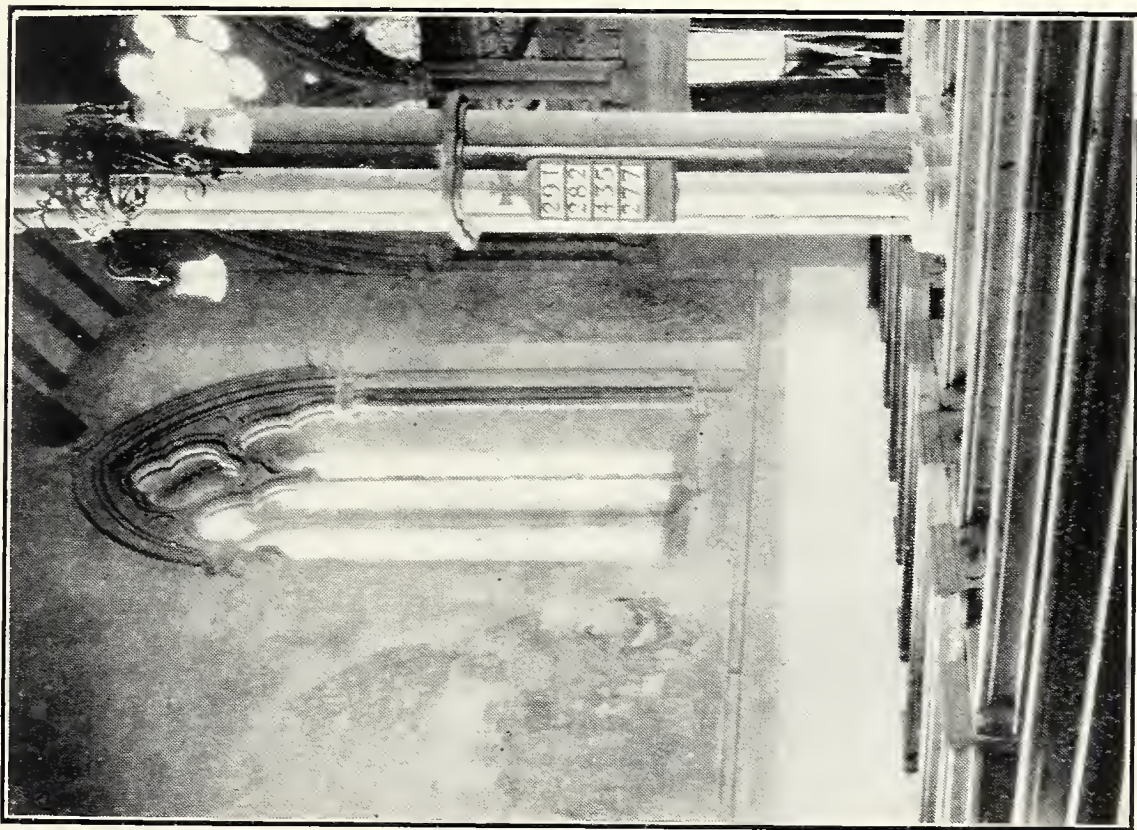
Stepney appears in Domesday Book (1086) as Stibenheda = hithe of Stybba; several other forms occur. The parish was originally of great extent, stretching east of the City, south of Hackney, north of the Thames, and west of the Lea; portions were gradually detached forming the parishes of St Mary, Whitechapel in 1338, Hackney, Stratford, Shadwell, etc. The Manor was possessed by the Bishops of London, probably from Pre-Conquest times; Bishop Ridley granted it in 1550 to Edward VI; other owners were the Wentworths, Brasenose College, Oxford; the patronage was transferred to the Bishop of London from the College in 1864.

The "pleasantness of its situation and the beauty of its scenery," as noted by Sir Thomas More, attracted distinguished residents besides the Bishops of London; the Archbishop of York had a residence here in 1391; Henry VIII had a house here; Thomas Cromwell had a "lodging;" a Lord Mayor; City merchants temp. Charles II; Erasmus came here "to drink of its rural peace and to find bounteous gifts of Nature and saint-like tokens of innocence." Edward I held a Parliament here in 1292.





NORTH DOOR.



N. AISLE, LOOKING EAST.

Photos by

Mrs Cocksedge.

ST MARY'S.  
STONE-BY-DARTFORD.





A tradition existed that any person born on the high seas could claim Stepney as a birthplace:—

Every child that's born at sea,  
Belongs to the parish of Stepney;

Law Courts, however, have decided against this plea.

The church has a dual dedication; originally it was "ecclesia omnium sanctorum;" after rebuilding by Dunstan in 952, it was rededicated to him after his Canonization; a later church, mentioned in 1302, was largely rebuilt. The chancel is late XIVc., the nave, etc., is XVc./XVIc.; repairs and alterations in 1632, 1676, etc., etc.; a fire in 1901 caused great damage; the north and south porches are modern, a west porch of 1612 has been removed. The chancel arch has disappeared; traces of it are seen above the second pier of the nave on the north; the chancel formerly extended one bay west, as shown by the stairs (in an external turret on the south side), leading to the (destroyed) roodloft; the sedilia are XIIIc., much restored; there are no signs of a piscina; in addition to the high altar, others were at the east ends of the aisles; over the doorway to the vestry is a reset sculptured stone panel of the Annunciation, XIVc., probably part of a reredos. The nave now includes seven bays with north and south arcades of two orders (late XVc.), and columns with four attached shafts; the clerestory has five windows of two-lights on each side; a pulpit was put up in 1622, replaced by another in 1848; the present one dates from 1886; in the east wall of the north aisle is a squint to the high altar; against the east wall is a stone coffin lid (XIIIc.) with a raised cross, discovered at a recent restoration.

An inscription reset in the south wall of the south aisle reads:—

Of Carthage wall I was a stone,  
O mortals read with pity;  
Time consumes all, it spareth none

.....

Thomas Hughes, 1663.

Of its history and of the man nothing is known.

The oldest work in the church, formerly over the south doorway, and now on the east respond of the north aisle, is a stone slab showing the crucifixion with the Virgin and St John, with border of acanthus type foliage; XIc. This may be compared with the Rood in the Bell Tower of Barking Church; also with the Saxon stone slab at Chichester Cathedral. The font is Norman (restored); the circular base has an inscription of 1848. The west tower has three stages with modern battlements; an octagonal cupola with ball and vane has disappeared; in 1539/40 four bells from Holy Trinity Priory, Aldgate, were purchased for this church, as appears from an inscription on the tenor bell; there are now ten bells. The Royal Arms are at the west end over the arch of the tower. Up to 1666 the sexes were separated; five galleries have been removed. No old glass remains; in 1610 thirteen coats of arms were in the windows.

The plate is described by E. Freshfield ("Communion Plate of Parish Churches in the City of London," 1895); the oldest piece is a cup of

1559; the Edwardian Inventory has not been found; that of 1659 includes two silver and gilt bowls with covers. The registers commence in 1568; up to 1889 the series included 159 volumes. The parish, till 1710, had two Incumbents, a Rector, appointed by the lord of the manor, and a Vicar appointed by the Rector; a rent of a red rose was paid by the Vicar to the Rector as rent for the vicarage.

Monuments. Many have been destroyed; those remaining include:— Floor slab, now east of the font, to Henry Stewart, Lord Darnley, aged three quarters of a year, 1545; Sir Thomas Spert (1541), on south wall of the chancel, founder of the Trinity House; on north wall of chancel, William Dawtney (1589); on same wall, Sir Henry Colet (1510), he was twice Lord Mayor, and was father of John Colet (Vicar of Stepney, Dean of St Paul's, founder of St Paul's School), a combined table-tomb, Easter Sepulchre and recessed monument, kept in repair by the Mercers' Company; Dame Rebecca Berry (1696), now on south wall of south aisle, known as the "Ring and Fish Monument" (mulletts and a fish appear on the coat of arms); traditionally she is said to be the heroine in "The cruel knight or fortunate farmer's daughter;" on west wall of north aisle, tablet to two Abraham Rawlings, father and son, both died 1644. "In the churchyard there [were] more remarkable inscriptions . . . than in any other place I have met with," Spectator, No. 518. One was to a fanatic, the "English Hermite or Wonder of this Age," Roger Crab (1680); he gave his property to the poor, except a small cottage at Ickenham; "he can live on three farthings a week; his constant food is roots and hearbs, as cabbage, turneps, carrots, dock-leaves and grasse; also bread and bran, without butter or cheese."

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1938.

### ST MARY'S, STONE-BY-DARTFORD.

Visited 11th June.

A Church is mentioned in Domesday Book of 1086 at "Estanes;" the land was held by the Bishop of Rochester, having been granted to the Bishops by King Ethelred in 955; they had a house here as a half-way stopping place to London; the manor house, which was on the west side of the churchyard, was repaired at great expense in 1337.

The Church stands on a high bank overlooking the Thames, and perhaps was erected during the episcopate of Bishop Laurence de St Martin (1251-1274); the offerings at the shrine of St William of Perth (murdered near Rochester while on pilgrimage to Canterbury, and canonized in 1266), may have contributed to the cost of its erection. The Church was restored by G. E. Street in 1860, who stated that, "perhaps there is no example of any First-Pointed building in England in which the grace and delicacy which characterize the style have been carried to greater perfection;" he considered, "that in beauty of workmanship, this little village church is undoubtedly superior to Westminster Abbey." He was further of opinion that the architect of the Abbey and of this Church



was the same man. This opinion, however, has not been accepted by some authorities.

The plan shows chancel, north vestry and chantry chapel, nave of three bays, and north and south aisles, and west tower. Chancel—upper part including the vault is much restored; the west bay has a barrel vault; the windows are modern, except one in the south wall of 1638/40, which has been allowed to remain; the east window has three lights, the original window probably had four; a blocked doorway to former stairs to the rood-loft is at the west end of the south wall; the chancel arch shows dog-tooth and foliage; above it are quatrefoils with foliage; the screen has disappeared; John Bokeland in his will of 1473 directs his burial to be before the “rode,” and the procession way from the chancel door to the west door to be paved with tiles; a piscina niche remains in the south wall at the east end. The feature of the chancel is the wall arcading, four sections at the east, and six on north and south, showing very fine stiff-leaf foliage in the spandrels. This arcading has been compared with that on the north wall of Henry III's work at Westminster Abbey, showing foliage, Christ, angels, human figures, dragons, etc., but here are no figures, only a solitary lizard on the north wall. This arcading had been painted and gilt.

A vestry was added on the north side of the east bay of the chancel in XIVc., as a continuation of the aisle; it became roofless, its walls covered with ivy, and interior filled with bushes; it has been restored.

West of the chapel was a chantry chapel, spanned by a flying buttress, built by Sir John Wiltshire (d. 1562), Controller of Calais; a table tomb to him and his wife has been despoiled of a brass showing effigies and inscription, etc.

The nave is of three bays; the work increases in detail from west to east; the arcades have clustered and banded columns with foliated capitals and deeply moulded arches; the east arches on north and south show dog-tooth moulding; the windows of the aisles differ in detail. On the north wall are two paintings of the Virgin and Child, and one of the martyrdom of Thomas Becket (XIII/XIVc.); traces of colour on the aisle walls, etc.

Brasses—on south side of altar is a fine foliated cross brass (mutilated) to John Lumbard, rector, with chasuble (1408), with Latin inscription; brass to Robert Chapman (1574) with eight English verses, and four shields (Merchant Adventurers, etc.); brass to Sir John Dew, priest, with inscription (c. 1530); brass to Anne Carew (1599).

Exterior—the roof (modern) of the chancel is higher than that of the nave; there was formerly a west porch; the north doorway of the nave shows chevron, dog-tooth and roses; the chevron may be an imitation of earlier work; it has been suggested that the carving was not done locally, but brought here from elsewhere. The west tower engages with the aisles; it is open to them and the nave by three lofty arches, and is supported by half arches from the aisle walls; it had a spire destroyed by fire in 1638.

## ST MARY THE VIRGIN, ALDERMANBURY.

Visited 15th October.

The Church is situated in the Ward of Cripplegate (from A.S. "crepel," a sunken passage to the Barbican outside the gate in the Roman wall, not from "cripple"); Aldermanbury, i.e. Alderman's house, appears c. 1130 and was near the Church; also close by was the earlier Guildhall, replaced c. 1400 by another slightly to the east, its ruins were in existence in Stow's time; somewhat to the west was the palace of the Saxon Kings abandoned c. 1060 by Edward the Confessor in favour of Westminster. Near by formerly ran a minor tributary of the Walbrook; Price ("Safe Deposit," p. 45) mentions a bridge in Wood Street. By the Church was a conduit built c. 1471 at the cost of Sir William Eastfield, Mercer and Mayor in 1438, fed from the Tyburn. (In 1236 Henry III had granted the privilege of conveying water from that stream in lead pipes to the City.)

Some of the neighbouring streets have unexpected origins, viz.:—Gutter Lane, i.e. Godrunlane (c. 1185) from feminine name Godrun, Goderun or Gudrun, and not from Guthrun, King of East Anglia; Monkswell Street, originally Muchewella, Mukewellestrate, from family name Muc, Muca, etc. (XIIc.); Stow's derivation, "Monks well" is wrong; Gresham Street commemorates Sir Thomas Gresham; Huggin Lane is Hog's Lane; Lily Pot Lane, from a sign; Addle Street, not from Athelstane, but from either "Adel, Adda" personal name, or noble, or "adel" filth; etc., etc.

In the immediate neighbourhood were formerly eleven Churches of which five have disappeared (burnt or destroyed). Attempts have been made to destroy this Church, so far unsuccessfully.

There may have been a Church here in Saxon times; later, a tomb inscription to John Constantinus is said to have been dated 1116 ("Mil i cent. quatuor bis et octo"); Robert, is mentioned before 1148 as priest of "Aldermannesberi"; the Church c. 1181 was in the possession of the Dean and Chapter of St Paul's, who in 1331 appropriated it to Elsing Spital; there were bequests to it in 1273, etc.; it is included in the Taxatio of 1291, etc.

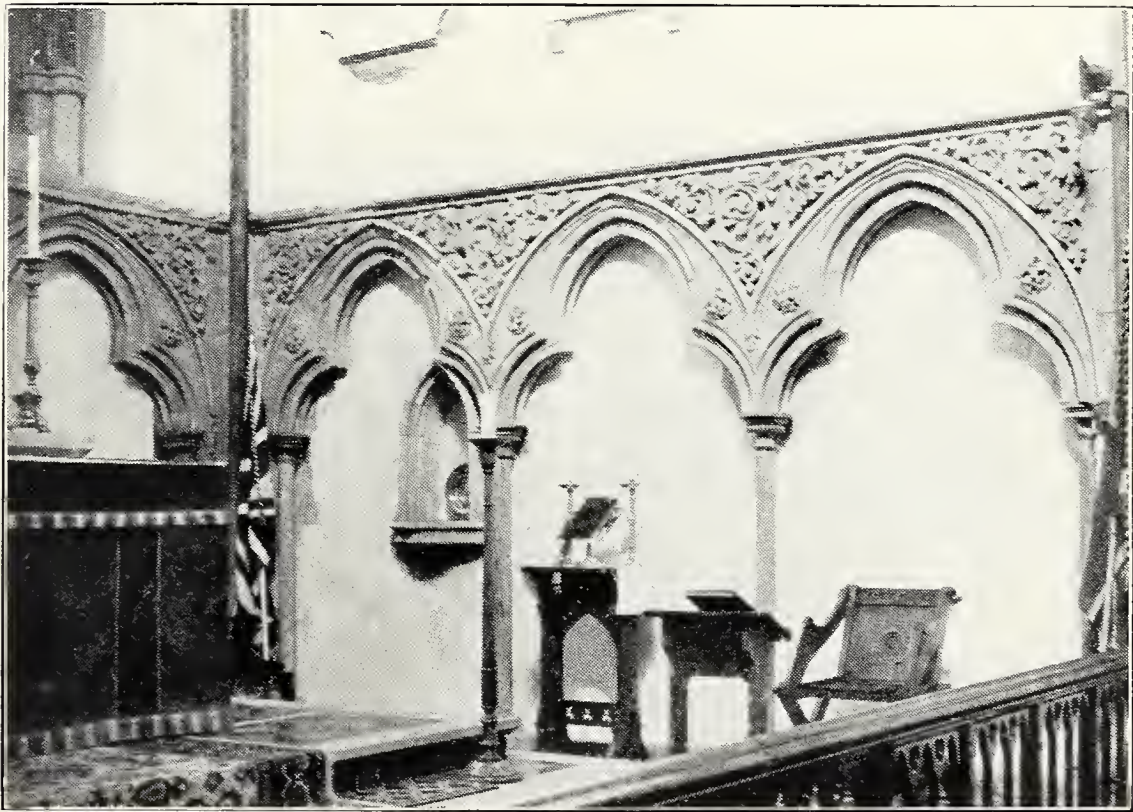
It was rebuilt by Sir William Eastfield, and was "beautified" in 1633; it had a large porch with an upper chamber; it was burnt in the Great Fire of 1666.

The present Church was erected by Wren in 1670-1686 at a cost of £5237 3s 6d; in 1673 to reward the kindness of Wren and Robert Hooke in expediting and perfecting the work the parishioners awarded them twenty guineas and ten guineas respectively and entertained them at a dinner; stone from St Mary Magdalene, Milk Street, was used in the walls; restorations and rearrangements were made in 1864 and 1923, so much so that "except pillars, ceilings and font, hardly anything Wrennian remains." During the re-erection Divine worship by the parishioners was performed in the Brewers' Hall, and also in the Church of St Peter-le-Poer. The plan shows no structural chancel, a nave with aisles lengthened at the west end, and a west tower. On the exterior





ARCADING, SHOWING DRAGON.



*Photos by*

*Mrs Cocksedge.*

CHANCEL, S. SIDE.  
ST MARY'S,  
STONE-BY-DARTFORD.





the east end has three bays, a round-headed central window, and two modern side windows with blocked doorways below; the north side has five bays, four rounded windows and one circular window, also a semi-circular clerestory window; the south side has five round-headed windows as on the north side, and a circular window with a doorway below it; the west end has two round windows. The tower retains three stages of 1437, with another stage with clock-turret and weather vane; on the ground floor is a north doorway and a south round window; the second stage has north and south round-headed windows and an east round-headed opening; the third stage has a similar east opening and a north round window; the bell chamber has four round-headed windows, a cornice and parapet; the clock-turret is timber, lead-covered, in two stages, with pyramidal roof, clock dial on south and east, and four round-headed openings. There are two bells, the earlier is of 1675.

Over the south doorway in a niche is a statuette of the Virgin and Child, formerly over the entrance gateway.

The interior shows colonnades of five bays, composite columns on bases with octagonal plinths; the entablature shows an architrave and a modillioned cornice; the west wall has a round-headed doorway to the tower; the north wall has two doorways at the west end to vestries; a plaster barrel-vault covers chancel and nave intersected by a similar vault with north and south clerestory windows; the bays show coffered bands with flower enrichment; each bay has three panels with enrichment of leaves, etc., circular and lozenge shaped; the aisles have flat plaster ceilings divided into panels with central round ornaments.

Monuments, etc.—Stow and Strype give a list of those in the former Church; the oldest was to John Constantinus (1116); another was to Sir William Eastfield (1438), Knight of the Bath, Alderman and Mayor, “a great benefactor to the Church.”

On east wall—figure seated on a gun, by Cardelli, to Lt. John Smith, drowned off Staten Island, 1782; on north wall—Mary (Beach), wife of — Hack, 1704; Richard and John Chandler (1691 and 1686) two busts in double recess, with coat-of-arms and crest (a pelican), removed from former west gallery; Richard paid £30 for a vault at the north-west corner of the Church; slab with inscription stating that John Emery, bricklayer, built a vault in the north aisle for his funeral and for use of the parish (1673); brass coffin plate to Mary Dive (1711), daughter of Judge Jeffreys; John Fryer (1796); Robert Aske, haberdasher (1688); on south wall—tablet to George, Baron Jeffreys of Wem . . . Lord Chancellor . . . resident in the parish . . . buried in family vault under the altar (1685); insignia, etc., have disappeared; at south-west corner are three erect slabs removed from vault (1713, 1727, 1728).

The reredos and pulpit were in St Alphage, London Wall, demolished in 1923; the font of white marble was presented by Richard Chandler in 1675.

In the chancel are two chairs; in nave, a chest, c. 1660; in south chapel, formerly over the altar, is a painting of the Last Supper, by Constantine Francks; Royal Arms on west wall, formerly over the altar.

The plate included vessels bought in 1573; it disappeared in 1889; and was replaced in 1890 at a cost of £107 10s.

The Churchwardens' accounts commence in 1569, and include many items relating to sale of glass, etc., two payments for hour-glasses, Easter tokens, etc.

Wills from 1280 include bequests to the Church for maintenance of Chantries, lights, altars, burials in the Church, etc., completion of the conduit, raising the belfry and providing bells.

The Registers commenced in 1538, and were re-copied in 1599. They were reprinted by the Harleian Society in 1931 and 1932 (Vols. 61 and 62). There is an entry of Milton's marriage on 12th November, 1656, to his second wife, Catharine Woodcocke. The agreement and intention of marriage was published on three market days in three several weeks . . . they were married according to the Act of Parliament by Sir John Dethick, Alderman, a Justice of the Peace.

Numerous foundlings in the parish were christened "Alderman-bury," or, for short, "Berry." They were more numerous after the Commonwealth. Several payments were made to Wardens to prevent child desertion.

The churchyard had a cloister; other City Churches had a similar adjunct, as may yet be seen at St Michael's, Cornhill, and St Katharine Cree; Stow and Strype relate that in this cloister was fastened a large shank bone, said to have belonged to a London giant, larger than one at St Lawrence Jewry. Here are buried Heminge and Condell, fellow actors with Shakespeare, and editors of the first folio of 1623 of the latter's plays; a monument presented by C. C. Walker, of Lilleshall Old Hall, and unveiled by Irving in 1895, has a bust of Shakespeare and the title page of the first folio, etc.



# The Crested Buckler Fern,

*LASTREA CRISTATA* Presl.

(*DRYOPTERIS CRISTATA* Gray; *NEPHRODIUM CRISTATUM* Rich.).

By L. G. PAYNE.

IT is with considerable pleasure that I have to report the discovery of the above British Fern in West Surrey on June 12, 1938, and it will be of interest to readers of *The London Naturalist* to place on record some relevant details.

The district in which it occurs may be described as undulating uncultivated land, with a dominating vegetation composed of *Pinus silvestris* L. and *Betula alba* L. At the lower levels the soil is sandy and peaty, and a narrow brook of clear water drains the boglands in a westerly direction. By the brook grows *Lastrea cristata*, its immediate environment consisting of *Narthesium ossifragum* Huds.; *Cnicus pratensis* Willd., *Juncus* spp., and the rare *Myrica Gale* L. with a network of *Sphagnum*.

The day was hot, and I had been searching for specimens in another branch of natural history, when my attention was attracted by a connected clump of ferns which I recognised at once as being of the greatest interest. Here, in a remote part of the county, was an apparently wild and well-established native fern, previously recorded in only 10 of the 112 vice-counties into which Britain is divided for the purpose of comparative botanical distribution.

A reference to Floras reveals a limited list of site names, repeated with monotonous regularity, in most of which localities the fern is now extinct. It is probably correct to state that *Lastrea cristata* now occurs only in two or three stations in East Anglia, and, so far as I am aware, it has never been recorded south of the Thames.

It is not my purpose here to usurp the functions of the text books by giving a botanical description of the plant, but it may be helpful to stress two or three points of interest which may assist the amateur botanist who has not made a specialised study of ferns.

It should be made clear that the term "cristata" in this case is somewhat unhappily chosen, and has little aptitude as a descriptive adjective. In modern fern nomenclature "cristate" ferns, of any species, are "those in which the terminal points of the fronds and subdivisions branch in such a way as to form tassels or crests" (*British Ferns*: C. T. Druery). In this connection, however, F. G. Heath, in *The Fern World*, states:—"The term 'cristata' . . . refers to the fringed or indented margins of the frond."

The fronds are of two kinds, barren and fertile. The barren fronds, which are the first to appear, usually tend to arch in a backward direc-

tion, so that the apex of the mature frond may nearly touch the ground; this characteristic may, however, be partially obscured if the associated vegetation is sufficiently dense to compel a more erect position. In the photograph reproduced (Plate IV), the fronds to the left of the picture are well illustrated in this condition. The barren fronds have short, slender stipes, in contrast to the stiffer upright stipes and continued rachis of the fertile fronds. The pinnae of these latter are somewhat distant towards the base of the frond, but closer towards the apex, and it is these upper pinnae which bear the large sori or spore heaps.

The fertile fronds are definitely persistent, and, in the West Surrey plants, I found the previous year's fronds in nearly perfect condition. Maturing fertile fronds of this year, with sori, are shown in the photograph reproduced as frontispiece.

It would perhaps be of interest only to the fern enthusiast to discuss the affinities of the allied *L. spinulosa* Presl and *L. uliginosa* Newm., but I would suggest that once the amateur has mastered the essential characteristics, and formed a definite mind picture, there will be little difficulty in identification.

It would appear that some confusion in the specific description occurred quite early in published records, for, by an unfortunate error in *English Botany* (J. Sowerby, 1810), the name occurs twice, Plate 1949 being apparently the present *L. Filix-mas* Presl, and Plate 2125 showing a fern more nearly like the subject of this article, but hardly typical.

The illustration in *Nature Printed British Ferns* (T. Moore, 1859) is satisfactory.

G. W. Francis in *British Ferns*, 5th Edn., 1855, stresses the "yellowish green" appearance of the "leaves" and this is a conspicuous feature of all the plants I have seen.

The Surrey plants are quite exposed, and this factor probably accounts for a shorter maximum growth than the Norfolk plants seen by our member, Mr J. E. Lousley. These latter, growing under fen conditions, in *Phragmites* swamp in one case, and in association with *Carex paniculata* in the other, apparently thrive in an environment where plants in competition induce a frond growth exceeding two feet.

The Surrey plants extend over a connected area of a few square yards with sturdy outliers at some distance. I have no reason to suppose that this fern has been introduced by either deliberate or accidental human agency. Its whole environment is in favour of a natural status, and one is happy to believe that there is no immediate prospect of danger to the plant.

I have had *Lastrea cristata* from another source under garden conditions for more than 10 years, and it has maintained its characteristics in a much drier rooting medium than would normally be found in the wild.

The photographs reproduced were taken by Mr J. E. S. Dallas on the occasion of a second visit to the site in his company in July of this year (1938).





*Photo. by J. E. S. Dallas.*

*LASTREA CRISTATA* PRESL.





Complete mounted specimens have been sent to, and accepted by, the British Museum (Natural History), Kew Herbarium, and the South London Botanical Institute.

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## Botanical Records in 1938.

By R. W. ROBBINS.

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ABOUT 20 lists of plants observed in the Society's District, containing a considerable number of new divisional records, have been sent to the Recorder. The chief contributors were Rev. P. H. Cooke and Mr D. McClintock, whose fine list, chiefly from the neighbourhood of Hayes, contained many species of unusual interest. Mr R. S. R. Fitter sent a welcome list from waste ground at Lambeth, Limsfield Common has been well explored by the Ecological Section, and several members have given individual records. That a good deal of work on distribution can still be done is well shown by a list of 40 species observed at Bricket Wood (Division 2, Rickmansworth) on July 10th, of which no less than 21 were new to the division.

The following records new to the Area (20 miles radius from St Paul's Cathedral) are grouped according to their apparent status. Following the locality is the number of the division in the Society's Area.

### NATIVE.

*Ranunculus Lenormandi* F. Schultz. Hayes 20 (D. McC.).

*Euphrasia brevipila* Burnat & Greml. Limsfield Common 19 (R. W. R.).

### DENIZENS OR ESTABLISHED ALIENS.

*Adonis autumnalis* L. Great Amwell 7 (D. McC.).

*Oxalis stricta* L. Hayes Old Rectory 20 (D. McC.).

*Trifolium agrarium* L. Green Street Green 22 or 23 (J. E. L.).

*Falcaria vulgaris* Bernh. Hayes Place 20 (D. McC.). A fine long-established patch of this interesting Umbellifer has been destroyed by building. Efforts to transplant it to Hayes Common failed, but a seedling has survived and is to be put on the Common.

*Lonicera Caprifolium* L. Headley Lane 17 (D. McC.).

*Carex vulpinoides* Michx. Farnborough 20 (J. E. L.).

*Azolla filiculoides* Lam. Hertford Heath 7 (D. McC.).

### SPECIES MORE OR LESS ADVENTIVE.

*Silene gallica* L. Hayes Old Rectory 20 (D. McC.).

*Hypericum elatum* Ait. Limsfield Common 19 (R. W. R.).

*Impatiens glandulifera* Royle. West Wickham, Lewisham, Catford, Sydenham 20 (D. McC.).

*Centaurea solstitialis* L. Wickham Farm 20, in quantity 1936 (D. McC.).

*Panicum sanguinale* L. Bickley, Chislehurst 20 (D. McC.).  
*Setaria italica* L. and *Phalaris paradoxa* L. Green Street Green 22  
 (D. Mc.).

It is satisfactory to learn that *Centaurea Cyanus* L.—the blue cornflower—was scattered “all over a large field” at Chelsfield (22) this summer, and that *Symphytum tuberosum* L. is still to be found near Greenhithe (21), although the site of Mr Cooke’s original discovery is occupied by tennis courts.

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## Plant Gall Records for 1938.

Compiled by H. J. BURKILL, M.A., F.R.G.S.

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**O**WING to weather conditions the list of species noted has been much smaller than usual, but nevertheless the work of the Plant Galls Section has resulted in several interesting observations being made, and various species have been reported that appear to be new to the British list.

The following are possibly the more important items from our records:—

### HYMENOPTERA.

#### CYNIPIDAE.

Some spring species on the Oak were plentiful, more so than in most years, but the frosts of May seem to have had a very unfavourable effect on the young leaves and in many instances handicapped the development of the autumn generations. Some species, however, overcame the adverse conditions and were plentiful later on. Mr Niblett reported *Andricus quadrilineatus* Htg. and *Neuroterus aprilinus* Gir. as very plentiful, with *A. amenti* Gir., *A. glandulae* Schenck, and *Diplolepis divisa* Htg. as plentiful. Other observers found there was a good deal of local variation in the numbers of specimens seen.

Mr Niblett has confirmed the coupling of *Andricus amenti* Gir. with *A. glandulae* Schenck. Other controlled experiments produced no results except with *Trigonaspis megaptera* Panzer which gave *T. renum* Gir. in the autumn.

Some galls were found on *Quercus Robur* L. that could not be identified and it is hoped that further specimens may be discovered so that the different species may be determined.

*T. megaptera* was very abundant in Shropshire and was also seen in Surrey, where its alternate form *T. renum* was observed in late autumn. *Biorrhiza pallida* Oliv. was plentiful and as usual gave rise only to winged males and females.

*Neuroterus lenticularis* Oliv. was very abundant, but the other spangle galls were scarce, especially *N. fumipennis* Htg. *N. schlechtendali* Mayr was locally plentiful.



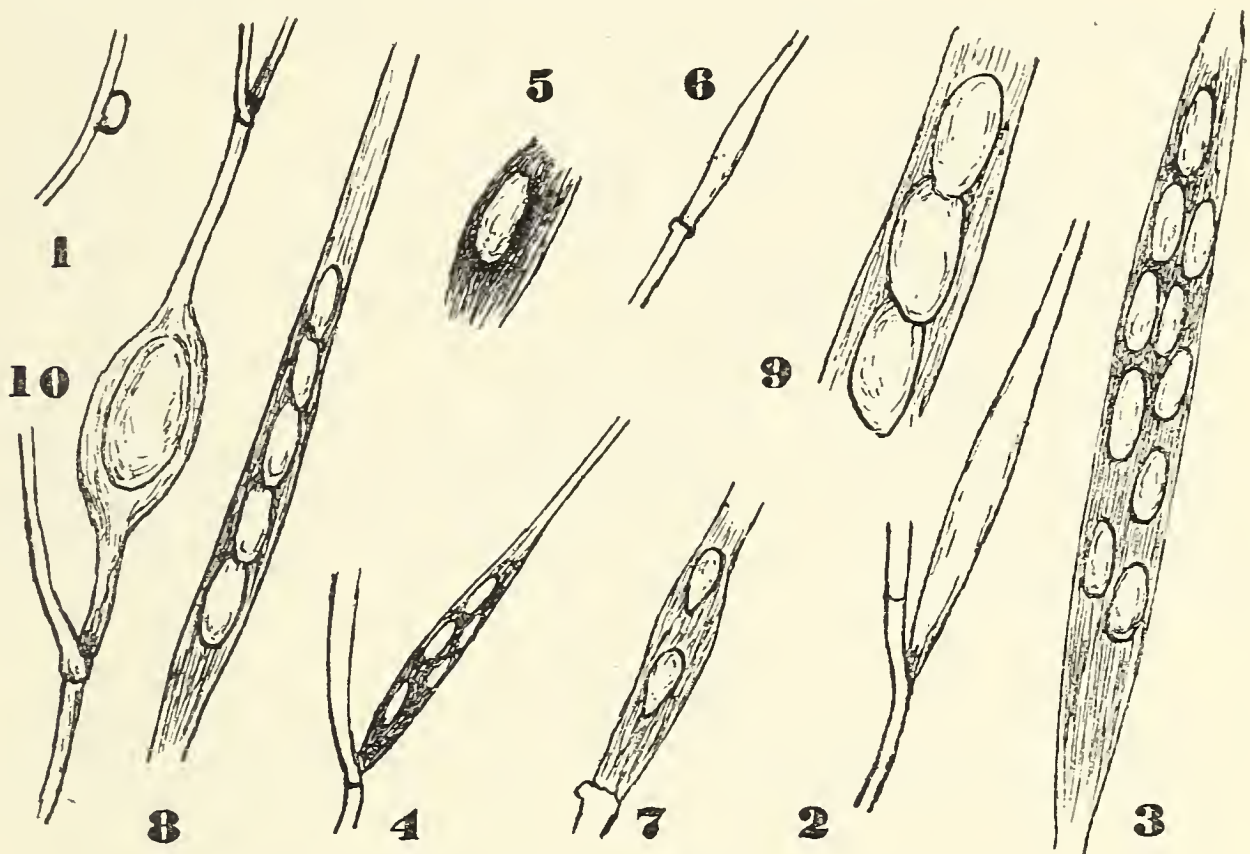
*Diplolepis folii* L. was fairly plentiful, and *D. longiventris* Htg. perhaps more often seen than in most years.

*Quercus pubescens* Willd. in a garden at Bookham was attacked by *Cynips kollari* Htg., *N. lenticularis* Oliv., and *N. numismatis* Oliv.

Mr Niblett reports *Aulax hypochaeridis* Kieff., *Aulacidea hieracii* Bouche, and *Diastrophus rubi* Htg. as fairly plentiful, and *Isocolus jaceae* Schenck as found several times.

## CHALCIDIDAE.

*Agropyron repens* Beauv. was found galled by five different species of larvae, apparently *Isosoma* spp. (see text fig. 1).

PLANT GALLS ON *AGROPYRON REPENS* BEAUV.

1.—No. 1 in Plant Gall Records, natural size. 2.—No. 2, natural size. 3.—Same cut open, magnified twice natural size. 4.—Same cut open, natural size. 5.—Same cut open, magnified twice natural size. 6.—No. 3 in Plant Gall Records, natural size. 7.—Same cut open, magnified twice natural size. 8.—No. 4 in Plant Gall Records, natural size. 9.—Same cut open, magnified twice natural size. 10.—No. 5 in Plant Gall Records, natural size.

(1) A small ovoid gall  $3 \times 2 \times 3$  mm. in diameter standing out from the stem. Dark brown, hard, shining, thin walled. Found at Fetcham, Surrey, in March, probably surviving from the previous year.

(2) Elongated swelling of the stem, 20-30 mm. long by 2-3 mm. wide, containing several cells, usually 6-10, 3-4 mm. long by 1 mm. wide. Brown, hard walled, arranged in a loose chain or sometimes two or three abreast. Effingham Common and elsewhere in the autumn.

(3) A similarly shaped swelling but much slighter and containing only two cells which differ in shape from the last, being sharply pointed at the lower ends. Fetcham.

(4) Another similar swelling, but containing a solid row of five larger cells fused together into a rod, dark brown in colour, and hard walled. The larvae differ slightly in shape from those of the above-mentioned galls. Headley, Surrey.

(5) A gall somewhat like an orange pip in shape, 13 mm. long by 4 mm. in diameter, rather a flattened oval embedded in the grass stem which is split to contain it. Pale straw colour, firm to the touch like the gall of *Isosoma graminicola* Gir. It fell easily out of the stem while being examined. Headley.

Only one specimen of each of Nos. 1, 3, 4, and 5 were found, so they are evidently not common, but the galls of *I. graminicola* have been seen frequently this autumn.

*Lolium perenne* L. carried some galls of No. 2 of the above. Fetcham.

#### TENTHREDINIDAE.

In the early summer Sawfly larvae were plentiful, but these were the non-galling species. The gall-causers were not very noticeable though various species were recorded. *Pontania purpureae* Cam. was once more noted in Shropshire.

#### COLEOPTERA.

##### CURCULIONIDAE.

*Linaria vulgaris* Mill. was reported by Mr W. O. Steel as galled by *Gymnetron linariae* Panzer, *G. collinum* Gyllh. and *G. antirrhini* Payk.

*Plantago maritima* L. was noted by Mr Niblett at Benfleet galled by *Mecinus collaris* Germar.

#### LEPIDOPTERA.

##### HELIOZELIDAE.

*Heliozela stanneela* Fisch v. R. was noted on *Quercus Robur* L. in various places and Mr Niblett found it plentiful at Boxhill.

#### DIPTERA.

##### CECIDOMYIIDAE.

*Achillea millefolium* L.—*Rhopalomyia millefolii* H. Loew. A species of gall midge that forty years ago was common but now seems to be met with only occasionally. Reported by Mr Niblett.

*Tanacetum vulgare* L.—*Rh. tanaceticola* Karsch. Some very fine clusters of these galls were found near Albury, Surrey, and at Wistanstow, Shropshire.

*Sambucus nigra* L.—*Schizomyia nigripes* F. Loew. Shropshire.

*Leontodon hispidum* L.—*Cystiphora leontodontis* Kieff. Mr Niblett.

*Veronica scutellata* L.—*Perrisia similis* F. Loew. Bricket Wood.

*Tamus communis* L.—*Schizomyia tami* Kieff. Boxhill.

*Juniperus communis* L. (1) Twelve galls of the *Oligotrophus* sp. (Howard 127) reported a year ago were seen in January at the same place, but no traces of any fresh galls have been seen there since, nor have we found these galls on any other Juniper bushes in the district or elsewhere.



(2) —Small bud galls each containing a midge larva have been found on Hackhurst Downs, West of Shere, and Limpsfield Common in March, November, and December, so the gall is a winter one. Possibly *Oligotrophus* sp.

#### TRYPETIDAE.

Mr Niblett reports the following plants as being plentifully galled by Trypetidae:—

*Pulicaria dysenterica* Gray.—*Myopites blotii* Brep.

*Senecio vulgaris* L.—*Sphenella marginata* Fall.

*Cnicus lanceolatus* Willd.—*Euribia stylata* Fab.

*C. arvensis* Hoffm.—*E. cardui* L.

*Hieracium umbellatum* L.—*Noeeta pupillata* Fall.

and *Achillea millefolium* L.—*Oxya flavipennis* H. Loew. several times.

#### HEMIPTERA.

##### APHIDIDAE.

*Ulmus campestris* L. and *U. montana* Stokes were again very heavily galled by *Eriosoma ulmosedens* Marchal and *E. ulmi* L. in Shropshire.

*Populus nigra* L. in Shropshire was galled by *Pemphigus populi* Courchet, as well as by *P. bursarius* L., *P. marsupialis* Courchet, and *P. affinis* Kalt. The second and third of these were also recorded by Mr R. B. Benson from Berkhamstead.

#### ACARINA.

##### TROMBIDIIDAE.

*Phragmites communis* Trin. galled by *Tarsonemus phragmitidis* Schl. was found by Mr J. E. Lousley near Mucking.

##### ERIOPHYIDAE.

*Prunus spinosa* L. *Eriophyes* sp. causing a dense crimson "erineum" of short, stout, straight or curved, unicellular hairs on the shoots, petioles and leaves in April and May. I failed to find the species persisting in August in the same districts. Found in three localities in Shropshire. Dr W. J. Fordham of Barmby Moor, York, informs me that he has seen the same species in Yorkshire.

*Pyrus malus* L. (1) *Eriophyes* sp. A somewhat similar "erineum" to the last but light pink in colour, never the bright crimson, and the hairs seem to be less vigorous in growth. Found in May in two localities in Shropshire, and similarly not seen in August in the same places.

(2) *Eriophyes* sp. The leaf margins rolled up were abundant in various localities in Shropshire near Church Stretton. The mites also attack the centre of the lamina and cause depressions on the under surface containing hairs, and inducing a corresponding projection on the upper surface.

*Tilia platyphyllos* Scop. *Eriophyes* sp. Dull dark crimson circular galls covered with short hairs, projecting as rounded domes 2 mm. high from the lamina of the leaf in various places, not restricted to the angles



of the veins as is *E. tiliae* Pagnst. var. *exilis* Nal.; but occurring all over. Wenlock Edge, Shropshire.

*Lonicera periclymenum* L. *Eriophyes xylostei* Can. Seen again in Shropshire. The mites can induce gall development in the middle of the leaf similar to that described above for *Pyrus malus*—a depression, but not enough to cause the pleating of the usual gall formation which occurs near the margin of the leaf.

*Ulmus minor* Mill. *Eriophyes brevipunctatus* Nal. On Arbrook Common, Surrey, in some abundance.

*Populus tremula* L. *E. dispar* Nal. The tree near Leatherhead that was noted last year has been broken down and the galls have disappeared. We found them, however, plentifully in Bricket Wood, Herts, in September.

*Salix fragilis* L. *Eriophyes triradiatus* Nal. Galls attributed to this species were seen to the S.E. of Shrewsbury and at Allfield, near Conover, Shropshire, but no evidence could be obtained as to how long the trees had been affected.

*Juniperus communis* L. *Eriophyes quadrisetus* Thomas. North Downs, near Shere.

#### NEMATODA.

*Agrostis alba* L. *Anguillulina graminophila* Goodey. Dark crimson swellings at the base of the grass blades. Headley, Surrey, October.

#### BACTERIA.

*Salix fragilis* L. A tree was found near Shalford, Surrey, bearing a number of irregular swellings on the branches which Mr Swanton of the Haslemere Museum suggested might be due to a Bacterium, *Pseudomonas tumae-faciens*.

Other kinds of nodules on the roots and stems of plants have been noted which, though not identified, are probably due to bacteria.

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## Neuroterus schlechtendali Mayr.

(HYMENOPTERA; CYNIPIDAE.)

By J. Ross.

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SOME uncertainty as to the identity of a small gall appearing on the male catkins of *Quercus Robur* L. and *Q. sessiliflora* Salisb. has been dispelled as Mr M. Niblett has been able to get the flies emerging from the galls identified by Dr Hedicke of Berlin. Mayr in 1871 named the fly *Neuroterus schlechtendali* after the scientist who first recorded it, von Schlechtendal having given it a name that had been previously applied to another species. The fly is agamic and is now regarded by Continental authorities as the alternate generation of *Neuroterus aprilinus* Giraud, and if this view is accepted the fly should be known

as *Neuroterus aprilinus* Giraud agamic generation or *Neuroterus aprilinus* Giraud form *schlechtendali* Mayr.

I am not aware that the association of *N. aprilinus* and *N. schlechtendali* has been positively proved by getting the gall, from which *N. schlechtendali* emerges, as a result of oviposition by *N. aprilinus*, or by getting *N. aprilinus* galls from oviposition by *N. schlechtendali*, but Continental literature may have appeared on the point and not come to my knowledge.

One of the difficulties in recognising the gall as that of *N. schlechtendali* was that Mayr's illustration of it ("Die Mitteleuropaischen Eichengallen," 1871) was indifferently copied in some Continental works; better representations of the gall were given in *The Entomologist* (July 1878, No. 182, vol. 11, p. 145) and in Cameron's *Monograph of the British Phytophagous Hymenoptera* (vol. 4, plate 7), the latter showing galls in fresh condition.

Other flies of the genus *Neuroterus* in spring cause the currant or berry gall, the blister gall, Schenck's gall, and the hairy pea; all these occur on oak leaves and the first also appears on male catkins. In autumn the flies of this group cause the four spangle galls, i.e., the common spangle, silk button, smooth spangle, and cupped spangle.

With these two groups there is an interval of some months between the mature stages of the galls of the alternate generations. If *N. aprilinus* and *N. schlechtendali* are alternate generations of the same fly the life history is very different. The galls of *N. aprilinus* occur in oak buds and become visible in April and May, the flies emerging quickly after the appearance of the galls. The emergence of the flies may be spread over some weeks. In the case of *N. schlechtendali* the galls occur on the male catkins in May, and in 1938, which was an abnormal season, galls of *N. aprilinus*, from which the flies had not emerged, and of *N. schlechtendali* were found on the same day, i.e., April 23rd; admittedly, only a very few *schlechtendali* galls were then found. In 1938 *N. aprilinus* had begun to emerge on March 31, and continued to appear until April 27 and possibly later. *N. schlechtendali* emerges in July, August and occasionally September of the same or following year. G. C. Bignell, who first recorded the galls and flies of *N. schlechtendali* in Britain (*Entomologist's Monthly Magazine*, 1892, p. 176) seems to have bred flies in the third year. My experience is that flies which have lain over to the second year emerge at an earlier date than those coming out in the year of the gall's appearance.

Regarding the suggestion of von Schlechtendal that *N. schlechtendali* was the alternate of *N. aprilinus*, Abbé J. J. Kieffer (*Spécies des Hyménoptères*: vol. 7. Cynipides, pp. 662-3, Note) wrote that if the suggestion was confirmed, we have the case of a resting of the egg during eight or nine months and the curious fact of an insect which has the claws of the tarsi simple in the sexual state and bidentate in the agamic state: I think that to suggest that the egg rests eight or nine months is to exaggerate slightly as it does not allow for the larval and pupal stages, but the point Kieffer raises has interest and import-



ance. Having repeatedly found the two kinds of galls in the same localities and noted in some years that *schlechtendali* galls occur on the later flowering oaks, my own view at present is that it is not only possible but highly probable that the flies are alternate generations.

Cameron (*l.c.*, vol. 4, p. 140) seems to accept *N. schlechtendali* as the agamic form of *N. aprilinus*, but by an unfortunate slip labels his short description "Sexual form." On the following page (141) he gives a description of *Neuroterus politus* Hartig. The descriptions have so much resemblance that I suggest that they apply to the same fly. *N. politus* was described by Hartig in 1840, and was only recorded subsequently by the Rev. T. A. Marshall (*Entomologist's Monthly Magazine*, 1867, vol. 4, p. 125), who took it several times on oak trees in Leicestershire. There are two flies labelled *N. politus* in the Fitch collection and these presumably were obtained from Marshall.

Kieffer (*l.c.*, vol. 7, pp. 664, 665) contends that *Spathegaster petioliventrif* Hartig is the same insect as *N. aprilinus*. Hartig captured *S. petioliventrif* in the neighbourhood of Berlin, and according to Kieffer stated that all the females of the species have the radial cellule open while the males have it closed; the variation of the radial cellule Kieffer points out is a character by which *N. aprilinus* is distinguished from all the other species of the same genus. Though Hartig seems to have stated that all *aprilinus* females had the radial cellule open, he may not have definitely asserted that *all* the males had the cellule closed. A radial cellule is said to be closed when the outer margin is thickened and darkened like a well-marked vein of the wing. In 1938 I bred over 120 flies of *N. aprilinus* from Essex, Kent, and Surrey, and though almost all the females had the radial cellule open or had only a short part of the margin thickened, about 14 per cent. of the males had a thickened and darkened margin to the wing over the whole length of this cellule, the amount of thickening and darkening varying in the other males.

Professor Kinsey in the "Gall Wasp Genus *Neuroterus*" (Indiana University Studies, June 1923) divides the genus into three American and three Old World sub-genera. The Old World sub-genera are *Neuroterus* Hartig, *Pseudoneuroterus* new sub-genus, and *Spathegaster* Hartig. Types are given for these sub-genera; that for the sub-genus *Neuroterus* is *N. politus* (designated by Ashmead, 1903, *Psyche* 10, p. 151), and that for the sub-genus *Spathegaster* is *N. petioliventrif* Hartig. In the sub-genus *Neuroterus* are included *N. cerrifloralis* Müllner, a Lower Austrian species galling *Q. Cerris*, *N. glandiformis* Giraud, which is recorded as occurring in Lower Austria, Hungary, Italy and Portugal, and as causing galls on *Q. Cerris* L., *Q. Robur* L., and *Q. suber* L., and two Japanese species; and four other Continental and one other Japanese species in Kinsey's opinion may belong to the sub-genus. The four species of *Neuroterus* with which we are familiar: *quercus-baccarum* L., *numismalis* Fourcroy, *albipes* Schenck and *tricolor* Hartig come into the sub-genus *Spathegaster*. Kinsey states that other European species may belong to this sub-genus, but with-

out sufficient material he preferred to withhold opinions as to sub-generic assignments. Neither *N. aprilinus* nor *N. schlechtendali* appear in the index to this work, and I have failed to find any mention of them.

Kieffer (*l.c.*, p. 665) records one commensal (on which, according to Cameron, Mayr who made the record threw some doubt) and three parasites for *N. aprilinus*, but neither commensal nor parasite for *N. schlechtendali*. Because of the time of the gall's appearance, its rapid development in its later stage and the quick emergence of the insect after the gall is visible, it is probable that *N. aprilinus* suffers little from parasites, and that *N. schlechtendali* may escape because of its small size and the relatively short time it remains on the tree after the male catkins have expanded.

Clearly it is most desirable that the alternation of these two flies, if it exists, should be proved beyond possibility of doubt by breeding the insects through the galls. I realise the difficulty of doing this, especially as my colleagues of the Society's Plant Gall Section who undertake such experimental work are handicapped by not possessing oaks that have reached the flowering stage as is required for the production of the galls from which *N. schlechtendali* would emerge.

Also it may be that the long period of quiescence that follows oviposition by *N. schlechtendali* in some way limits the reproduction of the species. Both *N. aprilinus* and *N. schlechtendali* are abundant locally at times, and if neither suffers from parasites to the extent that some gall-producing Cynipidae do, some other factor or factors, it must be presumed, intervenes to keep the species in check.

Finally, if *N. aprilinus* and *N. schlechtendali* are not alternate generations of the same fly, what are the life histories of these insects?



# Entomological Notes and Records.

## LEPIDOPTERA OF A LONDON GARDEN FIFTY YEARS AGO.

By R. W. ROBBINS.

AS a boy, in the eighties, I lived in South Hackney, near Victoria Park. The small three-storied house with its rectangle of garden stood with ten others forming a terrace, with a similar terrace behind and two others at right angles. The whole formed a nearly perfect enclosure of, say, one hundred and fifty by eighty yards. The gardens were separated by brick walls four and a half feet high with a higher central wall across the ends. Just on the other side of this end wall stood a row of good sized black poplars, planted twenty years previously when the houses were built.

Trained against a wall of our garden, facing south, were gooseberry and currant bushes. The wall at the bottom was topped by a screen covered by wild clematis, and across the top of the garden was a trellis with openings to the side-paths and joined to the house by an open lean-to roof; this was covered by "tea tree" (*Lycium*) and hops. So much for the permanent features.

I believe it was the Magpie moths (*grossulariata*) which first attracted my attention. Although we killed scores of larvae, the moths were always abundant in season. I once found a good striated form. With these larvae were a few caterpillars of the V moth (*wauaria*), an insect which I found regularly on the walls, but since those days have only taken once or twice.

Another insect frequent on the walls and which has almost completely eluded me since, was the Poplar Grey (*megacephala*); usually the moths had a pinkish tone in the grey colouration. Their caterpillars were plentiful on the trunks of the poplars, resting in the shape of a question mark, and when I stood on the end wall with my head among the poplar branches I found them on the leaves, and sometimes a larva of the Poplar Hawk—a great thrill.

