

The Reading Naturalist

No. 11



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THE READING NATURALIST

No. 11 for the Year 1957-58

The Journal of
The Reading & District Natural History Society

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Editorial

In this eleventh number of the Reading Naturalist, the production of which has been attended by many difficulties, we have again been able to increase the number of original articles, though some contributions that we had hoped for failed to materialise. Among the Reports of the Society's recent activities, two deserving especial attention are those concerned with the Buckinghamshire, Berkshire and Oxfordshire Naturalists' Trust and the Chiltern Research Group, proposed complementary bodies that all Members must surely wish to support, and to the second of which it is hoped that as many as can will give active assistance when the time is ripe. The list of Members is included in response to several requests and is as up-to-date as possible.

We offer our warmest thanks to all who have contributed to the Journal, to the Director of the Museum and Art Gallery, Mr.T.L. Gwatkin, for granting facilities for its production, and to those Members who have given much of their time to helping with this work. We also gratefully acknowledge a most generous grant from the Cultural and Entertainments Committee of the Reading County Borough Council.

In previous years, the interval between the compilation and publication of the Recorders' Reports has been unsatisfactorily long, but Members have had the opportunity of hearing their contents read at a Meeting soon after the end of each season. With the decision to omit the Reports from the winter programme, however, records would not become generally known until after the season following the one in which they were made. The possibility of altering our date of publication to early spring is therefore being investigated, and, if this proves practicable, we hope to produce an interim, but necessarily shorter, number early in 1960.

Meetings and Excursions in 1957-58

Eleven meetings were held during the winter of 1957-58, of which three were devoted to the Annual General Meeting, the Honorary Recorder's Reports, and Members Exhibits. The Presidential Address was given by Professor H. L. Hawkins, who spoke on "The West Indies". Titles of other lectures were "The Work of the Royal Botanical Gardens, Kew", by Dr. Bor, "Highlights in Natural History" by W. A. Smallcombe, "Weather Rhythms" by the Rev. W. Connick, "Carnivorous Molluscs", by Professor A. Graham, "Some Plant Disease Fungi" by Dr. H. Owen, and "Where the Foot of the Rabbit" by Dr. A. S. Thomas. Dr. W. E. Swinton was unfortunately unable to give his promised lecture on "The Evolution of the Mammals". Instead, at short notice, Mr. J. Cunsted talked about "New (botanical) Finds in the 1950's".

The summer excursions, with the attendance in brackets, were:- April 19th, Loddon Valley, for Loddon lilies (17); April 30th, an evening visit to Tilehurst Potteries, for newts (21); May 10th, Royal Botanical Gardens, Kew, for the Annual Open Day (3); May 21st, an evening visit to Oxbow Lake, near Burghfield Gravel Pit, for freshwater biology (over 20); May 31st, Heckfield Place, by kind permission of Mrs. Colin Davey (30); June 11th, an evening visit to Coleman's Moor, for plants and insects (16 members and a party from St. Joseph's Convent); June 21st, the Ridgeway, for plants and birds (9); July 9th, an evening visit to Thames-side meadows at Little John's Farm (17); July 19th, Fawley, for chalk plants (8); July 30th, Hartslock Woods, for plants and birds (14); August 9th, Streatley Hill, for chalk plants (10); August 20th, an evening visit to Pincents Farm gravel pits, for geology; August 30th, a coach excursion to the Entomological Section of I.C.I. Research Station, Jealott's Hill (17); September 10th, Wokefield Common, entomology (7); September 20th, Swallowfield Park, by kind permission of Sir Arthur Russell (over 20); October 4th, Heckfield Place, by kind permission of Mrs. Colin Davey, Fungus Foray (19 -- despite torrefactual rain in the afternoon).

The Society and the Department of Zoology of the University of Reading were joint hosts at the 63rd Annual Congress of the South-Eastern Union of Scientific Societies between 9th and 12th April, 1958. Mrs. Fishlock acted as Honorary Local Secretary, Miss J. W. Watson as Field Excursion Secretary, Miss S. Y. Townend as Publicity Secretary, and Mr. B. Baker as Honorary Treasurer, and these, with the President, Professor H. L. Hawkins, and the other members of the Congress Committee, contributed greatly by their devoted work to this very successful meeting.

