The BEDFORDSHIRE NATURALIST

BEING THE

JOURNAL

OF THE

BEDFORDSHIRE

NATURAL HISTORY SOCIETY

AND FIELD CLUB

FOR THE YEAR

1954

No. 9

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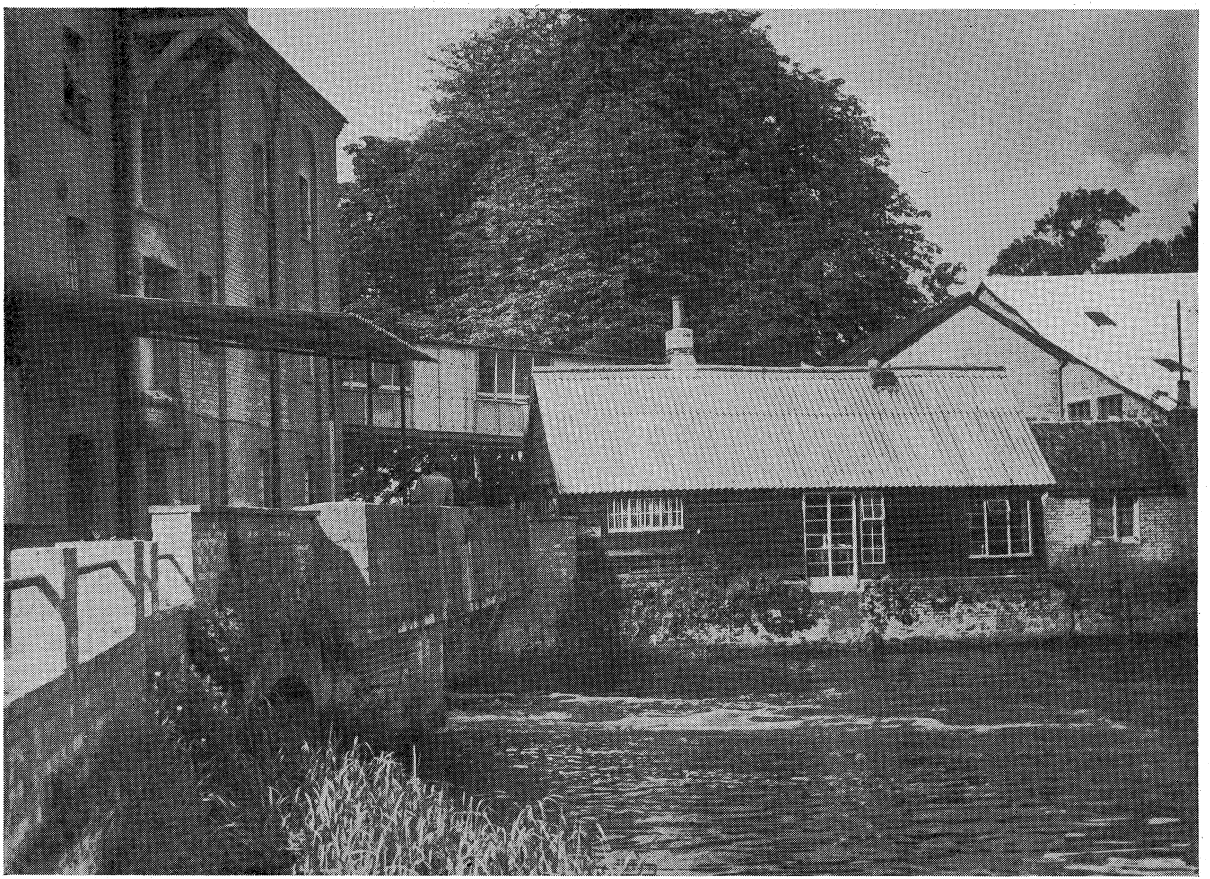

HOLME MILLS, BIGGLESWADE
Site of Grey Wagtail's nest—below left window of outbuilding (*see p. 43*)
(*Photograph by Henry A. S. Key*)

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BEDFORDSHIRE NATURAL HISTORY SOCIETY AND FIELD CLUB

EDITED BY H. F. BARNES, M.A., Ph.D.

No. 9—1954

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Report of the Council for 1954

Nothing spectacular marked the passage of 1954. It was essentially a year of sound progress in which the slight decline in membership of the previous year was more than offset by the gratifying influx of new members. At the opening of the year 215 names were on the register and by the end of December this figure had been increased to 238. In numerical strength however the Society must aspire to a further substantial increase and this can best be brought about by members themselves introducing anyone interested in the several aspects of nature study. Juniors are particularly welcome as their recruitment will do much to ensure the continuity of the Society.

Owing to the tragic death of His Grace the Duke of Bedford the Society was without a President until after the Annual General Meeting when Major Simon Whitbread was pleased to accept office.

The attendance at the majority of the lectures was satisfactory and it is noteworthy that the meetings at Luton are now much better attended. The largest gathering took place at the 6th Ornithological Conference at which more than three hundred persons were present. For the first time this meeting was held in the Town Hall, Bedford. The British Trust for Ornithology as joint organisers was represented by Mr John Burton, the assistant Secretary. The principal speakers were Mr James Fisher, M.A., who gave an informative address on 'The Fulmar', and Mr Walter Higham, F.R.P.S., who delighted the audience with his superb colour films. The ladies of the Social Committee are to be congratulated on their excellent catering and management here and elsewhere during the year.

One of the wettest seasons on record marred a number of the outdoor excursions and consequently the amount of field work fell below expectations. Enthusiasm however remains at a high level and it is hoped that 1955 will prove a more fruitful year for such investigations.

In the spring the Society, at the invitation of the North Bedfordshire Preservation Society, arranged an exhibition at the Shire Hall, Bedford. This aroused a great deal of interest and the Society was congratulated.

The Society gratefully acknowledges the presentation, jointly by the Hon. Gen. Secretary and Mr K. E. West, of a block and two gavels made by Mr West from Walnut grown in the parish of Stondon.

The Library has now outgrown its original storage space and continues to flourish. Many books and exchange copies of other Societies' periodicals have been received. Dr H. F. Barnes donated a valued series of volumes and the Society records its appreciation of this gift. It also places on record its indebtedness to Miss E. Proctor, the Hon. Librarian, whose untiring efforts are establishing a sound library. It should be noted, as mentioned elsewhere, that all matters concerning the library should be directed solely to Miss Proctor and not to other officials of the Society.

The JOURNAL continues to maintain its high standard thanks to the Hon. Editor and other members of the Editorial Committee. The gratitude of the Society is recorded once again to the Royal Society for its grant-in-aid towards the cost of publishing the JOURNAL.

As in the past the Society received support from many sources and those concerned are hereby thanked for such valued assistance.

HENRY A. S. KEY,
Hon. General Secretary

THE BEDFORDSHIRE NATURAL HISTORY SOCIETY AND FIELD CLUB

STATEMENT OF ACCOUNTS FOR THE YEAR ENDED 31st DECEMBER 1954

RECEIPTS	£ s. d.	£ s. d.
To Cash in Bank, 1st January 1954 ...		73 3 6
„ Subscriptions, 1952–53	2 5 0	
1954	81 14 3	
1955	2 5 6	
		86 4 9
„ Sale of JOURNALS		2 3 0
„ Subscriptions towards cost of JOURNAL		8 17 0
„ Donations—Anonymous	10 10 0	
The Royal Society ...	8 5 0	
		18 15 0
„ Ornithological Conference—		
Sale of Tickets and Refreshments	53 14 6	
Less Expenses	44 2 4	
	9 12 2	
Sundry Sales	3 5 0	
		12 17 2
		£202 0 5

PAYMENTS	£ s. d.	£ s. d.
By Cost of JOURNAL		105 2 6
„ Printing and Stationery...		5 12 0
„ Lecturer's Travelling Expenses		18 0
„ Postages		6 12 8
„ Ladies' Committee Expenses		2 0 0
„ Hire of Hall		2 10 0
„ Bank Charges		15 6
„ Affiliation Fee to British Naturalists' Association		10 0
„ One Copy of *The Flora of the British Isles* ...		2 10 0
	£ s. d.	
„ Cash in Bank, 31st December 1954	65 12 4	
„ Cash in Hand, 31st December 1954	9 17 5	
		75 9 9
		£202 0 5

We have examined the above Account with the books and vouchers of the Society and certify the same to be correct in accordance therewith.

McPHERSON, TIMMINS & EDNIE,
Chartered Accountants, Honorary Auditors

BEDFORD.
8th February 1955

PROCEEDINGS 1954

Indoor Meetings

70TH ORDINARY MEETING, 7th January 1954, Luton. A debate on the activities of the Society in the south of the county. Attendance 15. *Chairman:* Mr S. W. Rodell.

71ST ORDINARY MEETING, 21st January 1954, Bedford. 'A Field-study Centre', by J. H. P. Sankey. Attendance 38. *Chairman:* Miss E. Proctor.

7TH ANNUAL GENERAL MEETING, 11th February 1954, Bedford. Details as printed in the last issue, No. 8, 1954, p. 11.

72ND ORDINARY MEETING, 18th February 1954, Luton. 'The Flora of Bedfordshire', by J. G. Dony. Attendance 50. *Chairman:* Dr H. F. Barnes.

73RD ORDINARY MEETING, 4th March 1954, Bedford. 'Wild Orchids', by W. Durant. Attendance 34. *Chairman:* Mr F. G. R. Soper.

74TH ORDINARY MEETING, 18th March 1954, Luton. 'Birds to watch for this summer', by F. C. Gribble. Attendance 24. *Chairman:* Mr H. Cole.

75TH ORDINARY MEETING, 7th October 1954, Bedford. This was the first evening to be devoted to microscopical objects. Miss E. Proctor introduced the subject. Attendance 24. *Chairman:* Mr L. A. Speed.

76TH ORDINARY MEETING, 21st October 1954, Luton. 'Birds to look for this winter', by F. C. Gribble. Attendance 31. *Chairman:* Mr S. W. Rodell.

77TH ORDINARY MEETING, 18th November 1954, Bedford. 'The World of the Honey Bee', by Colin Butler. Attendance 64. *Chairman:* Miss E. Proctor.

78TH ORDINARY MEETING, 25th November 1954, Luton. 'Pond Life—Interesting plant and animal associations', by J. Lovell. Attendance 22. *Chairman:* Dr. J. G. Dony.

79TH ORDINARY MEETING, 9th December 1954, Bedford. 'The Great Ouse River Board', by F. G. R. Soper. Attendance 34. *Chairman:* Mr H. C. M. Felce.

80TH ORDINARY MEETING 16th December 1954, Luton. 'A Naturalist in the West Country', by Henry A. S. Key. Attendance 33. *Chairman:* Dr J. G. Dony.

Field Meetings

SUNDAY, 17TH JANUARY 1954, BARTON HILLS. *Leader:* F. C. Gribble. A party of twenty-five members enjoyed a pleasant sunny day over the hills. The main items of interest were two Short-eared Owls, several parties of Gulls and in the scrubland large flocks of Finches among which were a few Bramblings.

SUNDAY, 21ST FEBRUARY 1954, EYEBROOK RESERVOIR. *Leader:* H. A. S. Key. Forty-two members enjoyed a good day's bird watching in spite of the dull showery weather. Good views were obtained of Goldeneye, Red-Breasted Merganser, Goosander and Black-Necked Grebe, while in the pine woods Goldcrests and several Woodcocks were seen.

SUNDAY, 21ST MARCH 1954, SANDY AREA. *Leader:* W. Champkin. A party of fourteen had an enjoyable afternoon, the weather being variable. The only item of interest was a Mistle-Thrush's nest.

SUNDAY, 28TH MARCH 1954, SALEM THRIFT. This was an inaugural meeting for an ecological survey led by H. A. S. Key. Twenty persons attended this meeting which was conducted by Dr Blake Marsh. A Chiffchaff and large clumps of Stinking Iris were found.

SUNDAY, 11TH APRIL 1954, WALK FROM WARDEN TO BARTON. *Leader:* S. W. Rodell. The weather was sunny with a cool N.E. wind when a party of twenty members walked from Warden Tavern to Barton. Several nests of Song-Thrushes and Blackbirds were found and a male Wheatear was seen near Barton. A few scattered specimens of the Pasque Flower were also found.

THURSDAY, 29TH APRIL 1954, RENHOLD WOOD. *Leader:* J. M. Dymond. A party of six adults and four juniors enjoyed a walk through the wood on a fine evening. A Cuckoo, Chiffchaffs, Greenfinches and a Willow-Warbler were seen. A Blackbird's nest with three eggs was found. Two Grey Squirrels were disturbed from their drey.

SATURDAY, 8TH MAY 1954, OUGHTON HEAD COMMON, ICKLEFORD. *Leader:* G. L. Evans. The Common was found to be burnt off when a party of nine members arrived at Oughton Head, so Ickleford was visited. No items of special interest were noted.

SATURDAY, 22ND MAY 1954, ICKWELL BURY. *Leader:* J. S. Dunn. A party of fourteen was conducted around, but nothing of particular interest was noted.

MONDAY, 7TH JUNE 1954, WICKEN FEN. *Leader:* F. G. R. Soper. This meeting was abandoned owing to heavy rain.

SUNDAY, 13TH JUNE 1954, TILBROOK BUSHES AND KIMBOLTON PARK. *Leader:* C. F. Tebbutt. Five members only forced their way through flooded roads for this meeting which was abandoned. Mr Tebbutt however conducted the small party over Kimbolton Castle.

SUNDAY, 27TH JUNE 1954, COACH TRIP TO THE SEVERN WILDFOWL TRUST. A coach load of thirty-nine members enjoyed a very pleasant day visiting the wildfowl collection. The Cotswold villages of Bibury and Boughton-on-the-Water were visited en route.

SATURDAY, 17TH JULY 1954, RIVER DREDGING AT FELMERSHAM GRAVEL PITS. *Leader:* Miss E. Proctor. A party of nine visited the pits, but owing to rain little dredging was accomplished.

SUNDAY, 25TH JULY 1954, HALTON, ETC., BUCKS. AREA. It had been arranged that Mr K. West should lead a party of members in private cars to this area, but owing to heavy rain it was decided to abandon this meeting.

SATURDAY, 7TH AUGUST 1954, BROMHAM PARK (MOTH SUGARING). *Leader:* W. J. Champkin. A party of seven members attended this meeting. The evening was fine after a thunderstorm in the afternoon making it very wet under foot. In spite of this captures were quite numerous. A pressure lamp soon attracted a male Drinker, a Brimstone and a Shaded Broad Bar.

During our visits to the sugar patches a light breeze blew up which proved quite beneficial and the most frequent visitors to the sugar were: Dark Arches, Old Lady, Straw Underwing, Large Yellow Underwing, Lesser Yellow Underwing, Poplar Grey, Marbled Minor, Common Rustic, Common Wainscot, Smoky Wainscot, Brown Line Bright Eye and Sulphur Pearl. Single specimens of Argent and Sable, Gothic and Herald were seen.

A single Burnished Brass was observed feeding at a large thistle head and a female Yellow Tail was found at rest on a beech trunk.

It may be of interest to record that during the three preliminary sugaring trips the previous week the Blood Vein, Common Footman, Clay, Bright Line Brown Eye, Lesser Spotted Pinion and Copper Underwing were present, although they were not seen on the night of the meeting.

SUNDAY, 22ND AUGUST 1954, NORTHAMPTON SEWAGE FARM. *Leader:* F. C. Gribble. Twenty-five members attended this meeting and good views of many wading birds were obtained. These included Greenshank, Turnstone, Curlew, Sandpipers and a Little Stint. A Garganey and several Black Terns were also seen.

SUNDAY, 12TH SEPTEMBER 1954, BARNACK AND CLIPSTONE. *Leader:* B. B. West. A party of twenty-three people in cars visited first the gravel pits near Oundle where a few Great Crested and Little Grebes were seen and also a Grass Snake. In the old stone quarries at Barnack Ploughman's Spikenard and Deadly Nightshade were found.

SUNDAY, 19TH SEPTEMBER 1954, SUNDON RUBBISH DUMP. *Leader:* J. G. Dony. Seventeen persons attended this meeting the weather being hot. Forty-two plants were listed, fourteen of them being garden escapes. The most interesting finds were *Sisymbrium hoeselii*, Green Bristle Grass (*Setaria viridis*) and Millet Grass (*Panicum miliaceum*).

SUNDAY, 31ST OCTOBER 1954, YELNOW LANE. *Leader:* F. C. Gribble. A party of fourteen visited Yelnow Lane in threatening weather. The usual flocks of Tits and Finches were seen and also a white hen pheasant. Owing to torrential rain the meeting was curtailed.

Botanical Section

A preliminary meeting was held on Sunday, 28th March 1954, to initiate an ecological survey of Salem Thrift at Bromham, for comparison with the previous year's work at Hardwick Spinney. This survey has not been well supported during the season, although a number of records has been collected (see p. 28).

The annual Botanical Exhibition was held on the evening of Monday, 21st June 1954, in the Nature Room, The Avenue, Bedford, and was attended by 14 members. In addition to examining and naming a number of plants already on show in the room, specimens were exhibited as follows: by Miss G. H. Day—Bee, Bird's-Nest and Butterfly Orchids, together with many forms of the Spotted Orchid; Good King Henry (*Chenopodium Bonus-Henricus*); and Earth-Nut (*Conopodium majus*): by Mr W. Durant—Teesdalia (*Teesdalia nudicaulis*); Knawel (*Scleranthus annuus*); and the following 5 species of *Trifolium*, Hare's Foot Trefoil (*T. arvense*), Lesser Yellow Trefoil (*T. dubium*), Hop Trefoil (*T. campestre*), Red Clover (*T. pratense*) and Soft Trefoil (*T. striatum*): and by the Botanical Secretary—Field Speedwell (*Veronica agrestis*) and an unidentified *Geranium*.

A. W. GUPPY

The Fungus Foray

The foray was held on 26th September 1954 at Pickshill Gorse, near Turvey, and was led by Mr D. A. Reid. About a dozen members of the Society were present.

The wood, which has a dense undergrowth of blackthorn, brambles and nettles, consisted mainly of deciduous trees, with a large proportion of Ash. Unfortunately, agarics were scarce, and this was largely due to the combination of a dry soil, relatively little humus, and dense undergrowth. However, as a result, more time than is usual on forays was devoted to the collection of microfungi.

Altogether 50 species were collected, of which 18 were either new to the county, or confirm existing but ancient records.

All who attended the foray had an enjoyable day, which was enhanced by the kind hospitality of Mr and Mrs Dennis Elliott, who invited our party to their home—Burdelys Manor, Stagsden—to see a live Harvest Mouse and afterwards to have tea.

