

The BEDFORDSHIRE NATURALIST

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1950

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BEDFORDSHIRE NATURAL HISTORY SOCIETY & FIELD CLUB

1951

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EDITED BY RAY PALMER, F.R.E.S., F.Z.S.

No. 5.—1950

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THE BEDFORDSHIRE NATURAL HISTORY SOCIETY AND FIELD CLUB

2

STATEMENT OF ACCOUNTS FOR THE YEAR ENDED 31st DECEMBER, 1950

RECEIPTS				PAYMENTS				
		£	s.	d.		£	s.	d.
To Cash in Hand, 1st January 1950	...	16	16	6	By Cost of Journal and postage thereon (1949 and 1950)	147	16	0
„ Cash in Bank, 1st January 1950	...	100	9	0	„ Printing and Stationery	36	9	9
„ Subscriptions, 1948 and 1949	...	8	10	0	„ Hire of Halls	11	1	9
„ Subscriptions, 1950	...	90	4	0	„ Hire of Coaches	43	7	6
„ Advertising	...	7	10	0	„ Taxi Hire			9 0
„ Collections at Meetings	...		2	0	„ Postages	6	2	7
„ James Fisher Lecture	...	4	5	4	„ Expenses re Gibraltar Point Excursion	2	10	0
„ Proceeds of Excursions	...	48	1	6	„ Expenses re Ornithological Conference	8	17	0
„ Ornithological Conference	...	12	15	0	„ Cheque Book and Bank Charges	1	11	0
„ Ornithological Section Fund	...	6	11	3	„ Wreath—late Master Oliver Palmer	1	13	0
„ Sale of Journals, etc.	...	5	18	7	„ Cash for Secretaries of Botanical and Ornithological Sections		2	0 0
					„ Cash in Bank, 31st December 1950	39	5	7
		£301	3	2		£301	3	2

STATEMENT OF ACCOUNTS FOR 1950

NOTE.—There was an account for coach hire owing at 31st December 1950 in an amount of £25 8s. 6d.

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

BEDFORD.
14th February 1951.

McPHERSON, TIMMINS & EDNIE,
Chartered Accountants, Honorary Auditors.

Report of the Hon. General Secretary for 1950

This Fifth Annual Report is presented with a feeling of sober satisfaction at another year of achievement. The steady influx of new members during the year was a most gratifying sign of progress and reviewing the membership of the Society at the close of the year, the following statistics prove interesting. The roll of paid-up members consisted of 136 Ordinary, 9 Corporate, 11 Student, 30 Associate and 11 Junior Members, making a total of 197. Two resignations since that date reduce the number to 195.

In addition to those who had paid their dues for 1950, there were others whose subscriptions were in arrears for one or more years, a matter of some concern for the Council, who trust that the members implicated will remedy this deficiency immediately. A total of 321 members have been receiving notices regularly. Since the Society was re-started in 1946 a total of 384 names have been registered, 65 of whom have now been lost by death, removal or resignation. The Council appeals to all members of the Society to encourage a regular infusion of new blood.

Practical interest in the Society's programmes was on the whole encouraging, though the attendance at a few indoor and field meetings left something to be desired. One prominent feature during the year was the keener discussion at lectures, proof positive of the widening sphere of interest. The core of members who are receiving practical benefit from their membership is extending rapidly.

The death of several members is announced with regret. The decease in January of Lt. Col. R. R. B. Orlebar, of Hinwick, our oldest member, ended a life of service in many fields, not the least of which was the championship of the preservation of rural amenities. His wide knowledge and correspondence on many subjects and his attendance at some of our early field meetings, undaunted by inclement weather, encouraged all who had the pleasure of knowing him. Others who passed from us were Miss M. Nisbet, Mrs. F. V. Browne and Miss M. Spence, formerly Principal of the Bedford Froebel Training College.

As in past years the indoor meetings were held both in Bedford and Luton and once again we were honoured with visits by notable outside speakers, including Dr. C. B. Williams, of Rothamsted, Mr. R. T. Rolfe, of Bedford, and Mr. E. G. Bilham, of the Meteorological Station, Dunstable. The remainder of the addresses were, as usual, given by our own members and these covered a variety of subjects.

A large audience at the Third Annual General Meeting in Bedford was entertained with a most authoritative address by the President of the Society, His Grace the Duke of Bedford, who spoke on the deer tribe. All the Officers of the Society were re-elected and ten nominations to the Council approved.

In November, the Second Bedfordshire Ornithological Conference was held in Bedford, when the neighbouring counties and the British Trust for Ornithology were well represented in more than a hundred delegates present. The stimulating addresses of Mr. R. A. Hinde, B.A., of Cambridge and Dr. R. G. Newton, of Welwyn, resulted in valuable discussion and colour films kindly loaned by Mr. C. W. Holt, of Leicester, set the seal on another memorable occasion.

During the course of the year two additional secretaries were appointed: Mr. L. A. Speed now fills the post of Hon. Programme Secretary while Dr. H. F. Barnes, in his capacity as Membership-Secretary, will deal with all matters affecting membership.

The Council further records its gratitude to Dr. Barnes for storing and distributing the Journal, the last issue of which was unfortunately late in printing for a number of reasons. Attention of members is once again drawn to the fact that Dr. J. G. Dony will be pleased to receive additions to the newly-formed library.

The Council has done a great deal of work during the year, giving special attention to the question of Nature Reserves, feeling the urgency for early action in this field.

Various parts of the county were visited on Field Meetings and the President acted as host to a large gathering when members visited the park at Woburn. Coach trips were also made to Gibraltar Point Bird-Ringing Station in Lincolnshire, calling at Borough Fen Decoy en route; to Salcey Forest, Northants; to various marshes in Suffolk and to Tring reservoirs. The weather throughout the summer could have been kinder and a few excursions were marred by showery weather. Despite this a great deal of interest was shown in the outings.

The Ornithological Section carried out useful work with its surveys of the bird life of the county waterways and the Botanical Section held a number of walks. The outstanding outdoor meeting was undoubtedly the Fungus Foray at Rowney Warren in October, led by Dr. R. G. Dennis, of Kew, when more than one hundred species of fungi were collected, one of which was an addition to the British list. These forays will now be an annual institution.

During the summer, Mr. D. W. Elliott, of Stagsden, generously opened his new Natural History Museum to members and wishes it to be known that all who are interested are cordially invited to study the specimens. Similar invitations have been expressed from time to time by Mr. C. E. Freeman, Curator of the Luton Public Museum and by Mr. F. W. Kuhlicke, Hon. Curator of the Bedford Modern School Museum, and members should avail themselves of these excellent opportunities.

Once again the Society wishes to express its indebtedness and gratitude to all who have assisted in various ways to realise the continued expansion of its activities, accomplishments and status, and the thanks of the Council are extended to all members for their support and forbearance.

PROCEEDINGS 1950

Indoor Meetings

31ST ORDINARY MEETING, 5th January 1950, Luton. "The Geology of Bedfordshire", by G. D. Nicholls, B.A. Attendance 54. *Chairman*: Mr. J. A. C. Cleaver, M.Sc.

32ND ORDINARY MEETING, 26th January, 1950, Bedford. "The Changing Seasons", by Dr. C. B. Williams. Attendance 32. *Chairman*: Dr. H. F. Barnes.

3RD. ANNUAL GENERAL MEETING, 2nd March 1950, Bedford. The Chair was taken by Mr. Keith Piercy, Chairman of the Society, supported by the President, His Grace the Duke of Bedford. About 56 members attended.

After a few opening remarks, the Chairman called on the Hon. Secretary to read his Annual Report for 1949 (which was printed in last year's Journal). This reported a steady increase in membership, the formation of a Botanical Section under the secretaryship of Mr. A. W. Guppy, the continued activity of the Ornithological Section under the secretaryship of Mr. F. C. Gribble, and the holding of the first and very successful Bedfordshire Ornithological Conference on 20th March 1949.

The Hon. Treasurer then presented his financial statement, showing a balance in hand of £117 5s. 6d. at 31st December, but pointed out that accounts for printing the Journal and for coach hire were still outstanding, so that the real balance was only £22 14s. 6d. It was considered that printing costs should be carefully watched and the question of holding coach trips must receive attention of the Council. Mr. Bonnett was thanked for his valuable services and the report was adopted.

The election of officers followed. The Chairman announced that His Grace the Duke of Bedford had signified his willingness to continue as President, and this was received with acclamation by the members. The other retiring officers were re-elected without a division. Ten nominations had been received to fill seats on the Council, and the members were elected on a show of hands. The officers of the Society were then announced to be as follows:—*President*: His Grace the Duke of Bedford; *Chairman*: Mr. Keith Piercy; *Hon. Secretary*: Mr. H. A. S. Key; *Hon. Treasurer*: Mr. W. H. Bonnett; *Hon. Editor*: Mr. Ray Palmer; *Council*: Dr. H. F. Barnes, Dr. J. G. Dony, Brig. C. C. Foss, Mr. W. P. Gatward, Mr. F. C. Gribble, Mr. A. W. Guppy, Miss E. Proctor, Mr. F. G. R. Soper, Mr. B. B. West, and Mr. K. E. West.

At the close of the business meeting the Duke of Bedford delivered a presidential address on the subject of "Deer in Britain" (the substance of which was printed in last year's Journal). Questions and discussion followed, and Mr. F. G. R. Soper expressed the Society's thanks to His Grace for a most interesting and ably delivered address and for his valued support of the Society's activities.

33RD ORDINARY MEETING, 16th March 1950, Bedford. "The Cuckoo", by Mr. E. T. Lees (of Huntingdon). Attendance 30. *Chairman*: Mr. H. A. S. Key.

34TH ORDINARY MEETING, 30th March 1950, Luton. "The Birds of Iceland", by James Fisher, M.A. Attendance about 100. *Chairman*: Mrs. E. Evans, B.Sc.

35TH ORDINARY MEETING, 26th October 1950, Bedford. "Toadstools", by Mr. R. T. Rolfe. Attendance 30. *Chairman*: Mr. F. G. R. Soper.

36TH ORDINARY MEETING, 23rd November 1950, Luton. "The Weather and its Effects on Nature", by Mr. E. G. Bilham, B.Sc. Attendance 24. *Chairman*: Mr. F. G. R. Soper.

27TH ORDINARY MEETING, 14th December 1950, Bedford. "More about Birds", by Dr. G. A. Metcalfe. Attendance 50. *Chairman*: Mr. F. G. R. Soper.

Field Meetings

SATURDAY, 15TH APRIL 1950, FLITWICK MOOR. *Leader*: Mr. Ray Palmer. About seventeen members enjoyed the first ramble of the season, in spite of a cold wind with drizzle and occasional heavy showers. There were several bright intervals during which a total of thirty-one species of birds was observed. These included several Swallows near the River Flitt, many Chiff-chaffs and Willow Warblers, Tree-creepers, Long-tailed Tits, Green Woodpecker, Kestrel and Heron. The site of an extensive fire a week earlier near the Greenfield Road was noted.

SUNDAY, 23RD APRIL 1950, BOROUGH FEN DECOY AND GIBRALTAR POINT. *Leader*: Mr. H. A. S. Key. A party of forty members made a coach trip to Gibraltar Point bird ringing station, Lincolnshire, calling en route at Borough Fen Decoy, near Peterborough. At Borough Fen the party were shown round by Mr. Williams, whose family had worked the decoy for 300 years. At Gibraltar Point the party inspected the traps and records of the ringing station and some bird watching was attempted on the flats. Owing to adverse weather, however, few birds of interest were seen.

SATURDAY, 29TH APRIL 1950, STAGSDEN, for "Dawn Chorus". (Owing to unfavourable weather conditions this meeting was cancelled.)

SUNDAY, 7TH MAY 1950, DEAN AND SWINESHEAD WOODS. *Leader*: Mrs. E. L. Wade. In excellent weather eight members had a very enjoyable ramble, though nothing of outstanding interest was observed.

SATURDAY, 20TH MAY 1950, WREST PARK, SILSOE. *Leader*: Dr. J. G. Dony. A pleasant and successful meeting attended by twelve members, and the interest was mainly botanical. Mr. J. S. Dunn was able to get access to parts of the park not open to the public, and a visit was made to the adjoining woods.

SUNDAY, 11TH JUNE 1950, STEVINGTON DISTRICT. *Leader*: Mr. F. G. R. Soper. In fine but sultry weather, thirteen members had a pleasant river-side ramble from Stevington church to Woodcraft Wood, though nothing of outstanding interest was observed.

SATURDAY, 17TH JUNE 1950, BURDELYS MANOR FARM, STAGSDEN. *Leader*: Mr. B. B. West. This was intended to be an entomological "sugaring" expedition, and about twenty people met at Mr. Elliott's farm at 9 p.m. It was a clear warm night, but a wind got up after a time, and moths were rather scarce. The date was probably too early in the season.

SUNDAY, 25TH JUNE 1950, SALCEY FOREST, NORTHANTS. *Leader*: Mr. K. E. West. A very satisfactory expedition enjoyed by fifteen members, in warm and sunny weather. Botanists were interested in the characteristic oak-wood flora, including the Bird's Nest Orchis. The outstanding entomological find was a male pupa of the Purple Emperor butterfly, and numerous specimens of the Black Hairstreak were seen.

SATURDAY, 29TH JULY 1950, SUNDON RUBBISH DUMP. *Leader*: Dr. J. G. Dony. This interesting site was visited by six members in the late afternoon

and evening. It was considered, however, that it was too early in the year to see the interesting plant and bird life that may be found there. A visit should be made in September.

Saturday, 19th August 1950, WOBURN PARK. *Leader:* His Grace the Duke of Bedford. This popular excursion was attended by over forty members. Mr. Mitchell, the head forester of the Estate, showed the party round the unique collection of trees in the Pinetum and other plantations, while His Grace recounted the history of the "Abbots Oak", and conducted the party on an inspection of the Pere David's Deer and other species of mammals and birds.

SUNDAY, 10TH SEPTEMBER 1950, SUFFOLK MARSHES. *Leader:* Mr. H. A. S. Key. In ideal weather a party of thirty-two enjoyed a coach trip to the Suffolk coast at Walberswick, where the foreshore and marshes were inspected. Among the birds observed were Arctic Skua, Marsh Harrier, Bittern and Bearded Tit, as well as various Gulls and Waders. Later the party went on to Aldeburgh and Orford in an attempt to glimpse Avocets, but owing to the lateness of the season were unsuccessful.

SUNDAY, 24TH SEPTEMBER 1950, TRING MUSEUM AND RESERVOIRS. *Leader:* Mr. F. G. R. Soper. The weather was wet and windy, and so the party of eighteen members first visited Tring Museum. Later all the four reservoirs were visited, but the rough weather made observation difficult. Numerous Heron, Ducks, Coots and Great Crested Grebes were seen, also three Cormorants at Wilstone.

SUNDAY, 15TH OCTOBER 1950, ROWNEY WARREN (Fungus Foray). *Leader:* Dr. R. W. G. Dennis. Attendance thirty-eight. A very successful meeting, and the number of species recorded was greatly in excess of that in previous years, and included one new to Britain. (A full account appears elsewhere.)

SUNDAY, 5TH NOVEMBER 1950, BARTON HILLS. *Leader:* Mr. F. C. Gribble. In fine sunny weather a party of twenty-five members enjoyed a ramble over the hills. Numerous birds were observed, mainly Finches and Tits, and including one Brambling.

SUNDAY, 31ST December 1950, DUNSTABLE DOWNS. *Leader:* Mr. H. B. Sargent. A small party of three hardy members had a walk over Blows Downs and Dunstable Downs, with the ground frozen hard and covered with several inches of snow and occasional sleet. In spite of these adverse conditions, a few birds were seen, including Greenfinches, Chaffinches, Yellow Buntings, Long-tailed Tits, Meadow Pipits and a Carrion Crow.

Botanical Section

Two indoor meetings were held in 1950, both in the Nature Room, 4 The Avenue, Bedford. The first was held on Monday, 30th January, at which a discussion took place on possible excursions for the coming season. A specimen of *Prunus domestica*, gathered at Haynes on the previous day, and in full flower, was shown by the Secretary. At the second, held on Monday, 20th March, the Botanical Secretary gave a description of the main species of British violets. Several specimens were brought along by the members and identified.

Five excursions were held during the year.

On 16th April a party of eight members went to Keysoe to visit the station at which *Helleborus viridis* is well established. Afterwards, they went on to Colesden and Colmworth Wood. A new station for the Stinking Hellebore, *H. foetidus*, was seen, and many violet forms were examined and identified.

On 11th May six members spent an enjoyable evening around Hanger Wood, Stagsden. Further interesting violet forms were observed.

On 1st June a party met Dr. Dony at Rowney Warren and were led to see the true dog-violet, *V. canina*; several interesting species of *Trifolium* were found.

An excursion to Woodend Lane, Roxton, was arranged for 17th June, but the leader, Miss Day, was prevented by a breakdown on the road from reaching the appointed rendezvous.

On 29th June, two members only walked from Odell to Sharnbrook via Yelnow Lane and Colworth. There was plenty of botanical material, but nothing of outstanding interest was found.

A. W. GUPPY

1950 Fungus Foray

The Fungus Foray this year was held on Sunday, 21st October, at Rowney Warren when we were fortunate to have as our leader again Dr. R. W. G. Dennis, of Kew.

It was the most successful foray that has been held so far, and about forty members were present. Although the day was dry and sunny it had been preceded by much wet weather which had encouraged the growth of fungi and altogether 105 different species were identified. This list includes one species not previously recorded in Britain, *Naucoria jennyae*.

Our thanks are due to Dr. Dennis for the very helpful and patient way in which he identified all these specimens.

Dr. Dennis visited the wood again on the following Thursday, 19th October when several additional species were found.