Report on the Young Naturalists' Evening held on 5th March, 1959

By S. Y. Townd, B.Sc.

Members who attended the Congress of the South Eastern Union of Scientific Societies held in Reading in April 1958 will remember the Young Naturalists' Evening. Resulting from that evening a number of people made the suggestion that as it was such a success it should be repeated.

As a result of preliminary discussions between members of the Reading and District Natural History Society and the Director of the Museum, it was decided to proceed with arrangements for another Nature Brains Trust sponsored by the Society in conjunction with the Cultural and Entertainments Committee. This time it was to be held in the Large Town Hall during the spring term and notices to this effect were circulated to all Reading schools. The venture was most fortunate to have the full support of the Estates Committee who made no hire charge for the Town Hall.

Dr. Maurice Burton, Professor H. L. Hawkins, Mr. J. Ounsted and Mr. K. E. L. Simmons kindly consented to serve on the panel with Mr. W. A. Smallcombe as Question-master and eight prizes were offered by the Natural History Society for the best questions.

The request to pupils to send in questions on any natural history topic, met with an overwhelming response for 396 questions were received.

Most schools in Reading were able to use their full allocation of seats and on the evening of 5th March the Large Town Hall contained a large audience of enthusiastic young naturalists. Members of the Natural History Society acted as stewards to show the children to their seats.

Only a very limited number of questions could be answered by the panel so it was quite a problem to choose less than twenty from the number submitted. A few of the questions answered were illustrated by lantern slides. Again, it was difficult to select the prize-winning eight, there were so many worthwhile questions. In the end the following pupils were presented with book prizes by the Right Worshipful the Mayor of Reading, Councillor E. A. Busby.

Yvonne Edwards, Alfred Sutton Secondary Girls' School (13 years).
M. Foster, Stoneham School (14 years).
Susan Hall, Alfred Sutton Secondary Girls' School (12 years).
Diane Jones, Westwood School (12 years).
Barbara Lane, The Hill Primary School (6½ years).
C. R. V. Thomas, Stoneham School (15 years).
Kathleen West, Redlands Primary School (11 years).
Robert Young, Grovelands Primary School (11 years).

After the presentations the children were treated to a showing of the magnificent colour film of animals in the Royal National Parks of Kenya, "Kinship of the Creature", which delegates saw during the South Eastern Union of Scientific Societies Congress.

A circular letter to head teachers was sent after the event to thank them for their co-operation and asking them for comments on the evening as an experimental venture. The replies showed that the programme had been much appreciated and would be worth repeating, say annually, though not necessarily in the same form.

Berkshire, Buckinghamshire & Oxfordshire Naturalists' Trust

The preservation of areas of special interest to naturalists is an undertaking which all our members will undoubtedly support, especially as some of the sites up for future discussion may well have been visited by the Society during summer excursion programmes.

Your Society has been represented at the planning meetings in Oxford by Mr. B. R. Baker. These months of planning have resulted in the Inaugural Meeting which is to take place in Oxford on 14th November. Copies of the manifesto will already be in the hands of all our members - sufficient to say that the aims of the Trust as set out therein are surely those that we as naturalists would all like to see put into effect.

We hope members of our Society will show their approval of this venture by joining the coach party to the City of Oxford School Hall on 14th November. Here is the opportunity to meet fellow naturalists, to talk with them of plants and animals and to set in motion a Trust whose express function will be the safeguarding of those special chalk slopes, woods and marshes in which we all find so much of interest.

Chiltern Research Committee

At a meeting at Aylesbury Museum on 12th April, 1959, representatives of nine Natural History Societies (including the R. & D.N.H.S.) and other bodies in Berkshire, Buckinghamshire, Bedfordshire, Hertfordshire and Oxfordshire discussed and agreed to adopt a proposal, presented by Mr. R. S. R. Fitter, that a joint organisation should be set up for the study of the Chilterns as a whole. The aims of the organisation were to provide surveys of the fauna and flora and to study specific problems relating to them, and the work was to be organised and directed by such specialists as were available in the various Societies. The work would be carried out by society members and it was hoped that help and advice might be given by local University Departments. The possibility of engaging a paid Secretary on a full or part-time basis was also envisaged. The results of these studies would enable the Committee to act in an advisory capacity in matters of conservation.