The clematis screen harboured a small group of species of which the Waved Umber (*abruptaria*) was the most interesting. The moth was not uncommon on the wall below, and I took two of the dark brown suffused variety which is, I think, a London speciality. The larvae of the Dot (*persicariae*) were abundant and in two forms, green and brown, marked with short oblique velvety streaks of deeper tone. Other frequenters of the clematis were Willow Beauties of the smoky London form (*gemmaria*, var. *perfumaria*) and Swallowtails (*sambucaria*). The latter moths I caught on the wing, but where do these conspicuous insects secrete themselves by day?

The "tea tree" and hops on the trellis were the favourite food of "woolly bears," the brown hairy larvae of the Buff Ermine (*lubricipeda*),

and one often came across the moths asleep on the woodwork, sometimes in pairs. The White Ermine (*menthastri*) was much rarer. Another common hairy larva of striking appearance was the Vapourer (*antiqua*). Although bred specimens generally produced a grub-like wingless female; she would attract the little brown males in plenty in the sunshine. The local boys called them cherry-eaters.

Brindled Beauties (*hirtaria*) were common in the garden and doubtless bred on a small lime tree in the front. But *hirtaria* was then of small account to me beside the Gothic (*typica*), which turned up occasionally on the walls. A species frequently taken was the Small Angleshades (*lucipara*), the larvae of which devastated our ferns, while the currant bushes were attacked by the Currant Clearwing (*tipuliformis*), which was to be found sunning itself on the leaves.

With my net at dusk I used to take the Rustic Shoulder Knot (*basilinea*), which I have hardly seen since; the Lychnis (*capsincola*) on the pinks; the Nutmeg (*chenopodii*), Garden Carpet, Brimstone, three or four Pugs (*assimilata*, *vulgata*, *centaureata*), and other well distributed species. One well-known London insect, the Double-lobed (*ophiogramma*), I never found at Hackney, although we had in the garden the Ribbon Grass (*Phalaris*), in the stems of which the larva feeds. The moth was common at Clapton and Forest Hill.

It appears in retrospect that this little London garden was quite a good collecting ground, and, in particular, that it maintained a small group of species that are not easily come by in rural districts. Evidently, there is a garden fauna just as there is a fauna of cultivated land, but in this instance there was a town-garden fauna and perhaps even a London fauna. A group of species, sparse in the open country, flourished vigorously in a built-up area not far from the heart of the city. The density of the lepidopterous population, though limited in species, was greater in that small garden than in any of the more spacious and varied gardens that I have since known.

It is true that we had very few insectivorous birds, except house sparrows and a few starlings, robins, and blackbirds. I doubt whether they took much toll, and at least the omnivorous London sparrow with plenty of scraps, horse manure (in those days) in the streets, and crocuses and other flowers in season, was well supplied with other food.

A London garden provides a specialised habitat for its insect population. There is shelter from high winds and extremes of temperature, because London is never so cold as the surrounding country. Insectivorous birds are few. The brick walls give the protection and warmth of rocks, yet without the heavy rainfall of our rocky and wooded districts. No wonder certain species of moth find in our London gardens a congenial habitat.

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## HYMENOPTERA FROM SOUTH CORNWALL.

By K. M. GUICHARD.

This year, from July 23rd to August 7th, I spent a holiday at Polperro on the South Cornish coast. Despite the phrase, "Our Cornish



Riviera." the country appeared devoid of character, and even the cliff scenery seemed inferior to parts of Sussex.

After one fruitless excursion inland in search of aculeates, I decided to confine collecting to the rising ground above the cliffs. This area, about three-quarters of a square mile to the west of Polperro Harbour, on account of its thick vegetation, gravelly paths, and abundance of flowers, looked promising. Flowers most attractive to Hymenoptera were Wild Carrot, Ragwort, Blackberry, Wood-sage, Dwarf Furze, and Devil's-bit Scabious, all of which were in full bloom.

As there appears to be no complete list of Cornish aculeates, it has not been possible to find out whether any of these records are new to Cornwall. My list includes many common species, so that if a County List is compiled such records may perhaps help to confirm the general distribution of those species.

There are only two comments to make. Firstly, the occurrence of two wasps which I had previously found only on sandhills: *Ammophila sabulosa* and *Podalonia viatica*. There is no sand within at least five miles of Polperro, and the soil of my area was a light clay mixed with small stones.

Secondly, *Nomada rufipes* was abundant, although I could not find its normal host, *Andrena fuscipes* (Kirby). This *Andrena* is associated with heath-lands, so it seems probable that *N. rufipes* was parasitizing *Andrena nigriceps*, which, however, was rare.

The following records were made during seven mornings' collecting, and a more intensive search would doubtless turn up other species. I am greatly obliged to Mr G. M. Spooner for his determination of *Priocnemis pusillus* and *Pompilus trivialis*.

#### HYMENOPTERA ACULEATA.

*Hedychridium ardens* (Latr. in Coq.), ♀; *Chrysis ignita* (L.), common; *C. viridula* L.; *Sapyga 5-punctata* (Fab.), 3 ♀♀; *Myrmosa melanocephala* (Fab.), ♂; *Tetramorium caespitum* (L.), nesting in gravelly paths; *Formica fusca* L., var. *rubescens* For., under stones; *Cryptocheilus affinis* (V. d. L.), very common; *Priocnemis pusillus* Schiod., common; *P. exaltatus* (Fab.), one very large ♀; *Pompilus cinctellus* Spin., not uncommon along a stone wall but almost impossible to catch, 3 ♀♀; *P. trivialis* Dahl, common; *P. crassicornis* Shuck., 2 ♀♀; *Anoplius nigerrimus* (Scop.), very local; *Aporus unicolor* Spin., ♂, ♀; *Odynerus spinipes* (L.), ♀; *Ancistrocerus parietum* (L.), common; *A. pictus* (Curt.), ♀; *A. trifasciatus* Oliv., fairly common; *Vespula rufa* (L.); *V. vulgaris* (L.); *V. germanica* (Fab.); *Tachysphex pompiliformis* (Panz.), local; *Trypoxylon attenuatum* Sm., common; *T. clavicerum* Lep.; *Ammophila sabulosa* (L.), very common; *Podalonia viatica* (L.), ♀♀, rare on ragwort; *Crabro cribrarius* (L.); *Coelocrabro leucostomoides* Richards, 3 ♀♀; *C. cetratus* (Shuck.), ♀; *Crossocerus elongatulus* (V. d. L.), common; *C. varus* Lep. and Brul., 2 ♀♀; *Blepharipus dimidiatus* (Fab.), ♀; *Clytochrysus cavifrons* (Thom.), 3 ♀♀; *Solenius continuus* (Fab.); *Meta-*

*erabro quadricinctus* (Fab.), ♀; *Hoplisis bicinctus* (Rossi), ♂, ♀; *Nysson dimidiatus* Jur., 4 ♀♀; *Harpactus tumidus* (Panz.), 2 ♂♂; *Cerceris cunicularia* (Schr.), 2 ♂♂, 2 ♀♀; *C. arenaria* (L.), not common; *Colletes similis* Sch., very common on yellow daisies; *Prosopis hyalinata* (Sm.), common; *P. brevicornis* (Nyl.), ♂; *P. communis* (Nyl.), common; *Halictus villosulus* (Kirby), common; *H. leucozonius* (Schr.), common; *H. calceatus* (Scop.), common; *H. rubicundus* (Christ), uncommon; *H. punctatissimus* (Sch.), common; *H. perkinsi* Bluth., ♀; *H. tumulorum* (L.), common; *H. morio* (Fab.), common; *H. leucopus* (Kirby), ♀; *H. smeathmanellus* (Kirby), common; *Sphecodes fasciatus* (v. Hag.), common; *Andrena flavipes* Panz., very common, a huge colony nesting in the face of a cliff; *A. bicolor* (Fab.); *A. thoracica* (Fab.), freshly emerged ♂♂ only; *A. rosae* Panz., ♂♂, ♀♀, scarce; *A. nigriceps* (Kirby), 2 ♀♀; *A. ovatula* (Kirby), very common, the males were on the wing some days before the females were observed; *A. fulvago* (Christ), ♀♀ seen at one locality for only one day, after which they disappeared; *A. minutula* (Kirby), common; *Panurgus banksianus* (Kirby), common and nesting along a gravelly path; *Anthophora furcata* (Panz.); *A. bimaculata* (Panz.), common; *A. quadrimaculata* (Panz.), ♂, ♀; *Epeolus variegatus* (L.), common; *Nomada marshamella* (Kirby), ♂; *N. rufipes* Fab., common; *N. hillana* (Kirby), a very worn ♀; *N. flavoguttata* (Kirby), ♀; *Megachile centuncularis* (L.), common; *M. circumcincta* (Kirby), ♀; *Coelioxys inermis* (Kirby), 5 ♀♀; *Anthidium manicatum* (L.), common; *Stelis phaeoptera* (Kirby), ♂, on blackberry flowers; *Osmia leaiana* (Kirby), ♀♀, common; *Psithyrus rupestris* (Fab.), ♀.

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### BRITISH BUTTERFLIES IN 1938.

By H. J. BURKILL, M.A., F.R.G.S.

For information and records I have to thank many correspondents, including Miss E. M. Gibson, Mrs Gunyon, Miss C. E. Longfield, Miss E. M. Miller, Miss E. A. Wattson, and Messrs O. A. Alexander, Dr K. G. Blair, W. Carter, F. Clegg, Dr E. A. Cockayne, W. Craigs, R. Cyriax, J. E. S. Dallas, Dr W. J. Fordham, Dr F. C. Garrett, W. E. Gaze, C. J. Gent, K. M. Guichard, G. H. Heath, G. Jefferson, K. P. Keywood, D. Leatherdale, J. E. Newens, J. E. Newton, C. Nicholson, L. Parmenter, R. W. Robbins, J. P. Robson, Brig.-General B. Tulloch, D. G. Underhill, E. H. Wattson, J. C. Eales White, and Dr P. H. Willcox. These have made the compilation of the following notes possible, for without their aid nothing could have been done.

Several of my usual correspondents declare that the season has been so unproductive that they have no records worth submitting.

A year ago I commented unfavourably on the weather of 1937 as being inimical to our native species of butterflies, but the conditions then dealt with seem to have been easily surpassed by those of 1938. We experienced most unseasonable weather with a very dry February,



a warm March, a dry April, a series of frosts in May, followed by a cold June and a wet July, while cold nights continued through August. The result was a considerable diminution in most orders of insects. My experience was that only Aphids and Sawfly larvae were in normal numbers. Parasites were not apparently responsible for the scarcity if my finding in September of a large colony of *Aglais urticae* larvae in different stages of growth is any evidence. I bred up 160 of them and had only one case of parasitism. Similarly the larvae of *Gonepteryx rhamni* were less attacked than in recent years. I did see various species of Ichneumon-flies but never in large numbers.

With the warm days early in the year several species of butterflies were seen in advance of their customary dates. Some of these were:—

- 5th Feb. *Gonepteryx rhamni* at Fetcham, Surrey (H.J.B.).
- 5th Mar. *Aglais urticae* at Tresillian, Cornwall (C.N.), and at Fetcham (H.J.B.).
- 6th Mar. *Nymphalis io* at Limpsfield, Surrey (R.W.R.).
- 7th Mar. *Polygonia c-album* at Taplow (P.H.W.).
- 18th Mar. *Argynnis euphrosyne* near Bodmin (C.N.).
- 31st Mar. *Euchlœe cardamines* at Limpsfield (R.W.R.).
- 3rd Apr. *Vanessa cardui* at Limpsfield (R.W.R.).
- Pararge aegeria* at Limpsfield (R.W.R.).
- 10th Apr. *Vanessa atalanta* at Claygate (K.P.K.).
- 30th Apr. *Lycaena phlaeas* at Church Stretton (H.J.B.).

while the warm days in September October, and November were responsible for late appearances, such as:—

- 26th Sept. *Vanessa cardui* at Tresillian (C.N.).
- 9th Oct. *Aglais urticae* at Warlingham, Surrey (D.G.U.).
- 10th Oct. *Polygonia c-album* at Taplow (P.H.W.).
- 11th Oct. *Pieris rapae* at Limpsfield (R.W.R.).
- 15th Oct. *Lycaena phlaeas* at Fetcham (H.J.B.).
- Nymphalis io* at Tresillian (C.N.).
- 23rd Oct. *Vanessa atalanta* at Fetcham (H.J.B.).
- 5th Nov. *Gonepteryx rhamni* at Fetcham (H.J.B.).

Possibly some of these dates may be of interest to those observers who argue the relative aspects of hibernation or migration of some of the species. I understand that the weather on the Continent was cold when we were having a warm early spell, so that it was hardly likely that these early insects could have come across from France as the temperature there would be too cold for them to wake up.

Little direct evidence of migration has come to hand, except for *Colias*, but while the numbers of some species appear to have suffered severely from the unfavourable conditions it does not seem that the diffusion, so noticeable the last eight or ten years, of species such as *Polygonia c-album* and *Limenitis camilla* has been checked, since the records show a further spread of these two insects to fresh localities.

It is to be hoped that their numbers will once more increase in the haunts they colonised so successfully a few years ago. Dr Willcox's observations at Taplow point to local movements of *P. c-album* during the year.

The order and scientific names below are from the Royal Entomological Society's list published in 1934, while the English names are taken from Mr Frohawk's *British Butterflies* (1934).

*Danais plexippus* L. (Milkweed). Mr Nicholson reported one as recorded from the Scilly Isles.

*Pararge aegeria* L. (Speckled Wood): Fairly plentiful to common in the South but no records received from the Midlands or North this year. *P. megera* L. (Wall): Generally common, and one was recorded from near Castle Eden, the first seen there for many years (F.C.G.). I noticed a tendency both in Surrey and Shropshire to colouration darker than normal. *Erebia epiphron* Knoch. (Small Mountain Ringlet): A few worn ones near Struan (E.A.C.). *E. aethiops* Esp. (Scotch Argus): Not reported (F.C.G.). *Satyrus galathea* L. (Marbled White): Abundant in a few localities, but absent in others where it should have been seen. *Eumenis semele* L. (Grayling): Much fewer than usual but abundant in restricted areas. *Maniola tithonus* L. (Hedge Brown): Plentiful in several places. *M. jurtina* L. (Meadow Brown): Generally to be seen but not up to the average as a rule, though locally abundant. *Coenonympha pamphilus* L. (Small Heath): Very erratic, and "not seen at all" (B.T., and C.N.). *C. tullia* Muller (Large Heath): Much as usual on the mosses, Northumberland (F.C.G.), a few near Witherslack and (var. *scotica*) in Skye (E.M.G.), and near Struan (E.A.C.). *Aphantopus hyperanthus* L. (Ringlet): Not up to average numbers except in a few places.

*Argynnis selene* Schiff. (Small Pearl Bordered Fritillary): Much as usual in different localities. *A. euphrosyne* L. (Pearl Bordered F.): Not much seen. *A. aglais* L. (Dark Green F.): Hardly seen at all. I met with it in Shropshire but only sparingly. *A. cydippe* L. (High Brown F.): Similarly absent. *A. puphia* L. (Silver Washed F.): Fairly plentiful in one locality, Sussex (O.A.A.), and a few in some other localities. *Euphydryas aurinea* Rott. (Marsh F.): Not reported. *Melitaea cinxia* L. (Glanville F.): Plentiful in one spot in the Isle of Wight (K.G.B.) *M. athalia* Rott. (Heath F.): Seemed scarcer than in previous years (O.A.A.).

*Vanessa atalanta* L. (Red Admiral): Reports show considerable divergence of opinion, but the species was noticeable in the autumn in many places. *V. cardui* L. (Painted Lady): Not uncommon, S. Devon (K.G.B.). Rather more plentiful than usual (E.M.M.). Other recorders only met with it sparingly or missed it altogether. *Aglais urticae* L. (Small Tortoiseshell): Not generally abundant, but possibly more about than in recent years. *Nymphalis polychloros* L. (Large Tortoiseshell): Only one reported (E.M.M.). *N. io* L. (Peacock): Occasionally. Possibly better than in 1937. *N. antiopa* L. (Camberwell Beauty): One taken near Darlington (F.C.G.). *Polygonia c-album* L. (Comma): Fewer than



last year but still seems to be extending its range. *Apatura iris* L. (Purple Emperor): One larva found and reared. (E.M.G.) *Limenitis camilla* L. (White Admiral): Very few records, but reported as quite abundant in one wood in Herts (K.M.G.).

*Hamearis lucina* L. (Duke of Burgundy): On the North Downs (K.G.B.)

*Cupido minimus* Fuessl. (Small Blue): North Downs, one area. No other records. *Plebejus argus* L. (Silver-studded Blue): Very abundant in some places, but only a few correspondents mention it. *Aricia agestis* Schiff. (Brown Argus): Fairly common in one part of Durham (F.C.G.). No reports from near London. *Polyommatus icarus* Rott. (Common Blue): Locally very variable, and probably below normal on balance. *Lysandra coridon* Poda. (Chalk Hill Blue): Scarcer than usual. *L. bellargus* Rott. (Adonis Blue): Similar to the last named. *Maculinea arion* L. (Large Blue): Seen in the Cotswolds (E.M.G.). *Lycaenopsis argiolus* L. (Holly Blue): Very scarce in the London district. Reported from Cornwall (C.N., and K.M.G.), but not seen in Monmouthshire (B.T.) or Essex (W.E.G. and E.M.M.). In Surrey I only saw it on the North Downs. *Lycaena phlaeas* L. (Small Copper): Generally much fewer than normal. Fairly plentiful at Danebury (E.M.M.), and many at Church Stretton, 30th April (H.J.B.). One flew into a London bound train at Peckham Rye, 2nd September. It was boxed and in the afternoon released in the country (H.J.B.). *L. dispar* Haw. (Large Copper): No records. *Callophrys rubi* L. (Green Hairstreak): Very few records, but said to be spreading in Weardale (F.C.G.). *Thecla betulae* L. (Brown Hairstreak): Not seen. *T. quercus* L. (Purple Hairstreak): Only reported from Sussex (O.A.A.) and near Peterborough (P.H.W.). *Strymon w-album* Knoch. (White Letter Hairstreak): Very scarce this year. Miss Miller reports that the dark form is still conspicuous in the colony she is watching. I found one specimen at Church Stretton in which the marking of the white letter was abnormal. *S. pruni* L. (Black Hairstreak): Not reported.

*Leptidea sinapis* L. (Wood White): Very scarce or absent, except in Sussex where many were seen in good condition (E.A.C.) *Aporia crataegi* L. (Black-veined White): No records. *Pieris brassicae* L. (Large White): Generally much less than usual, but abundant in a few places. *P. rapae* L. (Small White): Numerous in places, but not generally a nuisance. On the whole probably well below normal. *P. napi* L. (Green-veined White): Below average. *Euchlōe cardamines* L. (Orange Tip): Normal to reduced numbers. *Colias hyale* L. (Pale Clouded Yellow): One near Brockenhurst (G.H.H.). *C. croceus* Fourc. (Clouded Yellow): Reported as being in fair numbers in Kent, Sussex, and Hants by various observers, with odd specimens in Surrey, Middlesex, and Cornwall. Eleven seen in Essex (E.M.M.). *Gonepteryx rhamni* L. (Brimstone): More numerous in the spring than in summer, but odd specimens of the new brood were about until a late date.

*Papilio machaon* L. (Swallow-tail): A few seen at Wicken Fen (K.G.B.).

*Erynnis tages* L. (Dingy Skipper): Seen in Mid-Durham (F.C.G.). In about usual numbers in places in the South. *Syrictus malvae* L. (Grizzled Skipper): About normal. *Carterocephalus palaemon* Pall. (Chequered Skipper): No record. *Adopoea sylvestris* Poda. (Small Skipper): A few in places. Very plentiful in one locality in Surrey (O.A.A.). *A. lineola* Ochs. (Essex Skipper): A few reported (K.G.B.). *A. acteon* Rott. (Lulworth Skipper): No records. *Hesperia comma* L. (Silver-spotted Skipper): Very plentiful in one locality in Surrey (O.A.A.). *Ochlodes venata* Bremer and Grey (Large Skipper): As a rule in fair abundance where reported but not always.

## COLEOPTERA NEAR LONDON.

By F. D. BUCK.

Beetle hunting in grass tufts during the winter months is a cold occupation, but if the right place is discovered it can be most profitable. The majority of beetles taken are Staphylinidae and Carabidae, and I have found that large isolated tufts in damp situations often give good results.

With a large chisel used dagger-fashion the tuft is cut off flush with the ground or a little below ground level, so as to include only the upper part of the root mass. The root end of the tuft is then beaten and shaken over a white sheet of waterproof material, and later pulled to pieces and shaken again. The smaller specimens are best caught with a sucking-tube, but it is necessary to make sure that the two cork ends of the "sucker" are smooth, since small beetles are apt to seek shelter in any crevices. I always bring home my captures alive and then kill them with a few drops of acetic ether.

A friend and myself worked four localities close to London in the manner just described and some of the results seem worth recording, particularly as so few coleopterists venture forth during the cold months. It may be added that Coreid bugs are sometimes found, also many ichneumons, lepidopterous larvae and pupae, and various other creatures. Not all the specimens taken in these four localities have yet been identified.

BOX HILL, 11/12/38; the best place proved to be a patch of thick isolated grass high up on the Downs. The species included:—*Mycetoporus splendidulus* Gr., *Astenus angustatus* Pk., *A. immaculatus* Steph., *Philonthus ebininus* Gr., *Staphylinus winkleri* Bern., *Stenus brunnipes* Steph., *Bembidion lampros* Hb., *Metabletus foveatus* Geof., *Harpalus latus* L., *Bradycellus harpalinus* Ser., *Calathus fuscipes* Goez. (about a hundred specimens hibernating), *Hermacophaga mercurialis* F., *Miccotrogus picirostris* F., *Sitona tibialis* Hbst., *Medon melanocephalus* F., *Liodes badia* Stm. (in a dead pine stump), and *Zicrona caerulea* L. (Hemiptera).

RUISLIP RESERVOIR, 1/1/39; tufts close to the water's edge. This wet place provided many more species than the dry locality at Box Hill.



Ice and snow were still on the ground, but contrary to our expectations beetles were still very numerous close to the ground surface. Species included:—*Mycetoporus splendidulus* Gr., *Astenus immaculatus* Steph., *Ocalea picata* Steph., *Hygronoma dimidiata* Gr., *Gabrius nigritulus* Gr., *Stenus latifrons* Er., *S. juno* F., *S. fulvicornis* Steph., *S. ossium* Steph., *Bradycellus sharpi* Jy., *Agonum gracilis* Gyll., *Clivina fossor* L., *Bembidion mannerheimi* Sahlb., *B. clarki* Daws. (three specimens), *Anisodactylus nemorivagus* Duft. (one specimen), *Psylliodes picina* Marsh, *Psammoecus bipunctatus* F., *Notaris scirpi* F., *N. acridulus* L., *Phytonomus nigrirostris* F., *Sitona cambricus* Steph., *Bryaxis longicornis* Leach. Another record of interest from this locality is the taking of *Bagous limosus* Gyll. and *B. cylindrus* Pk. under cut reeds, 24/4/37 (K.M.G.).

OXSHOTT, 8/1/39; thick grass tufts in wet situations. Species included:—*Agonum gracilis* Gyll., *Leistus ferrugineus* L., *Dyschirius globosus* Hbst., *Bembidion mannerheimi* Sahlb., *Lathrobium terminatum* Gr., *L. geminum* Kr., *Tachyporus macropterus* Steph., *Gymnusa brevicollis* Pk., *Oxypoda lividipennis* Man., *Bythinus bulbifer* Reich., *Reichenbachia impressa* Pz., *Pselaphus heisei* Hbst., *Cephenium thoracicum* Mull., *Euconnus hirticollis* Ill.; the following four species were taken from a semi-submerged log: *Bryocharis cingulata* Man., *Scaphidium quadrimaculatum* Ol., *Cercyon tristis* Ill., and *C. intermixtus* Sharp.

ALDENHAM RESERVOIR, 15/1/39; dead reeds and debris round base of decayed willow:—*Bembidion clarki* Daws. (this species of *Bembidion* was the predominant one; out of thirty-eight specimens taken, thirty-four proved to be *B. clarki*), *B. doris* Gyll., *B. guttula* F., *Demetrius atricapillus* L., *Agonum obscurum* Hb., *Badister bipustulatus* F., *Carabus granulatus* L., *Stenus bipunctatus* Er., *S. incrassatus* Er., *S. cicindeloides* Gr., *S. juno* F., *Hygronoma dimidiata* Gr., *Dinaraea aequata* Er., *Corticaria impressa* Ol., *Galerucella fergussoni* Fowl., *Apion curtirostre* Germ., *Barypithes araneiformis* Schr., *Rhinoncus perpendicularis* Reich., *R. inconspicuous* Hbst., and *Bryaxis longicornis* Leach (this species was very common, the colour of the elytra ranging from bright red to jet black).

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## THE INVERTEBRATE FAUNA OF HYDE PARK AND KENSINGTON GARDENS.

### INSECTS.

By C. L. COLLENETTE.

As every visit to the area in suitable weather yields fresh notes and species for the enquiry, some years must elapse before results are sufficiently advanced for detailed publication.

Ten species of butterflies have so far been recorded, nearly all of which are visitors from outside the area. A Brimstone, *Gonepteryx rhamni* L. was taken on 15th October, 1936 (E. W. Classey); the Red

Admiral, *Vanessa atalanta* L., and Small Tortoiseshell, *Aglais urticae* L., were commonly seen in the Flower Walk in the autumn of 1937 and 1938; more than one Painted Lady, *Vanessa cardui* L., appeared on 24th and 25th August, 1938; a single Peacock, *Nymphalis io* L., on 25th August, 1938 (D. S. Fletcher); a Comma, *Polygonia c-album* L., on 23rd September, 1938 (C. L. Collenette); and a Clouded Yellow, *Colias croceus* Fourcroy, on 1st August, 1938 (Russell James, *Entom.*, 1938: 236).

Of the moths, 46 species have been listed, the majority of which were probably bred locally. Among the Hawk moths, *Mimas tiliae* L., *Amorpha populi* L., and *S. ocellata* L. have been found both in the larval and adult stages. The Lymantriid *Stilpnotia salicis* L. has been recorded so frequently, including examples in the year 1938, that it is probably native to the area. The two Clearwings *Sesia vespiformis* L. and *S. myopaeformis* Borkh. were found in the pupal stage by Dr E. A. Cockayne some years ago, and for the former Hyde Park is a well-known locality.

COLEOPTERA are difficult to find in any variety, partly owing to the continued cutting and burning of dead timber and the sweeping up of dead leaves. *Coccinella bipunctata* L. and its forms were exceedingly numerous in the autumn of 1937, but less common in 1938. Four species of *Anaspis* are found very frequently in flowers in the spring, and the most prevalent dung beetle is *Aphodius contaminatus* Hubst.

DIPTERA are the most numerous order, both in numbers and in species. Three species of mosquitoes have been recorded by Dr F. W. Edwards (*Entom.*, 1928: 213) from rot holes in trees. A ♂ *Syrphus guttatus* Fln., of which the British Museum (Natural History) possesses only one specimen, was taken on 17th August, 1938, and an example of *Gnophomyia lugubris* Zett. on 11th June, 1938. *Chironomus supplicans* Meig. was common in the summer of that year (C.L.C.).

The HEMIPTERA are very commonly found in the area as individuals, especially as the result of beating from the branches of trees, but only twelve species have so far been collected. Further work will certainly increase this total considerably.

HYMENOPTERA are well represented, but the determination of some of the smaller species is difficult. Larvae of the sawfly *Nematus salicis* L. were abundant in 1938 (R. B. Benson).

No ODONATA, and only four species of NEUROPTERA and five of TRICHOPTERA have been found, but two or three of the latter are said to be not without interest when the unsuitable nature of the habitat is considered.

The Earwig *Forficula auricularia* L. is very numerous under loose bark, and probably acts as a check on other species which favour this type of retreat.

The writer of these notes will be glad to hear from anyone who can assist in the enquiry, and specimens with data, which need not be named, will be welcomed.



## THE HOUSE SPIDER.

*Tegenaria atrica* Koch.

By C. H. R. THOMAS.

For nearly a year I have kept a female of the common house spider in captivity. She lives in a wooden, glass-roofed cage, 16 in. × 10 in. × 5 in., with two net-covered holes at each end for ventilation, and another covered hole through which she is fed. Inside this cage is a small box the size of a match-box, pressed tight against the glass, the top of the box being partly cut away and one end open. To make this retreat sufficiently dark and secluded for the spider I have fixed a flap outside the cage and above her den, and when I want to see what she is doing I lift the flap and look through the glass above the cut-away top of the small box.

This house spider and most of my other sedentary web-building spiders have taken well to a caged life, but the hunting species never seem quite at home in captivity. The *Tegenaria*, with her vigorous movements, is an interesting creature to watch, although she possesses the poor eyesight of her tribe. These web-builders seem to depend for food almost entirely on their very delicate sense of touch and the threads of the web act as an artificial extension of the nervous system. Hunting becomes almost a game of blind-man's-bluff. A slight movement by some fly or other small creature in the web brings the alert spider from her den; she pauses expectantly, and when a second vibration is felt rushes to the spot and buries her jaws in the prey. Sometimes, however, if the prey keeps still the spider is at a loss to find it. I have seen my *Tegenaria* dash past a stationary fly which a few moments before had been buzzing and struggling, but which had remained perfectly still on realising its danger.

Often the spider darts out of the den directly I insert the feeding tube into her cage. She grasps the glass and I can feel the grating of her sharp chelicerae upon it. This procedure is not due to her knowledge that food is coming, or to a resentment at the intrusion; her behaviour seems to be governed by instinctive reaction coupled with poor eyesight.

Over a long period this spider has built a formidable web, but these sheet webs are never really completed. Unlike the orb webs, they are of no particular design, but form a mass of threads spreading fanwise from the den. They are continually being increased and repaired because of the damage caused by the struggles of their victims.

I do not think that the silk used to make sheet webs is nearly so adhesive as that favoured by the orb weavers. *Tegenaria* does not wrap its prey in silk and leave it on the web, but carries the struggling prisoner straight back to the den. Spinning is done nearly always at night, as the spider does not care to expose herself during the daytime.

In her den, at intervals of about a month, my female house spider has produced several egg cocoons, each containing about a hundred pearly-white eggs. The outside of the cocoon is covered with loose fluffy silk, and underneath is a tough envelope enclosing the eggs. If uncon-

sumed bits of fly and other debris are available she uses this material to decorate her cocoon. The resulting spotty effect is very conspicuous by daylight, but I think that in a dim light such an object would be difficult to distinguish.

Spiders are great drinkers, and the quantity of liquid required seems to depend on the amount of food available. If insects are plentiful, organic juices are sufficient to allay thirst, but failing this source of nourishment spiders require water. In the natural state this is provided by rain drops and dew. I give water to my spiders with a fountain-pen filler and they greatly appreciate the attention, applying their mouths to the drops and drinking for considerable periods.

Finally, the female spider is by far the most interesting sex to keep alive. To an observer, the skulking and untidy male does not compare favourably with his active and industrious mate.

### PARASITES OF SPIDERS.

By G. H. LOCKET.

The following records of flies of the family Cyrtidae parasitizing spiders have been collected during the last three years. All the spiders except No. 3 (from Bledlow Bridge) were captured on Ruislip Common, Middx.; spiders No. 1, 2, 5, and 6 have been examined by Dr A. R. Jackson. The flies have been identified by Dr F. W. Edwards of the British Museum (Natural History).

Parasite.	Host.	
1. <i>Oncodes gibbosus</i> L.	Fam. Lycosidae, possibly a <i>Trochosa</i> .	Larva found, having emerged from host 30/6/36. Fly emerged 8/7/36.
2. <i>Oncodes pallipes</i> Latr.	Fam. Lycosidae.	Pupa found 30/6/36. Fly emerged 2/7/36.
3. <i>Oncodes pallipes</i> Latr.	Almost certainly <i>Lycosa pullata</i> Cl. ♀. Another spider of the same species was caught at the same time.	Larva pupated 25/6/38. Fly emerged 3/7/38.
4. <i>Acrocera globulus</i> Panz.	?	Larva emerged 9/6/36. Pupated 15/6/36. Fly emerged 21/6/36.
5. <i>Acrocera globulus</i> Panz.	<i>Lycosa</i> sp. ♀, ?	Larva emerged 20/6/36. (Spider has spun silk cocoon as though for eggs.) Pupated 23/6/36. Fly emerged 29/6/36.
6. <i>Acrocera globulus</i> Panz.	Fam. Drassidae. (Immature.)	Spider taken 27/10/36. Larva emerged 6/6/37. Pupated 10/6/37. Emerged 16/6/37.



7. *Acrocera globulus* Panz. *Lycosa* sp. ♂, mature, but palpal organ appeared malformed from parasitization.

The larva of the last species listed emerged 10/6/38. It kept moving, continually stretching its head out and around. The movement seemed to have no object unless for aeration. Fat globules were apparent under the skin of the hinder part. The host was apparently healthy until the appearance of the larva, which emerged through a hole made in the dorsal side of the abdomen. The cephalothorax of the spider appeared to be empty too. 13/6/38: The outlines of the segments of the larva had practically disappeared. 15/6/38: Larval skin cast off, then pupated. The fat globules had "sintered" together somewhat. Pupa darkened during the day and fat globules disappeared. Fly emerged 22/6/38.

The larva of another species was seen emerging from the dorsal side of the abdomen of a spider, the head coming out last. This larva pupated two days later, but died.

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IT is with real regret that the resignation has been received of Adam Charles Smith, one of the tiny band of schoolboy promoters of the North London N.H. Society, against whose name the almost pre-historic date of 1892 appears in our membership list.

"Charlie" Smith was a butterfly-hunter like the rest of them, and even within the last few years has foregathered with three others of the clan to pursue the old sport in Continental by-ways.

But his sight is no longer good, and with advancing years he has now laid down his net. May we wish him happy memories!

R. W. R.

# The Survey of Limpsfield Common.

## SECOND YEAR.

The investigation of the Flora and Fauna of Limpsfield Common conducted by the Ecological Section has been energetically continued during the past year, and the material in the following articles indicates progress made in the various sections of the work. It is recognised by the authors of these lists that they cannot be considered exhaustive as regards either recorded species or their distribution, nevertheless they do give an excellent picture of the species occurring on the Common, and their publication affords an opportunity for all members to co-operate in adding additional species and filling in the gaps in the distribution of those already recorded. The Secretary will be pleased to hear from any member willing to undertake the study of groups not yet worked out on the Common.

The work of listing the species present is regarded only as a preliminary step in the Survey of Limpsfield Common, and it will be seen that investigations of a more definite ecological nature have already been taken up. It is anticipated that during the coming year it will be possible to spend less time on ascertaining the species present, and more time on studying their ecology. It is hoped that as many members as possible will join in this interesting work, which offers such unique advantages to beginners and experts alike.

J. E. LOUSLEY.

## THE PRESERVATION OF LIMPSFIELD COMMON.

By W. G. SHELDON, F.Z.S., F.R.E.S.

(Formerly Hon. Secretary of the Limpsfield Common Committee of the Local Residents.)

Until some forty or fifty years ago, commons generally throughout England were kept pretty much in the state in which they had been for several centuries, through those individuals possessing common rights exercising them, by grazing horses, donkeys, cattle, goats, and other animals, and by using bracken for litter, gorse for fuel, and bush and forest growth for various purposes. These customs having of late largely fallen into disuse, certain growths, such as bracken, bush and forest trees have greatly spread at the expense of those less dominant, including heather and other low-growing herbaceous plants, gradually strangling and even exterminating them over wide areas.

The advent of the motor car has brought a new peril to the amenities of the commons, especially those in the neighbourhood of large towns, in the arrival of hundreds of cars laden with people who picnic on those commons, leaving, unfortunately, large quantities of litter behind them.

Some of the neighbouring residents, too, have found the local common a convenient place on which to deposit any rubbish they may have to



dispose of, such as cans, bedsteads, derelict bicycles, and large quantities of other household rubbish.

Limpsfield Common, until recently, was no exception to the general rule in these respects. In 1935, however, the attention of the Lord of the Manor was called to its condition, and a committee was formed by him to take over the management and to put an end to the abuses to which it had been subjected. To enable this committee to act it was found necessary to raise annually a sum of about £200, which has been subscribed by local residents.

Comparatively little could be done during the year 1935, but in the spring of the following year, it being apparent that so far as finance was concerned the necessary support would be forthcoming, a common ranger was engaged, and other steps necessary to preserve the amenities were put in hand. To deal with litter a number of boxes of the pattern used by the National Trust on their properties were purchased and fixed in suitable positions. Probably some fifty per cent of the litter has been deposited in these receptacles, which are cleaned at frequent intervals and the contents burned, together with the litter that does not find its way into them, which is collected by the ranger. The large items of rubbish have been collected and sent away to the Rural District Council dump; several large shoots of objectionable rubbish have been covered over with soil, and the depositing of rubbish has been stopped.

Overgrown footpaths have been opened up, and in some cases surfaced with dry material. The large gorse brakes have been divided into small areas by having rides cut through them as a precaution against extensive fires. To keep gorse in a healthy condition it is necessary to cut it down at the end of about seven years, otherwise it grows leggy and unsightly, and becomes very inflammable. The old gorse bushes have been cut down over large areas, part of these have revegetated from the cut stumps, and great quantities of seedlings are springing up to take the place of the old plants.

Bracken over an area of about 80 acres has been scythed, or the stems have been broken by a machine (Holt's Bracken Breaker) in June and again in August each year. This has greatly weakened it, the result being that heather and other plants it is desirable to encourage have greatly increased, especially on that portion of the common known as West Heath, which has undergone treatment for three years. If the treatment producing this result is continued for another year or two there is every reason to believe this area will have returned to its condition when the commoners exercise their rights.

Much of the heather existing was very old and it was considered advisable to burn it to encourage young growth, partly from revegetation from the roots, and partly from seed. In some areas the old plants have revegetated well, and in all great quantities of young seedlings have appeared, partly self sown, and partly from seed collected and sown by the ranger. There were a number of large beds of nettles in different parts of the common, but these have been already almost exterminated by the use of sodium chlorate.

The extermination of bracken and the encouraging the growth of desirable low growing plants means that large areas, formerly inaccessible to children and the general public, are now available to them for air and exercise.

There are still considerable portions of the common which are covered with brambles, worn-out gorse, and forest trees, the undesirable growth strangling the desirable. These should be gradually improved by clearing away the brambles, old gorse, and any trees that interfere with the growth of their neighbours. When this is done a better type of growth will spring up in the place of that cleared away.

There is a considerable amount of birch in different parts. Birch is of course a very picturesque tree, and should be encouraged in moderation, but the winged seeds cause seedlings to spring up when they are not wanted. These must be grubbed up as they appear. Care is being taken to study the requirements of the birds and sanctuaries are carefully reserved for them to breed and shelter in.

In order to put a stop to the abuses the common has been subject to, it has been necessary to obtain further regulations, which the Ministry of Agriculture and Fisheries has granted, and which are now in force.

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## A VEGETATION MAP OF LIMPSFIELD COMMON AND SOME PRELIMINARY ECOLOGICAL NOTES.

By C. P. CASTELL.

The accompanying vegetation map of Limpsfield Common has been prepared at the request of members of the Ecological Section. It is based upon a coloured map prepared hurriedly, but in some detail, for the Society's Annual Exhibition held in April 1938. This map has been checked in the field and errors rectified, but, in order to render it less confusing to non-botanists, the customary ecological symbols have not been employed and many topographical details are omitted. For the latter, the reader is referred to the description of the Common with the delimitations of the lettered subdivisions, or sections, by L. Parmenter and C. H. R. Thomas in *The London Naturalist* for 1936 (1937), pp. 46-48 and map. A brief account of the vegetation of each section was given by R. W. Robbins in *The London Naturalist* for 1937 (1938), pp. 50-51.

It must be borne in mind that these sections bear little relation to the vegetation and that their function is primarily a convenience to assist workers in stating the position on the Common of any particular habitat.

The vegetation has been split up, as far as possible, into units, each with a more or less uniform composition.

The complexity, however, of the vegetation, the small scale of the map, and a demand by members for simplicity rendered impracticable the satisfactory use of the usual ecological symbols. Each unit is mapped, therefore, with its dominant species expressed, by symbols, in the order of their relative abundance or dominance. An area



dominated by Bracken (*Pteris*), with abundant Heather (*Calluna*) and much Gorse (*Ulex europaeus*) is, for example, indicated by the symbols Pt.C.U. The composition of the grassland areas has not been investigated sufficiently to permit of any subdivision and the various types are mapped under the general heading "Grassland" (G.). Some parts of the wooded areas comprise such a complex mixture of species that no dominants can be recognised and these areas are mapped as "Mixed Open Woodland" (M.O.W.).

The map conveys, it is hoped, some idea of the complexity of the vegetation and it will be seen how few of the units are comparatively pure communities.

I have adopted the specific nomenclature used in the following catalogues:—Flowering Plants—*The London Catalogue of British Plants*, 11th Edition, 1925. Mosses and Liverworts—*The British Bryological Society's Census Catalogues of British Mosses* (2nd Ed., 1926) and *British Hepatics* (3rd Ed., 1930).

I am much indebted to Mr J. E. Lousley for his constant advice and help; he is jointly responsible for the mapping in the field of about two-thirds of the Common. I must also express my thanks to Dr W. B. Turrill, F.L.S., and Mr R. W. Robbins for their helpful suggestions during the preparation of these notes, and to Messrs J. H. G. Peterken, L. Parmenter, F.R.E.S., G. H. Spinney, B.A., and Miss P. E. F. Hare, B.Sc., for help in the field.

#### VEGETATION UNITS RECOGNISED IN THE MAP.

HEATHLAND.—Heath (*Calluna vulgaris*)—C.; Bracken (*Pteris aquilina*)—Pt.

GRASSLAND.—G.

SCRUB.—Gorse (*Ulex europaeus*)—U.; Bramble (*Rubus fruticosus* L. agg.)—R.; Blackthorn (*Prunus spinosa*)—P.s.; Hawthorn (*Crataegus monogyna*)—Cr.

WOODLAND.—Dry Oakwood (*Quercus Robur*)—Q.; Oak-Birchwood—Q.B. or B.Q.; Birchwood (*Betula* spp.)—B.; Pinewood (*Pinus sylvestris*)—P.; Mixed Open Woodland—M.O.W.

Habitats considered briefly below but not mapped:—Ponds, Ditches, Walls, Paths, Disturbed Ground, Rubbish Dumps.

The reader is reminded that the whole of the Common lies on various horizons of the Lower Greensand, and the vegetation is therefore that characteristic of acid, sandy soils.

#### HEATHLAND.

HEATH (*Calluna vulgaris*) (C.).—Pure communities of *Calluna* are scarce, but good examples occur in sections Ka, Kb, where a height of two feet or more may be reached, although even in these, *Ulex minor* is frequent. Where the *Calluna* is thick, the community is floristically very poor, other flowering plants being shaded out and their place taken by mosses such as *Hypnum schreberi* and *H. cupressiforme*, *Dicranum scoparium* and *Polytrichum* spp., and occasional lichens, e.g., *Cladonia* sp. Elsewhere, *Calluna* is usually associated with *Ulex minor*,

*Deschampsia flexuosa*, *Potentilla erecta* and *Erica cinerea*, and the mosses, in addition to those mentioned above, *Polytrichum piliferum*, *Campylopus pyriforme*, *Ceratodon purpureus*, *Funaria hygrometrica* and *Dicranella heteromalla*. Small patches of *Vaccinium Myrtillus* occur here and there. Heather seems to have suffered badly from fires and trampling, so that it is often in a weakly condition (C. G.) or (G. C.). Poor and degenerate *Calluna* is a feature of the fairways of the golf course (sections Ra, Rb, S, Ua, Ub). Where trampling is excessive, *Calluna* tends to be exterminated and grass heath often takes its place.

BRACKEN (*Pteris aquilina*) (Pt.).—*Pteris* is now dominant over a large part of the Common. Although almost certainly once a constituent of oak woods on non calcareous soils, it has, as in many other parts of the country, invaded almost every section of the Common in comparatively recent times, spreading by means of its rhizome. Nevertheless, it is difficult to find an absolutely pure *Pteris* community, possibly because it has not yet had time to kill off all its competitors and also because most of the bracken is now being cut and rolled in an attempt to eradicate it. *Pteris* appears to be much more susceptible to treading than is *Calluna*. It will be noticed how the grassland of the golf courses is usually fringed with degenerate *Calluna* in which *Pteris* is absent. Its dislike of deep shade is shown by its absence under the shade of the pines in section X, and sycamores in W, and its poor growth under beeches in T.

#### GRASSLAND. (G.)

Several types of grassland can be distinguished. The commonest type is Grass Heath associated with the golf course. This type is no doubt derived from *Calluna* by trampling and mowing, and is composed mainly of *Agrostis tenuis* and *Festuca ovina* L. agg., with *Galium saxatile* and occasional patches of very short *Calluna*.

In the areas subject to less extreme treading the following appear to be characteristic:—*Agrostis tenuis*, *Festuca ovina* L. agg., *Deschampsia flexuosa*, *Sieglingia decumbens*, *Luzula campestris*, *Galium saxatile*, *Stellaria graminea*, *Hieracium pilosella* and *Rumex acetosella*, with the mosses *Brachythecium albicans*, *B. purum*, *Eurhynchium praelongum* and *Hylacomium squarrosum*.

In places, the following may be observed colonising burnt areas:—*Funaria hygrometrica*, *Ceratodon purpureus*, *Bryum argenteum*, *Polytrichum piliferum*, *Rumex acetosella*, *Ulex europaeus*, *Hieracium pilosella*, *Epilobium angustifolium* and *Carex pilulifera*.

The following occur in damp hollows:—*Ranunculus repens*, *Trifolium repens*, *Lotus uliginosus*, *Rumex crispus*, *Dactylis glomerata*, *Juncus effusus* and in one spot, *Ophioglossum vulgatum*.

At the bottom of the valley between Ka and Kb a few plants associated normally with the vegetation of chalk downs are present, e.g., *Cnicus acaulis* and *Pimpinella Saxifraga*.

A grass verge is usually developed along the roadsides, as in Lb and W; here the heath grasses are replaced by *Dactylis glomerata*, *Holcus lanatus*, *Arrhenatherum elatius*, *Lolium perenne* and *Poa* spp.



## SCRUB.

GORSE (*Ulex europaeus*) (U.).—This is the commonest scrub element invading the heathland areas and is abundant in many parts of the Common, especially in sections D, W, and Y. Where it grows thickly, little else can withstand its evergreen shade. The wooded areas of the Common are usually fringed with *Ulex*, as is well seen at the northern boundary of section C.

BRAMBLE (*Rubus fruticosus* L. agg.) (R.).—The ecology of the species included under this aggregate has yet to be worked out. Some species are common constituents of the woodlands, especially in sections C, T, and X. Elsewhere on the Common other species form small communities, usually on disturbed and open ground. An excellent example of the invasion of a disturbed area by *Rubus* is to be seen in W, where *Ulex* has been cut and burned over a large area, and here *Rubus dumctorum* is spreading rapidly, its long stolons trailing in all directions. *Rubus*, by its sprawling growth and habit of rooting at the tips of the stolons, most effectively disposes of its competitors.

BLACKTHORN (*Prunus spinosa*) (P.s.).—This forms occasional thickets and good examples may be seen by the pool in X, in G, and by Links Cottage.

HAWTHORN (*Crataegus monogyna*) (Cr.).—Thickets occur in Rb and W and open hawthorn scrub occupies the eastern part of section Kb.

## WOODLAND.

DRY OAKWOOD (Q.I.F.).—Section T affords an example of this community, and the following are its more abundant constituents:—Tree layer—*Quercus Robur* (d.), *Fagus sylvatica* (f.), *Betula alba* (occ.-f.); Shrub layer—*Pteris aquilina* (a.-d.), *Ilex Aquifolium* (c.-sd.), *Rubus fruticosus* L. agg. (c.-sd.), *Corylus avellana* (l.a.), *Lonicera Periclymenum* (a.), *Rubus idacus* (c.); Herbaceous layer—*Scilla non-scripta* (l.a.), *Anemone nemorosa* (c.-la.), *Oxalis acetosella* (l.c.), *Hedera Helix* (c.), *Melampyrum pratense* (l.c.), *Nepeta hederacca* (l.c.), *Stachys sylvatica* (l.c.).

Towards the east, Beech becomes dominant (F.I.), and correlated with the increased density of shade, undergrowth is scarce, consisting chiefly of Holly and young Beeches. The ground vegetation becomes very open with *Rubus fruticosus* L. agg. (c.), *Scilla non-scripta* (c.), *Hedera Helix* (c.-d. on ground in shadiest spots), *Pteris aquilina* (f.), and *Lonicera Periclymenum* (occ.).

Beech appears to be spreading, as young trees are plentiful, even in the purer oakwood; on the other hand, there are many young oaks at the western end of the wood. The abundance, in the oakwood, of *Ilex Aquifolium*, and the presence of *Teucrium Scorodonia* (occ.), *Digitalis purpurea* (l.), *Solidago Virgaurea* (l.c.), *Deschampsia flexuosa* (c.) and *Holcus mollis* (l.) are typical of Dry Oakwoods, although *Quercus sessiliflora* appears to be absent. Section Uc consists of oakwood with *Pteris* undergrowth.

In the northern part of W, an interesting example is to be seen of the invasion of an oakwood by sycamore. In some parts, sycamore becomes the dominant tree and the dense shade and thick blanket of dead leaves effectively prevent the development of any but a poor ground flora. Sycamore is abundant near the pool in section X, in Zb, and in the northern part of M.

**OAK-BIRCH WOOD (Q.B.) and (B.Q.).**—This type of woodland is typical of the western end of the Common, e.g., A, C, and E to H.

**BIRCHWOOD (*Betula* spp.) (B.).**—Although birch is abundant and has colonized most parts of the Common, it rarely forms a pure birchwood, the nearest approach being perhaps in sections Q and X.

**PINEWOOD (*Pinus sylvestris*) (P.).**—In section C, considerable invasion by Pine has occurred, but it is nowhere in sufficient abundance to form a pine wood, although, under some of the larger trees, the characteristic barren needle-covered floor can be seen. Perhaps the nearest approach to a pine wood is the open mixture of Pine and Birch in section X (P.B.), the ground layer being dominated by *Rubus fruticosus* L. agg.

**MIXED OPEN WOODLAND (M.O.W.).**—This is a puzzling type which occupies a large part of section X. The woodland is an open mixture of several species, viz., *Quercus Robur*, *Betula* spp., *Fagus sylvatica*, *Acer pseudoplatanus*, *Sorbus aucuparia*, *Ulmus campestris*, *Sambucus nigra*, *Ilex Aquifolium*, of which no particular species can be recognised as dominant, with a shrub layer beneath of *Rubus* and *Pteris*. It may, perhaps, be an early stage in the development of a closed oakwood.

The evidence so far available is insufficient to show conclusively whether the woodlands are, in general, degenerating or regenerating. The Common may have been covered by oakwood centuries ago and possibly *Stachys officinalis*, *Scilla non-scripta*, and *Lonicera Perichlymenum* which are to be found scattered over the open parts of the Common, may be relics of this former woodland flora. The Common appears to have been practically devoid of trees for many years.

A six inch map of 1871 shows pines and no other trees in X, W, and M. A few trees are shown in C, and T is an area of scattered trees and heathland. On the other hand, the woods bordering the common are well shown. Local inhabitants, forty to fifty years ago, used to gather whortleberries (*Vaccinium*) in sufficient numbers to make jam. The presence of *Calluna* near the western edge and of *Vaccinium* in the middle of section T suggests the former presence of heathland there. These facts, supported by the young character of nearly all the woodland and the mixture of species, e.g. (M.O.W.) and sycamore in section W, all favour the suggestion that the common was open heathland which has been invaded in recent times by woodland.

#### OTHER HABITATS.

**PONDS.**—More or less permanent pools occur in sections F, M, P, W, and X, but with the exception of P, all these are shaded by trees and appear to support little vegetation. The pool in P is open and is of much greater interest, and has yielded the following plants:—



Aquatic.—*Ranunculus peltatus*, *Apium inundatum*, *Lemna minor*, *Hypnum aduncum*; Marginal.—*Glyceria fluitans* (a), *Juncus effusus* (a), *J. bufonius*, *J. articulatus*, *Callitriche stagnalis* L. agg., *Mentha aquatica*, *Carex leporina*, *Alopecurus geniculatus*. The presence of *Lemna* suggests the presence of nitrates and pH readings show that the water is more or less neutral.

