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**BEDFORDSHIRE
NATURALIST**

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AND FIELD CLUB
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1958

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BEDFORDSHIRE
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1959

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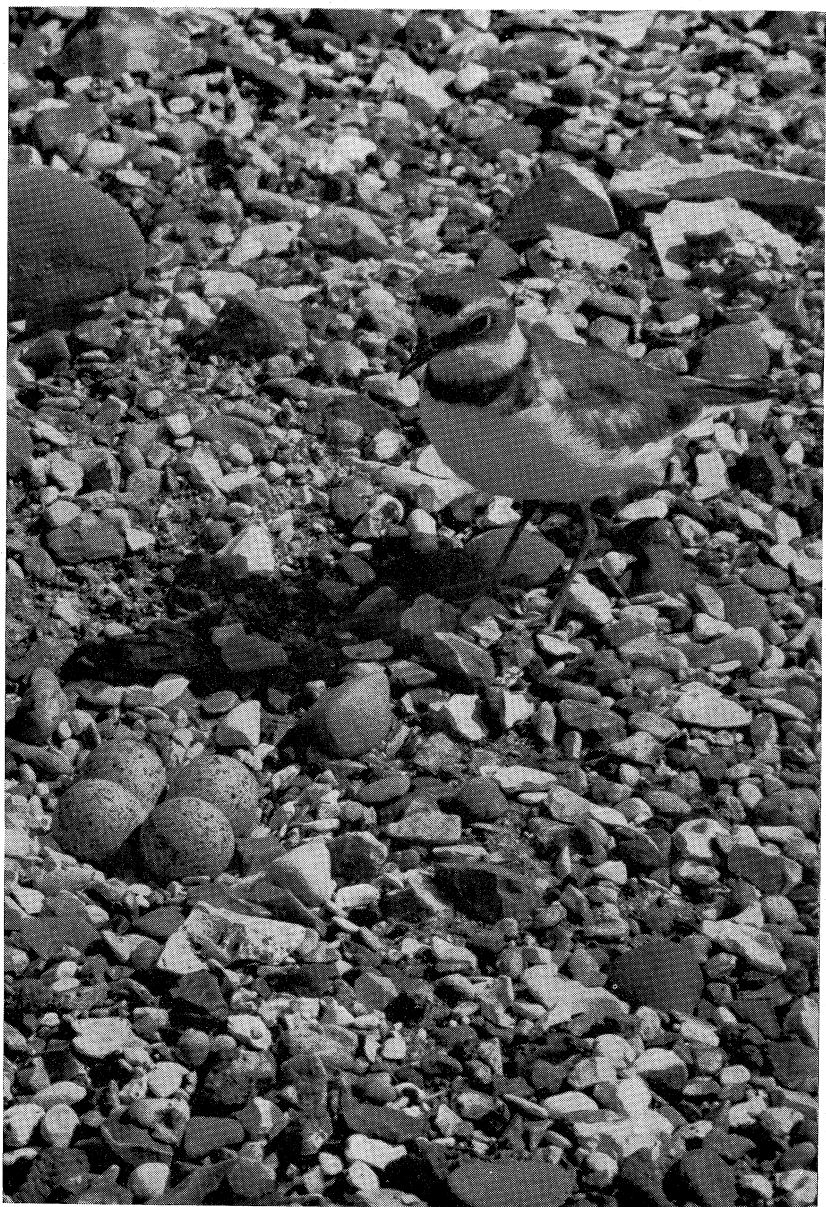
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LITTLE RINGED PLOVER, WYBOSTON

(Photograph by Henry A. S. Key)

THE BEDFORDSHIRE NATURALIST

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EDITED BY A. W. GUPPY, B.Sc.

No. 13—1958

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Report of the Council

The events of the 1958 season were similar to those of the previous year, and progress was encouraging. Membership again showed a slight increase; 29 new members joined during the year and 293 names were on the register at the end of December. These figures take account of the few resignations and removals and the regretted deaths of M. H. Crummie and Henry Stansfield.

The attendance at indoor meetings leaves much to be desired, though the subjects have been varied and most interesting. Suggestions from members for improving the programmes of the Society are welcomed and the Council appeals for more active support. The outstanding lecture of the year was given in the Corn Exchange, Bedford, by Eric Hosking, F.R.P.S., when the film "Wild Spain" was shown. James Fisher also was to have spoken in Bedford in the autumn, but the arrangements had to be cancelled because of his sudden illness. We are happy that he made a most satisfactory recovery, and have his promise of a visit in 1959.

The extreme wetness of the summer had less effect on field excursions than was expected and failed to mar the spirit of members. There were one or two highlights during the year. At the annual Fungus Foray, a plant new not only to the County, but to the world was discovered in Hanger Wood, and the ornithologists (or rather, the few fortunate ones) were favoured in the spring with excellent observations of an American wader, the Wilson's Phalarope, which turned up at Stanford gravel pits—this being the second British occurrence of the species.

It is regretted that the Journal for 1957 was not published during the year. Despite the appeals of the Hon. Editor much of the promised material reached him excessively late, and it was not expected that the issue would be printed until about February, 1959. The Council, in support of Mr Guppy, has taken a strong line for the future, and late submissions will not be considered for publication.

The Society is indebted in many directions for valued support and co-operation and the Council records its appreciation to all concerned.

HENRY A. S. KEY,

Hon. General Secretary.

THE BEDFORDSHIRE NATURAL HISTORY SOCIETY AND FIELD CLUB

STATEMENT OF ACCOUNTS FOR THE YEAR ENDED 31st DECEMBER, 1958

STATEMENT OF ACCOUNTS

RECEIPTS	£	s.	d.	£	s.	d.	PAYMENTS	£	s.	d.	£	s.	d.
Cash in Bank, 1st January, 1958 ...	123	12	9				Printing, Stationery and Postages ...				14	12	3
Cash in Hand, 1st January, 1958 ...	4	13	5				Lecture Expenses—Hire of Hall ...				2	10	0
				128	6	2	Bank Charges and Sundry Expenses					5	0
Donations and Subscriptions, 1958, and Arrears	102	16	6				Subscriptions to B.E.N.A. and B.T.O.				2	8	0
Subscriptions, 1959 and 1960 ...	4	7	6				Loss on Coach Trips				4	18	0
				107	4	0	Cash in Bank, 31st December, 1958	238	10	9			
ERIC HOSKING'S LECTURE							Cash in Hand, 31st December, 1958	2	4	3			
Receipts	84	18	4								240	15	0
Less Expenses	57	12	3										
Surplus				27	6	1							
ORNITHOLOGICAL CONFERENCE							<i>Note</i> :—There is an outstanding liability in connection with the printing of the Journal for 1957, the account for which has not yet been received.						
Receipts	13	2	0										
Less Expenses	10	10	0										
Surplus				2	12	0							
				£265	8	3					£265	8	3

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,
23rd January, 1959.

MCPHERSON, TIMMINS & EDNIE,
Chartered Accountants, Hon. Auditors.

PROCEEDINGS 1958

Indoor Meetings

114TH ORDINARY MEETING, 9th January, 1958, Luton. 'Some Aspects of the Imperial College Field Station, Sunninghill,' by N. Haigh. Attendance 23. *Chairman*: K. E. West.

115TH ORDINARY MEETING, 16th January, 1958, Bedford. 'Some Aspects of Holland and Denmark,' by Dr. G. A. Metcalfe. Attendance 53. *Chairman*: F. G. R. Soper.

116TH ORDINARY MEETING, 6th February, 1958, Luton. Film Show: 'Minsmere Bird Reserve' and 'Bird-Watching in the Orkneys' (R.S.P.B.). Attendance 25. *Chairman*: F. C. Gribble.

11TH ANNUAL GENERAL MEETING, 20th February, 1958, Bedford. Details as printed in the last issue, No. 12, 1957, page 10.

117TH ORDINARY MEETING, 6th March, 1958, Luton. 'Nests and Eggs of British Birds,' by Henry A. S. Key. Attendance 22. *Chairman*: W. G. Harper.

118TH ORDINARY MEETING, 20th March, 1958, Bedford. 'A Naturalist in Lapland,' by F. C. Gribble. Attendance 37. *Chairman*: F. G. R. Soper.

119TH ORDINARY MEETING, 16th October, 1958, Luton. 'Photographing and Recording Birds,' by Henry A. S. Key. Attendance 22. *Chairman*: W. G. Harper.

120TH ORDINARY MEETING, 23rd October, 1958, Bedford. 'Lone Isles—Including Fair Isle and St. Kilda,' by E. G. Meadows. Attendance 32. *Chairman*: F. G. R. Soper.

121ST ORDINARY MEETING, 6th November, 1958, Luton. 'The Emerald Isle,' by E. G. Meadows. Attendance 18. *Chairman*: W. G. Harper.

122ND ORDINARY MEETING, 20th November, 1958, Bedford. 'Some Aspects of Norway and Sweden,' by Dr. G. A. Metcalfe. Attendance 67. *Chairman*: F. G. R. Soper.

123RD ORDINARY MEETING, 11th December, 1958, Bedford. 'Microscope Evening,' arranged by Miss E. Proctor. Attendance 20. *Chairman*: F. G. R. Soper.

Field Meetings

SUNDAY, 20TH APRIL, 1958. TRING RESERVOIRS. *Leader*: Miss P. Hager. Twenty-four people attended this joint meeting with the Hertfordshire Natural History Society, including six of our own members. The regular monthly duck count added interest to the meeting, an unusual late migrant being a female Common Scoter.

SUNDAY, 27TH APRIL, 1958. FLITWICK MOOR FOR DAWN CHORUS. *Leader*: H. A. S. Key. Only fifteen members attended this meeting assembling at 3.30 a.m. The morning being dull and windy, bird song started late and nothing of outstanding interest was heard, but a Woodcock was seen. The Dawn Chorus will be held in the same terrain in 1959 in hopes of obtaining a better response from both birds and members.

SATURDAY, 3RD MAY, 1958. BURDELEYS MANOR FARM. *Leader*: D. W. Elliot. Twenty-three members attended this meeting on a fine warm evening. Mr Elliot conducted the party over his farm and through his museum, then to Hardwick Spinney to hear the evening Bird Chorus.

SUNDAY, 11TH MAY, 1958. BLAKENEY POINT. *Leader*: F. C. Gribble. Thirty members journeyed by special coach to Cley, from Luton and Bedford, the weather being windy but fine. The party crossed by boat to Blakeney Point from Morston, and were shown around the Ternery. Many nests of several species of Terns were seen, and on walking along the beach to return to the coach, a dead immature Seal was found.

SUNDAY, 18TH MAY, 1958. PORTOBELLO FARM, SUTTON. *Leader*: E. C. Lamb. Eighteen members attended this meeting, the weather being fine and dry, when an enjoyable walk was taken around the area.

MONDAY, 25TH MAY, 1958. PEAKIRK AND CASTOR HANGLANDS. *Leader*: B. B. West. Nearly forty members attended this meeting, travelling in cars from Luton and Bedford. A wonderful day was enjoyed by all; the weather was perfect and a great variety of interests was catered for, the botanists being particularly fortunate in finding an outstanding number of different species of flowering plants. Later in the day a few of the party visited the Waterfowl Gardens at Peakirk, where nearly one hundred different breeds of Wildfowl are to be seen.

SATURDAY, 7TH JUNE, 1958. COLLEGE AND HOME WOODS, NORTHILL. *Leader*: L. A. Speed. Probably because of the excessive rain just prior to the time of this meeting, only seven members attended. A walk was taken through both woods, but nothing of outstanding interest was seen, and the party succeeded in getting very wet.

SUNDAY, 15TH JUNE, 1958. WASHER'S AND DAINTRY WOOD, TINGRITH. *Leader*: T. W. J. Abbiss. Fourteen members attended this meeting, the day being fine and hot, and walked through the rhododendron-lined rides, once part of the Duke of Bedford's estate, but now taken over by the Forestry Commission. Spotted Orchids were plentiful and forty-three different species of flowers were seen, as also were some Jays, Tree Pippits, Garden Warblers and a Cuckoo.

THURSDAY, 19TH JUNE, 1958. BASMEAD MANOR, STAPLOE. *Leader*: E. O. Squire. Twenty-eight members visited Basmead Manor to see Mr Squire's gardens and collection of Wildfowl, but this meeting was spoilt by almost continuous torrential rain.

SUNDAY, 29TH JUNE, 1958. TRING AREA. *Leader*: H. E. Bannister. This meeting was held in conjunction with the Hertfordshire Natural History Society and was attended by thirty-two people—only six from our own Society. The day was warm and fine and a long walk was taken to examine the Chalk Hill flora. A Pasque Flower was found in full bloom. The Bedford contingent left the main party early and returned *via* Ashridge Park.

THURSDAY, 3RD JULY, 1958. BARTON HILLS. *Leader*: Dr J. G. Dony. A heavy thunderstorm just prior to the time of this meeting probably accounted for only nine members attending. An interesting walk was taken over the hills where many seasonable flowers were found, many in profusion.

SUNDAY, 13TH JULY, 1958. CHEDDAR GORGE. *Leader*: W. Durant. Twenty-nine members travelled by special coach to Cheddar Gorge, but heavy rain prevented full advantage being taken of the walk along the cliffs. The Cheddar Pink was found in profusion. The caves were visited and a detour was made on the return journey to visit Stonehenge.

SUNDAY, 20TH JULY, 1958. EPPING FOREST. *Leader*: Miss J. Jones. This meeting was in conjunction with the London and Essex Natural History Societies; twelve members of our own Society attended in cars. Meeting at Loughton Station, a total party of some thirty people walked through part of Epping Forest in a heavy thunderstorm to the Wake Arms Hotel, lunch being taken nearby. The weather being threatening, seven of the party returned to Bedford, but in the afternoon the remainder continued their walk, and later visited Hertford Heath on the return journey.

SUNDAY, 17TH AUGUST, 1958. OUGHTON HEAD. *Leader*: Miss R. Day. This meeting was held in conjunction with the junior section of the Letchworth Society, eighteen people being present, on a fine hot day. Walking from Offley Cross Roads, Oughton Head was approached from the eastern end, and an enjoyable walk taken along the water's edge.

SUNDAY, 14TH SEPTEMBER, 1958. WALBERSWICK. *Leader*: F. G. R. Soper. Twenty-nine members visited Walberswick by coach and car. The weather was fine and hot, and a very interesting day was spent by both botanical and ornithological sections.

SUNDAY, 28TH SEPTEMBER, 1958. HANGER WOOD. *Leader*: D. Reid. Over thirty members took part in the Annual Fungus Foray, reported elsewhere in this Journal.

SUNDAY, 21ST DECEMBER, 1958. SPRING RESERVOIRS. *Leader*: S. W. Rodell. Fourteen members were present at this meeting, the day being mild. The three reservoirs were visited and a great many ducks were seen, including a female Goosander, but observation was spoilt by the younger members making too much noise.

Botanical Section

The report of the Botanical Section for the 1958 season must of necessity be of a more brief and general nature than previously, as unfortunately, owing to a number of private engagements, I was prevented from taking part in many of the botanical meetings in the General Summer Programme. However, from reports to hand, the meetings which held botanical interest were well attended despite the bad weather of the summer, and although nothing of special note was recorded from those I was unable to attend, the keen interest of the botanical section was well maintained.

Of the main meetings, the one on Whit Monday, 25th May, to Castor Hanglands, near Peterborough, was full of interest; the limestone scrubland on the edge of the wood, and the numerous open clearings in the wood itself, provided a very large variety of plants and some 70 species were recorded.

The most outstanding plant was the Man Orchid, *Aceras anthropophorum*, and although this is found in Bedfordshire it is always a rare plant; other notable plants were the Adder's Tongue, *Ophioglossum vulgatum*, Deadly Nightshade, *Atropa belladonna*, Cross-leaf Bedstraw, *Galium cruciata*, Ramsons, *Allium ursinum*, and the Butterfly Orchid, *Habenaria chlorantha*.

The coach trip on Sunday, 13th July, to the Cheddar Gorge was another successful meeting; as on the previous visit in 1955, a number of members came across the rare Cheddar Pink, *Dianthus caesius*, and, in addition, we noted many plants either not, or rarely, found in Bedfordshire, the most

notable being the Ivy Broomrape, *Orobanche hederæ*, growing on ivy, Long-Stalked Cranesbill, *Geranium columbinum*, Lesser Meadow-Rue, *Thalictrum minus*, Rock Stonecrop, *Sedum rupestre*, Mountain St. John's Wort, *Hypericum montanum*, and numerous ferns.

The Annual Botanical Exhibition was held in the Nature Room, 4 The Avenue, Bedford, on Monday, 7th July. Forty-one plants were on display, and about twenty members visited the Exhibition. The Exhibition this year did not follow one of the main botanical meetings and was not so successful as in previous years, either from the number of plants displayed, or the attendance; for 1959, the Exhibition will revert again to following one of the main General Meetings.

W. DURANT.

The Fungus Foray

The foray was held on the 28th September, 1958, at Hanger Wood, near Bedford, and was led by Mr. D. A. Reid. About thirty members of the Society were present.

For most of the day members searched a part of the wood consisting of rather dense hazel coppice with young ash trees and in places thick patches of blackthorn, but later a small group penetrated further into an area with greater variety of trees including a few conifers.