Collybia radicata (Rehl) Berk.; **Coprinus cortinatus* Lange; *C. micaceus* (Bull.) Fr.; *C. plicatilis* (Curt.) Fr.; *Hygrophorus psittacinus* (Schaeff.) Fr.; *Hypholoma candolleanum* Fr.; *Lactarius torminosus* Fr.; (*)*Mycena acicula* (Schaeff.) Fr.; **M. erubescens* v. Höhnel; *M. galericulata* (Scop.) Fr.; *M. galopus* (Pers.) Fr.; **M. vitrea* Fr. sensu Rick.; **Naucoria cucumis* (Pers.) Fr.; **Nolanea papillata* Bres.; *Panaeolus campanulatus* (Linn.) Fr.; *Pholiota marginata* (Batsch) Fr.; **Pleurotus cornucopiae* (Paulet) Pers.; *Pluteus salicinus* (Pers.) Fr.; *Psalliota arvensis* (Schaeff.) Fr.; **Psathyrella obtusata* (Fr. sensu Lange) A. H. Smith; **Psilocybe physaloides* (Bull.) Lasch; **Russula schiffneri* Singer; *Tubaria furfuracea* (Pers.) Gillet.

Fomes annosus (Fr.) Cke.; *Polyporus betulinus* (Bull.) Fr.; *P. lacteus* Fr.; *Polystictus versicolor* (L.) Sacc.; *Trametes confragosa* (Bolt.) Jörstad.

**Odontia papillosa* (Fr.) Bres.

Clavaria cristata (Holmsk.) Fr.

**Peniophora violaceo-livida* (Sommerf.) Massee; *Stereum hirsutum* (Willd.) Fr.

Lycoperdon pyriforme (Schaeff.) Pers.; *Scleroderma vulgare* (Horn.) Fr.

Auricularia auricula-judae Schroet.; *A. mesenterica* Fr.

Dacryomyces deliquescens (Bull.) Duby.

Puccinia sonchi Rob.

**Cheilymenia dalmeniensis* (Cke.) Boud.; *Helotium fructigenum* (Bull. ex Fr.) Fuckel.

Claviceps purpurea (Fr.) Tul.

Daldinia concentrica (Bolt. ex Fr.) Ces. et de Not.; **Lasiosphaeria hirsuta* (Fr.) Ces. et de Not.; *Xylaria hypoxylon* (L. ex Fr.) Grev.; *X. polymorpha* (Pers. ex Fr.) Grev.

**Phyllachora graminis* (Pers. ex Fr.) Fuckel.

**Ramularia calcea* (Desm.) Ces.; **Xylohypha nigrescens* (Pers. ex Fr.) Mason (=*Torula ovalispora* Berk.).

**Peronospora aestivalis* Syd. ap Gaum.; *Plasmopara aegopodii* (Casp.) Trotter.

*=Species new to the county.
(*)=Ancient records confirmed.

D. A. REID

Ornithological Section

This year the Section's activities commenced in the south of the county at Barton. In excellent weather, the party of twenty-five set off up the main coomb of the downs and were agreeably surprised to disturb a Short-Eared Owl in the long grass. Later in the day a second specimen was seen and also good numbers of gulls and finches. At Eye Brook Reservoir during February in indifferent weather those present had excellent views of Black-Necked Grebe, Woodcock and ten species of ducks. We were also pleased to meet a coach party from Oxford. The March visit to Sandy was not so successful, very little bird life being evident and a great deal of the heath land inaccessible.

Indoor activity during the early part of the year was confined to a meeting at Luton in March when the Secretary gave a talk on 'Birds to watch for this Summer' dealing in particular with the south of the county.

During the summer months three well-attended meetings were held at Luton, Clophill and Northampton Sewage Farm. At the latter Turnstones, Curlew Sandpipers, Little Stint and Black Terns were seen. The coach trip to the Wildfowl Trust Grounds at Slimbridge was most fortunate with its weather and on route the party visited Boarstall Duck Decoy and were shown the methods used there to catch wildfowl.

Although bad weather prevented much progress in the survey of Salem Thrift, Bromham, the Secretary paid several visits on Wednesdays but received little support from members. This was most disappointing as this is the type of study where more can be learned of the habits of our woodland birds.

In October the Secretary gave a further talk, this time on 'Birds to look for this Winter'. He described the usual visitors and their haunts and was most pleased at the lively discussion which followed. As usual the Ornithological Conference in November brought a successful conclusion to the year.

For the future it is hoped to organise 'Duck Counts' in the county in conjunction with the Wildfowl Trust and also to co-operate in other activities arranged on a national basis by the British Trust for Ornithology. Suggestions for other work will be gladly received, also support from a greater number of members in these activities.

F. C. GRIBBLE

Sixth Bedfordshire Ornithological Conference

SUNDAY, 14TH NOVEMBER 1954

In order to accommodate the increasing attendances and to improve arrangements generally, this year's conference was held in the Civic Theatre, The Town Hall, Bedford. The British Trust for Ornithology once again joined forces in the organisation and many of their members were among the audience which exceeded three hundred for the first time.

The Chairman of the Society, Mr F. G. R. Soper, presided and opened the proceedings by calling on the Hon. Organising Secretary to make certain announcements relating to the day's programme, after which he introduced the speaker for the morning session Mr James Fisher. The subject of his address was 'The Fulmar', a species on which he is an authority and has recently monographed. Dealing initially with the geographical distribution of the bird, the lecturer went on to describe its habits and illustrated his remarks with an interesting series of slides in monochrome and colour. At the conclusion Mr Fisher was bombarded with a variety of questions and the discussion was only terminated by the necessity of breaking off for the luncheon interval. The lecturer was thanked from the Chair for his stimulating discourse.

The catering for lunch by the ladies of the Social Committee earned the praise that was forthcoming and the excellent fare did much to ensure the friendly atmosphere of the Conference. A 'Trust' stall, once again manned by Mr J. F. Burton, assistant Secretary of the Trust, and Mr F. C. Gribble, disposed of large numbers of Christmas Cards and Trust literature. During the luncheon interval the audience examined the excellent display of specimens of sea-birds (including a Fulmar from Jan Mayen) and Scottish hill-birds, kindly loaned by Mr D. W. Elliott, as well as a non-ornithological exhibit, that aroused general interest, in the form of a case of live Harvest Mice which he had maintained since they were captured during the autumn.

In opening the afternoon session Mr Burton spoke on the work of the Trust and gave details of some of its field investigations, appealing for an increased participation in these co-operative efforts. Particularly welcome were further suggestions for study which would receive whole-heartedly the help of the Trust. It was decided that the Bedfordshire Society should give a lead by investigating the breeding, distribution and habits of the Mute Swan. Mr Key spoke about the species. The Hon. Secretary of the Ornithological Section of the Society also gave a short address on Migration.

The programme concluded with a lecture by Mr Walter Higham on 'The Birds of the Scottish Highlands', illustrated throughout with kodachrome films of outstanding merit and enlivened by the speaker's fluent commentary. The audience was transported from the straths and the moors away up the glens and on to the 'tops' and finally down to the rock-stacks of the storm-swept island of Handa with its myriads of sea-fowl. Among those who joined in the acclamation of the lecturer were the President of the Society and His Worship the Mayor of Bedford.

After the Society, the Trust and the Visitors had been thanked for their several parts in the most successful Conference yet held, tea was provided.

HENRY A. S. KEY, *Hon. Organising Secretary*

Annual General Meeting 1955

THE EIGHTH ANNUAL GENERAL MEETING was held in the Nature Room of the Bedford Training College, The Avenue, Bedford, on Thursday, 17th February 1955. The weather conditions on this evening were appalling; snow had fallen and the roads were ice-bound. In consequence the attendance of

thirty-nine fell below the average and members from the south of the county were prevented from being present.

The Hon. General Secretary was delayed for an hour en route and after a late start the Chairman, Mr F. G. R. Soper, in opening the meeting stated that Mr W. H. Bonnett, the Hon. Treasurer of the Society, was indisposed and he therefore called upon Mr E. Lucas to present the Statement of Accounts for the past year. This showed that despite the continued high cost of publishing the JOURNAL the finances of the Society could be regarded as satisfactory. The Statement (see p. 3) was adopted and the thanks of the Society to Mr Bonnett and to Mr Lucas for again acting as Hon. Auditor were recorded.

Some useful time was then spent in discussing Finance, the JOURNAL and Meetings until, Mr Key having arrived, the Minutes of the previous Annual General Meeting were read and adopted. Mr Key then presented the Report of the Council for 1954. This was adopted and is printed on page 2.

Mr F. C. Gribble, as Hon. Secretary, then read the report of the Ornithological Section (see p. 7) which gave interesting details of field work during the year. Unfortunately through several causes this had tended to slacken. Mr A. W. Guppy, as Hon. Secretary of the Botanical Section, had little specific to report on apart from the Exhibition (see p. 6). The amount of field work had been hampered by the weather and the survey of Salem Thrift had not come up to expectations. A renewed effort was called for. Both Secretaries were thanked for their work.

Miss E. Proctor, Hon. Librarian, gave an encouraging report of progress which showed that the collection of books had now outgrown its original shelving space. She appealed for more members to avail themselves of the library facilities and for further donations of books. Miss Proctor was thanked for her valued services.

Then came the election of Officers. The meeting endorsed the action of Council in offering the Presidency of the Society for a further year to Major Simon Whitbread. Mr Key announced that Major Whitbread was abroad and that a reply to the Council's invitation was awaited. The Chairman, the Hon. Gen. Secretary and the Hon. Editor had all been nominated by Council and all were re-elected. Mr Soper announced that the health of the Hon. Treasurer had given rise to some concern and that Mr Bonnett had felt the strain of his many duties. The meeting considered that under the circumstances steps should be taken to relieve Mr Bonnett of unnecessary worry and accordingly Mr J. M. Dymond was elected to take his place as Hon. Treasurer. In expressing a sincere wish for Mr Bonnett's rapid recovery the meeting recorded the indebtedness of the Society to him for his unremitting services since the re-founding of the Society and as a mark of special recognition elected Mr W. H. Bonnett first Honorary Life Member of the Society.

Ten nominations for the same number of vacant seats on the Council were received and the following members were unanimously elected: Miss A. L. Cooper, Miss E. Proctor, Miss G. M. Tattam, Dr J. G. Dony and Messrs J. S. Dunn, W. Durant, F. C. Gribble, A. W. Guppy, W. E. K. Piercy and S. W. Rodell.

The Chairman thanked Mr L. A. Speed for the excellent manner in which he had discharged his duties as Hon. Programme Secretary and made special mention of the valued services of the two retiring members of Council, Messrs B. B. and K. E. West.

Among several items discussed under 'Any other business' Mr G. H. Stansfield raised the question of the desirability of holding the Annual General Meeting in future in March rather than in February because of the weather. This matter was referred to Council.

The business of the evening being concluded, Mr Key rounded off the proceedings with a lecture on 'The Cotswolds' illustrated with kodachrome slides. The projectionist was Mr F. C. Gribble. The speaker was thanked from the Chair and the audience showed its appreciation in the usual manner.

The Weather of 1954

By A. W. GUPPY

The year 1954 will be remembered for its wet chilly summer, the heavy rainfall in the four months May to August inclusive entitling it to rank with 1903, 1912 and 1917 as having one of the four wettest summers of the present century. Apart from this, the year as a whole showed rainfall exceeding the average by from 15 per cent to 20 per cent in most stations. Only two months, January and April, were drier than average; the latter produced only about one-fifth of normal, and this, together with the low average temperature, was responsible for the retardation of plant growth which was such a noteworthy feature of the spring months.

The longest dry period of the year was from 7th to 30th April inclusive, a drought of 24 days. Successions of wet days were naturally frequent, the 9 days, 22nd to 30th November, being usually the longest period. At all stations November had the greatest number of wet days, 20 in most instances.

The year's snowfall was light and confined to 5 days, that of the evening of 6th January being the heaviest (0·18 inches).

The wettest day of the year was 8th December, the day's total showing remarkable consistency between various observers: Bromham, 1·39 inches; Carlton, 1·43 inches; Kempston, 1·46 inches; Silsoe, 1·45 inches.

TEMPERATURE

Owing to the breakage of one of his thermometers and the faulty operation of another, the writer's records are incomplete. The following averages are those of the N.I.A.E. at Wrest Park:—

January	37·0	July	58·4
February	36·65	August	58·9
March	42·9	September	55·85
April	45·05	October	54·2
May	52·3	November	44·6
June	56·75	December	43·75

Average for the whole year 48·86°F.

The low averages from April to August will be noted, all being about 5° or 6° below normal; on the other hand, the last three months of the year show an opposite tendency of about the same amount.

The hottest day was 4th September with 82° (Silsoe 84°); the coldest, 28th January, with a maximum of 27°. On 4 other days, 31st January, 1st, 2nd and 4th February, the thermometer also failed to reach freezing point.

The lowest night minimum occurred on the night of 1st February with 17°. Carlton and Silsoe both recorded 12°.

Air frosts continued to a later date than usual, the last being on 29th April, while the first frost of the autumn was on the 26th October.

RAINFALL FOR 1954

	Ampthill	Aspley Guise	Bromham	Cardington	Carlton	Kempston	Silsoe	Bedford
January	1·03	0·92	0·88	0·76	0·88	0·82	0·78	0·96
February	2·41	2·11	1·44	1·98	2·06	1·73	1·80	1·65
March	2·28	2·33	2·07	1·72	2·33	2·10	2·14	2·14
April	0·26	0·54	0·27	0·36	0·25	0·31	0·31	0·33
May	2·43	2·77	2·04	2·27	3·43	3·07	2·53	2·78
June	2·83	2·84	2·33	2·81	2·34	2·36	2·90	2·59
July	2·78	2·82	2·13	2·52	2·46	2·94	2·43	2·54
August	3·58	4·36	3·36	3·15	4·54	3·35	3·19	2·98
September	1·66	1·96	1·41	1·37	2·17	1·66	1·58	1·46
October	1·99	2·12	1·38	1·60	1·98	1·56	1·67	1·68
November	3·72	4·85	3·29	3·53	4·16	3·58	3·78	3·91
December ...	2·10	2·51	2·06	2·24	2·39	2·21	2·05	2·34
TOTALS ...	27·07	30·13	22·66	24·31	28·99	25·69	25·16	25·36

Ampthill (Mr Horne)
Aspley Guise (Mr Young)
Bedford (Mr Lock)
Bromham (the writer)
Cardington Aerodrome (per Mr Speed)
Carlton (Col. Battcock)
Kempston (Mr Payne)
Silsoe (N.I.A.E., Wrest Park, per Mr Dunn)

Notes on the Bedfordshire Railway Flora

By J. G. DONY

Botanists have long been aware that the railway provides an unusual habitat for plants. In Bedfordshire, John McLaren recorded Yellow Vetchling (*Vicia lutea* L.) from the railway at Cardington before 1886 and a few years later James Saunders observed a few species including Deptford Pink (*Dianthus armeria* L.) and Viper's Bugloss (*Echium vulgare* L.) from cuttings and embankments in the south of the county. There is, however, no evidence that either made a study of the railway flora and J. E. Little, a most observant botanist, appears to have been equally unaware of its possibilities. Standard works on the British flora show an equal neglect and the new *Flora of the British Isles* scarcely cites it as a habitat.

The railway provides a number of habitats for plants in the permanent way, sidings, embankments and cuttings, and bridges and stonework. Each has its own ecological problems which demand some study. It is the purpose of this paper to examine the nature of these problems in their relationship to the Bedfordshire flora.

The Permanent Way

This is being constantly re-laid and kept clear of excessive plant growth by spraying with weed-killer. In the later war years when labour was scarce the tracks had a more prolific growth of plants which is now restricted to tracks which have not recently received attention. Plants which are able to survive on the permanent way are usually annuals, and in the ballast between the metals are generally to be found: Lesser Toadflax (*Chaenorhinum minus* (L.) Lange), Lesser Chickweed (*Stellaria media* (L.) Vill.), and various species of Mouse-ear Chickweed (*Cerastium holosteoides* Fr., *C. glomeratum* Thuill. and *C. tetrandrum* Curt.). Less frequent, but locally abundant, are Danish Scurvy Grass (*Cochlearia danica* L.), a form of Groundsel (*Senecio vulgaris* var. *hibernicus* Syme) and Lamb's Lettuce (*Valerianella locusta* (L.) Betcke). In the spaces often left between the tracks and on the margins of the permanent way the same species still occur but others to be found usually include Stinkweed (*Diplotaxis muralis* (L.) DC)., species of Forget-me-not (*Myosotis arvensis* (L.) Hill, *M. hispida* Schlecht. and *M. discolor* Pers.), Whitlow grass (*Erophila verna* (L.) Chevall.), Curtis's Mouse-ear Chickweed (*Cerastium pumilum* Curt.) abundant on considerable stretches of the line, Sticky Groundsel (*Senecio viscosus* L.) and Pale-blue Creeping Toadflax (*Linaria repens* (L.) Mill.), limited to, but abundant by, the railway in the south of the county.

It is obvious from the species which occur that the permanent way provides a well-drained habitat for spring and early summer annuals. The species which survive to, or flower only in, the late summer are deep-rooted, e.g. *Linaria repens*, *Senecio viscosus* and *Diplotaxis muralis*. Of the greater number of the species it is not surprising that they grow

on the permanent way; indeed, considering their abundance in similar habitats elsewhere in the county, it would be surprising if they were not there. A few, however, call for some comment. *Cerastium tetrandrum* and *Cochlearia danica* are found normally in sandy and stony places near the sea and *Cerastium pumilum* is native in calcareous grass land but appears also in limestone quarries. Its nearest recorded area to Bedfordshire is Rutland. Of *Diplotaxis muralis*, Clapham, Tutin and Warburg write 'Naturalised, especially, in S. England, on limestone rocks . . . by railways in Ireland.' *Linaria repens*, a species of bare chalk, is supported by records for the south of the county before the coming of the railway. The ways by which these species became established on the railway in Bedfordshire is an interesting problem.

The surface on which the track is laid is made level with a covering of sand, gravel or chalk according to the nature of the soil and the materials which are available. In recent years these have been obtained locally and with the quarrying of all in close proximity to the line, there is no reason to suggest that this has not always been the case with the stretches of the line in Bedfordshire. The wider spaces between the lines and the spaces on their margins are overlain with successive layers of ashes. The spaces between the metals (known on the railway as the four-foot) are also overlain with ashes, over which is a layer of 'granite' chips. These are, for the long stretch of London and Midland Region line and its branches in the Midlands and south of England, at least, quarried near Nuneaton in Warwickshire and Whitwick in Leicestershire. The chips are washed before they are used. There appears little likelihood of any of the species having been introduced in recent years with ballast. At one time large pebbles were used as ballast between the metals before 'granite' chips were introduced. There is a possibility that *Cerastium tetrandrum* and *Cochlearia danica* were introduced by this means and still survive in the favourable habitat provided by the permanent way. At the same time it is difficult to imagine the seeds of either species adhering to the smooth surface of pebbles.