ROWNEY WARREN, 15TH OCTOBER 1950

Acia uda (Fr.) Bourd. and Galz.; *Amanita citrina* (Schaeff.) Roques; *Amanita muscaria* (L.) Fr.; *Amanita rubescens* (Pers.) Fr.; *Auricularia auricula-judae* (L.) Schaeff.; *Boletus badius* Fr.; *Boletus luteus* (L.) Fr.; *Boletus scaber* (Bull.) Fr.; *Boletus subtomentosus* (L.) Fr.; *Calocera viscosa* (Pers.) Fr.; *Clavaria cinerea* (Bull.) Fr.; *Clavaria flaccida* Fr.; *Clavaria inaequalis* Fr.; *Clitocybe aurantiaca* (Wulf.) Stude; *Clitocybe cerussata* Fr.; *Clitocybe clavipes* (Pers.) Fr.; *Clitocybe flaccida* (Sow.) Fr.; *Clitocybe geotropa* (Bull.) Fr.; *Clitocybe infundibuliformis* (Schaeff.) Fr.; *Clitocybe nebularis* (Batsch.) Fr.; *Clitocybe vibecina* Fr.; *Collybia butyracea* (Bull.) Fr.; *Collybia confluens* (Pers.) Fr.; *Collybia fusipes* (Bull.) B.; *Collybia maculata* (A. and S.) Fr.; *Cortinarius semisanguineus* (Brig.) Maire.; *Daedalea quercina* (L.) Fr.; *Eccilia undata* (Fr.) Quel.; *Entoloma porphyrophaeum* Fr.; *Entoloma sericeum* (Bull.) Fr.; *Fistulina hepatica* (Hus.) Fr.; *Flammula sapinea* Fr.; *Galera hypnorum* (Schrank) Fr.; *Geoglossum elongatum* Starb.; *Gomphidium viscidus* (L.) Fr.; *Hebeloma crustuliniforme* (Bull.) Fr.; *Humaria humosa* (Fr.) Quel.; *Hygrophorus coccineus* (Schaeff.) Fr.; *Hygrophorus minimatus* Fr.; *Hygrophorus niveus* (Scop.) Fr.; *Hygrophorus pratensis* (Pers.) Fr.; *Hypholoma fasciculare* (Hus.) Fr.; *Inocybe lanuginosa* Fr.; *Inocybe petiginosa* Fr. forma *rufo-alba* (Pat. and Doass.) Heim.; *Laccaria laccata* (Scop.) B. and Br.; *Laccaria proxima* Boud.; *Lactarius blennius* Fr.; *Lactarius deliciosus* (L.) Fr.; *Lactarius mitissimus* Fr.; *Lactarius plumbeus* Fr.; *Lactarius rufus* (Scop.) Fr.; *Lactarius subdulcis* (Pers.) Fr.; *Lactarius vietus* Fr.; *Lepiota amianthina* (Scop.) Fr.; *Lepiota rhacodes* (Vitt.) Fr.; *Lycoperdon perlatum* Pers.; *Marasmius conigenus* (Pers.) Karst.; *Marasmius undatus* (Brk.) Quel.; *Marasmius peronatus* (Bolt.) Fr.; *Merulius himantioides* Fr.; *Mycena alcalina* Fr.; *Mycena epipterygia* (Scop.) Fr.; *Mycena galericulata* (Scop.) Fr.; *Mycena metata* Fr.; *Mycena pura* (Pers.) Fr.; *Naucoria jennyae* Karst.; *Naucoria sideroides* (Fr.) Quel.; *Nolanea mammosa* Fr.; *Omphalia gracillima* Fr.; *Omphalia griseo-pallida* (Dsm.) Fr.; *Omphalia viridis* (Fl. Dan.) Lange.; *Panaeolus campanulatus* (L.) Fr.; *Paxillus atromentosus* (Batsch.) Fr.; *Paxillus involutus* (Batsch.) Fr.; *Phallus impudicus* (L.) Pers.; *Pluteus cervinus* (Schaeff.) Fr.; *Polyporus betulinus* (Bull.) Fr.; *Polyporus hispidus* (Bull.) Fr. (growing on Ash); *Polyporus kymatodes* Rost.; *Polyporus perennis* (L.) Fr.; *Polystictus abietinus* (Dicks.) Fr.; *Polystictus versicolor* (L.) Fr.; *Psalliota sylvatica* (Schaeff.) Fr.; *Psalliota sylvicola* (Vitt.) Fr.; *Psathyra conopilea* Fr.; *Psilocybe atrorufa* (Schaeff.) Fr.; *Psilocybe semilanceata* Fr.; *Ptychogaster albus* Corda; *Russula brunneo-violacea* Crawshay; *Russula cyanoxantha* (Schaeff.) Fr.; *Russula fellea* Fr.; *Russula fragilis* (Pers.) Fr.; *Russula ochroleuca* (Pers.) Fr.; *Scleroderma aurantium* Pers.; *Scleroderma verrucosum* (Vaill.) Pers.; *Scoliotrichum clavarium* on *Clavaria cinerea*; *Stereum hirsutum* (Willd.) Fr.; *Thelephora terrestris* (Ehrh.) Fr.; *Formentella mucidula* Karst.; *Tricholoma fulvum* (DC.) Fr.; *Tricholoma nudum* (Bull.) Fr.; *Tricholoma sordidum* (Schum) Fr.; *Tubaria inquilina* (Fr.) W.G.Sm.; *Xylaria hypoxylon* (L. ex Fr.) Grev.

SMUT. *Ustilago violacea* (Pers.) Rorus. on White Campion.

ADDITIONAL SPECIES FOUND AT ROWNEY WARREN
19TH OCTOBER 1950

Boletus elegans (Schum.) Fr.; *Clavaria luteo-alba* Rea.; *Cortinarius* (*Dermocybe*) *cinnamomeus* (L.) Fr.; *Galera clavata* Vel.; *Galera mycenopsis* Fr.; *Hydnum auriscalpium* (L.) Fr.; *Hygrophorus conicus* (Scop.) Fr.; *Hygrophorus hypothejus* Fr.; *Hygrophorus psittacinus* (Schaeff.) Fr.; *Inocybe deglubens* Fr.; *Inocybe umboninata* Peck.; *Lactarius glycosmus* Fr.; *Lactarius hepaticus* Plowr.; *Lepiota cristata* (A. and S.) Fr.; *Mycena galopus* (Pers.) Fr.; *Mycena galopus* var. *nigra* Fl. Don.; *Mycena lineata* (Bull.) Fr.; *Mycena sanguinolenta* (A. and S.) Fr.; *Nolanea cetrata* (Fr.) Schroet.; *Nolanea staurospora* B. and S.; *Omphalia fibula* (Bull.) Fr.; *Russula alutacea* (Pers.) Fr.; *Russula sororia* Fr.; *Russula venosa* Vel.; *Russula venosa* var. *pallida* Large.; *Stropharia aeruginosa* (Curt.) Fr.; *Trametes rubescens* (A. and S.) Fr. on *Betula*; *Tricholoma psammopus* (Kalchbr.) Fr.

PAMELA SOPER

Ornithological Section

The first meeting of the year was held in Luton during January when the subject under discussion was "The Structure of Birds" and this was followed later in the month with a talk on "Titmice" in Bedford. Both of these subjects aroused great interest and it was particularly satisfying to note that more general discussion took place rather than formal talks. The final winter meeting took place in Bedford in February when a talk on "Eggs of British Birds" was given by the Recorder. This was excellently illustrated with coloured slides and specimens.

No further meetings of the section were held as the main programme included a Lecture by James Fisher, M.A., on "Birds of Iceland", in Luton, and one by Mr. E. T. Lees on "The Cuckoo", in Bedford, during March.

Support for the Bedford meetings was again good and although the numbers at Luton were small a lively interest was shown by the members present.

During the next few months the Section's activities were directed to Field Work, mainly in the form of two Surveys, one of the Birds of the Waterways of the county and the other of the Birds of the Chalk Hills. A number of field meetings were held in conjunction with this work and though attendance at these meetings was still very small the results were not without interest.

At the first meeting at Dagnall an interesting nesting record was discovered, that of Jackdaws nesting in rabbit holes in a hill side. This is the first occurrence of this behaviour in the county and was probably due to the shortage of other suitable nesting sites in the vicinity brought about by a large increase in the numbers of this species.

In conjunction with the Waterways Survey a watch was kept for Terns and Waders on 14th May and this happened to coincide with the height of the passage, further details of which are given in the Bird Report.

In addition meetings were also held at Swineshead, Toddington and Clophill, whilst the "Dawn Chorus" and two further river walks were cancelled due to storms. A great deal of valuable work was accomplished, the greater part of the Ouse valley and several areas in the south being covered.

The winter programme opened with a field meeting in October at Barton when over forty members enjoyed a ramble over the hills in excellent weather. This was followed in November by a highly successful Second Ornithological Conference. At the next meeting held in Bedford during December another group of birds, "The Gulls", was the subject of a discussion and attendance was again good in spite of adverse weather. The activities of the year were brought to a close with a ramble in the snow over Blows Down, Dunstable, on the last day of the year.

At the December meeting, the Committee of the Section was re-elected and it was felt by members present that the Bedford School Natural History Society should be represented in recognition of their co-operation in the past, especially in the field.

At the end of the year it was felt that the activities of the indoor meetings had been successfully continued and were much appreciated. The field work had shown much better results than the previous year but it is to be hoped that more support will be forthcoming for this, the section's most important work in the year ahead.

F. C. GRIBBLE

THE SECOND BEDFORDSHIRE ORNITHOLOGICAL CONFERENCE

SATURDAY, 18TH NOVEMBER 1950

As in the case of the inaugural conference of the previous year this gathering of Ornithologists from a wide area met in the County Headquarters of the St. John Ambulance Brigade, Cauldwell Street, Bedford. More than 120 delegates represented Societies in the neighbouring Counties of Cambs., Herts., Hunts. and Northants. with a strong representation from our own Society. The British Trust for Ornithology had many members among the audience and the Trust's representative for Bedfordshire, Mr. Keith Piercy, B.Sc., took the Chair, supported by the organising Secretary, Mr. Henry A. S. Key, and the two speakers, Mr. R. A. Hinde, B.A., of the Zoological Laboratories, Cambridge, and Dr. R. G. Newton, of Welwyn.

In opening the Meeting at 2 p.m. the Chairman welcomed the visitors on behalf of the Trust and the Bedfordshire Society and then called on the Secretary who gave a brief account of the previous conference in addition to several announcements.

Mr. Hinde was the first to address the meeting, taking as his subject "Roosting and Awakening" and holding his audience with a very able delivery.

In his first remarks he explained that there was a marked daily rhythm in a bird's life in which sleep played a very great part. This could be seen from experiments carried out in Finland where birds were kept in natural conditions in captivity when they roosted and awoke at the same time as wild birds. They were then subjected to conditions of almost absolute light and still roosted and awakened at the same time, but after a few days roosted later and woke earlier.

He then went on to deal with his own investigations on this subject. The roosting habit of several woodland species had been studied and it was found that Tits used the same holes each night but Great Spotted Woodpeckers varied their positions often nightly. The times of entering and leaving the roost were recorded and it was found in the case of the Great Tit that the time of leaving with reference to sunrise was almost constant.

During the winter the time of entering the roost was later. This was because birds being warm blooded animals the smaller ones lost a great deal of body heat during the night. For this reason they were forced to commence feeding earlier and finish later to find enough food to last through the night. The question might be asked why they did not normally feed into the twilight but this was because predators such as hawks and owls were abroad at this time and the amount of food obtained was not worth the risk. In winter with less food available, a shorter period of daylight and lower temperature to contend with, twilight foraging was the smaller of two evils, for death by exposure was more sure than death by predators. Even a slight difference in the size of the bird made a difference in this respect for Blue Tits roosted later and woke earlier than Great Tits.

In the breeding season both birds roost in their territory but rarely together, the male bird being the later to roost often after vain attempts to entice the female to accompany him. In the morning he awakes earlier to visit the nesting hole where he displays, sings and mates with the female as she leaves. As the incubation period lengthens the female bird spends longer periods at the nest, foraging taking place only at short intervals, by now though food was more readily obtainable.

Mr. Hinde illustrated his remarks with several graphs showing the almost constant relation between the time of roosting and awakening of several species and the time of sunset and sunrise. There was prolonged applause as the speaker concluded and stimulating discussion followed.

The second address was given by Dr. Newton on "Rook Roosts". He remarked that a great amount of attention had been given to the subject by many field-workers but that there was still much to be learned. After describing briefly the habits of the Rook in spring he dwelt in great detail on the gathering of the birds into communal roosts in winter. Although many of these were large and some ancient, little was known of numbers of birds in individual roosts or the area from which the birds came. It was apparent however from the investigations already made that rookeries further from the roost were smaller than those nearer to it. From November until March in some roosts there is a considerable increase in numbers probably due to the influx of continental birds and it would be interesting to see to what extent these migrants spread over the country and whether they were confined to one portion only. With regard to the method of leaving the roost in the morning a clearer idea had been obtained from investigations. This was usually heralded by an outburst of cawing followed by the birds splitting up into individual flocks and dispersing to their rookery or feeding grounds.

At this point the President of Bedford School Natural History Society was invited to speak from the platform on the work being done by the School to determine certain roosts in the north of the county. In the discussion which ensued keen interest was shown by the audience and some interesting points were raised resulting in Dr. Newton offering to correspond with the various parties interested in the subject and to co-ordinate their activities throughout the area.

Finally a brief talk was given by Mr. Hinde on "Migration Routes" through England with some details of the modern theories on this phenomenon.

In closing the proceedings Mr. Piercy thanked both the speakers and the audience for producing another memorable occasion and said that these conferences were now to become an annual institution. Tea was then served by ladies of the host Society and to conclude the programme Dr. G. A. Metcalfe showed colour films kindly loaned for the occasion by Mr. C. W. Holt, M.B.O.U., Chairman of the Leicestershire and Rutland Ornithological Society.

Sales of Trust Literature realised the sum of five pounds which was gratefully acknowledged from Oxford.

Annual General Meeting 1951

The FOURTH ANNUAL GENERAL MEETING was held on 22nd February 1951, in the Nature Room of the Froebel Training College, Bedford, when there was an attendance of fifty-six members.

The Chairman of the Society, Mr. Keith Piercy, presided. After the reading of the minutes of the previous Annual Meeting, Mr. H. A. S. Key gave his Hon. Secretary's Report for 1950 (which is printed on p. 3 of this Journal). This showed very satisfactory progress, and was adopted unanimously.

The Hon. Treasurer, Mr. W. H. Bonnett, then presented his financial statement, showing a balance in hand of £39 5s. 7d., though an account of £25 8s. 6d. for coach hire was still outstanding. In commenting on the report, Dr. H. F. Barnes (the newly appointed Membership Secretary) appealed for more prompt payment of subscriptions, and also pointed out the advantages of new members purchasing back numbers of the Journal, of which there were ample stocks. The Hon. Treasurer's report was duly adopted.

A report of the work on the Ornithological Section was given by Mr. F. C. Gribble, and a report on the Botanical Section was given by Mr. A. W. Guppy. Both these reports were duly adopted, and are printed in this Journal. Dr. J. G. Dony then made a brief report on the nucleus of the library, which is housed at Luton Museum, and at present consists entirely of the reports of kindred societies.

The election of officers followed, and the Chairman announced that the council had nominated the retiring officers for reappointment and no other nominations had been received. His Grace the Duke of Bedford had been pleased to accept the invitation to continue as President. On a show of hands these nominations were confirmed. The Chairman then read out the nominations for the Council, and these were likewise elected, the names being as

follows:—Miss E. Proctor, Dr. H. F. Barnes, Dr. J. G. Dony and Messrs. J. S. Dunn, F. C. Gribble, A. W. Guppy, B. R. Laurence, F. G. R. Soper, B. B. West and K. E. West.

Dr. J. G. Dony then reported on the work of the Nature Reserves Committee, which had recently completed the work of scheduling and classifying the areas in the county which it was desirable to preserve in their natural state. The list of these localities, with reasons for preserving them, and the appropriate maps, were being submitted to the County Planning Officer and the Nature Conservancy. The Chairman thanked Dr. Dony and his colleagues for their most valuable work.

The question of overdue subscriptions was raised by Mr. W. Durant, supported by Mr. L. W. Stubbs, who considered that a reminder should be sent to all members at the commencement of the year. Dr. Barnes said that, in conjunction with the Treasurer, he would look into the matter. The possibility of life membership was brought up by Miss Hanley, and it was agreed that the Council would consider this.

After a few secretarial announcements, the meeting concluded with a show of films.

The Weather of 1950

By A. W. GUPPY

Coming as it did after the warm, sunny weather of 1949, which persisted until mid-October, the year 1950 provided an unpleasant contrast. Everywhere the rainfall was excessive, in some places as much as ten inches over the 1949 figure, and correspondingly, the temperatures were lower, with only one week during the year in which really hot summer weather was enjoyed.

The first 16 days of January were unusually mild, the temperature reaching 50° or over on six of them, but the second half of the month was cold, with low night minima. (22° on the 29th.) The 30th saw a change to a fortnight of very wet and windy conditions, persisting until the 14th February. There followed four days of unusually mild weather, the 17th, in particular, being a fine warm day, with 59° maximum. The remainder of February was colder, with further rain. March was a dry and mild month, with twenty-one days reaching 50° or over, the six days from 20th to 25th inclusive all having maxima of 58°. April relapsed into a cold, and rainy spell which lasted until the 8th May. After a brief fine four days from the 9th to 12th May, the remainder of month was unseasonably cool. The tornado of the 21st May will be referred to later.

A fine weather system was established on the 29th May, and persisted to the 7th June, the last four days all exceeding 80° and culminating in the 86° of the final one. This was the hottest day of the year, and there was only one further day throughout the remainder of the year on which even 80° was exceeded, although the rest of June was warm and sunny.

July was everywhere the wettest month, due in great measure to several heavy thunderstorms. August began well for the first week or so, but finished with cool showery weather which persisted throughout September. It must be unusual for the temperature to exceed 70° on one September day only. On 3rd October there began a period of four

weeks of fine and settled conditions, but November saw a return to very wet weather throughout. December was one of the coldest ever recorded; night frosts occurred on twenty-six occasions, and there were frequent snow falls. The 15th was the coldest day of the year, with a day maximum of only 28°. The year closed with slight indications of a thaw, which was, however, not fully complete until the 4th January of the following year.

TEMPERATURE

The average temperatures for the various months are here tabulated, and the average for the whole year compared with that recorded by Mr. Lock, of Bedford. It will be observed that the average is 2.27° lower than in 1949, though this was, of course, an exceptionally warm year. The average is also depressed considerably by the December figure which is no less than 9° below the corresponding 1949 one.

January	39.02	July	61.79
February	42.00	August	60.84
March	45.29	September	55.61
April	45.56	October	49.34
May	52.18	November	42.16
June	62.70	December	32.61
Average for the whole year			49.09
(51.38 in 1949)			
Average for Bedford (Mr. Lock)			49.61

As previously mentioned, the hottest day was the 7th June, with 86°, a figure also recorded at Cardington.

There were four days during the year on which the temperature failed to reach freezing-point, and eight more on which freezing-point was just reached. Between the 12th and 31st December the temperature never exceeded 37°. Air frost occurred on fifty-nine nights, the latest being 25th April, the earliest, the 26th October. The two coldest nights were those of 29th–30th January, and 4th–5th December, both with 22° minimum.