DITCHES.—These occur in sections E, Rb, S, T, U, V, and W, but they are dry for most of the year and have not yet been investigated.

WALLS.—A few old walls occur at the northern end of the common in sections La, Za, and Zb, and form the principal (and frequently the only) habitat for the following mosses:—*Grimmia pulvinata*, *Tortula muralis*, *Bryum capillare*, *Camptothecium sericeum*, and the liverwort *Madotheca platyphylla*.

SIDES OF PATHS.—In addition to the effects of treading, there is often a marked decrease in acidity at the sides of paths which the following species frequently line:—*Arrhenatherum elatius*, *Poa annua*, *Lolium perenne*, *Cynosurus cristatus*, *Ranunculus repens*, *Trifolium repens*, *Plantago lanceolata*, *P. major*, *Hypochaeris radicata*, and *Bellis perennis*.

DISTURBED GROUND.—On the heathland this habitat soon supports an open population of such plants as *Aira praecox*, *Spergularia rubra*, *Sagina procumbens*, *Alchemilla arvensis*, *Rubus fruticosus* L. agg., *Erica cinerea*, *Calluna vulgaris*, *Ulex europaeus*, *Rumex acetosella* and the moss *Polytrichum piliferum*.

RUBBISH DUMPS.—A characteristic plant is *Urtica dioica*, which may form dense communities as in the old pit in A where it supports a numerous population of the snail *Helix nemoralis* L. Young weeds of cultivation appear, and garden plants become occasionally well established as in C, where *Doronicum Pardalianches* now forms a strong colony.

Many problems remain to be investigated.

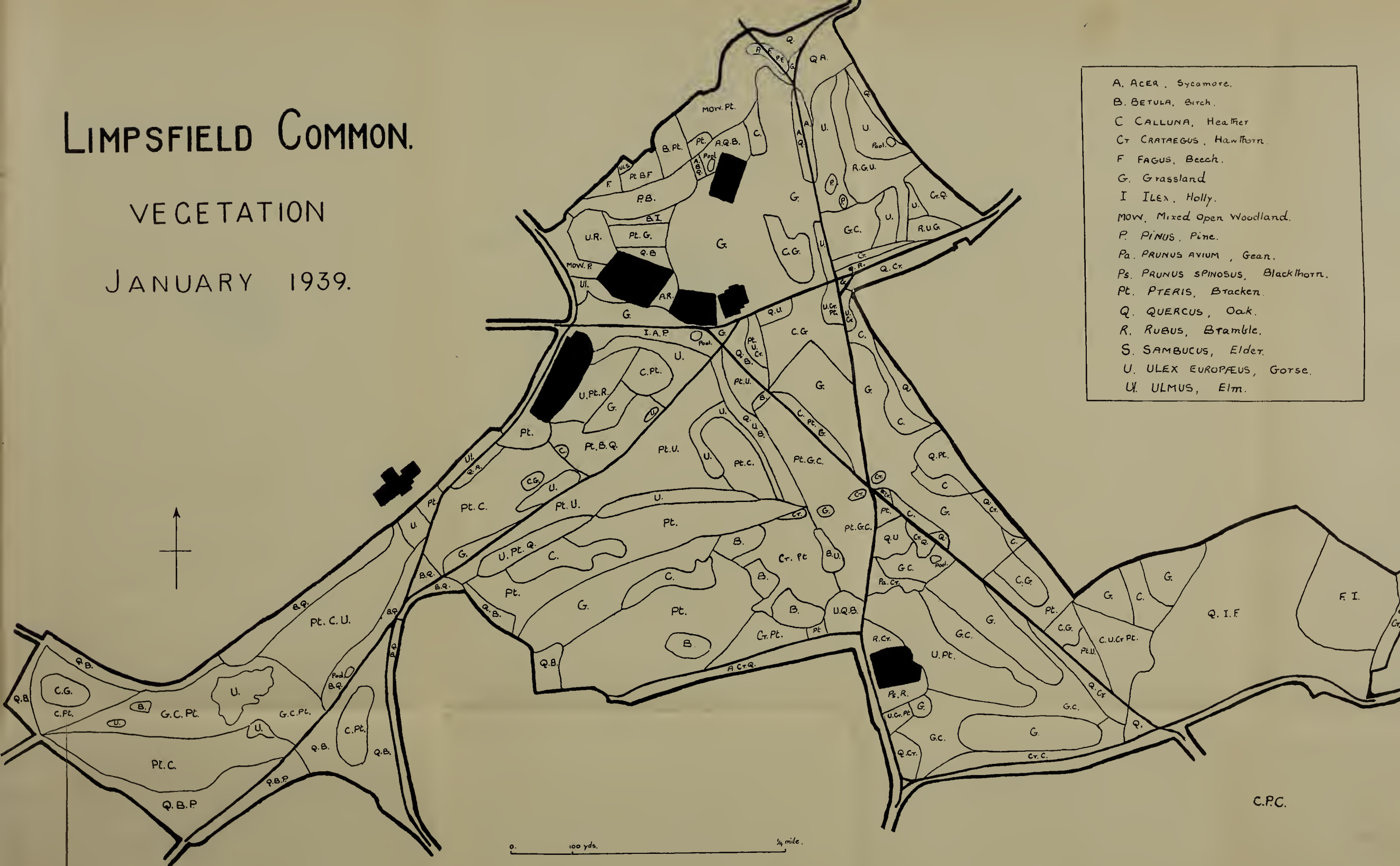
It is by no means sufficient to study the vegetation of the Common and to be able to map and describe it in detail, although even this has yet to be achieved. The existing vegetation is far from being in a static condition, but is continually changing, mainly through man's interference, and the present condition is merely a phase in a 'succession.' Cleared and burnt areas are rapidly colonized by plants which prepare the ground for, but, sooner or later, are driven out by the neighbouring native flora. We have still to find out which plants act as colonizers, and in what order and why they are unable to compete with the adjacent native plants. It will be useful to investigate the results of the cutting and rolling of the bracken and to see if the heath plants will re-assert themselves. The influence of rabbit grazing, and especially of human trampling, upon the vegetation await inquiry. The seasonal aspects of the vegetation, the status of the woodland trees and, in fact, the status of the whole vegetation from a successional point of view are, in themselves, problems sufficient to keep a band of workers busy for several years.

# LIMPSFIELD COMMON.

VEGETATION

JANUARY 1939.

- A. ACER, Sycamore.
- B. BETULA, Birch.
- C CALLUNA, Heather
- Cr CRATAEGUS, Hawthorn.
- F FAGUS, Beech.
- G. Grassland
- I ILEX, Holly.
- MOW. Mixed Open Woodland.
- P. PINUS, Pine.
- Pa. PRUNUS AVIUM, Gean.
- Ps. PRUNUS SPINOSUS, Blackthorn.
- Pt. PTERIS, Bracken.
- Q. QUERCUS, Oak.
- R. RUBUS, Bramble.
- S. SAMBUCUS, Elder.
- U. ULEX EUROPAEUS, Gorse.
- U. ULMUS, Elm.



0. 100 yds. 1/4 mile.





## THE MYCETOZOA OF LIMPSFIELD COMMON.

By J. Ross.

Mycetozoa are dependent on moist conditions for their development, and the shortage of rainfall in the first eight months of 1938 evidenced by the disappearance of water from pools on Limpsfield Common, resulted in only seven species being found until October, these including one species found in December, 1937. The autumnal rains, of which the Ecological Section had experience on 2nd October, brought a change, and by the end of November, 21 species had been recorded.

The plasmodium of the mycetozoon feeds on decaying vegetable matter, and it is to the wooded areas of the common that attention has been mainly given, (I) sticks, stems, and fallen branches and (II) beds of leaves under holly trees being the principal sources yielding specimens. The largest wooded areas are T (Ridlands Wood), W (Hook Wood), X (North Wood), and C (South Border Wood), but holly trees in other areas furnished carpets of leaves where several species were found. Ridlands Wood is a level well-wooded area; Hook Wood, also a level area, is not densely wooded for the most part and tangled growth makes it difficult to search; North Wood is on a steep slope, and South Border Wood receives the drainage of the higher ground of Wildshaw Heath.

It is disappointing in some measure that species definitely associated with coniferous wood and pine needles have not contributed to the list.

That species commonly found in some other woodlands have not been reported directs attention to the absence of fallen and decaying tree trunks and large branches and also to the absence of rotting stumps of large trees. A stump, six or seven inches in diameter and rising a foot or so from the ground, does not provide the fine medium for the development of mycetozoa that a stump, one foot to eighteen inches in diameter and level or nearly level with ground, does; the fall or felling of the larger tree leaves the stump much more exposed to rain than happens in the case of young trees cut out by cottagers, such as seems to occur in Ridlands Wood.

Searching for small organisms like mycetozoa absorbs time and the available hours on a late autumn or winter day soon pass. The whole area of the common has not been effectively searched, and further effort might result in considerable additions to the present list. It is almost certain that in a season of heavier summer rainfall with suitable conditions of temperature species will occur that have not been found in 1938, and it is not to be thought that all the species existing this year were found, as two species recorded were each represented by a single sporangium. Some areas, such as Ea, F, and H have received scant attention.

The species recorded are:—

*Badhamia utricularis* Berkeley. Area T, November 6. Collected as plasmodium on a stick.

*Physarum viride* Pers. T, October 25. On stick.



- P. nutans* Pers. Frequent on sticks, etc. C, November 23. T, October 25, November 6. W, November 23. Var. *leucophaeum* Lister. C, November 23, on pine needles and fungus. H, February 6, amongst moss on elder (J. E. Lousley).
- Craterium minutum* Fries. Frequent on leaves under holly trees. C, January 27, November 23. Ka, February 6. T, October 25, November 6. W, November 23. X, October 18.
- Leocarpus fragilis* Rostafinski. On leaves and pine needles close to holly bush. X, October 18, November 23.
- Diderma deplanatum* Fr. T, October 25. On leaves.
- Didymium clavus* Rabenhorst. C, November 23. On leaf under holly.
- D. nigripes* Fr. Not infrequent on holly leaves. C, November 23. T, October 25, November 6. X, October 18. Var. *xanthopus*. T, October 25.
- D. squamulosum* Fr. Common on leaves under holly. B, February 6. C, January 27, November 23. La, October 18. Lb, February 6. M, February 6. T, January 2, October 25, November 6. W, January 27. X, October 18, November 23. Y, February 6.
- D. anellus* Morgan. One gathering on holly leaf. X, October 18.
- Colloderma oculatum* G. Lister. Amongst moss on tree trunk. X, December 5, 1937 (C. P. Castell and J. E. Lousley).
- Stemonitis ferruginea* Ehrenberg. On stick. T, November 6.
- Comatricha nigra* Schroeter. Common on sticks. C, January 27, November 23. T, January 2, October 25, November 6. W, November 23. X, October 2, October 18.
- C. pulchella* Rost. On leaves under hollies. T, October 25, November 6.
- Lamproderma scintillans* Morg. Frequent on leaves under hollies, sometimes on matted sycamore leaves. C, January 27, November 23. M, February 6. T, November 6. X, October 18, November 23.
- Reticularia Lycoperdon* Bulliard. Fragment of aethalium on stick. X, October 18.
- Trichia Botrytis* Pers. Occasionally abundant on sticks. C, November 23. T, October 25, November 6. Var. *flavicomma* Lister. On holly leaves. C, January 27. Ka, February 6. M, February 6. T, January 2.
- Arcyria cinerea* Pers. X, October 18. One sporangium on stick.
- A. pomiformis* Rost. Not uncommon on oak sticks. C, November 23. T, October 25, November 6. W, November 23.
- A. incarnata* Pers. On sticks. T, October 25, November 6.
- Margarita metallica* Lister. C, November 23. One sporangium on a fragment of bracken stem collected for another species.

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## THE FLORA OF LIMPSFIELD COMMON.

By R. W. ROBBINS.

The table which follows is based on the *London Catalogue*, Ed. xi, and is designed to give a picture of the flora of the Common in the year 1938. It is intended to show not only the existence but the frequency and type of distribution of the species found. While this is facilitated by subdivision of the area, the sections have in themselves little ecological importance. The wooded areas C, Q, T, Uc and X, the sandpits D and Y (now disused), and the playing fields V, are fairly homogeneous, otherwise each section contains various types.

Imperfections are inevitable in such an attempt, and two need special mention:—(a) A number of records, particularly earlier ones, were made without any indication of frequency, and unless confirmed later they can only be given as “species present.” (b) Not much in-

tensive work was done before midsummer, hence spring annuals and early species are too sparsely recorded, e.g., *Ranunculus*, Crucifers, *Cerastium*, *Conopodium*, some sedges and grasses. Only a limited number of brambles have been identified; the predominant species is *Rubus cissburiensis* Barton & Riddelsdell.

By making this table available to members in its present form it is hoped that corrections and additions to it may be made in the coming season, so as to establish a sound and reliable basis for future studies.

While the signs of frequency used are more or less familiar, it is desirable, particularly in view of the small areas concerned—the largest of which (T) is only 19 acres—to define as accurately as possible the sense in which they are here employed. The signs used are:—

+ = species present, frequency not ascertained.

rr (very rare) = a single plant in the section.

r (rare) = not more than 6, or a small patch, in one station only.

o (occasional) = thinly scattered, singly or in small quantities.

l (local) = more than 6, or a good patch, in one station only.

lc (locally common) = same as l, but not confined to one station.

c (common) = frequent, local in several stations, or plentiful on suitable ground (e.g., *Trifolium repens* on grass verges).

la (locally abundant) = abundant in a limited area, and mainly confined to it.

a (abundant) = plentiful generally, or becoming sub-dominant in places.

d (dominant) = a dominant species in parts of the section at least.

A "station" is regarded as a group or assemblage of individuals or groups of a species in a relatively limited area, widely separated from others. A "patch" is a continuous group of a species which can spread vegetatively. The difference between a small patch and a good patch must be relative, e.g., a patch of one square yard of *Mercurialis perennis* would be a small patch, but a square yard of *Viola odorata* would be a good patch.

The expressions "thinly scattered," "frequent," "plentiful generally" are grades of the same condition, not exactly defined perhaps, but used in a common-sense application.

In the first column of the table will be found an initial indicating the normal range of growth or type of habitat of the species, according to the terms first employed by H. C. Watson in his *Cybele Britannica* and adopted by Druce in his "Comital Flora of the British Isles." The terms are:—AGRESTAL (A), cultivated land; ERICETAL (E), moors and heaths; GLAREAL (G), dry exposed ground; INUNDATAL (In), ground at times under water; LACUSTRAL (L), normally floating or immersed in water; PALUDAL (Pa), marshy ground; PRATAL (Pr), moist meadow land; PASCUAL (Ps), grassy commons; RUPESTRAL (R), rocks, walls; SEPTAL (Sp), hedgerows, banks; SYLVESTRAL (Sy), woods and shady places; VIATICAL (V), roadsides, rubbish heaps, etc.

Some aliens are unmarked and plants which appear to be garden escapes are marked HORTAL (H).



L. Cat.	Sp.	A. B.	C.	D.	E.	F.	H.	Ka.	Kb.	L.	M. N.	P.	Q.	R.	S.	T.	V.	Uc.	W.	X.	Y.	Z.		
1 Ciematis vilalba L.	Sp.	-	-	-	-	ff	r	r	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
9 Anemone nemorosa L.	Sy.	-	-	-	-	-	-	-	-	-	-	-	-	r	-	c	-	-	-	-	-	-		
18 Ranunculus pellatus Schrank	L.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-		
33 R. acris L.	Ps.	-	r	-	-	-	-	+	-	-	-	-	-	1	-	-	o	-	-	-	-	-		
34 R. repens L.	A.V.	c	lc	-	+	1	c	c	lc	c	c	1	1	c	1	lc	lc	c	c	c	lc	1		
35 R. bulbosus L.	Ps.	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	+		
41 R. Ficaria L.	Sp.	+	-	-	-	-	+	+	+	-	-	1	+	lc	-	-	-	-	-	-	-	+		
54 Berberis vulgaris L.	H.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	r	-	-	-	-	-		
55 B. aquifolium Pursh	H.	-	-	-	-	-	-	-	-	-	-	r	-	-	-	-	-	-	-	-	-	-		
70 Chelidonium majus L.	Sp.	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	+	-	-	-	-	1		
105 Cardamine pratensis L.	Pr.	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
106 C. hirsuta L.	A.	r	1	+	-	-	+	-	+	-	+	+	-	-	-	-	r	-	-	-	-	-		
125 Cochlearia Armoracia L.	H.	-	-	-	-	-	-	-	r	1	-	-	-	-	-	-	-	-	-	-	-	-		
127 Sisymbrium Thaltianum Gay	A.	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-		
128 S. officinale Scop.	A.V.	o	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-		
133 S. Alliaria Scop.	Sp.	1	r	-	-	1	1	-	-	1	lc	-	-	-	-	+	-	-	o	r	-	1		
151 Capsella bursa-pastoris Med.	A.V.	-	-	ff	-	-	-	-	r	ff	-	-	-	-	-	.	o	-	-	o	-	lc		
181 Viola odorata L.	Sy.	r	r	-	-	-	-	-	-	-	-	+	-	1	-	-	+	-	-	-	-	r		
186 V. silvestris Lam.	Sy.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	1		
187 V. Riviniana Reichb.	Sy.	1	1	c	1	lc	lc	c	c	lc	1	+	-	c	+	c	c	r	c	-	-	-		
189 V. canina L.	E.	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-		
× Riviniana																								
209 V. " arvensis " (agg.)	A.	-	-	-	-	-	-	-	r	-	-	-	-	-	lc	-	o	-	-	-	-	-		
221 Polygala serpyllacea Weihe	E.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	r	-	-		
223 Saponaria officinalis L.	V.	-	-	-	-	-	r	-	r	-	-	-	-	-	-	-	-	-	-	-	-	1		
239 Silene Cucubalus Wibel	Ps.	-	-	-	1	-	ff	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
248 Lychnis dioica Mill.	Sy.	lc.	r	lc	1	-	lc	1	lc	-	-	r	-	1	-	lc	r	r	lc	r	-	-		
249 Cerastium semidecandrum L.	G.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
250 C. viscosum L.	A.	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	lc	-	-	-	-	-		
255 C. vulgatum L.	A.	1	lc	-	o	r	+	lc	c	c	-	r	+	r	o	-	+	-	c	-	-	r		
258 Moenchia erecta Gaertn.	G.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
261 S. Holostea L.	Sp.	lc	r	-	o	1	o	r	o	lc	-	1	+	r	-	lc	o	r	lc	lc	+	-		
		+	1	lc	-	c	c	lc	c	1	1	-	-	-	c	+	c	lc	o	c	c	-		
		A.	B.	C.	D.	E.	F.	G.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	U.	Vc.	W.	X.	Y.	Z.

H,  
V,

L.Cat.	G.													U.										
	A.	B.	C.	D.	E.	F.	H.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	V.	Uc.	W.	X.	Y.	Z.	
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V.

H.



		A.	B.	C.	D.	E.	F.	G.	H.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	V.	Uc.	W.	X.	Y.	Z.	
L.Cat.																										
422	<i>L. utiginosus</i> Schkuhr .....																				lc	r				
431	<i>Ornithopus perpusillus</i> L. ....	l										r			l							r		lc	l	
435	<i>Vicia hirsuta</i> Gray .....														r											
438	<i>V. Cracca</i> L. ....						r										l		+							
442	<i>V. septum</i> L. ....							l																		
447	<i>V. angustifolia</i> L. ....				r										r									l		
454	<i>Lathyrus pratensis</i> L. ....																									
460	<i>L. montanus</i> Bernh. ....							la			c				r	c								l		
462	<i>Prunus spinosa</i> L. ....	rr																								
464	<i>P. domestica</i> L. ....									rr																
465	<i>P. avium</i> L. ....	r	l		rr			rr			lc	lc				r									rr	
467	<i>P. Padus</i> L. ....															rr			o							
468	<i>Spiraea salicifolia</i> L. ....								r																	
471	<i>Rubus idacus</i> L. ....								r	c	lc	lc														
—	<i>R. fruticosus</i> L. (agg.) .....																									
476	<i>R. plicatus</i> Wh. & N. ....																									
486	<i>R. carpinifolius</i> Wh. & N. ....																									
488	<i>R. Lindleyanus</i> Lees .....																l									
491	<i>R. rhamnifolius</i> Wh. & N. ....																									
496	<i>R. polyanthemus</i> Lindleb. ....																									
502	<i>R. laciniatus</i> Willd. ....																									
509	<i>R. rusticanus</i> Merc. ....						r	o																		
519	<i>R. Sprengelii</i> Whe. ....																									
522	<i>R. hirtifolius</i> Muell. & Wtg. ....																									
	<i>c. mollissimus</i> Rogers .....																									
524	<i>R. pyramidalis</i> Kalt. ....																									
525	<i>R. leucostachys</i> Sm. ....																									
	<i>b. macrothyrsus</i> Lange .....																									
—	<i>R. cisburiensis</i> Bn. & R. ....	l	+					lc	lc	c	c															
543	<i>R. echinatus</i> Lindl. ....																									
545	<i>R. c. Newbouldii</i> Rogers .....																									
568	<i>R. foliosus</i> Wh. & N. ....																									
572	<i>R. Koehleri</i> Wh. & N. ....																									
		A.	B.	C.	D.	E.	F.	G.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	U.	Uc.	W.	X.	Y.	Z.		
		H.																								
		V.																								

L.Cat.	G.													U.									
	A.	B.	C.	D.	E.	F.	H.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	V.	Uc.	W.	X.	Y.	Z.
576 <i>R. viridis</i> Kalt.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
586 <i>R. dumetorum</i> Wh. & N.	—	—	—	—	—	—	+	0	—	+	—	0	+	?	—	—	—	—	—	—	—	—	—
587 <i>R. corylifolius</i> Sm.	—	+	—	+	—	—	0	+	0	—	+	la	—	—	0	—	+	0	—	0	—	—	+
588 <i>R. Batfourianus</i> Blox.	—	—	—	—	+	—	0	—	c	—	—	l	—	—	lc	—	l	lc	—	+	—	—	—
590 <i>R. caesius</i> L.	—	—	—	—	—	—	r	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
594 <i>Geum urbanum</i> L.	—	—	c	—	—	+	0	—	—	—	—	—	—	—	—	—	—	—	—	r	r	lc	—
596 <i>Fragaria vesca</i> L.	—	l	l	—	—	r	lc	—	—	—	—	—	r	—	l	+	+	—	—	—	—	—	—
599 <i>Potentilla sterilis</i> Gareke	—	—	lc	—	+	l	—	0	+	—	—	—	—	—	—	0	lc	—	lc	—	—	—	—
602 <i>P. erecta</i> Hampe	c	c	lc	—	c	+	c	c	c	—	c	0	r	0	c	0	c	0	c	r	c	—	0
604 <i>P. reptans</i> L.	—	—	—	—	—	—	r	l	—	r	la	—	—	—	—	l	—	lc	+	r	—	—	r
605 <i>P. Anserina</i> L.	—	—	—	—	—	—	l	—	l	—	—	—	—	—	r	—	—	lc	—	—	—	—	—
613 <i>Alchemilla arvensis</i> Scop.	lc	—	—	—	—	—	—	l	+	lc	—	—	+	—	l	—	—	—	—	lc	—	—	—
627 <i>Agrimonia eupatoria</i> L.	—	—	—	—	—	—	—	l	—	—	lc	—	—	—	lc	—	—	—	—	lc	l	—	—
632 <i>Rosa arvensis</i> Huds.	—	—	r	—	—	—	0	—	—	—	r	—	—	—	—	lc	r	lc	—	—	—	—	—
657 <i>R. canina</i> L.	—	—	—	—	—	—	l	+	+	—	—	0	0	—	0	—	+	r	r	lc	—	—	r
669 <i>R. dumetorum</i> Thuill.	—	—	—	—	r	—	—	—	—	—	—	—	—	—	—	0	—	0	r	0	—	—	—
676 <i>Sorbus aucuparia</i> L.	—	—	—	r	0	—	0	—	0	0	0	0	0	0	0	—	lc	r	r	0	c	r	r
683 <i>S. Aria</i> Crantz	—	—	0	—	—	—	—	—	—	—	—	—	—	—	—	—	0	—	—	—	—	—	—
686 <i>S. lorminatis</i> Crantz	—	—	—	—	—	—	—	—	—	—	—	—	—	—	r	—	—	—	—	—	—	—	—
687 <i>Pyrus communis</i> L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
689 <i>P. Matus</i> L.	—	—	—	—	—	—	+	r	—	—	—	0	—	—	0	—	+	—	—	0	—	—	—
691 <i>Crataegus Oxyacantha</i> L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
692 <i>C. monogyna</i> Jacq.	c	—	c	—	0	0	c	c	c	c	c	c	c	0	a	+	0	lc	—	0	0	0	0
700 <i>Saxifraga umbrosa</i> L.	—	—	—	—	—	—	—	—	r	—	—	—	—	—	—	—	—	r	—	—	—	—	—
— <i>Ribes</i> sp.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
734 <i>Sedum acre</i> L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	l
749 <i>Catturiche stagnalis</i> Scop.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
758 <i>Epilobium angustifolium</i> L.	l	0	—	—	—	—	—	0	0	—	r	r	c	lc	—	0	lc	—	—	+	—	—	l
759 <i>E. lirsutum</i> L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
761 <i>E. montanum</i> L.	—	—	lc	—	l	—	r	—	—	—	—	—	—	—	—	—	+	+	—	+	—	—	—
765 <i>E. tetragonum</i> Curt.	—	r	—	—	r	—	—	—	r	+	+	+	+	+	+	+	+	+	+	+	+	+	+
776 <i>Circaea lutetiana</i> L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
778 <i>Bryonia dioica</i> Jacq.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	A.	B.	C.	D.	E.	F.	G.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	U.	Uc.	W.	X.	Y.	Z.

V.

H.



L. Cat.	A.	B.	C.	D.	E.	F.	G.	H.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	U.	V.	Uc.	W.	X.	Y.	Z.
783 <i>Sanicula europaea</i> L.			lc																						
795 <i>Aptum inundatum</i> Reichb.														1											
806 <i>Aegopodium Podagraria</i> L.	lc				lc		1				lc					1			r	1	lc	1			1
807 <i>Pimpinella Saxifraga</i> L.									1		1		o			o	lc		r						
809 <i>Conopodium majus</i> Loret	o									+								+							
815 <i>Anthriscus sylvestris</i> Hoffm.	lc	r			c	+	lc	1	1	r	lc	lc	lc			lc		lc			+	c	1	1	+
827 <i>Aethusa Cynapium</i> L.																									
833 <i>Angelica sylvestris</i> L.							r																		
838 <i>Peucedanum sativum</i> Benth. & H.																1									
839 <i>Heracleum Sphondylium</i> L.	+				o	r	c	1	lc	+			lc	o		c	o	r	lc			lc			r
847 <i>Caucalis Anthriscus</i> Huds.		1	r		1		1						lc			lc			1			lc	+		
849 <i>Hedera Helix</i> L.	c	1	c		1	a	c	1	1	1	lc	c	lc	1		lc	1	c	lc		a	c	lc		c
851 <i>Cornus sanguinea</i> L.																rr									
853 <i>Sambucus nigra</i> L.	o	rr	lc			o	lc	o	o	o	o	o	r	c	o	lc		o	r			o	o		r
855 <i>Viburnum Opulus</i> L.																o		rr							
859 <i>Lonicera Periclymenum</i> L.	c	lc	c		o	c	c	c	c	lc	lc	lc	lc	o	c	a	1	a	o	c	c	c	o		
864 <i>Galium verum</i> L.									r																
867 <i>G. saxatile</i> L.	c	c	r	+	a	1	lc	lc	1	c	lc	lc	lc	1	r	a	c	1	a	1	la	lc	1	a	
873 <i>G. Aparine</i> L.	lc		+		+	r	+	1	1	o	lc	1	lc	1		lc		1	lc	+	lc	lc	r	lc	
893 <i>Scabiosa Succisa</i> L.							r		rr					+			r		lc						
895 <i>S. arvensis</i> L.							r																		
898 <i>Solidago Virgaurea</i> L.		o	o		1		o		o			lc	c	r	1	o	lc				+				
899 <i>Bellis perennis</i> L.		r					lc	lc	+			lc	lc	lc	+		+		lc		lc				
— <i>Aster</i> spp.																					+			+	
904 <i>Erigeron canadense</i> L.											1														
910 <i>Filago minima</i> Fr.	r			1																					
914 <i>Gnaphalium uliginosum</i> L.									+																
925 <i>Puticaria dysenterica</i> Gray												r	lc												
— <i>Helianthus tuberosus</i> L.																									
930 <i>Achillea Millefolium</i> L.		c			r	r	r	c	c	c	lc	c	lc	o	lc	lc	o	o				o	o	o	o
938 <i>Chrysanthemum Leucanthemum</i> L.						rr					r	o													
939 <i>C. Parthenium</i> Bernh.											r	r	r	r											
940 <i>Matricaria inodora</i> L.												r	r	r	r	r	r	r	r	r	r	r	r	r	r
	A.	B.	C.	D.	E.	F.	G.	H.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	U.	V.	Uc.	W.	X.	Y.	Z.

L. Cat.	V.	A.	B.	C.	D.	E.	F.	G.	H.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	V.	Uc.	W.	X.	Y.	Z.
942 <i>M. suaveolens</i> Buchen.	V.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
944 <i>Tanacetum vulgare</i> L.	V.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
946 <i>Artemisia vulgaris</i> L.	E.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
950 <i>Tussilago Farfara</i> L.	A.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
954 <i>Doronicum Pardalianches</i> L.	H.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
956 <i>Senecio vulgaris</i> L.	A.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
958 <i>S. sylvaticus</i> L.	G.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
959 <i>S. viscosus</i> L.	V.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
962 <i>S. Jacobaea</i> L.	Ps.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
974 <i>Arctium minus</i> Bernh.	Sy.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
977 <i>Carduus crispus</i> L.	Sp.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
978 <i>Cnicus tanceolatus</i> Willd.	Ps.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
980 <i>C. patustris</i> Willd.	Pr.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
984 <i>C. acutis</i> Willd.	G.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
985 <i>C. arvensis</i> Hoffm.	A.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
— <i>Centaurea nigra</i> L. (agg.)	Ps.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1009 <i>Lapsana communis</i> L.	V.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1015 <i>Crepis capillaris</i> Wallr.	A.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
— <i>Hieracium "umbellatum</i> L."	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
— <i>H. "sabaudum</i> L."	Sy.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
— <i>H. Pitosella</i> L.	G.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1269 <i>Hypochoeris radicata</i> L.	Ps.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1273 <i>Leontodon autumnale</i> L.	Ps.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1274 <i>Taraxacum vulgare</i> Schrank	Ps.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1275 <i>T. laevigatum</i> DC.	G.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1284 <i>Sonchus oleraceus</i> L.	A.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1285 <i>S. asper</i> Hill	A.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1286 <i>S. arvensis</i> L.	A.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1294 <i>Justone montana</i> L.	G.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1302 <i>Campanula rotundifolia</i> L.	G.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1309 <i>Vaccinium Myrtillus</i> L.	E.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1315 <i>Calluna vulgaris</i> Hull	E.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1319 <i>Erica cinerea</i> L.	E.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

H.

V.



L. Cat.	H.	A.	B.	C.	D.	E.	F.	G.	H.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	U.	V.	Uc.	W.	X.	Y.	Z.	
— Rhododendron sp.	Il.	—	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1343 Primula vulgaris Huds.	Sy.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	—	—	—	—	—	—	—	—	—	
1344 P. veris L.	Pt.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	—	—	—	—	—	—	—	—	—	
1353 Lysimachia Nummularia L.	Pt.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1354 L. nemorum L.	Sy.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1357 Anagallis arvensis L.	A.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	—	—	—	—	—	—	—	
1362 Fraxinus excelsior L.	Sy.	—	—	—	—	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1365 Vinca minor L.	Sy.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1408 Myosotis sylvatica Hoffm.	H.?	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1409 M. arvensis Hill	A.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1417 Calystegia septum Br.	Sp.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1419 Convolvulus arvensis L.	A.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1421 Cuscuta Epithymum Murr.	E.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1423 Solanum Dulcamara L.	Sp.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1424 S. nigrum L.	A.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1430 Verbascum Thapsus L.	V.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1436 Linaria Cymbalaria Mill.	R.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1447 Scrophularia aquatica L.	Pa.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1449 S. nodosa L.	Sy.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1455 Digitalis purpurea L.	Sy.	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1456 Veronica hederacifolia L.	A.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1459 V. persica Poir. (Buxbaumii)	A.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1464 V. arvensis L.	G.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1465 V. serpyllifolia L.	A.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1471 V. officinalis L.	E.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1472 V. Chamaedrys L.	Sp.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1473 V. montana L.	Sy.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
— V. speciosa R. Cunn.	H.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1480 Euphrasia brevipila Burnat & G.	E.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1481 E. nemorosa Pers.	E.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1500 Pedicularis sylvatica L.	E.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1511 Melampyrum pratense L.	Sy.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1543 Mentha aquatica L.	Pa.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
A. B. C. D. E. F. G. Ka. Kb. L. M. N. P. Q. R. S. T. U. Uc. W. X. Y. Z.		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

		A.	B.	C.	D.	E.	F.	H.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	V.	Uc.	W.	X.	Y.	Z.	
L.Cat.																									
1551	<i>Thymus Serpyllum</i> L.																								
1552	<i>T. ovatus</i> Mill.		l						lc				lc			l									
1559	<i>Melissa officinalis</i> L.													r											
1565	<i>Nepeta hederacea</i> Trev.		l	l		c		c	l	c	o	l			lc		lc	l	r	c	c			c	
1568	<i>Prunella vulgaris</i> L.			+							+		+					r							
1572	<i>Stachys officinalis</i> Trev.		l	l				r		l	l						r								
1575	<i>S. sylvatica</i> L.		lc	r	r		l	lc			l		l		lc		lc	r	r	r	c	lc		lc	
1583	<i>Galeopsis Tetrabit</i> L.		r			l		r	+	lc		r	lc		r	lc		r	lc	l	r				
1588	<i>Lambium purpureum</i> L.		r						r			r							+					+	
1590	<i>L. album</i> L.		l	r	r	o		lc	r		l	o		r	lc						lc	lc		o	
1591	<i>L. Galeobdolon</i> Crantz			l				lc						r		r									
1592	<i>Ballota nigra</i> L.										lc	r				r					+			c	
1597	<i>Teucrium Scorodonia</i> L.		lc	lc	c	lc	r	o	lc	lc	r	l	o	a	c	o	c	o	lc	l	a	lc		o	
1598	<i>Ajuga reptans</i> L.																r	o			l				
1605	<i>Plantago Coronopus</i> L.								l		lc		l												
1607	<i>P. lanceolata</i> L.		r	+		+		r	+		c	lc	lc	l		lc	+	c	€	r	c	lc	+	c	
1610	<i>P. major</i> L.			r									lc	o		lc	l	l	c	r	o	o	l	c	
1623	<i>Chenopodium album</i> L.																								
1640	<i>Atriplex patula</i> L.																						l		
1659	<i>Polygonum Convolutus</i> L.												+									l			
1661	<i>P. heterophyllum</i> Lindm.																					r		r	
1662	<i>P. aequale</i> Lindm.															l	+					r			
1666	<i>P. Hydropiper</i> L.						l														l				
1669	<i>P. Persicaria</i> L.						r																		
	<i>P. cuspidatum</i> Sieb. & Z.			l																					
1678	<i>Rumex glomeratus</i> Schreb.																					r	+		
1680	<i>R. condyloides</i> Bieb. ( <i>viridis</i> )																								
1686	<i>R. obtusifolius</i> L.		l	+		o	l	+	o		o	o	o	+		lc		o	o	o	+	r		c	
1687	<i>R. crispus</i> L.		r										lc			+									
1694	<i>R. Acetosa</i> L.		o	lc	o	r	o	o	lc	lc	l	lc	l	lc	+	lc	o	lc	lc		o	l	l		
1696	<i>R. Acetosella</i> L.		a	c	l	a	c	r	lc	c	a	a	c	a	lc	l	+	c			a	c	r	a	
1712	<i>Euphorbia amygdaloides</i> L.																								
1718	<i>E. Peplus</i> L.																								
		A.	B.	C.	D.	E.	F.	G.	H.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	U.	Uc.	W.	X.	Y.	Z.

H.

V.



L.Cat.	A.	B.	C.	D.	E.	F.	G.	H.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	V.	Uc.	W.	X.	Y.	Z.
1722 <i>Mercurialis perennis</i> L.	1	lc	—	—	—	lc	—	—	—	—	—	—	—	—	—	—	—	—	—	—	lc	—	—	—
1724 <i>Urtica montana</i> Stokes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
— <i>Urtica campestris</i> L. (agg.)	la	—	1	—	—	—	—	—	—	—	d	—	—	—	—	1	—	—	—	—	—	—	—	d
1729 <i>Humulus Lupulus</i> L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1730 <i>Urtica dioica</i> L.	la	r	o	—	c	—	c	1	c	lc	—	lc	lc	la	r	lc	+	lc	lc	lc	c	c	o	c
1735 <i>Betula atba</i> L.	c	c	o	o	c	c	o	la	o	la	o	o	c	r	d	c	1	lc	o	r	o	a	r	o
1736 <i>B. pubescens</i> Ehrh.	o	la	—	o	r	—	r	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
— <i>atba</i> × <i>pubescens</i>	—	+	—	+	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1740 <i>Carpinus Betulus</i> L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1741 <i>Corylus Avellana</i> L.	o	rr	c	—	—	r	lc	+	o	—	—	o	o	r	—	+	o	c	1	c	o	o	—	r
1742 <i>Quercus Robur</i> L.	sy.	a	o	d	o	lc	c	d	a	c	a	o	c	r	o	c	o	d	o	d	c	c	—	o
1743 <i>Q. sessiliflora</i> Salisb.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	—	—	—	—	—	—
1745 <i>Q. cerris</i> L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1746 <i>Castanea sativa</i> Mill.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1747 <i>Fagus sylvatica</i> L.	r	—	r	—	l	—	o	—	r	—	—	r	—	—	—	—	—	—	—	—	—	—	—	—
1760 <i>Salix caprea</i> L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1761 <i>S. cinerea</i> L.	—	—	+	—	—	l	+	—	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1772 <i>Populus tremula</i> L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1793 <i>Epipactis purpurata</i> Sm.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1839 <i>Narcissus Pseudo-Narcissus</i> L.	r	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1846 <i>Galanthus nivalis</i> L.	l	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1849 <i>Tamus communis</i> L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
— <i>Atium sativum</i> L.	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1872 <i>Scilla non-scripta</i> Hoffm. & L.	lc	r	l	—	—	o	c	—	lc	o	—	l	o	—	—	—	—	—	—	—	—	—	—	—
1886 <i>Juncus bufonius</i> L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1894 <i>J. inflexus</i> L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1895 <i>J. effusus</i> L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1902 <i>J. articulatus</i> L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1904 <i>J. sylvaticus</i> Reich.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1909 <i>Luzula Forsteri</i> DC.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1910 <i>L. pilosa</i> Willd.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1914 <i>L. campestris</i> DC.	c	c	—	c	c	—	r	c	c	c	lc	lc	o	l	lc	c	—	—	—	—	—	—	—	—
1924 <i>Arum maculatum</i> L.	+	—	l	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	A.	B.	C.	D.	E.	F.	G.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	U.	Uc.	W.	X.	Y.	Z.	

H.

V.

L. Cat.	G.													U.										
	A.	B.	C.	D.	E.	F.	H.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	V.	Uc.	W.	X.	Y.	Z.	
1929 <i>Lemna minor</i> L.																								
2037 <i>Carex remota</i> L.													r											
2041 <i>C. leporina</i> L.													r							r				
2062 <i>C. pilulifera</i> L.													r											
2064 <i>C. caryophyllea</i> Latour													r											
2083 <i>C. OE., var. ædocarpa</i> And.																								
2085 <i>C. hirta</i> L.																								
2107 <i>Anthoxanthum odoratum</i> L.																								
2112 <i>Alopecurus geniculatus</i> L.																								
2114 <i>A. pratensis</i> L.																								
2119 <i>Phteuum pratense</i> L.																								
2124 <i>Agrostis canina</i> L.																								
2125 <i>A. alba</i> L.																								
2126 <i>A. tenuis</i> Sibth.																								
2141 <i>Aira praecox</i> L.																								
2143 <i>Deschampsia caespitosa</i> Beauv.																								
2146 <i>D. flexuosa</i> Trin.																								
2147 <i>Holcus mollis</i> L.																								
2148 <i>H. lanatus</i> L.																								
2149 <i>Trisetum flavescens</i> Beauv.																								
2154 <i>Arrhenatherum elatius</i> Mert. & K.																								
2157 <i>Siegtingia decumbens</i> Bernh.																								
2160 <i>Cynosurus cristatus</i> L.																								
2165 <i>Molinia caerulea</i> Moench																								
2168 <i>Melica amiflora</i> Retz.																								
2169 <i>Dactylis glomerata</i> L.																								
2173 <i>Poa annua</i> L.																								
2180 <i>P. nemoralis</i> L.																								
2182 <i>P. Chalcii</i> Vill.																								
2183 <i>P. pratensis</i> L.																								
2187 <i>Glyceria fluitans</i> Br.																								
2188 <i>G. plicata</i> Fr.																								
2204 <i>Festuca ovina</i> L. (agg.)																								
	A.	B.	C.	D.	E.	F.	G.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	U.	Uc.	W.	X.	Y.	Z.	

V.

H.



<i>L. Cat.</i>	G.										U.												
	A.	B.	C.	D.	E.	F.	H.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	V.	Uc.	W.	X.	Y.	Z.
2209 <i>F. rubra</i> L.												r						+					
2213 <i>F. pratensis</i> Huds.																		+					
2216 <i>Bromus giganteus</i> L.		r																					
2217 <i>B. ramosus</i> Huds.							o								r								
2223 <i>B. sterilis</i> L.					l																		
2232 <i>Brachypodium sylvaticum</i> Rm. & S.			lc				lc									+			l				
2234 <i>Lotium perenne</i> L.						r	r	c			+	l				+		c	r		r		c
2240 <i>Agropyron repens</i> Beauv.								r	r			l	r		+				r		l		l
2252 <i>Juniperus communis</i> L.									o								rr						
2254 <i>Taxus baccata</i> L.			rr																				
2255 <i>Pinus sylvestris</i> L.	rr	r	lc		o	rr	r				o	r									o	d	r
— <i>P. nigra</i> Arnold																							r
— <i>Larix europaea</i> DC.												r									r	r	r
— <i>Picea Abies</i> L.																							
2261 <i>Pteris aquilina</i> L.	d	d	a	a	d	a	a	d	d	d	a	d	c	a	d	a	a	a	c	a	d		a
2273 <i>Athyrium Filix-foemina</i> Roth			r																				
2287 <i>Lastrea montana</i> Moore			rr																				
2288 <i>L. Filix-mas</i> Presl	r		o						rr		o	r	o		l		rr			rr	o	o	o
2292 <i>L. spinulosa</i> Presl													rr		r					rr		rr	
2293 <i>L. aristata</i> Ren. & B. ( <i>dilatata</i> )			lc					r				r	o		l							r	r
2301 <i>Ophioglossum vulgatum</i> L.																							
	A.	B.	C.	D.	E.	F.	G.	Ka.	Kb.	L.	M.	N.	P.	Q.	R.	S.	T.	U.	Uc.	W.	X.	Y.	Z.

H.

## HYMENOPTERA ACULEATA OF LIMPSFIELD COMMON.

## A PRELIMINARY LIST.

By K. M. GUICHARD.

At present, this list of bees and wasps is incomplete and is chiefly the result of spasmodic collecting. The number of species will probably be doubled, but it is thought advisable to publish even a small list, in the hope that it may draw the attention of ecologists to a group of insects which will repay study and which presents many ecological problems. These few remarks are meant to indicate how the Hymenoptera Aculeata may be important and what may influence their distribution.

Admittedly, from the present records it is not possible to draw any conclusions of great ecological significance. Such conclusions may be reached when time is found to study and compare the first appearance of a species, the number of individuals of a species, the number of parasites from year to year, the effect of weather conditions, spread or decline of vegetation, and the food of insectivorous birds and mammals over a period of many years. At least, before such a task can be undertaken it is necessary to know what species exist in our area.

The distribution of bees and wasps is governed by certain factors, some of them very obscure at present. A factor favourable to the many burrowing species is a light dry soil. The sandy footpaths and the bare open patches of ground in the west of the area are ideal nesting sites for the fossorial Hymenoptera, some of which burrow to the depth of a foot or more.

It is difficult to judge the importance of flowers (except that some flowers must always be present) as factors of distribution. Yellow daisies, hawthorn, blackthorn, and gorse are all favourites of wild bees, but if these plants were exterminated in an area it is probable that substitutes would be found. Even such nectar specialists as *Colletes succincta* and *Andrena fuscipes* (at ling), and *Macropis labiata* (at yellow loosestrife) occasionally visit other flowers, while most of the species of *Halictus* and *Andrena* seem to be indiscriminate in their choice. In one locality a species of *Andrena* will be found visiting a particular flower, while in another locality the same species of bee visits a different flower although the two flowers may grow in both localities.

An abundance of suitable flowers in a small area usually attracts Hymenoptera if they are present, but that may not be a distributional factor, unless one considers the concentration of food to be such a great saving of labour that it increases the survival powers of the individual. But flowers would have to be very scarce before a bee population was adversely affected; competition for nectar with other individuals of the same or a different species does not appear to exist.

At this point, the ecologist may be reminded that without the honey bee and the wild bees as fertilising agents many annuals would decrease in numbers and vigour, as the self-fertilising mechanisms are used only



as a last resort. Apart from reproducing their own kind, the fertilisation of flowers is the chief function performed by bees. Both the flowers and insects are dependent on each other for survival, which is shown by the highly specialised mechanisms that have evolved in both. The adaptability of bees in visiting a wide range of flowers is a factor most favourable to the continuation of their species.

It may appear at first sight that the number of individuals of predacious wasps ought to be influenced by the abundance of their prey, but observations in the field do not confirm this. The Crabronids, *Mellinus arvensis*, and *Oxybelus uniglumis* provision their nests with flies, but many of them are not particular in their choice of prey. Although flies abound everywhere, nearly all these wasps are restricted in their general distribution in a way which seems to indicate that soil conditions and perhaps other factors still unknown are just as important as a plentiful food supply for their larvae.

Parasites may influence the number of individuals of a species from year to year, but unless one considers those parasites which have many hosts (and they do not seem to trouble the specialised Hymenoptera), parasitism has not become a factor of distribution, but perhaps freedom from parasites would allow a bee to increase to such an extent as to force it to extend its range. Many species of our aculeates have parasites which are closely related to them as *Psithyrus* is related structurally to *Bombus*, and *Sphecodes* to *Halictus*. On Limpsfield Common there are several examples of host and parasite.

Apparently, other creatures do not prey upon aculeates except in a few specialised instances. Sometimes a wasp preys on a bee as does *Cereeris rybyensis* on *Halictus leucozonius*, and *Philanthus* on *Apis* and *Andrena*. Shuckard records the annual destruction of fossorial Hymenoptera by wagtails; tits have been observed killing bumble bees for their honey; mice and ants destroy bumble bee colonies, and some Asilid flies take Hymenoptera as prey. The effect of all this is not properly known.

Apart from the nature of the soil, what are the deciding distributional factors governing the Hymenoptera Aculeata? Why are some bees so restricted in distribution (even in a small area) when there appears to be room and facilities for all, and why does the number of individuals vary so much from year to year? Climate and altitude may play their part in distribution, but to what extent and why?

Theoretically, finding the answers to these questions may appeal to the ecologist (if there is such a being), but in practice the work would devolve on the specialist, who, in this instance, would be the only one familiar with the habits of the insects and their specific distinctions.

One imagines that the first stage of an ecological survey should consist of as many specialists as possible providing lists of species with preliminary data, in the hope that another specialist will seize on some recorded fact as being important to the solution of his own particular problem. It would be strange if the direct or indirect answer to an ecological problem did not lie hidden somewhere in a comprehensive list

or in an account of the climatic or geological features of the area under survey.

While writing these records it has been difficult to know what data could possibly be of ecological importance and what could not. Wrongly perhaps, it has been decided to err on the brief side; the aculeates' habit of sunning themselves on blackberry leaves is well known to hymenopterists, and, therefore, a certain restraint has been exercised with some very full data.

Although a fairly complete list of locality areas has been given, it must be remembered that the same importance cannot be attached to many of these, as to the distributional records of plants. Hymenoptera spend much of their time on the wing, and strong fliers like *Bombus* are just as likely to be found in one area as in another. There must be some limit to the minuteness of one's observations and that limit can only be settled by the individual's knowledge and common sense.

For many of these records I am indebted to Messrs Currie, Parmenter, and Burkill, who from time to time have given me specimens with data. I thank Mr G. M. Spooner for kindly identifying *Priocnemis schiodtei*.

#### LIST OF SPECIES.

##### CHRYSIDIDAE—PARASITIC ON OTHER SOLITARY WASPS.

1. *Chrysis ignita* (L.). Ar. X, 11/6/38.

##### FORMICIDAE—ANTS.

2. *Myrmica laevinodis* Nyl. T, nest in oak stump.
3. *Leptothorax acevorum* (Fab.). W, Nb, amongst heather.
4. *Lasius niger* (L.). A, D.
5. *Lasius flavus* (Fab.). Ka, A.
6. *Formica rufa* L. ♂, T, 19/6/38. Evidently a visitor, as the nearest nests appear to be on Limpsfield Chart about a mile away.

##### POMPILIDAE—SPIDER-HUNTING WASPS.

7. *Priocnemis schiodtei* Haupt. ♀, P, 4/9/38.
8. *Pompilus spissus* Schiod. ♀, Kb, 7/6/38.

##### VESPIDAE.

9. *Vespula vulgaris* (L.).
10. *Vespula germanica* (Fab.).
11. *Vespula rufa* (L.). Several localities. ♀ hibernating during 1937 winter in D at roots of grass in bank.

##### SPHECIDAE.

12. *Ammophila sabulosa* (L.). ♂, D, 4/9/38. This species preys upon caterpillars and buries them underground as food for the larva.
13. *Pemphredon lugubus* (Fab.). ♀, A, 13/6/38. This and the next species provision their nests with Aphids.
14. *Cemonus shuckardi* Moraw. ♀, Nb, 11/6/38.
15. *Oxybelus uniglumis* (L.). A, D, 3/7/38.
16. *Coelocrabro leucostomoides* Richards. ♀, Kb, 17/6/38.
17. *Coelocrabro styrius* (Kohl). ♀, C, 5/9/38, on bramble leaves. Very rare in Britain.
18. *Crabro peltarius* (Schreber). ♂, B, 17/6/38.
19. *Crabro varus* (Lep. & Brul.). ♀, Y, 4/9/38.



20. *Nysson spinosus* (Forst.). ♀, G, 13/6/38; ♂, Kb, 17/6/38. Parasitic on the next.
21. *Gorytes mystaceus* (L.). ♀, A, 11/6/38; ♀, H, 13/6/38.
22. *Mellinus arvensis* (L.). A, B, C, D, E, Ka, Kb, P, August and September very common. The males fly round gorse, oak, and birch and some were taken on flowers of Dodder. Specimens were captured with prey (♂ *Cryptolucilia caesarion* Mg. and ♀ *Pollenia rudis* F.) in P, 4/9/38.
23. *Cerceris rybyensis* (L.). ♂, A, 3/7/38. Preys on ♀ *Halictus*.
24. *Cerceris arenaria* (L.). ♀, E, 8/8/37. Preys on weevils.