At a later meeting, also at Aylesbury, on 24th May, representatives of the interested Societies met to discuss general organisation and to consider problems to be tackled, of which several in botany, entomology and ornithology were proposed.

It is hoped that a start on one or more of the projects may be made in 1960.

Our Society's representative in this venture is Mrs. V. Paul who will keep us in touch with future developments.

STATION - READING UNIVERSITY

HEIGHT ABOVE SEA LEVEL - 148 ft.

YEAR 1958

		JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	YEAR
MEAN DAILY TEMPERATURES °F.	MAX.	44.3	48.3	46.5	53.8	62.2	66.4	70.5	69.1	67.3	58.2	49.2	46.4	56.9
	MIN.	34.3	36.0	34.0	39.1	45.9	50.8	54.2	54.8	53.4	46.6	40.2	37.2	43.9
		39.3	42.1	40.3	46.5	54.1	58.6	62.3	61.9	60.3	52.4	44.7	41.8	50.4
EXTREME TEMPERATURES °F.	E. MAX DATE	56 6,27	58 14	57 29	73 30	77 2	76 16	80 8	80 10	76 5	64 14	57 2,7	55 19,27	80 Jul. 8 Aug. 10
	E. MIN. DATE	21 23	28 8,26	23 12	30 2,3,4	37 13	45 5,25	45 24	48 6	43 27	38 6	32 14	30 5	21 Jan.23
	E. GRASS MIN. DATE	15 23	20 18	15 20,21	18 3	27 13,17	36 5	39 24	42 3	35 26,27	30 6	23 14	22 7	15 Jan.23 Mar.20/2
DAYS WITH " "	FROST	10	10	16	5	0	0	0	0	0	0	1	3	45
	GROUND FROST	18	14	18	10	5	0	0	0	0	1	10	18	94
SUNSHINE HOURS	SUM POSS.	47.1	46.7	102.8	146.4	188.9	155.6	200.9	118.9	129.4	93.5	45.8	27.2	1303.2
	DAILY MEAN	18 1.52	17 1.67	28 3.32	35 4.88	39 6.09	31 5.19	40 6.48	26 3.84	34 4.31	28 3.02	17 1.53	11 0.88	29 3.57
PRECIPITATION	AMOUNT	2.85	2.45	1.45	1.10	1.85	3.69	2.14	3.51	3.90	2.17	2.47	2.99	30.57
	RAIN DAYS	16	17	11	7	16	17	18	17	13	14	13	17	176
	MAX. RAIN IN 1 DAY	0.95	0.85	0.31	0.66	0.32	1.03	0.66	0.62	1.49	0.40	0.96	0.40	1.49
	DATE	28	24	25	5	15	2	1	20	29	4	1	18,29	Sep.29
	INS. LONGEST RUN OF CONSECUTIVE RAIN DAYS	5	7	5	4	5	6	7	8	6	7	3	6	
	LONGEST RUN OF CONSECUTIVE DRY DAYS	6	3	11	11	4	6	6	4	7	10	6	7	
	SNOW OR SLEET DAYS	4	3	3	1	0	0	0	0	0	0	0	0	11
	DAYS SNOW LYING	5	3	2	1	0	0	0	0	0	0	0	0	11
VISIBILITY	FOG AT 0900 G.M.T.	4	1	0	0	0	0	0	0	0	3	10	13	31
THUNDERSTORN ACTIVITY	DAYS OF THUNDER	0	1	0	0	1	2	4	2	2	1	0	0	13
	DAYS OF HAIL	1	0	0	0	0	0	0	0	0	0	0	0	1
AVERAGES														
MEAN DAILY TEMPERATURE °F.	MAX.	45.2	46.3	51.8	56.9	63.7	69.2	72.3	71.5	66.8	58.8	50.2	45.7	58.2
	MIN.	34.3	34.5	36.1	40.1	44.8	50.5	54.1	53.4	49.9	43.8	38.3	36.3	42.9
	MEAN	39.8	40.4	41.0	48.5	54.3	59.9	63.2	62.5	58.3	51.3	44.3	40.5	50.6
PRECIPITATION	AMOUNT	2.41	1.78	1.69	1.90	1.86	1.61	2.53	2.20	2.10	2.60	2.74	2.30	25.72
	RAIN DAYS	15	13	13	12	10	10	12	13	11	15	15	15	153