RAIN AND SNOW

Measurable precipitation occurred on 145 days, the total amounting to 27.68 inches, which exceeds the 1949 figure by 8.5 inches. Much of this excess must be attributed to the phenomenal hail of 21st May and the thunderstorms of July, the Bromham total exceeding those for Cardington, Great Barford and Kempston (which are all closely similar) by about 1 $\frac{3}{4}$ inches. Ampthill had a particularly wet year, its total of over 30 inches exceeding the 1949 figure by no less than 10 $\frac{1}{2}$ inches.

Snow fell on nine days; eight of these were in December, with the heaviest falls on the 16th and 18th, though in neither case was the amount very great (0.12 inch on 16th).

The longest dry spell without measurable rain was from 16th to 27th October, although there was only a trace during the period 28th May to 11th June. Rain occurred on fourteen consecutive days from 30th January to 12th February.

THUNDERSTORMS

Thunder was heard on nineteen days, which is in excess of that recorded for the three previous years. Apart from the quite exceptional events of 21st May, the two heaviest storms were those of the late evening of 6th July and the early morning of the 10th on both of which occasions the rainfall was about 0.9 inch. The storm of 23rd July was most severe in the middle of the county, the rainfall at Clifton on that day exceeding $1\frac{1}{4}$ inches, whereas at Bromham there was less than $\frac{1}{2}$ inch. Clifton also recorded exactly 1 inch on 28th August as against 0.46 inch at Cardington and 0.208 at Bromham.

THE THUNDERSTORM AND TORNADO OF 21ST MAY

The most remarkable meteorological phenomena of the year occurred on Sunday, 21st May, when a violent line squall caused great damage along a comparatively narrow path during the late afternoon. A warm air mass on the ground was apparently overrun by a colder stream of air giving rise to great instability and violent ascending air currents. Along the line at which the air masses met, destructive tornados, accompanied by darkness, thunder, and torrential rain and hail, lasted for several hours. Originating in the Aston Clinton district of Buckinghamshire, the squalls moved in a general north-easterly direction, causing the most extensive damage at Linslade, just over the Buckinghamshire border, but the destructiveness of the wind diminished as the disturbance moved into Bedfordshire, although the force was sufficient to tear branches from trees in the Fenlake district just south of Bedford.

The hail accompanying this thunderstorm was entirely out of the ordinary, as additional proof of the degree of vertical instability. It appears to have been severest in the Bromham-Oakley district where it devastated the countryside. In the writer's garden a chestnut tree was completely stripped of its flowers and leaves, all the immature fruit was torn from gooseberry bushes, cabbages were completely penetrated and riddled with jagged holes, and a young blackbird killed in the nest. Roads in the Oakley district were blocked by drifts of hail. One piece of hail in the writer's garden was found to measure $3\frac{1}{2}$ inches in length, and there is no reason to believe that this was in any way exceptional.

The writer was on holiday in east Norfolk at the time, and was therefore deprived of the opportunity to observe anything of this storm, apart from subsequently contemplating the ruins of his garden five days later! The storm did, in fact, extend into Norfolk, but occurred at about 9 o'clock on the Monday morning. By this time it had become a trifling affair which lasted about half an hour, and the rainfall was light.

The total precipitation for the day was as follows:—

Bromham	2.74 inches
Hockliffe	2.21 "
Aspley Guise	2.01 "
Cranfield	1.65 "
Cardington	1.24 "
Clifton	0.73 "
Bedford	1.67 "
Kempston	1.64 "

RAINFALL FOR 1950

	Ampthill	Aspley Guise	Bedford	Bromham	Cardington	Clifton	Cranfield	Great Barford	Kempston
January	0.81	0.32	0.83	0.77	0.75	1.01	0.65	0.77	0.72
February	3.32	3.97	3.44	3.11	3.24	2.75	3.14	3.46	3.19
March	0.57	0.86	0.54	0.70	0.38	0.45	0.69	0.44	0.49
April	2.09	2.03	1.80	1.93	1.74	1.48	2.06	1.63	1.79
May	4.27	4.25	3.74	4.73	3.10	2.54	3.46	3.49	3.77
June	1.45	1.54	1.26	1.49	1.23	1.40	1.35	0.89	1.15
July	5.90	5.05	4.19	4.98	4.92	5.49	5.00	4.78	4.27
August	2.39	2.99	1.88	1.61	2.14	3.28	2.29	2.17	1.95
September	2.88	2.70	2.70	2.79	2.52	2.54	2.88	2.58	2.55
October	0.40	0.71	0.66	0.60	0.44	0.30	0.33	0.50	0.52
November	4.80	3.79	3.88	3.84	4.16	4.60	3.95	3.47	3.84
December	1.14	1.49	1.49	1.13	1.26	0.98	1.19	1.67	1.49
Total	30.02	29.70	26.41	27.68	25.88	26.82	26.99	25.85	25.73

Ampthill (Mr. Horne).

Aspley Guise (Mr. Young).

Bedford (Mr. Lock).

Bromham (the writer).

Cardington Aerodrome (per Mr. Speed).

Clifton School (per Mr. Inskip).

Cranfield Aerodrome (Air Ministry Daily Report).

Great Barford (Mr. Whitchurch).

Kempston (Mr. Payne).

SUNSHINE

The records at Cardington show that during the six summer months, May to October, there were twenty-six entirely sunless days as compared with eight during the previous year. There were nineteen days on which the sunshine exceeded 12 hours, of which thirteen were during June. The sunniest day of the year was 29th June, with 14.8 hours; the 16th and 20th ran it close with 14.2 hours each. The first thirteen days of June had a daily average of 11 hours, and gave us the only really fine, hot, rainless period of the whole year.

WIND

The Cardington records show that the highest hourly "run" of wind during the year was on 1st December, with 36 knots, equivalent to nearly $41\frac{1}{2}$ miles per hour. There were five days during the first fortnight in February on which hourly runs exceeding 30 knots were recorded, the highest in this period being the 35 knots (about $40\frac{1}{4}$ m.p.h.) of 3rd February.

The Ecology of the Bedfordshire Mollusca

By BERNARD VERDCOURT

It is intended that in a series of articles, some account will be given of the species of snail which occur in definite habitats in the county. Since a complete survey of Flitwick Moor is being undertaken by the Society it was thought that the first of the series might conveniently deal with this locality and with other marshes in the county.

1. THE MARSHES AND MOIST MEADOWS

Flitwick Moor is a wooded ferruginous peat bog still extending over a fairly large area, but much less extensive than in former times. The extreme interest of its insect fauna is well known, but the snails, in common with most of those occurring in greensand habitats are very ordinary. It is really the only true marsh of any extent which remains in the county and where such things as the Marsh Cinquefoil and the Buckbean can be found in plenty. It is hoped that every effort will be made to preserve at least a portion of the locality as a nature reserve.

Undoubtedly the most characteristic snail is *Succinea putris* (L.), a very common species of damp places. It was recorded from the moor by James Saunders in 1888. It favours the various species of sedge to be found on the moor and also feeds on the leaves of the Meadow-sweet. *Monacha cantiana* (Mont.), a common snail on vegetation in waste places occurs throughout the moor. During April 1947 half adults were found to be abundant (2–25 per sq. yard) on the Mill side of the moor together with *Cepaea nemoralis* (L.), *C. hortensis* (Müll.), and *Arion ater* (L.) besides the *Succinea*.

A detailed investigation was carried out at map reference 495,593 (Sheet 95 of the old edition one inch O.S.) on the 17th April 1947. The surprising total of 106 snails was found within an area of four square yards. This area was covered with flattened plant debris and dead *Angelica* stems. The flora consisted of the leaves of Meadow-sweet and the Common Nettle, the former being dominant. The snail population was made up as follows:—

Cepaea hortensis (Müll.), thirty-one adults and forty-four juveniles; of the adults three were the variety *fuscobravis* (Kregl.), eleven were typical, i.e., yellow with five bands, five were yellow with all five bands coalesced, nine were yellow and bandless and three were yellow with four bands. Two of the unbanded yellow ones had a blackish grey sole instead of a whitish one.

Agriolimax reticulatus (Müll.), eight.

Succinea putris (L.), five adults.

Monacha cantiana (Mont.), one nearly adult, three two-thirds adult and one juvenile.

Clausilia bidentata (Ström) (= *rugosa* Drap.), three adults and one half grown.

Discus rotundatus (Drap.), three nearly adult.
Trichia striolata (Pfeiff.), three adults.
Cochlicopa lubrica (Müll.), one adult and one juvenile.
Retinella nitidula (Drap.), one nearly adult.
Trichia hispida (L.), has also been found in the very peaty part of the moor.

All of these species are well known to be quite indifferent to the presence of lime in the soil and are among the species which are likely to be found practically anywhere. It may be mentioned here that the common and ubiquitous *Trichia striolata* was omitted by an oversight from the author's original Bedfordshire list (1945, *J. Conch.*, 22, (6), 124-129).

Although the aquatic species of the River Flit and its little tributaries are not really connected with the marsh ecologically, it is, from the point of view of the survey convenient to list them. The following have been found in the stream where it crosses the moor: *Potamopyrgus jenkinsi* (E. Sm.), *Bulimus tentaculatus* (L.), *Limnaea stagnalis* (L.), *L. pereger* (Müll.), *Planorbis vortex* (L.), *P. planorbis* (L.), *P. albus* (Müll.), *P. contortus* (L.) and *P. complanatus* (L.).

Twenty-one species are therefore recorded from within the area of the Society's survey. Further aquatic species should occur and it is likely that in the marsh proper such species as *Zonitoides nitidus* (Müll.) and *Vertigo* spp. will be found by further collecting. In the original county list the writer stated that the *Zonitoides* mentioned above were widely distributed. Actually this is not so and the species is curiously rare in our county. Mis-determinations by other authorities were responsible for this statement.

Amphill Marsh, some miles to the north of Flitwick Moor, is a small patch of wooded boggy ground to the west of Amphill Heath, a greensand area, and just north of the road before one reaches the station. The Great Horse-Tail is the dominant plant and Skullcap is abundant. Other plants include Panicked Sedge, Ragged Robin, Bog Stitchwort, Marsh Valerian, Marsh Thistle, and a species of Marsh Orchis. No snail is abundant in the locality, but the following have been discovered as a result of three visits:—

Carychium minimum (Müll.), frequent on dead leaves, almost in the water.

C. tridentatum (Risso), equally frequent in the drier areas.

Cochlicopa lubrica (Müll.), frequent.

Trichia hispida (L.), scarce.

Ashfordia granulata (Alder), a small juvenile was found which probably belongs to this species. Adults needed for confirmation.

Cepaea nemoralis (L.), a red unbanded specimen.

Euconulus fulvus (Müll.), scarce.

Retinella pura (Alder), rare (the var, *nitidosa*).

R. radiatula (Alder), scarce.

Oxychilus altharius (Miller), two on a mossy trunk.

Vitrea crystallina (Müll.), scarce.

Pisidium sp., scarce.

These species are again all indifferent to the presence of lime. It is possible that this is the locality where C. B. Cox found *Vertigo anti-vertigo* (Drap.) and the rare *V. substriata* (Jeff.), but they have not turned up since.

Marshy ground occurs at Wavendon Heath to a certain extent, forming an acid bog on sandy soil. Sphagnum mosses abound and the Royal Fern retains a precarious hold. Birch, Pine and Hawthorn are the chief woodland components. The following species have been found there and of these *Zonitoides excavatus* is of interest, since it is the only snail in the English fauna which is a definite calcifuge (shuns lime):—

Vertigo pygmaea (Drap.), rare on wood by boggy pool.

Columella edentula (Drap.), one juvenile on bog flora (30.5.48).

Arion subfuscus (Drap.), with *Vertigo*.

Cochlicopa lubrica (Müll.), rare, juveniles only.

Euconulus fulvus (Müll.), with *Vertigo*.

Zonitoides excavatus (Alder), frequent with *Vertigo*.

Oxychilus alliarium (Miller), in the pine woods.

Pisidium personatum (Malm.), abundant in a peaty trickle between the actual heath and the road.

Legrave Marsh was probably once an interesting spot but has now more or less completely dried up and has a very poor fauna indeed despite its calcareous nature. An area at the foot of Wauluds Bank was investigated (25.12.45). The Buckbean occurs there but has never been observed to flower. The only mollusca found were hibernating at the roots of the rushes:—

Cochlicopa lubrica (Müll.), juveniles frequent.

Trichia hispida (L.), frequent including forms which some authors would call *T. liberta* (Westerlund) but anatomically identical with the rest.

Oxychilus cellarius (Müll.), scarce.

Retinella nitidula (Drap.), frequent.

Agriolimax reticulatus (Müll.), frequent.

The Zonitidae are often mentioned as being partly carnivorous, and an investigation of the crop-contents of the *Retinella* seemed to confirm this since in addition to plant remains the heads of small water beetle larvae were also discovered.

The pond just beyond the marshy strip is an offshoot of the River Lea and both pond and stream are now dry, but the following really aquatic snails used to occur: *Limnaea palustris* (Müll.), *L. pereger* (Müll.) and *Planorbis vortex* (L.).

A rather fenny type of marsh occurs at Dyer's Hall, Sundon, or perhaps, since draining and ploughing operations were in full swing when the writer left England one should say used to occur. The locality lies at the foot of the chalk escarpment slope now famed for being a station for the Lizard Orchis. The Common Reed, and Flote-Grass occur, and the area was covered with small muddy pools and moss. It seems certain that a belt of Reed fen once stretched across the county between the chalk escarpment and the gault. Traces occur in the

Sharpenhoe area. The following snails have been found at Dyer's Hall (Jan. and Feb. 1948):—

- Carychium minimum* (Müll.), rare, juveniles and adults.
Vertigo angustior (Jeff.), one recent shell.
Vallonia pulchella (Müll.), old shells on ploughed land.
Discus rotundatus (Drap.), adults and juveniles under bark of log.
Punctum pygmaeum (Drap.), rare.
Cochlicopa lubrica (Müll.), adults and juveniles common.
Arion ater (L.), one active juvenile.
Monacha cantiana (Mont.), old shells on ploughed land.
Trichia striolata (Pfeiff.), in mossy rubbish by waterfall and old shells on ploughed land.
T. hispida (L.), flat varieties frequent.
Arianta arbustorum (L.), very old shells on ploughed land seem referable to this species.
Retinella nitidula (Drap.), juvenile.
Oxychilus alliarius (Müller), one in the aperture of *Cepaea* shell.
Vitrea crystallina (Müll.), frequent.
 The water snail *Limnaea pereger* (Müll.) is common in the stream.

Mr. B. R. Laurence first brought to the notice of the writer the minute but interesting piece of marshy ground known as "Boggy Bank". This occurs on a slope in a gault meadow to the north of Hipsey Spinney, Fancott, Toddington. It consists of a series of small pot holes or "hoof holes" filled with water; and Marsh Marigold, Sedges, and Cotton Grass are the chief components of the flora. The following snails have been discovered there, some of them by Mr. Laurence.

- Limnaea truncatula* (Müll.), scarce, juveniles in May.
Succinea pfeifferi (Rossm.), scarce.
S. putris (L.), scarce.
Azeca goodalli (Fér.), fairly old shells regularly found.
Agriolimax reticulatus (Müll.), two courting (1.5.49).
Pisidium personatum (Malm.).
P. cinereum (Alder).

The *Azeca* occurs sparingly in the county in Elder scrub and old hedges and is extremely unlikely to live in a marsh. Since it occurs in the neighbouring Hipsey Spinney it is likely that this wood once extended over "Boggy Bank" and that the latter is of no great age. It does however take many years for a snail fauna of even six species to become established so that this marsh is by no means ephemeral. Similar marshy spots occur in Washers Wood and Daintry Wood but have not been investigated.

Although not strictly a marsh, but merely a damp water meadow the "Hummocky Field" by the Litany at Totternhoe is included here since it is often very wet indeed. It lies in between the railway line (British Railways Eastern Region) and the River Ouzel, at the foot of the Chalk escarpment. It is traversed by several muddy streamlets and contains a pond at its eastern end. The following snails have been found there:—

Succinea putris (L.), hibernating on marsh herbage (5.4.47).

S. pfeifferi (Rossm.), on rushes (30.3.46).

S. elegans (Risso), one shell that seems referable to this species has been found. Living specimens needed for confirmation.

Vertigo pygmaea (Drap.), rare at the roots of grass. A frequent subfossil in the bed of the Ousel.

Limnaea truncatula (Müll.), frequent by streamlets on the mud.

Aplecta hypnorum (L.), in muddy pot holes by streamlet edges.

Arianta arbustorum (L.), characteristic of the foot of the chalk scarp. Juveniles at the roots of rushes and adults abundant by the banks (30.3.46). Adults and one-third adults (5.4.47).

Helicella virgata (Da Costa), dead shells and young living ones at the eastern end of the field (5.4.47). Adults abundant later in August (e.g., 11.8.48).

Agriolimax reticulatus (Müll.).

Trichia sp. juv., dead shell on the bank.

Carychium minimum (Müll.), single juvenile (30.3.46).

The following species have been found in the pond and in the streamlets:—

Limnaea pereger (Müll.), in the pond and the streamlets.

Planorbis planorbis (L.), in the pond.

P. vortex (L.), in the streamlet.

P. corneus (L.), shells in the Ousel.

P. spirorbis (L.), shell in the Ousel.

Bulimus tentaculatus (L.), shells in the Ousel.

The record of *Vertigo antivertigo* (Drap.) which is perhaps due to Charles Ashford, an eminent malacologist who stayed at Totternhoe in 1886, may have been found here or perhaps at Totternhoe Mead. (If any older reader has any information concerning the visit of Ashford to our county the writer would be very pleased to have it.)

Between Stevington Church and the River Ouse there exists a marshy area fed with water from the well known "Holy Well". Part is occupied by an extensive patch of Butterbur and the other parts have a flora of White Poplar, Nettle, Hairy Willow-herb, and Water Figwort. The molluscan fauna comprises:—

Succinea putris (L.), common.

Ashfordia granulata (Alder), two on herbage (22.9.46).

Trichia hispida (L.), "Liberta" variety frequent.

Arianta arbustorum (L.), one found in the Holy Well.

Oxychilus helveticus (Blum), this was once discovered in large numbers drowned in the Holy Well, a stone alcove covered with leafy liverworts.

2. THE SAND PITS AND GRAVEL PITS.

Bedfordshire is rich in pits of various kinds, and those at Leighton Buzzard, Fancott, Tingrith, Cople, Wyboston, and Eaton Socon have been visited. The fauna of a greensand pit at Silsoe was reported on in last year's report.

Fancott Gravel Pit is a glacial gravel deposit of uncertain history. It contains two ditches with the Reedmace as the dominant plant. These ditches were almost dry in 1946 but full again in spring 1947.