Without question the most exciting discovery was that of a pure white species of *Inocybe* which is new to science. The sporophores were gathered late in the day and were at first thought to be slightly atypical specimens of *Inocybe geophylla*, but subsequent microscopic examination showed that this was not so. A full account of the species will eventually be published in the *Transactions of the British Mycological Society*. Another rare fungus belonging to the same genus—*I. jurana*—was also collected. This species is recognized by its rather robust appearance, the dingy vinaceous colour of the base of the stem, and the pinkish-vinaceous flesh. A single white specimen of *Pleurotus atrocaeruleus* (i.e. forma *albidotomentosa*) was of particular interest since there is no previous record of its occurrence in Britain. Two uncommon agarics—*Hygrophorus quietus* and *Entoloma ameides*—with highly characteristic odours were found. The former, which varies in colour from yellow to reddish-orange, has a strong oily smell when bruised similar to *Lactarius quietus*, while that of *Entoloma ameides* reminds one of boiled sweets (amyl-acetate). A number of fruitbodies of another rare species—*Pluteolus aleuriatus*—were also collected. Of the Discomycetes *Galactinia palustris* and *Acetabula calyx* deserve special mention as both are new to Britain. The former is a small insignificant brown species while the latter is a greyish fungus with a shallow concave disc about half an inch in diameter borne on a distinct stalk and closely resembling externally both *Leptopodia murina* of which a number of apothecia were found, and the common *Macropodium macropus*. Extensive colonies of the black club-shaped fungi *Trichoglossum hirsutum* and *Geoglossum glutinosum* were also discovered.

Altogether 106 species were collected of which 23 were new to the county and 3 new to Britain.

I wish to thank Mme. M. Le Gal for valuable assistance with the determination of the Discomycetes and Miss Margaret Holden for supplying a list of species which she collected during the foray.

Collybia fusipes (Bull.) Berk.; *C. radicata* (Rehl) Berk.; *Coprinus lagopus* Fr.; *C. micaceus* (Bull.) Fr.; *C. plicatilis* (Curt.) Fr.; **Cortinarius psammcephalus* (Bull.) Fr.; *Crepidotus luteolus* Lamb (= *C. pubescens* sensu J. E.

Lange); **Entoloma ameides* Berk. & Br.; *Flammula gummosa* (Lasch) Quél.; *Galera hypnorum* (Batsch) Fr.; *G. tenera* (Schaeff.) Fr.; *Hebeloma sacchariolenis* Quél.; *Hygrophorus conicus* Fr.; **H. quietus* Kühner; *H. psittacinus* (Schaeff.) Fr.; *Hypholoma candolleianum* Fr.; *H. fasciculare* (Huds.) Fr.; *H. velutinum* (Pers.) Fr.; *Inocybe asterospora* Quél.; **I. cervicolor* (Pers. ex Secr.) Karst.; *I. fastigiata* (Schaeff.) Fr.; *I. geophylla* (Sow.) Fr.; *I. geophylla* var. *lilacina* Fr.; **I. jurana* (Pat.) Sacc.; *I. maculata* Boud.; *Laccaria amethystina* (Vaill.) Cooke; *L. laccata* (Scop.) Fr.; *Lactarius mitissimus* Fr.; *L. pyrogalus* (Bull.) Fr.; *L. subdulcis* (Pers.) Fr.; *Leptonia euchroa* (Pers.) Fr.; *Marasmius acervatus* (Fr.) Pearson & Dennis; *M. foetidus* (Sow.) Fr.; *M. ramealis* (Bull.) Fr.; *Mycena acicula* (Schaeff.) Fr.; *M. alcalina* Fr.; **M. chlorantha* Fr.; **M. delectabilis* Peck.; *M. filopes* (Bull. ex Fr.) Kummer; *M. galericulata* (Scop.) Fr.; *M. galopus* (Pers.) Fr.; *M. metata* (Fr.) Kummer; *M. polygramma* (Bull.) Fr.; *Omphalia atropuncta* (Pers.) Fr.; *O. fibula* var. *swartzii* Fr.; *Pholiota erebia* Fr.; **Pleurotus aceropus* Fr.; †*P. atrocaeruleus* Fr. forma *albidotomentosa* Pilát; **Pluteolus aleuriatus* Fr.; **Pluteus cinereus* Quél.; *P. salicinus* (Pers.) Fr.; **P. satur* Kühner & Romag.; *Psalliota vaporaria* (Vitt.) J. Schaeff.; *Psathyrella disseminata* (Pers.) Fr.; *P. gracilis* Fr.; *Russula foetens* Fr.; **R. mairei* Sing.; *Tricholoma aggregatum* (Schaeff.) Secr.; **T. cuneifolium* Fr.; *Tubaria autochtona* (Berk. & Br.) Sacc.; *T. conspersa* sensu Romagnesi.

Fomes annosus (Fr.) Cooke; **F. ribis* (Schum.) Fr.; *Merulius corium* Fr.; *M. tremellosus* (Schrad.) Fr.; *Polyporus adustus* (Willd.) Fr.; *P. caesius* (Schrad.) Fr.; *P. fragilis* Fr.; *P. semipileatus* Peck; *P. squamosus* (Huds.) Fr.; *P. varius* Fr.; *Polystictus versicolor* (Linn. ex Fr.) Fr.; *Poria versipora* (Pers.) Baxter; *Trametes confragosa* (Bolt.) Jörstad.

Clavaria acuta (Sow.) Fr.; *C. cinerea* (Bull.) Fr.; *C. corniculata* (Schaeff.) Fr.; *C. cristata* (Holmsk.) Fr.; **C. dichotoma* God. [probably a form of *C. subtilis* (Pers.) Fr.]; *C. fusiformis* (Sow.) Fr.; *C. rugosa* (Bull.) Fr.; *C. vermicularis* Fr.

Hymenochaete rubiginosa (Dicks.) Lév.; *Stereum hirsutum* (Willd.) Fr.; *S. rugosum* (Pers.) Fr.; *S. sulphuratum* Berk. & Rav.; *Thelephora anthocephala* (Bull.) Fr.; **T. spiculosa* Fr.

Cyathus striatus (Huds.) Pers.; *Lycoperdon pyriforme* (Schaeff.) Pers.

Sebacina incrustans (Fr.) Tul.

Coleosporium tussilaginis Tul.

†*Acetabula calyx* Sacc.; **Ciliaria asperior* (Nyl.) Boud.; *Coprobria granulata* (Bull. ex Fr.) Boud.; †*Galactinia palustris* (Boud.) Le Gal; *G. succosa* (Berk.) Sacc.; **Geoglossum glutinosum* Pers. ex Fr.; *Helotium fructigenum* (Bull. ex Fr.) Fuckel; **Neobulgaria foliacea* (Bres.) Dennis; **Trichoglossum hirsutum* (Pers. ex Fr.) Boud.

Nectria cinnabarina (Tode ex Fr.) Fr.

Daldinia concentrica (Bolt. ex Fr.) Ces. & de Not.; *Xylaria hypoxylon* (Linn. ex Fr.) Grev.

Isaria farinosa Fr.

Arcyria denudata Wettsetin.

DEREK A. REID.

* Species new to county.

† Species new to Britain.

Eighth Ornithological Conference

One hundred and fifty people attended this conference, arranged in conjunction with the British Trust for Ornithology, which was held in the Civic Theatre, the Town Hall, Bedford, on the 30th March, 1958. We were very pleased to welcome Dr Bruce Campbell, Secretary of the B.T.O. to Bedford once again.

The theme of the conference was "Migration," and, during the morning session, an address on "St. Kilda" was given by Mr Kenneth Williamson, Migration Research Officer of the B.T.O. This was illustrated by a series of very fine colour slides. Mr Williamson gave a detailed description of this island group, and showed how recent operations there by the Royal Air Force had led to the opportunity of studying migration there on a greater scale than previously. This lecture was followed by a lengthy discussion.

In the afternoon, Dr Geoffrey Matthews, of the Wildfowl Trust, gave an illustrated lecture on "Bird Navigation". He outlined various theories as to how birds find their way on migration, and on the homing instinct in various species, particularly Manx Shearwaters.

Following both lectures a short account was given by Mr W. G. Harper, of the Meteorological Office, Dunstable, on recent researches into the detection of bird movement by radar. Much of this work had been done at Houghton Regis, Beds., and the illustrations showed not only migration in progress but also the daily movement of Rooks, Jackdaws and Starlings to their nightly roosts. Finally, Mr R. P. Bagnall-Oakley of Norfolk showed a series of colour films depicting migrants in north Norfolk at all seasons. Particularly noteworthy was the film on ducks and swans and the close-up photographs of Waxwings and Lapland Buntings.

In conclusion, mention must be made of the help given by the Ladies' Committee, and of all who gave and helped so generously to make the day an outstanding success.

Annual General Meeting, 1959

The 12th Annual General Meeting was held in the Nature Room of the Training College, The Avenue, Bedford, on Thursday, 26th February, 1959. Mr F. G. R. Soper was in the chair and fifty-four members attended.

The proceedings opened with the reading of the minutes of the previous A.G.M. which were adopted and the Chairman called on the Hon. Gen. Secretary to continue with presenting the Report of the Council for 1958. This gave evidence once again of a generally satisfactory year, with a slight increase in membership, though some concern was expressed at the poor attendance at certain lectures. An appeal was made for more active co-operation. One or two significant occurrences had highlighted field-work and a species of fungus new to the world had been discovered. The Report was adopted without dissent.

Mr J. M. Dymond, as Hon. Treasurer, then reported on the satisfactory condition of the finances of the Society and presented his Statement of Accounts. He drew attention to the large balance, due to the fact that no Journal had been printed during the year. A small loss on coach trips was not regarded as serious. The accounts were received with a unanimous expression of thanks both to Mr Dymond and to the Hon. Auditor, Mr E. Lucas, for their valued services.

No Report of the Ornithological Section was received as the Section Secretary, Mr F. C. Gribble, had left the County during the summer and a successor had not been officially appointed. A brief report on the Botanical Section was read by the Section Secretary, Mr W. Durant, which showed that the interest and activity of members had not flagged. The Report was adopted and both Secretaries were suitably thanked.

The next speaker was Mr A. W. Guppy as Hon. Editor. He made some very forceful remarks regarding the late publication of the 1957 Journal which had been received from the printers on that day. Some of the material for the 1958 issue was in hand and the closing date would definitely be 31st March. Nothing received after this date would be considered. An expression of thanks to Mr Guppy from the chair for his valued services was heartily endorsed by the audience.

Miss E. Proctor was similarly thanked for her accomplishments as Hon. Librarian as was Mr L. A. Speed, whose untiring energies as Hon. Programme Secretary, had resulted in successful sessions.

Next came the election of officers for the next year. It was announced from the chair, that following its usual practise in honouring a succession of worthy and suitable persons in the County, the Council had offered the position of President to Dr J. G. Dony in recognition of his outstanding botanical contributions. The retiring President, Sir Frederick Mander, had endorsed this decision. All the remaining officers had been re-nominated *en bloc*. On a show of hands all these nominations were approved and the officers were duly elected without dissent.

Ten nominations had been received to fill that number of seats on the Council, thus making a ballot unnecessary. Those unanimously elected were: Misses E. Proctor and G. M. Tattam and Messrs W. Durant, I. J. N. Ferguson-Lees, W. G. Harper, E. Meadows, S. W. Rodell, R. G. Stephenson and B. B. and K. E. West.

The business of the meeting concluded with discussion on both indoor and outdoor programmes and publicity

To round off the evening Mr W. Champkin showed some of his excellent colour films—chiefly of birds—in appreciation of which he was thanked from the chair.

Gravel and Birds

BY HENRY A. S. KEY

For so small a county, Bedfordshire is most fortunate in possessing a wide range of geological formations, most of which are "recent" in origin, in terms of land structure.

Of particular interest to the bird-lover are those areas of sand and gravel, which, though related, are of two distinct types and character, and were laid down in different epochs and conditions.

The older formation is known as the Greensand, which stretches across the centre of the county from west to east in an almost continuous ridge, only broken where the valley of the River Ivel separates the main chain from the hills at Sandy. These deposits of considerable depth were laid down by some prehistoric sea, and in the course of time were uplifted by the earth's pressure to their present form, the nature of the soil being very evident where the escarpment has become eroded. The newer formations are the

alluvial deposits of the river valleys and these occur chiefly in the basins of the Ouse and the Ivel.

For centuries these deposits have been worked to produce the necessary materials for building, and, to a minor degree, for high-grade sands for moulding and glass-making, but up to the end of the nineteenth century the amounts dug out were relatively small and the majority of the excavations were left unfilled, to become softened by the growth of scrub. In many cases a "cliff" was left when working ceased and these walls formed ideal nesting sites for such birds as Sand-Martins. Very few of the workings contained more than the isolated shallow pool of water by virtue of the porous nature of the soil. Consequently the bird life of these quarries was not significant and little reference remains in the scant county literature on the subject.

Two world wars have so influenced the extraction of material and brought such outstanding changes in the distribution of many species of birds that the time is now opportune for a review of the present situation. Jannion Steele Elliott and his contemporaries would have revelled in the opportunities which are now presented to the modern bird-watcher.

At the present time some of the original diggings remain, though the majority have been, or are being, filled with refuse, while several have been planted, intentionally or otherwise, with trees and bushes, and their existence is not so apparent. These were excavations well above the level of the river meadows and consequently were scarcely liable to flood. The more recent openings were made during the last war, chiefly in the valley plains to extract large amounts of gravel for the construction of aerodrome runways and other national requirements. Because of their situation most of them filled rapidly with water to the level of the adjacent river.

Some of these have remained to become potential sanctuaries for both plant and animal life, while others in the interest of agricultural land reclamation have been converted to a near resemblance of the original landscape by infilling with urban refuse and the replacement of the top soil. As yet, in some cases, the recovery is still far from complete, and shallow pans of water remain according to the condition of the weather. A typical case is that of the site of the former workings near Willington Church.

The following catalogue of workings, though not comprehensive, gives the majority of sites in the county, both old and new, classified in areas and types. The present status of each is indicated by the following key :

- * = pre-1939-45 war ;
- † = wartime digging ;
- § = post-war ;
- F = flooded ;
- R = reclaimed or being so.

The demand for materials and counter-measures for rehabilitation must of necessity render the whole situation very fluid in character, and no doubt there will be significant changes in several respects in the future. Many old workings are still operating.

A. RIVER VALLEYS OF THE OUSE AND IVEL

Harrold, old workings (*R); Harrold, near river (§F); Felmersham (†F); Sharnbrook, near cross-roads (*R); Radwell (*F); Oakley (* partly F); Spinney at Bromham Road, Biddenham (*); Railway cutting south of Bedford (*R); Cox's Pits, Bedford (*R); Fenlake, Bedford (*R); Barker's Lane, Bedford (§RF); Cople (*R); Willington (†R); Wyboston, west of A.1 (*R); east of A.1 (§F); Eaton Socon (†R); Henlow area, several sites (†F with little R); Stanford (*).

B. GREENSAND

Sandy (*); Rowney Warren, Shefford (*); Clophill (*); Flitwick (*); Tingrith (*); several sites in the Heath and Reach-Leighton Buzzard area (*).

In proceeding to a consideration of the typical avifauna of the pits I will deal with the second region first. I mentioned previously that Sand-Martins were to be found in colonies of varying size at most suitable sites; the largest one of about one hundred pairs was formerly in the quarry at Tingrith, but the new motorway has now almost obliterated it. An occasional Tree- and/or Meadow-Pipit occurs on the weed-grown spoil banks here and there, more particularly in summer, but apart from these species all that is likely to be encountered are parties of finches and buntings which feed on the weeds and a few of which may nest in any prevalent scrub.

Recent exceptions have been the occurrence of certain waders in partially-flooded workings in the Heath and Reach area, where Dunlin and Ringed Plover have been recorded and at least one pair of Little Ringed Plovers has nested successfully (see *Frontispiece*). The whole area has, in the past, been much neglected and demands the attention of field workers; the investigations must surely prove most fruitful.

Because of their obvious potentialities, the workings in the river valleys have tended to receive the main attention. Many of the pits are flooded, and the ridges of rejected material form not only ideal feeding grounds for waders but provide nesting sites among the shingle. This phase remains until the ridges, some of which, by reason of subsidence, become islands, are overgrown with reeds and other aquatic plants and willows, when other species such as Great Crested and Little Grebes, Coot, Moorhen, Tufted Duck, Pochard, Mallard, Sedge- and Reed-Warblers, etc. take over suitable nesting sites. The variety of species frequenting the pits depends,

too, to some extent, on the depth of the water. Diving ducks such as the Pochard, Tufted Duck, Scaup and Goldeneye, as well as the "sawbills," require reasonably deep water in which to feed, while the surface-feeders such as Mallard, Teal, Wigeon, etc. can find suitable places under most conditions.

The waders, too, require certain features. Muddy shallow spits in which to probe for food are of prime importance, and, as nesting sites, the ridges must not be steeply sloped. In this respect the Little Ringed Plover is particularly exacting, and to prove attractive there must exist reasonably flat stretches of sand and shingle intersected with shallow pools of water.

Where a suitable vertical bank exists in a flooded worked-out digging, Kingfishers may select a nesting site. Several species of gulls may be met with, depending upon the condition of the workings. Where refuse is being dumped mixed parties of Herring- and Black-headed Gulls will almost certainly be seen at all times of the year and with them will occur from time to time the occasional Greater Black-backed, Lesser Black-backed and numbers of Common Gulls, more particularly during the winter months, a large proportion being in immature plumage. Black-headed Gulls were suspected of nesting a few years ago at the Cople pits. Terns, too, visit the flooded workings to feed during migration, and Common, Arctic, Little and Black species have been recorded. Unfortunately such pools are, by their nature, prone to freezing over, and very sharp winter weather may suddenly dispel the entire bird population.

On the weed-grown wastes surrounding some of the excavations may be seen Meadow-Pipits, Skylarks, Pied and Yellow Wagtails, Wheatears and Whinchats, according to the season. Here, too, in winter months, a Short-eared Owl may be encountered as it hunts for birds and rodents.

Swifts, Martins and Swallows frequently "hawk" insects over the water in summer months, the latter species roosting in the reed-beds at times of migration.

To conclude, here is a list of some of the species that have been observed in such localities, those having nested being marked (B). The most outstanding occurrences to date was of the female American Wilson's Phalarope seen at the Stanford workings.