Another possibility is that the plants have spread naturally along the railway from their natural habitats and find the artificial habitat of the permanent way conducive to their increase. More records are needed of the earlier appearance of these species on the line and of their distribution on the railway. If a continuous distribution could be shown from the South Midlands to areas where the species are native the theory of their natural spread along the railway would be nearer its proof.

Linaria repens has spread very slowly along the line in Bedfordshire and has only reached points about seven miles from its original habitats. A study of its means of reproduction and extension may help to explain the spread of some of the other species.

Sidings

Plants which are introduced into sidings with freights make a study of their own. Bedfordshire sidings are especially rich in wool adventives but the problems here are of identification and not primarily of distribution.

Most sidings have spare spaces left for emergency storage and the turning of lorries. These are kept comparatively clean by being dressed with ashes and the scanty flora they support is similar to that of the margins of the permanent way. There are, however, some species comparatively abundant on the sidings but absent on the permanent way. It is here that in recent years Oxford Ragwort (*Senecio squalidus* L.) increased and where may usually be found Canadian Fleabane (*Erigeron canadensis* L.), Blue Fleabane (*E. acer* L.), Toadflax (*Linaria vulgaris* Mill.) and various species of Willow-herb (*Epilobium* spp.). Two of the species which appear in Bedfordshire on sidings or extensions to them are of special note: Bladder Senna (*Colutea arborescens* L.) thriving so well as to appear out of place and Fine-leaved Sandwort (*Minuartia tenuifolia* (L.) Hiern) apparently increasing in these habitats. On the other hand some of the more interesting species of the permanent way, e.g. *Cerastium pumilum*, *C. tetrandrum* and *Cochlearia danica* are absent on the sidings.

The sidings, like the permanent way, provide a well-drained habitat but one probably less sensitive to drought. Deeper-rooted species, flowering throughout the year, are better able to survive in these conditions.

Walls and Brickwork

Walls form an interesting habitat for plants as many species found rarely in an area are often to be found abundantly on walls in the district. Botanists are familiar with the greater abundance of ferns on the shady side of old church walls and the large variety of annuals on the sunny side. Railway walls frequently present different problems. On the supporting walls of some Bedfordshire station platforms are to be found species of ferns not appearing even on walls elsewhere in the county. Lists of ferns found on two such walls are given below:—

Leagrave Station	Ampthill Station
Phyllitis scolopendrium (L.) Newman	*Phyllitis scolopendrium*
Asplenium trichomanes L.	*Asplenium trichomanes*
A. adiantum-nigrum L.	*A. ruta-muraria*
A. ruta-muraria L.	**Ceterach officinarum*
**Ceterach officinarum* DC.	*Athyrium filix-femina*
Athyrium filix-femina L.	**Gymnocarpum obtusifolium*
**Cystopteris fragilis* (L.) Bernh.	
**Gymnocarpium dryopteris* (L.) Newman	
**G. obtusifolium* (Shrank) Schwartz	

* Known in Bedfordshire only on railway walls.

Ferns on station platform-walls are found invariably more frequently on east- or north-facing walls. At Leagrave and Ampthill they are found on the east-facing down goods-line walls. The species shown with an asterisk above are all rare in southern England. *Cystopteris fragilis*, *Gymnocarpium dryopteris* and *G. obtusifolium* are common in the north and *Ceterach officinarum* frequent in the west.

These species could have been introduced by their spores having been carried in air currents formed by the trains from areas where they are more abundant. In this case it would be helpful to know the details of similar populations on other railway walls. If *Ceterach* appears on railway walls north of Bedfordshire and if the other species appear on railway walls to the west of Bedfordshire it is a possible explanation. But if this is not so it is possible that the exhaust from the locomotives has created a perpetually moist and warm habitat and the ferns growing there may be considered as growing in an extended range of their natural distribution and to have been introduced by purely natural means.

Embankments and Cuttings

In many respects these are similar to roadside verges and species colonist and native to the soils from which they are formed intermingle. The steep slopes of the surface and the intrusion of ballast do much to keep them an open habitat while periodic fires in dry weather help to prevent scrub taking a hold. No two cuttings and embankments are exactly alike and a thorough study of all, even in a county as small as Bedfordshire, would be almost impossible. They add a few species to the flora, mainly Hawkweeds (*Hieracium* spp.). These have probably spread naturally from more hilly regions to the north. Other species established on our railway banks present more difficult problems. *Cerastium brachypetalum* Pers. is so abundant at Sharnbrook Summit and so peculiarly restricted to it as to make one feel that it may be native there. But this cannot be the case with *Lapsana intermedia* Bieb. at Sewell and Sweet Alison (*Alyssum alyssoides* (L.) L.) at Flitwick. Railway banks are sometimes sown with grass which may account for the introduction of some of the species. It could, but is scarcely likely to, account for the introduction of *Cerastium pumilum* which is sometimes more abundant on bare places on the banks than by the permanent way as its seeds would be unlikely to find their way into grass mixtures.

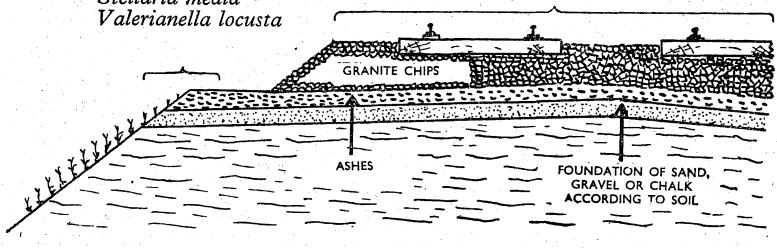
Problems of the wider distribution of the species of our railway banks are too many to allow of generalisation but within a limited area there are some which may be solved. In cuttings, whether they be through the Chalk, Clays, Lower Greensand or Oolitic Series, there is a marked difference in the vegetation on the two sides of the track. Our main cuttings run in a north to south direction. The east-facing side of the cutting has invariably a richer vegetation and is nearer to a closed community. The opposite side is still comparatively open; annuals hold their own and to the botanist it is the face which much better repays study. I have not observed comparable differences in the flora of the sides of the embankments.

The problem of the cuttings is similar to that presented by the differences in flora on the sides of station platform walls. It is one which could probably be solved by methods of micro-meteorology. Differences in insolation, i.e. the amount and intensity of sunshine, the force and direction of the prevailing winds, small differences in rainfall, are no doubt, in combination, important here.

I wish to thank Mr E. Milne-Redhead who introduced me to some of the problems of the railway flora for many useful suggestions; Mr Ginn, permanent-way inspector of Luton Station, for much useful information on the maintenance of the permanent way; and the London Midland and North Eastern Regions of British Railways for their permission to make studies of the railway flora.

Cerastium glomeratum
C. holosteoides
C. pumilum
Chaenorhinum minus
Diplotaxis muralis
Erophila verna
Linaria repens
Myosotis arvensis
M. discolor
M. versicolor
Senecio viscosus
Stellaria media
Valerianella locusta

Cerastium glomeratum
C. holosteoides
C. tetrandrum
Chaenorhinum minus
Cochlearia danica
Stellaria media
Valerianella locusta



THE PERMANENT WAY

The above shows the construction for an unstable clay soil. The foundation layer consists of sand, gravel or chalk according to the nature of the soil.

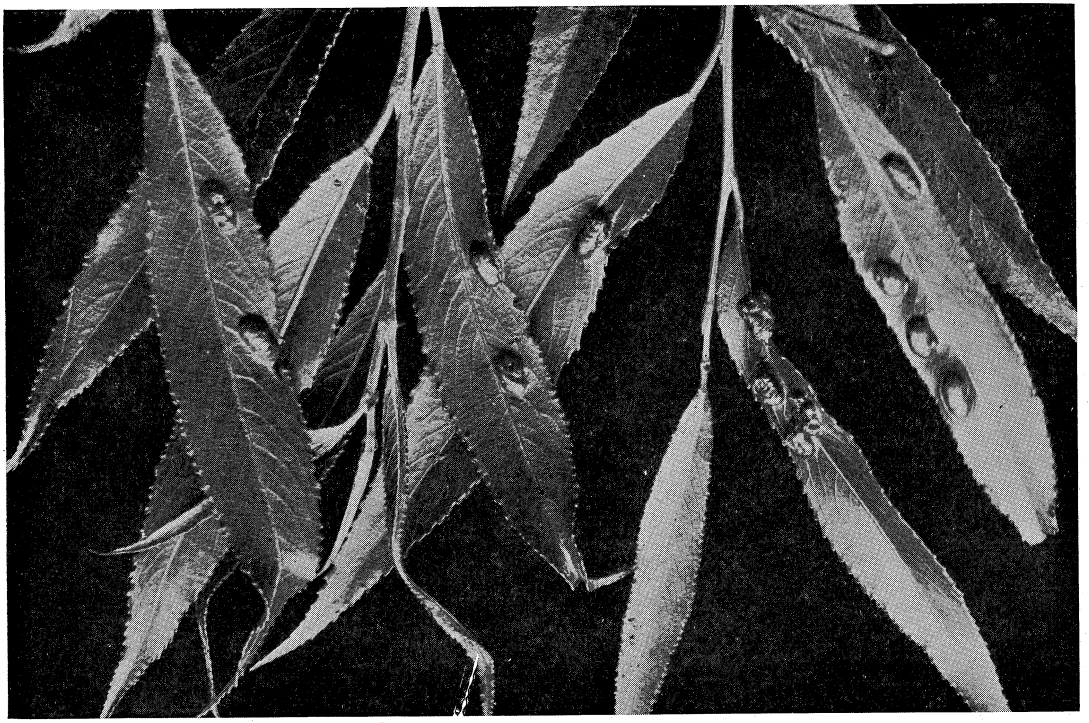
Hymenopterous Galls

(Plates 1 and 2 are reproduced from the author's Freaks and Marvels of Insect Life, *by kind permission of Messrs Hutchinson and Co., Ltd.)*

By HAROLD BASTIN

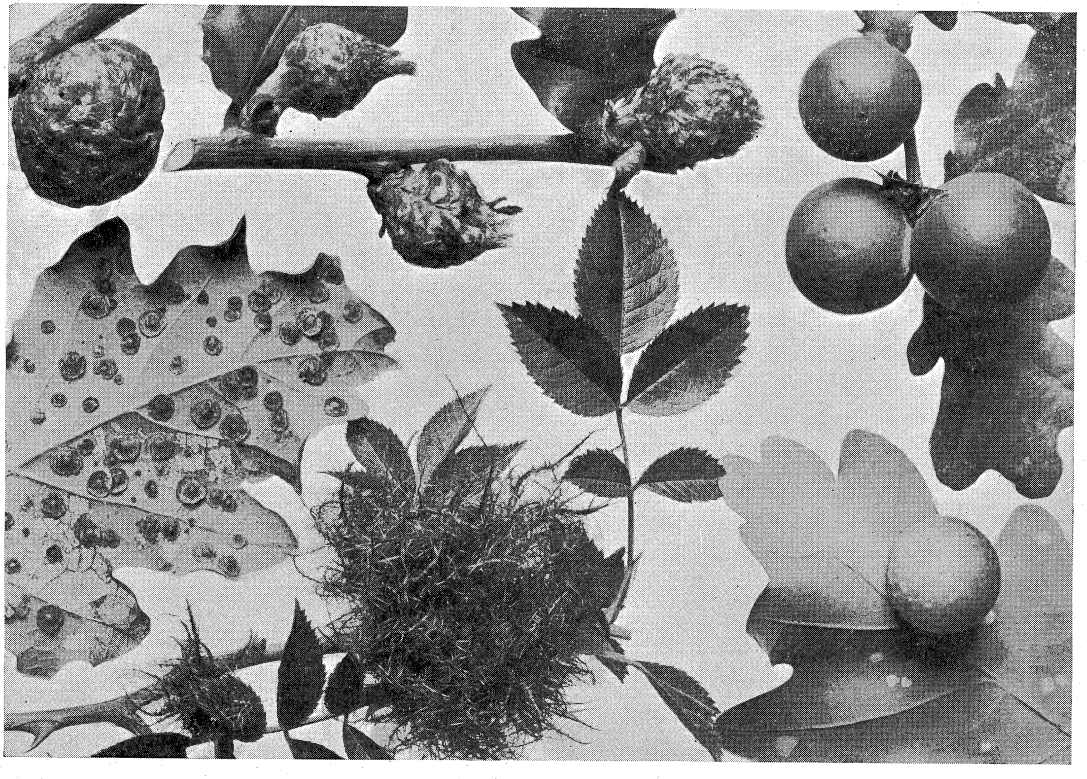
Vegetable galls may be defined as hypertrophies or excessive developments due to the presence of parasitic organisms—bacteria, fungi, eelworms, acari or insects. They arise from embryonic tissue that has been subjected to abnormal stimulation, and may occur on any part of the plant—root, stem, leaves or flowers. By far the most varied and interesting forms are due to the egg-laying activities of certain Hymenopterous insects and serve as nurseries in which their offspring find food and shelter pending the completion of their metamorphosis. Examples are the very common and conspicuous swellings on the leaves of the crack willow (*Salix fragilis*). These 'horse-bean galls'—to give them their popular name, are about one-quarter of an inch in length, at first greenish in colour, but eventually becoming bright red. They are caused by a sawfly known to the older generation of entomologists as *Nematus gallicola*, now called *Pontania proxima*. By means of her wonderful twin-saw ovipositor the parent insect, during April, inserts her eggs into the leaf buds, and as the young leaves unroll

PLATE 1



HORSE-BEAN GALLS (*Pontania proxima*) ON LEAVES OF THE CRACK WILLOW (*Salix fragilis*) (*see p. 16*)
(*Photograph by Harold Bastin*)

PLATE 2



EXAMPLES OF GALLS DUE TO THE EGG-LAYING OF CYNIPIDAE (*see p. 17*)
(*Photograph by Harold Bastin*)

the galls develop by a redundant influx of sap to the cells immediately surrounding the ova. The number of galls on a leaf is usually two or three, but occasionally there may be as many as six.

For several weeks the fully formed gall remains a solid mass of tissue with the egg lying in a small cavity near the centre; but on hatching the larva feeds upon the inner portion, eventually reducing it to a mere shell, and boring a round hole at one end through which its excrement is ejected. Later, when its growth is complete, it makes its escape through this exit, usually allowing itself to fall to the ground, where it forms a tiny cocoon of earth grains bound together by silken strands, and therein changes to the pupa. Sometimes, however, it creeps into a crevice of the tree's bark and pupates there.

In this instance the perfect sawflies emerge towards the end of May, and each female oviposits in developing leaf buds, with the result that a second batch of galls, identical with the first, shortly appears. The larvae feeding in these complete their metamorphosis in July and August. Thus, *Pontania proxima* is said to be double-brooded—i.e. it achieves two complete life-cycles in the course of each twelve months, the second generation remaining in its cocoons throughout the winter and issuing in April.

A few other Tenthredinids of the sub-family *Blennocampinae* cause galls on the leaves or stems of various species of willow. But these, for the most part, are mere swellings, very different from the productions of the Cynipidae or true gall-wasps, which are often extremely elaborate and beautiful structures, though sometimes sheer distortions. The female's ovipositor is a slender, tubular instrument, often of great length usually serrated at the tip, and is employed both for boring through tough tissues and inserting the eggs into appropriate positions. In this family, too, occurs the remarkable phenomenon of parthenogenesis—the production of offspring from unfertilised ova, generally associated with an alternation of disparate generations.

These dual life-cycles may be studied in many of the oak-tree species, such as the very common spangle gall (*Neuroterus quercus-baccarum*, form *lenticularis*) which may be found—often in vast numbers—on the underside of oak leaves in the early autumn. Small, papillate objects, they are usually pale yellow in colour, though sometimes brownish-red, and are covered densely with radiating stellate hairs. The parent insect deposits her eggs beneath the lower cuticle of young oak leaves in June. The galls begin to develop in July, increasing in size until September or early October, when they fall to the ground. In game-preserving districts they are a favourite food of pheasants during the winter months. Those which escape destruction slowly absorb moisture, increase considerably in size and become strongly obtuse. Thus, the larva, lying snugly in a central cavity, is protected from frost and surrounded by a plentiful supply of food. In these circumstances it completes its feeding, undergoing its final transformation toward the end of March, when the perfect insect cuts its way out of the gall.

In this, the alternate form of the species, all the imagines are females. Possibly, in the past, there were males, but if so they became

extinct before entomologists paid attention to the life-histories of gall-wasps in general, since none has ever been found. In other words, the species is perpetuated by this brood of agamic or non-mating females. They oviposit in oak buds, and when these burst in late April, or early May 'red currant galls' are produced, usually on the male inflorescences or catkins, but occasionally on leaves. At maturity, the former are generally suffused with pink and spotted or striped with red—whence their poular name; the latter are mostly a rich, translucent green. Both are soft and succulent. The insects which emerge from them in May constitute the sexual generation of the species, and are quite different in appearance from those of the agamic generation bred from the spangle galls. Notably, the females lack long ovipositors—tools which would be superfluous, since they insert their eggs beneath the cuticle of the expanding leaves, not in tightly wrapped buds.

The alternation of parthenogenesis with sexual reproduction was first demonstrated by Hermann Adler, who published his discoveries in 1877. Subsequent observers have shown that most of the Cynipids associated with the oak exhibit this seasonal change of personality, a generation of males and females being followed by one of females only, and the two producing totally distinct kinds of galls. In this way the sexual generation reared in the familiar oak apple (*Biorrhiza pallida*) is succeeded by a brood of wingless, agamic females (form *aptera*) which during the winter emerge from subterranean galls on the tree's roots. Similarly, the rarer woolly gall (*Andricus ramuli*) has as its agamic counterpart (form *autumnalis*) a small, greenish-brown knob, difficult to find, because even when mature more than half of it is hidden by bud scales. Again, the obscure but pretty little velvet bud gall (*Dryophanta taschenbergi*), situated in dormant, adventitious buds, is the antecedent of the cherry gall (form *scutellaris*)—the largest and most attractive of the leaf galls, well developed specimens of which in the autumn resemble ripe cherries.

To the above examples a score or so more might be added, while there are a few species of oak gall-wasps of which only one form—sexual or agamic, as the case may be—has so far been brought to light. Among the latter is the marble gall-wasp—formerly known to science as *Cynips lignicola*, later as *C. kollari*, and now as *Adleria kollari*. Exactly how this insect, long known as a middle European species, came to our Islands, has never been satisfactorily explained. The gall was first noticed about the year 1834 in two nursery gardens near Exeter, and has since spread throughout the whole of Great Britain where oaks grow, as well as to many parts of Ireland. Enthusiastic entomologists in the past have collected many thousands of these galls and examined carefully each individual insect that emerged from them, always with the same result that not a single male has been found. According to the Continental observer Beyerinck the sexual form of the marble gall-wasp is an insect known at present as *Andricus circulans* Mayr which is bred from small, clustered bud-galls on the Turkey oak; but this has not gained general acceptance. Many opportunities in this field are still open to research workers.