Limnaea stagnalis (L.), large specimens were formerly common in the ditches. Dead adult shells and very small juveniles were common under a plank and in the mud (30.12.45).

Clausilia bidentata (Ström), scarce under logs. Once found in numbers under mossy bricks by the now filled-in Fancott Lake by the path leading up to the pit.

Vallonia excentrica (Sterki), one under plank (3.5.47).

Cochlicopa lubrica (Müll.), under logs.

Arion ater (L.), half grown specimens (3.5.47).

A. hortensis (Fér.), under log.

Helicella caperata (Mont.), frequent in dry parts of the pit.

H. virgata (Da Costa), var. *lutescens* (Moq.), one shell.

Monacha cantiana (Mont.), common on cut grass and plant skeletons in May. Hibernating under wet straw with epiphragm in place (30.12.45).

Trichia hispida (L.), under logs.

Cepaea hortensis (Müll.), hibernating with the *Monacha*.

Retinella nitidula (Drap.), under logs.

Vitrina pellucida (Müll.), under logs.

Agriolimax reticulatus (Müll.), under logs and plants.

Sphaerium lacustre (Müll.), dead shells found by B. R. Laurence (21.3.48).

Tingrith Pit (in the Long Lane from Toddington) contains a small exposure of greensand, and two small ditches which are usually only a few inches deep. During 1946 the pit was almost dry but by July 1947 the area of the ditch had increased twenty-fold and the whole pit was full of water. In July of the following year the ditches were almost dry again and were completely dry during the rest of the year. They were still dry on the 20th March 1949 when the writer took Messrs. Brennan and Taylor to the pit to look for mosses. The ditch supports Water Plantain, Horse-tail, and the Broad Pondweed and the surrounding wet ground is covered with Marsh Thistle, Forget-me-not, Hairy Willow-herb, and Bird's-foot Trefoil. The ditches are being spoilt by the dumping of rubbish. They hold a very varying population of snails and mussels.

Limnaea pereger (Müll.), abundant (19.10.47).

Planorbis crista (L.), common on same date.

Sphaerium lacustre (Müll.), common on the same date. Nepionic young were common in the water, and one adult on dissection contained seven young. This species is very sporadic.

The following land snails have also been found in the pit:—

Cochlicopa lubrica (Müll.), var. *lubricoides*, under bark of fallen elm at the back of the pit.

Ena obscura (Müll.), juveniles with the last (7.9.46).

Arion ater (L.), common.

Monacha cantiana (Mont.), common on plants by path, etc.

Cepaea hortensis (Müll.).

Trichia hispida (L.), common with the *Cochlicopa*.

Oxychilus alliarium (Miller), frequent with the *Cochlicopa*.

In Tingrith itself there is a sand pit opposite the lake. *Cepaea hortensis* (Müll.) is the only snail which has been found in this pit. *Carychium tridentatum* (Risso) and *Vitrea crystallina* (Müll.) occur sparingly under *Brachythecium* moss in a nearby elder scrub by a stream. Young shells of *Succinea putris* (L.) were found hibernating in Reedmace round Tingrith Lake and *Pisidium milium* (Held) occurred at its roots (20.3.49).

The extensive pits by the River Ouzel just south of Leighton Buzzard are among the largest in the county, and several are now quite attractive lakes. It is to be hoped that at least one will be left to develop. They are sufficiently large to contain numbers of the larger bivalves. The following land and freshwater mollusca have been discovered in the pits. The fresh-water species doubtless have migrated from the Ouzel and have also been brought by birds. Such birds as the Heron and Great Crested Grebe are not infrequent on the lake:—

Bulimus tentaculatus (L.), common.

Limnaea pereger (Müll.), abundant.

L. auricularia (L.), common in some of the pits.

L. stagnalis (L.), common.

Vallonia excentrica (Sterki), scarce with the *Clausilia*.

Cochlicopa lubrica (Müll.).

Clausilia bidentata (Ström), scarce under logs by the lakes.

Arianta arbustorum (L.), frequent in grassland and paths, etc., by the river.

Helicella caperata (Mont.).

H. virgata (Da costa).

Anodonta anatina (L.), abundant, sometimes buried in moist sand.

Unio tumidus (Retz.), common.

It may be mentioned here that the precise locality for the rare *Planorbis laevis* (Alder) found by the writer in 1944, is the small streamlet between the Grand Union Canal and the River Ouzel at Leighton Buzzard. Since much doubt is often thrown on records of this species from East Anglia it is well to state that the specimen has been confirmed by both Mr. J. E. Cooper and Dr. J. W. Jackson. It occurs together with *Potamopyrgus jenkinsi* (E. Sm.), *Bulimus tentaculata* (L.), *Valvata piscinalis* (Müll.), *Ancylastrum fluviatile* (Müll.) and *Sphaerium corneum* (L.). The River Ouzel also contains *Bulimus leachii* (Shepp.), *Limnaea stagnalis* (L.), *L. pereger* (Müll.), *L. auricularia* (L.), *Planorbis planorbis* (L.), *P. albus* (Müll.), and *P. vortex* (L.). *Succinea putris* (L.) occurs on the bank. *Viviparus viviparus* (L.) occurs in the canal but not apparently within our boundaries. *Planorbis crista* (L.), *P. albus* (Müll.), and *Valvata piscinalis* (Müll.) occur in small ponds near the pits and in Leighton Buzzard.

The Eaton Socon Pits are now well known for their very interesting adventive flora of Australian rushes and other plants introduced with woollen shoddy. The pools are filled with Reedmace, Water Milfoil, Branched Bur-reed and Pondweeds and surrounded by Willowherbs, Rushes, Celery-leaved Buttercup, Yellow Rocket and Beardgrass. The rest of the pits are covered with indigenous and adventive species of Melilot, Clover, Mallow, Star-thistle, and Medick.

Limnaea stagnalis (L.) is abundant in the pools and in the nearby Ouse from which the pits are fed.

Helicella virgata (Da Costa), large colonies of banded and unbanded forms live on the various plants growing on the gravel mounds.

Cepaea hortensis (Müll.), only one observed (uniform yellow one) on a plant.

Monacha cantiana (Mont.), common on herbage.

Helix aspersa (Müll.), common on *Lactuca* and other plants.

In the very similar pits at Wyboston *Helicella virgata* (Da Costa) is common, and *Limnaea truncatula* (Müll.) and *Sphaerium lacustre* (Müll.) occur in the marshy pools.

The pits at Cople which are again rather similar to those at Eaton Socon, contain a series of ditches with the Reedmace dominant and the following mollusca occur:—

Limnaea truncatula (Müll.), rare by the ditch edges.

L. pereger (Müll.), not common in the ditches.

Planorbis albus (Müll.), common.

P. crista (L.), locally common.

Helicella caperata (Mont.), under old rubbish.

H. virgata (Da Costa), scarce on plants.

Trichia hispida (L.), "liberta" variety under moss beneath leaves of Coltsfoot.

Oxychilus cellarius (Müll.), a large distinct variety—two in dry ditch.

Sphaerium lacustre (Müll.), locally common moss on submerged wood.

The next parts will deal with the Chalk hills and their beech woods.

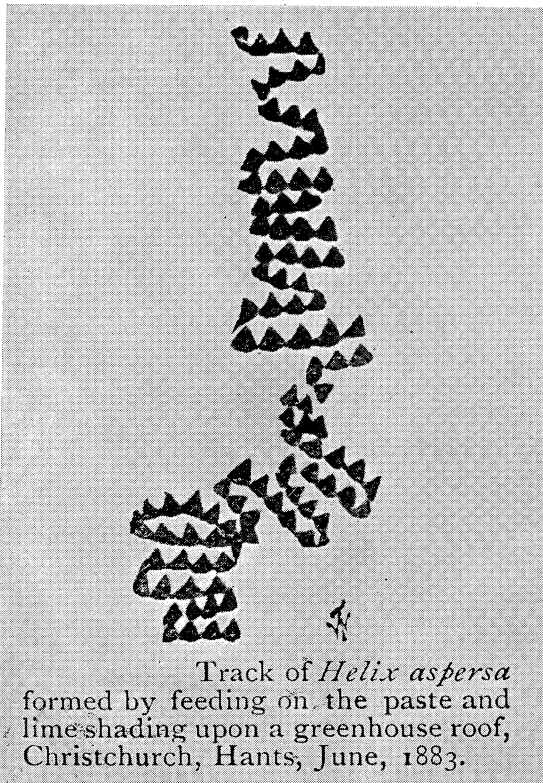
Was it a Slug or a Snail?

By H. F. BARNES

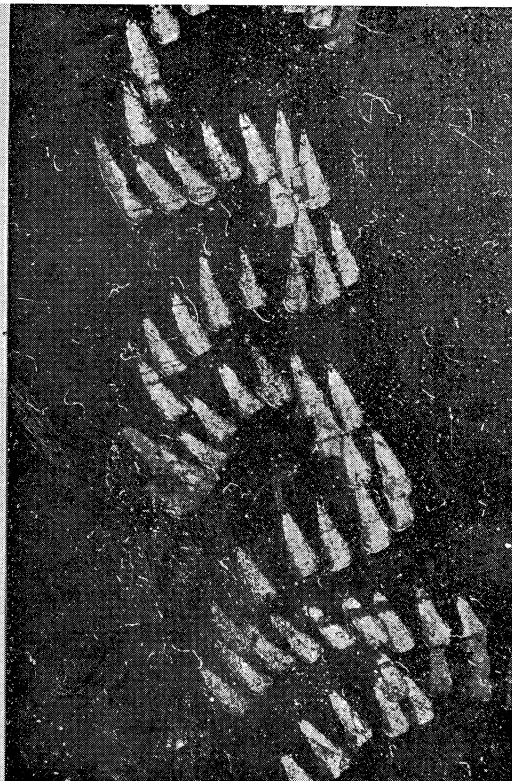
Frequently one hears "Oh—I cannot write an article for *The Bedfordshire Naturalist*, one has to be so clever," and again, "I have to write a thesis (or essay) on some original work, how can I do this? Surely this is what trained scientists do and I am only a student?"

Well, here's a little problem. Recently a colleague brought in an oven tray on which there had appeared overnight tracks in the breadth of which there were a number of almost triangular marks. His wife was naturally perturbed at this obvious visit of what could not be any of the more usual household visitors, such as a mouse. Another colleague, Mr. P. S. Milne, kindly offered to photograph these tracks so that we might have a permanent record of whatever this nocturnal visitor might be. This he was most successful in doing (see Plate 1, Right) by means of oblique lighting, for the marks on the tracks were indentations in the thin coating of fat on the tray. The record having been obtained, we examined the tray more carefully. At various points on the tracks there was the tell-tale evidence of iridescent slime, thus we thought of slugs. One of us remembered seeing a picture of marks somewhat resembling those on the oven tray. A hunt took place in various books on slugs and snails. While this search was being made the tracks were examined under a low-power binocular microscope. Minute impressions were then seen on each of the triangular marks and this confirmed our suspicions that they were made by a slug or snail. The search for the vaguely recollected illustration was intensified and was soon rewarded. Left on Plate 1 was what we found in Taylor's *Monograph of Land & Freshwater Mollusca of the British Isles*, Vol. 1, p. 260. The legend was "Track of *Helix aspersa* formed by feeding on the paste and lime shading upon a greenhouse roof, Christchurch, Hants., June 1883." Comparison with the tracks on the oven tray show that a very similar animal must have made them. It obviously had been attracted by the fat on the tray and, as it moved over it, kept on rasping with its radula, or plate bearing the rows of minute teeth, from one side to the other seven or eight times before advancing slightly and repeating the side to side licks.

What has all this to do with the complaint and queries of the first paragraph? The problem is already solved—the tracks are those of a slug or snail. Yes, but look again at the photographs. The triangular marks—surely you can see the two lots are quite different in shape. Isn't your curiosity aroused? You have heard of the use made in identifying individuals by their finger prints and you must know how to distinguish animal tracks in the snow or on wet sand. Wouldn't it be interesting to see if it is possible to identify the different kinds of slugs and snails by their feeding tracks? Why not try to find out? Get some flat boards or oven trays, smear them with substances that you think slugs and snails might like to lick, then catch a few and allow them to crawl over your baits. If you are lucky enough to have chosen a food they like, you should get some feeding tracks. Comparison



Track of *Helix aspersa*
formed by feeding on the paste and
lime shading upon a greenhouse roof,
Christchurch, Hants, June, 1883.



FEEDING TRACKS OF MOLLUSCS
Left.—Track of the Garden Snail—*Helix aspersa* (reproduced by kind permission of Taylor Bros., Leeds).
Right.—Track of an unknown mollusc, probably a slug, made on an oven tray (photograph by P. S. Milne).
(Both tracks slightly magnified.)

of such tracks made by different kinds of slugs or snails would indicate the possibility of identifying the different kinds by this method. Why not try?

Aphid Aeronautics

By C. G. JOHNSON, D.Sc.

Greenfly and blackfly are plagues in Britain, as locusts were, and still are, plagues in Egypt: and like locusts, aphids often appear in immense swarms, millions of them together so that, as Gilbert White found, they settle on "hedges and gardens, blackening all the vegetables." His "annuals were discoloured with them, and the stalks of a bed of onions were quite coated over for six days after." But aphids are a serious menace to farmer and to gardener whether they arrive in swarms or not. For arrive they always do, in ones and twos on beans, apples, roses, early in the year. By the time we notice them as colonies, their tremendous powers of multiplication make it difficult for us to keep them within harmless limits. And so our wits are taxed and our pockets depleted as insecticidal sprays are bought and sprayed, new ones tried and old ones tried again in a regular and everlasting battle, with victory, more often than not, to the aphids.

Where do these creatures come from? And where do they go to in the winter? And depending on whether you are the aphid or the gardener, why are some years good and others bad? These are some of the questions we are trying to answer at Rothamsted. To answer them satisfactorily depends on trying to see the whole picture so that each part can be properly fitted into the natural scheme.

The puzzle can be approached from at least two aspects. Firstly, what are the conditions, of climate, crop and natural enemies, which determine the sizes of aphid populations, so that some years bring forth few and in others our plants are overwhelmed by them? Secondly, what conditions are favourable or unfavourable for active flight and how far can the creatures roam?

We have been at work on both these aspects for some time now. But our attentions have been concentrated, mainly, on the second. For when it comes to taking an aphid "census" there is a lot to be said for doing it with the flying insects. For so far, our methods of measuring numbers of aphids in the air are rather more universal and perhaps more technically reliable than methods for estimating numbers actually on the plants. Moreover, the flying stage is a very important link in the chain of infestations; for many aphids spend part of their time, especially in the winter, on plants, which, from the agricultural point of view, would not matter. So, to take our census, we put out traps to catch the aphids. There are several kinds of trap depending on where they are required for use, and the accuracy of the information to be gained. Two cheap kinds are nets, which, hung for the wind to blow through, filter insects from the air; and sticky cylinders or plates which snare the aphids

if they alight or are blown on to them. These kinds of trap are cheap, easy to handle, and very simple to construct; although a sticky trap is a nuisance when it comes to gathering the catch and separating insects from the sticky material. Both of these kinds work best in a fair breeze. But it is the calm weather which is most favourable for large flying swarms of aphids and for these conditions we use a trap which sucks in air, and aphids, by an electric fan, and works independently of wind.

Our attention is not confined to one kind of place or to one species of aphid; for apart from the particular crop, we wish to study aphids which are high flyers and we have caught many as high as 4,000 ft. above the ground. It is certain that they go much higher than this, probably up to as high as 15,000 ft., although of course the numbers which reach such heights are relatively small. It is a case of "the higher the fewer" and one of our present problems is to find out the laws which determine how few (or how many) do attain different heights and how important such flight is for the dispersal of these insects in significant numbers.

All this has a very local interest for Bedfordians: for it is at Carlington where our high altitude work is carried on. On any fine day in summer, two barrage balloons are to be seen; one with traps fastened to the cable at different heights, and the other with meteorological instruments which measure the speed of the wind, the temperature and the humidity of the air. For once off the ground, the fate of an aphid as far as its vertical and horizontal journeyings go, is largely a matter of meteorology. The aphid is in fact in the teeth of the gale and goes where the wind listeth—on occasions hundreds of miles. And it must be true that the aphids of England are constantly being blown out to sea—either to drown or to infest the Continent of Europe! In return, of course, we get aphids being blown back when the wind is in the other direction!

Although these high flying swarms of aphids have little or no control over their direction, they are migrating. But having no control over their direction they cannot be compared very closely, in their long distance travels, with the migration of birds.

How these insects get into the air and how they behave when they reach the ground again is, however, far from being merely a meteorological matter. For both take-off from plants and the preference shown for certain kinds of plants is the result of a complex series of interactions in which the insect, as a living, sentient organism, the physiological condition of the plant and the state of the weather all play a part. It is clear, however, that apart from hour to hour and day to day variations in flight activity which depend not only on the numbers of insects available—i.e., on the state of their populations—but on their willingness to take off, there is constant rhythm of day-time flying and night-time resting which, as with human beings, lays the pattern of their major, long distance and high altitude adventures.

Further Observations on Bedfordshire Rook Roosts

By BEDFORD SCHOOL NATURAL HISTORY SOCIETY

During the time which has elapsed since the former report on the roosting habits of Rooks and Jackdaws was written for this Journal, the School Society has spent a considerable amount of time in discovering roosts in our own and neighbouring counties. Already the location and certain facts concerning eighteen have come to light while others have been traced to definite areas though the actual sites have not as yet been determined.

All the observations carried out at these roosts give results which have marked similarity to those obtained at Pavenham, both with regard to procedure and roosting times, so that this roost may be taken as representative of the whole. In plotting the above roosts on a map it appears that they tend to be on certain parallel lines in diagonal direction across the country. The Pavenham roost lies on the line which also passes through another Bedfordshire roost in Swineshead Wood. In the main these roosts do not lie along the valleys, although the Pavenham one is so placed. No inference can be drawn at this stage.

If the areas served by the roosts are also plotted it becomes evident that the eastern boundary is further from the roost than the western. The Pavenham roost is a good example of this, as although the birds supplying the roost feed as far afield as Tempsford in the east, those to the westward venture no further than a line drawn roughly from Bozeat to Olney. It has been suggested that a possible reason for this might be that the birds prefer to fly towards the light of the rising and setting sun, rather than away from it. This theory does present a few difficulties, but it is a possible reason and cannot be overlooked.