## APIDAE—BEES.

25. *Colletes succincta* (L.). ♂♂, ♀♀, A, B, E, 4/9/38, at ling.
26. *Halictus albipes* (Fab.). ♀, P, 17/4/37, on dandelion.
27. *Halictus zonulus* Sm. ♀, ♂, Nb, G, 4/9/38; Kb, 5/9/37, on yarrow.
28. *Halictus leucozonius* (Schr.). P, 4/9/38; P, 25/7/37, on ragwort.
29. *Halictus punctatissimus* (Schenck). ♀.
30. *Halictus minutissimus* (Kirby). ♀, D, 6/6/37.
31. *Halictus leucopus* (Kirby). ♀.
32. *Halictus perkinsi* Bluth. ♀, G, 13/6/38.
33. *Halictus minutus* (Schr.). ♀, D, 4/9/38.
34. *Sphecodes pellucidus* (Sm.). ♂, D, 4/9/38.
35. *Sphecodes crassus* Thom. ♀, A, 21/5/38; 2 ♀♀, E, 6/6/37.
36. *Andrena trimmerana* (Kirby). U(a), R(b), P, E. H., L(a), 3/4-13/6/38, very common. Visiting blackthorn and hawthorn.
37. *Andrena haemorrhoea* (Fab.). ♂♂, P, A, 3/4/38; ♀, R(b), 17/4/37, on dandelion.
38. *Andrena armata* (Gm.). ♂♂, ♀♀, N(b), R(b), A, P, in April. ♀ taken at blackthorn, ♂ at dandelion.
39. *Andrena praecox* (Scop.). ♂, D, 6/3/38, sitting on birch trunk.
40. *Andrena apicata* Sm. 2 ♂♂, D, 6/3/38, sitting on birch trunk.
41. *Andrena parvula* (Kirby). ♀, P, 17/4/37, on dandelion.
42. *Andrena minutula* (Kirby). ♀, U(b), 11/6/38, on umbellifer.
43. *Andrena pubescens* Oliv. ♂, R(b), 17/4/37, on dandelion.
44. *Andrena chrysoceles* (Kirby). ♀, C, 13/6/38, on pig nut umbel; ♀, Kb, 17/6/38, on buttercup.
45. *Andrena wilkella* (Kirby). ♂, M, 13/6/38.
46. *Andrena barbilabris* (Kirby). ♂, D, 21/5/38.
47. *Andrena nigroaenea* (Kirby). ♀, R(b), 17/4/37, on dandelion.
48. *Andrena labiata* Fab. ♀, T(a), 11/6/38, on buttercup.
49. *Andrena fuscipes* (Kirby), ♂♂, ♀♀, A, B, D, E, 4/9/38, at ling.
50. *Anthophora acevorum* (L.). ♀, D, 6/6/37.
51. *Epeolus* sp. P, 4/9/38, not taken.
52. *Nomada hillana* (Kirby). ♀, E, 11/6/38; ♀, N(b), 11/6/38; ♀, U(a), 13/6/38, on buttercup.
53. *Nomada ruficornis* (L.). ♀, L(a), 13/6/38.
54. *Nomada rufipes* Fab. ♂♂, ♀♀, Y, D, P, E, C, L(b), August and September. Parasitic on *Andrena fuscipes*.
55. *Nomada lineola* Panz. ♂, P, 2/5/37.
56. *Chelostoma florissomne* (L.). ♀, R(b), 17/6/38, on buttercup.
57. *Bombus lapidarius* (L.). ♀, R(b), 3/4/38, on cherry blossom; ♂♂, D, N(b), 4/9/38, on Centaurea (N(b)).
58. *Bombus pratorum*. ♀, N(b), 3/4/38, on cherry.
59. *Bombus humilis* Ill. ♀, W, 4/9/38, at wood-sage.
60. *Bombus terrestris* (L.). Common and widely distributed.
61. *Bombus lucorum* (L.). Common and widely distributed.
62. *Bombus agrorum* (Fab.). Common and widely distributed.
63. *Apis mellifera* L. Common and widely distributed.



## A WINTER CENSUS OF THE BIRDS OF LIMPSFIELD COMMON.

By P. W. E. CURRIE.

On 4th December, 1938, an attempt was made to take a complete census of Limpsfield Common. In the event certain areas, namely Ta, X, Y, Zb, could not be covered at all owing to the onset of darkness, and areas E, F, and T were only incompletely surveyed. The count was made by five persons, between 10.30 a.m. and 4 p.m. approximately. The counters worked in two groups, of two and three, taking one area at a time, and covering it as thoroughly as time allowed. The results obtained have greater validity for some species than for others. The figures given for Robin, Hedge Sparrow, and Wren are probably underestimates, while that for Bullfinch is possibly an overestimate owing to the same birds having been counted more than once. The figures for Tits are probably fairly accurate, while Goldcrests are certainly underestimated. However, after making due allowance for the characters of the species concerned and the types of habitat which they frequent, the figures are of some value as indicating the character, size and distribution of the winter population of the common.

Comparison may usefully be made with the notes on the breeding birds of the Common published elsewhere in this volume. The most immediately striking fact is the almost complete disappearance of the Song Thrush in winter: this has been noted before, and is curious in view of the high winter population of Blackbirds.

I should like to thank Miss K. Douglas Smith, and Messrs K. R. Chandler, L. Parmenter, and J. H. G. Peterken for their assistance in taking the census.

Rook. <i>Corvus f. frugilegus</i> L. Nb (1), .....	1
Jay. <i>Garrulus glandarius rufitergum</i> Hart. B (1), T (1), .....	2
Starling. <i>Sturnus v. vulgaris</i> L. A (1), Rb (1), .....	2
Greenfinch. <i>Ch. Ch. Chloris</i> (L.). W (1), .....	1
Goldfinch. <i>Carduelis carduelis britannica</i> (Hart.). B (1), W (1), .....	2
Lesser Redpoll. <i>Carduelis flammea cabaret</i> (P. L. S. Müll.). C (12), H (1), W (2),	15
Bullfinch. <i>Pyrrhula pyrrhula nesa</i> Math. & Ired. B (3), Kb (2), Lb (3), M (5),	
Na (5), Ra (4), Rb (3), W (8), .....	33
Chaffinch. <i>Fringilla coelebs gengleri</i> Kleins. C (3), G (1), H (7), Kb (3), La (2),	
M (2), Na (1), Nb (2), V (1), W (2), Za (1), .....	25
House Sparrow. <i>Passer d. domesticus</i> (L.). M (3), Nb (3), V (17), .....	23
Yellow Bunting. <i>Emberiza c. citrinella</i> L. Kb (1), .....	1
Meadow Pipit. <i>Anthus pratensis</i> (L.). E (1), Kb (1), Na (1), .....	3
Tree Creeper. <i>Certhia familiaris britannica</i> Ridgw. T (1), .....	1
Great Tit. <i>Parus major newtoni</i> Pražak. A (2), C (1), H (2), M (1), Nb (1),	
Rb (1), T (1), Ua (1), Uc (2), W (4), Za (1), .....	17
Blue Tit. <i>Parus caeruleus obscurus</i> Pražak. A (2), C (4), G (1), H (7), Ka (4),	
Kb (3), Lb (3), M (1), Nb (4), Rb (1), T (1), Ua (2), Uc (2), W (3), .....	38
Cole Tit. <i>Parus ater britannicus</i> Sh. & Dress. Nb (1), .....	1
Marsh Tit. <i>Parus palustris dresseri</i> Stejn. C (1), H (1), .....	2
Willow Tit. <i>Parus atricapillus kleinschmidti</i> Hellm. A (2), P (1), W (3), .....	6
Long-tailed Tit. <i>Aegithalos caudatus rosaceus</i> Math. Ka (9), Lb (8), .....	17
Goldcrest. <i>Regulus regulus anglorum</i> Hart. C (1), H (3), Ka (1), La (2), Lb (2),	
Na (6), Ra (1), W (3), .....	19
Mistle Thrush. <i>Turdus v. viscivorus</i> L. B (1), Ka (1), Kb (1), M (1), Na (1),	
P (2), Rb (1), S (1), Ua (1), V (1), .....	11

Song Thrush. <i>Turdus e. ericetorum</i> Turton.	M (1), Ua (5), Ub (1), .....	7
Redwing. <i>Turdus m. musicus</i> L.	M (2), Za (7), .....	9
Blackbird. <i>Turdus m. merula</i> L.	A (1), B (1), C (4), D (1), H (8), Ka (2), Kb (11), La (2), Lb (2), M (3), Na (2), Nb (1), P (3), Ra (4), Rb (15), S (2), T (1), Ua (2), Uc (2), V (3), W (2), Za (1), .....	73
Robin. <i>Erithacus rubecula melophilus</i> Hart.	A (3), B (1), C (4), E (2), H (4), Ka (1), Kb (1), Lb (1), M (1), Nb (1), P (2), Rb (1), Ua (1), Uc (1), W (2), ...	26
Hedge Sparrow. <i>Prunella modularis occidentalis</i> (Hart.).	A (4), C (3), E (1), G (1), H (1), Ka (1), Kb (1), Na (4), Nb (2), Q (1), Rb (1), .....	20
Wren. <i>T. t. troglodytes</i> L.	A (1), C (3), Ka (4), Kb (4), Lb (2), Na (3), Nb (2), Q (1), Ra (2), T (1), Ua (1), W (2), .....	26
Green Woodpecker. <i>Picus viridis pluvius</i> Hart.	Rb (1), .....	1
Wood Pigeon. <i>Columba p. palumbus</i> L.	C (1), Ka (1), W (1), .....	3
Totals :—A, 16; B, 8; C, 37; D, 1; E, 4; F, 0; G, 3; H, 34; Ka, 24; Kb, 28; La, 6; Lb, 21; M, 20; Na, 23; Nb, 18; P, 8; Q, 2; Ra, 11; Rb, 25; S, 3; T, 6; Ta, 0; Ua, 13; Ub, 1; Uc, 7; V, 22; W, 34; X, 0; Y, 0; Za, 10; Zb, 0; .....	= 385	
Number of Species = 28.		

## NOTES ON THE BREEDING BIRDS OF LIMPSFIELD COMMON.

By P. W. E. CURRIE.

Owing to the size of the area, the paucity of observers, and the infrequency of their visits, the following notes are of a somewhat fragmentary nature. In particular, it proved to be impossible to locate every nest even of the summer residents. It has therefore been necessary to proceed on the assumption, probably fallacious in many instances, that each singing male bird represented a breeding pair. Particular mention is made of all nests and young birds found.

Incomplete observation probably also accounts for the apparently anomalous distribution of some of the commoner species, e.g., Blackbird and Song Thrush. This has been noted as a subject for further study during the coming year.

All notes given below refer to 1938 unless it is otherwise stated:—

Jackdaw (*Corvus monedula spermologus* Vieill.). Used formerly to breed in the quarry, Y, but has not done so since 1935.

Jay (*Garrulus glandarius rufitergum* Hart.). T, two pairs known to have bred, 1937, 1938. X, brood of newly fledged young seen, 12/6/38. This probably represents the total breeding population.

Starling (*Sturnus v. vulgaris* L.). Several pairs bred on the Common, in holes in trees, and also in holes in the quarry, Y.

Hawfinch (*C. c. coccothraustes* (L.)). 1937, two unsuccessful nests found. 1938, no nests found, but two or more pairs probably bred. Newly fledged young seen in T, 11/6/38.

Goldfinch (*Carduelis carduelis britannica* (Hart.)). One pair thought to have bred just off the Common, by the Golf Club House.

Linnet (*Carduelis c. cannabina* (L.)). Many pairs breed. Nests found in B, D (one found, others also probably bred there), Rb, W (2), all in gorse.

Bullfinch (*Pyrrhula pyrrhula nesa* Math. & Ired.). Nests found in W, Ua, both in gorse. Other pairs probably bred in A, Na, P, and elsewhere.

Chaffinch (*Fringilla coelebs gengleri* Kleinschmidt). No nests found. Song posts noted in A, C, M, Na, S, Ua, W (3), V.

Yellow Bunting (*Emberiza c. citrinella* L.). Fledglings found in Kb, Q, 12/6/38. One or two pairs probably bred on West Heath.

Skylark (*Alauda a. arvensis* L.). Not believed to have bred this year.



- Tree Pipit (*Anthus t. trivialis* (L.)). Nest with young found in Kb, 11/6/38. Three other pairs had territory in A, E, Na-b.
- Tree Creeper (*Certhia familiaris britannica* Ridgw.). Seen during the summer, and may breed, in T, W, X.
- Great Tit (*Parus major newtoni* Pražak). Two nests found. Breeds in all suitable areas.
- Blue Tit (*Parus caeruleus obscurus* Pražak). Several nests found. Breeds commonly in all suitable areas.
- Cole Tit (*Parus ater britannicus* Sharpe & Dresser). One pair may have bred in C, where newly fledged young were seen, 29/5/38.
- Marsh Tit (*Parus palustris dresseri* Stejn.). Not believed to breed on the Common.
- Willow Tit (*Parus atricapillus kleinschmidti* Hellm.). One nest found, 21/5/38. A brood of newly fledged young was seen in A on the same date. Other pairs may have bred in Ka-b, and T.
- Long-tailed Tit (*Aegithalos caudatus rosaceus* Mathews). From a nest in Ka, which was being built on 6/3/38, the young did not fly until after 8/5/38. Others may have bred on West Heath and W.
- Goldcrest (*Regulus regulus anglorum* Hart.). Several pairs may have bred, C, T, W, X.
- Red-backed Shrike (*Lanius c. collurio* L.). Probably seven pairs bred. Two nests seen, both in hawthorn, and with six eggs each, 12/6/38.
- Spotted Flycatcher (*Muscicapa s. striata* (Pall.)). A pair bred a few yards off the Common near A, and were later seen on the Common with young, 13/8/38. Others seen, and may have bred, in C, H, W, X (young seen).
- Chiffchaff (*Phylloscopus c. collybita* (Vieill.)). Nest found, A, 21/5/38. Song posts noted in F, Ka, P, T (2), X, Y.
- Willow Warbler (*Phylloscopus t. trochilus* (L.)). Nests found in A, E, H, Ka. Song posts of other pairs in A, E, Lb (2), Na, P, Ra, Rb, Uc, X.
- Wood Warbler (*Phylloscopus sibilatrix* (Bechst.)). Believed to have bred in T (one, possibly two pairs) and in X.
- Garden Warbler (*Sylvia borin* (Bodd.)). Nest found in X. Song posts of other pairs in A, C, Kb, P, Ta, Uc, W. Also two pairs in the rough fringe outside the North-east boundary of T.
- Blackcap (*Sylvia a. atricapilla* (L.)). No nests found, but fledgling young seen in Ta, 19/6/38. Song posts of other pairs in A, C, P, T, X. (Note:—The coincidence in the distribution of this species and that of the Garden Warbler indicates not misidentification by song but similarity of habitat requirements.)
- Whitethroat (*Sylvia c. communis* Lath.). Young found, Q, 12/6/38. Song posts in E, P, V.
- Lesser Whitethroat (*Sylvia c. curruca* (L.)). One pair had territory in W.
- Mistle Thrush (*Turdus v. viscivorus* L.). One unsuccessful nest in W. Other territories in Kb, Rb, Ua-c, T (used nest found 8/5/38).
- Song Thrush (*Turdus e. ericetorum* Turton). Breeds abundantly. In W seven nests were found in one day, 3/4/38. Other nests were found in Rb, S, T (4), Ua (2), Ub, Uc.
- Blackbird (*Turdus m. merula* L.). Breeds abundantly. Nests found as follows: A, C, H (2), T (6), Ua (2), W (4), X.
- Nightingale (*Luscinia m. megarhyncha* Brehm.). One pair had territory in M, two pairs in W, where one pair is known to have bred in 1937.
- Robin (*Erithacus rubecula melophilus* Hart.). Breeds abundantly in all suitable areas.
- Hedge Sparrow (*Prunella modularis occidentalis* (Hart.)). Not very many. One nest found in Ta, 19/6/38. Song posts recorded in C, Ka, Ra, P, T, Uc, W (2).
- Wren (*T. t. troglodytes* (L.)). Apparently reduced in numbers by the clearance of bracken, but still fairly abundant on West Heath and other suitable areas.
- Sand Martin (*R. r. riparia* (L.)). Believed not to have bred in Y this year though a few new holes were apparently excavated in late July or August.
- Nightjar (*Caprimulgus e. europaeus* L.). Probably two pairs bred.



- Green Woodpecker (*Picus viridis pluvius* Hart.). May have bred in T. A pair and three young were seen on West Heath, 13/8/38, but probably bred off the Common.
- Great Spotted Woodpecker (*Dryobates major anglicus* (Hart.)). Probably bred in T. A hole in Q was visited both by this and by the preceding species, but no young of either species were reared in it.
- Wryneck (*Jynx t. torquilla* L.). One pair had its territory in Happy Valley, another pair in gardens bordering on the golf course.
- Cuckoo (*Cuculus c. canorus* L.). Seen twice during the summer; one newly fledged young seen in W.
- Wood Pigeon (*Columba p. palumbus* L.). Several pairs bred, C, T, W, etc. Three nests found in W.
- Turtle Dove (*Streptopelia t. turtur* (L.)). Nests found in W (3), H (apparently deserted). A pair probably also bred in M, and possibly another in C.

## Council's Report, 1938.

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**D**URING 1938 the number in the Society has increased by 17 to a total of 584, made up of an accession of 78 comprising 64 new members, 4 branch associates, and 10 Country associates, accompanied by a diminution of 61 comprising 49 members, 4 branch, and 8 Country associates, from which it will be seen that the increase is composed of 15 members, and 2 Country associates, while the branch associates remain exactly level.

Attendances at General Meetings through the year have averaged 88, or, omitting the special meetings in the large Theatre, 51. It is worthy of note that on only three occasions did the number signing the attendance book agree with the number actually present; the signatures showed an average of only 80 (approximately 90% of what they should be); the Council would urge the defaulting 10% to observe the regulation printed on each member's ticket to sign the book on entering the building—and this whether attending the Lecture or not—and to see that their visitors sign also.

The Society had the honour of being represented this year at the Cambridge meeting of the British Association by our Hon. President, Sir F. Gowland Hopkins.

The Annual Exhibition again beat its own previous best record both in attendance and exhibits; the date being altered to Spring proved a great success, the living specimens thus being able to be displayed, forming a deservedly popular attraction; the botanical table and the Vivaria were worthy of special commendation.

The syllabus was full of good things, a noticeable feature being the increase of cinematograph films shown, many taken by our own members, and some in colour. The field meetings have been well attended, and show a tendency to revert to our old-time fashion of going further afield than our own area limits; on several occasions motor coaches have been engaged to carry the participants.

The Library has shown increased use under the careful supervision of Mr R. W. Pethen, who is retiring from the librarianship after this year; we are sorry to lose him from this work; he has fully earned the well-deserved Testimonial presented to him at the Annual General Meeting in recognition of his fourteen years' hard-working service.

*The London Naturalist* has maintained its excellent level, and has again been issued with the *London Bird Report* separate. It is regretted that Mr Graham Hopkins finds himself unable to continue the work of Editor, which he has discharged so ably for three years. Finance remains satisfactory, as may be seen from Treasurer's report.

The Society has increased, and all its activities have increased. It only remains to remind the membership that this success can be maintained solely by the individual endeavour of each one, and the Council would urge therefore that each strive to secure at least one new mem-



ber every year, so that we may have the recording more and more complete in our populous area of London.

A. B. HORNBLOWER, *Hon. General Secretary.*

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## Librarian's Report, 1938.

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SINCE the last Annual Report, 332 books, manuscripts, and other publications have been issued to 76 individual members of the Society, compared with 321 books issued to 70 members in 1937.

These figures show that only a small proportion of our members made use of the library, compared with our total membership, but even so, they prove to be the greatest number of members borrowing from the library in one year since I made my first Annual Report in 1925, when 14 members borrowed 25 books and manuscripts.

For the benefit of new members, I may add that in those days meetings were held only twice a month.

With regard to the subjects dealt with by the borrowed books, I find that Ornithology again heads the list, with 130 books; followed by General Natural History, 95; Entomology, 34; Transactions of Kindred Societies, 26; Botany, 24; Ecology, 10; Archaeology, 8; Biology, 2; Geology, 2; and Biography, 1.

The total additions to the Library during the year amount to 163 books, magazines, and journals, including many useful books presented by members and friends of the Society, and also 30 Reports and Publications of Kindred Societies, many of the latter being received in exchange for *The London Naturalist*.

During the year, the following journals have been bound:—*British Birds* (1 vol.); *Essex Naturalist* (1 vol.); *Entomologist* (2 vols.); *Entomologist's Monthly Magazine* (5 vols.); and *The Scottish Naturalist* (1 vol.).

I would also like to mention that through the kindness of some of our members and friends, the following journals and publications are added to the library at intervals and are then available to members:—*Botanical Exchange Club Report*; *Bulletin of the British Ornithologists' Club*; *The Geographical Journal*; *North Western Naturalist*; *Scottish Geographical Magazine*; and the *Journal of the Society for the Preservation of the Fauna of the Empire*.

In conclusion, I would like to add that there are several periodicals still waiting to be bound, owing to odd parts being missing. These include:—*Antiquity* (1 part), and *The Entomologist* and *The Scottish Naturalist*, several parts of each.

It is a matter of regret to me personally to have to hand over the library to my successor with these parts still missing.

Should any member care to have further particulars, I shall be only too pleased to supply them, and I am sure my successor will welcome any help in this direction.

ROBT. W. PETHEN, *Hon. Librarian.*

# Archæological Section.

REPORT FOR 1938.

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**T**HE present membership of the Section is 90. The average attendance at excursions was 19 and at the indoor meetings 30.

In spite of unsettled weather and public anxieties the attendance at the excursions has been well maintained.

In accordance with established policy, the excursions have been of definite archaeological value, the aim being to make them sufficiently popular while bearing in mind their serious object.

Two churches were recorded during the year—Stone, Kent, and St Mary the Virgin, Aldermanbury. The beautiful E. E. church of Stone had not been visited for some years and the little known church of St Mary the Virgin had probably not claimed attention before. It proved to be of considerable interest and in both cases we are indebted to Mr G. J. B. Fox for compiling the voluminous records.

We also visited Great and Little Bookham churches, under the guidance of Mr Molesworth Roberts, and at each church we were honoured by the presence of the rectors. In February we visited St John's Gate, Clerkenwell, under the leadership of H. W. Fincham, Esq., Kt.J., F.S.A., and the following month Dulwich was the venue, where we were indebted to the kindness of Miss E. Robinson, who conducted us through the Picture Gallery and the Old College Chapel discoursing on many subjects in a brilliant way.

One of the largest excursions was that to Westerham, Kent, where the Section visited the church, Wolfe's House, and Pitt's Cottage, under the guidance of the chairman, who also on another occasion conducted a party through the State apartments of Hampton Court Palace, where particular attention was paid to the various architectural periods of the buildings.

Unfortunately, the visit arranged to Barnfield Pit, Swanscombe, in conjunction with the Geological Committee had to be abandoned as the necessary permission was refused by the owners on the grounds that they could not incur any liability for safety.

An exceptionally well-attended excursion was that to Old Devonshire House, where Major Benton Fletcher had arranged a harpsichord recital, which was greatly enjoyed by those present.

Finally, visits were paid to the Geffrye Museum, where Mrs Quennell, the newly appointed curator, gave an interesting account of the exhibits relating to different periods of social life in this country, and to the Victoria and Albert Museum, where Miss H. Murphy gave a very pleasing address on the subtleties of costume.

The lectures held under the auspices of the section were:—“Misericords,” by Arthur Gardner, M.A., F.S.A.; “Sculpture of the Middle Ages,” by Major Davidson.



Lectures given at Sectional meetings were:—"Architecture of the Moors in Spain," by D. Chisholm Simpson; "Our English Heritage," by W. C. Cocksedge; "Ecclesiastical Ironwork," by Edward Yates, F.S.A.; "Fresh Glimpses of Roman London," by Quintin Waddington, F.S.A.

*Antiquity*, a quarterly devoted to archaeology, is circulated amongst those members who pay a small subscription towards its cost.

W. C. COCKSEGE, *Chairman*.

CELIA D. COCKSEGE, *Secretary*.

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## Botanical Section.

REPORT FOR 1938.

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**S**PEAKERS were secured by the Section for two general meetings. Mr H. Stanley Redgrove, B.Sc., F.I.C., gave an illustrated talk entitled, "Field Botany for Use and Pleasure," and Mr E. H. Ellis, B.Sc., spoke upon the topic, "The Botanist and the Species Problem." Both of these subjects dealt with many controversial points and resulted in lively discussions.

In January we again had the pleasure of viewing some excellent lantern slides of Alpine and other rarities prepared by Messrs J. E. S. Dallas and E. M. Payne. Of the remaining two Sectional meetings the first was addressed by Mr G. H. Spinney, B.A., upon "Botany in the Ancient World," and the second by the Rev. P. H. Cooke, M.A., who gave some notes on "Field Botany and the Herbarium." The excursion syllabus included 10 outdoor rambles and a visit to the South London Botanical Institute. The average attendance at the excursions has been 10, and at indoor meetings 40. The Section now has a membership of 146, which shows a decrease of 7 below last year's figure.

The Recorder reports that about 20 lists have been received which include a number of new divisional records. Plants of native status which are new to the records of our District are becoming few, and the only addition of this character in the present year appears to be *Euphrasia brevipila* Burnat & Gremler found on Limpsfield Common, division 19.

The intensive study of Limpsfield Common has also added the established alien *Hypericum elatum* Ait., and of a similar status are *Trifolium agrarium* Linn., Green Street Green, and *Carex vulpinoides* Michx., Farnborough, both reported by Mr Lousley, who has presented specimens to the collection. The *Carex* is of unusual interest as it reinstates in our flora a denizen believed to be extinct.

A botanical find of quite exceptional interest was made by Mr L. G. Payne, who discovered during the summer a flourishing colony of the Crested Buckler Fern (*Lastrea cristata* Presl) in a locality in Surrey beyond the 20 mile radius. *L. cristata* is one of our rare ferns, being confined in Britain to a few localities in less than a dozen county

divisions in England. It is found in lowland bogs, where drainage and "improvements" are always threatening. The nearest stations to the new discovery are in Dorset and Suffolk.

A considerable number of sheets have been added to the Herbarium representing the less common species found in our District. Several members have contributed to these additions but the bulk are the result of the personal labours of our devoted curator, the Rev. P. H. Cooke.

L. G. PAYNE, *Chairman.*

G. R. A. SHORT, *Hon. Secretary.*

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## Ecological Section.

REPORT FOR 1938.

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THE chief interests of the Section during the past year have been to continue the survey of Limpsfield Common and to further the study of mammals, reptiles, and amphibians, especially in the Society's area. In addition, several who are members of both the Ornithological and Ecological Sections have participated in the bird ecology field meetings and studies planned by the senior Section. The membership has increased to 106.

In two years, the monthly visits which have been made to Limpsfield Common have attracted 86 members and friends. During 1938, 60 have visited the Common on the official dates (average 14). Many other visits were made to continue the survey work. A preliminary report, with lists, was published in *The London Naturalist*, 1937. Its twenty-one pages are on sale as *London Naturalist Reprint No. 19*, price 6d, and if taken with the map (price 1d, from the Librarian or Sectional Secretary) should enable any member to assist in the survey work.

A particularly interesting visit was made to Peaslake, Surrey, on September 18th by fifteen members and friends. Messrs C. L. Foster and J. Sankey conducted the party over ground where since 1935 a regional survey has been in progress. After tea, kindly provided by our member Mr C. J. Grinling, a specially assembled exhibition was examined with keen appreciation.

There was an average attendance of 45 at the three indoor Sectional meetings, at which Messrs J. E. Lousley and L. Parmenter spoke on "The First Year at Limpsfield," Mr L. G. Payne on "English Reptiles and Amphibians," and Mr Douglas English, F.R.P.S., F.Z.S., on "British Mammals." We are very grateful to Mr Payne for taking so much trouble to illustrate his talk with living exhibits of all the English species with the exception of the Adder and the Smooth Snake.

At the general meetings of the Society lectures on "Natural History Societies and their link with Systematic Biology," by H. W. Parker, M.A., F.L.S.; "The Croydon Regional Survey and Atlas," by C. C. Fagg, F.G.S.; and "The Genesis of Soils," by E. W. Russell, M.A.,



Ph.D., were given, the last-named in co-operation with the Geological Committee.

The Section owes a debt of thanks to Mr C. H. R. Thomas for his excellent arrangement of the Section's contribution to the Annual Exhibition. The Limpsfield Survey was illustrated by a "Map of the Trees," by R. W. Robbins; "Vegetation Map," by C. P. Castell and others; "Transect of Happy Valley," by J. E. Lousley and Miss M. M. Hose; twelve photographs by Miss C. E. Longfield; samples of soil from the Common by J. E. Lousley; and typical Diptera from the Common by L. Parmenter. In addition Mr Thomas exhibited diagrams illustrating the progress of an ecological survey and the development of Beechwood showing ecological relationships of certain animals.

The Section was officially represented at the summer meeting of the British Ecological Society, held at Aberystwyth from July 16th to 21st, by Mr R. S. R. Fitter, to whom we are indebted for an interesting report.

*The Journal of Animal Ecology* was circulated to 14 members at a subscription of 2s per annum.

R. W. ROBBINS, *Chairman.*

L. PARMENTER, *Honorary Secretary.*

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## Entomological Section.

REPORT FOR 1938.

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SIX evening meetings were allotted to the Section during 1938, and were filled as follows:—"Entomology on the Norfolk Broads," K. M. Guichard, L. Parmenter, and E. B. Pinniger; "Our British Neuroptera," E. E. Syms; Ciné-Film "A Naturalist in Africa," Miss C. E. Longfield (Bacot Memorial Evening); "Some Pests of Garden Plants," G. Fox-Wilson; "Ants and their Ways," G. E. J. Nixon; "South American Social Wasps," Dr O. W. Richards.

Eight excursions were arranged, to Limpsfield Common, Byfleet, Hyde Park and Kensington Gardens, Mill Hill, Brickett Wood, Balcombe Forest, Wisley Heath, and Effingham. The average attendance at these excursions was 8.

At the Annual Exhibition there were 16 entomological exhibits, fewer than in 1937 but occupying a much larger space. The later date of this event made it possible to show 9 exhibits of living insects, as well as some fine invertebrates. Pond life under the microscope was a new feature.

The excursion figures have been low, but fortunately they are misleading. Five excursions were marred by bad weather, but on other occasions profitable days were spent by small parties collecting in areas near London.

Co-operation with the Ecological Section has continued, resulting in a list of Hymenoptera Aculeata of the Limpsfield Area.

In June, 10 members attended the Entomological Congress held at Bournemouth. The lectures were greatly enjoyed, while Studland Heath and the glades of the New Forest yielded many rare insects. One member was able to present Dr Edwards of the British Museum with a specimen of *Anthracophaga strigula* F., a Chloropid fly not represented in the National Collection.

The Society has been fortunate in acquiring a 40-drawer cabinet containing a splendid collection of British Lepidoptera, presented by Mr C. Nicholson. It is proposed to add more material to his collection thereby allowing space in other cabinets for a representative assemblage of British insects. The work of making and completing our collection of Lepidoptera is still going forward under the care of Mr Pinniger. Two new drawers of Diptera have been added by Mr Parmenter.

This season, the increased interest in Diptera, Colcoptera, and Hymenoptera has been proved by the many examples of these orders shown to our specialists, and several rarities have been identified. Some newcomers to Entomology have joined the Section and they have been encouraged as much as possible. Next year promises to be a busy one.

K. M. GUICHARD, *Hon. Secretary.*

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## Ornithological Section.

REPORT FOR 1938.

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### MEMBERSHIP OF THE SECTION.

**D**URING 1938 the membership of the Section has registered another increase, the roll of members on December 31 standing at 404, twenty-four more than on December 31, 1937, and the first time the Section has ever topped its fourth century. There are 28 country associates and 11 branch associates included in this total.

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### INDOOR MEETINGS.

In the two sessions of 1938 the Section has provided lecturers at two general meetings and the Annual Exhibition, and has held six sectional meetings. Attendances at general meetings averaged 58 and at sectional meetings 78. At the general meetings, Mrs H. M. Rait Kerr spoke on "Birds of Gibraltar," and Mr W. E. Glegg discussed "Changes of Bird Life in relation to the Increase of London." At the Annual Exhibition we again had the privilege of hearing Mr Ludwig Koch's excellent gramophone records of bird song. At the three sectional meetings devoted to lectures, Capt. H. A. Gilbert spoke on "Ducks and Decoys," and showed a fine film of the Orierton decoy taken by Mrs C. W. Mackworth-Praed, Dr J. S. Carter discussed "The Field Identification of Ducks," and Dr A. Landsborough Thomson described "Some Aspects of Bird Migration." The three remaining sectional meetings were taken up by discussions and a dialogue. In January Mr R. C. Homes opened a discussion on the scheme for the ecological study



of birds in the London area; in May there was a dialogue between Messrs C. S. Bayne and P. W. E. Currie on the identification of warblers; and in August the annual discussion on the work of the Section took place.

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### ANNUAL EXHIBITION.

At the Annual Exhibition the Ornithological Section was again allowed to use Hall 32 (the Society's regular meeting room), and thirteen exhibitors maintained the usual high standards under the able direction of Mr G. E. Manser. Among the principal exhibitors were Miss P. Barclay-Smith, with charts and maps illustrating the International Wild Fowl Inquiry; Mr Roland Green, with some of his original paintings; Mr Cecil Blackburne of the Haslemere Museum, with maps showing the distribution of rookeries and nesting grey wagtails in the Haslemere district, and Mr J. M. Wilson with a varied selection of bird skulls. Messrs Eric Hosking and G. R. Mountfort provided some excellent photographic exhibits. For the first time living birds were shown, an excellent selection of budgerigars of varying types of plumage being kindly exhibited by Mr P. L. Dabner of Sanderstead. Other exhibitors included Miss Hearn and Messrs Stuart Boardman, Campbell, Hale, and Shepherd. As in previous years, use was made of the Society's collection of skins to supplement various exhibits.

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### THE OFFICERS OF THE SECTION.

At the beginning of the year Mr L. Parmenter became Chairman of the Section in succession to Miss C. E. Longfield, and Mr D. A. T. Morgan succeeded Miss P. I. Wallis as Field Meeting Secretary. Mrs H. M. Rait Kerr and Mr R. L. Collett were elected to vacancies on the Committee.

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### INTERNATIONAL ORNITHOLOGICAL CONGRESS.

The year was noteworthy for the holding at Rouen in May of the VIIIth International Ornithological Congress. Many members of this section were present, headed by the President of the Society, Mr C. L. Collenette, as its official representative.

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### THE LONDON BIRD REPORT.

The *London Bird Report* has continued to show good progress during 1938. An account of the Section's bird ringing activities and the establishment of a trap at Beddington for the use of members will be found in the *London Bird Report* for 1938.

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### FIELD MEETINGS.

Thirty-one field meetings were held in 1938, at which the average attendance was 15, the highest number being 52, and the total number of different members attending meetings during the year, 134. This year for the first time meetings were held specially for beginners and also

for the study of bird ecology. At both these the attendance was good. Among the species identified were the wood-lark, Dartford warbler, brentgoose, pintail, Slavonian grebe, little ringed plover, spotted red-shank, black-tailed godwit, black tern, arctic skua and great skua. The districts visited have included Tring and Walthamstow Reservoirs, Slough Sewage Farm, the Thames Estuary at High Halstow and Grain and the Black water Estuary at Bradwell. Special meetings were held to hear the nightjar and the dawn chorus.

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#### READING CIRCLES AND BOOK FUND.

The eight reading circles for *British Birds* are complete, with 64 members, and there are now 17 readers on the *Scottish Naturalist* circle. The subscription for the former is half-a-crown and for the latter one shilling per annum. Enquiries from other members will enable us to start further circles for *British Birds*. The Book Fund, to which the profits from the reading circles are turned over, has this year purchased and presented to the Library the first two volumes of the new *Handbook of British Birds*.

L. PARMENTER, *Chairman*.

R. S. R. FITTER, *Hon. Secretary*.

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## Plant Galls Section.

### REPORT FOR 1938.

**T**HE Section had two dates allotted to it for sectional meetings which were utilised for papers as follows:—29th March on *Andricus occultus* Tschek. by Mr Ross, and 22nd November on *Andricus solitarius* Fonsc. and on the genus *Isocolus* by Mr Niblett. The attendance at these and the annual general meeting averaged 13.3.

Eight field meetings were arranged and were carried through in spite of unfavourable weather on some of the dates. Under these conditions the attendance naturally suffered, only a few members turning out regularly. The average attendance was 3.12. We visited Effingham on 23rd April; Arbrook Common, 14th May; Coulsdon, 28th May; Box Hill, 25th June; Colley Hill, 9th July; Worms Heath, 10th September; Bricket Wood, 25th September; and Coldharbour Common, 8th October.

The long spell of dry and cold weather in the spring was considered to be responsible for the non-appearance of many species of galls, but in spite of this some interesting records were made which seem to be of species new to the British lists. Further details will be submitted for publication in *The London Naturalist*.

The collection of specimens has been added to during the year and maintained in good condition.

J. ROSS, *Chairman*.

H. J. BURKILL, *Hon. Secretary*.



## Geological Committee.

REPORT FOR 1938.

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**T**HE Geological Committee has made progress. The meetings at Headquarters have been well attended. Dr A. T. Dollar gave a very interesting talk on 20th September entitled "Below London," which was well received and discussed, and on 4th October Dr E. W. Russell of the Rothamsted Experimental Station, near Harpenden, gave a remarkably illuminating talk at Headquarters entitled "The Genesis of Soils." His knowledge of this subject made discussion somewhat difficult, especially when applied to Geology; nevertheless there were comments, coupled with the usual vote of thanks, and everybody agreed that they had learnt something. Three field meetings have been held: One on 17th July to Knock Mill, Eynsford, Kent, in conjunction with the Ramblers Section, and another on 25th September to Chart Gravel Pits and Ripps Marsh, in conjunction with the Botany Section, were kindly lead by Miss M. M. Hose. A further field meeting was held in conjunction with the Ecology Section to Limpsfield Common on the 6th November; this was conducted by our chairman, Mr J. F. Hayward, and some fine field work was accomplished. At the Annual Exhibition, held on the 26th April last, the Geological Committee secured a table and our chairman, Mr J. F. Hayward, staged a fine series of specimens, exhibits, etc., and had many enquiries.

The number of members interested in Geology is now over 30, and further names would be welcomed.

ARTHUR S. GARRIDO, *Hon. Secretary.*

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## Ramblers Section.

REPORT FOR 1938.

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**M**EMBERSHIP of the Section is now 61. Number of indoor meetings during the year, 4; average attendance, 23. Number of outdoor meetings, 12; average attendance, 10. Number of Committee meetings, 4; Average attendance, 6.

The Section provided a lecture for one of the Society's general meetings: "Our Trip to Shetland," by the Chairman. At the Sectional Meetings we had interesting lectures on "Camera Surveys" by Mr D. Rose, and "Old Richmond and Petersham" by Mr F. M. Chapman, and on 13th September Mr C. L. Clarke showed films, many in colour, under the title "On holiday with a Cine-Kodak."

The monthly excursions have been continued, some in conjunction with other Sections, and there have also been some very successful

Saturday afternoon rambles. Among the districts visited have been Ightham, Epping Forest, The Chilterns, The North Downs, and Sunningdale, and visits have been paid to the Zoo and the Victoria and Albert Museum.

An Easter week-end was organised very successfully by Mr F. House, the district visited being the South Downs.

The quarterly publication, *The Countryman*, is circulated among 15 readers at a subscription of 1s per annum, and the publications of the Commons and Footpaths Preservation Society and the kindred societies to which the L.N.H.S. is affiliated are circulated among the Section's Committee. They are, of course, available for the use of all members.

With Mr F. House as Sectional Curator, a beginning has been made towards a collection of photographs illustrating topographical features, interesting buildings, etc., in the Society's area and just beyond. An invitation is cordially extended to members of the Section and of the Society generally to support this enterprise by contributing suitable photographs.

J. E. BURGHAM, *Secretary*.

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## Chingford Branch.

REPORT FOR 1938.

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**T**HE Branch maintained its numbers during the past year—the new members added to the list balancing the resignations. Attendances at Indoor Meetings, however, showed a considerable increase, the average being twenty-seven, as against twenty-one in 1937. The Field Meetings also received larger attendances.

Various subjects were included in Lectures given at the eight Indoor Meetings. At the opening meeting of the year, in January, a fine show of coloured cine films, showing the life histories of various birds, was presented by Dr A. H. Murch, and subsequent papers (illustrated with slides, photos, and living specimens) were given as follows:—“Entomology on the Norfolk Broads,” E. B. Pinniger; “Westward to the Golden Gate,” Mrs Stuart Boardman; “Birding Round Norfolk,” G. E. Manser; “Herbs and some Herb Gardens,” J. F. Hayward, B.Sc.; “Some Hardy Reptiles and Amphibians,” L. G. Payne; “Notes on Birds and other Country Matters,” Miss Douglas-Smith; “A Botanist in Eire,” J. E. Lousley.

Our thanks are due to all the above lecturers for their interesting talks, and in particular to those whose attendance at Chingford necessitated a long and tiring journey.

An interesting paper by Mr F. J. Johnston entitled “The Grey Squirrel in Epping Forest,” which was read at the September Meeting in 1937, subsequently appeared in that year's issue of *The London Naturalist*.



The activities of various members in the Chingford district were shown by the large number of interesting records presented at the meetings, and some details of the abnormal weather conditions were given in Miss Mathieson's monthly report. Fewer specimens were shown than in other years, however, so an attempt was made to encourage members to retain their "finds" by holding an Exhibition at the September meeting. Several members exhibited, and the specimens were widely studied and discussed. It is hoped that this feature can be repeated in the coming year, when earlier preparation should result in an even more successful meeting.

E. T. NICHOLSON, *Branch Secretary.*

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## Referees.

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THE following have kindly consented to act as Referees on questions of identification and for advice in various branches of Natural History.

It should be clearly understood that Referees cannot undertake work of an onerous nature, such as the determination of collections.

Postage for reply should always be enclosed and a request inserted for the return of the specimens if desired.

### BOTANY.

General.—R. W. Robbins, Bullens Lee, Pains Hill, Limpsfield, Surrey.

Genus *Rosa*.—E. B. Bishop, Lindfield, Marshall Road, Godalming, Surrey.

Umbelliferae.—L. G. Payne, 22 Marksbury Avenue, Richmond, Surrey.

Rushes and Sedges.—E. B. Bishop, Lindfield, Marshall Road, Godalming, Surrey.

Grasses.—R. W. Robbins, Bullens Lee, Pains Hill, Limpsfield, Surrey.

Ferns and Horsetails.—L. G. Payne, 22 Marksbury Avenue, Richmond, Surrey.

Mosses and Liverworts.—J. Ross, 23 College Gardens, Chingford, E.4.

Lichens.—I. M. Lamb, B.Sc., F.L.S., British Museum (Natural History), S. Kensington, S.W.7.

Fungi.—J. Ramsbottom, O.B.E., M.A., British Museum (Natural History), S. Kensington, S.W.7.

Mycetozoa.—J. Ross, 23 College Gardens, Chingford, E.4.

Medicinal Plants.—G. R. A. Short, 36 Parkside Drive, Edgware, Middlesex.

Aquatic Plants.—H. J. Jeffery, A.R.C.S., F.L.S., 14 Coppetts Road, Muswell Hill, N.10.

Algae (including Seaweeds).—A. D. Cotton, O.B.E., F.L.S., Royal Botanic Gardens, Kew, Surrey.

## GEOLOGY.

John F. Hayward, B.Sc., 17 Heathcote Grove, Chingford, E.4.

## MINERALOGY.

F. A. Bannister, M.A., 34 Monahan Avenue, Purley, Surrey.

## PALAEOONTOLOGY.

E. I. White, Ph.D., F.G.S., British Museum (Natural History), S. Kensington, S.W.7.

## INVERTEBRATA.

- Mollusca.—J. R. le B. Tomlin, M.A., F.R.E.S., 23 Boscobel Road, St Leonards-on-Sea, Sussex.
- Protozoa, Porifera (Sponges), Coelenterata (Jelly-fish, Sea-anemones and Corals), Vermes, Polyzoa, Brachiopoda, Echinodermata.—M. Burton, M.Sc., F.Z.S., British Museum (Natural History), S. Kensington, S.W.7.
- Crustacea.—Miss Isabella Gordon, D.Sc., Ph.D., British Museum (Natural History), S. Kensington, S.W.7.
- Myriapoda (Centipedes and Millipedes).—Rev. S. G. Brade-Birks, M.Sc. (Manch.), D.Sc. (Lond.), F.Z.S., S.E. Agricultural College, Wye, Kent.
- Insecta :—General.—C. L. Collenette, F.R.E.S., 15 Warren Avenue, Richmond, Surrey.
- Thysanura (Bristle-tails) and Collembola (Spring-tails).—J. M. Brown, B.Sc., F.R.E.S., 176 Carterknowle Road, Sheffield, 7.
- Orthoptera (Earwigs, Cockroaches, Grasshoppers, Crickets, etc.).—P. Freeman, B.Sc., A.R.C.S., Royal College of Science, Exhibition Road, S.W.7.
- Plecoptera (Stone-flies) (*Specimens in fluid only*).—M. E. Mosely, 43 Lansdowne Crescent, W.11.
- Psocoptera (Book-lice, etc.).—D. E. Kimmins, 16 Montrave Road, Penge, S.E.20.
- Ephemeroptera (May-flies).—D. E. Kimmins, 16 Montrave Road, Penge, S.E.20.
- Odonata (Dragon-flies).—E. B. Pinniger, 19 Endlebury Road, Chingford, E.4.
- Thysanoptera (Thrips).—Edward R. Speyer, M.A., Experimental and Research Station, Cheshunt, Herts.
- Hemiptera (Bugs, Cicadas, Leaf-hoppers, etc.).—W. E. China, M.A., British Museum (Natural History), S. Kensington, S.W.7.
- Neuroptera (Lace-wings, Ant-lions, Alder and Scorpion-flies, etc.).—D. E. Kimmins, 16 Montrave Road, Penge, S.E.20.
- Trichoptera (Caddis-flies) (*Specimens expanded only*).—M. E. Mosely, 43 Lansdowne Crescent, W.11.
- Lepidoptera (Butterflies and Moths).—R. W. Robbins, Bullens Lee, Pains Hill, Limpsfield, Surrey.



Coleoptera (Beetles).—K. G. Blair, D.Sc., F.R.E.S., 11 Durrington Avenue, S.W.2.

Hymenoptera (Ants, Bees, Wasps, etc.).—R. B. Benson, M.A., F.R.E.S., British Museum (Natural History), S. Kensington, S.W.7.

Diptera (Flies, Gnats and Midges).—L. Parmenter, F.R.E.S., 94 Fairlands Avenue, Thornton Heath, Surrey.

Arachnida (Spiders, Scorpions, Harvesters, Mites, etc.).—E. A. Robins, F.L.S., 19 Cassiobury Park Avenue, Watford, Herts.

#### VERTEBRATA.

Fishes.—J. R. Norman, F.Z.S., British Museum (Natural History), S. Kensington, S.W.7.

Amphibians and Reptiles.—L. G. Payne, 22 Marksbury Avenue, Richmond, Surrey.

Birds:—Distribution and Identification. For the Society's Area.—The Recorder, R. S. R. Fitter, F.Z.S., 81 Ridgmount Gardens, W.C.1.

Outside Society's Area.—The Hon. Secretary of Records Committee, R. C. Homes, 17 Park Lawn Avenue, Epsom, Surrey.

British Trust for Ornithology.—The Society's Representative, R. S. R. Fitter, address as above.

Anatomy.—G. Carmichael Low, M.A., M.D., F.R.C.P., F.Z.S., M.B.O.U., 86 Brook Street, Grosvenor Square, W.1.

Nests and Eggs.—J. E. Roberts, B.Sc., 24 Warren Drive, Surbiton, Surrey.

Mammals.—M. A. C. Hinton, F.R.S., British Museum (Natural History), S. Kensington, S.W.7.

#### PLANT GALLS.

H. J. Burkill, M.A., F.R.G.S., 3 Newman's Court, Cornhill, E.C.3.

#### ECOLOGY.

L. Parmenter, F.R.E.S., 94 Fairlands Avenue, Thornton Heath, Surrey.

#### CHEMISTRY.

L. Eynon, B.Sc., F.I.C., Fernleigh, Hall Lane, Upminster, Essex.

#### RIGHTS OF WAY, FIELD PATHS, Etc.

Sir Lawrence Chubb, 71 Eccleston Square, Westminster, S.W.1.

## Papers Read to the Society during 1938.

WE wish to offer our grateful thanks to all those visitors who, by coming to lecture to us, have added so much to our enjoyment.

- Jan. 4—"Natural History Societies and their link with Systematic Biology," ..... H. W. Parker, M.A., F.L.S., F.Z.S.  
 ,, 18—"Misericords," ..... A. Gardner, M.A., F.S.A.
- Feb. 1—"Entomology on the Norfolk Broads,"  
 K. M. Guichard, L. Parmenter, F.R.E.S., E. B. Pinniger.  
 ,, 15—"Sawfly Plant Gall Problems,"  
 R. B. Benson, M.A., F.L.S., F.R.E.S.
- Mar. 1—"Our Trip to Shetland," ..... J. E. S. Dallas.  
 ,, 15—"Botany for Use and Pleasure,"  
 H. Stanley Redgrove, B.Sc., F.I.C.
- April 5—BACOT MEMORIAL EVENING.  
 Film: "A Naturalist in Africa,"  
 Miss C. E. Longfield, F.R.G.S., F.R.E.S., F.Z.S., M.B.O.U.
- May 3—ANNUAL EXHIBITION.  
 Lecturettes: "More Songs of Wild Birds" (illustrated with  
 gramophone records), ..... Ludwig Koch.  
 "Anti-Scrape," ..... C. Maresco Pearce.  
 ,, 17—"The Croydon Regional Survey and Atlas," C. C. Fagg, F.G.S.
- June 21—"Birds of Gibraltar," ..... Mrs H. M. Rait Kerr, M.B.O.U.
- July 5—"Changes in Bird Life in Relation to the Increase of London,"  
 W. E. Glegg, F.Z.S., M.B.O.U.
- Sept. 6—"The Botanist and the Species Problem," E. H. Ellis, B.Sc.  
 ,, 20—"Below London," ..... A. T. Dollar, Ph.D.
- Oct. 4—"The Genesis of Soils," ..... E. W. Russell, M.A., Ph.D.
- Nov. 1—FILM SHOW.  
 (a) "Where the Green Trees Grow," ..... (Kodak).  
 (b) "The Black-headed Gull," ..... (Gaumont-British).  
 (c) "Some Water Insects," ..... (Kodak).  
 (d) "The Ruffed Grouse," ..... (Kodak).  
 (e) "The Interdependence of Pond Life," (Gaumont-British).  
 ,, 15—"Fresh Glimpses of Roman London,"  
 Quinton Waddington, F.S.A., Asst. Curator, Guildhall  
 Museum.
- Dec. 6—ANNUAL GENERAL MEETING.  
 President's Address: "Wild Life in Richmond Park."  
 ,, 13—"South American Social Wasps,"  
 O. W. Richards, M.A., D.Sc.



## PAPERS READ AT SECTIONAL MEETINGS.

- Jan. 11—ORNITHOLOGY. "Discussion of the Scheme for the Ecological Study of Birds in the London Area," ... R. C. Homes.  
 ,, 25—BOTANY. "Some Less Familiar Plants," ..... J. E. S. Dallas.
- Feb. 8—ORNITHOLOGY. "Ducks and Decoys," H. A. Gilbert, M.B.O.U.  
 ,, 22—ECOLOGY. First Year at Limpsfield.  
     Plant Ecology, ..... J. E. Lousley.  
     Animal Ecology, ..... L. Parmenter, F.R.E.S.
- Mar. 8—ENTOMOLOGY. "Our British Neuroptera," ..... E. E. Syme.  
 ,, 22—ARCHAEOLOGY. "The Architecture of the Moors in Spain,"  
     D. Chisholm Simpson.  
 ,, 29—PLANT GALLS. "*Andricus occultus*," ..... J. Ross.
- April 12—BOTANY. "Botany in the Ancient World," G. H. Spinney, B.A.  
 ,, 26—ENTOMOLOGY. "Some Pests of Garden Plants,"  
     G. Fox Wilson.
- May 10—RAMBLERS. "Camera Survey," ..... D. Rose.  
 ,, 24—ORNITHOLOGY. "Warblers, and How to Identify Them,"  
     C. S. Bayne and C. W. G. Paulson, M.B.O.U.  
 ,, 31—ARCHAEOLOGY. "Our British Heritage," ... W. C. Cocksedge.
- June 14—ECOLOGY. "English Reptiles and Batrachians," L. G. Payne.  
 ,, 28—RAMBLERS. "Old Richmond and Petersham," F. M. Chapman.
- Aug. 9—ORNITHOLOGY. Discussion of the Work of the Ornithological Section.
- Sept. 13—RAMBLERS. "On Holiday with a Ciné-Kodak," C. L. Clarke.  
 ,, 27—ARCHAEOLOGY. "Ecclesiastical Ironwork,"  
     Edward Yates, F.S.A.
- Oct. 11—ORNITHOLOGY. "Field Identification of Ducks,"  
     J. S. Carter, Ph.D., M.Sc., F.I.C.
- Nov. 8—ENTOMOLOGY. "Ants and Their Ways," G. E. J. Nixon, B.A.  
 ,, 22—PLANT GALLS:  
     (a) "*Andricus solitarius*," ..... M. Niblett.  
     (b) "Sawfly Galls," ..... M. Niblett.  
 ,, 29—ORNITHOLOGY. "Some Aspects of Bird Migration,"  
     A. Landsborough Thomson, C.B., D.Sc., M.B.O.U.
- Dec. 20—BOTANY. "Field Botany and the Herbarium,"  
     Rev. P. H. Cooke, B.A.