Great Crested Grebe (B) ; Little Grebe (B) ; Common Heron ; Purple Heron ; Cormorant ; Bittern ; Mallard (B) ; Teal ; Garganey ; Wigeon ; Pintail ; Shoveler ; Tufted Duck (B) ; Pochard (B) ; Scaup ; Goldeneye ; Common Scoter ; Goosander ; Red-breasted Merganser ; Smew ; Sheld-Duck ; Mute Swan (B) ; Bewick Swan (?) ; Moorhen (B) ; Water-Rail ; Coot (B) ; Lapwing (B) ; Ringed Plover ; Little Ringed Plover (B) ; Turnstone ; Common Snipe ;

Common, Green, and Wood-Sandpipers; Redshank (B); Spotted Redshank; Greenshank; Curlew; Dunlin; Black-Tailed Godwit; Sanderling; the various species of gulls and terns already enumerated.

It is the ardent desire of all ornithologists that some of the more suitable localities shall become nature reserves and the Council of the Society has the position constantly under review.

The Study of Bird Migration by Radar

BY W. G. HARPER

Great interest has been aroused among ornithologists by the realization that the migration movements of birds can be studied by radar. While it is only recently that, independently in Switzerland and in England, the true nature of the closely-spaced patterns of spots of radar echo has been understood, credit for the first detection of birds on radar is due to Dr David Lack of the Edward Grey Institute of Field Ornithology and Prof G. C. Varley of Oxford, then working with the Army Operational Research Group early in the second World War. They reported the detection of individual large sea birds on coastal defence radars, yet despite experimental proof they had great difficulty in getting this view accepted.

With the improvement and increasing output power of radar equipment by 1947, clouds of point-target echoes began to be recorded (Fig. 1), but it was not credited that birds could be present in sufficient numbers to cause the echoes, for which the name "angels" was coined in America. Angels were thought to be reflections of radar energy from abrupt changes in the refractive index of the air, but experimental evidence for the very steep gradients necessary is so far lacking. A "double-hop" mechanism in which the radar beam is bent by a refractive element to the ground, reflected, and bent back to return along the same path as on the outward journey, has been shown to explain some of the observed characteristics of angels rather better than the refractive index "step" idea, but other peculiarities do not fit with it. Meanwhile explanation in terms of birds was gaining ground.

In 1957 Dr E. Sutter of the Naturhistorisches Museum at Basle published evidence that displays of angels recorded on the airfield-control radar at Zürich were caused by migrating birds, moving at times in vast numbers. Independently, evidence based on their speeds and directions of movement, and on the fact that they were found to occur most frequently in spring and autumn, was obtained

at the Radar Research Station of the Meteorological Office at East Hill in Bedfordshire. Visual proof was also obtained. A telescope was mounted on the aerial of a radar of a type which has been specially designed to follow isolated targets, in such a way that its axis was directed along the radar beam. The movement of the telescope was not under the control of the telescope observer, who could only watch what appeared in the radar beam.

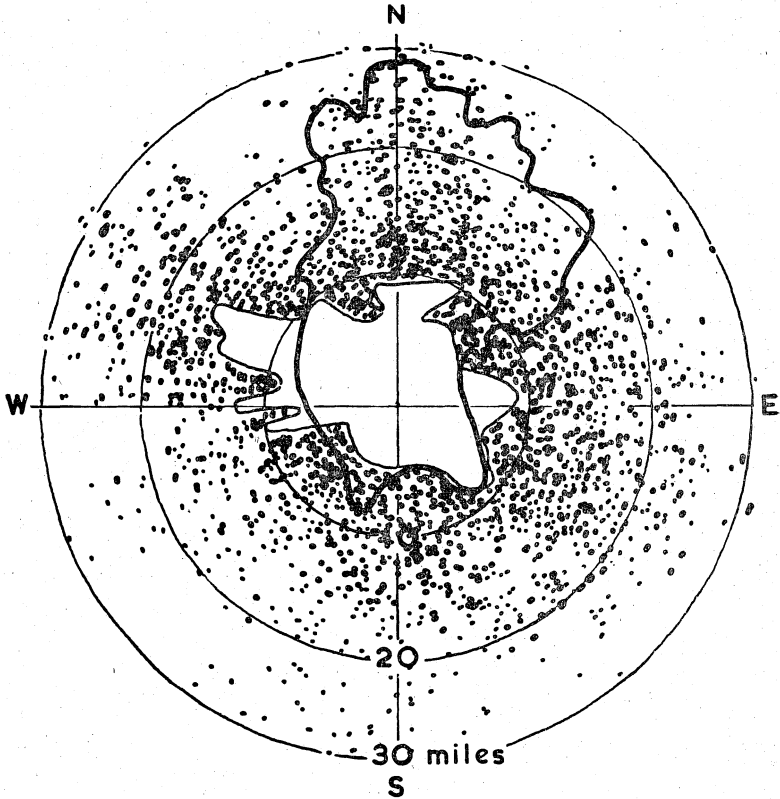


FIGURE 1

A pattern of migration on 10 cm. plan-position radar. It shows the onset of heavy nocturnal migration just after sunset on 12th March, 1957. Each spot represents a flock of birds. In the area near the radar which has been left blank, permanent echoes from hills, trees and buildings mask the movements. The Bedfordshire county boundary is shown.

Immediate success was achieved in resolving angels as birds. Angels moving towards the radar were followed in by the radar operators from ranges of about 5,000 yards. This allowed time for precise measurements of height, speed and direction of move-

ment. The majority of the targets were resolved as flocks of from five to thirty small birds by the time the target had closed to about 2,000 yards in range. They were followed by the operators through considerable ranges of azimuth and elevation, yet the birds remained in the field of the telescope. There was no doubt also that these were typical angels. The range of heights found for the flocks and their directions of movement agreed with those of the angels on the high-power plan-position and range-height displays.

When the records of occurrences of angels were examined, peaks of activity were found in March and early April, and in October and November, which agree with the peak periods of bird migration in this country. Even more striking was evidence from radar of the directions of movement of the angels, which were found to be predominantly eastward in spring, and southward to westward in autumn, despite frequent cross-winds and even occasional headwinds. There could be no further doubt that these were birds. The term "angels" was not after all so inappropriate. At least both can claim to be feathered!

The predominance of east-west migration movements in south-east England may surprise those who have vaguely thought of migration as being a movement "southward with the Sun". In fact, immense numbers of birds which have their summer breeding areas in northern Europe and the countries bordering the Baltic Sea, such as Starlings (*Sturnus vulgaris*), Redwings (*Turdus musicus*), Blackbirds (*T. merula*) and Chaffinches (*Fringilla coelebs*), are attracted by the mild climate and spend the winter here and in Ireland, making regular east-west migration movements of this kind. Indeed, many of the autumn movements in south-east England, far from having a southward component, are north-west and west-north-west towards Ireland. These are well known to ornithologists, and are clearly shown in the radar records.

Perhaps the most striking fact revealed is the great intensity of nocturnal migration movements. It is clear from radar that in volume they greatly exceed daytime movements, and it is these heavy movements, sometimes persisting for hours, which have caused most difficulty on airfield-control radars. A typical heavy nocturnal migration commences just before sunset, and usually increases greatly just after sunset, reaching a maximum just before midnight. It then usually decreases and may cease within two or three hours, but occasionally continues until dawn, merging into a smaller daytime movement. This same pattern has been found by Sutter at Zürich, and it confirms and greatly strengthens the conclusions of Dr G. C. Lowery in America, obtained by another method—counting the numbers of migrants crossing the face of the Moon. All the heavy migration movements seem to occur with clear skies, perhaps supporting the experimental evidence of Dr G. Kramer in Germany that birds can head in a constant

direction if they can see the Sun, and the more recent and surprising evidence produced by Dr F. Sauer that they can also do this from the pattern of stars alone.

The second interesting feature shown by radar is that much of the migration takes place at heights at which it cannot be seen from the ground, even with powerful binoculars and the skill acquired from experience in using them. Range-height radars, designed for measuring the height of aircraft, are little less powerful than primary plan-position radars, and these show that the most common height of migration is 2,000 to 3,000 feet, but that heavy movements up to 7,000 feet are frequent (see Fig. 2). The greatest height so far recorded over Bedfordshire is 16,000 feet. It may be objected that birds are rarely sighted from aircraft above 5,000 feet, but this is not as inconsistent as it might at first sight appear. Range-height search through all quadrants, taking only a few minutes, scans many hundreds of cubic miles of space. Even when there are substantial bird movements above this level, and angles are very dense on the display, there is probably not more than one small flock on average to a cubic mile. Pilots are very unlikely to see birds in these concentrations.

Radar shows that autumn migration movements across Bedfordshire usually continue well into December, but in addition "hard-

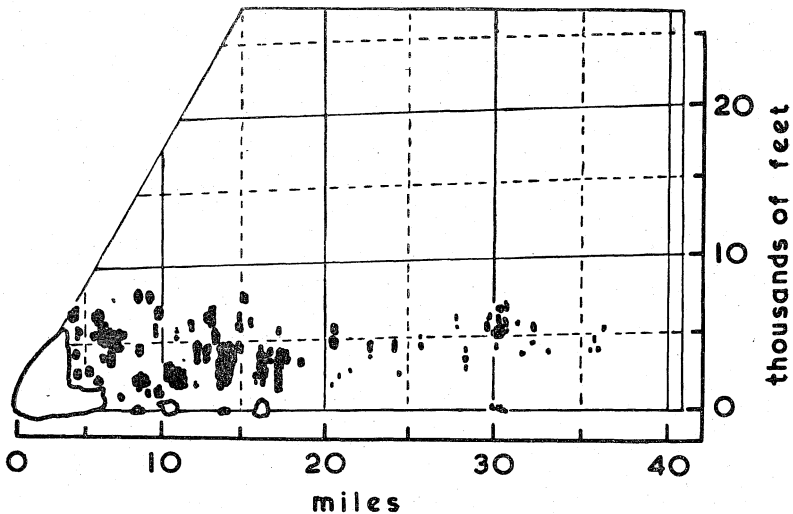


FIGURE 2

A migration movement recorded just after sunset on 7th March, 1957 on the 10 cm. range-height display. Flocks of birds are seen at many heights up to 8,000 ft., and can be detected out to a range of about 30 miles. Birds cannot be detected close to the origin because of permanent echoes.

weather movements"; long recognized by ornithologists, are occasionally seen in the winter months. Those most frequently seen have been southward movements of birds at the onset of severe weather. The writer has on several occasions seen evidence of substantial numbers of birds on the move, ahead of belts of snow or when scattered snow showers were present on the radar display.

There is no doubt that radar can provide fascinating material for the study of bird migration. Mr J. G. Tedd of the Research Branch, Fighter Command, Air Ministry, and Dr Lack have shown in a recent paper that new and powerful Royal Air Force radars can record simultaneous migration movements on a broad front extending from Yorkshire to the Straits of Dover. It will be of great interest when records become available from such well-known migration flyways as the east coast of North America or the Baltic coast.

Radar, of course, has definite limitations, and these must be briefly mentioned. Normal equipments will not record very low-level movements unless they are exceptionally favourably sited, nor at present can the numbers of migrating birds be assessed. Perhaps of more concern to most ornithologists is the disadvantage that species cannot be identified, neither can radar with any certainty even distinguish between a single large bird and a flock of small birds.

Yet despite these disadvantages we may reasonably hope that radar will be a useful tool in studying the underlying mechanisms of bird migration and bird navigation. As an instance of this, Lack has analysed the directions of spring migration over the North Sea revealed by R.A.F. radars, and finds that on almost every occasion when the wind had a southerly component the migrants were travelling on a course north of east, and on almost every occasion when it had a northerly component their course was south of east. This strongly suggests involuntary drift affecting an almost constant eastward heading. The effect may at times be negligible, as when migration takes place at speeds of 60 to 80 m.p.h. with strong tail-winds, many instances of which have been found in the East Hill records. Birds achieving such speeds on spring migration could reach the coast of Holland from East Anglia within two to three hours, and would be little affected by drift. When winds become unfavourable, however, or when with increasing cloud cover the birds lose their sense of direction, their migration flights might become very prolonged. Lack has found evidence of very erratic movements of birds overtaken by bad weather, and Sutter has demonstrated it beautifully in a time-lapse film of the Zürich radar display. Studies such as this can be expected to throw new light on the homing and migrational abilities of birds.

I should like to acknowledge the permission of the Director-General of the Meteorological Office to publish this article.

Report of Recorders

FLOWERING PLANTS

The year proved to be a useful and interesting one in its plant records. First place must be given to the finding of *Gymnadenia conopsea* sub-sp. *densiflora* (Wahlenb.) G. Camus, Bergon & A. Camus, by L. G. Adams and D. Hillyard growing in some quantity on a chalk hill near Sundon. This form of Fragrant Orchid, which probably deserves specific rank, grows normally in bogs and its station here is close to where *Parnassia palustris* L. and *Carex pulicaris* L. formerly grew. Almost as interesting was the discovery by Mrs A. Berens, in company with Mrs M. Ashton and Miss V. Leathers, of *Stachys annua* (L.) L., a cornfield weed, in a field to the east of Barton. It is to be hoped that this may prove to be a permanent feature of our flora. Miss G. Elwell showed me *Carex lepidocarpa* Tausch at Blue Water, near Houghton Regis. This grew formerly at Cow Common, Totternhoe, and we feared that it was lost to the county when that site was ploughed four years ago. An interesting extension of range of another native species was provided by the record of *Scirpus sylvaticus* L. from Chalgrave Manor by J. C. Chandler, but the appearance of a large patch of *Brachypodium pinnatum* (L.) Beauv. on Galley Hill, Streatley, was less welcome. Hitherto the curse of our chalk downland has been *Bromus erectus* Huds., and we trust that yet another rank grass will not appear. *Salvia pratensis* L., found by D. Hillyard near Dunstable Downs, is an instance of a plant found rarely at intervals over a long period of time, and it may become established in this new station.

My own excursions into the county were again late in the year and in search of wool adventures of which ten additional species were found.

A record of a different kind was provided by Dr F. H. Perring who reported that in the Cambridge University Herbarium there is a specimen from the herbarium of S. H. Bickham (1841-1933) of *Maianthemum bifolium* (L.) Schmidt, labelled "Aspley Wood, 1837". This may solve the mystery of Saunders's record of this species.

As the interest of Knocking Hoe is mainly botanical it may be appropriate here to record that during the year it was declared a National Nature Reserve, the first in our county. This means that for a period, at least, access, even to naturalists, will be made more difficult, but we should rejoice that it is at last safeguarded.

J. G. DONY.

METEOROLOGY

The weather of the year 1958 was disappointing, both to the naturalist and the holiday-maker. The early part of the year was cold and wet, February, for once, having a heavy rainfall exceeding that of the previous month. March and the first half of April were unusually cold due to the persistent east and north-east winds, while May failed completely to live up to the promise of its first two days when temperatures up to 77 deg. F. were recorded.

The rainfall of the three "summer" months of June, July and August was everywhere exceptionally heavy, the total for these three months supplanting that for the corresponding period of 1956 to rank with the figures for 1903, 1912, and 1917 as indicating one of the four wettest summers of the present century.

September was somewhat warmer than of recent years, with a temperature of 70 deg. as late as the 19th, but thenceforward the autumn as a whole was characterised by an unusual amount of mist and fog; these conditions were particularly evident during the last ten days of October, the second half of November, and the first and third weeks of December,

RAINFALL FOR 1958

	Ampthill	Bedford	Bromham	Cardington	Carlton	Kempston	Silsoe
January	2.74	2.32	2.17	2.28	2.72	2.37	2.52
February	2.54	2.35	2.38	2.39	2.88	2.36	2.12
March	1.70	1.81	1.48	1.81	1.59	1.59	1.44
April	1.04	0.71	0.67	0.93	0.70	0.83	0.78
May	1.79	1.68	1.82	2.07	1.76	1.63	1.50
June	4.77	4.89	5.53	5.02	5.17	4.75	4.63
July	2.78	2.45	2.82	3.06	2.49	2.95	2.91
August	3.52	2.56	3.19	2.84	3.03	3.18	3.58
September	2.89	2.45	2.15	2.54	2.58	2.55	3.08
October	1.86	1.81	1.76	1.68	2.45	1.78	1.73
November	1.58	1.62	1.62	1.64	1.74	1.70	1.51
December	2.28	2.45	2.37	2.31	2.75	2.46	2.22
Totals	29.49	27.10	27.96	28.57	29.86	28.15	28.02

Ampthill (Mr Horne)
 Bedford (Mr Lock)
 Bromham (the writer)

Cardington Aerodrome (per Mr Speed)
 Carlton (Col. Battcock)
 Kempston (Mr Payne)
 Silsoe (N.I.A.E., Wrest Park, per Mr Dunn)

especially during the Christmas week. A brief cold spell with snow occurred on the 10th December, but the year closed mild and wet.

RAINFALL was everywhere much in excess of average by from 25 to 30 per cent at all stations, much of this being accounted for by the totals for June, July and August which everywhere lay between 10 and 11 inches. Continuing the tendency of recent years April was once again the driest month, with less than 1 inch of rain in most districts, although the longest dry period of the year comprised the eleven days from 13th to 23rd March inclusive. The unusually high total for February is largely due to the heavy rain of the 24th and the blizzard of the following day.

The longest wet period was that from 28th September to 11th October, some rain falling on each of the fourteen days. December had 21 wet days, although not consecutive.

The heaviest daily rainfall was measured on the night of 1st-2nd July when nearly one and a quarter inches occurred in conditions closely resembling a thunderstorm, although thunder was not actually heard.

SNOW fell on eight days, the heaviest fall being on the night of 9th-10th December, although some of the day's total of $\frac{1}{2}$ inch fell as rain. March had five days with snow, but individual daily totals were small.