Following the lecture on "Roosting and Awakening" at the Second Bedfordshire Ornithological Conference, observations have been made over a long period of the exact time at which the birds enter the roost and together with our previous results, averages have been taken for each month and an interesting fact has come to light. In the summer months the Rooks and Jackdaws go into the roost at about 25 minutes after sunset, but in October, November and early December these times get later, until by the end of December and the beginning of January, the birds do not fly in until more than 50 minutes after sunset. Indeed, at one roost late in December the birds did not finally stop moving until about 80 minutes after sunset. The results for late January were much lower than this, and a more recent observation has shown that already (20th January 1951) the roosting time has dropped to 40 minutes after sunset, and that the procedure followed by the birds is reverting to that noted at this time last year.

During the autumn the birds roosted at first in the centre of the roost-wood, until in October when the numbers increased, they extended gradually into the northern ash plantation; the reverse of the procedure last spring. It has also been noticed that the assembly procedure changed

towards the end of last Christmas Term (1950). Previously the birds had almost always come down from Pavenham Bury to the main assembly in the roost plain before going into the roost, but towards the end of the term they came down later than usual and went straight in, indeed once they did not come right down to the roost itself, but probably spent the night in the Bury hollow. The birds also took much longer to enter the roost, wheeling and cawing for anything up to ten minutes before finally settling. This is now also reverting to normal.

So far this year (January 1951), no assembly has formed on top of the hill above the roost, but there is a huge assembly to the west of Pavenham, to which most of the birds from the Turvey, Stagsden, Harrold and Odell areas come. The flight from Sharnbrook, although considerably smaller than last year, is still in existence, as is the one which comes over Milton Ernest. The birds which leave Bedford near the western end of Waterworks Hill now go to a large assembly to the south west of Clapham, and no longer to the field to the east of Station Road, Oakley. The Cleat Hill birds now go to an assembly to the north of Bedford Cemetery, and these assemblies, together with those from Howbury Hall, Bromham and Oakley, fly over Oakley Hill and form an assembly in one of the fields to the west of Stafford Bridge or near Westfield Farm, Oakley. A probable reason for the abandonment of the Oakley assembly is because the field in which it used to form now has a crop of clover growing on it, whereas last year it was clear.

Finally, it might be worth mentioning an interesting observation which was made on the 26th November 1950. Visibility was down to about 20 yards due to thick fog, and it was very cold. Starlings were not able to find their way back to their roost at Tempsford, and it is known that, among other places, they roosted in trees at Bedford and Willington. A party of members of the School Society went out to Pavenham roost plain and Rooks certainly roosted at Pavenham that night, though in what numbers is not known. A similar state of affairs was reported from Oxfordshire.

Observations on a Pair of Little Owls

BY HENRY A. S. KEY and F. C. GRIBBLE

The following observations were made during the summer of 1950 at Tythe Farm, Stevington, Beds., by kind permission of the owner, Mr. A. E. Ayres.

A female member of the farm staff who tends the poultry discovered the nest of a pair of Little Owls (*Athene noctua*) in the following circumstances. Certain hen-houses under her care are sited in a large orchard where sheep are often kept and a wheeled rack containing hay is provided; this hay-rack has a hinged galvanised cover.

At the time of the occurrence the sheep had ceased to feed on the hay, as there was an abundant growth of grass, so that requiring some dry hay for lining poultry nest-boxes the lady went to the rack for a supply.

On lifting the cover she saw crouching in a depression in the hay a small bird which she believed to be a baby owl, and reported this to the farmer's daughter who herself investigated the matter.

Miss Ayres lifted out the bird and was surprised to see three small white eggs under it. The owl made no attempt to attack her and it was replaced carefully to brood. The finders were not familiar with the species and within a day or two reported the occurrence to Mr. Key who together with his wife paid a visit to the orchard on 18th May. On approaching the nesting site one adult owl was seen to fly from a nearby apple tree and on lifting the cover of the rack the other adult was seen to be still brooding. This bird crouched down and tried to force itself into the darkest corner of the deep depression in the hay, but was lifted from the eggs by Mrs. Key without difficulty in order that the nest and eggs could be photographed. Pictures of the bird in the hand and brooding the eggs were also obtained. Several small pellets were seen among the hay and these seemed to consist chiefly of insect remains.

During the following three weeks Mr. and Mrs. Key were away in Scotland and were informed on their return that the eggs had hatched and that two small white fluffy owlets were in the nest. No trace could be found of the other egg. Latterly both adults had been much in evidence. Unfortunately no check had been kept on the hatching dates, but when a visit was made on 11th June for the purpose of erecting a hide at the site, the young birds appeared to be not more than a week old.

To prepare the site for photography it was necessary to seal up all but the main entrance to the nest and this was done by placing sheets of metal inside the racks between the bars and the hay, leaving a clear space about a foot square round the main point of entry, which was obvious by the pressed-down condition of the hay. An area some four yards square was then fenced off with posts and barbed wire on that side of the rack in order to keep out the sheep and the hide was erected in this enclosure about eight feet distant from the rack.

No attempt was made at photography for several days and during this period Miss Ayres made daily visits to the nest to make sure that the adult birds had not been scared by the hide and so neglected their young. It became apparent that the erection had been accepted immediately by the birds and the first attempt at flashlight photography was made on 15th June. This proved unsuccessful as the parent birds flew directly into the rack by squeezing rapidly through the bars and as the scraping of their claws on the metal was the only indication of their presence (apart from the clamour of the chicks as they were fed) there was no time to take the photographs. In order to rectify this, a hurdle was afterwards placed leaning against the rack in such a way that the adult birds would have to perch primarily on this before entering the nesting site and it was so positioned that the hurdle was just sufficiently jarred at the time of alighting to tap gently on the galvanised lid of the rack and give warning of the bird's presence. This was to prove an invaluable asset to observation on the darker nights, especially as the flight of the owls is silent.

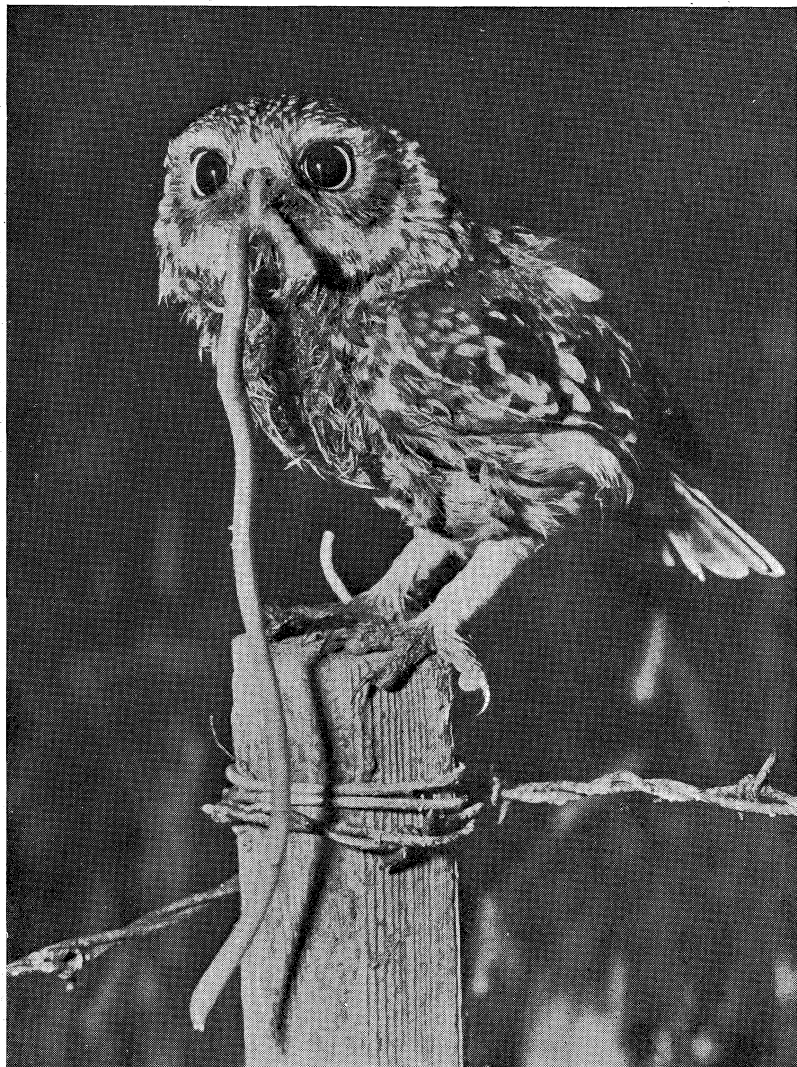
During the week preceding the 24th the hide was occupied by Mr. Key alone on a number of evenings and a series of photographs was taken. Concentration on the photography at this stage prevented the taking of notes, but observation, confirmed by the plates, showed that a certain number of worms were being brought to the young, though on the majority of visits both parent birds brought moths.

On the 24th Mr. F. C. Gribble was invited to share the hide and both watchers were seen into it at dusk by the shepherd, who then departed. Within a minute one parent had flown into the rack and fed the young and from then on one or other of the birds arrived with food every few minutes for the space of some two hours, from approximately 10 p.m. (B.S.T.) until midnight. After this the visits were at about half hourly intervals until about 2 a.m., when they stopped and commenced again with increasing frequency from first light till sunrise and then ceased.

The young birds had now moved in the rack from the nest at one end to the opening in the bars towards the middle, where they could look out into the orchard. They called at frequent intervals and were answered by the parents, the calls becoming more rapid and excited as the old birds approached the site, and serving as a warning of approach and saving us from unnecessary and wearying staring through the small slits in the hide.

After leaving the hide at 6 a.m., Mr. Gribble ringed the birds with numbered identity rings.

On the following night Mr. Key alone occupied the hide and the helpers left at 9.40 p.m. After five minutes a parent bird flew into the rack and eight more visits were made up to 10.10 p.m., on one occasion both adults arriving simultaneously. On each of these occasions, as far as could be ascertained, the food consisted chiefly of insects, mostly moths. There was then a break till 10.27 p.m. when one bird arrived with an earthworm. Cock and hen arrived together with insects at 10.33 p.m. after which visit earthworms again became the principal food. The young birds had insatiable appetites and would call excitedly when



LITTLE OWL WITH EARTHWORM
Stevington, Beds., 1950
(Flashlight photograph by Henry A. S. Key)

being fed. After the parent birds had departed in search of fresh prey the chicks would again call wheezily to be fed after an interval of only a few minutes. It seems incredible that two such small birds should have eaten so great a quantity of worms, though it may be that they were fed by the adults with minor portions, the parent birds themselves eating the remainder. Unfortunately, such happenings could not be observed.

The orchard was plentifully supplied with moths and other winged insects and the hide had more than its share of earwigs. There were undoubtedly many worms in the long damp grass and in the moonlight the adult birds could occasionally be seen collecting these under the trees, the plumage of their breasts becoming much disarranged in the process.

On the night of the 26th Mrs. Key joined the other two watchers in the hide, taking turns with Mr. Gribble to observe the feeding of the young, while Mr. Key took the photographs. The male and female birds (recognisable by certain plumage differences) used separate and consistent routes of approach to the site and different methods of vacating it. The following is a list of the visits and the food supplied (if known). M=male, F=female.

9.40 p.m.	Hide occupied.
9.46 "	Moth.
10.01 "	?
10.15 "	(M) moth.
10.16 "	(F) ?
10.17 "	(M) ?
	(Birds now disturbed by people shutting up the poultry.)
10.28 "	(F) moth.
10.30 "	(M) moth,

and so on for another seven visits (in six of which moths were definitely brought) until 10.55 p.m. when the male bird brought a large worm. Seven further supplies of food were brought (some moths and some worms) before midnight, when we vacated the hide.

During this watch we had noticed that one bird always approached the rack by a route which took it close by the left side of the hide and on peering through a slit at the rear we had seen the bird perched on one of the fencing posts of the enclosure. We determined therefore to photograph it in this position and consequently the hide was turned round on the following day to facilitate this.

The next visit, made like the previous ones on a bright moonlight night under ideal conditions for observation, was on 29th June and the hide was occupied at 9.55 p.m. The first food (moth) was brought in at 10.02 and twenty further visits were made up to 11 o'clock, the food being mainly moths with one or two worms.

At 11.06 another worm was brought and from then on we noticed a change in feeding habits. It became obvious that the parent birds were trying to induce the chicks to leave the nest. There was much calling both by the parents and the young birds, which were seemingly

only fed after much protest from the adults. The proportion by weight of earthworm in the diet was being increased noticeably and eight more were brought before midnight, when we left the hide.

Subsequent development of the plates confirmed this and other observations. Many of the worms were proportionately large, as the photograph shows. Other food identified included Yellow Underwing moth (*Triphaena pronuba*), Privet Hawk moth (*Sphinx ligustri*) and earwig (*Forficula auricularia*), besides a variety of pale moths and a green caterpillar.

On one occasion Miss Ayres reported that a portion of a rat had been found at the nesting site and this is the only record of vertebrate remains. The report of the "Little Owl Food Inquiry 1936-7" indicates that remains of earthworms occurred frequently in pellets and the Handbook of British Birds (1938) confirms the quantity at about 8 per cent. It would appear that as far as this brood was concerned the proportion of earthworms in the diet of the chicks was far greater than this, especially in the later stage of the fledgling state and it would be interesting to have other observers' observations and comments on the feeding habits of the species.

One further period of observation and photography was made by Mr. and Mrs. Key on 30th, when once again it was noticed that the adults were doing their utmost to entice the young birds from the rack. One of them apparently left the nest on the following day and was found by Miss Ayres to be sheltering on the ground beneath the appliance. When we visited the orchard on the following Thursday (6th July) there was no sign of either parents or young, though they were subsequently seen on several occasions on the fruit trees.

Bedfordshire Naturalists

V—JANNION STEELE ELLIOTT (1871-1942)

By HENRY A. S. KEY

The first four biographies in this series concern men whose principal interests were botanical, and we now consider the life of one who laid the foundations of our knowledge of the avifauna of the county. Prior to his time there appears to have been little serious attention given to the subject and, apart from brief notes contributed at irregular intervals to such magazines as the "Zoologist" and the "Field", very few observations on the bird-life of Bedfordshire were recorded.

Jannion Steele Elliott was the first to gather from sportsmen and others particulars of occurrences, chiefly of the more uncommon species, which together with his own observations were to become the basis of knowledge and future consideration of the subject. Born in Midland Road, Bedford, on 25th May 1871, the son of William and Elizabeth Jones Jannion Elliott, he was educated at Bedford Modern School (1878-87) where he began his interest in birds through the collection of eggs. He and several contemporaries were most ardent field-workers and, transport of those days being limited, Elliott became a great walker and remained so all his life, probing the recesses of the county with abundant energy and enthusiasm, as testified by his friends. When out on exploration food was often a secondary consideration, which together with his pace of travel limited his companions to a small group, who often had to insist on a break for rest and refreshment. Tall, well-built and athletic, he achieved the remarkable performance of walking one day from London to Bedford for the sheer joy of it, and amazed his friends on arrival by the casual reference to the exploit and this in middle age. On another occasion he strolled from Berkhamsted to Dunstable in an afternoon. Together with his son he also walked the whole course of the River Severn from its source to the sea.

Whenever and wherever he went he was intensely observant and saw things that very often escaped the notice of his companions, one of his chief delights being to check their alertness. His interests were wide and varied and his conversation stimulating, though he was not given to volubility and at times he was almost moody. Thus it was that considering all these qualities, few people came to know him well and, not given to self-exposition, those who shared his confidence had an incomplete knowledge of the man himself.

In 1896 he left the town of his birth and together with his brother William took over the foundry business of Robbins and Co., of Dudley, in which town he resided for a brief period and here married his first wife, Miss C. E. Thomson, in 1898, later moving to Clent, Worcester-shire. They had two children, a son William Jannion who married Miss G. Wingfield Stratford, dying in his late twenties without issue, and a daughter Marjorie Caroline. Though removed from the county Elliott kept up a great deal of correspondence with his friends and gradually accumulated considerable information concerning the past history of the fauna of the county. This prompted him to commence

writing his "*Vertebrate Fauna of Bedfordshire*", of which he published privately five parts over the years 1897-1901. This was the first work on Bedfordshire birds and had it not been for such an undertaking many valuable records would have been lost for all time. In his pre-fatory remarks, Elliott hoped that he had done something to encourage others in their investigations and he would have been most gratified to see the keen interest being shown in the subject at the present time.

After the publication of the *Aves* section of this work it was eventually abandoned in favour of a revised and more complete account of the county fauna, which he wrote for the *Victoria History of Bedfordshire* in 1904.

Prior to his residence in the Midlands he took an active interest in the bird-life of several counties of that area and it is regrettable that the writer can discover no details of these exploits. Some were most probably visits either to relatives or the homes of school friends, but suffice it to say that notes appeared in the "*Zoologist*" from the following dates onwards, Staffordshire (1888), Warwickshire (1891) and Worcestershire (1892).

His roving spirit took him to Lapland in 1896. Nothing is known to the writer of this adventure, concerning his probable companions or the itinerary, other than an album of photographs showing Elliott in Lapp winter costume taken aboard the boat on the homeward journey, an eagle and places visited on the Norwegian coast. It is hoped that one day details of this adventure will come to light, as it is inconceivable that being the keen recorder he undoubtedly was, Elliott should have left no written account of the expedition.

Previously (1894) he had visited the islands of the St. Kilda group and fortunately there are excellent records of his observations during his sojourn there. He was the guest of the minister on the main island, Hirta. On his return he contributed articles to the *Journal of the Birmingham Natural History and Philosophical Society*. As a result of this visit Elliott added a new species to the list of British birds by discovering a dead small warbler with which he was unfamiliar. This was later identified by R. Bowdler Sharpe as being the first Subalpine Warbler recorded for Britain.

In 1903 he bought a lovely Tudor manor house at Dowles near Bewdley, Worcestershire, on the edge of the Wyre Forest, with an extensive stretch of woodland and stream. The area became a nature sanctuary and after thorough and careful restoration of the house and grounds was a delight to visitors. It was here that Elliott remained for the rest of his life and from here he travelled daily to his business in Dudley, walking in all weathers along a pretty route to Bewdley railway station which led him by the river Severn and through the small churchyard where he now lies buried.

At the time of the restoration of Dowles he was already well informed on the subject of archæology and the restoration of old buildings, and gradually in his later years this came to supersede his former interests, though these were not abandoned.

His interest in the wild life of Shropshire caused him to become a close friend of the late T. A. Coward and he wrote many notes of the



J. STEELE ELLIOTT (1871-1942)
Photograph taken in 1912

birds of that county and that in which he resided for the "Zoologist" and "British Birds". He also contributed many articles on local vertebrates to the Caradoc Club's annual "Record of Facts". Other close friends were the celebrated late Charles Oldham, of Berkhamsted, who in his later years was such an active member of the Hertfordshire Natural History Society, the late Theed Pearce and Col. R. B. Campbell, D.S.O., M.C., who now resides in Edinburgh.