**STATEMENT OF ACCOUNTS 1938: GENERAL ACCOUNT.**

Balance, 1st November 1937	...	£61 17 0
Interest on Post Office Account	...	...
Interest on £75 3½ per cent. Conversion Loan	...	1 7 2
Interest on National Building Society Shares	...	2 12 6
Sale of Library Books	...	2 9 7
Subscriptions and Entrance Fees	...	0 16 9
	...	269 14 9

Rent	...	£40 15 0
Syllabus Expenses (Printing and Postages)	...	13 7 6
General Printing and Stationery	...	13 2 2
Postages (Secretary)	...	8 0 0
Postages (Treasurer)	...	2 3 10
Insurance	...	1 11 6
Gratuities	...	2 5 0
Subscriptions—Ramblers' Association	...	£0 7 6
South Eastern Union of Scientific Societies	...	0 7 6
Commons, Open Spaces and Footpaths Preservation Society	...	0 10 0
British Trust for Ornithology	...	0 10 0
<i>Entomologists' Monthly Magazine</i>	...	0 15 0
Pedestrians' Association	...	0 5 0
Bird Ringing Scheme	...	0 15 0

Sectional Expenses—Ramblers	...	3 10 0
Entomology	...	£2 10 0
Plant Galls	...	2 5 0
Ornithology	...	1 5 0
Botany	...	11 0 0
Archaeology	...	3 0 0
Ecology	...	3 0 0
Geological Committee	...	2 0 0
	...	0 10 0

Expenses of Cinematograph Displays	...	25 10 0
Expenses of Lecture	...	2 4 6
Annual Exhibition Expenses	...	0 10 6
Secretary's Honorarium	...	1 16 1
Chingford Branch Expenses	...	40 0 0
Binding	...	5 7 6
Transport on Insect Collection Donated	...	2 5 6
Maps Purchased	...	2 0 0
Entomological Enquiry Forms	...	1 10 6
	...	2 13 6
	...	£168 13 1

*Carried forward, £338 17 9*

*Carried forward, £168 13 1*



<i>Brought forward</i> , £338 17 9	<i>Brought forward</i> , £168 13 1
Sundry Expenses ... ..	...
Transfer to <i>London Naturalist</i> Account ... ..	0 18 0
Transfer to Reserve Account ... ..	61 11 9
	35 0 0
	£266 2 10
Balance at Bank, 31st October 1938 ... ..	72 14 11
	£338 17 9

**LONDON NATURALIST ACCOUNT.**

Donations ... ..	£5 5 8	Printing ... ..	...	£73 12 0
Sales of <i>London Naturalist</i> ... ..	5 1 9	Blocks ... ..	...	0 18 6
Sales of <i>London Bird Report</i> ... ..	4 0 9	Postage ... ..	...	7 10 1
Reprints and Maps ... ..	2 8 1	<i>London Bird Report</i> , Advertising, etc. ... ..	...	0 17 5
Advertisements ... ..	4 10 0			
Transfer from General Account ... ..	61 11 9			
	£82 18 0			£82 18 0

**LIFE COMPOSITION ACCOUNT.**

Balance, 1st November 1937 ... ..	£130 0 0	Balance, 31st October 1938—		
Extra Payment on Higher Scale ... ..	5 0 0	£75 3½ per cent. Conversion Loan ... ..	£75 0 0	
Life Member's Composition ... ..	10 0 0	National Building Society ... ..	70 0 0	
			£145 0 0	
	£145 0 0			£145 0 0

**RESERVE ACCOUNT.**

Balance, 1st November 1937 ... ..	£75 0 0	Balance, 31st October 1938—		
Transfer from General Account ... ..	35 0 0	At Post Office ... ..	£110 0 0	
	£110 0 0			£110 0 0

Audited and found correct, 25th November 1938.

LEWIS EYNON,

C. L. COLLENETTE, *Auditors.*F. G. DELL, *Treasurer.*

# List of Members.

(Corrected up to 9th May 1939.)

*It is particularly requested that Members will inform the Secretary as soon as possible of any change of address.*

## Honorary President:

PROF. SIR FREDERICK GOWLAND HOPKINS, O.M., M.A., M.D., F.R.C.P.,  
F.R.S.

## Honorary Vice-Presidents:

SIR LAWRENCE CHUBB. E. A. COCKAYNE, M.A., D.M., F.R.C.P., F.R.E.S.  
PROF. M. GREENWOOD, D.Sc., F.R.S., F.R.C.P. A. HOLTE MACPHERSON,  
B.C.L., M.A., F.Z.S. L. B. PROUT, F.R.E.S. J. ROSS.

## Honorary Members:

- 1933 Bryce, E. J., Nelson Road, Killara, Sydney, N.S.W. (Zoo.)  
1927 Le Souef, A. S., C.M.Z.S., R.A.O.U., Taronga Zoological Park  
Trust, Sydney, Australia.  
1899 Massey, Herbert, M.B.O.U., F.R.E.S., Ivy Lea, Burnage, Dids-  
bury, Manchester. (Lep., Orn., Ool.)

## Members:

- 1927 Aldred, Miss K. V., 5 Ladbroke Court, Ladbroke Gardens, W.11.  
(Arch., Orn.)  
1922 Aldred, Miss M., Flat 5, 21 Ladbroke Gardens, W.11. (Orn.)  
1928 Alexander, O. A., 35 Ellington Road, Hounslow, Middlesex. (Ent.)  
1937 Alston, A. H. G., B.A., F.L.S., British Museum (Natural His-  
tory), S.W.7. (Bot.)  
1932 Angell, Miss K. W., at 104 Broxholm Road, S.E.27. (Orn., Ent.,  
R., Ecol., Bot., Pl. G.)  
1932 Arbon, Mrs J. A., Brookside, Eversley Park Road, N.21. (Arch.)  
1915 Aris, E. A., F.Z.S., 9 Oak Avenue, Priory Road, N.8. (Lep.)  
1932 Arnold, Miss W., 43 The Quadrant, S.W.20. (Orn.)  
1939 Ashby, C. B., 20 Denmark Road, Carshalton, Surrey. (Orn.)  
1937 Austin, H. W., 19 Bell Moor, N.W.3. (Orn.)  
1892 Austin, S., F.Z.S., 43 Darenth Road, N.16. (Orn., Arch., R.,  
Ecol., Bot.)  
1931 Axford, W. G., Surgeon Rear Admiral, C.B., F.L.S., 5 King  
Edward Mansions, 212a Shaftesbury Avenue, W.C.2. (Bot.)  
1931 Back, Dr Marjorie, 16 Daisy Lane, S.W.6. (Bot., Orn.)  
1929 Baggallay, Miss J., 55 Ridgway Place, S.W.19. (Orn.)  
1929 \*Bagnall, R. S., D.Sc., F.R.S.E., 9 York Place, Edinburgh. (Pl.  
G., Ent., Bot.)

- 1927 Baily, Miss A. R., F.Z.S., Cressex Lodge, Binfield, Berks. (Arch., Bot., Orn., Ent., Pl. G., R.)
- 1924 \*Baker, E. C. Stuart, J.P., O.B.E., F.Z.S., F.L.S., M.B.O.U., H.F.A.O.U., 6 Harold Road, S.E.19. (Orn.)
- 1934 Banks, H., 172 Cromwell Road, Hounslow, Middlesex. (Bot., Orn.)
- 1927 Barclay-Smith, Miss P., F.Z.S., M.B.O.U., Park Lodge, Hervey Road, S.E.3. (Orn.)
- 1926 Barnes, Mrs E. C., M.B.O.U., Hungerdown, Seagry, Wilts. (Orn., Bot., Ecol.)
- 1937 Barnett, R. L., 30 Hans Road, S.W.3. (Bot., Orn.)
- 1933 Bastian, Miss S., 83 Gower Street, W.C.1.
- 1903 \*Battley, Mrs, 47 Gordon Road, W.5.
- 1932 Bayliss, C. V., 34 Golders Gardens, N.W.11. (Arch.)
- 1915 Bayne, C. S., Room 303, Salisbury House, E.C.4. (Orn., Ecol.)
- 1936 Beckwith, Major W. M., D.S.O., 59 Albert Hall Mansions, S.W.7. (Orn.)
- 1926 Benn, Miss A., 68 South Esk Road, E.7. (Orn., Ent., Pl. G., Ecol.)
- 1929 \*Benson, R. B., M.A., F.L.S., F.R.E.S., British Museum (Natural History), S.W.7. (Bot., Orn., Ent., esp. Sawflies, Ecol., R., Pl. G.)
- 1932 Bentham, C. H., Eothen, Epsom Lane, Tadworth, Surrey. (Orn.)
- 1937 Best, Miss M. G., M.R.C.S. (Eng.), L.R.C.P. (Lond.), 115 Widmore Road, Bromley, Kent. (Orn.)
- 1932 Binley, Miss E. M., 197 Camberwell Grove, S.E.5. (Orn., R.)
- 1935 Birnie, Miss V. M. O., 23 Hillway, N.6. (Orn., R.)
- 1937 Blackett, Miss F. R. F., Royal Empire Society, Northumberland Avenue, W.C.2. (Orn.)
- 1930 Blair, K. G., D.Sc., F.R.E.S., 11 Durrington Park Road, S.W.20. (Ent.)
- 1939 Blake, E. A., 16 Lindsay Road, Worcester Park, Surrey. (Orn.)
- 1937 Blake, F. W., 16 Lindsay Road, Worcester Park, Surrey. (Orn.)
- 1938 Blay, N. A., L.D.S., R.C.S. (Eng.), 27 Shrubbery Gardens, N.21. (Ecol., Orn., R.)
- 1939 Bolton, J. R., 49 Downs Road, E.5. (Orn.)
- 1933 Bonus, Miss A., 28a Nevern Place, S.W.5. (Orn.)
- 1939 Bowman, Miss B. M., 33 Lessar Avenue, S.W.4. (Ent.)
- 1933 Bowtell, J. J., Tudor House, Lynton Road, Thorpe Bay, Essex.
- 1939 Boyd, B. C. L., 10 Mayfield Road, Dagenham, Essex. (Orn.)
- 1904 Bradley, S. W., 4 Lucton's Avenue, Buckhurst Hill, Essex. (Bot., Ent., Orn.)
- 1932 Braithwaite, Miss D. M., 18 Warren Road, E.4. (Orn.)
- 1910 Braithwaite, Miss N. A., 18 Warren Road, E.4.
- 1933 Brazil, Miss F., Penby, Marshalswick Lane, St Albans, Herts. (Orn.)
- 1930 Brend, Wm. A., M.A., M.D., B.Sc., 14 Bolingbroke Grove, S.W.11. (Arch., Orn., R.)
- 1937 Brightwell, L. R., F.Z.S., White Cottage, Chalk Lane, East Horsley, Surrey. (Marine Life.)



- 1933 Bromley, Miss B., 18 John Street, W.C.1. (Orn., R.)
- 1916 Brown, A., F.Z.S., 44 Ravensdale Road, N.16. (Orn., Arch., Geol., R.)
- 1937 Brown, Miss B. E., Gresham Cottage, Granville Road, Limpsfield, Surrey.
- 1936 Brown, E. C., M.Sc. (Lond.), 120 Durlston Road, Kingston-on-Thames, Surrey. (Bot., Ecol.)
- 1926 Browne, Miss C. H., 219 Harlesden Road, N.W.10. (R., Arch., Orn., Bot.)
- 1938 Buck, F. D., 49 Elthorne Road, N.19. (Col., Ecol.)
- 1938 Budden, E. C., 253 Latymer Court, W.6. (Orn.)
- 1930 Burgham, Miss J. E., 4 Regent Square, W.C.1. (Orn., Geol., R.)
- 1915 Burkill, H. J., M.A., F.R.G.S., 3 Newman's Court, Cornhill, E.C.3. (Pl. G., Lep., Bot., Geol., Orn., R., Ecol.)
- 1933 Burton, M., M.Sc., F.Z.S., 55 Pope's Grove, Twickenham, Middlesex. (Porifera, Orn.)
- 1937 Butlin, J. H., 90 East Sheen Avenue, S.W.14. (Orn.)
- 1935 Butterworth, Miss M. H., Dyer's Lane, S.W.15. (Orn., Bot., Ecol.)
- 1938 Buxton, Miss L. R., Newlands, Stanstead Abbots, Ware, Herts. (Orn.)
- 1932 Caiger-Smith, Miss J., 23 Hornton Street, W.8. (Orn.)
- 1938 Calvert, G. W., c/o Tyresoles Ltd., Palace of Engineering, Wembley, Middlesex. (Orn.)
- 1928 \*Campbell, J. M. H., M.D., 47 Arkwright Road, N.W.3. (Orn., R.)
- 1912 Capleton, A., 95 Monkham's Drive, Woodford Green, Essex. (Mam., Orn., R., Bot., Ecol.)
- 1926 Carr, Miss A. N., 7 Cambridge Road, Watford, Herts. (Orn., R.)
- 1936 Carrington, L. I., The Grey Cottage, Chipstead, Surrey. (Orn.)
- 1933 Carter, J. S., Ph.D., M.Sc., F.I.C., 26 St John's Road, N.W.11. (Orn.)
- 1932 Castell, C. P., 52 Graham Road, S.W.19. (Bot., Geol., Ecol.)
- 1936 Cawkell, E. M., 10 Algiers Road, S.E.13. (Orn.)
- 1936 Chandler, K. R., 33 Granville Road, Limpsfield, Surrey. (Orn., Ecol.)
- 1930 Chandler, S. E., D.Sc., F.L.S., 59 Anerley Park, S.E.20. (Bot., Ecol.)
- 1938 Chave, Mrs E. L., 15 Glenhurst Rise, S.E.19. (Orn.)
- 1938 Chave, S. P. W., 15 Glenhurst Rise, S.E.19. (Orn.)
- 1931 Chubb, Sir Lawrence, 71 Eccleston Square, S.W.1. (R.)
- 1927 Clanchy, Mrs B. L., 12 Cranbourne Drive, Pinner, Middlesex. (R., Orn.)
- 1927 Clanchy, D. H., 12 Cranbourne Drive, Pinner, Middlesex. (R., Orn., Ecol.)
- 1929 Coates, Miss N. H., Woodhouse, Beaumont Road, S.W.19. (Orn., Bot.)
- 1904 Cockayne, E. A., M.A., D.M., F.R.C.P., F.R.E.S., 16 Westbourne Street, W.2. (Lep., Biol.)

- 1937 Cockburn, T. A., M.D., Town Hall, Barking, Essex. (Orn.)
- 1925 Cocksedge, W. C., 6 Aldersmead Road, Beckenham, Kent. (Orn., Arch., Bot., Ecol., Geol.)
- 1929 Cocksedge, Mrs, 6 Aldersmead Road, Beckenham, Kent. (Arch., Bot., Ecol., Geol.)
- 1907 Collenette, C. L., F.R.G.S., F.R.E.S., 15 Warren Avenue, Richmond, Surrey. (Ent., Orn., Bot., Ecol.)
- 1932 Collenette, Mrs C. L., 15 Warren Avenue, Richmond, Surrey. (Orn.)
- 1933 Collett, G. W., 84 Jermyn Street, S.W.1. (Orn., Ecol., R., Bot.)
- 1936 Collett, R. L., 165/20 Abbey Road, N.W.8. (Orn.)
- 1934 Collings, Mrs M., 36 Alfriston Road, S.W.11. (Ent., R.)
- 1936 Colyer, W. L., 8 The Mount, New Malden, Surrey. (Orn., Ecol.)
- 1914 Connoll, Miss E., 93 Montague Street, Worthing, Sussex. (Orn.)
- 1937 Cooke, H. O. P., Lamorna, Redruth, Cornwall. (Ent., Orn.)
- 1904 Cooke, Rev. P. H., B.A., 19 Hainthorpe Road, S.E.27. (Bot., Arch.)
- 1934 Coon, F. A. H., 7 Grenville Mansions, Hunter Street, W.C.1. (Orn.)
- 1938 Cooper, J. M., Fairview, Higher Drive, Purley, Surrey. (Orn.)
- 1939 Coote, F. D., F.R.E.S., 32 Wickham Avenue, Cheam, Surrey. (Lep.)
- 1937 Cornwallis, R. K., 26 Bramham Gardens, S.W.5. (Orn.)
- 1939 Couper, Miss L., 6 St John's Road, N.W.11. (Arch.)
- 1928 Cox, Miss L. E., 72 Corringham Road, N.W.11. (Bot.)
- 1932 Creighton, Miss M. B., 78 Highview Avenue, Edgware, Middlesex. (Bot., Biol., Pl. G.)
- 1937 Crispin, G. H., Meadowcroft, Abbot's Langley, Herts.
- 1936 Crompton, Miss C. E., Pioneer Club, 12 Cavendish Place, W.1. (Arch., Orn.)
- 1931 Crook, W. M., F.R.G.S., F.Z.S., 6 St Andrew's Place, N.W.1. (Orn.)
- 1927 Cross-Rose, F., 20 Woolstone Road, S.E.23. (Orn.)
- 1892 Culpin, M., M.D., F.R.C.S., 12 Park Village East, N.W.1. (Biol.)
- 1930 Cunningham, J., M.B.O.U., Drinagh, Kensington Road, Knocke, Belfast. (Orn.)
- 1936 Currie, P. W. E., 102 Burdon Lane, Belmont, Sutton, Surrey. (Orn., Ecol.)
- 1939 Cust, Mrs M. V. J., 13 Tedworth Street, S.W.3. (Orn.)
- 1892 Cyriax, R. C., 23 Aberdare Gardens, N.W.6. (Arch., Aryan question, Indo-European languages.)
- 1936 Daffarn, J. D., 20 Woodside Avenue, N.6. (Orn.)
- 1920 \*Dallas, J. E. S., 83 Belsize Lane, N.W.3. (Orn., Bot., Arch., Ecol., R., Pl. G.)
- 1925 \*Dallas, Mrs Rosa F., 83 Belsize Lane, N.W.3. (Arch., Bot., Geol., Orn., Ecol., R.)
- 1933 Davies, Miss E. B., Graffham, Petworth, Sussex. (Orn., Ent.)
- 1938 Davies, T. H., Flat 2a, 91 Cromer Street, W.C.1. (Bot., Ent., Orn., Pl. G.)

- 1937 Davis, A., 188 Nether Street, N.3.
- 1932 Davis, Miss R., 118 College Road, S.E.21. (Orn., R.)
- 1926 Deane, Miss M. B. H., c/o Westminster Bank Ltd., Tangier, Morocco. (Orn.)
- 1939 De Boşdar, C. D., 24 Hans Place, S.W.1.
- 1910 Dell, F. G., 55 Russell Road, Buckhurst Hill, Essex. (P. L., Micr., Orn., R.)
- 1932 Denham, R., M.B.O.U., 12 Weymouth Court, 1 Weymouth Street, W.1. (Orn., Ent.)
- 1937 Donnelly, R. P., B.A., B.Sc. (Oxon.), 7 Rothesay Avenue, Richmond, Surrey. (Orn.)
- 1933 Doran, F. H., Toddsbrook, Gt. Parndon, Harlow, Essex. (P. L.)
- 1936 Douglas, Miss M., 30 The Alders, N.21. (Orn., R., Bot.)
- 1928 Douglas-Smith, Miss K., 19 Thurlow Road, N.W.3. (Arch., Orn., Bot., Ecol.)
- 1927 Druce, F., M.A., F.L.S., 60 Burton Court, S.W.3. (Bot.)
- 1934 Eales-White, Major J. C., T.D., F.R.E.S., F.Z.S., 88 Mount Ararat Road, Richmond, Surrey. (Orn., Ent., Arch.)
- 1938 Eardley-Wilmot, Mrs M., 24 Thurloe Square, S.W.7. (Bot., Orn.)
- 1936 Elcome, G. D., 28 The Avenue, S.E.19. (Orn.)
- 1936 Elcome, J. W., 28 The Avenue, S.E.19. (Orn.)
- 1939 Elles, J. H. de G., 79 Onslow Square, S.W.7. (Bot.)
- 1936 Ellington, Miss M. L., 3 The Terrace, Richmond Hill, Surrey. (Orn.)
- 1936 Ellis, W. G., 49 Lordship Road, N.16. (Orn.)
- 1928 Emberson, L. M., African and Eastern (Near East) Ltd., P.O. Box No. 17, Baghdad, Iraq. (Orn., Ecol.)
- 1927 English, Miss F., 8 Dorville Crescent, W.6. (Orn., Bot., Arch., R.)
- 1937 Ennis, L. H., 16 Ernle Road, S.W.20. (Ent.)
- 1939 Eve, I. S., 49 Downs Road, E.5. (Orn.)
- 1907 Eynon, L., B.Sc., F.I.C., 8 Hall Lane, Upminster, Essex. (Chem.)
- 1935 Farquharson, A., 35 Gordon Square, W.C.1. (Ecol.)
- 1939 Faulkner, Miss A. M. G., 127 Lower Richmond Road, S.W.14. (Arch., Orn., R.)
- 1937 Fernberg, Mrs B., 29 Steele's Road, N.W.3. (Orn.)
- 1927 Fisher, Mrs G. L., 41 Milton Court, Ickenham, Middlesex. (Arch.)
- 1937 Fisher, J. M. McC., Zoological Society of London, N.W.8. (Ecol., Orn.)
- 1934 Fitter, R. S. R., F.Z.S., 81 Ridgmount Gardens, W.C.1. (Orn., Ecol., Ent.)
- 1939 Forty, E., 24 Castleton Mansions, S.W.13. (Orn.)
- 1937 Fossey, H. B., 13 Abercorn Gardens, Barley Lane, Romford, Essex. (Orn.)
- 1924 Foster, J. B., B.A., 12 Conway Road, S.W.20. (Orn.)
- 1935 Foster, Mrs J. B., 12 Conway Road, S.W.20.
- 1928 Fox, G. J. B., 45 Stanwick Mansions, W.14. (Arch.)
- 1932 Franklin, A. W. L., 47 Bedford Gardens, W.8. (Orn.)



- 1938 Franks, Miss H., 21 Queen Square House, Guilford Street, W.C.1. (Arch., Bot., Ecol., Orn., R.)
- 1931 Frederick, Miss L. M., M.Sc., F.Z.S., Whitelands College, West Hill, S.W.15. (Orn., P. L., Ecol., R.)
- 1937 Freeman, P., B.Sc., A.R.C.S., F.R.E.S., 8 Sebastian Avenue, Shenfield, Essex. (Ecol., Ent.)
- 1935 French, W. A., Brook Barns, Chigwell, Essex. (Orn., Bot.)
- 1936 Gardner, D. H. W., Merchant Taylors' School, Sandy Lodge, Northwood, Middlesex. (Orn.)
- 1932 Garrido, A. S., 102 Clonmell Road, N.17. (Bot., Geol., Ecol.)
- 1933 Gaster, H., 26a Lunham Road, S.E.19. (Bot., Orn.)
- 1910 Gaze, W. E., 10 The Avenue, Highams Park, E.4. (Lep., Bot., Chem.)
- 1939 Gibson, Mrs G. M., 26 Gilston Road, S.W.10. (Bot., Orn.)
- 1931 Gillett, J. D., F.R.E.S., 1 Beulah Road, E.17. (Ent., Rept.)
- 1933 Gillham, E. H., 39 Coulsdon Road, Coulsdon, Surrey. (Orn.)
- 1937 Gillingham, D. W., 28 Roding Road, Loughton, Essex. (Orn.)
- 1910 Glegg, W. E., F.Z.S., M.B.O.U., 2 Burlington House, King's Road, Richmond, Surrey. (Orn.)
- 1934 Godwin, C., 20 Canonbury Park North, N.1. (Orn.)
- 1934 Godwin, Mrs M. L., 20 Canonbury Park North, N.1. (Orn.)
- 1929 Goodfellow, Miss L., 11 The Grange, Maitland Park Road, N.W.3. (Orn.)
- 1930 Goodwin-Vanner, R. E., F.R.S.A., F.R.H.S., Essex Villa, Guildford, Surrey. (Arch.)
- 1939 Goom, Miss E., 78 Elmfield Avenue, Teddington, Middlesex. (Orn.)
- 1937 Gosnell, V., Farm Cottage, Boxlane, Boxmoor, Herts. (Orn.)
- 1934 Gray, Miss J. W., 10 Canford Road, S.W.11. (R., Bot., Arch.)
- 1937 Green, D. B., 20 Fitzjohn's Avenue, N.W.3. (Orn.)
- 1937 Green, Mrs E. M., Gordon House, Gloucester Road, New Barnet, Herts. (Bot., Ecol.)
- 1927 Green, R., F.Z.S., Ruskin Studio, 7 New Court, Lincoln's Inn, W.C.2. (Orn.)
- 1936 Greenwell, W. N., 12 Highbury, Newcastle-upon-Tyne, 2. (Orn.)
- 1899 \*Greenwood, Prof. M., D.Sc., F.R.S., F.R.C.P., Hillcrest, Church Hill, Loughton, Essex. (Arch., Biol.)
- 1928 Griffin, Miss M., 22 Addison Way, N.W.11. (Orn.)
- 1920 Grinling, C. H., B.A., 71 Rectory Place, S.E.18. (Bot., Ecol.)
- 1937 Guichard, K. M., 10 Lyndhurst Gardens, N.W.3. (Ent., Ecol., Bot., Orn.)
- 1933 Gunton, L., Lahlglyn, Cross Path, Radlett, Herts. (Orn.)
- 1938 Gunyon, Mrs D. S., 9 Raydean Road, Barnet, Herts. (Ent., Orn.)
- 1932 Hadfield, J., Denecroft, Heath Way, Effingham, Surrey. (Orn., R.)
- 1926 Hadfield, Mrs M. H., Denecroft, Heath Way, Effingham, Surrey. (Orn., Bot., R.)
- 1927 Hale, R. W., 6 Grendon Gardens, Barn Hill, Wembley Park, Middlesex. (Orn.)

- 1936 Hall, J. B., Nakuru, Bridle Lane, Loudwater, Herts. (Orn.)
- 1939 Hambly, E. H. T., M.B., B.S., F.R.C.S., R.N. Orthopaedic Hospital, W.1. (Ent., Orn.)
- 1903 Hanbury, F. Capel, Westfield, Hoddesdon, Herts. (Lep.)
- 1938 Hansford, Mrs D. I., 10 Russell Grove, N.W.7. (Bot., Ecol.)
- 1897 \*Hanson, P. J., Burcroft, Village Road, Bush Hill Park, Enfield, Middlesex. (Orn., Arch., R., Ecol.)
- 1927 Hardiman, Miss A., Hyron's Cottage, Woodside Road, Amersham, Bucks. (R.)
- 1921 Hardiman, J. P., C.B.E., B.A., Hyron's Cottage, Woodside Road, Amersham, Bucks. (Orn., R.)
- 1935 Harris, A. H., 47 Lynette Avenue, South Side, S.W.4. (Orn.)
- 1933 Harrison, Miss E. E., 44 Alexandra Road, N.W.8. (Orn., R.)
- 1937 Harrison, H. G., 38 Richmond Road, N.1. (Orn., Arch.)
- 1937 Harvie, Miss D. E., 35 Abercorn Place, N.W.8. (Bot., Orn., Freshwater Biol., Ecol.)
- 1935 Hatch, R. S., 66 Coston's Avenue, Greenford, Middlesex. (Orn.)
- 1939 Haviland, Mrs B., 121 Ashley Gardens, S.W.1. (Bot.)
- 1939 Haviland, Miss D. M., 121 Ashley Gardens, S.W.1. (Orn.)
- 1938 Haviland, Miss G. M. B., 121 Ashley Gardens, S.W.1. (Orn.)
- 1938 Haviland, Major L. P., 45a Chester Square, S.W.1. (Orn.)
- 1930 Haworth, Miss F. M., B.Sc., F.Z.S., 69 Gloucester Court, Kew Road, Kew, Surrey. (Zoo., Bot.)
- 1937 Hayward, H. H. S., 9a Florence Drive, Enfield, Middlesex. (Orn.)
- 1927 Hayward, J. F., B.Sc., 29 Mount Echo Drive, E.4. (Geol., Zoo.)
- 1935 Hearn, Miss D. B., 56 Meadvale Road, W.5. (Orn., Bot., Arch., R.)
- 1938 Hearn, Miss M. G., 50 Princes Gate Mews, S.W.7. (Ent.)
- 1902 Heath, G. H., M.A., 3 Bolney Court, Portsmouth Road, Surbiton, Surrey. (Lep.)
- 1935 Henderson, Miss F. E., 70 King's Road, S.W.19. (Orn.)
- 1937 Hett, G. Seccombe, F.R.C.S., F.R.G.S., F.Z.S., 86 Brook Street, W.1. (Orn., Mam., Icht., Ecol.)
- 1938 Heyworth, Miss G., 54 Boundary Road, N.W.8. (Orn.)
- 1938 Highway, Mrs H., 1 North Dene, The Park, Beckenham Junction, Kent. (Bot., Orn.)
- 1936 Hilliard, R., 5 Oakleigh Gardens, Edgware, Middlesex. (Ent., Ecol.)
- 1938 Hindson, M. T., 11 Holland Park, W.11.
- 1938 Hodge, Mrs E. M., 62 Roseneath Road, S.W.11. (Arch.)
- 1937 Hodge, G. A., 62 Roseneath Road, S.W.11. (Orn.)
- 1937 Höhn, E. O., 12 Merrick Square, S.E.1. (Orn., Ecol.)
- 1932 Homes, R. C., 17 Park Lawn Avenue, Epsom, Surrey. (Orn., Ecol., R.)
- 1930 Hopkins, G., The Byron Studies, Ltd., 8 Farringdon Avenue, E.C.4. (Orn., Ecol.)
- 1919 Horn, P. W., Stepney Borough Museum, 77 Whitechapel High Street, E.1. (Orn., Aqua.)



- 1905 Hornblower, A. B., 91 Queen's Road, Buckhurst Hill, Essex.  
(Api., Arch., Orn., R., Ecol.)
- 1931 \*Hose, Miss M. M., 22 The Avenue, Bickley, Kent. (Orn., Bot.,  
Ent., Pl. G., Ecol., R.)
- 1933 House, F. C., 36 Becmead Avenue, Kenton, Middlesex. (Orn.,  
R., Ecol., Bot.)
- 1938 Hudson, Miss B., A.R.C.A., 8 Ferncroft Avenue, Eastcote, Rui-  
slip, Middlesex. (Bot., Ecol., Orn.)
- 1938 Hurcomb, Sir Cyril, K.B.E., C.B., 12 Campden Hill Court, W.8.  
(Orn.)
- 1937 Hussey, S. V., 40 Flanchford Road, W.12. (Bot., Orn., R.)
- 1930 Hutton, Miss R. E., 34 Thorneyhedge Road, W.4. (Bot., Zoo.)
- 1927 Jeffery, H. J., A.R.C.S., F.L.S., 14 Coppetts Road, N.10. (Bot.)
- 1929 Johns, Miss F. E., 30 Mount Stewart Avenue, Kenton, Middlesex.  
(Orn., R., Bot.)
- 1933 Johns, Miss L. J., 87 Morley Hill, Enfield, Middlesex. (Arch.,  
Bot., Orn., R., Ecol.)
- 1931 Johnston, F. J., 19 Connaught Avenue, E.4. (Orn., Ecol.)
- 1937 Jones, Mrs E. G., Little Collier's Farm, Whelpley Hill, near  
Chesham, Bucks. (Orn.)
- 1932 Jones, R. R. M., Tros-yr-Afon, Penmon, Anglesey. (Orn.)
- 1899 \*Kaye, W. J., F.R.E.S., Chantrey Lodge, Longdown, Guildford,  
Surrey. (Lep.)
- 1937 Keen, Mrs E. M., 15 Doughty Street, W.C.1. (Arch.)
- 1938 Keith, Miss C., 17 Abercorn Place, N.W.8. (Arch., Bot., Orn., R.)
- 1937 Keith-Johnston, C., Spring Cottage, Sarratt, Herts. (Orn., Ent.)
- 1934 Kerr, Mrs H. M., Rait-, 22 Elm Tree Road, N.W.8. (Orn., Arch.)
- 1936 Keywood, K. P., Croft Cottage, Hare Lane, Claygate, Surrey.  
(Orn., Ent.)
- 1930 King, Miss C. A., M.D., 8 Lancaster Drive, N.W.3. (Orn., Arch.,  
R.)
- 1929 King, E. L., 11 Downs View, Isleworth, Middlesex. (Orn., Bot.,  
R.)
- 1932 King, Mrs E. L., 11 Downs View, Isleworth, Middlesex. (Orn.,  
Bot., R.)
- 1928 Lack, H. L., M.D., F.R.C.S., 71 Marlborough Place, N.W.8.  
(Orn.)
- 1936 Lamont, Mrs E. H., 49a Netherhall Gardens, N.W.3. (Orn.)
- 1927 Lane, J. H., 571/3 Commercial Road, E.1. (Chem.)
- 1932 La Touche, J. N. Dignes, M.Inst.C.E., Woodcroft, Baldwin's Hill,  
Loughton, Essex.
- 1930 Ledlie, R. C. B., M.B., B.Sc., F.R.C.S., 64 Harley Street, W.1.  
(Bot., Orn.)
- 1928 Lee, Miss M., 22 Addison Way, N.W.11. (Orn.)
- 1928 Leech, T., 52 Park Avenue, Bush Hill Park, Middlesex. (Bot.,  
Orn.)
- 1922 Lemon, Mrs M. L., M.B.E., J.P., F.Z.S., M.B.O.U., Hillcrest,  
Redhill, Surrey. (Orn.)
- 1937 Lewer, F. A., 10 Oakhill Road, S.W.15. (Orn.)



- 1938 Lewis, Miss L., Flat B, 360 Gray's Inn Road, W.C.1. (Orn.)
- 1936 Lewis, Miss M., Oaklea, Whitehall Lane, Buckhurst Hill, Essex.  
(Orn., Bot., Ent., R., Arch.)
- 1919 Leyton Public Libraries, per the Librarian (E. Sydney, F.L.A.),  
Central Library, E.10.
- 1927 Lister, Miss G., F.L.S., 871 High Road, E.11. (Orn., Bot.)
- 1926 \*Littlejohn, H. A., 2 Brooklands Gardens, Roding Lane, Ilford,  
Essex. (Orn., Bot., R.)
- 1934 Locket, G. H., M.A., M.Sc., 36 Gayton Road, Harrow, Middle-  
sex. (Ent., Ecol.)
- 1926 \*Longfield, Miss C. E., F.R.G.S., F.R.E.S., F.Z.S., M.B.O.U.,  
20 Pont Street, S.W.1. (Orn., Ent., Bot., Ecol., R.)
- 1936 Lousley, J. E., 7 Penistone Road, S.W.16. (Bot., Ecol., Orn.)
- 1930 \*Low, G. Carmichael, M.A., M.D., F.R.C.P., F.Z.S., M.B.O.U.,  
7 Kent House, W.8. (Orn., Zoo.)
- 1938 Lowe, Miss C. B. M., 14 Ross Court, S.W.15. (Arch., Bot., Orn.,  
R.)
- 1938 MacAlister, D. A., 10 St Albans Grove, W.8. (Orn.)
- 1928 MacAlister, Mrs E., 10 St Albans Grove, W.8. (Orn., Bot.)
- 1937 McClintock, D., B.A., 20 Roland Way, S.W.7. (Bot., Orn.)
- 1935 McCulloch, G. K., 65 Chester Road, Northwood, Middlesex. (Orn.)
- 1933 MacDonald, Right Honourable Malcolm J., P.C., M.P., Lossie-  
mouth, Morayshire, N.B. (Orn.)
- 1935 McDowell, Miss C. M., 3 Shaldon Mansions, 132 Charing Cross  
Road, W.C.2. (Bot., Orn.)
- 1939 McEwen, Miss E., 135 Arthur Court, Queensway, W.2. (Orn.)
- 1932 McInnes, Miss J., 5 Longton Avenue, S.E.26. (Orn., Bot., Ecol.)
- 1911 MacIntosh, Miss I. S., 3 Mayfield Road, E.4. (Arch., Bot.)
- 1911 MacIntosh, Miss J. D., 3 Mayfield Road, E.4. (Arch., Bot.)
- 1929 Mackay, Helen M. M., M.D., F.R.C.P., 11 The Grange, Maitland  
Park Road, N.W.3. (Orn.)
- 1931 McKittrick, T. H., Jun., M.B.O.U., Coombe Place, E. Grinstead,  
Sussex. (Orn.)
- 1932 McKittrick, Mrs T. H., Jun., Coombe Place, East Grinstead,  
Sussex. (Orn.)
- 1932 Mackworth-Praed, C. W., F.R.G.S., F.Z.S., F.R.E.S., M.B.O.U.,  
51 Onslow Gardens, S.W.7. (Orn., Ent.)
- 1923 \*Macpherson, A. Holte, B.C.L., M.A., F.Z.S., 21 Campden Hill  
Square, W.8. (Orn.)
- 1929 Maltby, Miss J., 157 Copers Cope Road, Beckenham, Kent. (Orn.,  
Bot., P. L.)
- 1936 Mann, C. A., 26 Mount Avenue, Westcliff-on-Sea, Essex. (Ent.,  
Arch.)
- 1923 Mann, E., 10 Frankland Road, E.4. (P. L., Orn., Ecol.)
- 1934 Mann, F. R., M.C., Noreena, Ham Common, Surrey. (Orn.)
- 1934 Manser, G. E., 51 Barnmead Road, Beckenham, Kent. (Orn.,  
Bot., Ecol.)
- 1936 Manson-Bahr, P. H., C.M.G., D.S.O., M.A., M.D., F.R.C.P.,  
M.B.O.U., F.Z.S., 149 Harley Street, W.1. (Orn.)

- 1934 \*Marchant, Miss R., 24 Longmeads, Rusthall, Tunbridge Wells, Kent. (Bot., Arch.)
- 1932 Mason, C. T., 144 Wembley Hill Road, Wembley, Middlesex. (Ent., Arch.)
- 1938 Mason, J. H., 67 Thurlow Park Road, S.E.21. (Ent., Orn., R.)
- 1938 Maund, Miss L., 57 Gordon Court, Du Cane Road, W.12. (Orn.)
- 1935 Melluish, W. D., 56 Sunnyfield, N.W.7. (Orn.)
- 1938 Michael, R. P., 4 Rondou Road, N.W.2. (Orn.)
- 1931 Millburn, Miss F. C., Calderfield, St George's Avenue, Northampton. (Orn.)
- 1939 Milnthorpe, Miss W. M., B.Sc.(Lond.), 22 Geneva Road, Thornton Heath, Surrey. (Ecol., Zoo.)
- 1926 Mitchell, Miss E. A., 196a Northolt Road, S. Harrow, Middlesex. (Bot., Orn.)
- 1932 Mitchell, Miss M. I., 7 Penwerris Avenue, Osterley, Middlesex. (Bot., Orn.)
- 1936 Mitford, Capt. Hon. J., Mountain Lake Club, Lake Wales, California, U.S.A.
- 1938 Monk, J. F., 5 Gayton Crescent, N.W.3. (Orn.)
- 1939 Moore, Miss E., 25 West Cromwell Road, S.W.5. (Arch., R.)
- 1937 Moreten, Miss M., 7 Abbey View Road, St Albans, Herts. (Orn.)
- 1934 Morgan, D. A. T., 46 Fordhook Avenue, W.5. (Orn., R., Ecol.)
- 1939 Morgan, Mrs L., 10 Old Square, Lincoln's Inn, W.C.2.
- 1937 Morton, Miss G. M., 7 Broomfield Road, Kew, Surrey. (Orn., Arch.)
- 1938 Moss, Miss I. P., Albert House, Great Wakering, Essex. (Arch.)
- 1937 Mountfort, G. R., M.B.O.U., Wildings, Green Lane, Stanmore, Middlesex. (Orn.)
- 1938 Muirhead, D., 12a Glenloch Court, N.W.3. (Ecol., Orn.)
- 1938 Mulholland, Rt. Hon. H. G. H., M.P., Speaker's House, Stormont, Belfast. (Orn.)
- 1934 Munro, Miss M., Furzedown Training College, Welham Road, S.W.17. (Orn., Ecol.)
- 1928 Murphy, Miss H., L.L.A., 43 Stafford Row, E.3. (Bot., Orn., Ent., Arch.)
- 1939 Muspratt, D. E., 13 Scarborough Road, E.11.
- 1937 Musselwhite, D. W., 59 Mayford Road, S.W.12. (Orn.)
- 1938 Myers, A. F., 43 Arkwright Road, N.W.3. (Orn.)
- 1926 Niblett, M., 10 Greenway, Wallington, Surrey. (Ent., Pl. G.)
- 1893 \*Nicholson, Miss B., 49 Danecourt Road, Parkstone, Dorset. (Bot.)
- 1934 Nicholson, E. M., M.B.O.U., 13 Upper Cheyne Row, S.W.3. (Orn., Ecol.)
- 1934 Nicholson, E. T., 321 Brettenham Road, E.17. (Orn.)
- 1932 Nicholson, G., Homeland, Basildon Road, Laindon, Essex. (Orn.)
- 1928 Noel, Miss E. F., 37 Burnham Court, W.2. (Bot., Orn., R., Ent., Pl. G.)
- 1934 Norris, C. A., M.B.O.U., Grassholme, Stratford-on-Avon, Warwickshire. (Orn., Ecol.)



- 1937 O'Farrell, A. F. L., Imperial College of Science, S.W.7. (Ecol., Ent.)
- 1933 Oke, E. E., Tweenways, The Mount, Leatherhead, Surrey. (Orn., Ent., R.)
- 1926 \*Oldham, C., F.L.S., F.Z.S., M.B.O.U., Oxfield, Shootersway, Berkhamsted, Herts. (Bot., Orn., Conch., Ecol.)
- 1937 Oldroyd, H., M.A., F.R.E.S., British Museum (Natural History), S.W.7. (Ecol., Ent.)
- 1937 Owen, C. E., 30 Hamilton Road, Harrow, Middlesex. (Orn.)
- 1938 Paddington Public Libraries (H. J. W. Wilson, A.L.A., Librarian), Porchester Road, W.2.
- 1929 Page, Miss M. M., 19 Hainthorpe Road, S.E.27. (Orn.)
- 1938 Park, W. D., 34 White Horse Drive, Epsom, Surrey. (Orn., Ecol.)
- 1938 Parker, Miss J. E., 202 Avery Hill Road, S.E.9. (Bot., Ecol., Ent., Orn.)
- 1925 \*Parmenter, L., F.R.E.S., 94 Fairlands Avenue, Thornton Heath, Surrey. (Ecol., Bot., Ent. (esp. Dipt.), Orn., Pl. G.)
- 1938 Parrinder, Mrs E. D., 27 Gwalior House, Chase Road, N.14. (Orn.)
- 1938 Parrinder, E. R., 27 Gwalior House, Chase Road, N.14. (Orn.)
- 1938 Parry-Okeden, Miss M. M. C., The Firs, Warnham, Horsham, Sussex. (Orn.)
- 1921 Parsons, S. T. T., 89 Holland Park, W.11. (Orn.)
- 1937 Patterson, H. G., 15 Queen's Gate Gardens, S.W.7. (Orn.)
- 1933 Paulson, C. W. G., M.B.O.U., Woodside Cottage, Wheeler's Lane, Smallfield, Surrey. (Orn.)
- 1922 Payne, C. H., 13 Kidderpore Gardens, N.W.3. (Orn., Arch.)
- 1930 Payne, E. D. B., 32 Friern Watch Avenue, N.12. (Orn.)
- 1923 Payne, E. M., Tilgate, Long Lane, Hillingdon, Middlesex. (Bot., Orn.)
- 1923 Payne, L. G., F.Z.S., 22 Marksbury Avenue, Richmond, Surrey. (Bot., Ecol.)
- 1937 Pearce, Miss A. H., B.Sc., White Gables, Clarence Road, St Albans, Herts. (Orn., Freshwater Biol., Ecol.)
- 1935 Pearce, B. S. K., 74 Ashgrove Road, Goodmayes, Essex. (Orn., Bot., Ent.)
- 1937 Pearce, E. W., 60 Percy Road, Hampton, Middlesex. (Orn.)
- 1934 Pearson, Miss D. M., St Gabriel's College, Cormont Road, S.E.5. (Orn., P. L., Bot., Pl. G.)
- 1932 Pedler, E. G., 78 Richmond Park Road, S.W.14. (Orn., R.)
- 1937 Peterken, J. H. G., 73 Forest Drive East, E.11. (Orn., Bot., Ecol.)
- 1922 Pethen, R. W., 108 Northwold Road, E.5. (Orn., Ent., Ecol.)
- 1931 Pethen, Miss R. W., 108 Northwold Road, E.5. (Orn., Rept.)
- 1929 Phelan, T. C. E., 5 Ladbroke Square, W.11. (Orn., Bot.)
- 1937 Philipson, W. R., Melbrake, Park Avenue, Ruislip, Middlesex. (Orn.)



- 1932 Phillips, Mrs F. M., 9 Sylvan Hill, S.E.19. (Orn.)
- 1932 Phillips, H. H., M.R.C.S., L.R.C.P., 9 Sylvan Hill, S.E.19. (Orn.)
- 1937 Piercy, K., 10b St Edmund's Terrace, N.W.8.
- 1931 Pinniger, E. B., 19 Endlebury Road, E.4. (Ent., Orn.)
- 1927 Piper, Miss G. E. M., 12 Elms Road, S.W.4. (Orn.)
- 1935 Pollard, Mrs H. B., "Greenacre," Stanhope Road, East Croydon, Surrey. (Orn., Ecol.)
- 1925 Poock, S. G., 17 Green Moor Link, N.21. (Orn., Ecol.)
- 1928 Poole, A. C., 42 The Mall, W.5. (Orn., Bot.)
- 1933 Poppo, Miss W. N., 11 Pemberton Gardens, N.19. (Orn., R., P. L., Ecol.)
- 1937 Powell, A. M., 35 West End Avenue, Pinner, Middlesex. (Orn.)
- 1910 Pratt, W. B., 10 Lion Gate Gardens, Richmond, Surrey. (Lep.)
- 1892 Prout, L. B., F.R.E.S., 168 Middleton Road, E.8. (Lep., Biol.)
- 1939 Pullinger, F. A., 148 Sussex Gardens, W.2. (Orn.)
- 1929 Purey-Cust, Miss P., 49 West Hill, N.6.
- 1938 Raincock, C. W., F.Z.S., 9 Bennett Park, S.E.3. (Mam., Ecol.)
- 1939 Rammell, Mrs E. M., Waterways, St Albans, Herts. (Orn.)
- 1926 Rankin, The Hon. Lady, Royal Court Hotel, S.W.1. (Orn.)
- 1939 Ratcliff, A. G., 12 Barnmead Road, Beckenham, Kent. (Orn.)
- 1934 Ratcliff, P. W., 12 Barnmead Road, Beckenham, Kent. (Orn., Bot., Ecol.)
- 1938 Rawlence, D. A., Hill Top Cottage, Warboys Road, Kingston Hill, Surrey. (Orn.)
- 1938 Rawlence, Mrs E. H., Hill Top Cottage, Warboys Road, Kingston Hill, Surrey. (Orn.)
- 1934 \*Ray, Miss T., 24 Longmeads, Rust Hall, Tunbridge Wells. (Bot., Arch.)
- 1935 Redpath, K., Glanton, Manor Road, Hazlemere, High Wycombe, Bucks. (Orn.)
- 1929 Reed, Miss J. B., 1 Lymington Court, S.W.19. (Orn.)
- 1930 Reeve, Miss E. A., The Penn Club, 22 Bedford Place, W.C.1. (Bot., Orn., Ent., R., Ecol.)
- 1929 Rew, Miss M., 23 Chester Terrace, N.W.1. (Orn.)
- 1925 Richardson, A., 4 Manor Road, Lea Valley, Wheathampstead, Herts. (Orn., Ent.)
- 1928 Richardson, G., 75 Woodbourne Avenue, S.W.16. (Bot.)
- 1892 Robbins, R. W., Bullens Lee, Pains Hill, Limpsfield, Surrey. (Bot., Lep., Orn., Arch., Pl. G., Ecol.)
- 1934 Roberts, J. E., B.Sc., 24 Warren Drive, Surbiton, Surrey. (Orn., Ecol.)
- 1933 Robinson, G. F. B., Shenley, Manor Green Road, Epsom, Surrey. (Orn., R.)
- 1933 Robinson, Mrs M. L., Shenley, Manor Green Road, Epsom, Surrey. (Bot., R.)
- 1938 Rommel, Miss D., The Orchard House, Bickley, Kent. (Arch., Orn.)

- 1937 Rose, C. C., 18 Draycott Avenue, Kenton, Middlesex. (Orn.)
- 1910 \*Ross, J., 23 College Gardens, E.4. (Pl. G.)
- 1935 Rowan, J. D., 65 Haydn Avenue, Purley, Surrey. (Orn.)
- 1931 Rowberry, E. C., Sabon Gida, Golf Road, Radcliffe-on-Trent, Notts. (Orn., Ecol.)
- 1938 Rowbotham, S., 71 Wimpole Street, W.1.
- 1932 Ryan, A. P., 19 Barnsall Street, S.W.3. (Orn.)
- 1929 Sampson, E. S., 60 Alexandra Road, Epsom, Surrey. (Orn.)
- 1937 Scott, Miss E. M. P., 7 Broomfield Road, Kew, Surrey. (Orn., Arch.)
- 1937 Scott, G. B., 6 Alan Road, S.W.19. (Geol., Orn.)
- 1930 Scudamcre, Miss M., 23 Marchmont Road, Richmond, Surrey.
- 1937 Seth-Smith, D., F.Z.S., M.B.O.U., Curator's House, Zoological Gardens, N.W.8. (Orn.)
- 1932 Seton, Sir Malcolm C. C., K.C.B., M.B.O.U., 26 Upper Park Road, N.W.3. (Orn.)
- 1937 Sheppard, R., 10 Sylvan Avenue, N.W.7. (Orn., Zoo.)
- 1935 Shill, W. A., 41 Douglas Avenue, E.17. (Bot.)
- 1929 Short, G. R. A., 36 Parkside Drive, Edgware, Middlesex. (Bot., Micr., Pharmacognosy, Ecol.)
- 1936 Silva, Miss E. T. T., Stone Street Farm, Sevenoaks, Kent. (Orn.)
- 1938 Sim, A. F. C., Amerden Ponds, Taplow, Bucks. (Orn.)
- 1892 Simes, J. A., O.B.E., F.R.E.S., 75 Queen's Road, Loughton, Essex. (Ent.)
- 1933 Skrimshire, E. H. N., F.R.A.I., F.Z.S., 5 The Old Well House, The Grove, N.6. (Orn., Arch., R.)
- 1936 Smart, J., B.Sc., Ph.D., F.R.E.S., British Museum (Natural History), S.W.7. (Ent., Orn.)
- 1935 Smith, Miss A. J., 26 Newman Street, W.1. (Orn.)
- 1892 Smith, C. B., 103 Wood Vale, N.10. (Lep.)
- 1929 Smith, Mrs H. K., 103 Wood Vale, N.10.
- 1933 Smith, Miss L., 17 Highcliffe Gardens, Ilford, Essex. (Arch.)
- 1937 Smith, M. A., M.R.C.S., Lane End, Putney Heath Lane, S.W.15. (Rep. and Amph.)
- 1934 Smith, R. M., 124 King's Avenue, Woodford Green, Essex. (Orn.)
- 1927 Solly, Miss B. N., 167 Old Brompton Road, S.W.5. (Orn.)
- 1927 Southern, H. N., M.A., F.Z.S., 67 Holden Road, N.12. (Orn., Ecol.)
- 1936 Spencer, M. D., Long Orchard, Cobham, Surrey. (Orn.)
- 1937 Spicer, A. H., M.C., M.R.C.S., L.R.C.P., 29 Campden Grove, W.8. (Orn.)
- 1935 Spinney, G. H., B.A., 124 Overhill Road, S.E.22. (Bot., Arch., Ecol., R.)
- 1922 Spooner, H., 21 Musgrave Crescent, S.W.6. (Bot., Orn., Arch., R., Ecol.)
- 1936 Springall, R. S., 30 Connaught Avenue, E.4. (Orn.)
- 1934 Steel, W. O., 16 Upsdell Avenue, N.13. (Ent., Pl. G., Ecol.)
- 1937 Stirling, Lt.-Col. J. A., The Wick, Richmond Hill, Surrey. (Orn.)