THUNDER was more frequent than in the past few years, occurring on nineteen days, six of them in August. The most notable storm, however, was that of the evening of 5th September with remarkably vivid and continuous lightning. The storms of 22nd August yielded the heaviest day's rainfall (0.85 in.).

The average TEMPERATURES for the year were as follows:

January ...	38.61 deg. F.	July ...	62.63 deg. F.
February ...	40.96	August ...	61.64
March ...	39.31	September ...	59.50
April ...	46.36	October ...	51.77
May ...	54.02	November ...	43.81
June ...	59.63	December ...	40.06
Average for the whole year	49.86 deg. F.
(Average for 1957	50.78 deg. F.)

The low temperatures of the first three months are mainly responsible for the average being 0.81 deg. lower than in 1957; in particular, the average for March, 1958, is nearly 10 deg. colder than for the corresponding month of 1957.

There were only five days on which the temperature reached or exceeded 80 deg. F., the hottest day of the year being 8th July with a maximum of 83 deg.

The coldest days of the year were the three, 21st to 23rd January, during which the temperature never rose above 34 deg. The same period also had the coldest night, that of the 21st-22nd January, with a minimum air temperature of 18 deg.—14 deg. of frost. The latest air frost of spring was on 12th April, while the earliest of autumn was on 31st October.

Exceptionally low PRESSURES were recorded in mid-December, the barometer remaining below 29 inches of mercury for nine consecutive days.

A. W. GUPPY.

PALAEONTOLOGY

1958 has been a very interesting year, one of the most notable features being the construction of the new London-Yorkshire Motorway. This Motorway, as it was constructed across the County, exposed numerous cuttings and, by December, most of these cuttings had been completed.

Since June, the Recorder concentrated on these temporary sections and it was impossible, therefore, to visit all the permanent quarries in the County, as time was not available. This state of affairs was, unfortunately, unavoidable, and this report only covers the first half of the year (January to June), during which time a few visits were made to the permanent County sections as in previous years.

The results of the work on the London-Yorkshire Motorway sections will form a separate paper at some future date—probably forming the 1959 Annual Report—and it is extremely doubtful if time will be available next year to visit the permanent County sections.

This year commenced, palaeontologically, on the 1st of January, when a short visit was made to an old abandoned quarry near Oakley Junction. This pit was first observed by the Recorder some two years previously, but it was impossible to fit in an inspection for various reasons. It was not until 1958, therefore, that a visit was practicable. The quarry exposed the Cornbrash Limestone in good detail but, due to the age of the whole pit, no vertical sections existed. The main mass of rock was spread over the floor of the quarry and the fossils, when obtained, can only be recorded as occurring at this locality, as the depth of each particular species could not, due to the condition of the quarry, be ascertained.

Much of the Limestone had weathered to a yellowish clay and, although fossils were not particularly common, a fairly good selection was collected—mostly Brachiopods and Lamellibranchs. The Brachiopods were generally in an excellent condition, although excess weathering had destroyed the surface detail on a number of them. The whole quarry was badly flooded and parts of the area were not accessible for collecting. Eventually, this pit will be turned into a rubbish dump (as have previous pits in this area) and the collections formed will, therefore, be of great interest in the future when all hope of collecting data is lost, and the beds are buried under several feet of rubbish.

The fossils listed are the results of several visits made between January and June.

Most notable among the Brachiopods were various species of *Rhynchonellae*. These were outnumbered by specimens of *Cererithyris sp.* by about a hundred to one, but, over a period of several visits, a few were obtained. The important feature is that all were either new or undescribed species. The first three sent up to the Geological Survey for identification were named as follows:

Kutchirhynchia sp. nov.; Undescribed *Rhynchonellid*; and *Kallirhynchia sp. nov.* This is obviously very extraordinary, and, as the quarry is at least 40 years old, serves as a good indication of the deplorable lack of geological interest prevalent in Bedfordshire, both in past years and at the present time.

The following specimens, collected over several months, were presented to the Geological Museum in South Kensington.

Undescribed *Rhynchonellid*; *Kutchirhynchia sp. nov.*; *Kallirhynchia sp. nov.*; and *Lycettia cf. indica* (Cox).

The specimen of *Lycettia cf. indica* (Cox) was extremely well preserved, and is unknown above the Inferior Oolite of England. As the Cornbrash is a much later deposit, the importance of this specimen cannot be overstated.

The Lower Oxford Clay at the Eastwoods Flettons Brick Works (Kempston Hardwick) was also studied briefly, and two half-day visits made to the quarry. Generally speaking, no really well-preserved specimens were obtained, although a few Ammonites were discovered that were worth retaining. The usual large Belemnites—*Cylindroteuthis oweni* (Pratt)—were much in evidence, but no complete specimens were obtained.

An unusual specimen was a rib bone of a marine reptile (*Plesiosaurus* sp.), and, although this was in ten fragments, it was possible to cement them together fairly satisfactorily.

Apart from this bone, nothing exceptional can be put on record from this area of the Lower Oxford Clay.

The Leighton Buzzard exposures of Gault Clay and Lower Greensand were also visited prior to the Motorway research, the first pit examined being Chamberlain Barn quarry. This pit is quoted in previous reports as being rather barren and this observation can, I think, still hold good with regard to the clays that are in the worked part of the quarry. If, however, the geologist moves to the old overgrown clay face approximately 150 yards south of the present worked area, then the section as described by C. V. Wright and C. W. Wright (*Geological Magazine*, 1947) becomes faintly visible. Clay slip in this old part of the quarry had destroyed all hope of zoning, but the nodule bands were in evidence and a good collection of specimens was made, notably Ammonites. Also obtained from a nodule in band IV (See "Albian Strata of Leighton Buzzard, Wright and Wright, *Geological Magazine*, 1947) was an important brachiopod. This brachiopod was sent to London for identification and was determined as being an extreme form of the group of "*Rhynchonella*" *mirabilis* (Lamplugh & Walker) at present unnamed. The specimen was accordingly presented to the Geological Survey collection in South Kensington.

The pit at Billington Road (Arnold's Pit) yielded a few more specimens, but no additions to the previous lists were obtained. All fossils were uncommon due to the condition of the clay slopes, and the Recorder was fortunate in obtaining the few that did occur. It appeared that the quarry was still worked for sand and, in the future, more clay may be removed thus re-exposing the section as it was in 1947 (see *Geological Magazine*, 1947, as for Chamberlain Barn Pit).

Mundays Hill Pit again yielded abundant fossils, although the Shenley Limestone lenticles were not exposed this year. Since my previous surveys of the area, several thousand tons of clay had been shifted from the clay slope and dumped on to the lenticles that, in previous years, had yielded such valuable specimens.

This was extremely unfortunate, as these highly fossiliferous lenticles are now buried for ever. It is to be hoped that, in the future, more of these lenticles will be exposed. The only Shenley Limestone visible was a smashed lenticle at the base of the slope which was, unfortunately, one of the barren ones. Diligent searching and hammering produced a few brachiopods, all of which were previously recorded.

The Gault Clay slope had, however, benefited from the shift of clay, and a considerable number of fossils were collected from the newly exposed strata. A number of Ammonites were obtained, and also some well-preserved Gastropods. As the slope had been exposed to the weather for a relatively short time, many of the specimens were in a very good condition and frost had split and destroyed only a few of them.

Double Arches quarry did not show much of interest this year. Shenley Limestone lenticles were visible, but very few fossils occurred in this rock. A number of brachiopods were collected, but the result was not particularly impressive. The Limestone, however, showed bedding that I had not observed previously, and a number of Shenley Limestone fragments showing bedding planes of pebbles and conglomeratic material were removed from the main mass and, later, were forwarded as a presentation to the Geological Survey staff for inclusion in the main collections.

The following specimens were recorded from the localities indicated, and are additions to the previous lists:

Old Quarry near Oakley Junction (Cornbrash Limestone)

Brachiopoda: *Epithyris* sp., *Cererithyris intermedia* (J. Sowerby), *Obovothyris* aff. *magnobovata* (S. S. Buckman), Undescribed *Rhynchonellids*, *Kutchirhynchia* sp. nov., *Kallirhynchia* sp. nov.

Lamellibranchia: *Pleuromya calceiformis* (Phillips), *Pseudolimea duplicata* (J. de C. Sowerby), *Modiolus imbricatus* (J. Sowerby), *Brachidontes (Arcomytilus) laitmairensis* (de Loriol), *Anisocardia (Antiquicyprina)* cf. *islipensis* (Lycett), *Anisocardia triangularis* (Bean), *Liostrea (Catinula) subrugulosa* (Morris & Lycett), *Lycettia* cf. *indica* (Cox), *Camptonectes annularis* (J. de C. Sowerby).

Crinoidea: *Isocrinus* sp.

Echinoidea: *Pseudodiadematid* indet, *Nucleolites* cf. *orbicularis* (Phillips).

Pisces: *Strophodus magnus* (L. Agassiz).

Decapoda: *Callianassa*.

Chamberlain Barn Quarry, Leighton Buzzard (Lower Greensand and Gault)

Cephalopoda: *Beudanticeras ligatum* (Newton & Jukes-Browne), *Douvilleiceras monile* (J. Sowerby).

Gastropoda: *Gyrodes genti* (J. Sowerby).

Eastwoods Flettons Quarry, Kempston Hardwick (Lower Oxford Clay)

Cephalopoda: *Kosmoceras* sp., *Kosmoceras* cf. *castor* (Reinecke).

Lamellibranchia: *Meleagrinnella braamburiensis* (Phillips).

Gastropoda: *Procerithium (Rhabdocolpus) muricatum* (J. de C. Sowerby).

Annelida: *Serpula vertebralis* (J. de C. Sowerby).

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P. J. SMART.

LEPIDOPTERA

As 1958 proved to be such a miserable season it was fortunate that we decided early in the year to concentrate most of our activities with the M.V. Lamp on the county. This had the result of considerably increasing our county records, although few of the species were actually new to us. There were few nights when captures could even be called average, and even in some of our most favoured localities very little of interest was recorded; at Salcey Forest, for example, at the end of June, the tally of species was far below that of previous seasons. The year, then, was mainly given over to working new localities in Bedfordshire, and in spite of the weather often being against us, several interesting species were recorded.

For day-flying insects it was a dreadful year, the continuous wet weather apparently spanning the emergence periods of several species. Although actual precipitation may not have been great, there was seldom much respite from grey skies and general dampness, so that one was forced to wonder how some insects were able to emerge and mate successfully. The few hot days 17th-20th July and 10th-12th August may just have saved such genera as the *Argynniae* (Fritillaries), for example, but that can only be ascertained next season.

I have one record for the 1957 season which was omitted from the notes for that year; the discovery of *Hamearis lucina* (Linn.), The Duke of Burgundy Fritillary, by Dr V. H. Chambers on Dunstable Downs (2nd June). He wonders if this is an introduction, but I think it is possibly a colonist, or even a native previously overlooked. It is common at Princes Risborough and in other localities on the Chilterns and I have always hoped and expected to see it on our hills, though I would have expected Totternhoe Knolls to be the ideal locality.

It is pleasant to report, on information from Bedford School, that the *Limenitis camilla* (Linn.), White Admiral, colony at Putnoe Woods is thriving. During the period 1954-57 it was declining rapidly, and one felt sure that the heavy public use of the locality was to some degree the cause; however, this, apparently, has no effect on the species.

The localities we have visited with the M.V. Lamp in the county are Flitwick Moor, Sheerhatch Wood, Northill, Sandy, and Sharpenhoe, and, of course, the light was run on every favourable evening at Cardington Road, Bedford. Another light has been run from 22nd June to 23rd July at Bedford School by Mr Timothy Peet and his records have been incorporated in my lists, considerably augmenting them. I should like to express my gratitude for these, particularly as several very interesting things were recorded which so far have not occurred in our trap.

The actual positions of the lamp at the various localities are as follows:

Flitwick Moor (10th and 28th May): at the northern end of the moor; on the edge of Folly Wood on the first date, and on top of the peat tip on the second.

Sheerhatch Wood, Northill (16th August): just off the Moggerhanger road on the east side of the wood in the second ride from the crossroads.

Sandy (30th August): below Bunker's Hill, on side of old sandpit.

Sharpenhoe (9th August): on the Streatley road, just below the crest of the hill.

On the nights of the 16th and 30th August we were joined by Mr Lamb of Blunham for whose help we were most grateful in carrying equipment.

Before outlining the scope of the following lists I should like to put on record for Dr D. M. Jeffereys, my father and myself the appreciation of three lepidopterists of all Dr Dony's work towards the declaration of Knocking Hoe as a Nature Reserve. Though the treasures of the hill are primarily botanical there is a wonderful colony there of *Lysandra corydon* (Pod.), the Chalkhill Blue, which, though it must have suffered from the ploughing, will now be well protected. We very much appreciate this, as the colony is in some isolation and does show a tendency to variation.

The first of the following lists relates to 1958, and is followed by a list of records for the county brought as nearly as possible up to date. This latter is based on reference numbers only, but with full details where necessary of species not previously noted. In both cases the check list numbers are based on the Indexed Check List of the British Lepidoptera by I. R. P. Heslop, M.A., F.R.E.S., December, 1947, 2nd edition. The terminology and arrangement of this check list are now somewhat out of date, but it is felt that this is a familiar means of reference, and the advantages of using it far outweigh those to be obtained by following the hair-splitting of the latest name-research addicts.

The latter list can be considered as a preliminary to a fully-detailed investigation into the Macrolepidoptera of the county today in which the status of every recorded species will be assessed. I hope to be able to do this within the historical framework of old records, so that some idea can be gained of the changes which have occurred since, for instance, the Victoria County Histories were written.

The recorders for the following lists are as follows:

KW—Kenneth West.

DMJ—Dr. D. M. Jeffereys.

EPY—Lt.-Col. E. P. Young.

BW—Bernard West.

TNDP—Timothy N. D. Peet.

29. *Vanessa cardui* (Linn.), Painted Lady: Pavenham. About half a dozen specimens recorded by EPY during July. There was a limited immigration of this species in mid-summer, but no signs of breeding seen, due no doubt to the damp weather, (BBW).

63. *Celastrina argiolus* (Linn.), Holly Blue: Several of the spring brood recorded, (DMJ); one male, May, Bedford, (BW). Ivy buds were searched in vain in late summer for eggs and larvæ. This species is still unaccountably rare. (Refer notes, 1956 Journal).

64. *Cupido minimus* (Fuessl.), Small Blue: Plentiful, Totternhoe Knolls, June. A welcome increase in numbers after a period of decline.

77. *Acherontia atropos* (Linn.), Death's-Head Hawk: Pavenham, August. EPY records a larva from a potato field in the parish, which he saw, and another was reported. The former pupated but it is not known whether it survived.

95. *Cerura furcula* (Linn.), Sallow Kitten: Sharpenhoe, August (M.V.). Attracted from the valley, the line of flight was from the north on the night of 9th August, which means this species must have been attracted from a considerable distance by the light.

96. *Cerura vinula* (Linn.), Puss: Larvæ, Bedford, (TNDP).

100. *Drymonia ruficornis* (Hufn.), Lunar Marbled Brown: Folly Wood, Flitwick, May, (M.V.). As an oak feeder in a predominantly birch wood this is a surprising record, (KW, BW).

101. *Pheosia tremula* (Clerck.), Greater Swallow Prominent: Folly Wood, Flitwick, June, (M.V.), (KW, BW); Bedford, one specimen, June, (M.V.), (TNDP).

103. *Notodonta ziczac* (Linn.), Pebble Prominent: Folly Wood, Flitwick, June, (M.V.), (KW, BW).

104. *Notodonta dromedarius* (Linn.), Iron Prominent: Folly Wood, Flitwick, June, (M.V.), one specimen, (KW, BW).

109. *Lophopteryx cucullina* (Schiff.), Maple Prominent: Bedford, June, (M.V.), (TNDP). A very satisfactory record; although the one specimen was not in cabinet condition it does point to the continued existence of this rather rare species in the district. We have not taken it at Cardington Road since 1956.

119. *Thyatira batis* (Linn.), Peach Blossom: Bedford, June, (M.V.), one specimen, (TNDP).

135. *Leucoma salicis* (Linn.), White Satin: Bedford, June, (M.V.), one specimen, (TNDP). We have not yet taken it in the county, but have recorded it for three neighbouring counties.

137. *Lymantria monacha* (Linn.), Black Arched Tussock (Black Arches): Sheerhatch Wood, Northill, August, (M.V.), one specimen, (KW, BW).

141. *Poecilocampa populi* (Linn.), December Eggar: Bedford, December, (TNDP); one seen at light on town bridge, November, (BW). Not very common this season.

145. *Macrothylacia rubi* (Linn.), Fox: Sharpenhoe, August. Larvæ taken in grass before setting up M.V. Lamp, (KW, BW).

156. *Drepana falcataria* (Linn.), Pebble Hook Tip: Folly Wood, Flitwick, May, (M.V.), common, (KW, BW).

157. *Drepana lacertinaria* (Linn.), Scalloped Hook Tip: Folly Wood, Flitwick, May, (M.V.), common, (KW, BW).

159. *Nola cucullatella* (Linn.), Short Cloaked Black Arches (Short Cloaked): Larvæ from Odell Great Woods, bred out, (TNDP).

165. *Bena prasinana* (Linn.), Green Silver Lines: Folly Wood, Flitwick, June, (M.V.), one specimen, (KW, BW).

193. *Eilema lurideola* (Zinck.), Common Footman: Sharpenhoe, August, (M.V.), (KW, BW).

211. *Apatele menyanthidis* (View), Light Knot Grass Dagger: Sutton Fen, flying by day. (Disturbed by activities of group). 18th May, Mr Lamb's outing.

217. *Cryphia perla* (Fabr.), Marbled Beau: Common at Cardington Road, mainly taken at rest by day, (BW); noted as uncommon by TNDP at Bedford School light trap.