Weather Records for 1958

Data supplied by M. Parry

The data refer to Reading University Meteorological Station except those for sunshine, which were recorded at Sutton's Seed Trial Grounds. A "rain day" is a day on which rainfall exceeds 0.01 in. The averages for temperature refer to the period 1921-50, those for amount of precipitation to 1916-50, and those for number of rain days to 1881-1915.

Extracts from the Recorder's Report for Botany, 1957-58

By K. I. Butler

The nomenclature followed is that of Clapham, Tutin & Warburg in "Flora of the British Isles" and Hubbard in "Grasses". The area covered has been extended beyond the usual ten-mile radius to include parts of the Berkshire Downs up to roughly 20 miles from Reading. One outstanding record for which this exception is made is that by Miss E. Harris, of Reading University, of Crocus purpureus Weston (Purple Crocus) in the Inkpen district of Berkshire, growing in the same pasture as when recorded there by Druce in 1894. Druce mentions in his "Flora of Berkshire" that it had been known in that area for nearly a century.

The year 1958 was particularly noteworthy for orchids, and many observations were made in different localities. The more outstanding records are included in the general report. Unfortunately not all was gain, and losses must also be recorded. Herminium monorchis (L.) R.Br. (Musk Orchid) escaped the plough in 1952, but Mrs. A. N. Simmonds reports that the slope has been reploughed more extensively and that a careful search on June 17th failed to reveal any plants. Aceras anthropophorum (L.) S. F. Gray (Man Orchid) was been recorded on a chalk slope near Ipsden since 1945, but is in great danger of extermination by pigs. Another danger to the precarious existence of our wild orchids is indiscriminate picking and over collecting.

Orchis simia Lam. (Monkey Orchid) is now considered our rarest orchid, but a flowering specimen, to the Recorder's knowledge the only one, was picked within a week.

Plants of interest seen at the Society's Field Meetings

Burghfield Gravel Pits - May 21st.

Chara vulgaris (Common Stonewort), a spore-bearing freshwater plant included among the Algae and growing submerged, which was previously noted by A. Price; Utricularia vulgaris L. (Greater Bladderwort), a second locality in the Reading area for this insectivorous plant, of which there were many specimens.

Coleman's Moor - June 11th.

Hottonia palustris L. (Water Violet); Turritis glabra L. (Tower Mustard); Orchis praetermissa Druce (Common Marsh Orchid).

A Thames-side Meadow near Reading - July 9th.

Most of the following plants seen here in a sluggish stream, which was first discovered by Mrs. V. N. Paul in 1956, are becoming increasingly rare owing to drainage. Utricularia vulgaris L. (Greater Bladderwort) covering the stream; Hydrocharis morsus-ranae L. (Frog Bit), both male

and female flowers; Myriophyllum verticillatum L. (Whorled Water Milfoil), more uncommon than M. spicatum L. (Spiked Water Milfoil); Ceratophyllum demersum L. (Hornwort); Hottonia palustris L. (Water Violet), many plants, not in bloom.

Members' Records

Phyllitis scolopendrium (L.) Newm. (Hart's-tongue Fern). Not very common locally. On the walls of Peppard Church (A. Balfour).

Athyrium filix-femina (L.) Roth (Lady Fern). Wokefield Common (Mrs. Hodgson).

Ophioglossum vulgatum L. (Adder's Tongue). Wood, Tilehurst (D. E. Bradley).