- 1920 \*Stowell, H. S., L.R.I.B.A., Pirbright, Torland Road, Hartley, Plymouth. (Arch.)
- 1937 Styles, C., B.Sc., 21 Links Road, Ashtead, Surrey.
- 1933 Sulman, J. E., Crofters, Pine Grove, Totteridge, Herts. (Orn.)
- 1927 Swain, A. M., 253 Crescent Drive, Petts Wood, Kent. (Orn.)
- 1930 Swayne, F. G., M.A. (Cantab.), M.B., M.B.O.U., Hoskin's Arms Hotel, Oxted, Surrey. (Orn.)
- 1935 Tams, W. H. T., F.R.E.S., British Museum (Natural History), S.W.7. (Ent.)
- 1930 Tassart, Miss O. F., 36 Alfriston Road, S.W.11. (Arch., Orn., Pl. G.)
- 1938 Taylor, Miss M. L., 6 Kent Gardens, W.13. (Bot.)
- 1938 Taylor, Miss M. S., Flat 52 King's Court, Hamlet Gardens, W.6. (Orn.)
- 1936 Thomas, C. H. R., 4 The Crest, Ellington Road, N.10. (Ent., Ecol.)
- 1920 Thomas, Mrs G. E., 9 Talbot Road, Isleworth, Middlesex. (Orn., R.)
- 1939 Thompson, P., 7 Paynesfield Avenue, S.W.14. (Bot., Orn.)
- 1939 Thornton, J. O., 6 Arterberry Road, S.W.20. (Orn.)
- 1927 Thresher, Miss G. A., 81 Stanthorpe Road, S.W.16. (Arch., Bot., Ent., Pl. G., R.)
- 1932 Todd, Miss G. E., 17 Queensborough Terrace, W.2. (Bot., Orn.)
- 1934 Tours, H., 7 Briar Road, Kenton, Middlesex.
- 1892 Tremayne, L. J., F.Z.S., Grand Buildings, Trafalgar Square, W.C.2. (Bot., Lep., Arch., Pl. G., Orn., R.)
- 1908 Tremayne, Mrs, Grand Buildings, Trafalgar Square, W.C.2. (Orn., Arch., Bot., R.)
- 1931 Underwood, R. A., Greenways, Shoreham Road, Otford, Kent. (Orn.)
- 1937 Upton, Mrs P. V., Eweland Hall, Margaretting, Essex. (Orn.)
- 1935 van Oostveen, Miss M., 11 Gloucester Walk, W.8. (Orn., Ent., Ecol.)
- 1927 Veitch, Miss A. I., 44 Budoch Drive, Goodmayes, Essex. (Arch.)
- 1929 Venour, Miss D., 20 Burdenshott Avenue, Richmond, Surrey. (Orn., Ecol.)
- 1938 Vesey-FitzGerald, B. S., F.L.S., F.G.S., Editor, "The Field," Bream's Buildings, E.C.4. (Zoo., Ecol., Orn.)
- 1933 Vincent, W. G., 154 Winchester Road, Hale End, E.4. (Orn.)
- 1938 Wadley, N. J. P., 132 Rivermead Court, S.W.6. (Orn.)
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- 1925 Ward, B. T., 24 Long Deacon Road, E.4. (Arch., Bot., Ent., Orn., Pl. G., R., Ecol.)
- 1933 Ward, Miss I. W., 11 The Close, N.14. (Orn., Icht.)
- 1933 Ward, Miss M., M.B., Ch.B., Threeways, Jordans, Beaconsfield, Bucks. (Arch., Orn.)



- 1920 Watkins, Miss H., 12 Connaught Avenue, S.W.14. (Orn., R., Bot.)
- 1936 Watt, E. C., 13 Park Road, N.W.1. (Orn.)
- 1926 Watt, H. Boyd, F.Z.S., 90 Parliament Hill Mansions, N.W.5. (Orn., Ecol., Zoo.)
- 1925 \*Watt, Mrs W. Boyd, M.B.O.U., 90 Parliament Hill Mansions, N.W.5. (Orn., Arch., Ecol.)
- 1938 Watts, G., The Shanty, West Farm Avenue, Ashtead, Surrey. (Orn.)
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- 1928 Weeks, C., 7 Ashmount Road, N.19. (Orn., Ecol., R.)
- 1939 Welford, Miss A. M., 13 Clifton Avenue, N.3. (Orn.)
- 1931 Wheeler, Miss E. M., 28 Hardy Road, S.E.3. (Orn., Bot., Ecol., R.)
- 1929 Wheeler, E. P., F.R.I.B.A., Park Lodge, Sutton Park Road, Sutton, Surrey. (Orn., Arch.)
- 1935 Whitaker, F. O., 51 Grosvenor Avenue, Carshalton, Surrey. (Bot., Pl. G., R., Ecol.)
- 1930 Whitbread, R., 6 Meadow Way, Weald Village, Harrow, Middlesex. (Arch.)
- 1932 Whitbread, Miss W. H. E., 6 Meadow Way, Weald Village, Harrow, Middlesex.
- 1937 White, C. A., 18 Townsend Road, Southall, Middlesex. (Orn.)
- 1933 White, E. I., Ph.D., F.G.S., Dept. of Geology, British Museum (Natural History), S.W.7. (Palaeontology, Orn.)
- 1938 Whitehead, Miss D., 173 Sunny Gardens Road, N.W.4. (Bot., Orn., R.)
- 1935 Whitehouse, F. W., Wayside East, Oak Road, Harold Wood, Essex. (Bot.)
- 1936 Whitgift, M., M.I.E.E., 7 Coulter Road, W.6. (Arch.)
- 1937 Wiggins-Davies, W. W., St Thomas's House, Lambeth Palace Road, S.E.1. (Orn.)
- 1934 Wightman, J. S., Wood View, Park Road, Ashtead, Surrey. (Orn.)
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- 1936 Wilson, J. M., Redwing, Townsend Drive, St Albans, Herts. (Orn.)
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- 1938 Winsloe, Mrs C. M., 63 North Gate, N.W.8. (Orn.)

- 1937 Winters, Miss E. D. M., 7 Broomfield Road, Kew, Surrey. (Orn., Arch.)
- 1937 Wise, Miss U. V., 48 Warrington Road, Harrow, Middlesex. (Orn.)
- 1929 Witherby, H. F., M.B.E., H.F.A.O.U., F.Z.S., M.B.O.U., Gracious Pond Farm, Chobham, Nr. Woking, Surrey. (Orn.)
- 1937 Witney, Miss M., Tarbert, Stratford Road, Watford, Herts. (Orn., Bot.)
- 1935 Woods, Miss C. E. L., Little Ballards, Farley Road, South Croydon, Surrey. (Orn., Ent., Zoo.)
- 1937 Worthington, Miss L. F., 104 Goldhurst Terrace, N.W.6. (Arch.)
- 1922 Wright, W. A., 31 Beresford Road, E.4. (Orn.)
- 1938 Wylie-Moore, N., 3 Helena Court, Eaton Rise, W.5. (Orn.)
- 1937 Yarrow, I. H. H., M.A., Ph.D., D.I.C., F.R.E.S., 14 Netherhall Gardens, N.W.3. (Ecol., Ent.)

#### Affiliated Societies.

- 1938 Bishop's Stortford College Natl. Histry. Society (A. L. Creed), Robert Pearce House, The College, Bishop's Stortford, Herts.
- 1936 Tiffin Boys' School Scientific Society (Natural Science Section). (D. T. Humphris), Tiffin Boys' School, Kingston-on-Thames, Surrey. (Ecol.)
- 1936 Westminster School N.H. Society (L. H. Burd), Westminster School, Dean's Yard, S.W.1. (Orn., Ent., Ecol.)

#### Branch Associates:

- 1937 Bayes, C. S., 12 Merton Road, E.17. (Orn.)
- 1925 Boardman, S., 109 Monkham's Avenue, Woodford Green, Essex. (Orn., Ent.)
- 1937 Boss, Miss E. F. M., 15 Orford Road, E.17. (Bot., Orn.)
- 1930 Brightman, Miss A., St Osyth, Hempstead Road, E.17.
- 1937 Broome, Miss E. B., 15 Orford Road, E.17. (Bot., Orn.)
- 1938 Chingford Branch County Library (per the Librarian, E. Leyland), Hall Lane, E.4.
- 1939 Churchill, Miss E. M., N.F.U., Bays, The Uplands, Loughton, Essex.
- 1937 Earl, W. J. H., Bancroft's School, Woodford Green. Essex. (Orn.)
- 1920 Hart, Miss H., 7 Park Hill Road, E.4.
- 1933 Hayward, P. D., 2 King's Green, Loughton, Essex. (Orn.)
- 1937 Hiles, Miss I., 50 Drysdale Avenue, E.4.
- 1938 Horder, Miss J., 14 Douglas Road, E.4.
- 1933 Jeffery, Miss P., 64 Larkswood Road, E.4.
- 1939 Lewty, Miss J. P., Oaklea School, Buckhurst Hill, Essex.
- 1911 Mathieson, Miss M. L., 7 Crescent Road, E.4. (Meteorology.)
- 1930 Penwarden, Miss C., 39 The Avenue, E.4.
- 1935 Pettit, H. A., 197 Billet Road, E.17. (Orn.)
- 1927 Pettit, Mrs S., 2 Victoria Road, E.4.
- 1927 Pettit, S., 2 Victoria Road, E.4.



- 1932 Pinniger, Mrs, 19 Endlebury Road, E.4.  
 1925 Saul, H. J. B., 4 Buxton Road, E.4.  
 1937 Smith, R. P., 22 Pelton Avenue, Belmont, Surrey. (Conch.)  
 1903 Stevenson, H. E., F.C.S., 24 Wilton Grove, S.W.19. (Chem.)  
 1935 Stiff, D. F. H., 214 West Barnes Lane, Motpur Park, Surrey.  
 (Geol.)  
 1927 Stopps, W. E., 50 Gordon Road, E.4.  
 1937 Sumerfield, A. R., 82 Churchgate, Cheshunt, Herts. (Orn.)  
 1937 Tucker, Mrs F., 31 Frederica Road, E.4.  
 1935 Tucker, D. G., 31 Frederica Road, E.4. (Orn.)  
 1937 Uden, W., 48-50 Acre Lane, S.W.2. (Geol.)  
 1937 Uden, Mrs W., 48 Acre Lane, S.W.2. (Biol.)  
 1939 Verini, Miss E. M., M.A.(Oxon.), 55a Palmerston Road, Buck-  
 hurst Hill, Essex.  
 1929 Youé, Miss E., 46 Station Road, E.4. (Bot.)

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- 1929 Acland, Miss C. M., M.B.O.U., Walwood, Banstead, Surrey. (Orn.)  
 1933 Ashdown, F. S., M.I.H., The Senior School, De La Warr Road,  
 East Grinstead, Sussex. (Pl. G.)  
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 Director of Medical and Sanitary Services, Dar-es-Salaam,  
 Tanganyika, Central Africa. (Ent., Orn.)  
 1931 Benson, Mrs R. B., Dellfield, Featherbed Lane, Felden, Boxmoor,  
 Herts. (Orn., Bot., R.)  
 1920 Biddiscombe, W., Ward B, Warren Road Hospital, Guildford,  
 Surrey. (Bot.)  
 1934 Biddlecombe, P. E., 30 Hill View Road, Orpington, Kent. (Arch.)  
 1896 Bishop, E. B., Lindfield, Marshall Road, Godalming, Surrey.  
 (Bot., Arch., Pl. G., Orn.)  
 1908 Bostock, E. D., Alicoombe, Pelham Gardens, Folkestone, Kent.  
 (Lep.)  
 1937 Bunker, H. E., 27 Broad Oak Lane, Penwortham, Lancs.  
 1937 Clark, A., 9 Northridge Road, Gravesend, Kent. (Orn.)  
 1935 Clerk-Rattray, Miss C. E., Easter Drimmie, Blairgowrie, Perth-  
 shire. (Bot., Orn.)  
 1924 Collins, Miss F., School of Gardening, Clapham, near Worthing,  
 Sussex. (Orn.)  
 1938 Cowper, S. G., B.Sc., Ph.D., M.R.C.S., L.R.C.P., F.Z.S., Liver-  
 pool School of Tropical Medicine, Pembroke Place, Liver-  
 pool, 3. (Ecol., Ent., Orn.)  
 1928 Cuningham, Miss D. W. M., Lissara, Barrs Avenue, New Milton,  
 Hants. (Bot., Ent., Orn., Pl. G., Ecol.)  
 1933 Darashah, Mrs E. G., 108 Stephen's Road, Tunbridge Wells, Kent.  
 (Arch., Bot., R.)  
 1937 Evans, H. J., Jesemin, Amersham Road, Little Chalfont, Bucks.  
 (Orn.)  
 1933 Ferrier, Miss J. M., F.Z.S., M.B.O.U., A.A.O.U., Blakeney  
 Downs, Blakeney, Norfolk. (Orn., Ecol.)



- 1930 Foster, Mrs S., 12 Victoria Road, Bridgnorth, Shropshire. (Orn.)
- 1932 Frazer, A. D., M.B., Ch.B., 74 St James Street, Nottingham. (Pl. G.)
- 1936 Garnett, T. R., Charterhouse, Godalming, Surrey. (Orn.)
- 1938 Garrett, F. C., D.Sc., South View House, Alnmouth, Northumberland. (Ent.)
- 1933 Gibson, Miss E. M., Ashcroft, Station Road, Petersfield, Hants. (Lep., Orn.)
- 1929 Gulliver, Miss M. D. (in Australia), c/o Mrs E. Horrex, 130 Cranbrook Road, Ilford, Essex. (Orn., R.)
- 1938 Hackett, C. A., M.A., D.P.U., Paris, 42 Weoley Park Road, Selly Oak, Birmingham, 29. (Orn.)
- 1927 Harvey, F. B., The Nook, Rhodes Minnis, Elham, nr. Canterbury, Kent.
- 1927 Harvey, J. H., Half Moon Cottage, Preston Cross, Little Bookham, Surrey. (Bot.)
- 1926 Hibbert-Ware, Miss A., F.L.S., M.B.O.U., Hilary, Girton, Cambridge. (Orn.)
- 1915 Hopkins, Prof. Sir F. Gowland, O.M., M.A., M.D., F.R.S., F.R.C.P., 71 Grange Road, Cambridge. (Biochemistry.)
- 1935 Leatherdale, D., Tasli, Hawks Hill, Leatherhead, Surrey. (Geol., Bot., Ent., Pl. G., R.)
- 1933 Leith, R. F., Albion Chambers, Gloucester. (Orn., Arch.)
- 1933 Lockyer, T. N., LL.B.(Lond.), 14 Parkway, Rickmansworth, Herts. (Arch., Orn., R.)
- 1933 Lockyer, Mrs T. N., 14 Parkway, Rickmansworth, Herts. (Arch., Orn., R.)
- 1931 Maud, F. H., St Catherine's, Wind Hill, Bishop's Stortford, Herts. (Arch.)
- 1931 Maud, Mrs F. H., St Catherine's, Wind Hill, Bishop's Stortford, Herts. (Arch.)
- 1902 Miller, Miss M. E., The Croft, Rainsford Lane, Chelmsford. (Lep.)
- 1905 Moore, J. W., F.R.E.S., 151 Middleton Hall Road, King's Norton, Birmingham. (Exotic Lep.)
- 1930 Nicholson, C., Nansgwithick, Tresillian, Truro, Cornwall. (Ent., Bot., Orn., Ast., Pl. G.)
- 1932 Oldfield, Miss A. R., c/o 259 Lea Bridge Road, E.10. (Arch., Bot.)
- 1897 Pike, Oliver G., F.Z.S., M.B.O.U., F.R.P.S., The Bungalow, Leighton Buzzard, Beds. (Orn.)
- 1927 Raikes, Miss D. T., Hên Ysgol, Bwlch, Breconshire. (Arch., Bot., Orn.)
- 1933 Saunders, Miss A. M., St Ann's, Wray Park Road, Reigate, Surrey. (Bot., Pl. G.)
- 1936 Shaw, G. A., 18 Leyburn Grove, Shipley, Yorks. (Bot.)
- 1928 Sparkes, Mrs F. M., 4 Loop Road, Kingfield, Woking, Surrey. (Arch., Bot., R.)
- 1914 Studd, E. F., M.A., B.C.L., F.R.E.S., Exeleigh, Starcross, Devon. (Lep.)
- 1928 Talbot, G., F.R.E.S., Mon Plaisir, Wormley, Surrey. (Lep.)

- 1937 Thomas, L. C., Woodlands, Cobham Road, East Horsley, Surrey.  
(Bot., Orn.)
- 1931 Thomas, Mrs P. I., Woodlands, Cobham Road, East Horsley, Surrey. (Ecol., Orn., R.)
- 1935 Tracy, N., M.B.O.U., The Black Cabin, South Wootton, King's Lynn, Norfolk. (Orn.)
- 1927 Unwin, Mrs J. M., Fairway, Town Road, Rotherfield, Sussex.
- 1913 Wilde, Mrs C. L., Lindfield, Marshall Road, Godalming, Surrey.  
(Arch., Bot., Pl. G.)
- 1929 Willcox, P. H., Emmanuel College, Cambridge. (Ent., Bot.)
- 1932 Williams, A. R., Barclay's Bank, Haifa, Palestine. (Orn.)

NOTE.—The following abbreviations are used in the above lists:—  
 Api., Apiculture; Aqua., Aquaria; Arch., Archaeology; Ast., Astronomy;  
 Biol., Biology; Bot., Botany; Chem., Chemistry; Col., Coleoptera;  
 Conch., Conchology; Dipt., Diptera; Ecol., Ecology; Ent., Entomology;  
 Ethn., Ethnology; Geol., Geology; Hem., Hemiptera; Hym., Hymenoptera;  
 Ichth., Ichthyology; Lep., Lepidoptera; Mam., Mammalogy; Micr.,  
 Microscopy; Neur., Neuroptera; Orn., Ornithology; Orth., Orthoptera;  
 Ool., Oology; Pl. G., Plant Galls; P. L., Pond Life; R., Ramblers' Section;  
 Rep., Reptilia; Zoo., Zoology.

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A meeting is held each Tuesday (except July and August) in the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C.1. The room is open from 6 p.m. to 9 p.m., and meetings begin at 6.30 p.m. punctually and terminate about 8.30 p.m., unless other arrangements are announced.

The CHINGFORD LOCAL BRANCH meets at The Clifton Restaurant, opposite Chingford Station, at 8 p.m., on the Second Monday in each month during the winter months.

At these meetings specimens of Natural History interest are exhibited, and papers on various subjects are read and discussed. Visitors may be introduced by members of the Society, and are cordially welcome.

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Each member and associate is entitled to one copy of "The London Naturalist" free; extra copies can be purchased by members, if supplies are available, at two-thirds of the published price.

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*Supplement to The London Naturalist.*

**PRESENTED**

**5 JUN 1939**



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FOR

1938

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The Report is of especial value to all naturalists and bird-lovers who wish to watch birds in the south-eastern counties, but in addition contains sufficient general information to interest those living in any part of the British Isles.

It is hoped that all those interested in the study of wild birds will support the Report and make it known to others as its future success depends very largely on the number of subscribers.

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*J. E. Roberts.*

GRASSHOPPER-WARBLE REARING A YOUNG CUCKOO.

*Photo by*



# Birds in the London Area, 1938.

REPORT ON BIRD-LIFE WITHIN TWENTY MILES OF ST PAUL'S  
CATHEDRAL.

## INTRODUCTION.

**I**N this third number of *The London Bird Report* we include all ornithological matter published by the Society with the exception of the Section's official report and articles forming part of the Survey of Limpsfield Common, which appear in *The London Naturalist*. As we feel that there must still be many potential new readers in our area, we hope that members will assist the Society by giving copies to their friends or bringing the report to their notice. Extra copies can be obtained from the Recorder.

We are glad to be able to include this year a valuable paper by Mr W. E. Glegg on the effect of London on bird-life. Other features, besides the usual report, include a summary of the ornithological effects in the area of the severe weather in December.

An account of the status of the *Reed Warbler*, *Tufted Duck*, and *Turtle Dove* is given in a separate article, and we shall be grateful if members will make full observations in 1939 on *Goldfinch*, *Stock Dove*, and *Common Sandpiper*, the species selected for special study by the British Trust for Ornithology. A questionnaire was included in the circular sent out in January, and members who require copies should apply to the Recorder, Mr R. S. R. Fitter, 81 Ridgmount Gardens, W.C.1. An inquiry is also being made this year into the status of the *Redshank* in the British Isles, and it will be appreciated if members who can supply information for the area will obtain a questionnaire from Mr R. C. Homes, 17 Park Lawn Avenue, Epsom. The Recorder will be glad to supply any other information regarding the Trust on request, and we hope that as many members as possible will join the Trust to give it the widespread support which it needs to continue the valuable work already so successfully begun.

In 1938 the Ornithological section commenced a study of the bird-life of built-up areas and agricultural land in the area. These terms were defined in a circular sent to recorders in January of that year; unfortunately space does not permit its reproduction here, but copies can be supplied by Mr R. S. R. Fitter on application. It would be of considerable value to put on record a survey of the avifauna of these types of ground, especially as the agricultural ground of to-day around London may well be the building land of to-morrow. It would be of particular interest to discover how near London certain species breed and how near they attain normal distribution. For these purposes we need notes on all species, however common, in built-up areas, gardens, and agricultural land, and we shall be glad if members will refer again to the 1938 circular announcing the scheme, and send us their notes on the lines suggested. Some very interesting reports on agricultural land



have been received, and are being held until sufficient material has accumulated to justify a preliminary survey.

One of the most notable features of the year was the exceptionally severe weather in the second half of December, when many species, especially skylarks, were seen in unusual numbers. So many notes have been received for this period that we have summarised them in a special article, which includes some notes on the weather. The chief features were the appearance of Brent and Pink-footed Geese, Little Gull, exceptional numbers of Smew and Goosander, and the extraordinary abundance of Skylarks and passerine birds generally in inner London and other built-up areas. Dunlin were reported from several localities, and Knots were seen at Barn Elms. Although a few grebes and divers were seen, they were not a prominent feature of the influx as in the winter of 1936-7.

Records of unusual interest include a Firecrest and a Bittern, both at Ruislip on the 31st December following the severe weather of Christmas, a pair of Crossbills in Richmond Park in June, a Snow Bunting at Wanstead Flats and a Black Tern at Molesey seen during the reservoir census on 17th November, an Arctic Skua in the Lea Valley, and a Quail heard at Belmont. On 17th November a large raptorial bird, possibly a Harrier, was seen over Hampstead Heath but unfortunately was not fully identified. Another bird, believed to be a Montagu's Harrier, was seen at Eynsford being mobbed by Crows on 22nd October. Odd records of several interesting birds of prey have been received, and a Short-eared Owl has been seen in Richmond Park and on Rainham marshes. It seems probable that this species would be more frequently reported if the Thames marshes received more attention.

Waders were more numerous than usual at Staines during the autumn, Grey Plover, Sanderling, Knot, and Little Stint being especially noteworthy. Spotted Redshanks were reported from two localities, while a Wood Sandpiper in June is of particular interest. Brooklands sewage-farm was not very productive as the tanks were more flooded than usual. Records of Common Sandpiper wintering in two localities are noteworthy. Strong gales in the first few days of October were followed by a large migration of Swallows, Martins, and Sand Martins, the numbers being unusually large for October migration. Other late dates include the Black Tern already mentioned and a Sedge Warbler in Richmond Park on 23rd October. In the spring Chiffchaffs were plentiful by the week-end of March 18th-19th, but in April migrants were inclined to be late.

A monthly census of water-fowl on all the principal waters in the area was begun on 22nd October, and has been continued up to March, 1939. The scheme was well supported, special attention being given to the sex-ratios among ducks, and it is hoped that the results will be published during the summer.

All records in the specific notes are for 1938 except where it is otherwise stated. Observers responsible for the published notes are indicated by initials, and counties are given by their first letters:— B.=Buckinghamshire, E.=Essex, H.=Hertfordshire, K.=Kent, M.=

Middlesex, S.=Surrey. Other abbreviations are as follows: A.M.=adult male, B.B.=*British Birds Magazine*, L.B.R.=*London Bird Report*, Res. = Reservoir, and S.F. = Sewage-farm. A map of the area was published in the Report for 1936, a few copies of which are still available.

We regret the omission of the names of Messrs G. E. Manser and E. G. Pedler from the list of observers of 1937. The following is a list of the 107 observers from whose notes the present report is compiled:—

Ashby, C. B.	Hayman, R. W.,	Pedler, E. G.
Austin, S.	per C.L.C.	Peterken, J. H. G.
Baggallay, Miss J.	Highway, Mrs H.	Pethen, R. W.
Beckett, L.,	Höhn, O.	Pettit, H. A.
per R.C.H.	Hollom, P. A. D.	Philipson, W. R.
Bentham, C. H.	Homes, R. C.	Piercy, G. Wand,
Beven, G.	Hopkins, G.	per R.C.H.
Bishop, A. H.,	Hornblower, A. B.	Piercy, W. E. K.
per C.L.C.	Jeffery, Miss P. H.	Price, M. Philips,
Blake, F. W.	Johnston, F. J.	per R.S.R.F.
Burkill, H. J.	Justice, Mrs E.,	Poock, S. G.
Butlin, Mrs J. H.,	per R.C.H.	Popple, Miss W. N.
per C.L.C.	Kerr, Mrs H. M. Rait.	Rabbets, A. J.,
Butterworth, Miss M. H.	Keywood, K. P.	per G.E.M.
Carrington, L. I.	Low, G. Carmichael.	Ratcliff, P. W.
Cawkell, E. M.	MacAlister, Mrs E.	Rawlence, D. A.,
Chave, S. P. W.	McCulloch, G. K.	per C.L.C.
Collenette, C. L.	MacCunn, F.,	Roberts, J. E.
Collett, G. W.	per R.S.R.F.	Rose, C. C.
Colyer, W. L.	Macpherson, A. Holte.	Simms, A.,
Currie, P. W. E.	Mann, E.	per C.L.C.
Daffarn, J. D.	Mann, F. R.	Sladen, W. J. L.,
Davis, Miss R.	Mann, P.,	per C.L.C.
Dickey, D. O'R.,	per C.L.C.	Smith, Miss K. Douglas.
per C.L.C.	Manser, G. E.	Smith, R. McKenzie.
Dolley, C.,	Marriott, W. H.,	Sumerfield, A. R.
per C.L.C.	per R.C.H.	Thompson, P.
Elcome, G. D.	Melluish, W. D.	Thomson, Dr W. W.,
Ellis, W. G.	Milnthorpe, Miss W. M.	per R.C.H.
Fisher, J. M. M.	Mitchell, A. F.,	Van Oostveen, Miss M. S.
Fitter, R. S. R.	per C.L.C.	Warburg, G.
Fossey, H. B.	Morgan, D. A. T.	Watt, Mrs W. Boyd.
Gaster, H.	Muirhead, D.	Watts, G.
Gillham, E. H.	Myers, A. F.	Weeks, C.
Gillingham, D. W.	Nicholson, E. M.	White, C. A.
Glegg, W. E.	Nicholson, E. T.	Whitehead, Miss D.
Greenaway, H.	Norris, C. A.	Wightman, J. S.
Griggs, H. R.,	Park, W. D.	Wigram, A. F.
per R.C.H.	Parmenter, I.	Wigzell, J. A.
Hale, R. W.	Parrinder, E. R.	Wilton, A. R.
Hanson, P. J.	Paulson, C. W. G.	Windsor, R. E.
Haviland, Miss G. M. B.	Pearce, E. W.	Wright, W. A.



**HOODED CROW.** *Corvus c. cornix* L.

- E. King George Res., one on 29th October and 17th December (W.A.W.). Navestock Lake, one on 4th and 11th December (R.McK.S.). Rainham marshes, one on 11th December (W.G.E.). Walthamstow Res., one on 28th December (W.A.W.).
- S. Cuddington, one flying strongly south on 26th February (P.W.E.C.).

**ROOK.** *Corvus f. frugilegus* L.

- K. Lee Green, a small rookery, five nests in 1937, was located within 5½ miles of Charing Cross (E.M.C.).

**MAGPIE.** *Pica p. pica* (L.).

- S. Headley Common, a flock of 27 on 27th March; apart from a few desultory chases there was no evidence that the gathering was sexual in purpose (P.W.E.C.).

**HAWFINCH.** *Coccothraustes c. coccothraustes* (L.).

- E. Epping Forest and district, reported by several observers in first half of year.
- K. Farnborough, nested; frequently seen in Farnborough-Chevening-Biggin Hill district (H.R.G.).
- M. Hampstead Heath, seen several times in March (K.D.S.), and two on 24th April (A.F.M.). Ruislip Common, one on 6th February (E.G.P.) and on several dates from 16th March to 7th April (W.R.P.). Whitewebbs Park, one to four pairs from 4th April to 5th July (A.R.S.).
- S. Ashted, well distributed in the district in winter in woods, gardens and heaths; one pair nested in a fruit-tree in a garden and three other pairs seen in breeding-season (J.S.W.). Bookham Common, one on 1st May (E.M.N.). Epsom Common, a pair on 22nd May (R.S.R.F.). Kew Gardens, two on 24th February (W.R.P.). Mickleham Downs, a flock of 40-50 on 2nd and 15th April (P.W.E.C.). Headley, Walton, Tadworth and Kingswood, one to four on various occasions throughout year (H.B.). Reigate, one singing in castle gardens on 28th January (H.B.). Richmond Park, male feeding fully-grown young on 26th May (J.A.W.). Warlingham, a pair on 2nd July (C.W.G.P.). Wimbledon Common, present in breeding-season (E.M.N., R.E.W.).

**BRITISH GOLDFINCH.** *Carduelis c. britannica* (Hart.).

Breeding reported from Epsom, Mitcham, Godstone and Farnborough. As this species is scheduled for special study in 1939 records of breeding distribution will be welcome.

- S. Epsom Common, a flock of about 150 on 18th September was seen for some time, gradually decreasing later in the autumn (W.D.P.).

**SISKIN.** *Carduelis spinus* (L.).

- E. Lord's Bushes, Woodford, six on 6th March (W.A.W.).
- K. Beckenham, 25 in alders in Kelsey Park on 23rd January, and five or six on 13th February (A.J.R.).



- M. Bushy Park, parties of 50 or 60 seen regularly up to end of February (J.E.R.), about 90 on 23rd January (E.W.P.), and appeared in autumn on 15th November when there were 20 or more (J.E.R.). Harefield, two on 13th February (W.R.P.).
- S. Arbrook Common, about six males on 13th (R.C.H.) and two on 25th February (K.P.K.). Leatherhead, one on 22nd January (H.B.). Limpsfield Chart, about 60 in small flocks were engaged in a subdued "community singing" (P.W.E.C.). Oxshott Common, about ten on 13th February (J.S.W.). Richmond Park, a small flock up to 5th February, maximum 10 on 4th February; one stayed till 2nd March (C.L.C., W.L.C., J.A.W.). Wimbledon Common, several from 17th to 21st April (R.E.W.).

LESSER REDPOLL. *Carduelis flammea cabaret* (P. L. S. Müll.).

- E. Chigwell, Knighton Wood and Epping Forest, noted as winter visitor, 30-40 on 15th April (W.A.W.). North Weald, again seen feeding on *Epilobium hirsutum* on 27th November.
- K. Beckenham, two in Kelsey Park on 9th and about six from 23rd to 30th January (A.J.R.). Elmers End S.F., one feeding on thistle on 26th February (A.J.R.). Farnborough, small parties noted from time to time; one pair nested ten feet up in an apple-tree, and six visited garden on 22nd October (H.R.G.). Hayes Common, a male on 15th May (R.S.R.F.).
- M. Brent Park, Bushy Park, Hampstead Heath and Ruislip, noted in winter. It is believed to be resident on Hampstead Heath but there is no proof of breeding in recent years.
- S. Ashtead, seen occasionally throughout winter of 1937-8; several pairs in spring but breeding not proved (J.S.W.). Beddington Lane, noted feeding on *Epilobium hirsutum* on 4th December (G.B.) and on *Artemisia vulgaris* (L.P.). Box Hill, about ten near here on 4th December (R.C.H., D.A.T.M.). Epsom Common, two on 1st December (F.W.B.). Molesey, a pair feeding on seeds of *Epilobium longifolium* on 22nd January (P.W.E.C.). Richmond Park, small numbers early and late in year (C.L.C.). Tadworth district, a few pairs bred (H.B.). Wimbledon Common, noted between 19th March and 7th May (E.M.N., R.E.W.).

CROSSBILL. *Loxia c. curvirostra* L.

- S. Richmond Park, a pair on 26th June (C.A.N.).

BRAMBLING. *Fringilla montifringilla* L.

- E. Epping Forest, 12 or more at High Beech on 20th November (F.J.J.) and four on 3rd April (W.G.E.). Romford S.F., two to six from 26th March to 9th April (H.B.F.). Sewardstone gravel-pit, two on 6th November (W.A.W.). Waltham Abbey, present on 7th February (A.R.S.).
- K. Elmers End S.F., three to four on 8th January, two on 26th February and 30-40 on 27th March (G.E.M.). Hayes, 20 on 23rd January (G.E.M.). Keston, one at Holwood on 18th December

(H.R.G.). Knockholt Pound, a small flock on 20th November (R.S.R.F.).

- M. Brent Res., six on 12th March (W.D.M.) and two on 25th December (G.W.). Bushy Park, one on 26th March (J.E.R.). Primrose Hill, present from 5th to 19th March, maximum 16 on 5th (W.E.K.P.). During hard weather at Christmas one visited a garden in St John's Wood on 26th December (H.M.R.K.), up to three were seen in Ladbroke Square, W.11, from 22nd to 24th December (A.S.), and a keeper reported about 20 in Ken Wood on 25th December.
- S. Beddington S.F., the usual large numbers not seen in spring, maximum 12-15 on 20th March (G.E.M., P.W.R.). Mitcham, two to three at Watermeads on 13th March. Morden, one on 24th December (G.B.). Reigate, one on 29th October (H.B.). Richmond Park and Wimbledon Common, reported on numerous occasions; at Wimbledon several stayed till 6th May, and a single bird was seen as late as 12th June (R.E.W.). North Downs: for the area bounded by Cuddington, Epsom Downs, Mickleham, Headley, Tadworth and Kingswood there are records for February, March, October, November and December, mostly single birds or small parties, maximum about 30 near Headley on 30th March (J.S.W.).

TREE-SPARROW. *Passer m. montanus* (L.).

- E. Still common in the Lea Valley. W.A.W. found small colonies breeding in drain-pipes at King George and Walthamstow Reservoirs (B.B., xxxii, pp. 113-4). Romford S.F., resident, 30-40 always present, numbers rising outside breeding-season (H.B.F.).
- K. Farnborough district, uncommon, two on 26th November (H.R.G.).
- M. Breeding reported from Bushy Park and Staines Moor. Osterley Park, two on 25th June (C.A.W.).
- S. Seen as usual in autumn and spring on Beddington, Brooklands and Epsom sewage-farms. G.E.M. reports breeding at Beddington. Mitcham, resident at Watermeads (G.B., *Journal Wimbledon N.H.S.*, January 1939).

CORN-BUNTING. *Emberiza calandra* L.

- M. Staines, present in breeding-season. One seen north of Stanwell on 25th June (R.C.H., D.A.T.M.).
- S. Arbrook Common, frequent during breeding-season (K.P.K.).

REED-BUNTING. *Emberiza s. schoeniclus* (L.).

- M. Hampton Wick Pond, one pair nested unsuccessfully (E.W.P.). Passage noted at Staines (c. 20 on 2nd April) and at Littleton (c. 50 on 26th August).
- S. Richmond Park, up to 40 were seen feeding on heads of grass *Molinia caerulea* projecting above snow during hard weather in December (C.L.C., D.A.R.).

SNOW-BUNTING. *Plectrophenax n. nivalis* (L.).

- E. Wanstead Flats, one on 19th November (J.H.G.P.).



WOOD-LARK. *Lullula a. arborea* (L.).

- M. Mill Hill, one on 8th May (W.D.M.). The call was not heard, but the bird was seen on the ground at close range and a good description obtained.
- S. North Downs, much scarcer in usual localities this year (G.W.C., P.W.E.C., J.S.W.). Richmond Park, at least two singing males present throughout the breeding-season and one pair thought to have bred; they appear to stay throughout the year (C.L.C.).

WATER-PIPIT. *Anthus s. spinoletta* (L.).

- E. Walthamstow Res., one was reported on 30th March by H.M.R.K., whose notes we summarise:—

Head, dirty greyish-brown; upper back, reddish-brown without greenish tinge of Rock Pipit or dull brown of Meadow Pipit; breast, almost without spots or streaks, was warmish buff; legs, dark brown, darker than in Meadow or Rock Pipits; bill longer than in Meadow Pipit and seemed more slender and pointed; a light buff eyestripe on greyish-white surface. In flight the bird showed white tail feathers.

We believe this to be the second record for Essex.

ROCK-PIPIT. *Anthus spinoletta petrosus* (Mont.).

- E. Walthamstow Res., one on 13th November (E.T.N.).
- M. Hampton Res., two on 19th November (R.S.R.F.).
- S. Island Barn Res., Molesey, two on 22nd October (P.W.E.C.).

BLUE-HEADED WAGTAIL. *Motacilla f. flava* L.

- H. Rickmansworth, a male on 30th April (G.K.McC., *B.B.*, xxxii, p. 19).
- M. Staines Res., one on 9th and 21st April (G.D.E.). Yeoveney, one on 25th June (R.C.H., D.A.T.M.).

YELLOW WAGTAIL. *Motacilla flava rayi* (Bp.).

- E. Bred at Chigwell S.F., Sewardstone gravel-pit and commonly at the Lea Valley Reservoirs (W.A.W.).
- K. Elmers End S.F., three pairs on 29th May, probably bred as usual (G.E.M.). Erith marshes, four pairs on 16th June (L.P.).
- S. West Molesey Res., at least four pairs bred (P.W.E.C.).

GREY WAGTAIL. *Motacilla c. cinerea* Tunst.

- S. Fetcham, young birds seen near site of last year's nest on 16th June; immature birds roosting with pied wagtails in artichoke beds on 14th September (H.J.B.). Cobham, one on R. Mole near Pointers on 16th April (E.M.N.). Mitcham, nests annually on R. Wandle near Watermeads (G. Hatfield); a young bird on 1st August (G.B.). Battersea Park, one on 19th November (E.M.N.).

PIED WAGTAIL. *Motacilla alba yarrellii* Gould.

- M. Hampton Wick Pond, large numbers roost in the reeds (E.W.P.).
- S. Fetcham, a flock of about 150 roosting in artichoke beds on 28th September, and a smaller flock on the 14th (H.J.B.). Richmond

Park, the roost near Ham Gate (*L.B.R.*, 1937, p. 28) had about a dozen birds on 2nd and 40-50 on 26th January, and about 20 on 12th February. In the summer the pond was cleared of rushes and the roost was not used in the autumn (*C.L.C.*, *W.L.C.*).

WHITE WAGTAIL. *Motacilla a. alba* L.

- M. Staines Res., one on 24th (*G.C.L.*, *A.R.S.*), 28th (*G.C.L.*, *A.H.M.*) and 30th April (*W.G.E.*). One near Stanwell on 1st May (*C.A.W.*).
- S. Barn Elms Res., one or two from 28th April to 4th May (*A.H.M.*, *D.A.T.M.*, *W.R.P.*).

BRITISH WILLOW-TITMOUSE. *Parus atricapillus kleinschmidti* Hellm.

- E. North Weald, two on 23rd January and on 27th November (*R.S.R.F.*, *R.C.H.*).
- K. Hayes, one singing on 19th June (*G.E.M.*).
- M. Ruislip, frequent in winter and spring (*R.W.H.*), one on 23rd June (*C.A.W.*). Whitewebbs Park, two on 28th April (*A.R.S.*).
- S. Ashted Forest, one singing on 22nd May (*R.S.R.F.*). Bookham Common, a party of at least three on 19th June (*R.S.R.F.*) and a pair on Banks Common on 25th June (*E.M.N.*). Epsom Common, one on 4th May collecting small green caterpillars from bushes, and one on 5th and 6th May, 14th and 17th November, and 1st December (*F.W.B.*). Oxshott, a pair on 16th April (*E.M.N.*). Selsdon, four on 11th December (*G.E.M.*). Tadworth, one on 6th November (*H.B.*) and 4th December (*R.C.H.*, *D.A.T.M.*). Wimbledon Common, a pair on 19th March (*E.M.N.*).

BRITISH LONG-TAILED TITMOUSE. *Aegithalos caudatus rosaceus* (Blyth).

There was a considerable influx of this species in London and the suburbs in late October and early November.

- M. Bushy Park, several parties of 20 or more (*J.E.R.*). St James's Park, eight on 9th November (*R.S.R.F.*). Hyde Park, 12 near Marble Arch on 2nd November (*F.G.P.*). In December about ten were seen at Chelsea on 1st (*Field*, 17.12.38) and in Ladbroke Square there were two on 3rd and six on 6th.
- S. Parties were noted in Dulwich Woods on 28th October and 28th November (*R.D.*) and at Upper Norwood on 26th November (*G.D.E.*), and single birds at Putney on 10th November (*M.H.B.*) and at Barn Elms on 14th November (*W.R.P.*); reported to be unusually plentiful at this time in Richmond Park (*C.L.C.*), at Claygate, and on Arbrook and Esher Commons (*K.P.K.*).

FIRE-CRESTED WREN. *Regulus i. ignicapillus* (Temm.).

- M. Ruislip Common, a pair were seen by *R.W.H.* and *C.C.R.* on 31st December. As this is the first record for Middlesex, we quote *R.W.H.* who notes the following features:—



White stripe over the eye, black line through the eye and pale streak below it; in the male, a reddish-orange crest—there was a little lemon yellow along the side of the crest, but not nearly so much of this colour as in the Goldcrest; in a front view the crest looked broader than a Goldcrest's is in repose, and almost uniformly bright reddish-orange; a black line on each side of the crown above the superciliary stripe; the paleness of the underparts when seen from below; the upper parts seemed to be of a brighter green than the Goldcrest's.

GREAT GREY SHRIKE. *Lanius e. excubitor* L.

S. Richmond Park, one first reported on 1st December 1937 (*L.B.R.*, 1937, p. 8) remained in the neighbourhood throughout the winter and was last seen on 13th March by M.S.O. One was seen on Ham Common on 5th (P.M.) and 6th November (F.R.M.).

RED-BACKED SHRIKE. *Lanius c. collurio* L.

E.M. Breeding reported from Epping Forest, Ruislip (3 pairs) and Staines, but a 1937 territory near Mill Hill was not occupied.

K. Farnborough, a few pairs (H.R.G.).

S. Ashtead, 2-3 pairs (J.S.W.). Ham Common, one pair nested (F.R.M.). Royal Wimbledon golf course, one pair nested (J.A.W.). Walton Heath, several pairs (J.S.W.). Mitcham Common, four pairs nested, only one bringing off its first clutch successfully; a second pair left the district after the destruction of its nest before eggs had been laid; two other pairs successfully reared broods at second attempts, the young leaving one nest as late as 13th September (W.W.T.).

PIED FLYCATCHER. *Muscicapa h. hypoleuca* (Pall.).

S. Wimbledon Common, an adult female on 7th September (R.E.W.).

WOOD-WARBLER. *Phylloscopus s. sibilatrix* (Bechst.).

B.E.M. Heard in breeding-season at Black Park, Langley Park, Hampstead Heath, Ruislip, Stanmore, Epping Forest, Whitewebbs Park.

K. Reported in May from Farnborough and near Sevenoaks (H.R.G.). Hayes Common and Holwood (R.S.R.F.).

S. Dulwich Woods, three pairs throughout summer, at least one pair nesting successfully (R.D.). Richmond Park, did not nest this year (C.L.C.). Shirley Hills, three heard, almost certainly nested (G.E.M.). Wimbledon Common, unusually scarce, one pair nested (R.E.W.). Also reported from Ashtead, Box Hill, Epsom Common, Headley and Old Malden.

GRASSHOPPER-WARBLER. *Locustella n. noevia* (Bodd.).

B. Denham, heard on 24th July (W.R.P.).

H. Cuffley, heard on 28th April (A.R.S.).

M. Ruislip, fledglings seen on 18th August (W.R.P.).

S. Reported as usual from Ashtead, Bookham and Epsom Commons, and Walton Heath.

**DARTFORD WARBLER.** *Sylvia undata dartfordiensis* Lath.

S. Nested again in locality A (c.f. previous reports) where eight pairs were definitely located in the breeding-season. At locality B no birds were seen after 25th February. At the third locality mentioned in the 1937 Report one bird was seen on 1st December. The bird which appeared in Richmond Park on 19th December 1937 was last seen on 4th February by W.L.C.

**BRITISH SONG-THRUSH.** *Turdus e. ericetorum* Turton.

S. Ewell, two nests, with young and eggs, on 30th April had no mud lining, probably owing to drought (R.S.R.F.). Fetcham, a young bird, just able to fly, on 19th October (H.J.B.). Walton Heath, a nest with two eggs on ground in dead bracken on 18th April (P.W.E.C.).

**GREENLAND WHEATEAR.** *Oenanthe oe. leucorrhoea* (Gm.).

S. Beddington S.F., one on 8th May (G.E.M.) was watched together with Common Wheatears.

**WHINCHAT.** *Saxicola r. rubetra* (L.).

E. Bred at Chigwell S.F., King George Res., and Sewardstone (W.A.W.). Romford S.F., about three pairs resident (H.B.F.). Rye House, a pair on 26th June (E.R.P.).

H. Sandy Lodge, bred (G.H.).

K. Leaves Green, a male singing on 15th May (R.S.R.F.). Elmers End S.F., noted on autumn passage (G.E.M.).

M. Eastcote, two pairs bred (W.R.P.). Scratch Wood, male singing on 29th May, but nesting not proved (W.D.M.). Wraysbury, a family party on 25th June (D.A.T.M.).

S. Bookham Common, one pair in breeding-season (J.S.W.). Epsom Common, a pair on 22nd May (R.S.R.F.). Molesey, two pairs with fledgling young at Island Barn Res., on 2nd July, and a nest with four young at West Molesey Res. on 9th July (P.W.E.C.). Richmond Park, two pairs believed to have nested (C.L.C.). Reported on spring passage at Barn Elms and Mitcham Common, and on autumn passage at Mitcham, Beddington, and Wimbledon.

**REDSTART.** *Phoenicurus p. phoenicurus* (L.).

B. Black Park, a pair on 18th June (D.A.T.M.).

E. Epping Forest, W.G.E. saw a pair feeding young on 3rd July, and W.A.W. recorded a family party on 2nd August, but A.R.S. considers that the species was scarce. King George Res., a female or immature bird seen in a garden from 28th October to 1st November (A.R.S.).

M. Bushy Park, bred as usual. Ruislip, a female on 12th May (W.R.P.).

S. A decrease in nesting pairs in Richmond Park (C.L.C.) Also reported from Ham Common on 14th April (F.R.M.), Headley Heath on 30th April (J.S.W.), Burwood Park on 30th April (P.A.D.H.), Wimbledon Common on 4th August (J.B.), and Walton Heath on 9th October (H.B.).



BLACK REDSTART. *Phoenicurus ochrurus gibraltariensis* (Gm.).

- M. Edmonton S.F., a male on 8th May (E.M., R.W.P., see also *B.B.*, xxxii, p. 19). St John's Wood, a male stayed for 2½ hours on 22nd June (H.M.R.K.).
- S. Barn Elms Res., a male on 23rd March (E.G.P.). Beddington S.F., three, apparently an adult male, an immature male and a female, from 10th December (C.B.A.) to the end of the year (many observers). Molesey, a female at Island Barn Res. on 26th March (P.W.E.C.).

NIGHTINGALE. *Luscinia m. megarhyncha* Brehm.

The following notes are included on account of the paucity of notes received for this species from Kent:—

- K. Blackheath, one singing in a garden in Shooters Hill Road on 22nd April (*Country Life*, 18.6.38). Farnborough district, fairly well distributed (H.R.G.). Hayes, probably bred (G.E.M.).

MARTIN. *Delichon u. urbica* (L.).

- M. Highgate, bred in Chester Road in 1937 (W.N.P.). Wembley Park, two nests in 1938 (R.W.H.). Hendon, breeds in Sunny Gardens Road (D.W.). Hayes, one pair bred over a shop (D.A.T.M.). It would be interesting to know in what numbers this species nests in built-up areas.

After strong winds in the first few days of October large numbers of Swallows, Martins, and Sand-Martins were seen. At Beddington S.F., about 100 Sand-Martins were present on 9th October, and about this date several were found drowned in the settling-tanks, while on the 27th a House-Martin was rescued from them alive. On the 16th G.B. estimated that there were several thousand House-Martins, but by this date there were only three Swallows and about 10 Sand-Martins left.

SWIFT. *Apus a. apus* (L.).

- E. Chingford, four pairs bred in derelict houses (E.M.).
- M. Bush Hill Park, two pairs at nesting-site on 5th May (P.J.H.). Islington, two pairs nested (W.N.P.). Mill Hill, breeds in old farm buildings at Copt Hall (D.W.). St John's Wood, seen regularly from 14th May up to August (H.M.R.K.).
- S. Breeding reported from Norwood (40-50 pairs), Putney (1 pair), and Richmond (3 pairs +). Further breeding notes from built-up areas would be welcome. Fetcham, large migration, 800-1000, on 28th May (H.J.B.).

NIGHTJAR. *Caprimulgus e. europoeus* L.

Present in breeding season in Epping Forest, and at Cuffley and Ruislip.

- K. Hayes, one pair probably bred (G.E.M.).
- M. Hampstead Heath, one seen and heard on 5th June (D.M.).
- S. Burwood Park, a pair on 23rd June (P.A.D.H.). Epsom Common, at least three, and possibly four, pairs (R.C.H., W.D.P.).

WRYNECK. *Jynx t. torquilla* L.

M. Northwood, one on 1st May (G.H.).

S. Reported from Ashted (two pairs, J.S.W.), Tadworth (H.B.), Ewell and Limpsfield (R.S.R.F.).

SHORT-EARED OWL. *Asio f. flammeus* (Pontopp.).

E. Rainham marshes, one on 11th December (W.G.E.).

S. Richmond Park, one on 29th (D.A.R.) and 30th October (F.R.M.).

WHITE-BREASTED BARN OWL. *Tyto a. alba* (Scop.).

E. Romford S.F., seen several times (H.B.F.). Sewardstonebury, one on 1st May (F.J.J.).

H. Colney Heath, one on 10th April (A.R.S.).

S. Arbrook Common, one seen on 18th September (K.P.K.). Epsom, two on 13th July (W.D.P.). Ham Common, a frequent visitor to garden and common (F.R.M.). Wimbledon, one flying along Bushey Road on 4th October (R. W. Hayman, *Journal Wimbledon N.H.S.*, January 1939, p. 12).

PEREGRINE FALCON. *Falco p. peregrinus* Tunst.