218. *Cryphia muralis* (Forst.), Marbled Vert: Less common than 'perla' in the Cardington Road area.

222. *Agrotis vestigialis* (Rott.), Archer Dart: Sandy, August, (M.V.), (KW, BW). One of the most interesting records of the year. This is a coastal species which is not normally recorded further inland than the Breck, where we have taken it at Icklingham and Tuddenham in Suffolk. The Sandy form is much darker than those from Suffolk, but since the former was undoubtedly second brood, this can be taken as a case of seasonal dimorphism.

225. *Agrotis puta* (Hubn.), Shuttle-Shaped Dart: Sheerhatch Wood, August, (M.V.), (KW, BW), several.

233. *Euxoa nigrescens* (Linn.), Garden Dart: Sharpenhoe, August, (M.V.), (KW, BW), common.

234. *Euxoa tritici* (Linn.), White Line Dart: Sharpenhoe, August, (M.V.), (KW, BW), two specimens.

237. *Lycophotia varia* (Vill.), (*strigula*, Thunb.), True Lovers Knot: Bedford, July, (M.V.), (TNDP), two specimens. This adds to our records at Cardington Road, and seems to indicate a foodplant other than *Calluna vulgaris*, or dependence on garden-grown heathers. We have not yet taken it on the Greensand.

240. *Peridroma porphyrea* (Schiff.), Pearly Underwing: Sharpenhoe, August; Sandy, August, (M.V.), (KW, BW), common.

243. *Spaelotis ravida* (Hübner), Stout Dart: Sharpenhoe, August, (M.V.), (KW, BW), four to five specimens.

245. *Graphiphora auger* (Fabr.), Double Dart: Folly Wood, Flitwick, June, (M.V.), (KW, BW); Bedford, (M.V.), (TNDP), five specimens during late June and early July.

251. *Amathes castanea* (Esp.), The Neglected, or Grey Rustic: Sandy, August, (M.V.), one specimen, (KW, BW).

256. *Amathes triangulatum* (Hufn.), Double Square Spot: Bedford, June, July, (M.V.), (TNDP), uncommon.

258. *Amathes sexstrigata* (Haw.), Six Striped Rustic: Sheerhatch, August, Sharpenhoe, and Sandy, August, (M.V.), (KW, BW), generally common.

265. *Ochropleura plecta* (Linn.), Flame Shoulder: Much less common than usual (KW, BW).

266. *Axylia putris* (Linn.), Flame Rustic: Another species greatly reduced in numbers, (KW, BW).

279. *Polia nitens* (Haw.), Pale Shining Arches, (Pale Shining Brown): Bedford, July, (M.V.), TNDP notes it as uncommon, three or four specimens. We have not yet taken it in the county but find it plentifully in Northamptonshire.

280. *Polia nebulosa* (Hufn.), Grey Arches: Folly Wood, Flitwick, June, (M.V.), (KW, BW), one specimen; Bedford, (M.V.), (TNDP). For a moth of fairly well-established woodland, the Bedford record is interesting.

282. *Melanchnra persicariae* (Linn.), White Dot: Generally common this season, (KW, BW), (TNDP).

283. *Ceramica pisi* (Linn.), Broom Brocade: TNDP notes this insect as uncommon in the Bedford School trap, which continues the town records. One must therefore assume the alternative foodplants, Bramble, Rose, Sallow and Ferns are the basis of its existence in Bedford.

300. *Hadena cucubali* (Fuessl.), Champion Coronet: Sharpenhoe, August, (M.V.), (KW, BW), two specimens.

304. *Hadena serena* (Fabr.), Broad-Barred White Gothic: Folly Wood, Flitwick, June, (M.V.), (KW, BW), three to four specimens.

312. *Cerapteryx graminis* (Linn.), Antler: Sharpenhoe and Sandy, August, (M.V.), (KW, BW), common.

320. *Eremobia ochroleuca* (Esp.), Dusky Sallow Rustic: Sharpenhoe, August, (M.V.), (KW, BW), one specimen.

327. *Thalpophila matura* (Hufn.), Straw Underwing: Sharpenhoe, August, (M.V.), (KW, BW), one specimen; Bedford, July, (M.V.). TNDP notes as uncommon.

328. *Procus strigilis* (Clerck), Marbled Minor: Bedford, (M.V.). TNDP notes as uncommon, whereas at Cardington Road it is a fairly regular insect in the trap. We tend to take specimens approaching the form '*aethiops*' (Haw) in which the white markings are reduced or absent, (BBW).

332. *Procus literosa* (Haw), Rosy Minor: Sharpenhoe, August, (M.V.). Another very interesting species and one which is usually coastal. We have taken it commonly in Norfolk on sand dunes, but our chalk hill habitat is obviously equally suitable.

351. *Apamea hepatica* (Hübner), Large Clouded Brindle: Bedford, (M.V.), (TNDP), fairly common. (Refer 1956 lists in *Journal*).

368. *Meganephira oxyacanthae* (Linn.), Green Brindled Crescent: One specimen var. '*capucina*' in boarding house, Bedford School, (TNDP); type at Clapham, (DMJ).

405. *Leucania impura* (Hübner), Smoky Wainscot: Bedford, July, (M.V.), (TNDP), fairly common.

410. *Leucania comma* (Linn.), Shoulder Striped Wainscot: Common at Cardington Road, (M.V.), (KW, BW).

417. *Leucania lithargyria* (Esp), Clay Wainscot: Sharpenhoe, August, (M.V.), (KW, BW), common; Bedford, (M.V.), one per night onwards from 17th July, (TNDP).

421. *Meristis trigrammica* (Hufn.), Treble Line Wainscot: Bedford, July, (M.V.), (TNDP), generally common.

424. *Caradrina alsinis* (Brahm), Uncertain Wainscot: Bedford, July, (M.V.), (TNDP).

427. *Caradrina clavipalpis* (Scop.), Pale Mottled Willow: Sharpenhoe, August, (M.V.), (KW, BW), several.

432. *Rusina umbratica* (Goeze), (*tenebrosa* Hübn), Brown Feathered Wainscot: Bedford, June, (M.V.), one specimen on the night of 29th June, (TNDP).

434. *Amphipyra tragopoginis* (Linn.), Mouse Wainscot: Sharpenhoe, August, (M.V.). These occurred throughout the night, but only sporadically, (KW, BW).

439. *Cosmia trapezina* (Linn.), Dun Bar: Sharpenhoe, August, and Cardington Road, Bedford, August, (M.V.). Not by any means a common insect, but we take a few each year, (KW, BW).

455. *Orthosia gracilis* (Fabr.), Powdered Quaker: Bedford, July, (M.V.), (KW, BW), less common than usual.

493. *Cucullia chamomillae* (Schiff.), Chamomile Shark: Bedford, found infrequently on gateposts, Pemberley Avenue, Goldington Road, etc., (TNDP).

501. *Panemeria tenebrata* (Scop.), Small Yellow Underwing: Colony on top of hill above river by Sewage Farm, but not observed last year (TNDP). Not recorded by us since 1955 (Topler's Hill on the A1), (KW, BW).

523. *Scoliopteryx libatrix* (Linn.), Herald: Bedford, July, (M.V.), one specimen, (KW, BW); Bedford, taken resting on paling fence during day, September, (TNDP).

525. *Polychrysis moneta* (Fabr.), Silver Eight (Golden Plusia): Bedford, June, (M.V.), three specimens, Cardington Road, one larva found on delphinium, (KW); plentiful in Bedford School trap, June-July, (TNDP).

530. *Plusia iota* (Fabr.), Plain Golden Y: Bedford, Cardington Road, (M.V.), one specimen, (BW); Bedford School, (M.V.), five specimens during July, (TNDP).

533. *Plusia pulchrina* (Haw), Beautiful Golden Y: Bedford, (M.V.), (KW, BW), several specimens in Cardington Road trap.

563. *Hypnea proboscidalis* (Linn.), Common Snout: Bedford, (M.V.), a few specimens during July at Cardington Road, and one second brood specimen in September, (BW); two specimens, July, at Bedford School trap, both in poor condition, (TNDP).

583. *Hemitea aestivaria* (Hüb.), Common Emerald: Bedford, (M.V.), one specimen, (TNDP).

598. *Sterrhia aversata* (Hüb.), Riband Wave: Folly Wood, Flitwick, (M.V.), (KW, BW); Bedford, (M.V.), both forms, fairly common, (TNDP). (This is an interesting record, as we have never taken it at Cardington Road.)

616. *Calothysanis amata* (Linn.), Larger Blood Vein: Bedford, (M.V.), taken regularly, but in limited numbers, (BW); Pavenham, Stevington, and Quenby's Fields, Biddenham, (KW, BW); Sewage Farm, (TNDP).

622. *Cosymbia albipunctata* (Hufn.), Birch Mocha: Folly Wood, Flitwick, (M.V.), (KW, BW), very common.

625. *Anaitis plagiata* (Linn.), Slender Treble Bar: Sewage Farm, (TNDP), taken fairly regularly.

635. *Triphosa dubitata* (Linn.), Common Tissue: Sheerhatch Wood, Northill, August, (M.V.), (KW, BW), one specimen.

640. *Ecliptoptera silaceata* (Schiff.), Small Phoenix: Folly Wood, Flitwick, May, (M.V.), (KW, BW), one specimen.

648. *Electrophaës corylata* (Thunb.), Broken Barred Carpet: The commonest of the 'carpets' this season both at Cardington Road and in any oak-hazel woodland.

649. *Dysstroma truncata* (Hufn.), Common Marbled Carpet: Sheerhatch Wood, Northill, August, (M.V.), (KW, BW). This was a most ubiquitous insect from late July onwards, and very variable in colour and pattern. We feel that some sort of melanistic factor accounts for the almost black specimens we took during August.

651. *Dysstroma citrata* (Linn.), Dark Marbled Carpet: Another exceedingly variable species, but less common than 'truncata', Sandy and Bedford, August, (M.V.), (KW, BW).

655. *Thera obeliscata* (Hübner), Grey Pine Carpet: Sandy, August, (M.V.), (KW, BW), five specimens.

663. *Xanthorhoë ferrugata* (Clerck), Dark Twin-spot Carpet: Folly Wood, Flitwick, May, (M.V.), (KW, BW), one specimen.

664. *Xanthorhoë spadicearia* (Schiff.), Red Twin-spot Carpet: Sheerhatch Wood, Northill, August, (M.V.), (KW, BW), two specimens.

667. *Xanthorhoë fluctuata* (Linn.), Garden Carpet: The most truly urban of all the 'carpets', it is exceedingly common in the Cardington Road-St. John's Glebe area.

675. *Ortholitha bipunctaria* (Schiff.), Local Chalk Carpet: Sharpenhoe, August, (M.V.), (KW, BW), one specimen.

681. *Ortholitha chenopodiata* (Linn.), Shaded Broad Bar: Sharpenhoe, August, (M.V.), (KW, BW), several.

702. *Epirrhoë rivata* (Hübner), Wood Carpet: Sheerhatch Wood, Northill, September, one specimen taken resting by day, (BW).

703. *Epirrhoë alternata* (Müll.), (*sociata* Borkh), Common Bedstraw Carpet: Sheerhatch Wood, August. This was the first occasion on which we have taken this species with M.V. and it was exceedingly common, (KW, BW).

708. *Euphyia bilineata* (Linn.), Yellow Shell: Sharpenhoe, August, (M.V.), (KW, BW).

729. *Earophila badiata* (Hübner), Shoulder Stripe: Bedford, (M.V.), two normal specimens were taken in July, and one dark very richly coloured one, (KW, BW).

738. *Eupithecia centaureata* (Schiff.), Lime Specked Pug: Bedford, (M.V.), (KW, BW), not uncommon; Bedford, (M.V.), (TNDP), fairly common.

780. *Eupithecia exigua* (Hübner), Mottled Pug: Sutton Fen, 18th May, seen in limited numbers on Society outing, (Mr. Lamb).

786. *Gymnoscelis pumilata* (Hübner), Double Striped Pug: A few seen during summer in boarding house, Bedford School, (TNDP).

793. *Lomaspilis marginata* (Linn.), Clouded Border: Sutton Fen, 18th May, one taken on Society outing, (Mr. Lamb).

794. *Ligdia adustata* (Schiff.), Scorched Silver: Sheerhatch Wood, Northill, (M.V.), one specimen taken, which in August is fairly late for this species, (KW, BW).

803. *Bapta bimaculata* (Fabr.), White Pinion Spotted: One in Sheerhatch Wood, August, (TNDP).

805. *Cabera pusaria* (Linn.), White Waved Silver: Rowney Warren, Shefford, (TNDP); Sutton Fen, 18th May, taken on Society outing, (Mr. Lamb).

817. *Chiasmia clathrata* (Linn.), Latticed Heath: Common generally on the Greensand, Ampthill, Flitwick, Maulden, also on dry limestone pasture at Stevington, (BW).

825. *Ennomos autumnaria* (Wernb.), Large Thorn: Several seen in early autumn, (BW); one, Chaucer Road, Bedford, September, (DMJ).

832. *Selenia tetralunaria* (Hufn.), Purple Thorn: Folly Wood, Flitwick, May, (M.V.), one specimen, (KW, BW).

834. *Gonodontis bidentata* (Clerck), Scalloped Hazel Thorn: Folly Wood, Flitwick, May, (M.V.), several specimens, (KW, BW).

835. *Crocallis elinguaris* (Linn.), Scalloped Oak Thorn: One specimen, Cardington Road, Bedford, (MV); there are a few oak trees in St. John's Glebe, but otherwise the nearest oaks are at Fenlake, (BW).

860. *Cleora repandata* (Linn.), Mottled Beauty: Sheerhatch Wood, and Bedford, Cardington Road, August, (M.V.), (KW, BW); a few.

865. *Ectropis crepuscularia* (Hübner), Small Engrailed: Folly Wood, Flitwick, May, (M.V.), (KW, BW); fairly common.

870. *Ematurga atomaria* (Linn.), Common Heath Beauty: Sutton Fen, and along railway line below Bunker's Hill, Sandy, but only males taken (? start of emergence), 18th May, Mr. Lamb's outing.

1099. *Zygaena filipendulae* (Linn.), Narrow-Bordered Six-spot Burnet: Totternhoe Knolls, 20th July. We have established that this is the 'six-spot' of the Knolls, and that '*hippocrepidis*', whether a hybrid or not, is absent.

1101. *Zygaena lonicerae* (Esp.), Narrow-Bordered Five-spot Burnet: Totternhoe Knolls, 20th July. Two of our specimens from the Knolls are this species, and with the following are out about a week to ten days earlier than either '*filipendulae*' or '*hippocrepidis*'.

1103. *Zygaena trifolii* (Esp.), Broad-Bordered Five-spot Burnet: Totternhoe Knolls, 20th July. In very bad condition on this date, worse, in fact, than '*lonicerae*'; presumably, therefore, the first Burnet to emerge on the Downs. Of twenty to thirty taken, two were in cabinet condition. Amongst the Willington colony mentioned in the 1957 lists, which seem definitely to be '*lonicerae*' (in some cases the border is almost absent), there are a few brighter individuals with a broad border of the '*trifolii*' type which are nevertheless quite different from the downland form. These may be typical of the water-meadow form, or one approaching the var. '*palustris*' of the Fens. We intend to do more work on this very puzzling group in 1959.

List of Macrolepidoptera for the county based on all information available to us at the moment. Reference numbers based on Check List (see introduction). Note that the Butterfly records (*Journal*, No. 3, p. 16 et seq.) followed Kloet and Hincks, 1945, but for uniformity the system followed here is Heslop's. Brackets refer to 1958 lists.

PIERIDAE. 4, 5, 6, 8, 9, 10, 11, 12.

NYMPHALIDAE. 14, 15, 16, 18, 23, 24, 26, 28, (29), 31, 32.

SATYRIDAE. 34, 35, 36, 37, 40, 41, 42, 44.

RIODINIDAE. (45). See introduction.

LYCAENIDAE. 46, 47, 48, 49, 50, 53, 58, 59, 60, 61, (63), (64).

HESPERIIDAE. 66, 67, 68, 69, 71.

SPHINGIDAE. 74, 75, 76, (77), 81, 86 (*Hippotion celerio*, (Linn.), Silver Striped Hawk, the 1948 Milton Ernest record), 88, 89, 90.

NOTODONTIDAE. (95), (96), (100), (101), (103), (104), (109), 110, 113, 114.

THYATRIDAE. 118, (119), 120.

LYMANTRIIDAE. 128, 130, 131, 132, (135), (137).

LASIOCAMPIDAE. 138, (141), 143, (145), 147, 149.

SATURNIIDAE. 152.

DREPANIDAE. (156), (157), 158.

NOLIDAE. (159), (165).

AACTIIDAE. 168, 170, 171 (*Cycnia mendica* (Clerck), Muslin Ermine: Bedford, 1948, not previously listed, (KW, BW), 173, 176, 183, 192, (193).

CARADRINIDAE. 201 (*Episema caeruleocephala* (Linn.) Figure of Eight: larvæ beaten out in Odell Great Woods, 1943, 1944, and 1952, not previously listed, (BW), 203 (*Apatele leporina* (Linn.), Miller: Bedford, (M.V.), 1955, 1956, (BW, TNDP), 204, 205, 208, 209, (211), 215, 216, (217), (218), 221, (222), (225), 228, (233), (234), (237), (240), (243), (245), (251), 254, (256), (258), (265), (266), 271, 272, 273, 274, 275, 276, (279), (280); 281, (282), (283), 284, 290, (300), (304), 310, (312), (320), (327), (328), (332), 345, 346, 347, 348, (351), 361, (368), 372, 373, 381, 403, (405), (410), (417), 418, (421), (423), (424), (427), (432), 433, (434), 436, (439), 447, 450, 455, 459 (*Agrochola lota* (Clerck), Red Line Quaker: Bedford, (M.V.), taken in garden, Cardington Road, not previously listed, (BW), 461 (*Agrochola circellaris* (Hufn), Brick: Bedford School, 3rd October, 1956, TNDP), 463 (*Anchoscelis helvola* (Linn.), Flounced Chestnut: Bedford, (M.V.), taken in garden, Cardington Road, 1956, identification only recently confirmed, (KW, BW)), 465 (*Tiliacea citrago* (Linn.), Orange Sallow: one specimen, Bedford, (M.V.), omitted from 1957 list, (KW, BW), 466 (*Tiliacea aurago* (Fabr.), Barred Sallow: Bedford, (M.V.), Cardington Road, 1956, not previously listed, (KW, BW)), 467, 468, (483), 484, 487, 492, (501).