Papaver hybridum L. (Round Prickly-headed Poppy). Corn-field, Gatehampton, Oxon, (Mrs. Paul).

Lepidium campestre (L.) R.Br. (Pepperwort). At side of road, Gatehampton, Oxon, (Mrs. Paul).

Lepidium ruderae L. (Narrow-leaved Pepperwort). More usually found near the sea. Frilsham, January 19th, (Miss L. E. Cobb).

Coronopus didymus (L.) Sm. (Lesser Swine-Cress). Not nearly so frequent in inland districts as C. squamatus (Forsk.) Aschers. (Swine-Cress). Abundant at Theale rubbish tip; one plant at Woodley (J. Hodgson).

Chenopodium polyspermum L. (Many-seeded Goosefoot). A rather local Chenopodium. Frequent in East Berks (Mrs. Simmonds).

Geranium rotundifolium L. (Round-leaved Craneshill). A very interesting growth all along the roadway banks from Reading to Goring (Mrs. Paul).

Astragalus glycyphyllos L. (Milk Vetch). Edge of wood on the road from Medmenham to Fingest (Mrs. Simmonds). It still survives on the roadside of the Old Bath Road near Twyford, in spite of building and the clearing of waste land (Recorder).

Lathyrus nissolia L. (Grass Vetchling). Roadside, Tilehurst (Mrs. Paul).

Genista tinctoria L. (Dyer's Greenweed). Between Warfield and Hawthorne Hill (Mrs. Simmonds).

Chrysosplenium oppositifolium L. (Opposite-leaved Golden Saxifrage). Bog in a wood near Ranikhet Camp (J. Hodgson).

Polygonum polystachyum Wallich. A native of the mountains of Assam and Sikkim, between 7,000 and 12,000 ft., occasionally naturalized. Roadside near Horncastle, Reading (J. Hodgson).

Cuscuta europaea L. (Large Dodder). Wallingford, parasitic on Urtica dioica (Stinging Nettle) (Mrs. Paul).

Orobanche elatior Sutton (Tall Broomrape). One of the more uncommon Broomrapes. Seen by several members near Aldworth, parasitic on Centaurea scabiosa L. (Greater Knapweed).

Prunella lacinata L. (Cut-leaved Selfheal). The large colony discovered by Mrs. Paul in 1954 at Fawley, Bucks, still continues to flourish.

Salvia pratensis L. (Meadow Clary). In full bloom at Unhill Bottom (Mrs. Simmonds and the Recorder).

Galium uliginosum L. (Fen Bedstraw). Locally frequent in Britain. Coleman's Moor (Mrs. Hodgson).

Serratula tinctoria L. (Sawwort). Two new localities in East Berks, Stanford Park; near Naptown Farm, (Mrs. Simmonds).

Picris echioides L. (Bristley Ox-Tongue). East Berks, (Mrs. Simmonds); Nunhide Lane (A Balfour).

Cephalanthera damasonium (Mill) Druce (White Helleborine). In beechwoods skirting the main Oxford Road near Streatley, many hundreds in Hartslock Woods area and near Woodcote (D. Lang).

Epipactis sessiliflora Peterm. (Violet Helleborine). Woods at Tilehurst (D. E. Bradley).

Epipactis leptochila (Godf.) Godf. (Narrow-lipped Helleborine). Hartslock Woods area (D. Lang).

Coeloglossum viride (L.) Hartm. (Frog Orchid). Downs near Ashton Upthorpe, 3 or 4 plants (Mrs. E. R. Blackwell); Nuffield golf course, 20 plants, (D. Lang).

Coeloglossum viride x Orchis fuchsii. Moultsford Downs (Mrs. Blackwell).

Gymnadenia conopsea (L.) R.Br. (Fragrant Orchid). Moultsford Downs. Estimates of 1,000 blooms on June 21st (D.E. Bradley) and of 5,000 - 6,000. including 10 albinos, on June 23rd (D. Lang); near Woodcote (D. Lang).

Platanthera chlorantha (Cust.) Rehb. (Greater Butterfly Orchid). Woods near Tilehurst, 12 plants (D. E. Bradley); near Woodcote (D. Lang).