M. Staines Res., one on 2nd (G.C.L., A.H.M., D.A.T.M., C.A.W.) and 30th January (G.C.L., A.H.M.) and one flew over northwards on 10th September (D.A.T.M.).

S. Mickleham, one on 30th January. Limpsfield, one on 6th March (P.W.E.C.).

HOBBY. *Falco s. subbuteo* L.

S. One was seen in the Surrey section of the area on 12th June.

MERLIN. *Falco columbarius oesalon* Tunst.

M. Staines Res., one on 15th April (D.A.T.M.).

COMMON BUZZARD. *Buteo b. buteo* (L.).

M. Kew Bridge, of two birds seen over north end of bridge on 20th March one was definitely identified as this species (R. Preston Donaldson, *Times*, 23.3.38).

COMMON HERON. *Ardea c. cinerea* L.

E. There were 56 occupied nests at Walthamstow Res. (R.W.P.) and 14 at Wanstead Park (per W. B. Alexander) as compared with 51 and 17 respectively in 1937.

M. Although groups of this species are common at the reservoirs a party of 53 at Littleton on 15th August (A.H.M.) seems worthy of record.

S. Battersea Park, three on 19th November, apparently a regular morning visitor (E.M.N.). Galton Park, 15 birds on 20th March, two pairs nested (G. Wand Piercy). Hershams, seven occupied nests (P.A.D.H.). Richmond Park, 52 or 53 occupied nests, all in Spanish chestnuts (C.L.C., A.H.M.).



**BITTERN.** *Botaurus s. stellaris* (L.).

M. Ruislip Res., one flushed at close quarters on 31st December (R.W.H., C.C.R.).

**PINK-FOOTED GOOSE.** *Anser brachyrhynchus* Baillon.

S. Barn Elms Res., three on 27th and 30th December (A.F.W.). Beddington S.F., a party of 10 was seen by P.W.E.C. on 23rd December and probably left on the morning of the 24th. One which had been shot on the 22nd was seen in the flesh by P.W.E.C., who was told that there had been a party of 7, probably different birds. (See also *B.B.*, xxxii, p. 307.) The birds at Barn Elms were very tame and may have been escapes, but the weather was very severe at the time and there is no reason to suppose that the birds at Beddington were not wild ones.

**GREY GEESE.**

K. Beckenham, a party of five flew S.W. over Barnmead Road at 9 a.m. on 25th December (G.E.M.).

**CANADA GOOSE.** *Branta canadensis* (L.).

S. Barn Elms, two on 15th April (D.A.T.M.), also present on 26th April (W.R.P.). Gatton Park, exists in feral state, having first appeared in 1929 or 1930. Numbers have reached about 200 in winter, but for the past three years eggs have been destroyed to keep down the number, and about March 1938 nearly all left. In May only 12 remained (G. Wand Piercy).

**BRENT GOOSE.** *Branta bernicla*. (? subspecies).

S. Molesey, a party of 8 stayed, preening and washing, for about 50 minutes at Island Barn Res. at mid-day on 17th December. The weather was very cold at the time, and snow was widespread further north (P.W.E.C., see also *B.B.*, xxxii, p. 307).

**SHELD-DUCK.** *Tadorna tadorna* (L.).

E. Walthamstow Res., one on Banbury on 3rd September (E.T.N.).

M. Brent Res., one on 4th November (W.D.M.). Staines Res., three on 6th and 13th February (C.A.W.), up to five from 10th April to 1st May (G.C.L., and others), four on 14th August and seven on 10th and 11th September (G.C.L., A.H.M., C.A.W.). These figures include the bird which was first seen in October 1932 and has since been seen regularly up to 19th November 1938 (A.H.M.).

**GADWALL.** *Anas strepera* L.

K. Beckenham, a female in Kelsey Park on 4th September (A.J.R.).

M. R. Thames, a pair near Westminster Bridge on 9th June, and five in King's Reach on 17th August (R.S.R.F.); at Isleworth, a pair in January and a male on 24th December (W. H. Marriott). Hampstead and Highgate ponds, a male on 22nd October (W.B.W.).

- S. Battersea Park, a full-winged male in April (E.M.N.). Barn Elms Res., up to eight seen throughout the year by many observers; one pair bred and reared six young (G.C.L., C.A.W.). Beddington farm pond, a pair bred and reared four young (C.B.A., G.B.). Lonsdale Road Res., a male and three females on 14th November (A.F.W.). West Molesey Res., four on 12th March (H.M.R.K.).

Records of this species have been included in full, but we must emphasise that full-winged birds are reared in St James's Park, and that some, if not all, the records, are probably due to this fact.

TEAL. *Anas c. crecca* L.

- E. King George Res., 122 on 17th December (W.A.W.).  
 M. Ruislip Res., a brood of six young on 24th July (W.R.P., C.A.W.).  
 S. Maxima recorded: Barn Elms, six on 20th and 23rd December (W.R.P.). Beddington, 35 on 26th November (G.E.M.). Island Barn Res., Molesey, about 240 on 8th January, 412 (247 m., 165 f.) on 5th February, about 250 on 9th March, falling to 67 on 19th April, 62 on 15th October, rising with fluctuations to 206 on 17th December (P.W.E.C.). Richmond Park, ten on 11th November (M.H.B., W.L.C.). West Molesey Res., 28 on 8th January (P.W.E.C.).

GARGANEY. *Anas querquedula* L.

- M. Ruislip Res., a male from 7th (W.R.P.) to 13th March (R.W.H.). See also *B.B.*, xxxi, p. 357.  
 S. Island Barn Res., Molesey, two males and a female on 9th April (P.W.E.C.).

WIGEON. *Anas penelope* L.

- H. Colney Street, about six on R. Colne on 6th February (E.R.P.).  
 M./S. R. Thames, a male at Chiswick on 26th December (E.M.N.), and about 12 near Lonsdale Road on 28th and 29th December (G.D.E.).  
 M. Ruislip Res., a pair on 12th and 13th March (R.W.H., W.R.P.).  
 S. Barn Elms Res., a male on 21st April (G.C.L.) and from 22nd November to 31st December. Beddington Lane ponds, three on 19th February (G.E.M.). Maximum at Island Barn Res., Molesey, 17 on 17th December, and at West Molesey Res., 20 on 5th March (P.W.E.C.).  
 E.H. Also reported from King George and Walthamstow Res. (4 on 28th December), Leytonstone and Hamper Mill.

PINTAIL. *Anas a. acuta* L.

- M. Chiswick, a male on R. Thames on 26th December (E.M.N.). Ruislip Res., a female on 13th January (W.R.P.). Staines Res., a pair on 22nd (A.H.M., C.A.W.) and 29th May (G.C.L., A.H.M.). Southgate, a male reported by S.G.P. on 20th February is said to have been there some time and is believed to be an "escape."



- S. Brooklands S.F., a pair on 15th April (R.C.H.). Island Barn Res., Molesey, a female on 17th December (P.W.E.C.). Richmond Park, a male on 19th November (C.L.C.).

SHOVELER. *Spatula clypeata* (L.).

- B. Langley S.F., a female on 23rd April (D.A.T.M.).  
 E. King George Res., a male on 27th December (F.J.J., W.A.W.).  
 M. Littleton Res., about 50 on 26th August (S.A.), 49 on 22nd October, 18 on 19th November and 16 on 17th December (W.E.G.). Staines Res., numbers in first quarter varied up to 35+ on 4th March, then fell to 15 on 10th April (C.A.W.), one on 1st and 29th May (G.C.L.), 57 on 24th September (C.B.A.), 20 on 22nd October (A.H.M.), then a maximum of 8 for the rest of the year.  
 S. Barn Elms Res., a male on 26th March (D.A.T.M., E.G.P.), a female on 16th August (G.C.L.) and two on 12th October (E.G.P.). Mitcham junction gravel-pits, six on 22nd October (C.B.A.). Richmond Park, a male on 27th March (C.L.C.). On spring passage numbers reached 7 at West Molesey on 26th March, while there were 17 on this date at Island Barn Res., where there was a maximum of 23 on 19th April. A few stayed into May at both localities (P.W.E.C.).

COMMON POCHARD. *Nyroca f. ferina* (L.).

- M. Staines Res., from ten on 26th June there was the usual increase to 173 on 16th July (A.H.M.) and a maximum of 407 on 28th August (G.C.L.). The species also appeared at Walthamstow Res. on 13th June when there were 14 males. Other localities as usual. Osterley Park, one pair bred (C.A.W.).  
 S. Returned to several localities in June, but no large flocks reported before the severe weather in December, when there were 111 at Barn Elms on the 17th. On the 29th A.H.M. counted 461, and G.D.E. estimated that there were over 600.

[FERRUGINOUS DUCK. *Nyroca n. nyroca* (Göld).]

- S. Barn Elms Res., a pair seen by G.C.L. on 17th July had probably come from St James's Park, where the same observer saw a brood of seven young on 28th June.]

SCAUP. *Nyroca m. marila* (L.).

- E. Walthamstow Res., three males and a female on 28th and 31st December (W.A.W.).  
 M. Ruislip Res., a female on 8th January (W.R.P.). Staines Res., a female on 13th February, 13th March, and three on 3rd (G.C.L.), one on 10th and three on 28th April (G.C.L., A.H.M.) and one on 1st May (G.C.L.).  
 S. Island Barn Res., Molesey, a drake on 19th April (P.W.E.C.).

GOLDENEYE. *Bucephala c. clangula* (L.).

- E. King George Res., a male on 29th January (J.H.G.P.) and two on 5th March (J.H.G.P., W.A.W.), one to three from 24th November to the end of year (A.R.S.). Walthamstow Res., two on 28th and 31st December (W.A.W.).

- H. Cheshunt, a male on Boyer's Lake on 19th November (A.R.S.).
- K. Stone, an adult male on 27th December (E.H.G.).
- M./S. R. Thames, three males and a female opposite Chiswick Eyot from 25th to 29th December (G.D.E., E.M.N., W.R.P.).
- M. Hampton Res., one on 19th November (R.S.R.F.). Littleton Res., two on 17th December (W.E.G.). Ruislip Res., two brown-headed birds on 26th February (R.W.H.). Staines Res., maxima winter 1937-8 were seven in January, 20 in February (G.C.L., A.H.M.), 33 in March on 13th, then after falling to 12 on 3rd numbers rose to 35 on 10th April, 18 staying until 1st May (C.A.W.), one on 3rd July (A.H.M.); from 1st October not more than 12 until 17th December when there were 21 (A.H.M. and others).
- S. Barn Elms Res., one on 10th November (W.R.P.), two on 17th (D.A.T.M.) and one from 20th to 29th December (W.R.P., A.F.W.). Lonsdale Rd. Res., one to four, including three males, from 24th to 31st December (several observers). Richmond Park, one on 17th December (C.L.C., D.A.R., J.A.W.). Island Barn Res., Molesey, four drakes on 8th January, two on 5th February, and two to three from 3rd December to the end of the year (P.W.E.C.). West Molesey Res., seen up to 19th April, maximum 15 on two occasions; three drakes appeared on 18th June and were going into eclipse by 7th July; six were seen on 19th November, maximum 11 on 28th December (P.W.E.C., and others).

LONG-TAILED DUCK. *Clangula hyemalis* (L.).

- M. Staines Res., the birds first seen in September 1937 (*L.B.R.*, 1937, p. 13) stayed throughout the winter, three being seen on 10th (C.A.W.) and one on 24th April (G.C.L., A.R.S., C.A.W.); one from 1st October to the end of the year (A.H.M., and others).
- S. West Molesey Res., a female or immature male from 27th January (J.B.) to 2nd April (P.W.E.C., R.C.H., D.A.T.M.). On 19th April at Island Barn Res., P.W.E.C. saw one which was probably the same bird, being in similar plumage. It was not one of the three birds from Staines as all four were seen on 30th January by R.C.H. and H. H. Davis (see also *B.B.*, xxxi, p. 335). On 5th February P.W.E.C. timed five dives in 25 feet of water, obtaining an average of 54.7 seconds (maximum 62; minimum 49).

COMMON SCOTER. *Oidemia n. nigra* (L.).

- M. Ruislip Res., a pair on 14th July (W.R.P.). Staines Res., four on 31st July (G.C.L., C.A.W.) and two on 2nd and 5th August (A.H.M.).
- S. Barn Elms Res., two on 21st April (G.C.L.) and an adult drake on 27th and 28th September (E.G.P.).

GOOSANDER. *Mergus m. merganser* L.

- E. Connaught Water, 12 on 23rd and 5 on 28th February (F.J.J.). King George Res., seen up to 4th April, maximum 14 (A.R.S., and others), a male on 10th and nine on 17th December (W.A.W.). Wal-



- thamstow Res., maximum in early part of year nine on 23rd January (E.T.N.); 41 on 28th (W.A.W.) and 18 on 31st December (H.A.P.).
- H. Elstree Res., one on 22nd January (J.D.D.).
- K. Dartford, two red-headed birds from 24th to 27th December (E.H.G.).
- M. Bushy Park, up to 12 in early mornings in January (E.W.P., J.E.R.). Kempton Res., six on 17th December (P.A.D.H.). Littleton Res., one on 22nd October and two on 17th December (W.E.G.). Ruislip Res., two on 20th December (W.R.P.). Staines Res., from 45 on 2nd January (A.H.M.) numbers rose to 110 on 26th February (H.M.R.K.); 15 still present on 10th (C.A.W.), two staying until 18th April (A.H.M.); one on 22nd October (A.H.M.) gradually rising to 26 on 11th, then sharp increase to 87 on 17th and about 100 on 28th December (several observers).
- S. Barn Elms Res., one to two in December increasing to ten on 30th and 24 on 31st (many observers). Lonsdale Rd. Res., one on 31st December (C.B.A., C.A.W.). Richmond Park, maximum 44 on 4th January (W.E.G.). Island Barn Res., Molesey, seen up to 19th April, maximum 38 on 26th March then only a few; up to six from 3rd December to end of year (P.W.E.C.). West Molesey Res., 128 (15 adult males) on 8th January falling to 46 on 12th March, then a few till 2nd April; one on 22nd October, but few until 17th December when there were 20. On the 28th there were 184 (44 adult males) and 121 (30 adult males) on the 31st (P.W.E.C.).

RED-BREASTED MERGANSER. *Mergus serrator* L.

- S. West Molesey Res., four red-headed birds on 28th and one on 31st December (P.W.E.C., see also *B.B.*, xxxii, p. 307).

SMEW. *Mergus albellus* L.

- E. King George Res., two on 27th December (F.J.J., W.A.W.). Walthamstow Res., one on 15th January (E.T.N.) and four on 4th (J.H.G.P.) and 5th February (W.A.W.), ten on 28th (F.J.J., W.A.W.) and twenty in flight on 31st December (E.T.N.).
- H. Elstree Res., one on 9th January (J.D.D.).
- K. Dartford, 12 red-headed birds on 24th and 20, including three adult males, on 27th December (E.H.G.).
- M. Chiswick, one on R. Thames on 26th December (E.M.N.). Hampton Res., one on 17th December (P.A.D.H.). Kensington Gardens, one on 20th December (G.C.L.) and three on the Serpentine on 24th and two on 25th December (A.H.M.). Staines Res., one to three on various dates up to 13th February (several observers), two on 8th December (J.A.W.), one on 17th (A.H.M.), five on 25th, two on 27th (C.A.W.) and on 28th (J.A.W.).
- S. Barn Elms Res., two on 3rd and six on 4th and 5th February; seen from 17th to 31st December, maximum nine on 31st (many observers). Beddington Farm pond, two from 25th to 31st December (many observers). Lonsdale Rd. Res., seen up to 8th March (A.H.M.), maximum 20 (6 a.m.) on 28th February (E.G.P.); from 17th to 31st

December, maximum 14 (5 a.m.) on 31st (many observers). West Molesey Res., 43 on 5th (J.B.) rising to 60 (22 a.m.) on 22nd January, then 38 (9 a.m.) on 5th February, a few remaining till 12th March; two on 3rd December rising to 13 on 17th and to 117 (32 a.m.) on the 28th. On the 31st there were 54, including 14 a.m. (P.W.E.C., and others). The flock of 117 is the largest that has been seen in the area.

**CORMORANT.** *Phalacrocorax c. carbo* (L.).

There are records from over Epping Forest, King George and Walthamstow Reservoirs, the River Thames, Barn Elms and Molesey Reservoirs. Maximum number of birds was five in three localities and period was from October to April, except for an immature bird which stayed at Molesey until 18th June.

**SHAG.** *Phalacrocorax a. aristotelis* (L.).

- M. Ruislip Res., five alighted and fished on 24th April (W.R.P.).
- S. Barn Elms Res., one on 4th and 5th February (G.C.L., A.H.M., and others, see also *B.B.*, xxxi, p. 335).
- M./S. R. Thames, Barnes Bridge to Chiswick, one on 14th January (W.R.P.), four on 24th February (A.H.M.), one on 8th and two on 12th (W.R.P.) and on 19th March (R.W.H.), one on 4th April (G.C.L.) and two on 29th December (W.R.P.).

**GREAT CRESTED GREBE.** *Podiceps c. cristatus* (L.).

- E. Dagenham sand-pit, bred and two young seen. Chadwell Heath sand-pit, attempted to breed (H.B.F.). Sewardstone gravel-pit, bred as usual (W.A.W.).
- H. Elstree Res., of three eggs laid by one pair one egg at least was destroyed by a coot (G. R. Mountfort, *B.B.*, xxxii, p. 158). Hamper Mill, 16 adults and six young on 1st August (G.H.).
- M. Osterley Park, one pair reared three young (C.A.W.).
- S. Bred as usual at Beddington Lane ponds (one pair, C.B.A.), Mitcham junction gravel-pits (two pairs, C.B.A., G.B.), and Richmond Park (two pairs, C.L.C.).

**SLAVONIAN GREBE.** *Podiceps auritus* (L.).

- E. King George Res., one on 27th December (F.J.J., W.A.W.). Walthamstow Res., one from 12th February (J.H.G.P.) to 5th March (E.T.N., and others); one on 28th December (W.A.W.).
- M. Staines Res., one on 27th (C.B.A., A.H.M., C.A.W.) and 28th December (A.H.M., J.A.W.).

**RED-NECKED GREBE.** *Podiceps g. griseigena* (Bodd.).

- E. Walthamstow Res., one on 8th, two on 22nd (E.T.N.) and one on 30th October (E.T.N., H.A.P.).
- S. Barn Elms Res., one from 23rd December (W.R.P.) to the end of the year.



BLACK-NECKED GREBE. *Podiceps n. nigricollis* Brehm.

- E. Walthamstow Res., one on 28th (F.J.J., W.A.W.) and 31st December (W.A.W.).
- H. Elstree Res., one on 24th January (H.M.R.K.).
- M. Staines Res., one from 1st to 28th April (A.H.M., and others), one on 6th August (C.A.W.) and one to four from 1st to 18th September (many observers) and two on 30th September and 12th October (J.A.W.).
- S. Barn Elms Res., one from 5th (G.C.L.) to 29th September (D.A.T.M.).

GREAT NORTHERN DIVER. *Colymbus immer* Brünn.

- M. Staines Res., one from 11th December (G.C.L., A.H.M.) to the end of the year. It seems probable that this was the bird last seen at Molesey on 10th December.
- S. One at Island Barn Res., on 19th (P.W.E.C.), and at West Molesey on 27th November (P.A.D.H.). On 3rd December P.W.E.C. saw one at Island Barn Res. in the morning but not later, while in the afternoon both he and R.C.H. saw one at West Molesey. On the 10th P.W.E.C. saw it again at West Molesey for the last time.

RED-THROATED DIVER. *Colymbus stellatus* Pontopp.

- E. King George Res., one on 20th January (A.R.S.). Walthamstow Res., one on 9th April (E.T.N.) and on 28th (F.J.J., W.A.W.) and 31st December (E.T.N.).
- M. Staines Res., one seen with the great northern diver on 20th December (W.R.P.).
- S. Barn Elms Res., one was seen on 20th December by A.F.W. and one was found dead by the same observer on the 30th.

RINGED PLOVER. *Charadrius h. hiaticula* L.

- E. Romford S.F., small parties of about six on 13th November 1937, eight on 15th, seven on 22nd and 11 on 29th January, four on 14th and 24 on 21st August, 27 on 4th September, 35 on 29th October and one on 6th November (H.B.F.). Walthamstow Res., one on 13th and 28th August and four on 3rd September (E.T.N.).
- M. Brent Res., five on 12th March (W.D.M.) and one on 10th April (R.S.R.F.). Ruislip Res., one juvenile on 19th July (W.R.P.). Staines Res., present from 14th August (G.C.L.) to 25th September, maximum 13 on 21st August (C.A.W.); five on 22nd October (A.H.M.).
- S. Barn Elms Res., one on 5th July (W.R.P.) and 6th August (D.A.T.M.). Molesey, one flew over Island Barn Res., on 7th May, and one was on bed of empty reservoir at West Molesey on 27th August (P.W.E.C.).

GOLDEN PLOVER. *Charadrius apricarius* (? subspecies).

- E. Abridge, 400+ on 3rd December (J.H.G.P.). Little Warley, 15 on 18th December (R.S.R.F.). North Weald, about 50 on 23rd January (R.C.H., D.A.T.M.) and 150+ on the aerodrome on 4th December

(W.G.E.). Romford S.F., five on 24th April, and one on 6th August (H.B.F.). Sewardstone, 20+ on 23rd January (W.A.W.), 40 on 21st November (A.R.S.) and eight on 18th December (W.A.W.). Waltham Marsh, about 40 present on most visits up to 4th May (A.R.S.).

K. Keston, one near Holwood on 9th March (H.R.G.).

M. Staines Moor, about 100 on 14th February (S.A.).

S. Barn Elms Res., one on 19th (A.H.M.) and one flew in from the east on 23rd December (W.R.P.). Beddington S.F., two on 5th March (C.B.A., W.W.T.), and one on 25th (L.P.) and 31st December (G.B.). Brooklands S.F., one on 23rd April (R.C.H.). Richmond Park, one flying south with flock of 20 lapwings on 18th December (D.A.R.). Wimbledon Common, 13 flying over on 18th December (J.A.W.).

GREY PLOVER. *Squatarola s. squatarola* (L.).

M. Staines Res., one on 19th October (A.H.M.) and four flew over on 12th November (D.A.T.M.).

RUFF. *Philomachus pugnax* (L.).

M. Staines Res., one on 24th April (G.C.L., A.R.S.), and two on 6th September (D. Gunn).

S. Beddington S.F., one feeding on a flooded ploughed field with lapwings on 27th and 28th August (G.B.). Brooklands S.F., a male on 13th March (E.M.C.), two males, one of which had head, neck, throat and belly white, with just a few grey flecks on the throat, on 23rd April (R.C.H.). West Molesey Res., two males and a female on 27th August (P.W.E.C.).

SANDERLING. *Crocethia alba* (Pall.).

M. Staines Res., one on 30th July (C.A.W.), two on 11th (E.M.C.) and one on 12th September (C.A.W.).

KNOT. *Calidris c. canutus* (L.).

M. Staines Res., one from 8th (A.H.M.) to 12th September (C.A.W. and other observers).

S. Barn Elms Res., one on 20th (W.R.P.) and nine on 22nd December (W.G.E.); a dead bird which was picked up at the reservoirs has been identified and is now in the Society's collection.

LAPLAND DUNLIN. *Calidris a. alpina* (L.).

M. South Kensington, one picked up dead on 29th December in grounds of Natural History Museum was identified by G.C.L. as this subspecies.

DUNLIN. *Calidris alpina* (? subspecies).

E. King George Res., one on 16th July (W.A.W.) and on 27th December (F.J.J., W.A.W.). Romford S.F., a large flock on 15th and 29th January, three on 4th September, and two on 29th October (H.B.F.).



- M. Brent Res., one on 5th May (R.W.H.). Littleton Res., one on 26th August (S.A.) and on 26th December (P.A.D.H.). Ruislip Res., ten on 20th and two on 21st December (W.R.P.). Staines Moor, two on 3rd April (G.C.L.). Staines Res., one on 17th July (C.A.W.), seven on 2nd (J.A.W.), 12 on 4th (G.C.L., C.A.W.), seven on 6th (G.C.L.) and one on 11th September (R.E.W.), two on 30th October (D.A.T.M.) and one on 12th November (G.D.E.).
- S. Barn Elms Res., one on 9th May (W.R.P.) and 1st August (A.H.M.), one to three from 17th to 20th August (A.H.M., W.R.P., P.T.), and one from 17th to 29th September (C.B.A., W.G.E., E.G.P.); a second bird was seen by D.A.T.M. on the last date. The cold weather in December brought numbers varying from six to eleven between 19th and 31st (many observers), with an exceptional flock of 32 on the 23rd (W.R.P.). On 26th December E.M.N. saw a party of 20 feeding on the Thames shore opposite Chiswick. Beddington S.F., two on 24th December (G.B.). Brooklands S.F., three on 23rd April (R.C.H.). Molesey, one at Island Barn Res., on 6th August and 19th November and one at the sewage farm on 22nd October. At West Molesey Res., on 31st December, one stayed for a short time (P.W.E.C.).

CURLEW-SANDPIPER. *Calidris testacea* (Pall.).

- S. Richmond Park, one on 23rd October (A.R.S., see also *B.B.*, xxxii, p. 239).

LITTLE STINT. *Calidris minuta* (Leisl.).

- M. Staines Res., one on 4th and 18th September (G.C.L., A.H.M.).

COMMON SANDPIPER. *Tringa hypoleucos* L.

- E. Walthamstow Res., one was seen on three dates in February (E.T.N., H.A.P., A.R.S.) and on 13th November, 3rd and 31st December (E.T.N.).
- S. Island Barn Res., Molesey, one on 15th October, 19th November, and 28th and 31st December (P.W.E.C.). Normal passage dates will be summarised in the next report.

WOOD-SANDPIPER. *Tringa glareola* L.

- M. Staines Moor, one on 11th June (A.H.M.).

GREEN SANDPIPER. *Tringa ochropus* L.

- E. Chigwell S.F., one or two from 24th October 1937 (*L.B.R.*, 1937, p. 19) to 20th March (R.McK.S., W.A.W.), and one on 22nd May. R. Roding, near Buckhurst Hill, one on 23rd October (H.G.). Romford S.F., one on 15th and 29th January, and 25th June, three on 13th and one on 14th and 25th August and 8th October (H.B.F.). Walthamstow Res., one on 10th January (A.R.S.) and 5th March (R.C.H., D.A.T.M.).
- H. Hamper Mill, three or four on 24th July (G.H.) and one on 20th August (S.A., G.H.).

- K. Eynsford, one on R. Darent on 24th April (H.G., R.C.H., G.E.M.).  
 M. Brent Res., two on 21st July (H.M.R.K.) Staines Moor, two on 23rd July (W.G.E.). Staines Res., one on 21st August (G.C.L., A.H.M., A.F.W.).  
 S. Beddington S.F., one on 23rd April (C.B.A., G.B., W.W.T.). Brooklands S.F., one on 23rd April (R.C.H.) and on 3rd (C.A.W.) and 4th September (E.M.C.). Epsom Common, one on 4th May (F.W.B.). Island Barn Res., Molesey, one on 19th November (P.W.E.C.). Leatherhead, one on R. Mole on 1st September (P.T., C.W.). Oxted brook, one on 19th June and 3rd July (G.W.C.).

BRITISH REDSHANK. *Tringa totanus britannica* Mathews.

Recorded in breeding-season at Erith Marshes (at least 16 pairs), Beddington, Romford and other sewage farms, Lea and Roding valleys. Reports from other localities during May may indicate breeding and full information on status is requested by the British Trust for Ornithology. Noted on passage in many localities, especially in late March and early April.

SPOTTED REDSHANK. *Tringa erythropus* (Pall.).

- M. Brent Res., two on 11th September were seen by W.D.M., who noted the characteristic call and sends us a good description of plumage.  
 S. Barn Elms Res., one on 1st September (G.C.L.).

GREENSHANK. *Tringa nebularia* (Gunn.).

- E. King George Res., one on 22nd April (A.R.S.).  
 H. Cheshunt, one at Boyer's Lake on 22nd April, two miles north of K.G.R., and six hours later than the bird seen there (A.R.S.).  
 M. Littleton Res., one on 26th August (S.A.). Northwood, one flew south on 15th August (G.H.). Ruislip Res., one on 5th and 7th August (W.R.P.). Staines Res., one to four seen regularly from 7th August to 18th September (G.C.L., A.H.M., and other observers); one on 2nd October (A.F.W.). Also noted on Staines Moor on 28th August and 4th September.  
 S. Brooklands S.F., one from 3rd to 10th September (E.M.C., C.A.W.). Richmond Park, three flew south on 23rd September (W.L.C.). West Molesey Res., three on 27th August (P.W.E.C.). Worcester Park, one flew over on 5th September (F.W.B.).

CURLEW. *Numenius a. arquata* (L.).

- E. King George Res., one on 17th December. Sewardstone, one on 15th April (W.A.W.). Woodford Green, several flying west at 11.30 p.m. on 23rd August (R.McK.S.).  
 K. Beckenham, heard flying over at night on 7th July (G.E.M.).  
 M. Staines Res., eight flew towards south-east on 25th August (A.F.W.).  
 S. Ashted, a few heard flying over at 9.30 p.m. on 20th July (J.S.W.). Island Barn S.F., Molesey, four flew in from N.W., circled over,



and then flew off S.W. on 9th April (P.W.E.C.). Richmond Park, one or more flying N.E. and calling on 9th July (D.A.R.). Others were reported in the *Daily Telegraph* as seen at Hampton and Blackheath on the same day.

WHIMBREL. *Numenius p. phaeopus* (L.).

S. Barn Elms Res., one on 23rd April (G.C.L.). Beddington S.F., one mobbed by a Lapwing on 14th August (C.B.A.).

JACK SNIBE. *Lymnocyptes minimus* (Brünn.).

E. Chigwell S.F., one to four up to 1st May (R.McK.S. and others). Sewardstone, one on 20th March (R.McK.S.).

K. Elmers End S.F., one on 6th February (G.E.M.).

M. Brent Res., one on 9th October (W.D.M.). Ruislip Res., one to three up to 12th March (R.W.H., W.R.P., C.A.W.). Staines Moor, one on 6th January (C.A.W.).

S. Beddington S.F., one on 9th January (G.B.), 2nd April (P.W.R.), and 23rd (P.W.E.C.) and 25th December (L.P.).

WOODCOCK. *Scolopax r. rusticola* L.

K. Hayes, four shot and two more seen on 1st, and one shot on 15th and 20th January (G.E.M.).

M. Bushy Park, wintered 1937/8 and first seen winter 1938/9 on 10th December (J.E.R.).

S. Earlsfield, one found on 20th December was sent to the Zoo, which also received a second bird from South London on the 24th (J.M.M.F.). Epsom Common, one on 6th April (J.S.W.). Ham Common, one on 13th November (F.R.M.). Mickleham, one on 27th February (P.W.E.C.). Richmond Park, one on 11th (S.P.W.C.), 25th and 26th December (D.A.R.).

BLACK TERN. *Chlidonias n. niger* (L.).

M. Staines Res., seven immature birds seen at close range on 25th September (C.A.W.).

S. Island Barn Res., Molesey, one on 19th November, and West Molesey Res., two on 27th August (P.W.E.C.).

SANDWICH TERN. *Sterna s. sandvicensis* Lath.

S. Barn Elms Res., one on 27th August and 8th October (A.H.M.).

COMMON TERN. *Sterna h. hirundo* L.

E. King George Res., one, probably this species, on 21st May (W.A.W.). Walthamstow Res., one on 29th May (E.T.N.), and one, believed to be this species, on 9th October (H.A.P.).

M. Staines Res., one of a party of six Terns on 21st was definitely identified by several observers as *hirundo* and A.F.W. reports one on 23rd August; ten on 4th September presumed to be this species (G.C.L., A.H.M.).

S. Barn Elms Res., three on 3rd June (P.T.), one on 26th (G.C.L.) and 27th August (A.H.M.) and on 2nd September (G.C.L.).

ARCTIC TERN. *Sterna macrura* Naumann.

H. Rickmansworth, two adults on 10th July at Maple Cross gravel-pit (G.K.McC., *B.B.*, xxxii, p. 200).

LITTLE TERN. *Sterna a. albifrons* Pall.

S. West Molesey Res., three or four, including two immature birds, on 14th October (J.B.).

LITTLE GULL. *Larus minutus* Pall.

S. Island Barn Res., Molesey, a juvenile on 31st December (P.W.E.C., see also *B.B.*, xxxii, p. 307).

SCANDINAVIAN LESSER BLACK-BACKED GULL. *Larus f. fuscus* L.

M./S. R. Thames at Hammersmith, one on 24th (A.H.M.) and several on 29th January (G.B.), and 25 with 135 of the British form on 15th August (G.B.); Chiswick, one on 24th February (A.H.M.).

S. Barn Elms Res., two on 12th March (G.C.L.), five on 23rd July, and up to ten seen on several dates to 8th October, 20 on 18th October, and 12, last seen, on 8th November (G.C.L., A.H.M.).

BRITISH LESSER BLACK-BACKED GULL. *Larus fuscus graellsii* Brehm.

Maximum counts were 71 on the Chiswick shore of the R. Thames on 21st June and 215 at Barn Elms on the 11th August and 192 on 8th October. Odd birds are seen in most months of the year and in November there were 52 at Barn Elms on the 26th, two at West Molesey on the 27th and one at Hampton on the 19th. They are not usually common in the Lea Valley but in August a flock of up to 36 frequented a sports ground near Walthamstow Res.

GREAT BLACK-BACKED GULL. *Larus marinus* L.

K. Erith marshes, two on 16th June (L.P.).

M. St James's Park, one on 26th July (R.S.R.F.).

M./S. R. Thames, one to three near Barnes on several dates up to 9th April (several observers), one at Chiswick on 12th December (A.H.M.), and Southwark Bridge, one on 14th October (J.D.D.).

S. Barn Elms Res., one to three reported by several observers in February, April, May and October-December, and one on 25th July (A.H.M.). Richmond Park, an immature bird on 30th January (R.W.H.), and an adult on 21st May (D.A.R.) and 29th December (R.E.W.). West Molesey Res., 11 on 27th November (P.A.D.H.).

KITTIWAKE. *Rissa t. tridactyla* (L.).

E. King George Res., a slightly oiled bird found dead on 21st May (W.A.W.).

M. Staines Res., one on 27th November (G.C.L., A.H.M., C.A.W.), and one found dead on 4th December (G.C.L.).

ARCTIC SKUA. *Stercorarius parasiticus* (L.).

E. King George Res., one on 21st and 28th August (W.A.W., see also *B.B.*, xxxii, p. 198).



RAZORBILL. *Alca torda* (? subspecies).

M./S. R. Thames above Richmond, one on 22nd October (F. Dutton, *Animal and Zoo Magazine*, Vol. 3, No. 8, p. 36, and *in litt.*).

LAND-RAIL. *Crex crex* (L.).

M. Canning Town, one was found on 20th October and presented to the Zoo. Primrose Hill, one calling at 10.45 p.m. on 22nd August from long grass bordering a reservoir (J.M.M.F.).

WATER-RAIL. *Rallus a. aquaticus* L.

M. Highgate Ponds, one on 25th and 26th December (A.F.M.).

S. Recorded at Beddington and Mitcham Junction ponds in January, March, November, and December, not more than two being seen at a time (C.B.A., G.B., L.P.).

COOT. *Fulica a. atra* L.

West Molesey Res., after not exceeding single figures since 2nd April numbers rose from 37 on 2nd July to 241 on 27th August, while at Island Barn Res. nearby from a May population of about 40 numbers rose from 138 on 18th June to about 350 on 6th August. Unfortunately, further August or September counts are not available, but joint figures for October and November do not exceed 100. At the end of December numbers again rose, and further winter counts will be published later in the waterfowl census report. It is interesting to note that the early movement of this species corresponds closely with that of Pochard.

QUAIL. *Coturnix c. coturnix* (L.).

S. Belmont, one heard calling repeatedly from a rough field between 28th and 30th June by P.W.E.C., who is familiar with the call abroad.

RED-LEGGED PARTRIDGE. *Alectoris r. rufa* (L.).

B. Langley S.F., two on 23rd April (D.A.T.M.).

E. Reported by A.R.S. from Fisher's Green, Sewardstone (a covey on 29th August) and Upshire (seven on 15th January). Romford S.F.. at least one pair bred, eight young seen (H.B.F.).

K. Crocken Hill, two pairs on 24th April (R.C.H.). Dunton Green, two on 11th June (G.E.M.). Hayes, eight on 23rd January; a keeper reports that two or three pairs bred successfully (G.E.M.). Leaves Green, one on 15th May (R.S.R.F.).

S. Beddington S.F., one on 10th April (G.B.). Island Barn Res., a covey of ten on reservoir bank on 22nd January. West Molesey, on site of new reservoir, a pair with a brood of 12 on 9th July (P.W.E.C.) and a small covey on 22nd October (R.C.H.).

## Special Species for 1938.

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THE reports on the special species for 1938 are based on the Society's records and the publications listed on page 22 of the *London Bird Report* for 1936 with the addition of new volumes of the annual reports mentioned in that list. References to counties refer only to those parts which lie within the Society's area (see map in 1936 Report).

REED-WARBLER. *Acrocephalus s. scirpaceus* (Herm.).

The status of this species in our area was reviewed in the *London Naturalist* for 1933. It is a sparse breeder in our area, its main strongholds coinciding with the abundance of the reed *Arundo phragmites*. A few pairs only are found in most localities as there are few extensive reed beds. The chief localities are the river valleys of the Lea, Colne and Thames, and some of the ponds at Beddington and Godstone in Surrey. It is often difficult to prove breeding for obvious reasons, but there are many records of birds throughout the summer. As a passage migrant it occurs in many localities where it does not nest, even in inner London.

North of the Thames the species appears to be fairly well established in Bucks. and Middlesex along the river Colne, and a few pairs used to nest along the Crane and Brent. A pair bred at Wraysbury in 1938 and another pair was seen there at the same time. Birds are reported each year throughout the summer at Osterley Park, where they frequent the bulrushes, and it also breeds at Laleham, where it was first reported in 1934.

In Hertfordshire a colony was found near Watford in 1908, and in 1909 twenty-one nests were seen. A second colony was found in 1913, and in 1916 both colonies were still flourishing. About the same time a colony at Haileybury was said to be increasing. There are no recent records of breeding, but the bird occurs on passage.

In Essex it breeds at Dagenham, and there are probably more pairs along the Thames than the records show. Breeding was reported at Luxborough pond and Sewardstone gravel-pit in 1934, and there are records of nesting along the R. Roding from Abridge to Curtismill Green. At Walthamstow Reservoirs there used to be a flourishing colony, and five nests were seen in 1933, but in the following winter most of the willows were cut down. An unfinished nest was seen in 1937, and it is probable that a few pairs still breed along the Lea and adjacent channels.

South of the Thames reports of breeding are most frequent from Godstone and Beddington in Surrey. At Beddington it is not confined to the reed-beds, which have been much cut down, and the birds have occupied the low willows and bulrushes. In 1938 there were at least three pairs, and probably four pairs at Mitcham gravel-pits, where a young Cuckoo was reared in one nest found in willow herb.



The colony at Godstone shows a slight increase, and 8-10 pairs were seen in 1934. At Esher Black Pond they are reported as common in the breeding season, but only one empty nest has been found. At Barn Elms gravel-pit the bird has constantly been seen in the summer and almost certainly bred in 1938. Apart from these breeding records it has occurred on passage in Richmond Park and Wimbledon.

In Kent the only records in the breeding season are along the Thames, where at Erith in June 1938 twenty males were singing. The only passage records are from Beckenham.

D. A. T. M.

TUFTED DUCK. *Nyroca fuligula* (L.).

If we take the distribution of this species by counties, we find that in Buckinghamshire it has nested at Poyle Pits, Colnbrook (usually two pairs), at least since 1928, while a few are generally to be seen at Black Park Lake and at Rowley.

In Essex breeding was first proved at the Lea Valley Reservoirs in 1905 and has been regular since 1911. Although numbers may reach three figures even in the breeding season, the number of pairs nesting is comparatively small, thus on 7th July 1934 117 adults and five broods of young were counted. Breeding has also taken place at Connaught Water (1913), Eagle Pond, Snaresbrook (1916, 1936-7), Wanstead Park (1933) and Sewardstone (1934 and 1938).

Suitable waters in Hertfordshire and Kent are few, but in 1938 breeding was recorded in the former county at Boyer's Lake, Cheshunt (one pair with 7 young), and Hamper Mill (two broods). Both these localities are gravel-pits and in the case of Hamper Mill a few birds had stayed throughout the two previous summers without breeding. A pair was seen at Nyn Park on 10th April 1937. In Kent the species has bred at Dulwich Park (1901-4, and two broods 1934-5), at Dulwich mill pond (1934, one brood), and fairly regularly at Kelsey Park, Beckenham, since 1920 (one pair). Winter records of small flocks come from Foots Cray and Swanscombe.

In Middlesex the Tufted Duck was introduced to the Zoo in 1831 and bred regularly in Regents Park up to 1848. Young were first reared in St James's Park in 1838, and now full-winged birds breed freely in all the suitable parks. Other breeding localities in the built-up area include Victoria Park (about 1912, 1928, and two pairs 1937), Finsbury Park and Winchmore Hill (1913). Breeding was first proved at Hampton Court in 1937, although suspected in 1935, and there are also records of nesting from Littleton (1936-7), Staines (1934-5), and the Middlesex section of Elstree Reservoir (1933, two pairs). Outside the inner London area the species does not seem to establish itself strongly as a breeder in Middlesex, although closer watch on some of the gravel pits might reveal more records.

Breeding in the area is most extensive in Surrey, where there are several regular localities:—

Barn Elms Res., 1925, 1927-30, not 1931, 1932 onwards. Maximum 4 broods, 1938.

Beddington, 1929 to date. In 1938 six pairs bred on the various ponds and gravel-pits around Beddington and Mitcham.

Gatton Lake, 1930 onwards. Maximum about 12 broods in 1935.

Godstone, 1928 (5 pairs) and definitely 1931-2. Probably other years also.

Kew Gardens, full-winged birds breed.

Molesey Res., 1929 and probably annually since. Maximum 4 pairs.

Reigate Priory Lake, 1932-4, 1936. No information for other years.

Richmond Park, probably first bred 1924, but young not seen until 1927. Maximum 6-7 pairs 1937-8. Five broods seen in 1938.

Walton-on-Thames, one pair on gravel-pits 1935.

These dates are not necessarily complete as time has not permitted full investigation. It will be noted that breeding is rare at the larger reservoirs and occurs chiefly at groups of smaller reservoirs, gravel-pits or small lakes. The presence of islands seems to be an attractive feature, though they are not essential, for nests are found regularly at the smaller reservoirs in the long grass growing on top of the banks.

In winter the Tufted Duck is found on most waters of any size in the area, and at times figures reach high numbers. The small summer population is normally first increased in early July, numbers rising in August, September and October, then tending to fall until a further influx may take place on the advent of hard weather. An increase of this nature is usually only temporary, numbers soon reverting to normal winter population, which, however, tends to decrease considerably in February, finally reaching summer population during April. While a generalisation of this nature is naturally not always borne out in any particular year, it is based on several series of counts at different reservoirs, and, subject to abnormality of the weather, gives an indication of normal fluctuation. Passage in late March or in April may cause a temporary increase in numbers, thereby obscuring the trend of the resident winter population.

It may be of interest to give some of the largest counts in the area:—

Barn Elms Res. and Lonsdale Rd., c. 730 on 30/1/35.

Molesey Res., 748 on 30/10/37, 864 on 13/10/37, and 693 on 18/12/37.

Staines Res., c. 600 on 2/11/30.

Walthamstow Res., c. 1000 on 8/1/32, c. 600 on 9/12/32, 795 on 10/3/34, 655 on 17/12/38.

On 18th December 1937 a census was taken on all the principal waters in the area, and yielded a total of 2489 Tufted Ducks. Of these 2176 were sexed giving a ratio of males to females of 62 : 38. The census was taken monthly from October to March during the winter of 1938-9 and the totals show a rise of approximately 17% from 22nd October to 19th November with further rises on 17th December and 21st January due to the severe weather in the second half of December. Actually the peak was reached in the first week in January when it was estimated that numbers reached between 1400 and 1500 at Barn Elms alone. The biggest total for the whole area on the census dates



was 3081, of which Barn Elms accounted for 354, hence it seems probable that in early January this total for the area must have been considerably exceeded.

In large series of figures in the area the percentage of males ranges normally between 55% and 60%, but varies considerably on different waters; thus at Molesey, for example, the proportion of males has reached 88% and in mid-winter is usually considerably above the average for the area. In the twenty-five counts in Richmond Park for which the sex-ratio is available the proportion of males to females is 61 : 39 in a total of 344 birds. There is some evidence of movement of large numbers of drakes in bachelor flocks, but discussion of this question is deferred until publication of the details of the winter census when further reports will be available.

R. C. H.

TURTLE-DOVE. *Streptopelia t. turtur* (L.).

The Turtle-Dove is a summer resident in the rural parts of the London area, and is rarely seen, except on migration, in built-up areas. In the breeding season the Turtle-Dove favours districts with high hedges and scattered thorn bushes rather than dense woodland, and is often found on open commons, such as Epsom, Ruislip, and Limpsfield, or in districts with large gardens bordering on open country, as at Cheam, Wallington and Ham. In 1938 all four Turtle-Doves' nests found on Limpsfield Common were in hawthorns in a scanty mixed wood of oak and sycamore, with scrub of hawthorn and bramble, and some bracken among the scrub. A very similar habitat is favoured on Epsom Common.

The distribution of the Turtle-Dove in suitable habitats in the breeding-season is patchy, it being recorded as "common" in some places and "scarce" in others, notably Epping Forest. There seems also to be an impression that in some areas it is decreasing, quite apart from the inevitable retreat before the advance of the builder. As, however, practically no accurate census work has been done on the species in the area it is difficult to know how to assess these rough estimates. It is more than likely that different observers' ideas of commonness and scarcity vary widely.

Since the War there have been actual breeding records from Biggin Hill in Kent; from Addlestone, Ashted Common, Bookham, Box Hill, Carshalton Downs, Cheam Warren, Epsom Common, Fetcham, Godstone, Ham Common, Limpsfield Common, Richmond Park, St George's Hill, Stoke D'Abernon, and Warlingham in Surrey; from Colnbrook in Bucks.; from Stanwell in Middlesex; from Bayford and Ricksmansworth in Herts.; and from Epping Forest in Essex. The lack of breeding records from Kent and north of the Thames does not accurately reflect the distribution of the Turtle Dove here, and is probably due as much to lack of observers as to the relatively smaller area of suitable habitat compared with Surrey. There are many records of Turtle Doves throughout the summer in the rural parts of Essex, Herts., Kent and Middlesex in the L.N.H.S. area.

On passage in spring and autumn, and after the resident birds have forsaken their nesting haunts in the latter part of July, Turtle Doves are mostly seen on arable land and at the sewage farms, such as Beddington, Epsom, Molesey, and Romford. At these times flocks of twenty or upwards are not unusual, and a flock of more than 50 was noted at Limpsfield on September 1, 1935. On passage, too, Turtle Doves occasionally turn up at such oases in the desert of bricks as Barn Elms, St James and Regent's Parks, Kensington Gardens, and Holland House.

In the London area the Turtle Dove is usually first seen in the first week of May and last seen about the last week of September, the main body probably arriving about the middle of May and departing again at the beginning of September. The extreme dates appear to be April 24, 1914, in Middlesex, and October 10, 1936, at Ashtead, Surrey.

R. S. R. F.

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## Effects of the Severe Weather, December 17th-26th.

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**T**HE cold spell of December 17-26, 1938, brought many unusual bird visitors to London and the surrounding area, as well as to other parts of the country. The most marked influx was that of the skylarks, but movements of other passerines and of waterfowl and waders were also noteworthy. Exactly where the birds came from, whether from the north of Great Britain or from the Continent, it is not possible to say, but it seems likely that the larks at least were mainly from the Continent. In this connection a letter in *The Field* of February 4, 1939, from Mr T. Wilfrid Davis is of interest. He reported that at 8 a.m. on December 21, 1938, birds began to come aboard a small steamer bound from Brussels to London, continuing until nearly a thousand, mostly starlings but a few finches, were on the ship, some finding their way to warm spots below deck. Some starlings were still on board after the ship had docked on the 22nd, and others were seen searching for food on buildings and in streets nearby. This appears to be conclusive evidence that the cold spell, which was more severe on the Continent than in England, was driving birds across the North Sea.

The weather conditions in the London area during the cold period are shown in the following table of observations at Kew. It will be seen that the east wind began on the 17th, the frost and snow on the 18th. The snow, which covered the whole countryside for over a week, added greatly to the distress of the birds by cutting them off from all food supplies, except where footsteps or benevolent householders cleared small patches for them, or seed-bearing grass protruded.



## WEATHER CONDITIONS AT KEW OBSERVATORY.

Date. Dec. 1938.	Wind. Direction.	Temperature		Period of Snowfall.
		Min. (Night).	Max. (Day).	
16	S.E.	47	49	—
17	E.	42	42	—
18	E.N.E.	26	30	2 hrs.
19	N.E.	27	28	14 hrs.
20	N.	22	27	trace.
21	N.	21	29	16 hrs.
22	Calm	28	35	8 hrs.
23	S.E.	30	31	13 hrs.
24	N.N.E.	29	35	3 hrs.
25	E.N.E.	32	33	trace.
26	S.S.W.	29	36	8 hrs.
27	N.W.	35	44	—

N.B.—The hours of snowfall measure the period during which snow fell and do not register the intensity of the fall.

The principal passerine birds affected by the cold weather were finches, skylarks, meadow-pipits, fieldfares and redwings.

Greenfinches appeared in gardens as far apart as St John's Wood, Hendon, Kensington, Beulah Hill, Epsom and East Sheen. Charms of up to twenty goldfinches were seen in a garden at Beulah Hill feeding on tall weeds projecting through the snow, and one bird was noted at Barn Elms on the 23rd. The only bullfinch reported in the suburban area was one from Finchley on Christmas Day. A small flock of chaffinches turned up in a Kensington garden during the cold spell. Bramblings were more surprising visitors. Several stayed in Ladbroke Square from the 22nd to the 24th; two were seen at the Brent Reservoir on the 25th, and one which came to a garden in St John's Wood on the 26th fed on shelled peanuts.

Reed-buntings also appeared and a flock of 15 in Richmond Park on the 24th rising to 30-40 on the 26th were noted feeding on the heads of the grass, *Molinia coerulea*, projecting above the snow. One was also noted on Hampstead Heath on the 23rd.

Numerically the skylarks outdid all the other invaders, or rather refugees. The first birds noted were two flying down Birdcage Walk on the 21st, but on the following day many thousands were flying west over London all day, mostly in flocks of about 50 at a height of 100-150 feet. Some alighted in the snow-clad squares and streets and were reported between the 21st and 26th from many parts of Central London, including Grosvenor Square, Piccadilly, Oxford Circus and Lincoln's Inn Fields, and from Ladbroke Square, Thornton Heath, Mottingham, Kingston and Erskine Hill in the suburbs.

In many gardens throughout London and the suburbs hungry skylarks came to bird tables or patches swept clear of snow. Between December 17th and 27th they were reported from gardens in St John's Wood, S. Kensington, Hampstead and Hendon north of the Thames, and from Richmond, Kew, East Sheen, Putney, Thornton Heath, Walsington, Ewell, Cheam and Beulah Hill south of the river. In all the Central Parks, on outlying open spaces such as Hampstead Heath and along the tideway of the Thames at Hammersmith famished skylarks

were to be seen wherever there was no snow on the ground. At Beddington sewage-farm there were estimated to be many thousands, and hundreds died of cold and starvation. At Loughton about 250 took refuge on some allotments, eating cabbage-leaves and roosting under the cabbages at night; on the 26th some were eating the seeds of the grass *Alopecurus* sticking above the snow.

Accompanying the larks were a much smaller number of meadow-pipits, which were reported from Regent's Park, the tideway at Hammersmith and streets or gardens in Hampstead, Beulah Hill and Epsom. At Loughton they ate *Alopecurus* seeds with the larks.