PLUSIIDAE. 516, (523), (525), 526, (530), (533), 536, 538, 539, 541 (*Ectypa glyphica* (Linn.) Burnet Companion: noted over the years on the chalk downs, and formerly on old pasture in the north of the county, much less common than formerly), 545 (*Mormo maura* (Linn.), Old Lady: this was once a common insect in Bedford, (St. Loyes, Harpur Street district), but has now become rare), 548, 563.

MONOCTENIIDAE. 572 (*Odezia atrata* (Linn.), Chimney Sweeper: generally to be seen flying where its foodplant *Conopodium majus* (Gouan), the Pignut, grows. Not a common insect, recorded for Clophill, Amptill and Odell), 573 (*Alsophila aescularia* (Schiff.), March Usher: only males recorded, Bedford, Cardington Road, 1956, not previously listed), 577, (583), (616), (622), (635), (640), (648), (649), (651), 652 (*Chloroclysta siterata* (Hufn.), Red-Green Carpet: Bedford, (M.V.), 1956, not previously listed until identification was confirmed, (BW), (655), (663), (664), (667), (675), (681), 696, (702), (703), (708), 719 (*Perizoma alchemillata* (Linn.), Small Rivulet: recorded on several occasions in Woodcraft Wood, Stevington, and Sheerhatch Wood, Northill, (BW)), (729), (738), (780), (786), (792), (793), (794), (803), (805), (817), 822 (*Erannis defoliaria* (Clerck.), Mottled Umber: Bedford, 1956, in orchard of Kingsbrook Gardens), 828 (*Deuteronomos fuscantaria* (Haw.), Dusky Thorn: Sheerhatch Wood, Northill, (M.V.), 1958, not previously listed. We have been confused over the three species of the genus *Deuteronomos*, and the preceding genus *Enomos*, but have now satisfactorily established the identifications. For this reason the Dusky Thorn has not been previously listed.), 830 (*Selenia bilunaria* (Esp.), Early Thorn: recorded for Stagsden, Bromham and Bedford, as fairly common, not previously listed), (832), 833, (834), (835), 837, 842, 844, 851, 852, 853, 854, (860), (865), (870), 871.

ZYGAENIDAE. (1099), (1101), (1103).

SESIIDAE. 1124 (*Aegeria andrenaeformis* (Lasp.), Orange Tailed Clearwing: recorded by V. H. Chambers, 28th June, 1947, under old name of Yellow Legged Clearwing (*Journal*, No. 2, p. 56)).

COSSIDAE. 1153, 1154.

BERNARD B. WEST.

ODONATA

1958 was almost a complete blank for dragonfly records, even the common species such as the Southern Aeshna were rare, and some were not recorded at all.

In discussion with Mr A. E. Gardner, F.R.E.S. (one of the leading experts in this group) at the South London Entomological Society meeting in October it was rather disconcerting to hear that he considered the season as one of the worst for a long time, and had perforce to concentrate on his studies of aquarium-bred material rather than waste time on what would have been abortive work in the field. One is forced to wonder if nymphal development is in some way arrested by low water temperatures, causing delayed or non-emergence, or whether, at worst, emergence takes place without the full maturity of the insect being achieved. One knows from experience that with one or two good seasons the commoner species always make up their numbers again, but that to species on the edge of their geographical range, living in limited colonies (the newly-discovered *Coenagrion scitulum* is a case in point) two or three bad seasons can mean extinction.

In spite of the sorry picture for 1958 it is felt that the amount of records of species for this order that have been collected since the re-creation of the Natural History Society justifies the inclusion in this issue of a full list of what is known of our dragonflies at the moment. The work was begun by Mr Ray Palmer, and much very valuable information also comes from the records of Mr D. A. Reid, Records therefore are as follows: Ray Palmer (RP), D. A. Reid (DAR), Bernard West (BW), Kenneth West (KW). Most of the records of the collecting done by my son and me have been confirmed from actual specimens by Miss Cynthia Longfield, F.R.E.S., and she also confirmed the *Lestes Dryas* record of Mr D. A. Reid (see lists).

Sub-order ANISOPTERA. (Classification, Cynthia Longfield. 1937).

CORDULEGASTERIDAE. Subfamily *Cordulegasterinae*.

Cordulegaster boltonii (Don.), Golden-ringed Dragonfly: Putnoe Wood, June, 1948, (BW), captured. Previous records from observation only, and not, as far as is known, listed anywhere. (RP, *Journal*, No. 3, 1949).

Aeshnidae. Subfamily *Aeshninae*.

Brachytron pratense (Müller), Hairy Dragonfly: Willington Staunch Pool, June, 1958, not captured. In spite of repeated visits in 1958 to this locality the species has not been seen again, (BW).

Aeshna cyanea (Müller), Southern Aeshna: The commonest of the larger Dragonflies, particularly in the Ouse Valley. Less plentiful in the south of the county.

Aeshna juncea (Linn.), Common Aeshna: In spite of its name a rarity. Flitwick Moor, 13th September, 1948, (RP); a Bedford garden, 31st August, 1948, (D. W. Snow).

Aeshna juncea (Linn.), Brown Aeshna: Generally common on the Ouse and Ivel; recorded also for Flitwick Moor, Southill Lake, and several of the brick pits, (RP, BW, KW).

Aeshna mixta (Latreille), Scarce Aeshna: Generally common on the Ouse, though a very local species in the south of England. The main parts of the river where it can be seen in late autumn, even after the first frosts, are: Oakley Bridge, all the Stevington Reach, Felmersham and Harrold Bridges, and around Great Barford Lock, (BW, KW); Flitwick Moor, and Baker's Wood, Heath and Reach (RP, *Journal*, No. 3, 1949).

Anax imperator (Leach), Emperor: Barton Hills, 1948, (BW). Apparently the first and only capture. Seen at Kempston Hardwick in old moated garden in 1944-45, (BW).

LIBELLULIDAE. Subfamily *Libellulinae*.

Libellula quadrimaculata (Linn.), Four-spotted Libellula: Wavendon Heath, 30th May, 1948 (B. Verdcourt in *Journal*, No. 3, 1949).

Libellula depressa (Linn.), Broad-bodied Libellula: Generally common throughout the county, often breeding in remote farm ponds.

Libellula fulva (Müller), Scarce Libellula: Recorded once in Bedfordshire. (Cynthia Longfield, in *The Dragonflies of the British Isles*, Warne, 1937. The source of this record is not known).

Othetrum cancellatum (Linn.), Black-lined Othetrum: Grovebury Pits, Leighton Buzzard; Brickworks Pit, Stanbridge, (DAR in *Journal*, No. 5, 1951).

Sympetrum striolatum striolatum (Charp), Common Sympetrum: Generally common everywhere, and not confined to any of the rivers.

Sympetrum sanguineum (Müller), Ruddy Sympetrum: Cople Pits, (B. Verdcourt); Battlesden Park, Bakers Wood, Heath and Reach, (RP in *Journal*, No. 3, 1949); Felmersham, Wyboston and Melchbourne Lake, (BW); Stevington, (KW).

Sympetrum danae (Sulzer), Black Sympetrum: A rarity not previously recorded until identification confirmed. Bromham, (BW, KW), taken in park in field to the south of church; Willington Staunch, (BW), one captured, others seen.

Sub-order ZYGOPTERA.

AGRIIDAE. Subfamily *Agriinae*.

Agrion splendens (Harris), Banded Agrion: This damselfly is perhaps the most attractive insect we have in the county, more beautiful than many butterflies. It is common throughout the Ouse Valley, less so in the Ivel, and not at all common in the south of the county, though recorded in the Ousel.

LESTIDAE. Subfamily *Lestinae*.

Lestes sponsa (Hans), Green Lestes: Rushmere Pond, Heath and Reach; Grovebury Pits, Leighton Buzzard; Cople Pits; Wavendon Heath, (RP in *Journal*, No. 5, 1951); roadside pond between Milton Ernest and Thurleigh, (KW in 1951 and 1952).

Lestes dryas (Kirby), Scarce Green Lestes: Heath and Reach, (DAR in *Journal*, No. 5, 1951. This identification was confirmed by Miss Cynthia Longfield). Ray Palmer notes in the issue of the *Journal*, 1951, that possibly *L. dryas* has been overlooked. It is a very rare insect and has, officially, only a precarious hold on four counties in England, to which Bedfordshire can now be added.

PLATYCNEMIDIDAE. Subfamily *Platycneminae*.

Platycnemis pennipes (Pallas), White-legged Damselfly: Recorded for Bromham and Stevington, and on the lower river at Bedford. One sees it in swarms where it occurs, but it cannot be called generally common. The white form '*lactea*' is common on the Bromham Hall reach of the river, (BW, KW).

COENAGRIIDAE. Subfamily *Coenagriinae*.

Pyrrhosoma nymphula (Sulz.), Large Red Damsel-fly: Biddenham, Stevington and Sharnbrook (BW); pond beside lane from top of Sunderland's Hill to Ravensden, (K.W.); Flitwick Moor, (RP). Any remote field pond of reasonable size would be worth visiting to see this insect; it must be more common than the records suggest.

Ishnura elegans (Van der Lind), Common Ishnura: Common in the Ouse Valley and along much of the Ivel, and certainly the commonest Damsel-fly in Bedford where it can be found in plenty around Longholme and the lower river. Several specimens of the forms '*violacea*' and '*rufescens*' have been taken, most of them in Bedford. The form '*infuscans*' has only once been met with, in Bromham, (BW, KW).

Enallagma cyathigerum (Charp), Common Blue Damsel-fly: Recorded for Stevington, Turvey, Oakley and Bromham in the upper reaches of the river, and at Willington Staunch and Great Barford in the lower; away from the Ouse Valley, at Flitwick Moor; in several of the chalk foothills, Barton, Totternhoe and Dunstable, and at Pertenhall, (BW, KW). It can be inferred from these obviously incomplete records that it breeds either in moving or still water.

Coenagrion puella (Linn.), Common Coenagrion: Generally common throughout the county, particularly in the Ouse.

Coenagrion pulchellum (Van der Lind), Variable Coenagrion: Biddenham and Bromham (i.e. the Ouse upstream from Bromham Bridge), Stevington, and one specimen at Sharnbrook Mill, (BW). A form with the thorax lacking the blue shoulder stripes was taken at Bromham in 1947, (KW). This species is probably more common than the records suggest.

Erythromma najas (Hans), Red-eyed Damsel-fly: Willington Staunch and neighbouring backwaters, (KW in *Journal*, Nos. 7 and 12, pp. 24 and 30 respectively); Turvey parish, fairly common on reach of Ouse between Turvey and Newton Blossomville, though admittedly more plentiful on the Buckinghamshire side of the river; Stevington to Oakley; Felmersham above bridge; Hurdlefoot, Pavenham and Kempston, (BW). Generally confined to the neighbourhood of water lilies, as the males favour resting on the leaves and seldom approach the bank.

K. E. WEST.

BIRDS

The general movement and distribution of species in the county during the year, was closely related to the information given monthly in *British Birds*, showing the general trend throughout the British Isles.

Significant features from our own reports start with a sudden eruption of a large flock of Tree-Sparrows at Bedford Sewage Farm in January. The Long-tailed Duck seen in December 1957, at Stewartby, remained for several months. Waxwings were also recorded from several areas early in the year and Stonechats in February and March continued the pattern.

An extraordinary invasion of Shags in February reached its peak in our county and was decreed on the radio by I. J. Ferguson-Lees.

There were no abnormally early reports of summer migrants or late departures of winter visitors, but, as in the case of the Yellow Wagtails, the first observations of several species were only of one or two birds and it was not until after the cold snap of early April that any real movement developed. In May, the party of thirty-six Black Terns seen at Stewartby Lake was the largest for many years and the occurrence accords with the national picture.

The outstanding event of the year was the arrival at Stanford Gravel Pit of an American Wilson's Phalarope, as reported elsewhere in detail in this issue. Winds blowing across the Atlantic prior to the occurrence were most favourable.

Some species nested till rather later than usual and a Song-Thrush was disturbed from her eggs at Duloe in August.

T. W. Abbis has supplied interesting details of movements of passerines in the autumn as follows: "On 17th September, while in Fox Covert, the woods were full of passerines, especially near the stream, including Spotted Flycatchers, Chiffchaffs, Willow-warblers and Whitethroats. This is the second time that I have noticed this accumulation of different species, either moving or preparing to move, both times in this place. By the 20th September the woods were void of any species of warbler. Is this a mass movement or perhaps a gathering place? On both occasions a similar excited and unsettled agitation has been noticeable. Numbers indicated: 12 Spotted Flycatchers counted along edge of wood and stream in about 100 yards and in the same distance 15-20 Willow-Warblers." Other observers would do well to pay particular attention to such seasonal movements.

There were no abnormally late departures of migrants, apart from the Whinchat seen at Dunstable Sewage Farm in October. A final point of interest is the large roost of gulls which has now become established in the winter months at Stewartby Lake. The complete flooding of this pit and the disappearance of all but one of the islands, had a disastrous effect on the breeding population of all species normally found nesting there.

We were sorry to lose during the summer the valued services of our Ornithological Secretary, Mr. F. C. Gribble, who has taken up an appointment in Shropshire, and we wish him every success in his new ventures. We welcome Mr. Anthony J. Dymond to succeed him.

While gratefully acknowledging an increased number of reports, may I be permitted once again to draw attention to certain defects in drafting some of them. It will greatly assist in the sifting of data if all members will kindly (a) place all records of one species under a single heading and (b) endeavour to arrange these species in the order of B.O.U. Check List (as also found in *The Field Guide of the Birds of Britain and Europe*). An even more important defect is the omission, by some reporters, of sufficient details of diagnostic characters which would place the identity of the species reported beyond doubt. The Recorder has regretfully been forced to delete certain potentially interesting items by reason of these omissions.

It is most desirable that where possible anyone witnessing anything unusual should endeavour to share the experience with other reliable observers, who can verify the occurrence. And finally, loose terms such as 'plentiful', 'sporadically', etc. should be avoided at all costs. This report is the outcome of co-operative effort and the attention to such details will result in both improved quality and value, to the mutual advantage of all concerned.

Reporters' names are indicated in the text by the following initials:

TWA—T. W. J. Abbis; PSB—P. S. Bates; HC—Harry Cole; AJD—Anthony J. Dymond; DWE—D. W. Elliott; JFL—I. J. Ferguson-Lees; FCG—F. C. Gribble; JFH—J. F. Harper; ARJ—A. R. Jenkins; MO—More than 4 observers; CSP—C. S. Payne; WKP—W. E. K. Piercy; REC—Recorder of Birds (Henry A. S. Key); SWR—S. W. Rodell; MPR—M. P. Roseveare; FGS—F. G. R. Soper; RGS—R. G. Stephenson; CFT—C. F. Tebbutt; DRW—D. and R. J. White; MW—Michael Wortley and (corrected from last Report) EPY—Lt.-Col. E. P. Young.

Localities: BSF—Bedford Sewage Farm; DSF—Dunstable Sewage Farm; GP—Gravel Pit; ChP—Chalk Pit; CIP—Clay Pit; L—Lake. The flooded clay pit at Stewartby will now be called 'Stewartby Lake'.

Numbers refer to the B.O.U. Check-List (1952).

The following species were also reported as having been observed in normal numbers and distribution:

84. Mute Swan; 93. Sparrow-Hawk; 110. Kestrel; 115. Red-legged Partridge; 116. Partridge; 118. Pheasant; 126. Moorhen; 133. Lapwing; 234. Wood-Pigeon; 241. Barn-Owl; 246. Little Owl; 247. Tawny Owl; 262. Green Woodpecker; 263. Greater Spotted Woodpecker; 280. Carrion-Crow; 282. Rook; 283. Jackdaw; 284. Magpie; 286. Jay; 288. Great Tit; 289. Blue Tit; 290. Coal-Tit; 292. Marsh-Tit; 294. Long-Tailed Tit; 298. Tree-Creeper; 299. Wren; 301. Mistle-Thrush; 308. Blackbird; 325. Robin; 364. Goldcrest; 371. Hedge-Sparrow; 373. Meadow-Pipit; 380. Pied Wagtail; 392. Greenfinch; 393. Goldfinch; 395. Linnet; 401. Bullfinch; 407. Chaffinch; 409. Yellow Hammer; 410. Corn-Bunting; 421. Reed-Bunting; 424. House-Sparrow.

4. RED-THROATED DIVER: A "wreck" of these birds occurred on 29th November. One, found alive in a ditch at Henlow, was released at Tring reservoirs on the next day, (ARJ). Single birds were also found alive at Shefford and Chicksands. These were brought to Inspector D. L. Baker, R.S.P.C.A., of Bedford, who released them at Stewartby Lake on the following day, (JFL, REC).

5. GREAT CRESTED GREBE: Occasional birds were seen at Stewartby Lake during the winter. Breeding here was in sharp contrast to the previous season: 10 pairs attempted to nest but owing to the rising waters the majority were flooded out, (MPR). A maximum of 40 birds was present, 3rd August (including 8 juveniles), (FCG).