Ophrys insectifera L. (Fly Orchid). Hardwick area, 20 specimens. (Mrs. Simmonds).

Orchis simia Lam. (Monkey Orchid). One flowering plant, June 25th, (The Recorder).

Orchis ustulata L. (Burnt Orchid). Downs near Ashton Upthorpe, 20 flowering plants, (Mrs. Blackwell).

Aceras anthropophorum (L.) S. F. Gray (Man Orchid). Ipsden, 4 plants. (Mrs. Simmonds).

Poa compressa L. (Flattened Meadow-Grass). Roadside, Tilehurst,
(Mrs. Hodgson).

Hordelymus europaeus (L.) Harz (Wood Barley). Wood near Holly Copse, and
in Hartslock Woods, (Mrs. Simmonds).

Bromus secalinus L. (Rye Grass). Cornfield between Gatehampton and
Goring Station, (Mrs. Simmonds).

Setaria italica (L.) Beauv. (Foxtail Millet). Rubbish tips, Theale and
Pangbourne, (J. Hodgson).

Echinochloa crus-galli (L.) Beauv. (Cockspur Grass). Theale and Pangbourne
rubbish tips, 1 plant at each, (J. Hodgson).

Lolium temulentum L. (Darnel). Several scattered plants on Theale rubbish
tip, (J. Hodgson).

Dracocephalum parviflorum Nutt. Native of North America. One plant on
disturbed ground at Pangbourne, (J. Hodgson). Identified at Kew.

Apera spica-venti (L.) Beauv. (Silky Apera). Arable land, Wargrave,
(Mrs. Hodgson).

Introduced Plants

Impatiens glandulifera Royle (Policeman's Helmet). A white-flowered
form in marshy ground near Wallingford, (Mrs. Paul).

Potentilla recta L. (Sulphur Cinquefoil). Garden escape or casual
becoming naturalised in waste or grassy places. Renikhet Camp, Tilehurst,
(J. Hodgson).

Doronicum pardalianches L. (Great Leopardbane). Peppard Common, (Mrs. Hodgson).

Bunias orientalis L. Near Caversham gravel pit, (Mrs. Hodgson).

The Recorder wishes to thank all those who have made this report possible.

Extracts from the Recorder's Report for Entomology

1957-58

By B. R. Baker, B.Sc., A.M.A., F.R.E.S.

Our best thanks are due to the following entomologists for submitting records - J. Cole, H. L. Dolton, G. Harrisson, A. Price, and the Director of Reading Museum for allowing incorporation of museum records.

Early Appearances

- 2nd February Padworth. A specimen of the Spring Usher moth Erannis leucophaearia (Schiff.). Also the Syrphid fly, Eristalis tenax L., early out of hibernation.
- 15th February Padworth. A specimen of the lacewing, Hemerobius stigma Steph. This insect is exclusively associated with conifers and has a succession of broods throughout the year.
- 16th February Reading. Small Tortoiseshell butterfly Aglais (Vanessa) urticae L., out of hibernation.

Notes on Individual Insect Orders

Order Ephemeroptera (Mayflies)

- 12th May Ephemera danica Muell. (Green Drake), appearing on the Kennet at Burghfield Bridge.
- 21st May Ephemera danica Muell and E. vulgata L. observed in large numbers on the occasion of the Society's evening excursion to the Kennet. E. vulgata was also observed on the Society's excursion to Heckfield on 31st May. E. lineata Eaton taken at Tilehurst in a light-trap in August 1953. This is a belated record but is of great interest as this insect has not been recorded in Britain since 1901. On 29th May, Mr. Harrisson and myself dredged in the Thames from a boat hoping to discover nymphs of lineata but we were unsuccessful. During the first 2 weeks of August, with the co-operation of the Thames Conservancy, a light-trap was operated at Mapledurham Lock, but no adult lineata were taken.
- 12th May Paraleptophlebia submarginata Steph. (Turkey Brown) Kennet, Reading.
- 23rd August Ephemerella notata Eaton, Kennet, Woolhampton.
- 23rd August Baetis bioculatus (L.) (Pale Watery Dun) Kennet, Woolhampton.