There is some evidence of a movement of fieldfares during the cold spell. Several flocks of about 40 were noted at Mill Hill on the 22nd, and a few flew W. over St John's Wood on the 24th. In Ladbroke Square, Notting Hill, a party arrived on the 22nd and stayed till the 28th, roosting there at night and completely stripping three trees of haws during the day-time; the maximum seen was 16 from the 23rd to the 26th.

The invasion of redwings was much more marked. There was a steady westward movement over St John's Wood in the morning and early afternoon of the 21st, and on the same day unusually large flocks were seen at Mill Hill. On the following morning two flocks of at least 50 birds each flew over Hampstead Heath in a S. to S.W. direction and another flock of about 100 flew S. over Arkwright Rd., Hampstead, shortly afterwards. At Ladbroke Square on the 22nd about 100 flew over at 10.45 a.m., six alighting to feed on haws. These were the vanguard of 2-3000 which passed over in the next hour or so. During the cold spell redwings also came to gardens at Kew, Kensington and St John's Wood to feed and two were seen in St James's Park on the 20th.

Small temporary increases in the number of garden-visitors during the cold spell, mostly in Kensington and St John's Wood, were also noted among pied wagtails (at Epsom), great, blue and coal tits, mistle- (in Ladbroke Square) and song-thrushes, blackbirds, robins and hedge-sparrows.

One of the most interesting events of the period was the occurrence at Ruislip of a pair of Firecrests and a Bittern (cf. *B.B.*, xxxii, pp. 370-1).

On the 17th, the day when the effects of the cold were first observed, eight brent geese appeared at Molesey for a short time, and on the 22nd a party of eleven, and possibly more, pink-footed geese arrived at Beddington sewage-farm, where they stayed until the following day. Three of this species seen at Barn Elms from the 27th to 30th were reputed to be tame birds, but in any case their appearance at this period is worthy of note. Grey geese were also noted flying S.W. over Beckenham on the 25th.

During the census made on the 17th an increase of teal was noted in several localities and between the 26th and 29th a few wigeon were reported. Single pintails were reported from Molesey on the 17th and Chiswick on the 26th but the increase in the surface-feeding was not as notable as in the diving ducks. At Barn Elms on the 17th pochard



numbered 117 but on the 29th they were put at 461+ by one observer and about 600 by another. Tufted duck at the same reservoirs rose from 347 on the 17th to 878 on the 29th and 1400-1500 on the 7th January when pochard were still over 500. Scaup appeared at Walthamstow on the 28th for the first time since 1934, and goldeneye were seen at several localities in slightly increased numbers or for the first time during the winter. Several species of duck seldom seen on the river frequented the Thames during the period.

Among the sawbills the weather had a pronounced effect, for numbers had risen on the 17th and reached exceptionally high figures on some waters by the 28th. Goosanders, which at Staines were only 26 on the 11th, reached 87 on the 17th and about 100 on the 28th. On this date there were 41 at Walthamstow and no fewer than 184 at Molesey, where on the 17th there had been only 20. In the three chief localities there were thus about 325 on the 28th with doubtless a few individuals on other waters. The number of snew at Molesey rose from 13 on the 17th to the unprecedented figure of 117 on the 28th, while at Walthamstow there were 10 on this date, and at Dartford, where they have not been noted before, 20 on the 27th. Three even appeared in Kensington Gardens and two on a small pond at Beddington; the total number in the area at this time was probably over 150. By the 31st the numbers of goosander and snew at Molesey had dropped to 121 and 54 respectively. Four red-breasted mergansers also were noted at Molesey on the 28th.

Grebes and divers were not such a striking feature of the influx as in the previous winter, though a few individuals occurred. Single slavonian grebes were reported on the 27th or 28th at King George, Walthamstow and Staines reservoirs, a black-necked at Walthamstow from the 28th and a red-necked at Barn Elms from the 23rd onwards. Red-throated divers were seen singly at Barn Elms and Staines on the 20th and at Walthamstow on the 28th.

It is difficult to be certain of the cause of movements of the common species of waders such as lapwings, but reports of flight over the built-up areas in a southerly to westerly direction have been received from Ham Common, Richmond Park and Beulah Hill, all on the 18th; in one case a single golden plover was seen with them and thirteen of this species flew over Wimbledon on the same day. With dunlin we can safely attribute appearances to the severe weather as they are seldom seen in the area in mid-winter. Reports of their occurrence have been received from Barn Elms, Beddington, King George Res., Littleton, Ruislip, West Molesey and the shore of the Thames opposite Chiswick, the first being noted on the 19th. Full details are given under the specific notes but the occurrence of a flock of 32 at Barn Elms is an event that may well be emphasised. Perhaps even more interesting was the appearance of a party of nine knots at Barn Elms on the 22nd after a single bird had been seen on the 20th. The subspecies of at least one of the dunlin was determined when a bird of the Lapland race was picked up dead at South Kensington on the 29th.

# Changes of Bird-Life in Relation to the Increase of London.

By WILLIAM E. GLEGG.

Paper read to the Society on July 5th, 1938.

**M**ANY concepts have been formed as to what comprises the birds of London. The area has been contracted or expanded to the purposes of the author, and in the imagination of one writer was so elastic that it reached to Tring Reservoirs nearly thirty years ago. The different parts of London fall within the ancient and ornithologically accepted boundaries of the counties and a clearer understanding of their natural history, particularly of the changes which may occur, will be gained by adherence to the boundaries which existed before the creation of the administrative county of London. There is, however, one metropolitan area—Inner London—which is scientifically justifiable, and may be described as being of ecological value. I outline no boundaries but I shall draw to your notice only changes which have occurred within the direct influence of the development of London. To form a comprehensive view of these alterations we should need adequate descriptions of the avifauna of very early times and these do not exist. A close study of the whole of the affected area to-day would be necessary and this I have not made. I claim to draw to your attention only changes which have come to my notice, and it may be well to add that I know much more of the district north of the Thames owing to many years work on Essex and Middlesex.

Although ornithological accounts of very early times have not been handed down to us, yet occasional glimpses of these days have been discovered. It is to some of these features, which can now be only dimly imagined, that we shall in the first instance pay attention. Among the earliest of these references is one to the Kite during the visit of the brother-in-law of the King of Bohemia in 1465. One of his attendants, writing of the journey, after mentioning London Bridge, states that nowhere had he seen so many Kites as there; to kill them was a capital offence. There are further statements which serve to show how common this bird was in the Metropolis hundreds of years ago. An unknown Italian writer, in a work entitled *A Relation of the Island of England*, written about 1500, records that these birds were so tame that they would often take bread smeared with butter out of the hands of little children. It is accepted that this statement probably referred to London. Other accounts show that Kites must have been very abundant in the sixteenth century. J. Hunt states that in the reign of Henry the Eighth (1509-1547) the Metropolis swarmed with Kites, which were attracted by the various kinds of offal thrown into the streets, and were so fearless as to take their prey in the midst of the greatest crowds, who were



forbidden to kill them. Perhaps the most vivid account of these incidents is that of Charles Clusius, who visited England in 1571, and was of the opinion that the number of Kites to be seen in Cairo could hardly be greater than in London, where they appeared in very large numbers at every season of the year. These earlier writers make no mention of the nest of the Kite but it is fairly safe to say that many must have been built in and near the City. This certainly happened to some extent in later years. E. Hamilton records that in 1734 the church of St Giles'-in-the-Fields, which is within a stone's throw of St Giles Circus, was surrounded by elm-trees in which built Rooks, Magpies, and Kites. Pennant, in a letter dated August 1777, writes "I thank you for the young Kites from the Rook's nest from an elm in the garden of Gray's Inn Square. Their stomachs contained young frogs. The locality is interesting but I find that the Kite has bred in Hyde Park in two instances." To-day the Kite is almost extinct in the British Islands.

The Raven was probably also a common bird about the beginning of the sixteenth century. The same unknown Italian writer states that there was a penalty for destroying Ravens, which, by reason of their habits, assisted in keeping the streets [presumably of London] clean. The sources from which earlier ornithological information is derived are curious and unexpected. Robert Smith's *The Universal Directory for Destroying Rats and other Kinds of Four-footed and Winged Vermin*, published in London in 1768, furnishes us with an impression of the status of the Raven in and near London in the eighteenth century. He relates how he received as much per head for killing Ravens as for the destruction of Kites and Hawks and that he considered them equally pernicious in killing and devouring young rabbits, ducklings, and chickens. He explains that his method of catching Ravens was to set traps with a rat as bait. Smith's writings create the idea that the species must have been numerous for he relates that as soon as one bird was taken "great numbers will keep round him," and that, although it was very laborious, he had caught many in one day.

It would seem that the Ravens which made the Metropolis their headquarters went further afield for their food. This author explains that he had often captured the "London Ravens" twenty miles from home in warrens where they came after young rabbits; he defines "London Ravens" as those which generally frequented the outskirts of the Metropolis and lived upon the filth to be found there, grubbing up the dirt in order to get at their food. As a result the tops of their wings assumed a nasty, dusky brown colour, by means of which he could easily distinguish them from the country Ravens, which were as black as jet. In less than a hundred years after Smith wrote the Raven had become a memory. It nested in Hyde Park, however, up to 1826, for E. Jesse writes of a captive Raven which associated with workmen constructing the bridge at the top of the Serpentine in Hyde Park. This bird, with two or three others, had been taken from a nest at the top of an elm-tree in the Park about the year mentioned. The Raven lingered as a breeder in the affected area for some years longer, as it is stated to have

nested regularly at Enfield between the years 1840 and 1850. It has been extinct in the south-eastern counties for many years.

There is yet another story which is as romantic as the early references to the Kite and Raven. We know so little of the breeding status of the Spoonbill in Britain that any information on the subject is of great interest. How the discovery was made has not been related but an ancient document proves that the Spoonbill was nesting at Fulham in 1523. This was recorded in the report of an action for trespass brought by the Bishop of London against a defendant to whom he had leased the park adjoining the palace for grazing purposes. The Bishop brought the action on the grounds that the defendant had taken Herons and Shovelers, which he maintained was unlawful as the wood and underwood were not included in the lease, and as the Herons and Shovelers made their nests in the said trees the defendant was not entitled to take the birds. The argument, on the other hand, of the lessee was that as the only exception in the lease was the wood and underwood he was therefore entitled to the birds. The Bishop, however, gained the day and the Herons and Spoonbills for the time being were safe. Nevertheless, had it not been for the attempt of the defendant to claim the birds ornithologists would never have learned that about four hundred years ago such a striking bird as the Spoonbill nested close to where Putney Bridge now spans the Thames.

The historical information which we have considered suggests that if we had an account of the birds which resided in the area now covered by London in mediaeval times many more changes would come to light. Although the story comes to us in disconnected pieces, yet stretches of the ground along the course of the Thames, even including some of those which have suffered most by the spread of commerce, must have been great places for birds. Graves, particularly, has handed down to us some very enlightening reports of what frequented the stretch between Battersea and Deptford.

This writer recorded three species of Harrier from this now terrible area, two of them breeding. Writing about 1821, he creates the impression that the Hen-Harrier was no uncommon sight as he had often seen this bird skimming over the fields in the neighbourhood of London at the side of the Kent Road, called Rolls's Meadows. He informs us that a pair of Montagu's Harrier was killed in Battersea Fields about the middle of May 1812 and his description of this species was taken from these birds. "The person who shot them was not able to find their nests, though from their manner there seemed no doubt of its being near the spot." The same author describes how a pair of Marsh-Harriers built their nest, composed of sticks, grass, and the leaves and decayed stalks of the Flowering Rush, in an osier pond near the Grand Surrey Canal on the Deptford Road in 1812. The nest was placed on a small hillock just above the water's edge and contained five dusky white eggs, two of which were splashed with russet-coloured spots at the large end. The female was shot from the nest, and being but slightly wounded lived in confinement some months. She was fed with frogs, mice, worms,



beetles, the entrails of fish and other animals, and was particularly voracious.

This locality must have had ornithologically a resemblance to the Norfolk Broads. The Bearded Titmouse, although there is not much explicit evidence regarding it, is said to have bred all along the Thames Valley from the Essex Marshes to Oxford about the beginning of the nineteenth century and Graves about 1821 supplies supporting evidence, for he states that he killed this bird on the side of the Surrey Canal, on Sydenham Common, and also on the road called Blue Anchor Lane, between Bermondsey and Deptford. From the same source we learn that Snipe used to breed in the osier bed bordering on the Surrey Canal in the Kent Road, where in 1812 he found many nests composed of dry grass and leaves placed in the midst of a swamp scarcely above the water and had killed several of the young birds.

The Spotted Crake was declared to be met with in greater abundance within a few miles of London than perhaps in any other part of this kingdom. He had known this bird to breed in the fields to the left of the Kent Road, called Rolls's Meadows. One of them was killed, after which they forsook the spot. Another writer, R. Sweet, also mentions this locality. He states in 1833 that several pairs of Reed-Warblers annually frequented the banks of the Thames between Battersea Bridge and the Red House Tavern in Battersea Fields.

It is quite obvious that as the country disappears before the operations of the builder many of the birds must also disappear, and although some species may show greater resistance to the altering and altered conditions than others, yet the numbers of representatives of such species are probably reduced. A. Holte Macpherson, writing in 1929, admits 49 species as being regular in Inner London, whereas in 1934 I estimated that 109 species occurred regularly in the County of Middlesex. The difference between these figures roughly represents the influence of the growth of London. At the same time we have not actual records of what birds did occur in some parts of the area, particularly those most affected. In some instances, however, we find a certain amount of information and this we will consider.

The Hooded Crow, which we know now as a straggler, must have been more strongly represented, for Albin, writing in 1734, states that he had seen many about Hackney near London, and Graves, whose book was published between the years 1811 and 1821, relates that it was formerly very common in the vicinity of London, particularly about the neighbourhood of Hoxton and Hackney, but that it had then become rare so near town.

The Rook has held on to its nesting localities with great tenacity, but slowly it has had to retreat as building has progressed. I have knowledge of over fifty rookeries on the north side of the Thames which have disappeared. The earliest of these was that at the Inner Temple. It was in existence in 1666, was flourishing in 1774 but had disappeared before 1831. A colony was founded at the Tower of London in 1817 or 1818 and there were ten to twelve nests there in 1835. Nests for some years annually were built on the weather-vanes of each turret of the

White Tower. In a plane-tree in Wood Street, Cheapside, there was one nest from 1835 to 1838, two nests in 1845 and four in 1850. Prior to 1835 a nest was constructed between the wings of the dragon of the vane of Bow Church, Cheapside, and in 1838 there was a nest on the weather-vane of St Olave's Church, Crutched Friars. There was a rookery in Kensington Gardens in 1819; it had about one hundred nests in 1836, forty-seven in 1873, and was deserted not later than 1880, but was re-colonized in 1892. Other notable rookeries in Inner London were at Holland Park, which is said to have been of ancient origin and very large and still had forty-five nests in 1881; at Chesterfield Gardens, Curzon Street, known many years prior to 1839, and which had fifty nests in 1846 and was deserted in 1880 or earlier; at Gray's Inn, a colony which was said to have been very old and still had a few nests in 1898 and some to 1915. The last time that the Rook constructed nests in Inner London was in 1916 and at the Temple, where the earliest rookery was situated.

The decrease of rookeries further out is equally marked. At Hampstead the total number of nests as far back as 1893 was down to 23, small colonies lingered at Stamford Hill to 1876, at Kilburn to 1883, two pairs near Camden Town station to 1890, and small colonies in the streets and gardens of Ealing to 1896. In spite of the fact that the districts were heavily suburbanised small colonies were holding out at Mill Hill in 1931 and Southall in 1933 and may still exist.

The Jackdaw\* is stated to continue to frequent Inner London but it is doubtful if it still breeds. At one time it held out in the very heart of London. It was recorded in 1829 that this bird frequented some of the towers of the churches of London, particularly St Michael's, Cornhill. About 1879 six or seven pairs bred in Kensington Gardens and Hyde Park, a pair inhabited the steeple of Grosvenor Chapel, South Audley Street, and another pair nested for years under the wings of a figure of an angel on the centre house of Stratford Place. Evidence exists to show that the Magpie nested in St James's Park as far back as 1638 and it would seem to have nested at Chelsea in 1828. Yarrell saw a flock of twenty-three in Kensington Gardens prior to 1843. It was described in 1879 as having been formerly common in the parks of Inner London. A pair built a nest in Kensington Gardens in 1856 and a pair nested in the grounds of Holland House as late as 1890. Bushy Park is probably now the locality nearest to where it still nests.

It is not easy to imagine the G.W.R. station at Paddington as the haunt of birds, nevertheless R. Bowdler Sharpe wrote in 1894 that an old bird-catcher informed him that in his youth he once caught in a single morning twelve dozen Goldfinches on the site of this station. The Tree-creeper was shown to be a resident in Kensington Gardens before 1879 and, according to Yarrell, the Nuthatch was frequently seen in the same place about 1843 but thirty-six years later it was reduced to the level of a casual visitor.

\*It was stated in discussion that evidence of breeding in this area had been obtained in 1938.



There is additional evidence of the earlier status of the Reed-Warbler. R. Sweet in 1833 found it not uncommon in the neighbourhood of London, several pairs annually frequenting Regent's Park. Eleven years later H. L. Meyer stated that it occurred in tolerable abundance on the Middlesex and Surrey borders of the Thames and intervening islets. These reports are confirmed by Gould, who records that on 4th July 1862 there were at least two pairs with their nests and young in lilac trees in the Zoological Gardens and he added that many pairs bred annually all round the Metropolis. A Cuckoo was hatched in the nest of this species in the Botanic Gardens, Regent's Park, in 1873. As late as 1896 and 1897 the Reed-Warbler nested in St James's Park.

The Dartford-Warbler was at one time established in what to-day would be considered surprising localities. About a hundred years ago it was recorded from such districts as Wandsworth Common, from which place more than one collection was supplied with specimens. Although said to be extremely scarce and local, it was found at Tooting and Barnes Commons. Croydon and Roehampton are also quoted as localities, and it was undoubtedly a regular breeder on Wimbledon Common. I have been personally informed that in the memory of a living keeper it was common in this locality but I have no means of testing the accuracy of this report. In Middlesex it was said to have been comparatively common at Hampstead, Highgate, and Finchley, where it bred between 1848 and 1855. It was recorded from Hampstead in 1872. It was further reported from Stanmore and Harrow Weald Commons, also Old Oak Common and Wormwood Scrubs. N. F. Ticehurst states that in Kent it inhabited most of the furze-covered commons, such as Dartford and Bexley Heaths, Shooters Hill and Blackheath, and the commons about Keston, Hayes, and Bromley, where the bird seems to have survived longest and to a comparatively recent date. The gradual extension of the London suburbs in a south-eastern direction and the consequent building operations and increase of population round its haunts is placed first among the causes of the disappearance of the species from these localities. There does not appear to be evidence of its breeding in its Kentish haunts after 1874, although it was observed as late as 1891. It is well known that the Dartford-Warbler has shown signs recently of returning to some of its old breeding haunts but it does not appear to be equally well known that from 1910 to 1913 it reappeared on Wimbledon Common. A Mr E. G. Waddilove informed the late J. E. Harting on 23rd July 1910 that a pair had successfully brought off a brood in a furze bush on Putney Heath and, further, that he had seen two or three pairs there for several years previously but he had obtained no knowledge of nesting until that year. Mr Waddilove was of the opinion that the species was increasing in numbers on Putney Heath and Wimbledon Common as he often found the bird without specially looking for it, which had not been previously the case. Although some of the localities for the Dartford-Warbler, such as Stanmore and Harrow Weald Commons, lie beyond the confines of the suburbanized area it has been considered advisable to include them.

Among the stray references to the past we are told by Sweet in 1823 that he had frequently heard Wood-Warblers amongst the tall trees in Kensington Gardens and that the Whinchat nested on Wandsworth Common. The Redstart at one time bred in Inner London. E. Hamilton states that two pairs bred in Kensington Gardens in 1876 and others in and about Regent's Park. It is probable that the sentimental interest attached to the bird is responsible for the amount of information which has been handed down to us regarding the Nightingale. The Duke of Buckingham, when he obtained in 1703 a lease of the ground on which now stands the Royal Palace, found "under the windows . . . a little wilderness full of Blackbirds and Nightingales." It was a common bird in Fulham in 1730 and seemingly a not uncommon summer-resident from Hyde Park Corner to Kensington Gravel Pits in 1830. At least to 1867 the Nightingale was a summer-resident in the suburban localities of Victoria Park, Stamford Hill, and Stoke Newington. A hawthorn hedge at the upper reservoir at the last named locality was said to have been a regular haunt of the bird. We are informed that this bird was so common just prior to 1873 at Enfield Chase that one of the lodges on the estate, taken for the season by a well-known M.P., was given up after a few weeks' tenancy on the ground that his family could get no sleep for the singing of the Nightingales. The small scrubby covert, belonging to Old Hornsey Wood Tavern, now merged in Finsbury Park, was also a favourite resort for Nightingales.

It nested annually in Gunnersbury Park until 1889 and it was considered that there was no better place for Nightingales round London than Highgate Woods; in 1892 Bishop's Wood sheltered five pairs and there were several pairs in other woods. It continued to nest in the district of Hampstead to 1899. A similar story comes from south of the Thames. Dulwich was at one time renowned for its Nightingales, and many people must have heard them singing in the College Woods. They might often be heard in Camberwell and until 1884 they frequented the little copse that bounds Rye Common on the south. Writing in May 1871 the late Edward Blyth stated that within his recollection, 40 years previously or less, this species abounded in Dulwich Wood and all about the neighbourhood where the Crystal Palace then stood and nowhere more than upon Penge Common.

From the account of Gilbert White we learn that the Martin bred even to the centre of London; he wrote in 1773 that not only had he seen them nesting in the Borough but even in the Strand and Fleet Street, and it would seem that the smoke nuisance was not then unknown for he adds that their feathers partook of the filth of the sooty atmosphere. Another naturalist records that a nest of this species was under construction on a blind window in Goswell Road in 1825 and that there were several similarly placed in Islington Green in August 1826. White, in 1774, described how a few Sand Martins "haunt the skirts of London, frequenting the dirty pools in St George's Fields and about White-Chapel," and he suggests holes in old or new deserted buildings as possible nesting sites. The Swift was another species which was found in



Inner London in White's time. A party was said to frequent the Tower, playing and feeding just below the bridge, and others to haunt some of the churches of the Borough next the fields but they did not venture, like the House Martin, into the closed crowded part of the town. T. Forster, writing of Swifts in 1808, states that the old tower of Hackney Church used to abound with them but that they had been less numerous of late years.

It is not surprising to find that the Nightjar has receded from old haunts. According to Graves, about 1821 it was very abundant on Sydenham Common and the wood in its vicinity; he had seen a dozen or more together flying about like Swallows. It was also found in the neighbourhood of Hornsey, Coome Wood, Enfield Chase, and several other places within a few miles of London.

Before closing this aspect of our subject let us consider some other types of birds. Much of the land which is now covered by buildings must have formed game-preserves. In the 27th year of his reign Henry VIII issued a proclamation in order to preserve the Partridges, Pheasants, and Herons "from his palace at Westminster to St Giles-in-the-Fields and from thence to Islington, Hampstead, and Hornsey Park." Any person, of whatever rank, who should presume to kill or in any way molest these birds, was to be thrown into prison and visited by such other punishments as should seem meet to his Highness the King. E. Hamilton, writing in 1879, relates that many parts of London, which at the time he wrote were covered with houses, had been fifty years previously the haunt of Snipe, and that there were those living who had shot them on what is now known as Belgrave Square. General Oglethorpe, who died in 1785, frequently killed Woodcock on the site of what we know to-day as Conduit Street, and Wilberforce, speaking in the House of Commons on 5th June 1815, stated that he had spoken with a person who had shot Woodcock in the parish of St Martins-in-the-Fields.

Some birds have so reacted to the progress of urban and suburban development that it would seem they possess greater power of resistance. The following are quoted as examples: House-Sparrow, Great and Blue Titmice, Spotted Flycatcher, Mistle- and Song-Thrushes, Blackbird, Redbreast, Hedge-Sparrow, Wren, Tawny Owl, Heron and Moorhen. All these species, with the exception of the Heron, nest in Inner London, the Spotted Flycatcher in several localities and in increasing numbers outwards. It is possible that the numbers of the House-Sparrow have declined but it is still an abundant bird and the only one to maintain its distribution. To deal with the Heron we have to go to the external limit of the affected area. Among Heronries which have disappeared may be mentioned a small one at Norwood; one, evidently of some size, at Osterley Park, and colonies in Hampton Court and Bushy Parks. The ancient colony at Wanstead has decreased seriously in recent years. In 1937 there were 17 occupied nests whereas in 1928 there were 60 nests. This decrease has been compensated by an increasing colony at the Walthamstow end of the Lea Valley Reservoirs, where there were 51 occupied

nests in 1937. The heronry in Richmond Park has been growing for many years and had 49 occupied nests in 1937. The number of Moorhens is remarkable; at the end of the nesting season of 1930 there were from eighty to a hundred in St James's Park.

The changes in the avifauna are not confined to decreases and we will now consider some of the more outstanding increases. We deplore the loss of the Raven but we are endeavouring now to reduce the numbers of its close congener, the Carrion-Crow. We do not know the status of this species in mediaeval times but in more recent days it appears to have increased. The Starling has increased as a breeder but the most notable change in its status is in the huge gatherings which roost in the heart of London. These flocks do not appear to have been known in 1879 but they were observed in St James's Park in 1894, when it was estimated that over one thousand birds were present. The Greenfinch has been stated to have increased in Inner London but this alteration appears to have been confined to this area. The Little Owl has crept into the affected district, where in earlier days it was an unknown species. With one exception the remaining birds to be mentioned and which have increased are all aquatic.

The Mallard has increased as a breeder and more so as a winter-resident. It is a common resident in Inner London and has bred recently in New Square, Lincoln's Inn. Its position as a breeder is probably due to two main factors, its adaptability to nesting sites and association with captive or domestic birds. The Pochard has bred but it is in winter that it is seen in numbers, 64 having been counted on the Round Pond, Kensington, and 200 on Stoke Newington Reservoirs.

The most striking instance of increase among ducks is that of the Tufted Duck, both as a breeder and a winter-resident. Prior to 1900 it was a somewhat scarce winter-visitor but it is now numerous in winter and also breeds in some numbers. In 1929 there were as many as a hundred ducklings on the lake in St James's Park alone. It is remarkable that most of the breeding birds of this species in the county of Middlesex are confined to Inner London. At Barn Elms and Lonsdale Road Reservoirs over 700 have been counted in winter. In view of the peculiar distribution of the Tufted Duck it is advisable to review its history in this area. These birds were first exhibited at the Zoo in 1831 and up to 1848 they bred regularly in the Three Island Pond. At St James's Park four were reared in July 1838 and with adults took daily flights to the Serpentine, and three large broods were reared in 1839. In 1913 it was stated that full-winged birds were nesting freely in the London parks and in 1910 a full-winged female reared nestlings on the Three Island Pond in the Zoo. Although the Tufted Ducks which we see to-day are wild, it is probable that the status is partially the result of birds introduced in the past. It must not be overlooked, however, that this duck has increased in other areas under completely natural conditions just as remarkably. About 25 years ago it was breeding so numerously at Loch Leven that other species were being crowded out. It was decided in 1911 to clear two small islands of their nests, and as a



result three large hampers were filled with eggs, some hundreds having been collected.

Two more ducks, both sawbills, may be cited, the Goosander and the Smew, which are additions to the winter-residents. Less than twenty years ago the appearance of these species would have been recorded as a rare event. About 1866 the Great Crested Grebe was a scarce winter visitor whereas to-day it is not unusual in Inner London. It has bred annually at waters in the affected area, as Stoke Newington Reservoirs and the Lea Valley Reservoirs at Walthamstow.

Another type of bird, the Wood-Pigeon, has reacted to the influence of London in two directions for not only has it increased to a remarkable extent but its habits also have been modified to suit the new environment. There is evidence to show that as far back as 1834 these birds were nesting in the London Parks and Kensington Gardens. To-day the Wood-Pigeon penetrates to the very heart of the city for it has bred in the old lime-tree which stands in the Bank of England garden, and it is not deterred by the most industrialized areas. In 1886 there were perhaps not more than a dozen pairs nesting in Inner London but a marked increase occurred during the following six years. On one occasion in July 1892 eighty-three, half of them being young birds, were seen in St James's Park. After the breeding season the numbers of Wood-Pigeons are said to decline, many leaving town, but the species becomes numerous during winter and early spring, in which seasons additional birds come into London. The island in the Serpentine, Hyde Park, has been used for roosting purposes and hundreds have been observed during the winter months. Large numbers are reported to roost on the island in Regent's Park and five hundred were counted on the grass in this park in September 1930. In regard to the habits of this bird, we know that in the country it is unusually wary but in London it is so tame that it will settle on the hand to take food. It has nested on buildings on many occasions, twice in window-boxes and once on a window-sill. Birds have been seen on the nest in every month of the year.

In spite of the changes to which we have already referred, no feature of the bird-life of the Metropolis appeals to me as being so striking as the great number of gulls, which appear chiefly in winter. This change has come upon us in such a way that our minds have not been impressed to a degree commensurate with the magnitude of the movements. It would seem that seventy years ago the gulls were only seen so far inland during the spring and autumn migrations and after a gale. I think that in a large measure this change may be attributed to the Thames. It was recorded in 1889 that gulls were seen every winter on the Thames but that they had been more numerous in 1888, one hundred and twenty having been counted near Waterloo Bridge on 27th February of that year. It would appear that the alteration of status was then in progress but it received a marked impetus in 1895 during a very severe spell of cold weather in the early months. During February and March, when the frost was very severe, from the account of an eye-witness, the scene

on the Thames must have been very remarkable. It is said that thousands of gulls were to be seen between the London Bridges. The starving birds were fed by the people of London and in this way the already growing migration to London was strengthened.

Probably the most remarkable phase of these birds' sojourn is the evening flight. Daily during winter, towards sunset, thousands of gulls migrate up the Thames to roosting-places, as at the large reservoirs, where they pass the night, returning to their feeding-grounds at dawn. The numbers which pass my home at Richmond run into many thousands and it is probable that many must come from the estuary. At one time this movement was confined to the Thames but now the gulls appear similarly in the Lea Valley and roost on the reservoirs there. The greater number of these gulls are Black-headed with about 10% of Common Gulls and a smaller percentage of Herring-Gulls. The Lesser Black-back Gull is also an additional feature but its position is not quite the same as that of the other species. At one time, even when the other gulls had become common, it was rare, but since 1927 it has been seen in considerable numbers during the autumn. At first this was confined to a clearly marked passage but the gulls have evidently found the Thames to their liking and have gradually extended the duration of their stay so that a few may be seen throughout the winter.

In concluding these remarks it may be well to add that although in the majority of cases the alterations may be due to the increase of building yet in certain instances other causes may have been wholly or partially responsible.

#### WORKS CONSULTED.

1789. *The Natural History and Antiquities of Selborne.* Gilbert White.  
 1811-21. *British Ornithology.* C. Graves.  
 1815-22. *British Ornithology.* J. Hunt.  
 1823-32. *The British Warblers.* R. Sweet.  
 1879. The Birds of London. E. Hamilton. *The Zoologist*, p. 273.  
 1886. On the Former Nesting of the Spoonbill in Middlesex. J. E. Harting. *The Zoologist*, p. 81.  
 1900. *The Birds of Surrey.* J. A. Bucknill.  
 1906. *The Birds of Middlesex.* Revised but unpublished edition. J. E. Harting.  
 1909. *A History of the Birds of Kent.* N. F. Ticehurst.  
 1913. *British Diving Ducks.* J. G. Millais.  
 1929. A List of the Birds of Inner London. A. Holte Macpherson. *British Birds*, xxii, p. 222.  
 1935. *A History of the Birds of Middlesex.* William E. Glegg.  
 1937. *London Bird Report.*



## Bird Ringing, 1938.

THE Society's returns to the Bird Ringing Committee of the British Trust for Ornithology totalled 673 birds of 47 species compared with 1976 birds of 52 species in 1937. Reductions of about 800 in the number of Manx Shearwaters and 240 in the number of Sandwich Terns account for a large proportion of the decrease on last year's record total and this year's figures may be considered as normal. An encouraging feature is that the number of birds trapped again exceeds the number of nestlings. This indicates increased trapping activity and is likely to increase the number of recoveries. The following table shows the results of the 18 ringers who took part in the work:—

Name of Ringer.	Nestlings.	Trapped.	Total.
F. W. Blake .....	55	—	55
S. Boardman .....	39	222	261
G. A. Buckland .....	1	—	1
H. J. Burkill .....	1	—	1
C. L. Collette .....	—	9	9
P. W. E. Currie .....	7	8	15
J. E. S. Dallas .....	8	—	8
H. J. Evans .....	41	59	100
R. S. R. Fitter .....	19	1	20
R. W. Hale .....	—	40	40
H.M. Office of Works .....	—	8	8
R. C. Homes .....	7	12	19
G. E. Manser .....	27	5	32
G. R. Mountfort .....	7	53	60
H. A. Pettit .....	4	2	6
J. E. Roberts .....	4	—	4
R. A. Underwood .....	3	1	4
J. M. Wilson .....	16	14	30
	239	434	673
1937 figures .....	901	1075	1976
1936 figures .....	276	78	354

The most numerous species ringed were:—

Manx Shearwater .....	140	Chaffinch .....	35
Starling .....	124	Robin .....	35
Blackbird .....	79	Carrion Crow .....	27
Song Thrush .....	53	Swallow .....	21

We welcome five new ringers:—Messrs G. E. Manser, G. R. Mountfort, W. D. Park, R. A. Underwood, and J. A. Wigzell.

During the year, thanks to the kind co-operation of our member, Mr Stuart Baker, Mayor of Croydon, Messrs P. W. E. Currie and L. Parmenter succeeded in obtaining permission from the authorities for the erection of a suitable trap on Beddington Sewage Farm. The trap was completed in September, and by the end of December 63 birds of eight

species had been ringed, Starlings predominating. It had been hoped that new ringers might have obtained experience of handling and ringing adult birds, but unfortunately permission to visit the farm for the purpose of bird-study has been cancelled by the Croydon Corporation. Use of the trap has, therefore, had to be abandoned until such time as permits become available again. We are grateful to Messrs Currie and Parmenter for their initiative in erecting the trap, and hope that it will soon be possible for members to take advantage of their enterprise.

Rings may be obtained at a cost of 1/- per packet of 20 from the Bird Ringing Secretary—R. W. Hale, 6 Grendon Gardens, Wembley Park, Middlesex—who will be pleased to hear from any member interested in ringing.

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#### RECOVERIES OF RINGED BIRDS.

The following recoveries of birds ringed by members of the Society have been published in *British Birds* since the last list was compiled:—

##### STARLING. *Sturnus v. vulgaris* L.

FH.460, ringed 5/1/34 as an adult at Friern Barnet (Middlesex) by M. V. Boys, and recovered 25/3/38 at Tottenham (Middlesex).

##### BLACKBIRD. *Turdus m. merula* L.

SF.941, ringed 3/9/33 as an adult at Beckenham (Kent) by G. Waller, and recovered where ringed 9/5/38.

##### MANX SHEARWATER. *Puffinus p. puffinus* (Brünn.).

301192, ringed 15/8/37 as an adult at Skokholm Bird Observatory (Pembs.) by H. J. Evans, and recovered 20/4/38 at Fouesnant (Finistère), France.

##### SANDWICH TERN. *Sterna s. sandvicensis* Lath.

AP.441, ringed 17/7/37 as a nestling at Scolt Head (Norfolk) by J. M. Wilson, and recovered 21/9/37 at Palling (Norfolk).

##### COMMON TERN. *Sterna h. hirundo* L.

YV.38, ringed 20/7/37 as a nestling at Scolt Head (Norfolk) by J. M. Wilson, and recovered in August 1937 at Ambleteuse (Pas-de-Calais), France.

R. W. H.



# Arrival and Departure of Migrants, 1938.

Compiled by D. A. T. MORGAN.

IN the following table the earliest and latest dates for each county are given except in cases where they are obviously of no significance. We hope that it may be possible in the next Report to issue a summary of all the migration dates entered on the Society's records, and with regard to notes for 1939 we shall welcome notes on the time when species become plentiful or when the main body departs as well as first and last dates for odd birds.

## HOODED CROW.

Oct. 29—E. King George Res.,  
W.A.W.

## SISKIN.

Mar. 6—E. Lord's Bushes, W.A.W.  
April 21—S. Wimbledon Common,  
R.E.W.  
Nov. 15—M. Bushy Park, ..... J.E.R.

## BRAMBLING.

Mar. 27—K. Elmers End S.F.,  
G.E.M.  
April 9—E. Romford S.F., ... H.B.F.  
,, 9—S. Beddington, ..... G.B.  
June 12—S. Wimbledon, ..... R.E.W.  
Oct. 21—S. Wimbledon, ..... R.E.W.  
Nov. 6—E. Sewardstone, ... W.A.W.

## TREE-PIBIT.

April 5—M. Uxbridge,  
*Field* (16/4/38).  
,, 8—S. Boxhill, ..... G.W.C.  
,, 17—E. Pole Hill, ..... E.M.  
Aug. 26—S. Richmond Park, W.L.C.

## YELLOW WAGTAIL.

April 2—S. Barn Elms Res.,  
D.A.T.M.  
,, 5—M. Staines Moor, ... A.H.M.  
,, 9—E. Walthamstow Res.,  
J.H.G.P.  
Sept. 26—M. Staines Res., .... A.H.M.  
Oct. 1—E. Romford, ..... W.A.W.  
,, 3—K. Elmers End S.F., P.W.R.  
,, 9—S. Beddington S.F., ... L.P.

## WHITE WAGTAIL.

April 24—M. Staines Res.,  
G.C.L., A.R.S.  
,, 28—S. Barn Elms Res., A.H.M.

## RED-BACKED SHRIKE.

May 6—E. Epping Forest, ..... E.M.  
S. Kingswood, ..... H.B.  
Aug. 18—M. Ruislip, ..... W.R.P.  
,, 22—H. Cheshunt, ..... A.R.S.  
Sept. 13—S. Mitcham, ..... W.W.T.

## SPOTTED FLYCATCHER.

May 13—S. Tadworth ..... H.B.  
,, 19—H. Theobalds Park A.R.S.  
,, 21—M. Hampstead Heath  
A.F.M.  
,, 21—M. Bushy Park ... E.W.P.  
Sept. 10—M. Southgate ..... E.R.P.  
,, 17—E. Epping Forest  
W.D.P., W.A.W.  
,, 17—H. Cheshunt ..... A.R.S.  
,, 25—S. Tadworth ..... H.B.  
,, 25—K. Downe ..... R.S.R.F.

## CHIFFCHAFF.

Mar. 8—S. Richmond Park  
W.L.C., R.E.W.  
,, 18—M. Whitewebbs Park  
A.R.S.  
,, 20—K. Elmers End S.F.  
G.E.M.  
,, 20—E. Knighton ..... W.A.W.  
Sept. 22—K. Elmers End S.F.  
P.W.R.  
,, 25—E. Knighton ..... W.A.W.  
Oct. 8—S. Wimbledon ..... R.E.W.  
,, 10—H. Cheshunt ..... A.R.S.  
,, 11—M. Kensington Gardens  
E.G.P.

## WILLOW WARBLER.

Mar. 23—S. Wimbledon ..... R.E.W.  
,, 26—M. Ruislip ..... C.A.W.  
April 9—E. Chingford ..... F.J.J.  
Sept. 15—K. Elmers End ... P.W.R.  
,, 17—E. Epping Forest, W.A.W.  
,, 23—S. Richmond Park, W.L.C.  
,, 25—H. Cheshunt ..... A.R.S.

## WOOD-WARBLER.

- April 27—M. Hampstead Heath  
K.D.S.  
,, 28—S. Richmond Park .. C.L.C.  
May 8—B. Black Park ... R.S.R.F.  
,, 8—E. Epping Forest ... A.R.S.  
,, 11—K. Farnborough ... H.R.G.

## GRASSHOPPER-WARBLER.

- April 28—H. Cuffley ..... A.R.S.  
May 3—S. Ashted ..... J.E.R.  
,, 7—M. Ruislip ..... W.R.P.  
Aug. 18—M. Ruislip ..... W.R.P.

## REED-WARBLER.

- May 5—M. Edmonton S.F. ... E.M.  
,, 11—S. Wimbledon ..... R.E.W.  
,, 22—E. Chigwell ..... W.A.W.  
Aug. 23—S. Barn Elms Res. G.C.L.  
Sept. 16—H. Cheshunt ..... A.R.S.

## SEDGE-WARBLER.

- April 9—M. Edmonton S.F. ... E.M.  
,, 23—S. Mitcham ..... G.B.  
Sept. 9—H. Cheshunt ..... A.R.S.  
,, 17—E. Sewardstone  
S.A., W.D.P., W.A.W.  
Oct. 23—S. Richmond Park M.H.B.

## GARDEN-WARBLER.

- April 14—E. Epping Forest ..... E.M.  
,, 15—H. Totteridge ..... J.D.D.  
,, 30—S. Wimbledon ..... R.E.W.  
May 1—M. Mill Hill ..... W.D.M.  
Aug. 23—M. Ruislip ..... W.R.P.  
,, 24—E. Epping Forest ... A.R.S.  
Sept. 18—S. Tadworth ..... H.B.

## BLACKCAP.

- Mar. 22—S. Walton on Thames,  
*Field* (2/4/38).  
April 2—K. Orpington, ..... H.R.G.  
,, 2—M. Bushy Park, ... E.W.P.  
,, 7—E. Buckhurst Hill, F.J.J.  
Sept. 4—S. Tadworth, ..... H.B.  
,, 4—S. Mitcham, ..... G.B.  
,, 12—E. Epping Forest, A.R.S.

## WHITETHROAT.

- April 20—S. Selhurst, *Field* (30/4/38).  
,, 24—M. Mill Hill, ..... W.D.M.  
,, 24—M. Ruislip, ..... W.R.P.  
,, 29—E. Chingford, ..... F.J.J.  
Sept. 15—K. Elmers End, ... P.W.R.  
,, 27—S. Richmond Park, W.L.C.  
,, 29—E. Epping Forest, A.R.S.

## LESSER WHITETHROAT.

- May 4—S. Bookham, ..... J.E.R.  
,, 5—E. Knighton, ..... W.A.W.  
,, 5—E. Epping Forest, ... E.M.

- May 8—B. Denham, ..... R.S.R.F.  
,, 8—M. Mill Hill, ..... W.D.M.  
,, 9—H. Theobalds Park, A.R.S.  
Sept. 29—E. Epping Forest, A.R.S.

## FIELDFARE.

- April 22—E. Waltham Marsh, A.R.S.  
,, 30—M. Edmonton, ..... E.M.  
,, 30—M. Ken Wood, ..... A.F.M.  
,, 30—S. Beddington,  
C.B.A., G.B.  
Oct. 18—M. Bushy Park, .... J.E.R.  
,, 21—S. Epsom, ..... R.C.H.  
Nov. 6—K. Lullingstone Park,  
R.S.R.F.

## REDWING.

- Mar. 27—M. Hampstead Heath,  
A.F.M.  
April 21—S. Wimbledon, .... R.E.W.  
Oct. 18—M. Hampstead Heath,  
A.F.M.  
,, 22—S. Beddington, ..... L.P.  
,, 22—S. Molesey, ..... P.W.E.C.  
,, 22—S. Wimbledon, .... R.E.W.  
Nov. 6—K. Lullingstone Park,  
R.S.R.F.  
,, 13—H. Whippendell Wood,  
R.S.R.F.  
,, 22—E. Sewardstone, .... A.R.S.

## WHEATEAR.

- Mar. 8—M. St James's Park,  
*Field* (19/3/38).  
,, 16—S. Richmond Park, ... J.B.  
,, 16—S. Wimbledon, .... R.E.W.  
,, 18—E. Sewardstonebury, F.J.J.  
Oct. 3—K. Elmers End, ... P.W.R.  
,, 21—S. Barn Elms Res., E.G.P.  
,, 21—S. Wimbledon, .... R.E.W.  
,, 22—E. King George Res.,  
W.A.W.

## WHINCHAT.

- April 30—E. Walthamstow Res.,  
E.M., W.A.W.  
Sept. 4—M. Staines, ..... C.A.W.  
,, 18—E. Romford, ..... H.B.F.  
,, 24—H. Cheshunt, ..... A.R.S.  
,, 24—K. Elmers End, ... P.W.R.  
Oct. 1—S. Beddington, ..... C.B.A.

## REDSTART.

- April 10—S. Richmond Park, D.A.R.  
,, 13—M. Bushy Park, ... E.W.P.  
,, 15—E. Epping Forest,  
E.M., W.A.W.  
Sept. 24—E. Epping Forest, ... A.R.S.  
Oct. 9—S. Walton Heath, ... H.B.  
Nov. 1—E. King George Res.,  
A.R.S.



## NIGHTINGALE.

- April 16—S. Bookham, ..... H.J.B.  
 „ 22—K. Blackheath,  
     *Country Life* (18/6/38).  
 „ 25—E. Chingford, ..... F.J.J.  
 „ 28—M. Stanwell, G.C.L., A.H.M.  
 Sept. 22—E. Epping Forest, A.R.S.

## SWALLOW.

- April 8—S. Beddington, ..... C.B.A.  
 „ 8—H. Cheshunt, ..... A.R.S.  
 „ 9—E. Chingford Mount, E.M.  
 „ 9—M. Staines Res., .... G.D.E.  
 Oct. 3—K. Elmers End, ... P.W.R.  
 „ 9—H. Cheshunt, ..... R.S.R.F.  
 „ 16—M. Staines Res., ... C.A.W.  
 „ 16—S. Beddington, C.B.A., etc.  
 „ 16—S. Fetcham, ..... H.J.B.  
 „ 16—S. Norwood, ..... S.P.W.C.  
 „ 24—E. King George Res., A.R.S.

## HOUSE-MARTIN.

- Mar. 19—S. Sutton, *Field* (26/3/38).  
 April 22—E. King George Res., A.R.S.  
 „ 29—M. Bushy Park, ... E.W.P.  
 Oct. 14—K. Kelsey Park, ... A.J.R.  
 „ 16—E. Romford, ..... H.B.F.  
 „ 16—M. Northwood, ... R.S.R.F.  
 Nov. 6—H. St Albans, .... D.A.T.M.  
 „ 12—S. Barn Elms Res., ... P.T.

## SAND-MARTIN.

- April 4—E. Chingford, ..... A.R.S.  
 „ 9—M. Staines Res., .... G.D.E.  
 „ 9—S. Beddington, ..... H.B.  
 Oct. 3—K. Elmers End, ... P.W.R.  
 „ 13—E. King George Res., A.R.S.  
 „ 16—M. Staines Res., ... C.A.W.  
 „ 21—S. Barn Elms Res., E.G.P.

## SWIFT.

- April 27—S. Selhurst, *Field* (7/5/38).  
 „ 28—M. Staines Res.,  
     G.C.L., A.H.M.  
 „ 30—E. Walthamstow Res.,  
     J.H.G.P.  
 May 5—H. Cheshunt, ..... A.R.S.  
 Aug. 21—K. Elmers End, ... P.W.R.  
 „ 21—E. King George Res.,  
     W.A.W.  
 Sept. 4—H. St Albans, ..... A.R.S.  
 „ 9—M. Staines Res., .... J.A.W.  
 „ 28—S. Belmont, ..... P.W.E.C.

## NIGHTJAR.

- May 8—S. Leatherhead,  
     *Field* (21/5/38).  
 „ 20—H. Cuffley, ..... A.R.S.  
 Aug. 15—H. Cuffley, ..... A.R.S.

## WRYNECK.

- Mar. 31—S. Warlingham,  
     *Field* (9/4/38).

## CUCKOO.

- April 15—M. Staines, ..... A.H.M.  
 „ 16—E. Navestock, ..... W.A.W.  
 „ 18—S. Wimbledon, .... R.E.W.  
 Sept. 9—K. Elmers End, ... P.W.R.  
 „ 11—M. Brent Res., .... W.D.M.  
 „ 18—E. Romford, ..... H.B.F.  
 „ 24—S. Beddington, ..... L.P.

## GOLDENEYE.

- April 19—S. Molesey Res., P.W.E.C.  
 May 1—M. Staines Res., .... A.H.M.  
 Oct. 1—M. Staines Res., D.A.T.M.  
 Nov. 10—S. Barn Elms Res., W.R.P.  
 „ 19—H. Cheshunt, ..... A.R.S.  
 „ 24—E. King George Res., A.R.S.

## GOOSANDER.

- April 4—E. King George Res., A.R.S.  
 „ 18—M. Staines Res., .... A.H.M.  
 „ 19—S. Island Barn Res.,  
     P.W.E.C.  
 Oct. 22—M. Littleton Res., ... W.E.G.  
 „ 22—M. Staines Res., ... A.H.M.  
 „ 22—S. Molesey Res., P.W.E.C.

## SMEW.

- Mar. 12—S. Molesey Res.,  
     H.M.R.-K.  
 Nov. 19—M. Stoke Newington Res.,  
     C.W.  
 Dec. 3—S. Molesey Res., P.W.E.C.

## TURTLEDOVE.

- April 28—S. Wimbledon, .... R.E.W.  
 May 5—M. Brent Res., .... R.W.H.  
 „ 8—B. Denham, ..... R.S.R.F.  
 „ 8—E. Epping Forest, ..... S.A.  
 Aug. 21—S. Arbrook Common,  
     K.P.K.  
 „ 25—E. Romford, ..... H.B.F.  
 Sept. 3—H. Cheshunt, ..... A.R.S.

## COMMON SANDPIPER.

- April 23—S. Barn Elms Res., E.G.P.  
 „ 24—M. Staines Res., ..... G.C.L.  
 Sept. 25—S. Beddington, ..... L.P.  
 Oct. 8—E. Romford S.F., ... H.B.F.  
 „ 9—M. Brent Res., .... W.D.M.  
 „ 15—H. Cheshunt, ..... A.R.S.

## JACK SNIBE.

- Mar. 12—M. Ruislip Res., ... C.A.W.  
 „ 24—E. Chigwell, ..... W.A.W.  
 April 2—S. Beddington, .... P.W.R.  
 Oct. 9—M. Brent Res., ..... W.D.M.

## Books Received.

*At the Turn of the Tide*, by Richard Perry. Pp. xv, 206. (London: Lindsay Drummond Ltd., 1938; 12s 6d.)

The author has attempted, and succeeded in, the difficult task of writing a book that is a contribution both to literature and to ornithology. *At the Turn of the Tide* is the fruit of several years' full-time bird-watching in Norfolk, at Holy Island, and on the Solway. The field observations it contains, notably on the Geese and Waders, should be read by every bird-watcher. There are also many passages in which Mr Perry has given his descriptive pen full rein, and these, while adding considerably to the value of the book for the lay reader, do not in the least detract from its value as a contribution to serious ornithology.

R. S. R. F.

*Report of the Committee on Bird Sanctuaries in Royal Parks (England) for 1937*. Pp. 32. (H.M. Stationery Office; 6d.)

The Royal Parks Bird Report for 1937 maintains the high standard its predecessors have taught us to expect of it. It is a matter of great satisfaction to members of the London Natural History Society that all but one of the official observers for the Royal Parks round London, who are responsible for the body of this Report, are members of the Society. For 1937 the Report contains the usual valuable records of London bird life, not only of such rarities as a Great Grey Shrike in Richmond Park and a Slavonian Grebe on the Serpentine, but also of the humbler residents of the parks, some of which, such as the Jackdaws of Kensington Gardens, are in none too flourishing a state. It is to be hoped that one day the L.C.C. can be persuaded to sponsor a similar report for the open spaces under its control, such as Hampstead Heath and the South London commons.

R. S. R. F.



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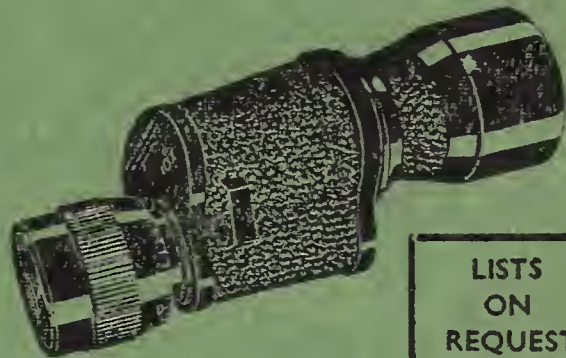
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