The following pairs also nested successfully: 2, Luton Hoo L, (MW); 1, Tingrith L, (TWA); 3, Southill L (at least 5 pairs present), (DRW, MPR); 1, Felmersham GP, (MPR); 1, Wyboston GP, (FCG, MPR). Birds were also present, but breeding not proved, at Leighton Buzzard Pits and Battlesden L, (DRW).

9. LITTLE GREBE: Normal distribution. The largest party seen during the year was c.20, Stewartby L, 10th August, (CSP).

28. CORMORANT: 1, Stewartby L, 9th March, (MPR); 1, Southill L, 30th November, (P. J. Reay, P. J. Wilkinson).

29. SHAG: The story of the extraordinary occurrence of a large number of these birds was both broadcast and reported in *British Birds* by JFL. Accounts also appeared in the *Luton News* and *Bedfordshire Times*. The majority of the birds appeared to be in first winter plumage and, from ringing details obtained from recoveries in neighbouring counties, they had come from the Farne Islands, Bass Rock and Isle of May (cf. a similar occurrence at Steppingley, 3rd February, 1954—ref. *Journal*, No. 9, p. 32).

During the evening of 24th January strange sounds were heard after dark coming from the churchyard at Shillington. On investigation it was found that a large number of these birds was perched both on the church and on the tombstones. Of the 20-30 birds present, at least two were caught and one was photographed by flashlight; these were all identified as Shags. A point worthy of note is that Shillington Church stands on a small hill and its position dominates the surrounding countryside. On 3rd February, three were seen on the old flooded brick-pit at Henlow by C. Collins, and C. S. Payne also reported that after dark on 13th, birds which were probably Shags were seen flying and calling harshly round Kempston water tanks. During the night of 13th-14th an employee of the Goldington Power Station, Bedford, saw a similar silhouette at the top of the large

cooling towers. On examining the interior of the towers by daylight, as a routine measure, three shags were found in one and one in another. These were rescued on the 16th and released by Inspector D. L. Baker, R.S.P.C.A., at Stewartby Lake.

On the following day one was seen to check in flight near Aspley Guise and apparently fell dead from exhaustion. It was picked up by Mr L. Tanner and sent to the Recorder by Mr R. F. Lyle. Soon afterwards there were isolated reports of others, and a party of twenty-four was seen at Southill, flying north, on 22nd.

According to JFL there were many reports during this period from neighbouring counties and as far afield as Lincolnshire, Norfolk and Kent. The Power Station at Little Barford, just over the border in Huntingdonshire, also produced two birds which had probably roosted on the lip of a cooling tower, and fluttered inside.

30. HERON: Sharp decline this year in the numbers of nests, due to unknown causes; the following were recorded: Tempsford, 1, (FCG); Southill L, 8, (MPR) and Bromham, at least 5, (FCG). At the latter station several young were found dead or injured under the trees and it has been suggested that they may have been scared out of the nests by very low-flying aircraft. Lady Stewart reported (via FCG) that there had been no nests at Sandy Lodge. A bird at Tempsford was seen carrying a screaming soot, (CFT).

31. [PURPLE HERON: FCG reported what he considered was a probable adult of this species at DSF, 18th May. To quote from his field notes: "Dark Heron seen to fly from marshy area. General colour—dark brown (about mahogany) with darker grey primaries. By the time I could get a good look . . . well up and flying fast. General build—slimmer than Common Heron, with bulging neck, and long legs trailing well behind the tail. Very similar to the bird seen at Felmersham three years ago, though it did not have the sandy appearance of that juvenile." A dark brown slightly built Heron was seen independently by David White in the same locality, 16th May, but not reported for a month.]

45. MALLARD: Largest parties in the early part of the year were c.150, Southill L and c.300, Stewartby L, (MO). A duck was killed by a combine harvester while sitting on eggs at Basmead Manor, 24th September, (CFT). Numbers gradually built up at Stewartby L from c.200 in October to c.500 at the end of the year.

46. TEAL: c.200 were recorded from BSF in February, (FCG, MPR). Up to c.50 present at Stewartby L by December, (MPR). Small numbers elsewhere. A pair in Palmers' Shrubs, Eversholt, 19th April, were suspected of nesting, (TWA).

47. GARGANEY: 1 male, Wyboston GP, 10th August, (MPR).

49. GADWALL: The most ever recorded. Pair, Barkers Lane GP, Bedford, 16th February—for a few days, (CSP); 2 males and 1 female, BSF, 16th-23rd March, (MPR, FCG); 1 female, Wyboston GP, 13th April, (CFT); 1 pair here, 30th October, (CFT), and a male 9th November and 27th December, (FCG, MPR).

50. WIGEON: Small numbers reported from most of the usual waters in winter months; the largest parties were seen at Stewartby L—c.30 in March and c.50 towards the end of the year, (MO); c.12 were flushed from Flitwick Moor, 30th October—an unusual haunt, (TWA).

52. PINTAIL: 1 drake, BSF, 2nd February and 2nd March, (FCG, MPR); up to 12, Stewartby L, February-March, (MPR, CSP).

53. **SHOVELER:** Up to 3, Stewartby L, February-April and up to 9 in the latter part of the year, (CSP, MPR); pair, Houghton Regis ChP, 4th April, (FCG); pair, Barkers Lane GP, Bedford, 6th April (CSP); pair, BSF, 6th-13th April, (FCG). No reports of nesting.
55. **SCAUP:** 1 male, Arlesey CIP, 25th January, (ARJ), and 1 female, Wyboston GP, 13th April, (CFT).
56. **TUFTED DUCK:** The distribution was as follows:
 Wyboston GP—3 pairs bred, (MPR); up to 12 adults present in June. Largest winter party—35, 27th December, (FCG).
 BSF—1 pair bred (possibly in Barkers Lane GP), (MPR).
 Southill L—2 males, 15th June (no reports of breeding but ducks probably sitting), (DRW). Largest winter party c.50, (MPR).
 Henlow (City Fields GP)—5 pairs present, 13th April. No evidence of breeding, (ARJ).
 Stewartby L—up to 20, February; c.40, March, (FCG), and up to c.50 in November-December, (MPR). Female with 5 young, 3rd August, (FCG).
 Eversholt L—pair, 18th June. No proof of breeding, (MW).
 Woburn Park Lakes—several pairs present in June-July but no young seen, (MO).
 Battlesden L—up to 2 pairs and 3 males, April-June. No proof of breeding, (DRW, MW, SWR).
 Houghton Regis ChP—7, 3rd January and 7 pairs, 20th April, (DRW); c.30, 30th November, (SWR).
 Luton Hoo L—8 males and 1 pair with young, 16th June, (MW).
57. **POCHARD:** Distribution on principal waters:
 Wyboston GP—largest party, c.45, 9th November, (FCG).
 Southill L—up to c.50 present in winter months, (MPR).
 Stewartby L—largest party, 187, 2nd March, (CSP, MPR). 1 pair bred at the adjacent Milbrook pit.
 Battlesden L—2 pairs present, 28th April, and a pair seen with 6 young, 15th June, (MW, DRW, SWR).
 Houghton Regis ChP—largest party, c.50, end of December, (HC).
 Luton Hoo L—4 pairs and 1 pair with young, 16th June, (MW).
 Arlesey CIP—party of c.150, 25th January, (ARJ).
60. **GOLDEN-EYE:** 1 female, Stewartby L, 23rd January and 9th March and another 14th December, (MPR, CSP); 1 male, Tingrith L, 14th December, (HC); 2 females, Wyboston GP, 27th December, (MPR).
61. **LONG-TAILED DUCK:** The bird reported from Stewartby L in November-December, 1957, stayed until 13th April, (MPR).
64. **COMMON SCOTER:** 1 pair, Wyboston GP, 5th April, (CFT), and a female, Longholme Pool, Bedford, 22nd April, (MW).
69. **RED-BREASTED MERGANSER:** 1, Wyboston GP, 23rd March, (CFT), and a pair, Stewartby L, 13th April, (CSP).
70. **GOOSANDER:** 1 female, Felmersham GP, 24th December, (MPR).
71. **SMEW:** 1 male and up to 4 females, Stewartby L, 16th February-3rd March, (CSP, MPR).
73. **SHELD-DUCK:** 1, Stewartby L, 19th January; 1, BSF, 2nd March, (MPR). 1, Wyboston GP, 20th April and another several days prior to 27th October, (CFT).

GEESE. The following flights were reported:

Two parties of 36 and 18 flying towards S.W. over Bedford on the morning of 20th January, another in the afternoon, (M. Crummie), and a further one on the next day, (REC).

c.50 flying S. over Bedford, 3rd February, (CSP); a small party flying N. over Stagsden, 16th April, (DWE), and 9 over Bedford, 19th October, (MPR).

91. BUZZARD: A pair over Steppingley, 19th April, (TWA), and a single bird seen and heard near Heath and Reach on 29th, (FGS).

105. PEREGRINE: 1 flying near Flitwick, 24th March, (JFL).

(A bird flying high over Bedford 22nd March and 2 also over Bedford, 17th May, were possibly of this species, (FCG, MPR)).

117. QUAIL: 2 males heard calling at Stagsden, 22nd May, (DWE); 1 heard calling during the summer near Luton, (RGS).

120. WATER-RAIL: 2-3 pairs located at Flitwick Moor and these called frequently, February-April, and again in December, (TWA).

127. COOT: The largest winter parties reported were c.40, Stewartby L, 9th February and c.50, Wyboston GP, 27th December, (FCG).

134. RINGED PLOVER: 1, Stanford GP, 18th-23rd May and another 15th August, (HC, ARJ); 1, BSF, 24th-27th July, (MPR); 1, Kempston SF, 15th August, (CSP); 1, Wyboston GP, 17th August, (MPR).

135. LITTLE RINGED PLOVER: First arrivals at Wyboston GP, 5th April, (CFT). At least 7 pairs were seen at various pits in the county; not less than 6 pairs nested and in 5 cases eggs were hatched, some chicks being reared, (MO). The last seen were 2 juveniles at BSF, 28th September, (MPR). The localities are withheld in the interests of protection. One nest was photographed (see p. ...).

140. GOLDEN PLOVER: The largest winter flocks were c.200, Thrales End, 2nd November, (HC), and c.500 near Rowney Warren, 29th December, (CFT).

145. COMMON SNIBE: Normal distribution. The largest parties, c.200-300, at BSF in March and December, (FCG, MPR).

147. JACK SNIBE: Single birds, DSF, 3rd January, (DRW), and East Hyde on 12th, (HC); 2, BSF, 2nd-17th April, (MPR), and up to 15 there, November-December, (MPR, FCG).

148. WOODCOCK: Seen 'roding' at various stations on the Greensand in the breeding season. Nests were found in this area and one sitting bird was photographed. At Rowney Warren, a machine cutting grass in a 'ride' went over a sitting bird without injuring it. The bird was flushed from the nest, which was then openly exposed, but later returned to it and hatched the eggs.

150. CURLEW: 1, over Whipsnade, 26th March, (PSB); party calling over Kempston, 27th March, (CSP); 2, flying N.E. over Luton, 30th March, (HC); 1 over Stewartby, 7th April, (CSP); 1 over Bedford, 18th April, (MPR); 2, Wyboston, 10th August and 1, BSF, on 19th (MPR); 1, Stewartby, 17th September, (MPR).

156. GREEN SANDPIPER: BSF—Single birds in February and April (FCG); up to 15 in the summer, (MPR), and up to 2 birds in December, (FCG, MPR). ARJ reports on the Ickleford area "last seen in spring on 13th April; first returning birds appeared on 28th June; normal autumn passage—max. 7, 16th August".

Also reported from Stanford GP—several, 18th July-11th August (max. 4, 31st July); 2, DSF, 4th July and 1 in August; 1, Wyboston GP, 13th July; 1, Eversholt L, 15th August, (MO).

157. WOOD-SANDPIPER: 1, Stanford GP, 20th-21st May, (HC, ARJ), and 2 there, 2nd August, (CFT).

159. COMMON SANDPIPER: Spring passage—1, Wyboston GP, 20th April, (MPR), and another, Leighton Buzzard pit, on the same day, (DRW); 1, DSF, 4th May, and 1, Stanford GP, 20th May, (HC); 1, Wyboston GP, 22nd May, (CFT), and small numbers were seen here until 17th August (max. 7). The return migration developed with 1 or 2, Stanford GP, 22nd July-3rd September—max. 5, 31st July, (ARJ); 1, DSF, 24th August-4th September, (HC). Single birds also seen at BSF and Stewartby L, (MPR).

Birds were also present, but breeding not proved, at DSF—max. 10, 20th April, (DRW); Stanford GP (max. 11, 25th June) and Steppingley Marsh, (TWA).

165. GREENSHANK: All records refer to return passage.

1 heard, Wyboston GP, 4th August and 1 seen there, 13th September, (FCG, MPR); single birds, Stanford GP, 22nd July and 15th August, (ARJ); up to 5, BSF, 10th August-2nd September, (FCG, MPR, AD); 1, DSF, 17th September, (DRW).

178. DUNLIN: 1, BSF, 6th April, (FCG), and another, 16th November, (MPR); 1, Wyboston GP, 20th April, (MPR); 1, DSF, 28th April, (SWR), and another 3rd August, (HC); 1, Stanford GP, 18th May, (HC, JFH).

181. SANDERLING: 1, Wyboston GP, 20th April, (MPR); 1, Stanford GP, 11th and 12th May, (HC, FCG).

184. RUFF: All occurrences at BSF.

1 male, 6th-27th February; pair 11th-16th September and 1 male, 16th December, (AD, MPR).

WILSON'S PHALAROPE: A female in summer plumage was observed by HC at Stanford GP, 10th May, where it stayed till 13th. It was verified by FCG and JFL and also seen by many others. This was the second authenticated European occurrence. A full report appears on p. ...

198. GREATER BLACK-BACKED GULL: 2, Arlesey CIP, 25th January, (ARJ). HC reports: "A few regularly at Luton rubbish tip (max. 3 seen together), January-April; the first arrival of the winter was seen at a Luton sports field in company with c.30 Common Gulls, 30th November, and there were 4 at Luton rubbish tip, 27th December."

199. LESSER BLACK-BACKED GULL: 2, Stewartby L, 24th February-2nd March—probably 'Scandinavian'; 3 in same locality throughout August (one was of 'Scandinavian' race); 20 (some 'Scandinavian'), BSF, 13th April; 1, 'Scandinavian', Wyboston GP, 30th October, (CSP, FCG, CFT).

Single birds seen flying over Luton, 19th-31st August; party of 52 on sports field at Luton, 6th October, and 7, flying W over Luton, 19th October, (HC).

200. HERRING-GULL: c.100 at Stewartby L, 2nd March, (FCG), and smaller number there at the end of the year (large proportion of immature birds), (REC). c.100, BSF, 13th April (again many 2nd year birds). c.20, Houghton Regis ChP, 6th December, (HC).

201. COMMON GULL: 1, DSF, 3rd January, (DRW); several in mixed party of gulls, BSF, 2nd March, (FCG); 1 found dead here in February had been ringed in Heligoland, (MPR); 14 flying E over Southill Park, 13th April, (ARJ); numbers in Dunstable Downs area, 23rd March-7th April, with maximum of c.250 on the latter date, (FCG); 12 flying S near Leighton Buzzard, 28th September; 2, Luton, 28th October—the numbers increasing gradually to c.50 in November, (HC).

208. **BLACK-HEADED GULL:** c.1,000 birds roosted on Stewartby L in the early months of the year and a large proportion of these fed on refuse dumps near Bedford.

Birds bred, or attempted to do so, as follows:

c.6 pairs made nests and some laid eggs at Coronation CIP, but were robbed; 34 pairs nested on the remaining island in Stewartby L, (R. H. Lyle); c.50 nests contained eggs at the adjoining Milbrook CIP in May but there was no evidence of successful breeding and it is almost certain that these nests were also robbed as the birds had left the pit by June; a few pairs nested at the partially flooded pit at the bottom of Brogborough Hill, though with what success is not known, (REC, FCG).

By the end of the year the roost at Stewartby L had increased to c.3,000 birds, (REC, FCG).

Birds again turned up at DSF in April and c. 8 were very agitated there on 28th, (SWR). There was again no evidence of breeding.

211. **KITTIWAKE:** 1, changing to first summer plumage, Houghton Regis ChP, 2nd March, (HC).

212. **BLACK TERN:** 36, Stewartby L—2nd May and 5 there 28th September, (MPR); 1, Wyboston GP, 17th June, (CFT).

217/8. **COMMON/ARCTIC TERN:** 1, Stewartby L—21st August, 1 there 17th-28th September and another, 19th October, (MPR); 1, Wyboston GP, 28th September, (CFT).

217. **COMMON TERN:** 1, Wyboston GP, 22nd May, (CFT); 2, Barker's Lane GP, 30th May, (CSP); 1, Stewartby L, 5th October, (CSP).

218. **ARCTIC TERN:** 2, Wyboston GP, 10th August, (MPR); 1, Stewartby L, 28th September, (MPR).

222. **LITTLE TERN:** 1, Wyboston GP, 20th April, (MPR); 1, Barker's Lane GP, Bedford, 30th May, (CSP).

232. **STOCK-DOVE:** 1 heard singing at Bedford, 5th December, (CSP).

235. **TURTLE-DOVE:** First arrival, Whipsnade, 1st May, (PSB). Last emigrant, Putnoe, Bedford, 30th August, (AD).

237. **CUCKOO:** First arrival heard, Stagsden, 19th April, (DWE).

Several members remarked on the comparative scarcity of the species this year.

Last bird seen (immature), Flitwick, 16th August, (TWA).

252. **NIGHTJAR:** Reported from the following areas (all on the Greensand):

Rowney Warren (at least 3 pairs and 2 nests found—1 with eggs and 1 with 2 young), (REC); Clophill Woods, (REC); Woburn Sands area (at least 7 pairs), (DRW).