Besides the Cynipids of the oak, a number of British species are associated as gall-causers with other plants. Perhaps the most familiar is the work of *Rhodites rosae*—the 'bedeguar' or 'robin's pin-cushion', found on wild roses. Like the oak apple, it is a community structure, usually composed of several coherent calls, each housing a larva. To the same genus belong the smooth pea gall (*R. eglanteriae*) and the spiked pea gall (*R. nervosus*)—the latter usually occurring on the under surface of the leaf, while *R. spinosissimae* frequently attacks the burnet rose, causing large dilations, orange-red when mature, on the stems, petioles and leaves, sometimes also on the flower buds and petals. *Liposthenes latreillei*—formerly *Aulax glechomae*—is responsible for the pink-tinted globular galls covered with silvery hairs common on ground ivy, *Diastrophus rubi* for the elongate or spindle-shaped enlargements of bramble stems, and *Xestophanes potentillae* for the fusiform swellings of those of the creeping cinquefoil. All these, as well as others that might be added to the list, are single brooded.

Among British gall-wasps, therefore, we find (1) species with only one generation in the twelve months, but having males and females; (2) species, such as *Adleria kollari*, with—as far as is at present known—one generation and no males; and (3) species with two generations, the one sexual and the other agamic. Observation of the first group has shown that in some, if not all, of the species parthenogenesis is prevalent. In *Rhodites rosae*, for example, it is probably the rule rather than the exception, since males are rarely bred—the assumption being that they have tended to disappear as the faculty of virgin reproduction gained ascendency. This provides a clue to the manner in which a completely agamic race may have been established in the course of evolution. It is less easy to explain adequately the alteration of an agamic generation with a sexual one. August Weismann suggested that 'the two generations had to become so different because the winter generation had to adapt itself to different conditions from the summer generation'; but this helps little to a solution of the mystery. In the case of *Adleria kollari* and other species of which only one form is known, the alternate generation may have dropped out of the life-cycle, or may have eluded discovery because of the small size and obscure situation of the gall. Here, again, opportunities for research are obvious, all that is needed being some elementary knowledge of biology, plus the ability to observe and record accurately. It should be remembered, too, that the presence in most galls of parasites, commensals and inquilines is apt to render the identification of the rightful occupant difficult.

We saw earlier that the galls caused by sawflies take shape immediately after egg-laying by the parent. It is now generally agreed that those of the Cynipidae arise from irritation of the meristematic tissue due to the movements—possibly, also, the secretions—of the larva or larvae. The egg alone does not initiate the growth of the gall or any part of it, which in many instances may not commence for weeks—even months—after oviposition. That galls, despite their spectacular variety, should in these circumstances consistently 'come true'—i.e. maintain their specific identity—is very surprising. But in the absence of con-

clusive evidence to the contrary we may feel reasonably certain that whereas the plant produces the gall in so far as the supply of material and constructive energy is concerned, the tiny larva, by its peculiar method of stimulating the sensitive cells, determines its distinctive form.

The question is sometimes asked: Why has gall-production been favoured by natural selection? The most plausible answer is that galls seem calculated to supply the needs of the parasitic organism with a minimum of loss and injury to the plant. We may realise this economy by contrasting the habits of *Pontania proxima* with those of the gooseberry sawfly (*Nematus ribesii*). The damage done by the former to the willow tree is relatively slight, even when the insect is present in force, as is frequently the case. Each larva is confined as regards its feeding to a small part of the leaf—namely, the gall; and although the formation of this excrescence has imposed a tax upon the resources of the tree, this is far less serious in its outcome than would be the wholesale destruction of its foliage. This we may see in the case of the gooseberry sawfly, whose larvae browse openly upon the leaves, consuming one after another with startling voracity. A few hundred of them, if unchecked, will quickly defoliate a plantation of gooseberry and currant bushes, thereby seriously affecting their vitality and growth.

Some years ago, in a paper contributed to the *Journal of the Bath and West and Southern Counties Society*, the present writer pointed out that the hairy pea gall (*Spathegaster tricola* Hartig), when it occurs in profusion on seedling or sapling oaks, is liable seriously to stunt their growth—if, indeed, it does not actually destroy them. The same applies to the marble gall (*Adleria kollari*), which is often excessively abundant on young stock grown in nurseries for transplantation. *Andricus inflator* Hartig and *A. curvator* Hartig, both widely distributed throughout Britain, also cause stunting by distortion and bending of the parts attacked. The majority of Cynipid galls however, do comparatively little damage. There are, of course, other exceptions to this generalisation besides those just mentioned. But from the standpoint of the plant pathologist most of them may be regarded as non-malignant tumours which will be got rid of when the leaves, or other deciduous organs, are shed.

Myxomatosis

By J. S. DUNN

Myxomatosis reached Bedfordshire in the spring of 1954 and, following the first outbreak at Ridgmont in May, the disease spread rapidly throughout the county so that all the major warrens had been affected by October.

The disease, which is specific to the European rabbit, although very occasionally reported from hares, is caused by a virus and is spread by insect vectors. In Britain the rabbit flea is the principal carrier, although mosquitoes play some part.

The symptoms are most pronounced; the forehead, eye lids and base of the ears become greatly swollen and lesions may appear over

the body particularly in the genital region. The animal eventually becomes blind and deaf, but will continue to eat and move about until death occurs, two or three weeks after infection. Rabbits which had died from myxomatosis, found by the writer at Ickwell, showed only slight signs of emaciation but because of the swellings they were most loathsome in appearance.

The disease was first reported in Uruguay towards the end of the nineteenth century but it was in 1950 that it first came into prominence when it was successfully introduced into Australia. Repeated attempts had been made to introduce it there in an endeavour to control the rabbit menace resulting from the unchecked breeding of European rabbits released during the eighteenth century. The outbreak in this country, however, originated from the liberation near Paris in 1952 of rabbits injected with the virus by a French doctor. He intended only to control their numbers on his estate but the disease soon extended beyond its boundaries and within a year had spread to most Western European countries, the first outbreak in England being reported at Edenbridge in Kent during October 1953.

The spread of the disease has been most erratic and unpredictable. At Ickwell in 1954, infection spread slowly over one side of the Bury farm killing all the rabbits in its path, but it was not until late September that infected animals were found on the other side, less than 400 yards away. After the initial rabbit population had been killed, neighbouring rabbits moved into the area until they in turn were killed by a second wave of infection some weeks later. It has been estimated from work on myxomatosis in Australia that the initial kill is something over 99 per cent of the population but with successive waves of infection this falls to 95 per cent, 90 per cent, or even lower; evidence of the establishment of a host/parasite balance. If this also happens here myxomatosis will never wholly exterminate the rabbit in England although the renewed efforts on the part of the agricultural community, stimulated by the decimation of existing infestations, may result in some rabbit-free areas being established.

It is too early yet to say what the outcome of the epidemic will be, but the ensuing drastic reduction in rabbit numbers will, while benefiting agriculture, undoubtedly effect considerable changes in the plant and animal life of our county. There are likely to be changes in our hill, heath and downland, where the constant depredations of many rabbits have maintained the typical close growing vegetation and encouraged certain of our rarer plants. Woodland rides too are indebted to the rabbit for their lawn-like sward. The natural regeneration of native tree species that has normally been prevented by the gnawing habit of the rabbit, in particular the beech on chalk, may now continue unhindered and the possible increase in copse and woodland may result in a corresponding increase in the bird life of the county.

A most interesting report on the long term effects of myxomatosis in Bedfordshire could be prepared if members of the Society would keep records of any such changes and submit them for later inclusion in the JOURNAL.

The Harvest Mouse—What I Know About Them And How I Found Them In This County

By D. W. ELLIOTT

During the first World War I was farming at Shaftesbury in Dorsetshire and, as in World War 2, we were made to plough up grass land to produce more corn, and in some of this corn so grown, I saw my first Harvest Mouse. The corn had been harvested and stacked in the field. When we were threshing some three to four months later there were dozens of these lovely tiny chestnut-coloured creatures, both young and adult, in the stacks.

So when I was brought a nest this year (1954) to identify of this rare mouse taken from my own corn growing in this county, I was delighted as I knew immediately what it was. All the remaining corn was searched and at last one small Harvest Mouse was seen sitting on an ear of wheat swaying slightly in the breeze having one of his or her daily meals. However as time went on two or three more nests were found. All these were from about nine to twelve inches from the ground, supported or interwoven round the stems of the growing corn and practically always in the vicinity of and joined to thistles. This I think was for several reasons: stronger support for the nests, better camouflage and another kind of food, the thistle seed of which they are very fond.

The nest is very small, only about three inches in diameter, practically round and made of twitch grass and the leaf of wheat; most of them at that time of the year are as green as the surrounding growth. The entrance is so well concealed that one has great difficulty in finding it. After the corn has been cut the nests are made in shocks or on the ground under a shock. Some of the nests we found in such situations were made entirely of thistle down.

It was when the shocks were being moved for storage that we again saw some of the mice and were able to catch three of them, two young ones and one adult, all of which I still have alive.

These mice are the smallest of the British mammals with the exception of the Pigmy or Lesser Shrew, weighing only about a quarter of an ounce and only measuring $2\frac{1}{4}$ inches in body length with 2 additional inches for the tail. They are chestnut in colour above with white underparts and have very short tiny ears. They are also the only British mammal that uses its tail as a sort of fifth hand or brake in order to help in its many acrobatic feats amongst the corn stems. The young, of which five to nine are produced at a time, are more grey (or House-mouse colour) and do not get the chestnut colouring until later on in life. This change in coloration is very gradual and starts on the hind quarters when the mice are about three months old and then takes another four to six months to complete.

The Harvest Mouse eats both by day and by night. The food consists of a large variety of substances since this species is insectivorous as well as granivorous. Wheat seems to be the chief food when

available and, after that, other corn, various grass and weed seeds (particularly the seed of thistles), tiny green shoots of vegetation and many kinds of insects. They have a very neat way of removing each grain of wheat without disturbing even the husk, leaving the ear when absolutely void of grain looking exactly as it was before they started. If the wheat is growing in the field all this is done by these tiny creatures either going the long journey from ground to ear and back with each kernel or staying aloft in this huge forest, sitting on one ear or straw, twisting its tail around another and eating the grain while holding it with the forefeet using them exactly as hands.

After harvest the population of the Harvest Mouse gets divided, each part leading quite a different life. Those left in the field go to ground in burrows made by themselves, make a nest and, with food not being so plentiful, they sleep quite a lot during the winter months. The others, the more fortunate ones until the fateful day when the threshing machine comes, get carried into the stackyards with the sheaves of corn. Here they stay, remaining active all the time and sometimes breeding during the winter.

A tremendous number of these mice get killed by the threshing machine and nowadays also by the combine harvester. Their chief enemies apart from these machines are Kestrels, Barn Owls, Stoats and Weasels.

At the present time the Harvest Mouse is very rare and practically unknown in a large number of our counties. A century ago it was more common, but now appears to be only left in the Southern and South-Eastern counties.

The following information indicates the comparative rarity of this mouse. I can find only one record for Scotland: in this it is said they were more common 100 years ago. Frances Pitt states in *The Romance of Nature*, 'I have never seen a Harvest Mouse nor found any trace of one during thirty years of careful study of the wild life of Shropshire'. Our own very well known Bedfordshire bird and animal photographer, Mr Oliver Pike, tells me that the Harvest Mouse is the only British mammal that he has not been able to photograph.

I hear from very good authority that Oxfordshire, Berkshire and Buckinghamshire have only had two records during the last 20 years. I also have two letters from members of a Hampshire Natural History Society and one from Dorsetshire (where I found it myself 37 years ago) in each of which I am told that there have been very few records in recent years and that the Harvest Mouse is now very scarce.

My uncle, Mr J. Steele Elliott, wrote in the Bedfordshire part of the Victoria History of the counties of England, 'I have not yet met with this species in the county, neither have I ever been able to trace any of its remains amongst the thousands of owl pellets that I have examined from various localities' but he goes on to say that his father remembers seeing them at Blunham about the year 1830.

I have a friend who remembers seeing Harvest Mice on a farm at Broughton on the boundary of Bedfordshire and Buckinghamshire about 1880.

So one comes to the conclusion that the general distribution of this daintiest of British mammals is a thing of the past.

There is a record on page 38 of the 1948 BEDFORDSHIRE NATURALIST (No. 3) that a specimen was seen running in a field of stubble at Dunton, Beds. on 14th February of that year. There is also a very definite record on page 49 of the 1949 BEDFORDSHIRE NATURALIST (No. 4) of several being seen at harvest time at Sutton, Beds.

However, with this brief account I hope I have introduced some of my readers to the Harvest Mouse and sincerely hope that we shall once again see more of them.

P.S. Since completing this article I have information from both Oxfordshire and Hampshire that Harvest Mice have been found in several new localities where hitherto they have not been seen for years. D.W.E.

The Tempsford Duck Decoy

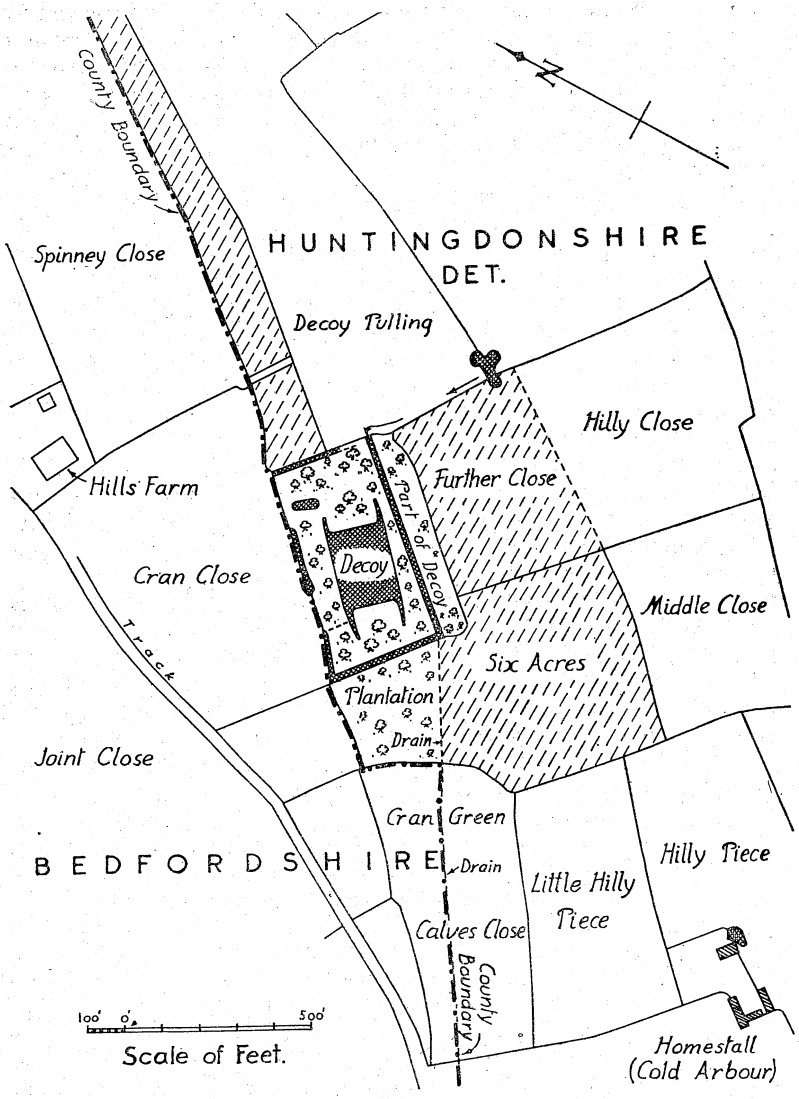
By HENRY A. S. KEY

About two miles to the N.E. of Tempsford, Bedfordshire (Nat. Grid.Ref. 52/194548) in a somewhat secluded situation, is a small belt of woodland enclosing a duck decoy, within the parish of Tetworth, Hunts., but only just outside the County of Bedford as the western boundary of the wood separates the two shires.

Researches have revealed little concerning the past history of the decoy, for Sir Ralph Payne Gallwey in his *Book of Duck Decoys* (1886) makes no mention of it and the late Jannion Steele Elliott in his treatise on Bedfordshire Decoys gives but brief reference to the existence of the pond. I am indebted to Mrs O'Connell, agent of the Tempsford Estate and Miss Joyce Godber, M.A., the County of Bedford Archivist—for their interest and co-operation which have enabled me to discover and collate the following data.

The decoy, part of the Tempsford Estate, is at least two hundred years old and was probably constructed early in the eighteenth century during a period when many British decoys came into existence. At this time the owner of the property was one Henry Bendish (Bendysh) who died in 1753. At his demise certain interests must have passed to his daughters Mary Berners and Elizabeth Hagar for by a deed of Conveyance dated 27–28th February 1769 the property was transferred by them to Sir Gillies Payne, Bart., of Roxton, and it would appear that transactions were concluded by 1772. Among the demesnes concerned were fields called Great Decoy, Decoy Pightle Pasture and Pond Ground showing that the decoy was then in existence.

No further reference can be found until 1825 when the decoy is marked on Bryant's map of 1825–6, published 1st September 1826: it appears there as within Cambridgeshire—no doubt a chartographic error. A more detailed plan occurs on a large scale map of the Tempsford Estate, surveyed and drawn sometime between 1814 and 1840, a portion of which (with modern additions superimposed by myself) is included with this article. The plan of the decoy shows the complete outline of the pipes and as the whole of the flooded area is coloured blue, seems to indicate that the pond was then in service. I should like to take this opportunity of recording my gratitude to Mr J. M. Dymond, both for drawing the plan and for assistance in surveying the decoy.



DECOY AS SHOWN ON 1814-1840 MAP

AREA AFFORESTED SINCE ORIGINAL MAP SHOWN

The pool is sited in the centre of a rectangular wood, which together with an attached piece called 'The Plantation' to the south-west, comprises a total area of nearly six acres. The pond itself is about two-thirds of an acre in area. Beyond this wood to the west and south

into Bedfordshire stretches a wide expanse of flat fields intersected by deep drains. These are nearly all designated 'Marsh' and variously prefixed Cran or Crane Green-; Massey's-; Bridge-; Brick Clamp-; First-, Second- and Third-; Further-; Latchpole- and Three Corner-. They extend across the old Gamlingay road to Tempsford and as far as the Everton road to Port Mahon Farm—the site of the now disused Tempsford airfield.

Prior to the drainage, probably early in the nineteenth century, this low-lying land together with the nearby valleys of the rivers Great Ouse and Ivel, must have provided ideal feeding grounds for wildfowl. Ducks would feed in these areas by night and return at daylight to the seclusion of the decoy, from which they would be lured and taken. A short distance from the south side of the decoy spinney lies a farm marked Homestall (also called Cold (H)Arbour), at the time of the survey tenanted by Silas Cross who apparently farmed the area. There is no mention of a decoyman's cottage and it is unknown who was responsible for operating the decoy.