Our own and contiguous counties were visited as frequently as business would permit and many bird notes were contributed to the current journals. Northern Ireland also claimed his attention. He became an active member of the Bedfordshire Historical Record Society and worked on volumes for the survey committee of that body, contributing articles on such subjects as windmills and water supplies, wells, pounds and lock-ups, turnpike roads and toll gates, dove-cots, and duck-decoys, in addition to a treatise on vermin payments for Luton Borough Museum. All his life the county of his origin remained his principal interest. He amassed collections of county specimens of stuffed birds and their eggs, ancient pottery and implements and the impedimenta of the bobbin-lace industry, etc., most of which he gave on trust to the Bedford Modern School and Luton Museums, subject to their re-distribution regionally and to certain other conditions. (To these were added part of the Worthington G. Smith Collection of antiquities purchased at Dunstable.) He bought such interesting properties in the county as Blunham Mill and Burdelys Manor Farm, Stagsden, and thoroughly restored them carefully and authentically. He became an authority on such subjects and was consulted frequently. The latter residence is now owned by his nephew, D. W. Elliott.

After the decease of his first wife he married again in 1925. His bride was Mrs. D. Wingfield Stratford and they had one daughter, Petronilla Letiere Sheldon.

J. Steele Elliott was a most active man to the last and his untimely end occurred after a brief illness while on a visit to his brother William at Black Hall, Kerry, Montgomery, on 27th March 1942, leaving a tremendous gap in the field of authorities on the County of Bedfordshire.

The one regret of the writer is that he did not have the pleasure and honour of knowing Elliott intimately and feels the poorer thereby. I can do no better than to add the following postscript, taken from an appreciation of the deceased written by T. Wyatt Bagshawe, one of his great friends, which appeared in the *Bedfordshire Times* in April 1942. He says of Elliott that "He was one of those men too rarely bred in these times, a great lover of England and the country . . . He could explain the joys and mysteries of the countryside as few others could. He saw things that you and I would have missed entirely. His name, like those of Worthington Smith, James Saunders, William Austin, Hight Blundell, Herbert Fowler and others will be remembered whenever there are histories of Bedfordshire written".

The writer acknowledges his indebtedness to the persons mentioned in the foregoing for information contributed and especially to Steele Elliott's daughter, Mrs. M. C. Sheldon, who is at present resident at Dowles Manor.

Reports of Recorders

BOTANY

The year was extraordinary and in sharp contrast with the previous one. The large amount of rainfall made field work at times difficult but prolonged the flowering period of our plants. Places which were parched and barren in the autumn of 1949 were still rich in vegetation in October 1950. Market gardeners were provided with a glut of vegetables, but in many cases gave up the struggle to keep down what must have been a record crop of weeds. As a consequence of this the wool adventives provided a fascinating study and about forty new species, including eight new to Britain, were found. We have now recorded for the county about a hundred of these alien species. It would be helpful if members would draw my attention to any unusual plants they may see in arable fields where "shoddy" may have been used.

The search for other new species and old friends in new stations continued as intensively as before. The most interesting discoveries were Yellow Vetchling (*Lathyrus Aphaca* L.) by H. Cole in rough grassland south of Luton and *Carex tumidicarpa* Anders. by H. B. Drummond in company with the recorder and E. Milne-Redhead in a small marsh at Stockgrove. Both had been unrecorded for many years. The recorder also found *Carex distans* L. in Abbot's old station at Stevington. T. Laffin found *Montia fontana* L. ssp. *verna* (Neck.) at Sutton which was an interesting discovery as S. M. Walters had recently shown that all the dried material of our Blinks was *M. lusitanica* Sampais. P. D. Sell and C. West paid a visit to look at our Hawkweeds (*Hieracium* spp.) and I hope to report next year that the distribution of the species of this genus is more fully known in the county.

Few new district records have been made, for as I reported last year, the distribution of most of our species within the county is fairly well known. The county has lost a valuable field worker in T. Laffin who has left Wrestlingworth, in the small and hitherto comparatively little worked Cam district, for Kent.

My own survey of the botany of the county is nearing completion and I would be glad of any assistance readers can give in sending records of plants and notes on botanists. The most apparently trivial information may prove valuable.

Among the botanists of some national reputation who have visited the county during the year are J. E. Lousley and R. A. Graham, each of whom made four profitable visits, E. Milne-Redhead, always a welcome visitor, N. Y. Sandwith and J. P. M. Brennan. It is with regret that I record the death of A. J. Wilmott of the Natural History Museum who was probably our best British botanist. Over a number of years he had made many visits to the county and was greatly interested in its flora.

J. G. DONY

ODONATA

The dull and wet summer of 1950 was unfavourable for dragonflies, which were much less in evidence than usual. The only exception to this seems to have been *Anax imperator* Leach, which is usually rather scarce in the county; during 1950, however, this large species was far more abundant than usual, and several observers have reported this.

A list of dragonflies taken in the Leighton Buzzard district has been received from Derek A. Reid, which gives new localities and information on the distribution of a number of species. It also records two species new to the county list, as follows:—

Orthetrum cancellatum L. This species is not uncommon at Grovebury Pits, Leighton Buzzard; but prefers larger stretches of water with plenty of bare ground or sand on the banks on which to rest. It is common at the Brickworks Pit at Stanbridge, and has been there for many years. (D. A. Reid.)

Lestes dryas Kirby. One female taken at a pond at Heath and Reach in 1950. (D. A. Reid.) This specimen has been seen and checked by Miss Longfield. *Lestes sponsa* Hans. is frequent at Rushmere Pond, Heath and Reach, and has also been found at Grovebury Pit, at Cople, and at Wavendon Heath. It is therefore quite possible that *L. dryas* has been overlooked.

RAY PALMER

FISHES

In discussing the Fishes of Bedfordshire in Volume 2 of the Journal, I referred to the unexplained scarcity of bream in the Ouse during the past thirty years although previously the river in this locality had been regarded as one of the great strongholds of the species in the country but I mentioned that there were signs of a revival, a number of small bream having been taken that year. That revival has been steadily maintained and during the four years that have elapsed since that report was written, more and larger bream have been caught in all parts of the river each year. Whilst they have not yet reached the size and numbers that existed at the beginning of the century, they bid fair to do so before long. Various theories have been advanced for their long absence but none of these are really convincing and the problem has not been satisfactorily solved.

The return of the bream has had an interesting sequel. A certain amount of interbreeding is always apt to occur among the various members of the Cyprinidae, but the number of roach-bream hybrids caught in the past three years has been most marked.

Possibly the most interesting capture reported to me in 1950 was a roach-bleak hybrid. Although roach and bleak are the commonest species of the Carp family in the Ouse and all members of that family, as mentioned above, tend to interbreed, roach-bleak hybrids are not frequently met with, in fact this was the first I had seen. Superficially it resembled a pale thin roach with a pinkish eye, but its dorsal fin with eleven branched rays set back well behind the base of its ventral fin, its long anal fin with fifteen branched rays and its prominent lower jaw enabled it to be identified with certainty.

F. G. R. SOPER

BIRDS

In presenting this fifth report I wish to acknowledge gratefully the co-operation of the many members who have submitted details of their observations during the year. My remarks of the previous year have apparently encouraged others to come forward, with the result that we now have a much stronger corps of field-workers who I trust will further enthuse others to take an active part.

It still becomes necessary for me to draw attention to the necessity of keeping field-notes and in a few cases valuable records were lost through failure on the part of some observers to make careful entry of dates, etc. We feel certain, however, that such defects are disappearing rapidly and the standard of the reports on the whole has been very satisfactory. A few members failed to submit their annual reports in check list order and in one case all records for a given species were not under one heading. The attention in future to such details will earn the gratitude of Recorders, as the abstracting of records is a lengthy business. Reports on *all* species observed during the year should be submitted.

The year proved interesting on the whole, despite the very wet summer and autumn. No great extremes of climate were experienced, though before the end of the year the weather became very cold and there were slight falls of snow. Strong west winds in January caused many Little Auks to be blown inland in Britain and one such bird was picked up near Luton. The usual parties of Gulls were seen along the Ouse Valley and elsewhere. Despite some sharp frosts the weather was for the most part "open" and a fine spring was experienced. Redshank returned rather earlier than usual to Bedford Sewage Farm, but on the whole summer visitors and migrants were reported at about the usual dates; in one or two instances of late records this may have been due to insufficient observation.

During the survey of the bird-life of the River Ouse and its tributaries in the summer the relative absence of Reed-Warblers and to a lesser degree of Sedge-Warblers was most noticeable, due no doubt to the dredging of the river in recent years, with the consequent destruction of reed-beds and other suitable vegetation.

There were several interesting breeding-records during the summer and

for the first time for many years the Hobby was known to nest successfully. Common Buzzards and Short-eared Owls showed some interest in breeding by remaining until well into the season, but eventually disappeared. It is hoped that all protection will be afforded these birds should they try to settle within the county at some future date. We have several areas which would seem to offer them ideal territory. Corn-Crakes also frequented two localities.

Black-Headed Gulls increasingly frequented several areas until May and it will come as no surprise if a nesting colony develops.

Gales in September were no doubt the cause of the recovery of another Manx Shearwater in Bedford, which fared better than its predecessor. With the onset of winter, Golden Plover appeared to be in numbers fewer than usual, a point noticed by several observers. Starlings, however, immigrated in very large flocks and we experienced much the same influx as that reported in the National Press to have occurred in many areas in the Eastern side of England. Near Eversholt a very large roost of these birds in company with Fieldfares, Redwings, Pigeons and many smaller species was studied during the months of November and December, and after further investigation a paper on the subject will appear in a future issue.

None of the rarer species of Wildfowl were encountered during the closing months of the year, but Mallard, Teal and Wigeon were present in all stations in about average numbers.

Apart from the river surveys, which proved very informative, the members of the Bedford School Natural History Society carried out further investigations of rook-roosts, a report of which appears elsewhere in this issue. These surveys are continuing and the results will also be published in special articles at some future date.

In retrospect we may consider the results of the year's work to be most encouraging, as evidenced by this amplified report.

Abbreviations of Observer's names: P.S.B.=P. S. Bates; B.S.=Bedford School Natural History Society; H.C.=Harry Cole; D.W.E.=D. W. Elliott; H.W.G.=H. W. Gover; F.C.G.=F. C. Gribble; A.J.=A. Johnston; R.L.=Roger Lyle; R.P.=Ray Palmer; C.S.P.=C. S. Payne; W.K.P.=W. Keith Piercy; G.P.=Gordon Plummer; 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.

M.O.=More than four Observers.

HOODED CROW (*Corvus cornix*)—A few remained from December 1949 till the early spring of 1950, Dunstable Sewage Farm (A.J. and H.B.S.); one flew northwards over Flitwick Moor, 1st May (R.P.).

CARRION CROW (*Corvus corone*)—Continues to be very common throughout the county at all seasons, breeding especially strongly in the north. Winter flocks of 20-30 or more occurred, Bedford Sewage Farm and the Bedford Corporation rubbish-tips, Willington (Rec.).

ROOK (*Corvus frugilegus*)—Fluctuation in some rookeries noted but no diminution in numbers. Eggs reported hatching on 8th April, Oakley (A. G. Oldfield). Further study of roosts made during the year by Bedford School Natural History Society (see separate report).

JACKDAW (*Corvus monedula*)—Seen commonly at all times of the year with flocks of several hundreds in the winter months. Appears to be breeding extensively in the Borough of Bedford, chimneys being favoured. New site in rabbit burrows, on the chalk escarpment near Whipnade, discovered in April.

MAGPIE (*Pica pica*)—Still continues very abundant in many parts of the county (Rec.).

JAY (*Garrulus glandarius*)—Well distributed in most wooded areas and appearing to be most abundant along the Greensand Range (Rec.).

STARLING (*Sturnus vulgaris*)—There was a very noticeable influx at Bedford Sewage Farm between 1st and 8th October and following an easterly gale on 22nd October large flocks of several thousand each were seen here also, as well as in the vicinity of Willington and over Bedford (Rec. and F.C.G.).

During the very foggy night of 26th-27th November a large party settled in trees in the centre of Bedford, obviously lost in the fog and attracted by the town lights, and these called loudly till daybreak.

A large roost at Eversholt is being studied.

GREENFINCH (*Chloris chloris*)—Large flocks at Bedford Sewage Farm during winter months (Rec.).

GOLDFINCH (*Carduelis carduelis*)—Also commonly seen during winter months at Bedford Sewage Farm and on corn stubble in the north of the county, particularly in the River Ouse Valley. Some flocks exceeded fifty birds in number (Rec.).

LESSER REDPOLL (*Carduelis flammea*)—One, Pennyfather's Hills, Clophill, 15th January (B.S.). Only report received, though probably overlooked in winter months as parties usually occur in birch woods, especially in the Greensand area.

LINNET (*Carduelis cannabina*)—Large flocks seen in a number of localities during the winter months, the largest being at Bedford Sewage Farm where the birds numbered several hundreds during December (Rec. and F.C.G.).

BULLFINCH (*Pyrrhula pyrrhula*)—Single birds and small parties of two or three reported from many areas. Seems to be diminishing along certain areas of the Greensand Range (W.G.S.).

COMMON CROSSBILL (*Loxia curvirostra*). Flock seen at Whipsnade on 27th August (P.S.B.).

CHAFFINCH (*Fringilla caelebs*)—Large flocks seen during winter months in most localities especially at Bedford Sewage Farm where at times parties of several hundred were encountered.

BRAMBLING (*Fringilla montifringilla*)—Main flocks seen January–March in widely separated areas, the largest party being at Bedford Sewage Farm. One, Cardington Cross, 14th January; thirty, Stevington, 12th January; one, Pennyfathers Hill, Clophill, 15th January; one, Leighton Buzzard, 15th January; one, Kempston, 21st January; seven, Kempston Hardwick, 21st January; one, Dunstable Sewage Farm and one, Brewer's Hill, 25th January; several, West Downs, 29th January; up to 150, Bedford Sewage Farm from January to 25th March when two birds were present; two, Milton Ernest, 14th March.

Also seen in latter part of year: twenty, Luton Hoo, 28th October; twenty, Luton, 31st December; six, Bedford Sewage Farm, 31st December (M.O.).

CORN-BUNTING (*Emberiza calandra*)—Many reports of singing males from areas chiefly in the north of the county. New breeding area discovered in May near Bletsoe (Rec.).

YELLOW-BUNTING (*Emberiza citrinella*)—Parties up to fifty strong at Bedford Sewage Farm during winter months.

REED-BUNTING (*Emberiza schoeniclus*)—Important breeding area discovered on bogs near Cainhoe Castle by the River Flit (Rec. and F.C.G.).

HOUSE-SPARROW (*Passer domesticus*)—Flocks of several hundred reported from Bedford Sewage Farm during the winter months.

TREE-SPARROW (*Passer montanus*)—Bedford Sewage Farm still seems to be the favoured haunt in winter; flocks of 300 or more seen here from mid-November (Rec. and F.C.G.). Smaller numbers reported from several other localities during winter months.

WOOD-LARK (*Lullula arborea*)—Only reported from single small breeding area.

SKY-LARK (*Alauda arvensis*)—Flocks, upwards of fifty in number, frequently reported in winter months on stubble in many localities and at Bedford Sewage Farm.

TREE-PIPIPIT (*Anthus trivialis*)—One singing at Woburn Park, 20th April (R.P.)

MEADOW-PIPIPIT (*Anthus pratensis*)—c. 100 at Bedford Sewage Farm during the winter, a few pairs remaining to breed during the summer (Rec.).

BLUE-HEADED WAGTAIL (*Motacilla flava flava*)—Male, Bedford Sewage Farm, 11th–14th April. Careful notes were made of details of plumage, such as blue forehead, crown and nape, white underneath chin, white eye-stripes above and below eyes, darker mantle than accompanying Yellow Wagtails, etc., showing that this bird was definitely not a variant. This is the second county record.

YELLOW WAGTAIL (*Motacilla flava flavissima*)—First arrivals (two), Bedford Sewage Farm, 10th April; small parties between Bletsoe and Felmersham, 14th May, in two breeding areas; seen during the summer at Eaton Ford, Caldecote and Everton (new localities); last two, Bedford Sewage Farm, 8th October (Rec., F.C.G., B.S. and H.C.).

GREY WAGTAIL (*Motacilla cinerea*)—Up to three reported at Bedford Sewage Farm, January–11th April and again 2nd September–end of year (chiefly males); three–four, East Hyde, 4th March and 16th September; one, Biggleswade 22nd–25th March and again 7th October; one at Langford, 9th September; one at Eaton Socon, 4th March (M.O.).

A pair were seen often at Kempston Mill during mid-summer but breeding was not proved.

PIED WAGTAIL (*Motacilla alba yarrellii*)—Several throughout the winter at Bedford Sewage Farm, at times numbering up to twenty or more (Rec.).

(1949 record)—A nest was found built in the machinery of a gravel-grab in constant use at the Cople pits of the Bedford Washed Gravel Company. The sitting hen took no notice of the driver, whose foot, when operating a foot-pedal was only a few inches from her, neither was she scared by the noise of the machinery, moving parts of which were close to the nest. She would however leave the nest at the approach of any other person and to prevent this any instructions to the driver were shouted from a distance. A brood was reared successfully.

TREE-CREEPER (*Certhia familiaris*)—Several reports of single birds seen in a variety of localities. Two pairs at Stagsden used a tit-box and a hollow log as nesting sites (F.C.G.).

NUTHATCH (*Sitta europaea*)—A number of birds reported, chiefly from localities in the Greensand area. Young seen at Whipsnade on 18th June (P.S.B.).

GREAT TIT (*Parus major*). Reported at all seasons as common in most parts of the county.

BLUE TIT (*Parus caeruleus*)—Same remarks apply to this species. Parties of twenty or more seen at Bedford Sewage Farm during the winter. Nest of ten eggs found in wing of Auster plane at Honeydon, 17th May, the bird entering through aileron hole. Plane had been in use several times in previous fourteen days (C.F.T.).

MARSH TIT (*Parus palustris*)—Single birds reported from a number of wooded localities, chiefly north of the Greensand, throughout the year.

LONG-TAILED TIT (*Aegithalos candatus*)—Many small parties reported during the winter months at Bedford Sewage Farm and many wooded areas. There appears to be an increase in breeding.

GREAT GREY SHRIKE (*Lanius excubitor*)—One, Elstow Claypit in January (R.L.).

RED-BACKED SHRIKE (*Lanius collurio*)—Nest found near Stopsley, 18th May; observed in eight localities on the Luton and Dunstable Downs and four nests found; a dying male picked up at Whipsnade, 15th June (S.W.R., H.C. and P.S.B.).