255. **SWIFT:** First arrival seen over Bedford, 21st April, (MPR), and 4 or 5 flew over BSF from the NE on 26th, (FCG). Several small parties were over Luton on 29th and on 1st May over 100 were circling over the town, (HC). Last emigrants, 3 over Luton, 30th August, (MW).

264. **LESSER SPOTTED WOODPECKER:** Only one report received—a pair in Bedford, 14th April, (MPR).

265. **WRYNECK:** 1 bird was seen at Kempston Park by CSP and the park-keeper on 26th June. It was first seen on the putting green whence it flew to a tree and settled obliquely on the trunk. It was not seen after this date.

The previous record for the county was in 1947 (*Journal*, No. 2, p. 52).

272. **SKYLARK:** Parties of c.100 were seen at East Hyde, nr. Luton, in January and February, (HC).

274. SWALLOW: First arrival, BSF, 30th March, (MPR). No large parties were reported before 26th April when FCG saw c.30 at BSF. Last emigrants: 1, Stagsden, 25th October, (DWE), and 2 at Gravenhurst on the following day, (DRW).

276. HOUSE-MARTIN: First arrivals: 3 or 4, Clapham, 18th April, (EPY); 1, Houghton Regis, 20th April, and 6, Battlesden, on the same day, (DRW). Last emigrants, c.20 over Bedford, 11th October, (AD).

277. SAND-MARTIN: First arrivals: 5, East Hyde, 30th March, (HC), and 4, BSF, on the same day, (MPR). No large parties reported till the last week in April.

281. HOODED CROW: 1, BSF, 23rd February, (AD), and another there 16th April, (MPR).

TITS: Milk-bottle opening by tits in the Flitwick area was more common in March and April, (TWA).

293. WILLOW-TIT: 1 or 2 heard calling at Putnoe, 19th April, from which locality they have been recorded in the past, (AD). Single birds seen at Fox Coverts near Flitwick in spring and autumn; a pair nested at Flitwick Moor, (TWA).

296. NUTHATCH: The birds normally seen at Bromham Park were absent in 1958, (FGS). Birds were reported from Tempsford Park, (CFT); Flitwick Moor; Flitwick Manor and Steppingley. A pair was seen mating at Southill, 26th December, (TWA).

302. FIELDFARE: Last emigrants seen, Stagsden, 30th April, (DWE), and first arrivals in the same locality, 18th October, (DWE).

304. REDWING: Last emigrants: a few, Kempston, 19th April, (CSP), and 1, Battlesden, on the following day, (DRW). First arrivals: Party calling in flight after dark over Luton, 17th October, (HC), and c.20, BSF, on 19th, (FCG).

311. WHEATEAR: Spring passage: Several, Stagsden, 27th March, (DWE); 10, Whipsnade, 28th March, (PSB); 1 female, Luton, 26th April, (HC); 4 males and 1 female, Elstow, 27th-29th April, (FCG), and 2 near Caddington, 4th May, (PSB).

Return movement: 1 male, Luton, 29th August, (HC), and 1 on the nearby Warden Hills on 30th, (MW); 1, DSF, 17th September, (DRW).

317. STONECHAT: Pair, Stewartby L, 22nd February, (CSP, MPR); 1 male, Lower Stondon, 3rd March, (WKD); 1 or 2 males, DSF, 12-19th October, (HC); 2 males, BSF, 30th November, (MPR); 1 pair, Stewartby L, 17th December, (MPR), and 1 female, BSF, 21st December, (MPR).

318. WHINCHAT: First arrivals: 1 female, Luton, 2nd May, (HC), and 1 male, BSF, 4th May, (FCG). There was no evidence of breeding anywhere in the county this year. 2 males and 1 female were seen early in May on rough ground near Milbrook Pit (REC, JFL); 1 juvenile, BSF, 31st August, (AD); 2 females, Luton, 13th September, (HC); 1 male, Dunstable Downs, 17th September, (DRW), and 1 probable female, DSF, 12th October, (HC).

320. REDSTART: First arrivals: 10, Whipsnade, 17th April, (PSB), and 1 male, BSF, 24th April, (MPR). Birds seen during the summer at Warden Warren, (P. and J. Farrar); Sandy Woods, (CFT); Rowney Warren—two nests found, (REC, DRW); several at both New and Old Wavendon Heaths, (DRW, MW); 1, Stagsden, 30th August, (DWE); pair, Woburn Park, 14th September, (DRW), and last emigrant, Pavenham, 27th September, (EPY).

321. BLACK REDSTART: 1 male, Luton, 4th April, (HC), and another male (possibly the same bird), in another garden, at Luton, 5th May, (PSB).

322. NIGHTINGALE: First arrival heard at Stagsden, 26th April, (DWE).
327. GRASSHOPPER-WARBLER: First arrival, Maulden Wood, Clophill, 23rd April, (TWA). 2 males heard singing at Hill Grounds, Kempston, 2nd-3rd May, but these did not stay (new locality), (CSP).
333. REED-WARBLER: Normal distribution. The following reports of breeding were also received of areas less frequently observed: Several at Battlesden L in June, (DRW); 4 or 5 pairs at Luton Hoo L and probably 12-15 pairs in a reed-grown ditch at Wyboston—an unusual concentration, (FCG). Last birds were seen in this locality, 31st August, (FCG).
337. SEDGE-WARBLER: First arrival, Stewartby L, 20th April, (CSP). Last emigrants, BSF, 2nd September, (AD).
343. BLACKCAP: First arrivals: Whipsnade and Southill, 20th April, (PSB, MPR).
346. GARDEN-WARBLER: Obviously overlooked. Only one report received—1, Southill, 25th June, (DRW).
347. WHITETHROAT: First arrivals: 3, BSF, 22nd April, (MPR). Last emigrant, Putnoe, Bedford, 26th September, (AD).
348. LESSER WHITETHROAT: The only report received states that the species nested in Bromham Park, (FGS).
354. WILLOW-WARBLER: First arrival, BSF, 1st April, (MPR). Last emigrant, Flitwick, 17th September, (TWA).
355. CHIFFCHAFF: First arrival, Bromham, 18th March, (FGS), and last emigrant also seen there, 4th October, (FGS).
366. SPOTTED FLYCATCHER: First arrival, Whipsnade, 3rd May, (PSB). Last emigrants, 2, Lidlington, 14th September, (P. and J. Farrar).
368. PIED FLYCATCHER: 1 bird, either a juvenile or female, Putnoe Wood, Bedford, 20th September, (AD).
376. TREE-PIBIT: First arrival, Flitwick Moor, 27th April. The species nested here, (TWA).
380. WHITE WAGTAIL: 1, Wyboston, 4th May, (MPR).
381. GREY WAGTAIL: Single birds seen at BSF on 12th January and 27th December, (FCG); 1, DSF, 3rd January and 2 or 3, 4th July; 1, Dagnall, 3rd January (ringed), (DRW, SWR); 1, Stagsden, 4th October, (DWE), and 2, Woburn Park, 5th October, (P. and J. Farrar). HC reported that a pair nested near Shefford in May and both parents were seen carrying food to the young. Also 1 adult was seen carrying food as it flew along the river at Leighton Buzzard on the Beds.-Bucks. border in June.
382. YELLOW WAGTAIL: First arrival, male, BSF, 4th April, (MPR). Single males only reported till late in the month at BSF and DSF, (FCG, DRW). Pairs present in the breeding season at Wyboston GP and Stanford GP but no proof of nesting, (FCG, DRW).
283. WAXWING: 1, De Parys Avenue, Bedford, 21st-22nd January, (Peter Wilkinson); 4, Southill; 1, Elstow, and 1, Bedford, all in February, (C. Collins).
384. GREAT GREY SHRIKE: 1957 Record—1 by railway near Bedford in December, (C. Collins).
388. RED-BACKED SHRIKE: Very few reports received, and these only gave particulars of one successful nest in the Galley Hill area, Luton, (MW, JH, DRW); male also seen at Skimpot Chalk Pit, 29th June, (SWR).

389. STARLING: In February and March a roost developed at Flitwick Plantation and this had reached considerable proportion by the middle of March. Its gradual increase coincided with the corresponding break-up of the large roost at Cheverells Green in Herts., (W. G. Harper).

391. HAWFINCH: Only one report received: A male, Luton, 29th October, (Miss M. E. Lyddon).

394. SISKIN: 3, Southill, 18th December, (MPR).

396. TWITE: A female was picked up dead at Great Barford, 25th February, by Miss E. G. Phillips, and given to Miss E. M. Day who passed it to REC.

397. REDPOLL: 2 (lesser), Whipsnade, 21st April, (PSB); 5, Flitwick Moor, 26th October, (AD).

404. CROSSBILL: C.7 seen during most of the year at Whipsnade, (PSB).

408. BRAMBLING: Party of c.100, BSF, in January and February, (FCG, MPR), and one of c.50, Flitwick, in February, (TWA). Last emigrants, BSF, 13th April, (FCG).

425. TREE-SPARROW: Very large party of c.1,000 together with Bramblings, Goldfinches, Greenfinches, Chaffinches, Yellow Hammers, House-Sparrows, Corn- and Reed-Buntings, at BSF, 12th January. Only small numbers here prior to this date, (FCG, AD).

HENRY A. S. KEY.

MAMMALS

There is little to report for 1958 and once again I appeal for a greater interest in the wild animals of the county.

I am still much concerned at the probable fate of many badgers, now that the gassing of rabbits is becoming such a widespread practice, and I shall be pleased to follow up any suitable reports of unreasonable persecution—such information being treated as confidential. Moreover, I shall be pleased to assist any member who may wish to study this and other animals.

Mr. D. W. Elliott reported that a 'white' stoat had been seen in the Stagsden area during February by two independent observers. He further informed me that the Harvest Mouse had not been seen on his farm during the year.

The only other item of particular note relates to the spread of the Muntjac or Barking Deer through the woods of the county. Its calls have been reported from several areas, more particularly in the 'Greensand' region. Some of these animals escaped from Woburn Park during the war, and recent reports indicate that they have spread through certain areas of the Chilterns in neighbouring counties. Further information of the distribution of the species will be welcomed.

I have recently received the following interesting letter from Mr C. F. Green of Stevington who writes: "To a native of Sussex this stressing of the rarity of the Harvest Mouse, I am sure, is overdone. The animal is so minute and quick that it is only observed by those who have time to stand or sit and wait, or by those occupied in agricultural pursuits, especially in arable farming—threshing usually brings them to light. I am sure that they are more widely distributed than present reports would have us believe. We see them regularly at Park Farm and their presence was reported to me on a neighbouring farm. . . . An Otter has been reported

to me on our stretch of the River Ouse by a fisherman, and the presence of an abundance of fresh-water mussel shells all along the bank would tend to corroborate this."

"The following list of mammals has been seen at Park Farm, Stevington, in 1958:

Mole, Grey Squirrel, Water Vole, Water Shrew, Long-tailed Field Mouse, Harvest-Mouse, House-Mouse, Brown Rat, Pipistrelle, Great Horseshoe Bat, Otter (reported), Stoat, Weasel, Rabbit and Hare."

I hope this report will prompt others to write to me.

HENRY A. S. KEY.

Notes and Observations

WILSON'S PHALAROPE IN BEDFORDSHIRE

On 10th May, 1958, a visit was made by the writer and his wife to a gravel pit near Shefford, Beds., which we had not previously visited this year.

One end of this pit has been cleared of gravel, leaving a clay base that holds shallow pockets of rain water which form good feeding areas for waders. When scanning the largest of these pools which measured approximately 100 yds. by 20 yds. we noticed three waders, two of which were Redshanks (*Tringa totanus*) but the other could not be recognised. There was no cover near to the water and on closer approach the Redshanks took alarm and flew off, the other wader going with them. After about fifteen minutes it returned without the Redshanks and permitted observations to be made. The bird was a new species to us and we had no reference books with us, but hoped to identify it readily as its head and neck plumage was outstanding. However we found nothing to agree with it in the *Handbook*, nor in the 1954 edition of the *Field Guide to Birds of Britain and Europe*. To confirm our observations further visits were made on 11th and again on 12th May with F. Gribble and R. Whyment (Junn.), and it was seen again on the 13th by F. G. and I. J. Ferguson-Lees who identified it as a female Wilson's Phalarope (*Phalaropus tricolor*) in almost complete summer plumage.

Details observed by H.C. are as follows:

Size between Redshank and Little Ringed Plover (*Charadrius dubius*), both of which were present, nearer to Redshank's size but more slender. In flight the wings appeared more slender than the Redshank's, with a smaller wing spread. Wing tips pointed and no wing bar. Upper side of wings and back a uniform brownish colour, paler than the Redshanks.

When settling, the wings were held up and showed the dull greyish underside.

Rump white, tail duskier than rump but end of tail was very difficult to discern in flight and I never had a good view of it. Bill blackish, straight, very slender and slightly longer than head. Legs long and slender, blackish, with much of tibia exposed. Forehead and crown grey-blue. Prominent white band from back of crown down nape and hind neck to mantle. Blackish band a little wider than eye, running backwards from eye in line with bill for a short distance then curving downwards to side of breast widening as it continued down and shading into dark chestnut colour at sides of breast.

White patch below eye, bordered by the above blackish band, throat and breast lightly tinged chestnut. Belly and under tail white, back and folded wings brownish; at 12 yds. range some chestnut-coloured flecks were

visible on back but they formed no definite pattern. The folded wings completely hid the tail.

Although not so shy as the Redshanks, the closest view the writer had was at a range of c.12 yds. obtained after waiting half an hour in an exposed position near its favourite feeding area. After approaching so near it was very nervous, and flew off, to settle again some 25 yds. away. All other birds near by were tolerant of it, and it showed no aggression towards them.

Flight was rapid and direct with quick wing beats; no call was heard in flight nor when settled. The spinning action characteristic of phalaropes was never seen, but it once swam vigorously with neck held very erect and head jerking, and often waded in the water up to its belly.

The bird was very active, walking with rapid steps, jerking its head to and fro quickly and picking under the water as it tripped along.

When suspicious it stood still for a few seconds with its slender neck stretched and looking very long.

All observations were made in bright sunlight with the sun behind or on the left, and with X12 binoculars.

The bird was last seen on 13th May at 5.30 p.m. by ten persons, including those mentioned above.

The date of arrival is unknown.

This is the second authenticated occurrence of Wilson's Phalarope in Europe, the first one being recorded in Fife in 1954 (see *British Birds*, Vol. XLVIII, page 15).

The breeding area of this species is in North America, and it winters in S. America and Mexico; the individual observed was no doubt driven off course on its northerly migration and into Bedfordshire by the strong westerly winds prevailing prior to 10th May.

H. COLE.

PLANT LOSSES IN NORTH BEDFORDSHIRE

Mention was made in a previous issue (*Journal*, No. 9, p. 42) of the Tansy (*Tenacetum vulgare*) and its persistence at Bromham for at least 160 years. It is unfortunately necessary to record that its continued existence there is now gravely threatened; the field in which it occurred is now wholly given over to building operations and most of the plants have been deeply buried under mounds of soil piled up by earth-moving equipment. A search will be made during the coming summer, but there is little hope of survival for the majority of the plants.

Up to 1957 the Tall Broomrape (*Orobancha elatior*) grew plentifully along the hedgerow forming the eastern boundary of the same field, but the hedge has been largely destroyed as a result of the 'development' of the estate and, it is to be feared, the Broomrape has gone with it.

Another loss to the flora has been brought about by the complete destruction of the small wood at Carlton Hall Farm. This was a notable locality for the Ramsons (*Allium ursinum*) which covered large areas of the floor of the wood and formed what was probably the largest single habitat for this species in the north of the county.

A. W. GUPPY.

ABSTRACTS OF LITERATURE ON BEDFORDSHIRE NATURAL HISTORY FOR 1958

BRITISH BIRDS, Vol. 51 (1958)

No. 1. "Recent reports and news," by I. J. Ferguson-Lees, p. 40. Refers to occurrence of a Long-tailed Duck.

No. 2. "British recoveries of birds ringed abroad," p. 71. A Starling ringed at Riga, Latvia, 16/5/53 was recovered at Clifton, 11/2/55.

"Recent reports and news," by I. J. Ferguson-Lees, p. 84. Details of invasions of Waxwings and Shags.

No. 3. "Recent reports and news," by I. J. Ferguson-Lees, p. 131. Refers again to occurrence of Shags.

No. 5. "Migrations of British falcons," by Sir A. Landsborough Thomson, pp. 185-7. Gives particulars of Kestrels.

"Recent reports and news," by I. J. Ferguson-Lees. Gives movements of Black Redstart (p. 204), Black Tern (p. 206), and Common Scoter (p. 208).

No. 6. "Recent reports and news," by I. J. Ferguson-Lees. Details of Wilson's Phalarope (p. 251) and Sanderling and probable Purple Heron (p. 252).

No. 7. "The wreck of Kittiwakes in early 1957," by Miss L. McCartan, p. 264. Details of occurrences at Arlesey pits and Bedford Sewage Farm.

No. 12. "Recent reports and news," by I. J. Ferguson-Lees, p. 531. Refers to a Whinchat.

Supplement, 1958. "Report on bird-ringing for 1957."

(a) p. 456. A Kestrel ringed as a nestling at Haggerston (Northumberland) on 6/7/57 was recovered at Beeston on 5/1/57.

(b) p. 467. A Lapwing ringed as a chick at Tempsford on 31/5/54 was recovered near Livorno (Italy) on 23/2/57.

(c) p. 476. A Cuckoo ringed as a nestling at Box Hill, Surrey, on 11/6/54, was caught near Luton on 29/5/57.

(d) p. 484. A Pied/White Wagtail ringed as a nestling at Romford, Essex, on 6/7/55, was picked up at Eaton Bray about 6/7/57.

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