It would appear that the pond was constructed for the benefit of Tempsford Hall to provide birds for the table. Decoys were chiefly sited near the east coast but many too were constructed inland where suitable conditions for success existed. Skill and experience in construction were necessary to ensure optimum results and layouts were modified from time to time to secure full advantage. Payne Gallwey remarks that in some cases those responsible lacked a knowledge of the finer points and unless the services of an expert were enlisted the resultant decoy proved unsatisfactory in performance. After examining this pond in detail I find it difficult to believe that the catches or 'takes' here could have been more than a few birds on any one occasion.

Space will not allow details of the pattern and working of known successful decoys and readers are advised to consult Payne Gallwey's comprehensive work.

To proceed now to the structural details of the pool and pipes. The decoy is of 'Crab' pattern, rectangular in shape with narrow pipes leading away from each corner as shown on the map; the longer sides of the pool measure about 215 feet and the shorter ones 150 feet. The length of the decoy lies in a S.W. to N.E. direction and the land slopes gently upwards towards the N. When the pond was dug the clay subsoil was spread around the margins to form substantial ridges of varying heights; these extend above the present water level as follows:— N.E. side 6–8 feet, S.E. side 6–4 feet, S.W. side 4 feet and N.W. side 6–4 feet. The S.E. bank furthermore is some 52 feet wide and falls sharply down to a narrow drainage ditch, the bottom of which is in places about 9–10 feet below the height of the ridge. On the far side of this ditch there is a similar mound.

Of ideal size, the pond is capable of holding a large party of ducks. However the pipes are unusually short, too narrow and insufficiently curved—in particular those at the N. and E. corners. Each of the latter is little more than seven or eight feet wide at the mouth and their respective lengths would hardly render the process of catching practical, being but about thirty and forty feet. There is no evidence of

existence of 'banks' at the entrance to the pipes on which ducks could congregate to bask and preen and what is more significant each pipe is enclosed within steep sided banks rising some four to eight feet above the bottom of the pipe. Under these conditions it seems unlikely that a decoy-dog could have been worked in the conventional manner to attract the interest of the wildfowl and here the more likely method of enticement would have been the movement into the pipe of tame ducks fed by grain thrown to them over the screens.

The land rises so sharply at the end of these two pipes that they must have come to an abrupt conclusion unless the captured birds were persuaded to struggle up several feet of inclined plane into the catching nets—an unlikely method, and quite unknown to me.

Both the S. and W. pipes are better in every way and more nearly conform to accepted patterns although again they are too short and narrow. By digging away accumulated black silt we were able to discover the probable termination of these and our measurements and the curvature agree closely with the Estate Map. The W. pipe 50–55 feet long, ending in a patch of flat ground. Where the pipe left the pond it was at least 10 feet wide. Its neighbouring S. pipe had a similar mouth but was only about 45 feet long, and this also terminated in a level piece of ground. We found that the water still stretched well down both pipes and it was not difficult to make out their design. About 22 feet down the W. pipe a ditch is cut at right angles and the purpose of this is obscure. Either it was dug for drainage purposes to lower the former level of the pond or else it was a possible overflow. I think probably the former as it does not appear on the map. (*Plate 3.*)

It is interesting to note that Payne Gallwey refers to three decoys at King's Sedgemoor in Somerset which had similar defects. He remarks (*Book of Duck Decoys*, pp. 154–5) as follows:—'The pipes are very short and narrow being but 45 *yards* in length on their curve and only 10 feet wide at their entrance—the pools have no landing places and as decoys are of most primitive description—the pipes being so tiny they are but narrow ditches and are besides closely surrounded by trees and brushwood'.

Ditches of different width and depth surround the decoy on all four sides and though such 'Moats' are frequent in marsh-land sites where in the level terrain they also act as reservoirs to promote constant water level, in the present case where the land inclines the purpose of these excavations is a matter for conjecture. Although some water flows down the ditches from higher ground we could not discover any manner in which supplies could have been directed to the pool and we could find no spring in the immediate vicinity.

On the N. side of the decoy is a rectangular pond as shown on the map and its regular appearance suggests that it was dug to serve some purpose unknown, yet most probably related to the use of the decoy. It could hardly have acted as a reservoir. The average depth of the decoy pond is now about 2 feet and there is a firm clay bottom. From a consideration of the pipes it seems likely that the original level was about one foot higher.

The screen of trees surrounding the pool consists of Maple, Ash, Elder and large decayed Elms which Mr C. F. Tebbutt, an authority on timber, dates as some two hundred or more years old, thus confirming the approximate period of construction. These latter trees have broken off at various heights within the last fifty years and their remains have helped to block the pond with a wilderness of debris. Among the mass of vegetation growing in the water is a thicket of willows and the open lagoons are separated by clumps of sedges and patches of reeds.

Mr F. Usher of Tempsford, who has known the pool for more than fifty years, informs us that early in the century the pond was quite clear apart from a bed of reeds and that many wild ducks used to visit the pool in winter, several pairs remaining to breed. A number of birds still occur at all seasons and a few are from time to time flighted and shot during the winter months. It is regrettable that this pond should remain in its present condition but the cost and difficulties encountered in removing the obstructing material might prove considerable.

Salem Thrift Survey, 1954

By A. W. GUPPY

Salem Thrift is a wood, originally about 40 acres in extent, situated in the extreme west of Bromham parish about one mile from the village, and bordering the main Bedford–Northampton road for about 400 yards. It lies between about 160 and 210 feet above sea level on the eastern slope of a spur which extends north-eastwards from the plateau on which Hardwick Spinney stands at a distance of about three-quarters of a mile.

The wood is mentioned in local documents from the fourteenth century onwards, and it is obviously of great age, probably never having been cleared from the earliest times, though frequently replanted. A portion of the eastern side of the wood was cleared when Bromham House was built by the late Mr W. H. Allen in the early part of the century, and further inroads were made when the estate was taken over to form Bromham House Colony; another large tract is threatened with destruction by plans for future building extensions.

By the kindness of Dr R. Blake Marsh, Medical Superintendent of Bromham Hospital, members were permitted to visit the wood during 1954, and the following list, admittedly incomplete, represents a first contribution to the flora.

Comparison with the list for Hardwick Spinney, printed on page 29 of the 1953 JOURNAL, shows that most of the species have been rediscovered in Salem Thrift, but that the latter has a much richer flora, as would be expected from such an old-established woodland. Quite the most interesting feature is the frequent occurrence of the Stinking Iris (*Iris fœtidissima*).

In common with Hardwick Spinney, Salem Thrift falls into Dr Dony's region E., the Southern Oxford Clay. No soil section has yet been taken, but the upper part of the wood is undoubtedly on chalky boulder clay, the roadside on the south supporting a 'chalk hill'

flora including Carline Thistle, Milkwort, Wild Thyme and Purging Flax.

The trees are:—

Mostly Oak (*Quercus robur*), with some Ash (*Fraxinus excelsior*), Maple (*Acer campestre*), Crab Apple (*Malus sylvestris*) and Sallow (*Salix caprea*).

The shrubs are:—

Cornus sanguinea (Cornel), *Corylus avellana* (Hazel), *Crataegus* (Hawthorn), *Ligustrum vulgare* (Privet), *Prunus spinosa* (Blackthorn), *Rosa* sp. (Rose), *Viburnum lantana* (Wayfaring Tree).

Other flowering plants:—

Dominant:	*Endymion non-scriptum* (Bluebell)
	Mercurialis perennis (Dog's Mercury)
Abundant:	*Ajuga reptans* (Bugle)
	Anemone nemorosa (Wood anemone)
	Circaea lutetiana (Enchanter's Nightshade)
	Galium aparine (Goosegrass)
	Glechoma hederacea (Ground Ivy)
	Ranunculus ficaria (Lesser Celandine)
Locally abundant:	*Primula vulgaris* (Primrose)
	Orchis mascula (Early Purple Orchid)
Frequent:	*Agrimonia eupatoria* (Agrimony)
	Arum maculatum (Spotted Arum)
	Bryonia dioica (White Bryony)
	Cirsium arvense (Creeping Thistle)
	Cirsium palustre (Marsh Thistle)
	Draba verna (Whitlow Grass)
	Epilobium parviflorum (Small-flowered Willow-Herb)
	Fragaria vesca (Wild Strawberry)
	Hypericum hirsutum (Hairy St. John's Wort)
	Hypericum perforatum (Common St. John's Wort)
	Iris foetidissima (Stinking Iris)
	Lychnis flos-cuculi (Ragged Robin)
	Myosotis arvensis (Common Forget-me-not)
	Orchis fuchsii (Spotted Orchid)
	Paris quadrifolia (Herb Paris)
	Potentilla reptans (Creeping Cinquefoil)
	Prunella vulgaris (Self-heal)
	Ranunculus auricomus (Goldilocks)
	Spiraea ulmaria (Meadowsweet)
	Stachys sylvatica (Hedge Woundwort)
	Stellaria holostea (Greater Stitchwort)
	Tamus communis (Black Bryony)
	Vicia cracca (Tufted Vetch)
	Vicia sepium (Bush Vetch)
	Viola Riviniana (Common Wood Violet)
Occasional:	*Achillea millefolium* (Yarrow)
	Alliaria petiolata (Garlic Mustard)
	Bellis perennis (Daisy)
	Carex pendula (Pendulous Sedge)
	Carex verna (Vernal Sedge)
	Heracleum Sphondylium (Cow Parsnip)
	Lapsana communis (Nipplewort)
	Listera ovata (Twayblade)
	Lychnis alba (White Campion)
	Lysimachia nummularia (Creeping Jenny)
	Scrophularia nodosa (Knotted Figwort)
	Sonchus oleraceus (Sow-thistle)
	Stellaria media (Chickweed)
	Trifolium pratense (Common Clover)
Local:	*Lathyrus sylvestris* (Everlasting Pea)

Reports of Recorders

FLOWERING PLANTS

The year must have been one of the worst on record for good field work but, notwithstanding this, much useful work was done in the county. The *Flora of Bedfordshire* has now been published over a year and I propose in this and subsequent annual reports to record additions to the list of native vascular plants. Emendations to the published work, records of non-vascular plants and alien species, and additional information regarding the distribution of plants I hope to cover in longer reports at greater intervals of time.

The most interesting records of the year were *Lepidium smithii* Hook. from a railway bank at Oakley by W. Durant and two water-dropworts by the Recorder in company with Dr C. T. Prime: *Oenathe silaifolia* Bieb., plentifully in ditches by the railway at Tempsford, and *O. aquatica* (L.) Poir., sparingly in a pond also at Tempsford. All three species had been previously recorded for the county but their occurrence in our day needed confirmation. Water-starworts have at long last received the attention of a competent botanist in R. D. Meikle of Kew who has named gatherings of mine from Hinwick, Oakley, Wootton and Biggleswade Common as *Callitriche obtusangula* Le Gall.

A number of hybrids, new to the county, may also be added. *Rumex conglomeratus* x *palustris* was found by Dr S. P. Rowlands and the Recorder at Warden Abbey, *Senecio viscosus* x *vulgaris* by H. B. Souster and the Recorder in the autumn of 1953 at Sundon rubbish dump and *Lolium perenne* x *multiflorum* by the Recorder at Maulden. In all cases the parents of the hybrid were also present. In a different category is the record of *Geum rivale* x *urbanum* from Putnoe Wood by J. W. Partridge. It is possible that this interesting fertile hybrid may survive with us.

During the year and in the autumn of the previous year 34 alien species, most of them wool adventives, were found new to the county.

J. G. DONY

FUNGI

The following species are recorded from the county for the first time and include a number of collections made during recent years but which have remained unpublished. Of the new records that of *Anthracobia humillima* Malençon is the most interesting, for it is the first British collection of this fungus. All collections were made by myself except where otherwise indicated. *Crinipellis stipitarius* (Fr.) Pat.—Leighton Buzzard, 26.9.1954; *Pholiota praecox* (Pers.) Fr.—Heath and Reach, 18.6.1954; *Grandinia granulosa* Fr.Leighton Buzzard, 1.1955; *Clavaria stricta* Fr.—At base of felled ivy trunk, Leighton Buzzard, 15.11.1954; *Peniophora nuda* (Fr.) Bres.—On lilac, Leighton Buzzard, 1.1955; *Tomentella fusco-cinerea* (Pers.) Donk—On bare soil, Odell Great Wood, 27.9.1953; *Uromyces striatus* Schroet.—On *Medicago arabica*, Eaton Socon, 11.8.1946, coll. J. P. M. Brenan; *Anthracobia humillima* Malençon—On burnt ground, Aspley Heath, Woburn Sands, 18.6.1954; *Anthracobia maurilabra* (Cooke) Boud.—On burnt ground, Aspley Heath, Woburn Sands, 18.6.1954; *Anthracobia nitida* Boud.—On burnt ground, Heath and Reach, 19.6.1954; *Dasyscypha corticalis* (Pers. ex Fr.) Massee—Sharnbrook, 22.3.1948, coll. J. Webster; *Galactinia praetervisa* (Bres.) Boud.—On burnt ground, Aspley Heath, Woburn Sands, 18.6.1954; *Galactinia sarrazinii* Boud.—On burnt ground, Odell Great Wood, 29.9.1953; *Helotium chioneum* Fr.—On pine cones, Heath and Reach, 3.11.1954; *Scutellinia trechispora* (B. & Br.) Lambotte—Hanger Wood, Stagsden, 28.10.1954, coll. Miss E. Proctor; *Tapezia strobilicola* Sacc.—On pine cones, Heath and Reach, 3.11.1954; *Empusa muscae* (Fr.) Cohn—Maulden, 7.10.1951, coll. Mrs E. Milne-Redhead; *Peronospora arborescens* (Berk.) De Bary—On *Papaver* sp., Leighton Buzzard, 18.6.1954.

D. A. REID

BIRDS

That the number of species recorded is related to the number of watchers is generally accepted and the results of this year's investigations are in accordance with the theory. Despite an undue amount of rainy weather, especially during the summer, more members than ever were apparently active throughout the county and in consequence our greatest total of species for one year (146) was attained. Also, and this is an encouraging sign, there was a greater number of observations on many species including some of the more common ones. Even so, may I request, as I have done in other years, that more members will supply fuller particulars of the distribution of these more familiar birds in any areas where they are observed.

Unfortunately it is known that at least two active watchers failed to submit a report and valuable evidence is now probably lost. I would appeal to members to make careful notes of their observations at the time. Though most areas received more satisfactory attention, that of the Greensand was noticeably neglected—this is unfortunate as the region holds many interesting species at all times of the year. Insufficient attention was also paid to the lakes at Southill and Woburn and to the district of Heath and Reach with Leighton Buzzard. The flooded gravel pits here would I am sure well repay careful study.

One species was added to the county list, the Purple Sandpiper; it has been recorded on rare occasions in most contiguous counties. Chiefly by reason of the cold stormy weather early in the year an unusual proportion of maritime and aquatic birds arrived in the county which included, besides fifteen species of duck, a Puffin, an immature Black Throated Diver and several Shags, Cormorants and Bitterns. Among the summer visitors the protracted stay of a vociferous Corncrake at an orchard in Bedford aroused much interest.

Whereas the arrival dates of most warblers seem somewhat later than normal, other visitors, such as the House and Sand Martins, were on the early side. It was difficult to draw any inference from the reports on the species concerned. There were also no outstanding late dates of departing migrants.

The following species were reported in addition to those listed separately. In all cases the status and distribution was given as normal: Sparrow-Hawk; Moorhen; Wood-pigeon; Barn-, Little and Tawny Owls; Kingfisher; Greater and Lesser Spotted Woodpeckers; Skylark; Carrion-Crow; Rook; Jackdaw; Magpie; Jay; Blue, Coal-, Marsh- and Long-tailed Titmice; Tree-Creeper; Wren; Mistle- and Song-Thrushes; Robin; Hedge-Sparrow; Meadow-Pipit; Pied Wagtail; Goldfinch; Linnet; Bullfinch; Chaffinch; Yellow-Hammer and House-Sparrow.

I should like to thank all those who have contributed to the report and I would finally appeal to anyone observing an unusual occurrence to report it immediately for the benefit of others and to confirm identification.

The names of observers are abbreviated as follows: B.S. = Bedford School Natural History Society; H.C. = Harry Cole; A.D. = Anthony Dymond; D.W.E. = D. W. Elliott; F.C.G. = F. C. Gribble; A.R.J. = A. R. Jenkins; M.O. = more than four observers; C.S.P. = C. S. Payne; W.E.K.P. = W. E. K. Piercy; Rec. = Recorder; S.W.R. = S. W. Rodell; H.B.S. = H. B. Sargent; W.G.S. = W. G. Sharpe; C.F.T. = C. F. Tebbutt; D. and R.W. = D. and R. White; and M.W. = Michael Wortley.

BLACK-THROATED DIVER (*Colymbus arcticus*)—One stayed at the flooded chalk pit near Arlesey from 23rd–30th January and was studied at close range by several observers. It was first discovered by A. R. Jenkins.

GREAT CRESTED GREBE (*Podiceps cristatus*)—34 adults were counted at the time of the annual survey on the following waters where they bred: Southill lake, Woburn lakes; Battlesden lake; Luton Hoo lake; Houghton Regis chalk pit; Coronation Works (Kempston Hardwick) clay pit and Felmersham gravel pits (W.E.K.P.).

SLAVONIAN GREBE (*Podiceps auritus*)—One on R. Ouse at Bedford Sewage Farm for several days from 31st January (F.C.G. and B.S.). One, Arlesey pits, 29th January (A.R.J.).

BLACK-NECKED GREBE (*Podiceps caspicus*)—One on R. Ouse near Bedford Sewage Farm, 12th February (B.S.).

LITTLE GREBE (*Podiceps ruficollis*)—Seen on all usual pools and streams during winter months, the largest parties being *c.* 17 at East Hyde and 39 on 'open' pools of river at Bedford Sewage Farm, 3rd February—an unusually large number. Breeding reported at all regular haunts (M.O.).

CORMORANT (*Phalacrocorax carbo*)—One immature bird at Southill lake, 17th April; another immature at Arlesey pits, 4th May; and three flew towards Southill lake on 12th May. These latter had been seen at Arlesey pits on the previous day (A.R.J. and S. H. Smith). One near Oakley Bridge in December (C. F. Green).

SHAG (*Phalacrocorax aristotelis*)—The number of birds seen in the county during the year was quite remarkable. 15 settled in an elm tree at Steppingly on 3rd February and when disturbed flew low across the country as if exhausted. One struck electric cables and was destroyed. One was picked up hurt at night on the Lidlington Road and eventually placed on the ponds at Woburn. One flew over Bedford Sewage Farm on 4th February. An immature bird turned up at Bromham Mill about mid-March and stayed in the company of domestic ducks for several weeks. It became very tame and allowed close approach. It was uninjured and swam and fished in the River Ouse. On one or two occasions it was observed to plunge from trees into the pools near Bromham Hall. A further bird was seen flying over the river near Bedford on 21st and 23rd September and six visited Arlesley flooded chalk pits on 4th and 5th December (M.O.).