SPOTTED FLYCATCHER (*Muscicapa striata*)—First arrivals (four) at Dunstable, 27th April (H.B.S.).

GOLDCREST (*Regulus regulus*)—Seen commonly throughout the year in fir woods on the Greensand. There was probably a passage in December through Bedford as single birds were seen on rose trees in gardens at Clapham Road on 22nd (C. M. Lucas) and Chaucer Road on 24th (F. G. R. Soper).

CHIFFCHAFF (*Phylloscopus collybita*)—First arrivals (in March), Whipsnade and Flitwick Moor, 23rd; Bedford Sewage Farm, Cranfield and Eaton Socon, 25th (M.O.).

WILLOW-WARBLER (*Phylloscopus trochilus*)—First heard at Whipsnade, Stagsden and Flitwick Moor, 7th April (Rec., P.S.B. and R.P.).

WOOD-WARBLER (*Phylloscopus sibilatrix*)—One, Whipsnade, 26th May; one, Amphill, June (P.S.B. and C.S.P.).

GRASSHOPPER-WARBLER (*Locustella naevia*)—New locality discovered at foot of Barton Hills; Bird heard 2nd June (P. Symes).

REED-WARBLER (*Acrocephalus scirpaceus*)—Very few birds recorded during the year along River Ouse.

SEDGE-WARBLER (*Acrocephalus schoenobaenus*)—First arrivals, Bedford Sewage Farm and Greenfield Mill, 30th April; one, Bedford, 1st May; c. twenty Oakley Bridge, 4th May (R.P., C.S.P. and B.S.).

Last seen, Southill Park, 5th August (F.C.G.).

GARDEN WARBLER (*Sylvia borin*)—First heard, Aspley Wood, 9th May (R.P.).

BLACKCAP (*Sylvia atricapilla*)—First heard and seen, Whipsnade, 21st April (P.S.B.).

WHITETHROAT (*Sylvia communis*)—One heard, Tilsworth, 20th April (R.P.). Nest containing clutch of six eggs found at Luton (H.C.).

LESSER WHITETHROAT (*Sylvia curruca*)—Heard Totternhoe, 2nd May, and Bedford Sewage Farm, 6th May (R.P. and C.S.P.).

FIELDFARE (*Turdus pilaris*)—Large flocks travelling northwards, 5th April; last emigrants (three), Chiltern Green, 24th April; first winter visitors, Whipsnade, 25th August. Flock of several hundred, Bedford Sewage Farm, 31st December (R.P., H.C., P.S.B. and Rec.).

REDWING (*Turdus musicus*)—First winter visitors seen at Whipsnade, 30th September (P.S.B.). More than 100 with Fieldfares at Bedford Sewage Farm, 31st December (Rec.).

MISTLE-THRUSH (*Turdus viscivorus*), **SONG-THRUSH** (*Turdus ericetorum*) and **BLACKBIRD** (*Turdus merula*)—Also commonly reported at all seasons from most areas.

WHEATEAR (*Oenanthe oenanthe*)—Spring passage: Movement northwards through Elstow Claypit during last week in March; one, Flitwick, 27th March; two, Blow's Down, 9th April; also recorded at Ridgmont. From 6th April, five pairs took up residence on an aerodrome in North Bedfordshire and reared young. Pair at Totternhoe, 15th May (R.P.).

Autumn passage: Two, Willington, and one, Stagsden, 20th August; one, Luton, 24th August and 2nd September; four, West Downs, 25th–31st August; considerable number at Elstow Claypit, 2nd October (twenty in one party), when a "large variety" reported may have been of the "Greenland" subspecies. (M.O.).

WHINCHAT (*Saxicola rubetra*)—One, Flitwick Moor, 1st May; one, Willington gravel-pits, 9th May; at least three pairs bred at Elstow Claypits, another five pairs in the Luton–Dunstable–Totternhoe areas, probably at least two pairs at Sundon rubbish-dump (six birds here on 17th June) and one pair at Bedford Sewage Farm.

Four, migrating at East Hyde, 3rd September, and one at Ridgmont during autumn (M.O.).

STONECHAT (*Saxicola torquata*)—One, Bedford Sewage Farm, 8th January and 15th October; one, Copt Hall, Luton, 14th February; one, Dunstable, 18th May and one, East Hyde, 12th November (Rec., F.C.G., H.C. and H.B.S.).

REDSTART (*Phoenicurus phoenicurus*)—One, Stagsden, 15th April; passage at end of April, through Renhold Wood where dead male was picked up; pair at Whipsnade, 19th June; one at Clifton, 30th June. A number of pairs bred in localities along the Greensand range (D.W.E., W.G.S., P.S.B. and W.K.P.).

NIGHTINGALE (*Luscinia megarhyncha*)—First heard, Flitwick Wood, 18th April (R.P.).

ROBIN (*Erithacus rubecula*), **HEDGE-SPARROW** (*Prunella modularis*) and **WREN** (*Troglodytes troglodytes*)—Frequently reported at all seasons from every part of the county.

A Wren's nest was found at Howkins' timber-yard in Newnham Avenue, Bedford, built on a wheel-axle of a pole waggon which had been in constant use for journeys up to twenty miles. When discovered the hen was sitting on the eggs. The cock bird was seen to feed the hen immediately the vehicle returned to the yard. For safety, the nest was removed to a similar prepared site nearby and a brood was reared. This incident was apparently a repeat of a similar performance of the previous year (Rec.).

SWALLOW (*Hirundo rustica*)—First arrivals—Kempston Hardwick, 7th April; Whipsnade, 8th; Luton 9th; Oakley and Bedford Sewage Farm, both 10th.

Last seen, Bedford Sewage Farm, 1st October (M.O.)

HOUSE-MARTIN (*Delichon urbica*)—First seen, Woburn Park, 8th April. Twenty nests on a building at Westoning destroyed by lightning during a storm, 9th July (nests, eggs and young lay on ground); last seen Kempston, 10th October and Whipsnade, 12th October (F.C.G., W.G.S., C.S.P. and P.S.B.).

SAND-MARTIN (*Riparia riparia*)—First seen Oakley Bridge, 7th April, and last at Bedford Sewage Farm, 24th September (A. G. Oldfield and Rec.).

SWIFT (*Apus apus*)—First arrivals, Biggleswade, 2nd May; Bedford, 3rd and Luton, 4th. Last seen, Bedford, 3rd September.

Large northward passages over Bedford: *c.* 800 (in waves of *c.* 200), 9th May, and *c.* 200, 3rd June (M.O.).

NIGHTJAR (*Caprimulgus europaeus*)—Only record received, Aspley Wood, 6th June (R.P.).

KINGFISHER (*Alcedo atthis*), GREEN WOODPECKER (*Picus viridis pluvius*), GT. SPOTTED WOODPECKER (*Dryobates major*) and LESSER SPOTTED WOODPECKER (*Dryobates minor*)—All reported from suitable localities in average numbers.

CUCKOO (*Cuculus canorus*). First heard at Dagnall, 16th April (Rec.).

[SNOWY OWL (*Nyctea scandiaca*)]—A report appeared in "The Field" of 1st April, of a supposed Snowy Owl seen perched on a hedge by the Cambridge Road, a few miles east of Bedford on 22nd February.

(NOTE.—It has not been possible to obtain further confirmation of this report, as the address of the observer is unknown.)

LONG-EARED OWL (*Asio otus*)—No birds discovered in the county during the year.

SHORT-EARED OWL (*Asio flammeus*)—Five seen on an aerodrome in North Bedfordshire on 18th January and a pair on 4th April (H.W.G.). Three at Stewartby Claypit in November (fewer than usual) (R.L.), two in the Pertenhall area in the spring (Miss E. Modlen) and one at Flitwick Moor, 30th April–6th May (W. P. Gatward and Mrs. E. P. Palmer).

LITTLE OWL (*Athene noctua*), TAWNY OWL (*Strix aluco*) and BARN-OWL (*Tyto alba*)—Frequently reported, especially in the north of the county.

HOBBY (*Falco subbuteo*)—A pair made their nest in what appeared to be the remains of an old squirrel drey and successfully reared three young. This is the first record of the breeding of the species in the county for many years.

KESTREL (*Falco tinnunculus*)—Commonly seen throughout the county. Pair at Toddington were feeding young on 28th April.

Nestling ringed Howbury Hall, Goldington, 29th May 1949 was picked up dead at Upton, Hunts., 14th April 1950.

COMMON BUZZARD (*Buteo buteo*)—One over Dunstable Downs, 18th May; pair turned up in spring in the Greensand area and stayed until the breeding season but no breeding proved; one seen over the Bedfordshire border near Staughton Moor in December (W.G.S., H.B.S. and C.F.T.).

HARRIER (*Circus* sp.?)—A large "grey hawk" with a noticeable white rump reported by a keeper to have been seen frequently during November and December on his beat at Sandy, was almost certainly a Harrier and most probably a cock Hen Harrier (R.L.).

GOSHAWK (*Accipiter gentilis*)—A bird reported on several occasions in the Bedford area during the summer was undoubtedly an "escape" belonging to Mr. P. A. Boys-Stones. It was recognisable by the shortened tail which had been clipped.

SPARROW-HAWK (*Accipiter nisus*)—Very few seen during the year.

COMMON HERON (*Ardea cinerea*)—At least forty-eight nests in the county as follows: Bromham, sixteen; Sandy Lodge, fourteen; and Southill Lake, eighteen. A bird ringed at Southill was recovered in Cumberland.

BITTERN (*Botaurus stellaris*)—As stated in the previous Journal, Mr. Scrimshaw reported on 3rd August 1950 (not August 1949 as misprinted) that a Bittern had been seen again near Oakley Bridge, repeating the appearances of 1948 and 1949. It was seen by E. G. Eeles on 10th and by the Recorder and F. C. Gribble on 13th.

Another at Eaton Socon on 31st December (C.F.T.).

WHOOPEE SWAN (*Cygnus cygnus*)—(1947 Record). Four seen on River Ouse near Bromham in February 1947, stayed for only a few hours. All characters noted (H. C. M. Felce).

GEESE (*Anser* sp.?)—Four on arable land at Church Farm, Biddenham in January (wife of farm shepherd); *c.* thirty flying S.W. over Biddenham, 21st April (F.C.G.); (1949 Record—same reporter states that another four visited

the same field in January 1949); small party heading westwards over Bedford, 27th October (L. Newcombe); skein flying S.W. over Bedford Sewage Farm early in December (farm staff).

CANADA GOOSE (*Branta canadensis*)—Two flying W. over Biggleswade, 26th July (G.B.).

(1947 Record—Small party on River Ouse near Box End, Kempston, on a day in February 1947) (H. C. M. Felce).

SHELD-DUCK (*Tadorna tadorna*)—One, Kempston Hardwick, 1st January; pair, Felmersham, 7th May (C.S.P. and Lady Wells).

MALLARD (*Anas platyrhynchos*)—Reported from all the usual localities. Largest winter flocks: 300, Kempston Hardwick claypit pool, 1st January; c. 250 Southill Lake, 30th December.

c. 100 on the ice on the small ornamental lake in Bedford Park, 27th February (C.S.P., W.K.P. and Rec.).

TEAL (*Anas crecca*)—Present in the winter months in all the usual haunts, the large parties being: 250–300, Bedford Sewage Farm during mid-February and c. 150, Stewartby Claypit, 2nd December; c. 100, Southill Lake, 30th December. Five, Bedford Sewage Farm till 13th May, one here, 13th August and number had increased to c. eighty by 24th September.

No nests were discovered during the season. (B.S., F.C.G. and R.L.).

GARGANEY (*Anas querquedula*)—Male at Bedford Sewage Farm 16th–18th May; male at Felmersham gravel pit, 25th May (B.S., F.C.G. and Lady Wells).

WIGEON (*Anas penelope*)—Also reported from all usual winter haunts, the largest numbers being — c. eighty, Kempston Hardwick, 1st January; c. fifty on floods at Goldington, 16th February, and c. fifty at Stewartby Claypit, from October onwards. Last winter visitors (a pair), Battlesden Lake and a drake, Drakelow Pond, Woburn, 8th April. First arrival (male) Felmersham Gravel Pit, 29th October (C.S.P., B.S., R.L. and F.C.G.).

PINTAIL (*Anas acuta*)—Male, Kempston Hardwick, 1st January; male, Bedford Sewage Farm, 11th February, and a dead male picked up here early in December; eight, Stewartby Claypit, 15th December (C.S.P., F.C.G. and R.L.).

SHOVELER (*Spatula clypeata*)—Male, Bedford Sewage Farm, 11th–12th February, and again 16th May; pair, Felmersham Gravel Pit, 14th–16th May; female, Bedford Sewage Farm, 24th September (F.C.G., B.S. and Rec.).

COMMON POCHARD (*Aythya ferina*)—Present in winter months at usual stations, males predominating. Largest parties:— c. forty on floods at Goldington, 16th February, and eighty-nine (fifty-four males), Southill Lake, 25th–30th December (B.S., W.K.P. and F.C.G.).

A male stayed at Felmersham Pits till 16th June. No female seen after 7th May and no evidence of breeding. (Rec. and Lady Wells).

TUFTED DUCK (*Aythya fuligula*)—Reported from usual winter haunts. Largest party (twenty-one), Battlesden Lake, 8th April. Five seen at Southill Lake, 7th April, but did not stay. A pair present, Felmersham Gravel Pit, 20th May, after which male alone was seen till 16th June. No evidence of breeding (F.C.G., B.S. and Rec.).

MANX SHEARWATER (*Puffinus puffinus*)—A bird in exhausted condition was picked up by the residents of 43 Goldington Road, Bedford, in their garden on 31st August and taken next day to Inspector Dowling, R.S.P.C.A., who had it examined by a local Veterinary Surgeon and then brought to the Recorder. It was apparently uninjured.

Mr. Key and F. C. Gribble fed it on bread sop and shrimp paste and photographed it. The following morning (2nd September) Mr. E. G. Eeles, who was going to Gibraltar Point, Lincs., took the bird in a crate and released it satisfactorily on the beach at Skegness. It swam out to sea. (There had been strong winds for some days prior to the occurrence.)

(See similar occurrence—antea No. 3, page 36) (Rec.).

GREAT-CRESTED GREBE (*Podiceps cristatus*)—At least nine pairs nested with varying success in the County, Southill Lake being the stronghold where there were six pairs. The population of the Woburn Lakes fell sharply with the cleaning out of the pools during the previous summer and few birds have re-established themselves there (W.K.P., F.C.G. and Rec.).

SLAVONIAN GREBE (*Podiceps auritus*)—One on River Ouse at Bedford Sewage Farm, 24th–26th December. All characters noted (F.C.G. and E. G. Beles).

LITTLE GREBE (*Podiceps ruficollis*)—Bred as in recent years on several flooded gravel and clay pits and at Southill Lake. Seen commonly in small numbers on River Ouse during the winter.

WOOD PIGEON (*Columba palumbus*)—Large flocks, often of more than 200 birds seen in many localities during the winter months (Rec.).

STOCK-DOVE (*Columba oenas*)—Also occurred in flocks but of smaller size than those of the former species. One pair reared at least three broods in tree at Burdelys Manor Farm, Stagsden (D.W.E. and Rec.).

TURTLE-DOVE (*Streptopelia turtur*)—First arrivals seen at Whipsnade, 30th April, and Stagsden, 1st May (P.S.B. and D.W.E.).

BAR-TAILED GODWIT (*Limosa lapponica*)—One, Bedford Sewage Farm, 18th March (C.S.P.).

COMMON CURLEW (*Numenius arquata*)—One, Oakley, 11th–12th January (B.S.); one, Great Barford, 28th July (M. P. Crummie); two, Pavenham, 30th April (L. Newcombe); party flying southward heard calling over Luton during early morning, 28th May (H.C.); one, Stewartby pit, 4th September (R.L.); one, Houghton Regis, 23rd December (M. E. Blundell).

WHIMBREL (*Numenius phaeopus*)—One, flying southward and calling, over Bedford, 11th September (Rec.).

WOODCOCK (*Scolopax rusticola*)—In addition to many breeding pairs along the Greensand range a pair with young was seen in the Swineshead area (new locality). Reported from most wooded areas of the Greensand and northwards, during the winter months (C.F.T. and Rec.).

COMMON SNIPE (*Capella gallinago*)—Seen commonly at Bedford Sewage Farm during winter months when at times at least forty birds were present. Small numbers reported from many other localities and a few pairs remained to breed in widely separated areas.

JACK SNIPE (*Lymnocyrtus minimus*)—First winter visitor, Bedford Sewage Farm, 24th September, and not more than two were seen here during winter months (F.C.G., C.S.P. and Rec.).

DUNLIN (*Calidris alpina*)—Two, Bedford Sewage Farm, 14th May (B.S.).

SANDERLING (*Crocethia alba*)—One by the River Ouse, Harrold, 14th May, in company with two Common Sandpipers. Appeared to be in transitional plumage—between first winter and first summer. All characters noted (F.C.G.).

RUFF (*Philomachus pugnax*)—One, Bedford Sewage Farm, 18th March, and from one to seven here 13th–18th May (F.C.G. and B.S.).

COMMON SANDPIPER (*Actitis hypoleucos*)—Passage in May (12th–16th). Single birds at Bedford, Kempston, Milton Ernest, Bletsoe, Felmersham, Odell and pairs at Harrold and Turvey.

Return passage, September–October: one, Stewartby, 4th–6th September; one, East Hyde, 17th September–8th October (M.O.).

GREEN SANDPIPER (*Tringa ochropus*)—Single birds at Bedford Sewage Farm, 15th January–21st February; one, Kempston Hardwick, 9th May; two Bedford Sewage Farm, 15th–24th June; main passage, up to ten, Bedford Sewage Farm, 25th June–20th August; one, Willington, 16th July; single birds, 2nd–10th September at Chiltern Green and Brogborough and up to four, Bedford Sewage Farm, 2nd September–1st October.

REDSHANK (*Tringa totanus*)—First summer arrival, Bedford Sewage Farm, 5th March, and up to fifty here by the 18th. A few pairs bred here and several other localities (B.S. and Rec.).

GOLDEN PLOVER (*Pluvialis apricaria*)—Three–four hundred, Stewartby, c. 11th February and several hundred near Cardington Cross, 18th February. Smaller flocks reported from many areas. An early autumn migrant passed over Bedford Sewage Farm, 13th August and several were on Broom Fields for a short period on the following day. In the later months of the year smaller flocks than normal were reported from all the usual areas (R.L., B.S., F. White and Rec.).

LAPWING (*Vanellus vanellus*)—Evidence of decrease in numbers of breeding birds (Rec.).