HERON (*Ardea cinerea*)—There was a sharp decline in the number of nesting pairs and only 27 nests were recorded at the time of the annual count. The decrease was noted particularly at the heronries at Bromham Park and Southill lake. No doubt the sharp spell of early February was in part the cause and there was some evidence of nesting later in the season when the growth of foliage rendered observation difficult. A pair nested for the first time at Little Barford.

BITTERN (*Botaurus stellaris*)—Single birds were seen at Felmersham gravel pits by Lady Wells on 31st January, 29th March and during December.

MALLARD (*Anas platyrhynchos*)—Seen on all the usual waters during the autumn and winter, the largest parties never exceeding *c.* 250 birds (M.O.).

TEAL (*Anas crecca*)—Similar remarks also apply to this species. Only a single bird was reported during the summer (B.S.) and there was no evidence of breeding in the County (M.O.).

GARGANEY (*Anas querquedula*)—Single males were seen only at Bedford Sewage Farm on 25th and 26th March.

WIGEON (*Anas penelope*)—Small numbers visited the usual haunts during the autumn and winter, the largest party appearing near Cardington Mill on 4th February during very sharp weather. The first arrivals were seen at Bedford Sewage Farm on 7th November (M.O.).

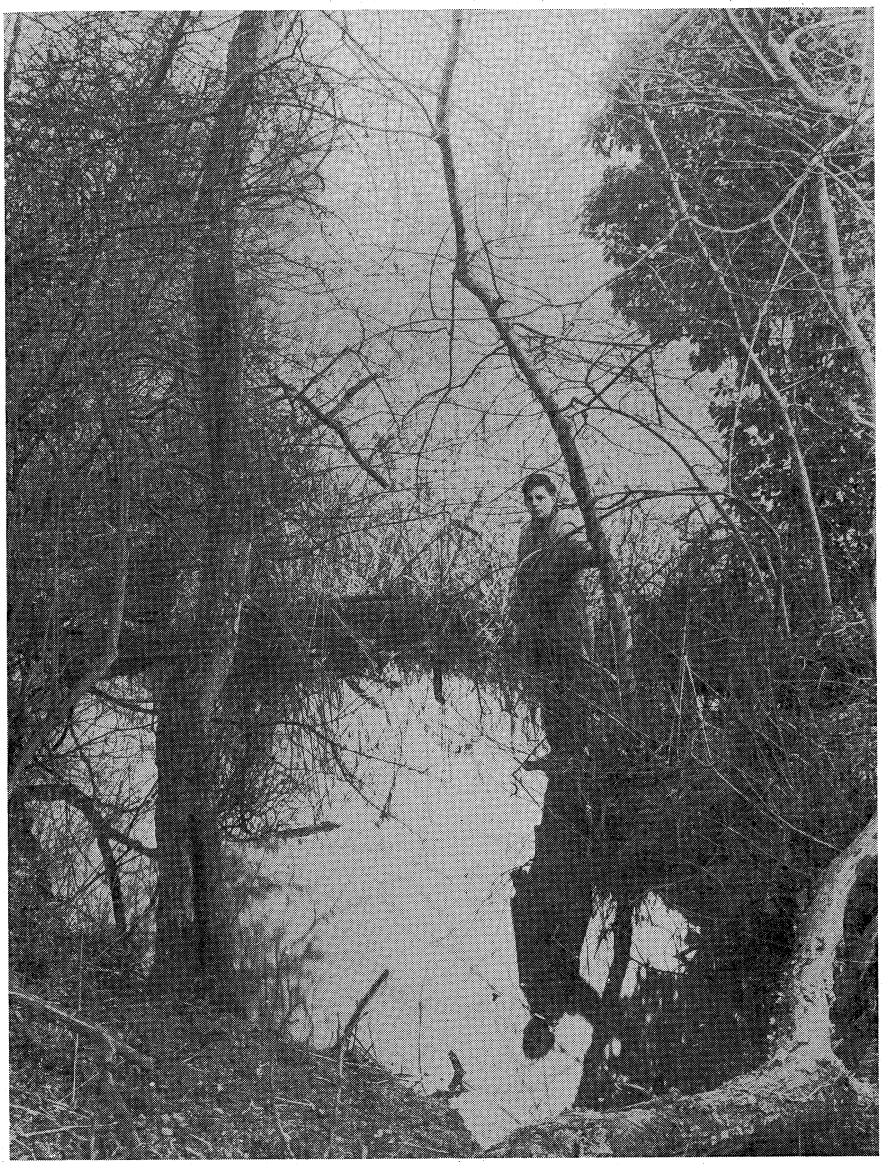
PINTAIL (*Anas acuta*)—A few birds (never more than 4 at a time) were seen at Kempston Hardwick pit, Arlesey pit and Bedford Sewage Farm from 31st January to 26th March during cold spells.

SHOVELER (*Spatula clypeata*)—Up to 5 birds present at East Hyde and Luton Hoo from 30th January to 14th February. One or two males seen at Bedford Sewage Farm from 6th February–20th March. Pair at Houghton Regis pits 16th–29th April and a pair at Coronation pit, Kempston Hardwick, 30th August (M.O.). No evidence of breeding during the year.

SCAUP (*Aythya marila*)—Three at Arlesey pits, 27th January (A. C. Morris and J. A. McRitchie).

TUFTED DUCK (*Aythya fuligula*)—Small numbers seen intermittently on all usual waters during autumn and winter months, the largest party (26) at Henlow gravel pits, 5th December. Birds were seen at the Houghton Regis pits and Luton Hoo lake during the summer where there was no evidence of breeding but at least two broods were hatched at the Woburn lakes, one of 13 (probably amalgamation of two broods) and the other 10 (M.O.).

PLATE 3



TEMPSFORD DUCK DECOY

Mouth of west pipe looking towards the pond (*see p. 27*)

(*Photograph by Henry A. S. Key*)

PLATE 4

POSITION OF PIED WAGTAILS' NEST—WITH FRONT ROW OF DRAIN-PIPES REMOVED—
INDICATED BY F. C. GRIBBLE (*see p. 37*)
(*Photograph by Henry A. S. Key*)

POCHARD (*Aythya ferina*)—Apart from a male in eclipse plumage at Henlow pits on 11th July and a female at Longholme, Bedford, from 26th–31st August, no birds were seen during the breeding season. Small numbers were seen in the usual winter haunts—the largest being *c.* 40 at Luton Hoo in January and February. First arrivals (32) were present at Battlesden lake 17th October (M.O.).

GOLDEN-EYE (*Bucephala clangula*)—Single birds at Kempston Hardwick pit, 31st January and gravel pits near Barker's Lane, Bedford, 27th November–5th December (F.C.G., C.S.P. and B.S.).

COMMON SCOTER (*Melanitta nigra*)—One on R. Ouse near Oakley House in December (C. F. Green). Other reports of single birds at Luton Hoo lake and near Biggleswade were not substantiated.

RED-BREASTED MERGANSER (*Mergus serrator*)—A male at Luton Hoo lake, 14th February. One female at Arlesey pits, 4th–6th May (M.W. and A.R.J.).

GOOSANDER (*Mergus merganser*)—A male flew over the frozen pits at Arlesey, 31st January (Margaret Spinks).

SMEW (*Mergus albellus*)—Up to 12 birds (3 males and 9 females) were present on the R. Ouse near Bedford Sewage Farm, 2nd–5th February, during the hard weather. A 'redhead' was seen near Kempston, 31st January, and three females at Luton Hoo, 14th February (M.O.).

SHELD-DUCK (*Tadorna tadorna*)—One seen on ice at Flitwick Moor, 30th–31st January, and another at Bedford Sewage Farm, 12th December (R.W., A.D. and C.S.P.).

GREY GEESE (*Anser* sp.)—27 flew over Bedford Sewage Farm, 4th January, and a party (*c.* 10) heading north over the same locality a week later (B.S. and F.C.G.)

[GREY-LAG GOOSE (*Anser anser*)]—A report by one of the staff of Luton Hoo of 10 birds on the lake during January suggested strongly that these were probably birds of this species (via D. and R.W.).

PINK-FOOTED GOOSE (*Anser arvensis brachyrhynchus*)—A party of 38 flew low over the river near Cardington on 2nd January and 14 were feeding in the nearby marshy fields of Bedford Sewage Farm on 7th. Two were observed to be wearing blue identification rings (B.S.).

MUTE SWAN (*Cygnus olor*)—Up to 100 birds still congregate on the R. Ouse at all seasons in the comparatively short reach between Queens Park and Newnham, Bedford. One pair reared a brood of ten young on the R. Ivel near Holme Mills, Biggleswade (M.O.).

[GOLDEN EAGLE (*Aquila chrysaetos*)]—An eagle frequented the Deer Park, Woburn, for several days early in March. It was seen by several members of the estate staff and a report appeared in the Press. From information so far received it seems highly probable that the bird was a Golden Eagle but as there is divergence of opinion on certain details of plumage the record is 'bracketed'. The bird was very wary and gave every indication of being other than 'escape'.

BUZZARD (*Buteo* sp.)—Two flying over Bedford, 20th May (via F.C.G.).

BUZZARD (*Buteo buteo*)—One being mobbed by Rooks over Gt. Barford, 30th May (E. M. Day). One seen by a keeper at Luton Hoo, 8th–9th September, and a pair flying eastwards over Caddington, 'mewing', 18th September (D. and R.W.).

Reports of an OSPREY and a KITE at Woburn during the spring were not substantiated.

HARRIER (*Circus* sp.)—One flying very high over Bedford Sewage Farm, 10th July (B.S.).

PEREGRINE FALCON (*Falco peregrinus*)—One, Dunstable Sewage Farm, 21st September, being mobbed by Starlings (D. and R.W.).

[MERLIN (*Falco columbarius*)]—Seen in flight at Pegsdon, 9th May. Size described as being about that of a Mistle Thrush, with dark brown back and pointed wings, the flight of which resembled a Swift and would indicate the probability of this species (D. and R.W.).

KESTREL (*Falco tinnunculus*)—Two birds, male and female, caught at Houghton Conquest in late October, locked together in fight. After separation they were ready to rejoin the squabble if brought face to face but this was prevented.

RED-LEGGED PARTRIDGE (*Alectoris rufa*) and Partridge (*Perdix perdix*)—Both species were badly affected by the rainy summer and the number of young birds reared was comparatively small (M.O.).

PHEASANT (*Phasianus colchicus*)—An albino female was seen near Yelnow Lane, Sharnbrook, 31st October (F.C.G.). An authenticated report of a remarkably late date of nesting was received from Mr T. L. Whitmore of Rosamond Road, Bedford. A hen sitting on eight eggs was disturbed from her nest in a hedgerow at Tempsford on 1st November by hedge trimming. She deserted the clutch which must have been freshly laid for when the nest was examined again on the 10th all but two of the eggs had disappeared and these when broken showed no signs of incubation.

WATER-RAIL (*Rallus aquaticus*)—A dead bird was picked up at Ickwell Bury, 20th February (J. S. Dunn). It seems reasonable to suppose that the bogs of Flitwick Moor are a breeding station of this species. D. and R. White report one heard 'squealing' there, 17th January; one seen, 15th February; one heard, 23rd February; and two seen and heard 'sharming', 22nd May.

CORNCRAKE (*Crex crex*)—A bird called frequently by day and night from 6th May till 18th in an orchard behind Balmoral Avenue, Kimbolton Road, Bedford (M.O.). Another was heard calling at the beginning of July in a cornfield near Putnoe Wood, Bedford—about a mile from the above locality (A. D. Pentland).

COOT (*Fulica atra*)—Normal distribution during breeding season: now nesting also on the pool at Houghton Regis chalk pits. The largest winter party *c.* 200, at Southill lake, 4th January (M.O.).

OYSTER-CATCHER (*Haematopus ostralegus*)—One visited Dunstable Sewage Farm, following strong westerly winds, 17th September (D. and R.W.).

1953 Record—Five flying north over Bedford, 8th January—not one as previously reported (B.S.).

LAPWING (*Vanellus vanellus*)—No large flocks noted in early part of the year, but plentiful in the autumn, the greatest being *c.* 600 with Golden Plover at Thrales End, 24th October and *c.* 500, Bedford Sewage Farm, 13th November (M.O.).

RINGED PLOVER (*Charadrius hiaticula*)—Two, Bedford Sewage Farm, 26th–27th August (F.C.G.).

LITTLE RINGED PLOVER (*Charadrius dubius*)—Two at gravel pits near Barker's Lane, Bedford, 30th March (B.S.). A juvenile at Dunstable Sewage Farm, 26th August–14th September (D. and R.W. and H.C.). All characters carefully noted in each case.

GOLDEN PLOVER (*Charadrius apricarius*)—Flocks seen in most areas during autumn and winter months, the largest, *c.* 300, at Streatley, 11th April. These were all birds of the Northern race (albiforns) and the observer, Harry Cole, supplied full details. The last emigrants, *c.* 55, were seen near the Warden Hills, Luton, 18th April (S.W.R.). One bird flew westwards over Dunstable Sewage Farm, 21st August (F.C.G.), but the first party reported (*c.* 60) was observed near Luton, 23rd September (H.C.).

COMMON SNIPE (*Capella gallinago*)—Normal distribution at all seasons, the largest party during the winter months (*c.* 100+) being seen as usual at Bedford Sewage Farm in January. First heard 'drumming' here 28th March (M.O.). Nesting reported at Eaton Ford where one noisy adult perched on electricity poles and cables (C.F.T.).

JACK SNIPE (*Lymnocryptes minimus*)—Only single birds reported during the early months at Bedford Sewage Farm, 14th February–20th March: up to two at East Hyde, 10th January–27th February, and one at Dunstable Sewage Farm, 2nd February–29th April. No autumn records (F.C.G. and D. and R.W.).

WOODCOCK (*Scolopax rusticola*)—Reported from many well-known wooded areas during the autumn and winter months with the addition of Flitwick Moor, Studham and Marston. Probably bred as usual in the Greensand area but no check made this year. An additional locality was reported, a wood on the western borders of the county where newly hatched young were seen on 5th May (M.O.).

CURLEW (*Numenius arquata*)—One calling at night over Bedford, 20th March; several calling over Luton, 6th April; one over Barton, 19th April; one at Bedford Sewage Farm, 21st April and another on Bromham Meadows, 4th–5th May. One, flying over Dunstable Sewage Farm, 26th August (M.O.)

GREEN SANDPIPER (*Tringa ochrophus*)—Spring passage: one, East Hyde, 6th–14th February, and another there, 1st May; one, Wyboston pits, 27th April, and one, Arlesey pits, 4th May. Summer: up to nine were seen at Bedford Sewage Farm in June; seven there, 14th July and one on 21st; nine on 15th and six on 23rd August, and a similar party on 1st September; one, East Hyde, 8th–18th July; one, Dunstable Sewage Farm, 19th July and up to four there, 23rd August–25th September; one, Flitwick moor, 28th August. These occurrences merged into the pattern of the return passage and the last bird reported was at Bedford Sewage Farm, 7th November (M.O.). A. R. Jenkins again reported on the autumn passage as follows: 'At a spot north of Ickleford on the Herts.–Beds. border the following autumn passage was noted: the first returning birds were seen on 10th July when two were present. The number rose to six on 1st September with a maximum of eight on 8th September, then a gradual decrease. Present winter number 4–5. When disturbed the birds always fly over the Herts.–Beds. border into Beds. and then back again into Herts.

WOOD-SANDPIPER (*Tringa glareola*)—Two single birds (one paler than the other) were seen at Dunstable Sewage Farm, 26th August to 28th September (F.C.G., D. and W.R. and H.C.). [F.C.G. believed that he saw one at Bedford Sewage Farm, 26th March, but the early date and slight uncertainty in details calls for square brackets.]

COMMON SANDPIPER (*Tringa hypoleucos*)—Spring migration: one, gravel pits near Barker's Lane, Bedford, 23rd March and two there, 29th April–9th May; one, Arlesey pits, 4th May and three on 9th; two, East Hyde, 11th May; one, Luton Hoo, 18th May and another Wyboston pits, 19th May. Return migration: one, Arlesey pits, 8th July; up to two, East Hyde, 4th–10th; up to two, gravel pits, Barker's Lane, Bedford, 12th–15th August; up to three, Dunstable Sewage Farm, 2nd August–19th September, and four, Wyboston gravel pits, 25th August (M.O.).

REDSHANK (*Tringa totanus*)—The first spring arrival was seen at Dunstable Sewage Farm, 2nd February, and found dead there on 28th; three more arrived, 14th March and ten stayed throughout the summer, leaving 23rd August. One bird arrived at Bedford Sewage Farm, 1st March, and at least three pairs bred at this station and two at Willington gravel pits. The greatest number of birds in one party was *c.* 11, Bedford Sewage Farm, 20th March (M.O.).

GREENSHANK (*Tringa nebularia*)—Up to six, Dunstable Sewage Farm, 8th August–12th September; up to two, Bedford Sewage Farm, 23rd August–14th September (M.O.).

KNOT (*Calidris canutus*)—One, Bedford Sewage Farm, feeding by flood-edge, 11th December (C.S.P.).

PURPLE SANDPIPER (*Calidris maritma*)—This is another addition to the County list. One bird was seen on the gravel pits near Barker's Lane, Bedford, by J. Sutherland-Smith of Bedford School. Careful notes were made of the observations which included the yellow legs and wing bar.

DUNLIN (*Calidris alpina*)—Winter records: Six, Arlesey pits, 27th January (A. C. Morris); one, Bedford Sewage Farm, 31st January; two, Cardington Mill spillway, 4th February. Spring passage: one, Dunstable Sewage Farm, 4th April; one, East Hyde, 24th April. Return passage: up to four, Dunstable Sewage Farm, 16th August–21st September (M.O.).

CURLEW-SANDPIPER (*Calidris testacea*)—One, Bedford Sewage Farm, 22nd–27th August. All characters noted including white rump and call heard (B.S. and F.C.G.).

RUFF (*Philomachus pugnax*)—There was an unusual occurrence during the winter of one bird at East Hyde, 30th January–14th February (H.C. and D.W.R.). Spring passage: up to six, Bedford Sewage Farm, 23rd–28th March. One was trapped and ringed. Return passage: up to three, Dunstable Sewage Farm, 21st August–26th September; up to six, Bedford Sewage Farm, 22nd August–1st September (M.O.).

STONE-CURLEW (*Burhinus oedicnemus*)—One and possibly two heard calling in a potato field near Pegsdon, 11th July (F.C.G.).