BLACK TERN (*Chlidonias niger*)—Passage, 7th–16th May; one, Biggleswade; one, Bedford Sewage Farm; four Drakelow (Woburn) and eight (six in one party), Felmersham (G.P., B.S., W.G.S. and Lady Wells).

COMMON/ARCTIC TERN (*Sterna hirundo* and *S. macrura*)—One, Biggleswade, 26th April and 1st May; four, Bedford Sewage Farm, 14th May; two, Felmersham, 14th May; one, Arctic Tern, Elstow, 19th September (G.P., B.S., R.L. and Rec.).

LITTLE TERN (*Sterna albifrons*)—One, Kempston, 14th May (B.S.).

BLACK-HEADED GULL (*Larus ridibundus*)—Seen commonly throughout the county in winter months (largest party, c. 150, Bedford Sewage Farm, 16th February) and in small numbers at Felmersham, Kempston Hardwick and Bedford Sewage Farm in May and single birds in July and August.

COMMON GULL (*Larus canus*)—One, Oakley, 23rd July; seven, Bromham, 24th July; three, Kempston, 1st August; c. six, Bedford Sewage Farm, 3rd December (E. G. Eeles, B.S. and Rec.).

HERRING-GULL (*Larus argentatus*)—Two, Southill Lake, 4th February; four, Bedford, 18th February; c. 100, Luton rubbish dump, January–26th February; two, Flitwick, 2nd April; two, Kempston, 14th May; one, Bedford, 17th May and 30th July; c. twenty-five, Luton rubbish dump, 2nd December (M.O.).

LESSER BLACK-BACKED GULL (*Larus fuscus*)—One, Bedford Sewage Farm, 10th April and five here, 13th May; one, Stotfold, 20th August (B.S. and H.C.).

LITTLE AUK (*Alle alle*)—One found in dying condition on Luton–Markyate Road, 11th February (P.S.B.).

CORN-CRAKE (*Crex crex*)—Pair seen displaying near Cranfield, 2nd June, and male heard calling throughout summer; one bird calling near Flitwick in the latter part of May and early June; one shot, Lidlington, 2nd September (first seen in this area for several years) (H.W.G., W.G.S. and R.L.).

WATER-RAIL (*Rallus aquaticus*)—One heard, Flitwick Moor, 26th March, and seen 2nd April; and another heard here, 29th October (R.P.); one, Bedford Sewage Farm, 17th December (F.C.G.).

MOORHEN (*Gallinula chloropus*)—Brood of newly-hatched chicks seen at Burdelys Manor Farm, Stagsden in early December (D.W.E.).

COOT (*Fulica atra*)—Largest winter parties reported at Southill Lake: c. 150, 2nd January and c. 120, 30th December (W.K.P.).

PHEASANT (*Phasianus colchicus*), COMMON PARTRIDGE (*Perdix perdix*) and RED-LEGGED PARTRIDGE (*Alectoris rufa*)—All widely distributed as breeding birds and good broods were reared. There appears to be little artificial rearing in the county.

QUAIL (*Coturnix coturnix*)—One heard in crop of tares and oats near Totterhoe, 9th June (R.P.), and another, or possibly the same bird, at the base of the Downs near Whipsnade, 1st and 6th August (Mrs. H. F. Greenfield and R. S. R. Fitter).

HENRY A. S. KEY

Notes and Observations

DOMESTIC OBSERVATIONS

Sitting one evening last June by a door opening into the garden, I watched a ground beetle (*Carabus* sp.) on the doorstep attack a woodlouse (*Armadillidium vulgare* L.). The ground beetle knocked over the woodlouse, and then hurriedly backed away. This observation is of interest, as it has recently been suggested (Nature, 1950) that woodlice possess repugnatory glands.

In the same month I returned home early one morning and found on the wall of my bedroom an adult male cockroach (*Blatta orientalis* L.). No evidence of the presence of cockroaches in the house has been found before or since. I know of no records of cockroaches flying in this country, and one imagines a cockroach of this size rather too heavy to be wind-borne, though a strong wind was blowing that night. There is a bakehouse eight doors away, but even if the cockroach came from the nearest house it must either have flown, or climbed over a fence, and walked over a stretch of garden and up the wall of the house to the second floor. Its presence there thus remains something of a mystery.

B. R. LAURENCE

OCCASIONAL INSECT VISITORS TO THE HOME

Everyone has at one time or another come across insects in their homes. Such insects may be divided roughly into two categories; those that normally breed in houses and those that more or less frequently visit human habitations. Among the former are such well-known pests as the cockroach or "black beetle" in kitchens, silverfish in larders and pantries, psocids or book-lice and those more closely associated with man such as the flea, the louse and the bed-bug. Among those that sporadically appear in houses are the cricket which frequently comes in from dump heaps, ants (only two kinds, the red house ant and the Argentine ant, habitually live indoors) and earwigs which come in from the garden and houseflies, including the bluebottle and the greenbottle, as well as the multitude of insects of all kinds that come into houses often attracted by exposed lights.

The purpose of this paper is to draw attention to three rather interesting instances of somewhat unusual insect visitors to the home in Bedford during recent years.

The first is the visit of one of the large dragonflies which came in an open window one summer's evening apparently attracted by the large numbers of small flies which were coming in to the desk light which happened to be the only source of light. The dragonfly presumably was hawking these insects out-of-doors and by some chance or other forgot itself so far as to enter the open window in pursuit of its food. It quickly seemed to realise that it had stepped beyond the bounds of propriety and settled on the heavy curtains. It made no further attempts to hawk and seemed content to rest on its laurels on the curtains for the remainder of the night.

A less welcome visit occurred one autumn and was repeated the following spring. This took the form of small insects creeping over the ceilings of bedrooms and dropping down on to such useful articles as the beds. These insects bore a strong resemblance to bed-bugs and as such were regarded with disgust. A closer inspection showed that they were not bed-bugs but a close relative, the swallow bug. They were coming in through the open windows from the house martins' nests just outside. In one room between fifty and seventy came in during the course of about a fortnight. In the autumn they entered the house just after the martins had left for the winter and again in the spring during the interval between the martins first arrival and the time when they re-established themselves. The swallow bug does not frequently suck human blood, but its appearance in houses and especially in beds, where it may appreciate the warmth, is most disconcerting.

It may be of interest to mention that Messrs. Southgate and Woodruff of the D.S.I.R. Pest Infestation Laboratory at Slough paid a visit to Bedford last autumn in order to take samples of birds' nests on houses. These investigators have shown that such nests are a prolific source of such household pests as clothes moths and carpet beetles. These insects they have been finding in large numbers in all kinds of birds' nests on houses so long as the nests are protected from the wet weather and remain fairly dry. It is therefore rather pointless taking the trouble to get rid of such household pests from inside the house unless one takes the extra precaution of removing the sparrows' and other birds' nests from the outside. This can be done effectively during the winter months when the birds have finished using them. If done each winter it will prevent the stock of pests from accumulating. Further information on this occurrence of household pests in birds' nests on houses is to be found in articles by these two investigators in *The Countryman* and the *Proceedings of the Zoological Society of London*.

The third insect visitor to be mentioned is perhaps the most interesting. It is the larva of one of the *Raphidia* or Snake Flies. Only three or four species are known to occur in England. The specimen in question was found in a ball of wool in a sitting room. Since these insects are usually found in the larval stage under loose bark it was quite obvious that this specimen had been brought into the house with the logs. The larvae of snake flies are of rather peculiar crocodile-like shape, being elongate and slender, about $\frac{1}{2}$ - $\frac{3}{4}$ of an inch long when approaching full growth; hence the possible nickname "*Crocodylius minutissimus*". There is a well developed and dark chitinised head and prothorax while the second and third segments of the thorax and the ten body segments are paler and soft; this

results in a somewhat bizarre appearance resembling a composite insect, one end of which is dark and has a single pair of legs while the other two-thirds is paler and has two pairs of legs where it joins the other insect. This appearance of two insects being joined together is accentuated by the fact that it moves both forwards and backwards and when at rest often holds the head and prothorax up in the air while the rest of the thorax and abdomen remain horizontal. Occasionally also the larva lifts its abdomen off the ground and elongates it out backwards as if it were going to move, but having made this raising and stretching action no further movement takes place. These larvae can fast for considerable periods. The perfect insect which may be seen on tree trunks or among May blossom is characterised by the elongated neck-like prothorax which has given rise to the popular name Snake Fly. It has the typical four, usually equal-sized, net-veined wings of the Neuroptera which are folded in a roof-like manner over the body when at rest. The females have a long needle-like ovipositor by means of which they insert their eggs in slits in bark.

H. F. BARNES

UNUSUAL ACCIDENT TO A DRAGONFLY

Those who are familiar with Flitwick Moor will be aware that exposed surfaces of the peat during the summer and autumn are often riddled with small holes about the diameter of an ordinary pencil, or slightly smaller. These holes are particularly noticeable during a warm dry season, and are the dwellings of the larvae of the Green Tiger Beetle (*Cicindella campestris* L.).

The larva has a soft white body, but a hard dark head and prothorax, with powerful jaws. When disturbed by one's tread it immediately drops to the bottom of its burrow leaving the hole visible; but when waiting for prey its head closes and conceals the hole at ground level. Thus it lies in wait for ants and other small creatures to come within reach, and having captured one drops below to devour its victim.

On a sunny day in early September I was observing dragonflies on the Moor, particularly *Sympetrum striolatum* Charp., which was very abundant. These small red dragonflies are fond of settling on the bare peat in sunny spots, and at such a place I was attracted by a sound of fluttering, as though an injured dragonfly were struggling on the ground.

On approaching the place I found that this was indeed the case, but I was amazed to find that the insect appeared to be held to the ground on its side. Further investigation revealed that the left front wing had been seized by a tiger beetle larva, and dragged right down the hole to its full length. I gently pulled the wing out, and the larva came with it clinging to the tip, but let go when out in the open. The wing was somewhat torn, and badly crumpled; but I flattened it out and the dragonfly was able to flutter a few yards, where it clung to a reed stem to recover from its unfortunate experience.

RAY PALMER

BUMBLE BEE IN A LINNET'S NEST

A pair of linnets were dispossessed of their nest by a bumble bee—*Bombus agrorum* Fab.—sometimes called the "Common Carder Bee", which occupied the nest just prior to the lining being completed.

This is of interest as Edward Step (*Bees, Wasps, Ants and Allied Insects*, p. 12) says that this bee sometimes occupies an abandoned robin's nest, whereas in the case of the linnet's nest this was in course of construction and located six feet above the ground. When the bee was removed the linnets did not return, but built another nest a few yards away. The writer is indebted to Dr. V. H. Chambers for identifying the bee.

H. COLE

(Sladen in *The Humble Bee* (p. 194) also mentions this species as using a robin's nest, and Saunders (*Hymenoptera Aculeata*, p. 368) gives a record of it invading an occupied wren's nest and heaping up its brood among the eggs of the bird which was forced to desert the nest. I have several times found this bee, and the allied species *B. humilis* Ill., in nesting boxes put up for tits in my garden. In some cases they have utilised the old tit's nest after the young had flown; but on at least two occasions an *agrorum* queen took possession of an uncompleted blue tit's nest and caused the birds to abandon it.—ED.)

KINGFISHER IN CHAPEL

On Sunday, 13th August 1950, at about 9.30 a.m., the chapel service had just commenced, when I observed a Kingfisher sitting on one of the roof beams.

As the congregation started to sing the bird took off and flew round and round among the many roof beams at a fair speed, but never looked likely to hit one, in fact it displayed great manoeuvrability.

When the service was over and everyone had left the chapel, the windows were left open and on returning about an hour later it was found the bird had gone. The windows are all 9in. by 18in., and the bird must have entered one of these at ground floor level. It appeared to be a full grown bird and in good condition.

L. NEWCOMBE

(Governor, H.M. Prison, Bedford)

PLANT GALLS

The study of plant galls is a fascinating subject, though much neglected. These abnormal growths are of much interest to both botanists and entomologists, and can frequently be collected and studied during an off season when more active field work is in abeyance. No less than 880 kinds of plant galls are listed in Swanton's *British Plant Galls*, and the agents which cause them are found in five orders of insects, mites, celworms and fungi.

Dr. H. F. Barnes has made a special study of the *Cecidomyiidae*, or gall midges, and there are other entomologists in the Society who will assist in identifying galls caused by other groups of insects. Dr. Barnes has therefore undertaken to act as Recorder of Plant Galls to the Society, and members interested are asked to co-operate in this work by forwarding to Dr. Barnes specimens of any unusual galls which they may come across, with details of the locality and plants on which they were found. The fact that a gall new to Britain was found at Shefford some years ago shows that there is still much scope for study in this subject.—ED.

ABSTRACTS OF LITERATURE ON BEDFORDSHIRE NATURAL HISTORY FOR 1950

BRITISH BIRDS. Vol. XLII (1950).

(a) "Low nests of Turtle Dove", No. 1, p. 27. Details of a nest found at a low elevation at Studham by K. Allsop.

(b) "Herons flying at high altitudes", No. 4, pp. 124-5. Short note by C. F. Tebbutt on Herons flying at heights of over 1,000 feet near Bedford.

(c) "Further notes on Passerine migration through England", No. 9, pp. 274-8. Observations on the movement of migrating birds along the Chiltern escarpment, and references to the River Ouse. Compiled by J. D. Wood.

(d) "British recoveries of birds ringed abroad", No. 9, pp. 284-91. A Kestrel ringed at Jaeren, Norway, in September 1946 was shot at Dunton, Beds., in December 1946.

(e) "Recovery of marked birds", No. 19, pp. 313-28. A Linnet ringed at Whipsnade in August 1948 was recovered at Vitoria (Alava), Spain, in February 1950, and a Kestrel ringed at Clapham, Beds., in June 1945 was recovered at Guilsborough, Northants, in January 1950.

THE FIELD. 1st April, 1950.

"A Snowy Owl on tour". Note on a "Snowy Owl" reported seen on a hedge bordering the Cambridge Road a few miles east of Bedford.

THE BEDFORDSHIRE MAGAZINE. Vol. 2.

(Summer 1950). "The Butterflies of the Bedfordshire Chalk Hills", by Bernard West, pp. 196-8.

ENTOMOLOGIST. Vol. 88 (1950).

"*Pararge aegeria* near Hitchin", by S. R. Bowden, p. 65. Some records of the Speckled Wood.

"The range and distribution of *Strymonidia pruni* L. (Lep., Lycaenidae)", by J. E. H. Blackie, pp. 246-8. Record from Putnoe Lane with note "requires confirmation".

"The 1950 season", by J. E. H. Blackie, pp. 259-260. Presence and absence of Lepidoptera at Totternhoe.

PARASITOLOGY. Vol. 40 (1950).

"The distribution and biology of the harvest mite in Great Britain (Trombiculidae, Acarina)", by W. S. Richards, pp. 118-126. Maps showing moderate infestation in Bedfordshire at a locality near Luton—data in the British Museum—on five samples of rabbits' ears, all of which were found to be infected.

ENTOMOLOGIST'S MONTHLY MAGAZINE. Vol. 86 (1950).

(a) "Further records of Bedfordshire Hemiptera-Heteroptera", by B. Verdcourt, pp. 6-8. New records and additional details of previously published records. Number of species recorded from county, 162.

(b) "*Croesus brischkei* Zaddach, a sawfly (Hym., Tenthredinidae) new to Britain", by V. H. Chambers, pp. 85-86. Bred from a larva off Hornbeam at Aspley Guise.

(c) "A note on *Strongylocoris leucocephalus* (L.) (Hem., Miridae)", by D. Leston, p. 109. One specimen from Dunstable.

(d) "The larvae of the Broom sawflies *Rhogogaster picta* Klug and *R. genistae* Benson (Hym., Tenthredinidae)", by V. H. Chambers, pp. 117-120. Bred from eggs from females taken at Clophill.

(e) "*Xantholimus meridionalis* (Nordmann) (Col., Staphylinidae)", by H. R. Last, pp. 138-140. Includes a record of this species from Sharpenhoe.

(f) "Abundance of *Aphthona euphorbiae* Schrank (Col., Chrysomelidae)", by B. Verdcourt, p. 256. *A. euphorbiae* and *A. venustula* Kt. from localities in Bedfordshire.

(g) "Further additions to the Bedfordshire list of Coleoptera", by C. Mackechnie Jarvis, pp. 304-305. Brings total number of beetles recorded from county to 1,249.

(h) "Some additions to the Bedfordshire, Bucks., Middx. and Essex lists of Hemiptera-Heteroptera during 1950", by B. J. Southgate and G. E. Woodroffe, p. 301. *Piezodorus lituratus* (F.) from broom (no locality) and *Oeciacus hirundinis* (Jen.) from house martins' nests in Bedford.

(i) "Notes on Arachnida, 14 Arachnids and Myriapods from Flitwick Beds.", by J. L. Cloudsley-Thompson, p. 319. Three Myriapods, one harvester and thirty-three spiders recorded.

(j) "Syrphidae in Bedfordshire", by B. R. Laurence, pp. 351-353. Eighty-three species of Hover-fly recorded from Fancott, with data on distribution over the area.

WATSONIA I (IV), January 1950; (V), June 1950; (IV) December 1950.

(a) "The identification and distribution of the British watercress species", by H. W. Howard and A. G. Lyon (IV), 228-233. The authors give Bedfordshire records for *Nasturtium officinale* R. Br. and *N. microphyllum* Boenl. ex Rchb.

(b) "*Lapsana intermedia* in Britain", by B. L. Burtt (IV), 234-237. This nipplewort, which is new to Britain, was found by E. Milne-Redhead on a chalky bank near Totternhoe in 1945. It is a native of the Caucasus and it is difficult to know how it came to be established in the county. The account contains a useful list of associated species.

(c) "Plant Records" (IV), 244-263, contains records of twenty species new to the county.

(d) "The Habitat of *Cuscuta europaea* L. in Britain", by B. Verdcourt (V), pp. 291-295. The author studies eight habitats, four of which are in Bedfordshire and considers that stinging nettle (*Urtica dioica* L.) is the most common host of the greater dodder (*Cuscuta europaea*).

(e) "A contribution to the flora of Huntingdonshire", by J. G. Dony (V), pp. 301-107. The author comments on the appearance of some species in Bedfordshire.

(f) "Abstracts from Literature" (VI), pp. 376-396. An abstract is made of "Zur Morphologie und Systematik des Arzneibaldrians in Mitteleuropa", by E. Walther, in *Mitt. Thüring. Bot. Ges. Berheft 1*, 7-105. Bedfordshire records are given for *Valeriana procurrens* Wallroth and *V. collina* Wallroth.

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Contributions to be considered for publication in the next issue should be submitted by 28th February 1952, and should be sent to

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