GULL (*Larus* sp.)—One of the most tantalising reports in years was received from Houghton Regis where a pair of gulls was said to have nested and laid two eggs in a scape on the 'cliffs' at the deep chalk quarries. The eggs, it was said were taken by children who scrambled down with the aid of ropes. No birds were present when the recorder and D. W. Elliott visited the locality some time afterwards (due to delayed report) but as both Black-headed and Herring Gulls visit the pool here, the possibility of nesting cannot be ruled out. Investigations since have yielded no further light on the matter.

LESSER BLACK-BACKED GULL (*Larus fuscus*)—One, Arlesey pits, 3rd January; one, Pegsdon, 4th April; nine (four juveniles), West Hyde, 14th April; three, Luton, 24th April; one, Marston Morteyne, 15th August; one, flying along Dunstable Downs, 3rd September; two, Luton, 17th September (H.C., F.C.G., A.R.J. and D. and R.W.).

(Correction of 1953 report—the date of occurrence of a probable 'Scandinavian' bird at Arlesey was 12th December—not 12th August as printed.)

HERRING GULL (*Larus argentatus*)—Seen frequently during winter months in Luton area (D. and R.W.); *c.* 100, Luton, on ploughed land, 16th January; up to 50 at Arlesey pits, a few forming a small roost with Black-Headed Gulls, 10th–31st January; one, Bedford Sewage Farm, 13th November (A.R.J. and F.C.G.).

COMMON GULL (*Larus canus*)—One, Bedford Sewage Farm, 31st January; two, Dunstable Sewage Farm, 28th February and 36 here, 13th April; *c.* 400, Streatley, 10th April; *c.* 40, Luton, 24th April; four, Houghton Regis, 21st November; two over Dunstable Downs, 24th December (M.O.).

A. R. Jenkins writes: 'Appears in small numbers during winter months on fields around Arlesey. Numbers increase in spring when a small passage is usually noted. On 24th April, 56 were counted on an open field.'

BLACK-HEADED GULL (*Larus ridibundus*)—A few birds seen throughout the County during the summer, more particularly at gravel pits. More numerous during winter months. A large mixed flock of gulls (Herring, Common and Black-Headed) *c.* 500, on Luton rubbish tip, 7th March (M.O.). Many at refuse tippings near Willington and Luton; *c.* 90, Houghton Regis chalk pit, with Common Gulls, 21st November; *c.* 100 at East Hyde Sewage Works.

BLACK TERN (*Chlidonias niger*)—Eight flying eastwards over Arlesey pits, 9th May and 18 over Bedford Sewage Farm on the same day; 17 at gravel pits near Barker's Lane, Bedford, 12th May; one, Dunstable Sewage Farm, 21st August (A.R.J., F.C.G., H.C. and B.S.).

COMMON TERN (*Sterna hirundo*)—One, Harrold gravel pits, 8th May (F.C.G.).

TERN (*Sterna hirundo/macrura*)—Either Common or Arctic Terns were seen as follows: one, Wyboston gravel pits, 25th April (C.F.T.); two, near Biddenham, 28th August (R. Stanbridge); and one, Arlesey pits, 26th September (C. Booth).

PUFFIN (*Fratercula arctica*)—An immature bird caught at Honeydon near Eaton Socon, 28th December, was placed on Mr E. O. Squires' sanctuary pond at Basmead Manor (C.F.T.).

STOCK-DOVE (*Columba oenas*)—Many flocks seen in all areas during winter months, the largest being *c.* 100, Chiltern Green, 27th February, and a similar number at Thorn, 25th December (M.O.).

TURTLE-DOVE (*Streptopelia turtur*)—First arrivals (6) Stagsden, 15th May (F.C.G.); last emigrants (4) Eaton Bray, 26th September (H.C.).

CUCKOO (*Cuculus canorus*)—First arrivals (2) heard, Stagsden, 14th April (Gwen Gribble); last emigrant, juvenile, Gt. Barford, 4th September (F.C.G.). An interesting incident took place at the Manor Nurseries, Willington, and I am indebted to Mr Frank L. Godber for the particulars and for permission to photograph the site (Plate 4). Some four-inch land-drainage pipes had been stacked, two rows deep against a concrete wall and a pair of Pied Wagtails (*Motacilla alba yarrelli*) had nested several rows down in the rear stack. As occasionally happens when a site presents a collection of similar openings the birds partly built in several pipes before constructing the final nest which half-filled the aperture of one. The two rows of pipes were not exactly aligned so that the front ones partly blocked the entry to those behind. When the nest was inspected by carefully withdrawing a few pipes it was found to contain a partly fledged Cuckoo with no trace of the eggs or young of the foster birds. The pipes were replaced and for days all was well, the wagtails making frequent visits to feed the usurper. Then it was noticed that activity had ceased and on further examining the nest the young Cuckoo almost fully fledged was found to be dead; its body filling the whole of the entry. The reason for this fatality was obscure but it may have been occasioned by the too frequent disturbance of the site by interested employees. This occurrence raises again the question of how the adult Cuckoo got its egg into the wagtails' nest. Readers must draw their own inference from the above data supplemented by the knowledge that a female Cuckoo is some thirteen inches in length with a relatively long tail. Questions which arise are:—

(a) 'If the Cuckoo went straight on to the nest, how did it manage to squeeze into the two-inch headroom above the nest in order to lay its egg?'
(b) 'If it did so did it back out; for considering the size of the bird it would seem virtually impossible for it to turn in the narrow confines of the pipe?'
(c) 'Did it enter backwards on to the nest to lay—I feel this to be highly unlikely as the plumage would have suffered damage?'
(d) 'Did the cuckoo lay its egg without, and then carry and deposit it with its beak?'

SHORT-EARED OWL (*Asio flammeus*)—Two, Barton Hills, 17th January; one, Sundon, 21st March, and one, Dunstable Downs (mobbed by a crow) 25th October (F.C.G., H.C., H.B.S. and D. and R.W.).

NIGHTJAR (*Caprimulgus europaeus*)—The greensand area (the main habitat) appears to have been neglected by members during the summer—hence no records this season.

SWIFT (*Apus apus*)—First arrival, Wyboston pits, 28th April (C.F.T. The main passage began with single birds at Gt. Barford on 6th May; Bedford, Biggleswade and Luton, on 8th May; 12, Luton, 9th May, and many passing through Bedford Sewage Farm, 15th May. Large numbers were resident in Bedford and Luton during the summer and *c.* 150 in one party were hawking insects over Luton, 21st June. Last emigrant, Kempston, 31st August (M.O.).

GREEN WOODPECKER (*Picus viridis*)—Bird heard 'drumming', 28th December (C.S.P.).

WOOD-LARK (*Lullula arborea*)—No reports received. A special watch should be kept in 1955 for this species.

SWALLOW (*Hirundo rustica*)—First arrival, Bedford, 8th April (C.S.P.). A pair seen with young just on the wing, Westoning, 17th October (F.C.G.). Last emigrant, Bedford, 19th October (C.S.P.).

HOUSE-MARTIN (*Delichon urbica*)—First arrival (early date), Felmersham pits, 29th March (Lady Wells). None reported then till 24th April, two, Battlesdon lake (M.W.). Pair had young still in the nest, Toddington, 17th October (F.C.G.). Last emigrant: Kempston, 24th October (C.S.P.).

SAND-MARTIN (*Riparia riparia*)—First arrivals (4), gravel pits near Barker's Lane, Bedford, 27th March (B.S.). Last emigrant, Dunstable, 16th September (D. and R.W.).

HOODED CROW (*Corvus cornix*)—One, then two, Dunstable Sewage Farm, 6th November–21st December (H.C. and D. and R.W.).

GREAT TITMOUSE (*Parus major*)—F. C. Gribble found an egg in a nest-box at Stagsden, 14th February, which when broken appeared to be fresh and he suggests that this might have been laid in the warm spell of the previous December.

NUTHATCH (*Sitta europaea*)—Reported during the breeding season from Flitwick, Woburn Sands and parks at Luton Hoo, Woburn, Ampthill and Southill. Seen also during winter (M.O.).

FIELDFARE (*Turdus pilaris*)—Last emigrants: Bedford Sewage Farm and Caddington, 29th April (F.C.G. and D. and R.W.). First winter visitors (*c.* 100) Bedford Sewage Farm, 7th November (F.C.G.). Passage south-westwards over Bedford Sewage Farm of 2,000–3,000 during cold spell, 12th December.

REDWING (*Turdus musicus*)—First winter visitors heard in passage over Bedford, 20th October (D. and R.W.). Large numbers with Fieldfares again roosted on the Woburn Estate. A bird in freak plumage was seen at Queens Park, Bedford, 26th–27th January. It had a light buffish-grey back; fairly light grey under rump, grey tail; normal eyestripe and red under wing; whitish breast, striated brown. It could fly well and was most conspicuous. The bird was very tame and allowed the observer to approach within four feet (C.S.P.).

RING-OUZEL (*Turdus torquatus*)—One female, Arlesey pits, 27th April (A.R.J.).

BLACKBIRD (*Turdus merula*)—Two nests were found on the ground among Dogs Mercury in Putnoe Wood near Bedford, 24th April, and another on the ground among nettles at Stagsden, 3rd May (B.S. and D.W.E.). A nest was found at Chiltern Green on 31st December, completed and ready for laying. The hen bird had previously been observed carrying material.

1953 RECORD: At Cobblers' Field, Stagsden, a pair, when their nest had been burned in a bramble patch, made a new nest on the ground, quite exposed and conspicuous in the resultant pile of wood ashes. (D.W.E.).

WHEATEAR (*Oenanthe oenanthe*)—Spring passage—*March:* one, Dunstable Sewage Farm, 28th; *April:* three, Warden Hills, 4th; two Blows Downs, 7th; one, Dunstable Sewage Farm, 10th; one Barton Hills, 11th, and another there, 18th; one, Gt. Barford, 25th. *May:* three, Bedford, 1st; three, Gt. Barford, 6th; one, Turvey, 8th (almost certainly a bird of the Greenland race); two, Bedford Sewage Farm, 9th. No record of breeding during the season. Autumn passage—(*All September*): up to three, Cowslip Meadows, Luton, 10th, and single birds seen intermittently during month in other parts of Luton; one, Dunstable Sewage Farm, 12th; two, Deacon Hill, 15th; one, Dunstable Sewage Farm, 25th (M.O.).

STONECHAT (*Saxicola torquata*)—Female, Queens Park allotments, Bedford, 5th January (C.S.P.). Male, Coronation pit, Kempston Hardwick, 21st July (R.W.).

WHINCHAT (*Saxicola rubetra*)—First arrival (male) in company with Wheatears, Gt. Barford, 6th May. Breeding birds were present in the following localities (number of nests found in brackets): two pairs, Bedford Sewage Farm (2), three young ringed; two pairs at Sundon dump; one pair, Coronation pit, Kempston Hardwick (1); two pairs Riddy Lane, Luton, and another pair, New Bedford Road; two or three pairs near Dunstable, including the Downs, and at least (3) nests found. Single bird seen also at Kempston allotments, 25th July; two, East Hyde, 8th July–14th September; one, Caddington, 27th August; four, West Hyde, 1st September; one, Slip End, 1st September; one, Luton Hoo, 17th September; up to four, Dunstable Sewage Farm, 26th August–21st September (M.O.).

REDSTART (*Phoenicurus phoenicurus*)—First arrival, male, Sundon, 28th April (D. and R.W.). Normal breeding distribution.

NIGHTINGALE (*Luscinia megarhynchos*)—First heard, Stagsden, 8th May (F.C.G.).

GRASSHOPPER-WARBLER (*Locustella naevia*)—One seen and heard near Pepperstock, 30th May. Three or four heard in the Dunstable Downs area, 26th–30th June (H.C. and D. and R.W.). Two pairs located in the osier beds south of St. Neots Bridge in Eaton Socon parish—new locality (C.F.T.).

REED-WARBLER (*Acrocephalus scirpaceus*)—Despite frequent visits to known haunts none seen till 14th May when a pair was located at Willington. Floods in June flattened reed beds and destroyed many nests.

SEDGE-WARBLER (*Acrocephalus schoenobaenus*)—First arrivals, two Flitwick Moor, 28th April (D. and R.W.).

BLACKCAP (*Sylvia atricapilla*)—First arrival, Biggleswade, 11th April (S. H. Smith).

GARDEN-WARBLER (*Sylvia borin*)—Continues to be overlooked. Only two reports received: one singing, Old Mills, Gt. Barford, 25th June; pair, Luton Hoo, 29th July (F.C.G. and D. and R.W.).

WHITETHROAT (*Sylvia communis*)—First birds seen Luton, 25th April and Bromham, 28th April (M.W. and F.C.G.).

LESSER WHITETHROAT (*Sylvia curruca*)—As in previous years this species was again overlooked by the majority of observers—it is by no means uncommon in the county. Last emigrant seen Luton, 1st and 2nd September (D. and R.W.).

WILLOW-WARBLER (*Phylloscopus trochilus*)—First arrivals heard, Flitwick, 22nd March (W.G.S.). Last emigrant, Bedford Sewage Farm, 19th September (A.D.).

CHIFFCHAFF (*Phylloscopus collybita*)—First arrivals: Bromham and Clophill Woods, 28th and Felmersham, 29th March (F.C.G., M.W. and Lady Wells).

WOOD-WARBLER (*Phylloscopus sibilatrix*)—First heard singing, Sharpenhoe Clappers, 30th May (V. H. Chambers). Two singing, Aspley Heath, 7th June (J. R. Laundon). Reported also from Ampthill Park Wood, 30th June (V. H. Chambers). One pair in usual territory near Eversholt (W.G.S.).

GOLDCREST (*Regulus regulus*)—Another species which is overlooked during the breeding season. It can be heard in the numerous Conifer plantations all along the Greensand Range. Nests are difficult to locate among the thousands of densely packed trees. Large numbers were in the Aspley Guise area during the winter (Rec.).

SPOTTED FLYCATCHER (*Muscicapa striata*)—First arrivals: Luton, 13th and Gt. Barford, 14th May (M.W. and F.C.G.).

PIED FLYCATCHER (*Muscicapa hypoleuca*)—One male, East Hyde, 23rd–24th August (Miss Cole via D. and R.W.). Hen, in hedgerow, Burdelys Manor, Stagsden, 25th August (D.W.E.).

TREE-PIPIT (*Anthus trivialis*)—First arrival, Sundon, 28th April (D. and R.W.). Also reported during the summer at Rowney Warren and Tingrith (C.S.P. and F.C.G.).

GREY WAGTAIL (*Motacilla cinera*)—Occasional birds reported as usual from Waterways in winter months. A pair made an unsuccessful attempt to breed at Holme Mills, Biggleswade in June (see article on p. 42) (M.O.).

YELLOW WAGTAIL (*Motacilla flava flavissima*)—First arrivals (10 males, Bedford Sewage Farm, 10th April (F.C.G.). Bred in the following localities: Wyboston gravel pits, probably at Arlesey pits, Bedford Sewage Farm, Dunstable Sewage Farm and East Hyde Sewage Works. Last emigrants seen, Bedford Sewage Farm, 2nd October (F.C.G.).

WAXWING (*Bombycilla garrulus*)—Two, Stagsden, 14th February (Rec.).

GREAT GREY SHRIKE (*Lanius excubitor*)—Male, Shillington, 6th March (H.C.).

RED-BACKED SHRIKE (*Lanius collurio*)—At least 4–5 nests reported from Warden Hills, Blows Downs and East Hyde—all in Luton area. Some young were ringed (H.C., M.W., S.W.R. and D. and R.W.).

STARLING (*Sturnus vulgaris*)—Pure white albino seen at Oakley, 2nd January (B.S.). Large winter roosts reported at Pavenham, Tempsford and Eversholt.

HAWFINCH (*Coccothraustes coccothraustes*)—Only one report received: one bird near New Mill End, 19th June (D. and R.W.).

GREENFINCH (*Chloris chloris*)—Largest winter flock reported (*c.* 200), Chiltern Green, 23rd January (H.O.).

TWITE (*Carduelis flavirostris*)—At least one, Dunstable Sewage Farm, 26th August. A full description was supplied by the observers who also heard the characteristic call note and thought they heard more than one bird on subsequent days (D. and R.W.).

LESSER REDPOLL (*Carduelis flammea cabaret*)—Up to ten, Flitwick Moor, 16th January–30th March. All characters noted. *c.* 8, Bull Wood, Luton, 23rd January; *c.* 7, Heavens Wood, Luton, 17th October (D. and R.W., H.C. and M.W.).

BRAMBLING (*Fringilla montifringilla*)—Flocks widely scattered in winter months, the largest parties being *c.* 150 at Bedford Sewage Farm, 10th January (F.C.G.) and a reported roost of *c.* 200 with other finches in the large Coombe at Pegsdon (M. F. M. Meiklejohn). Last emigrants: Stockwood, Luton, 16th April (D. and R.W.). First winter arrivals: Heavens Wood, Luton, 17th October (M.W.).

CORN-BUNTING (*Emberiza calandra*)—Present in all the usual breeding areas where males were heard singing, with the additional new territories: Little Staughton and Wyboston pits (nest found 19th June) (F.C.G. and C.F.T.).

REED-BUNTING (*Emberiza schoeniculus*)—In addition to the regular breeding haunts, nests were found at East Hyde, Dunstable Sewage Farm and Sundon rubbish dump by D. and R.W. (M.O.).

TREE SPARROW (*Passer montanus*)—The largest winter flock was one of *c.* 300 birds at Bedford Sewage Farm, 10th January. These were feeding on several acres of weeds and disappeared when the land was ploughed (F.C.G.).

HENRY A. S. KEY

MAMMALS

Despite frequent appeals little information is forthcoming concerning the distribution of mammals in the county. Once again I appeal to members to send me details of their observations on any species no matter how trivial the report may seem. Notes on the distribution and numbers of the Rabbit will be especially welcome.

Badger (*Meles meles*)—Our present knowledge indicates that the Greensand ridge of central Bedfordshire probably holds a greater population of this species than any other area. The sandy soil here facilitates the excavations of 'setts' and the mounds of displaced earth are in many cases considerable, e.g. Rowney Warren, near Shefford. By no means all the sites are in wooded country though frequently some screen of timber seems to be preferred. During a field excursion near Houghton Conquest in February 1953 an excavation was discovered in the open on the escarpment above Bury Farm. The Oolite area in the north of the county seems also to be favoured and here again tunnelling is made easy by certain sandy strata. There are several 'setts' in the Sharnbrook area and others near Stagsden and Stevington. Valuable information concerning the Badger in the chalk areas of south Bedfordshire has been received from David White who has reported sites at Copt Hall, Gibraltar Farm and Bull Wood, all of which are in or adjacent to the Luton Hoo estate.

Otter (*Lutra lutra*)—Otters are found not only on the main waterways of the county but at several of the lakes; in fact visits from this animal may be expected wherever there is a plentiful supply of fish. Otters travel great distances overland in search of prey. I shall be pleased to receive any information concerning the whereabouts of 'holts' or lairs; any such communications will be treated as confidential.

Rabbit (*Oryctolagus cuniculus*)—An epidemic of myxomatosis occurred in the county (see page 20). In some areas it would seem to have completely destroyed the population and the worst results have been in the sandy regions through central Bedfordshire. Here the species flourished particularly before the outbreak. By the end of the year a few unaffected rabbits were seen, but the full effects cannot be ascertained until at least another summer has passed.

HENRY A. S. KEY

Notes and Observations

BLUE TIT WITH DEFORMED BEAK

On 17th October 1954, we trapped in our garden at Luton a Blue Tit which had a curiously deformed beak. On close examination it was found that the upper mandible was over twice as long as the lower and curved right over it. The bird was ringed and released. Previously it had been observed that in order to feed the bird put its head on one side and fed through the side of the beak. It was subsequently seen on 21st October.

DAVID and ROGER WHITE

MORE MINOR EVILS OF A GARDEN IN LUTON

In 1953 (BEDFORDSHIRE NATURALIST, **7**, 32–3) I recorded some minor pests in a garden at Luton and their parasites. These parasites have since been identified by the British Museum staff: the Hymenopteron parasitising the lilac moth, *Gracilaria syringella* F., is *Apanteles dilectus* Haliday, and those from the fly mining our daisies, *Trypeta zoe* Mg., belong to an unknown species of *Lamprotatus*.

For the first time this year the leaves of our laburnum trees have been mined by the larvae of a small black fly called *Agromyza demeijeri* Hendel. This species is not given in Kloet & Hincks' *Check List of British Insects* and was first recorded from this country in 1944. The larva produces a very characteristic mine in the leaflet, starting at one edge, then running round the tip of the leaf and ending at the other edge, the larva following the edge of the leaf all the way and the mine enlarging as the larva grows.

Another leaf miner, *Phytomyza minuscula* Gour., has occurred for some years in the leaves of our columbines. The larvae of this fly form long serpentine mines inside the leaf. The adult flies have been reared for the first time this year. Previous attempts at breeding had been unsuccessful or only the flies' parasite, a small Braconid, had emerged. Despite the presence of this parasite, and sometimes only the parasitic larvae can be found if the mines are broken open and examined, the fly continues to be common in the garden.

Most of the leaf mining Diptera belong to the family Agromyzidae but we also have a gall midge, *Dasyneura affinis* Kieffer, that distorts the leaves of our violet plants. The infected plant has swollen incurved leaves. Only some of the plants appear to be regularly infected and others in a different part of the garden remain free from infection.

A more spectacular evil is a large hairy hover fly called *Merodon equestris* F. which lives in the larval stage in *Narcissus* bulbs. The adult is often common in May and June sunning itself on the paths and on the lawn of the garden. The adults are very variable in colour at Luton. Typically the thorax is yellow haired in front and black behind, and the abdomen is yellow with a black band across the middle. Some individuals however are yellow all over, variety *narcissi* F., or they have a completely black thorax and a black abdomen with a whitish tip, variety *validus* Mg. All the individuals belong to the same species however.

We also suffer from the usual spectacular evils such as gooseberry sawfly and codlin moth, but it is the animals that cause less damage in a garden that pass unnoticed and are best recorded here.

B. R. LAURENCE

FURTHER NOTES ON HARDWICK SPINNEY, STAGSDEN

Following the ecological survey carried out in 1953 (BEDFORDSHIRE NATURALIST, **8**, 1954, 28–31) the appended notes may be of interest.

Flowering Plants—Mr Guppy reports that no Enchanter's Nightshade or St. John's Worts were found that year. Both have been represented on occasion previously by odd plants found by myself though I could not find either during 1953. With regard to the reported absence of Forget-me-not I can only surmise that one portion of the wood was worked insufficiently because the species was relatively abundant in the S.E. portion in previous years and occurred plentifully in 1954. Another notable omission was that of a single plant of Stinking Hellebore or Setter-wort (*Helleborus foetidus*) which was flourishing among

trailing ivy near the S.W. corner. Although this species is plentiful in the neighbouring Whites Wood and adjacent hedgerows I felt that this specimen must have been introduced artificially but I am assured by Mr D. W. Elliott that as far as he knows this is not the case. Seeing that plants occur in many hedgerows on the farm I wonder if they can have been propagated through the agency of birds—yet I am not aware that these feed on any portion of the plant.

Birds—As Recorder I was not aware of the occurrence of the Redstart in this spinney although occasional migrants have been reported in past years on spring passage at the farm. Other species which have visited the wood during the past have been the Sparrow Hawk, Kestrel*, Common Partridge, Moorhen* (in brambles above a flooded ditch), Woodcock, Stock-Dove, Cuckoo, Greater Spotted Woodpecker*, Rook, Magpie*, Jay*, Coal-Tit, Tree Creeper*, Whitethroat* (an omission, it was heard singing on several occasions), Lesser Whitethroat, Goldcrest, Pied Wagtail, Greenfinch* (an omission, a party was seen feeding during the winter on hedgerows), Linnet, Brambling and House Sparrow. Those known to have nested are marked with an asterisk.

Mammals—The wood has been visited on several occasions in previous years by Foxes, judging by the scent they left behind.

Finally a few years ago a freshly cast skin of a Grass Snake was found near the hand gate at the 'farm' entrance to the spinney.

HENRY A. S. KEY

LATE LEAFING OF ASH TREES IN 1954

Considering that the Ash (*Fraxinus excelsior*) is a native tree, it is surprising how sensitive it is to cold weather in the spring, and how frequently its young shoots are damaged by late frosts. The cold spring of 1954, with air frosts persisting to the end of April, and even into May in some places, retarded the leaf-buds to such an extent that some trees in the north of the County were still completely leafless at the end of May.

The flowering of introduced species such as Laburnum and Horse Chestnut was also greatly delayed in some cases, and it must be unusual to observe them in flower in early June, about a month later than normally, simultaneously with a few premature wild roses.

A. W. GUPPY

PERSISTENCE OF TWO PLANT SPECIES AT BROMHAM

Abbot's *Flora Bedfordiensis* of 1798 records the Tansy (*Tanacetum vulgare*) for Bromham Grange Farm. This species is, of course, fairly frequent on the Greensand in mid-Bedfordshire, but only occasional in the north. For the past three years, the writer has found it at Bromham, and in 1954 it appeared in a gravelly field alongside the main Bedford-Northampton road barely 200 yards from Bromham Grange.

Another persistent Bromham species recorded by Abbot is the Soapwort (*Saponaria officinalis*). A patch of this comes up regularly every year along the main Bedford–Newport Pagnell road not far from Bromham 'Swan', and it is to be hoped that recent road works there have not disturbed it in the same way as the Vervain (*Verbena officinalis*). This used to occur with fair regularity on the roadside near the junction of the Northampton and Newport Pagnell roads (A.428 and A.422) at Thistley Green, but it has not been seen there since the erection of a row of houses fronting the road during the past 15 to 20 years.

A. W. GUPPY

GREY WAGTAILS NESTING IN BEDFORDSHIRE (see Frontispiece)

In the breeding season the haunt of the Grey Wagtail is usually mountain streams where the water tumbles over the rocks and the birds build their nests in crevices above the torrent. Occasionally however a pair will choose a rather artificial site by a lowland waterway, such as a canal bank or the waterfall at an outlet from a lake.

This being the case I wish to place on record two instances of Grey Wagtails nesting in Bedfordshire, one as far back as 1920 and the other during 1954.

In the former year G. T. Atchison, A. Dean and myself found a completed nest in a timber sluice gate on the Ouse at Willington Locks, with the birds in

attendance. The nest was tucked in the angle where a diagonal strut joined the horizontal beam, safe above the water when the gate was wound up. It was as yet empty. 'Atchie' was keen to photograph the nest when the eggs had been laid, so we returned after an interval of a week or so only to find that the gate had been lowered under the water and no signs of the birds.

The second instance occurred in 1954. About the middle of June while at Holme Mills, Biggleswade, I observed a hen bird flying round the mill pool feeding on insects but did not see a male. However, feeling that there might be a pair of these birds because of the season of the year, I asked Mr S. Reay, the mill manager, to keep a look out and inform me if he saw anything interesting develop. On the 25th a message came that a pair of birds had been seen and that they seemed attached to the vicinity of the outflow. The following day a party, consisting of our Hon. Secretary and his wife, D. W. Elliott, F. C. Gribble and myself, visited the mill where Mr Reay met us with the good news that he had found the nest. It was built among vegetation growing from cracks in the brick wall which flanked the west bank of the mill-pool. Through binoculars it was obvious that the nest was almost completed and, after watching both birds carrying lining material several times, we left so as not to disturb them.

During the next fortnight the eggs must have been laid, but from the mill bridge it was impossible to see into the nest. However both birds were seen in turn sitting on it and the change-over was witnessed more than once. The cock would call to the hen from the parapet of the bridge wall and, when she had slipped off down stream, he would fly over to take his turn with incubation.

Unfortunately nothing came of these efforts. Whether or not the young hatched is not known. Neither bird was seen to carry food to the nest. Suddenly both birds were no longer seen. The nest on subsequent inspection was found to be undisturbed but empty. Human interference was highly improbable. Rats are believed to have been the cause because one had been seen on the ledge where the crest of the wall abutted on to a timber office building.

Mr Reay left the mill about this time but the owners, Mr and Mrs Jordan, who were intensely interested, kept a look out for the birds. When the party re-visited the mill in July it was reported that both birds had re-appeared although they did not appear to be interested in any site. There were suggestions that a party of birds had been seen on the lawn on the south side of the mill. This might have been a pair feeding fully fledged young.

It is hoped that the birds will return another season and nest successfully.

ALAN D. PENTLAND

Instances of the nesting of Grey Wagtails in the county are most irregular. The late Jannion Steele Elliott in his *Vertebrate Fauna of Bedfordshire* (1897–1901) reported on the authority of A. H. Hoar that the species nested in the canal bank near Leighton Buzzard and on the evidence of C. F. Woods that nests had been found occasionally at sites by the ponds in Woburn Park. Other correspondents reported to him that they had never known the species to nest in the county. As far as I have been able to ascertain Elliott at that time had no personal knowledge of a nest within the county boundary. The catalogue of his egg collection which is now in the Bedford Modern School museum and contains clutches of almost all species known to have nested in Bedfordshire has one page headed with the name of the species but no notes are inscribed thereon.

When G. T. Atchison died his diary was deposited in the library of Bedford School. For a time it appears to have been mislaid and on coming to light revealed interesting data on the breeding of Grey Wagtails. On 20th May 1920 the diarist saw two fully fledged young just below the saw mill on the river Ivel at Tempsford and the nest containing an addled egg was found in the mill buildings. The nest mentioned by A. D. Pentland in the above *Notes* was discovered on 5th June 1920. On the following day a pair of birds was also seen at the next lock downstream—Old Mills—between Willington and Gt. Barford, by J. S. Elliott, N. G. Mumford and A. Dean. On 8th April 1921, S. C. Sinclair found a nest with five newly laid eggs at Willington Lock, but no other particulars are given.

About 1940 a pair of Grey Wagtails are stated to have bred in the wall of the mill sluice at Castle Mills, Goldington. I am indebted to J. A. D'E. Miller for this information. A pair was present during the summer of 1950 at Kempston Mill where a search of the buildings and environs yielded nothing. During the spring of the same year and again during the autumn a bird was seen near Holme Mills, the locality reported above.—RECORDER.]

ABSTRACTS OF LITERATURE ON BEDFORDSHIRE NATURAL HISTORY FOR 1954

BRITISH BIRDS. Vol. 47 (1954).

(a) 'Moorhen taking Fish', by F. C. Gribble and E. G. Eeles, No. 3, p. 84. Feeding habits of a Moorhen at Crawley Mill, Woburn.

(b) 'Little Ringed Plover', by E. R. Parrinder, No. 6, p. 202. Details of occurrences in the County.

(c) 'Report on Bird-Ringing for 1952', No. 11, pp. 391–2. (i) Starling ringed in Bedford by Bedford School Natural History Society on 29.10.5 recovered at Landsmeer, The Netherlands, on 30.5.53. (ii) Greenfinch ringed at Wellesbourne, Warwickshire, on 3.2.53 recovered at Flitwick on 2.5.53.

BEDFORDSHIRE MAGAZINE. Vol. 4.

(a) 'The Wild Flowers of Bedfordshire', by Clifford Culshaw, No. 27 (Winter 1953–54), pp. 115–18. A review of the new *Flora of Bedfordshire* by F. G. Dony.

(b) 'Birds in a Town Garden,' by Douglas McLay, No. 29 (Summer 1954), p. 210. Describes birds seen in a Bedford garden.

ENTOMOLOGISTS' RECORD. Vol. 65 (1953).

'*Culicoides* in Bedfordshire', by B. R. Laurence, p. 60. Records three species from Woburn, two of which have only recently been described.

PROCEEDINGS OF THE ZOOLOGICAL SOCIETY OF LONDON. Vol. 123 (1954).

'Some new and rare species of Acarina', by G. O. Evans, pp. 793–811.

ANNALS AND MAGAZINE OF NATURAL HISTORY. Vol. 5 (1953).

(a) 'Terrestrial Acari new to Britain', by G. O. Evans, pp. 33–41 and 660–75.

(b) 'British Mites of the genus *Brachychthonius* Berl. 1910', by G. O. Evans, pp. 227–39.

These last three papers record several species of mites from Ampthill and Woburn, including a new species named by Evans as *Lorryia bedfordiensis*.

THE LIBRARY

All books and contemporary literature have been checked. No books are missing and the whereabouts of some strayed pamphlets have been traced. It is essential that borrowers should sign out for all literature. Pencil and signing-out chart are on the back of the library door.

It was arranged at a Council meeting and approved by the Annual General Meeting that in future all contributions to the library should be addressed to the Hon. Librarian so that no delay should occur in entering and classifying new acquisitions.

Additions to the library include the following gifts which are gratefully acknowledged: 10 reprints of papers dealing with the Sawflies of Bedfordshire from V. H. Chambers; a collection of books, periodicals and an herbarium consisting of three portfolios and a book of pressed seaweeds from H. F. Barnes on his departure from Bedford; and a book each from Miss A. L. Cooper and Mrs Lucas.

Space precludes the detailed enumeration of these presentations, but they are all catalogued.

Dr Barnes also handed in to the care of the Society Ray Palmer's collection of Bedfordshire and north Hertfordshire plant galls.

ELSIE PROCTOR, *Hon. Librarian*

BOOK REVIEWS

Parrots and Parrot-like Birds. By The Duke of Bedford. [Pp. 210, with 4 coloured plates and 16 figures.] (Wisconsin: All Pets Books Inc. and London: Bailey Bros & Swinfen Ltd. 1954. Price 48s.)

The Author is careful to explain that the book is not meant to be a complete monograph but an attempt to include the majority of those species that have been imported or kept in confinement. Nevertheless, as those omitted are species which from their delicacy are unlikely to survive in captivity, the book can be said very adequately to cover the requirements of all persons wishing to keep any of this interesting family of birds in this country.

The family is divided into eighteen well-defined groups, each dealt with by a separate chapter and the Author, with that quiet authority which comes from years of practical experience, carefully describes the characteristics of each, their good points and bad, and all those small differences of treatment or feeding that mean so much if success is to be obtained. The Author is not afraid of admitting mistakes but is justifiably proud of his successes. He recounts many of his own experiences as well as those of friends.

The chapter on Parrot Diseases is contributed by Dr David Coffin. It is a valuable addition to the book, clearly written in readily intelligible language. The remarks on Psittacosis should clear up much of the misunderstanding which exists on this disease.

The notes on Breeding are worth careful study, whilst the two chapters on Cages and Aviaries are of particular value. The Author criticises the conditions in which many birds are kept and those chapters might with advantage be read by all who keep birds in captivity and not only those who keep parrots.

The illustrations are excellent and the whole book most readable, although marred by errors in production. Spelling mistakes may be forgiven in cheap fiction but are inexcusable in a book of scientific character. The spelling of 'aviaries' throughout chapters 1 and 2 is inconsistent, whilst that of the heading of chapter 14 quite unforgivable.

F.G.R.S.

Badgers Year. By F. Howard Lancum, M.B.E., F.L.S. [Pp. 71, with 24 plates] (London: Crosby, Lockwood & Sons, Ltd. 1954. Price 6s. 6d. net.)

It is doubtful if any of our native mammals has been the subject of such sustained but unjust calumny as the badger. Campaigns of innuendo by the foxhunting community over many years have sought to blame the unfortunate animal for much of the destruction and damage done by the fox whilst the most fantastic crimes have been advanced to justify the barbarous practice of badger digging.

In the present little volume Mr Lancum, an experienced field naturalist, describes a year's work on badgers in a Devon wood. With a self-effacing modesty he tells of his patient vigils in a rough hide near their home, starting in early spring and carrying on steadily throughout the following summer, autumn and winter. Night after night in good weather and bad, in rain, snow and frost, the watch was kept and the results carefully recorded. We read of their courtship and family life, their food and their scrupulous cleanliness. There are some unique photographs and the tailpiece sketches should not be overlooked.

The Author admits that, from time to time, a badger will turn rogue but makes it clear that the great majority live blameless and indeed useful lives, and that many of the accusations levelled against them are without the slightest foundation.

It is a most interesting little book, a simple record of facts noted and it is to be hoped that it will encourage other field naturalists to undertake work of a similar character.

F.G.R.S.

Plants without Flowers. By Harold Bastin. [Pp. 146 with frontispiece in colour, 20 photogravure plates and 10 pages of line drawings.] (London: Hutchinson & Co. Ltd. 1955. Price 16s. net.)

In this book, that quickly follows on the heels of his popular introduction to entomology—*Freaks and Marvels of Insect Life*—Mr Bastin has made a successful attempt to fill a rather conspicuous gap in books on natural history by providing a simply written yet authoritative account of that section of the Vegetable Kingdom in which flowers, as such, are entirely absent.

After a necessarily speculative survey of the earliest forms of life, the author has a chapter on the slime-fungi or fungus-animals and bacteria. Successive chapters are then devoted to the algae, the lichens, the true fungi, mosses and liverworts, the ferns, fern allies, horsetails and the club-mosses. There are numerous excellent line drawings and photographs which greatly increase the value of the text and will be of great assistance to the field naturalist. This enthralling book is completed by a glossary, a bibliography and an index.

It would be invidious to single out any particular chapter for special mention as each is a model of clear writing, full of information and fascination. It is indeed surprising that comparatively few naturalists have hitherto been interested in the legion and almost infinite variety of plants without flowers—perhaps it has been the lack of such a book as this to whet the youthful appetite, literally and metaphorically—but now there is no excuse. A copy of this book, for which Mr Bastin deserves the thanks of all naturalists, should be in the library of all natural history societies and, one would go so far as to say, in all public libraries. But many individuals will prefer to have a copy of their own.

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