- 2nd November Baetis vernus Curtis (Medium Olive Dun) Foudry Brook
 near Pinge Wood (as nymphs).
19th February Baetis rhodani (Pict.) Foudry Brook near Pinge Wood
 (as nymphs).
25th September Baetis pumilus (Burm.) Holy Brook, Burghfield Road
 (as nymphs).
16th March Centroptilum luteolum (Muell.), Foudry Brook near Pinge
 Wood (as nymphs).
19th February Ecdyonurus venosus (F.), Foudry Brook near Pinge Wood
 (as nymphs).
12th July Ecdyonurus insignis (Eaton) (Large Green Spinner) Kennet,
 Woolhampton.
26th May Rhithrogena semicolorata (Curtis) (Yellow Upright)
 Pamber Forest.

Order Odonata (Dragon-flies)

- 21st May Pyrrosoma nymphula (Sulz.) (Large Red Damsel-fly),
 Kennet near Burghfield Bridge.
11th September Cordulegaster boltonii (Don.) 1 specimen taken on the
 stream in Pamber Forest.

Order Plecoptera (Stone-flies)

- 1st & 15th March Taeniopteryx nebulosa (L.) (February Red). A number of
 empty nymphal skins, Kennet above Burghfield Bridge.
18th May Nemoura erratica Claas. Kennet, Woolhampton.
26th May Amphinemura standfussi Ris. Pamber Forest.

Order Neuroptera. Sub-Order Megaloptera. (Alder-flies and Snake-flies)

Only 2 species of Alder-fly occur in Britain, and one of these, Sialis lutaria (L.), is abundant in our lakes, ponds and sluggish rivers where there is an abundance of silt. The other species Sialis fuliginosa Pict. is more local and restricted to running water. It is interesting to record that larvae of both species were netted from the Pamber Forest stream on 18th October.

Four species of Snake-fly occur in Britain and one of these, Raphidia sp., was collected on the occasion of the Society's excursion to Heckfield on 31st May by Clive Johnson.

Order Lepidoptera (Butterflies and Moths)

Microlepidoptera

Several species of Lithocolletis have been bred out by Mr. Dolton again this year:

L. blancardella (F.) from mines in apple leaves.

L. corylifoliella (Haw.) from hawthorn.

L. spinicolella Zell. from sloe.

Larvae found in mines on apple leaves proved to be Lyonetia clerkella (L.). These were found in Mr. Dolton's garden and were identified by a specialist on microlepidoptera, Mr. Wakely.

Specimens of Cataclysta stagnata L. were seen flying in Cow Lane along the ditch leading to the Thames, and several larvae of Gracillaria tringipennella Zell. were found on plantain leaves at Hill Top Pit, Tilehurst.

Macrolepidoptera

9th June Leucania obsoleta (Hb.) (Obscure Wainscot) Woolhampton.
11th & 19th July Chilodes maritima (Tausch) (Silky Wainscot) Woolhampton.
19th July Dicycla oo (L.) (Heart Moth) Woolhampton.
9th August Parascotia fuliginaria (L.) (Waved Black) Woolhampton.
19th July Dipsosphesia scopigera (Scop.) (Six-belted Clearwing)
Fawley Bottom.

Migrant Lepidoptera

25th August Herse convolvuli (L.) (Convolvulus Hawkmoth) a damaged specimen brought into the Museum from the town.

Order Trichoptera (Caddis-flies)

9th August Apatania muliebris (McLach) Thames at Mapledurham Lock,
1 specimen (female). This constitutes a new county record.

Order Coleoptera (Beetles)

Section Hydradephaga

Hygrotus decoratus (Gyll.) fairly abundant but only in one locality at Wokefield Common.

Peltodytes caesus (Duft.) about a dozen specimens taken in Tilehurst Potteries Pond and one was taken in a mass of the alga Zygnema at Burghfield Gravel Pit.

Haliplus flavicollis Sturm. Burghfield Gravel Pit.

Bidessus geminus (F.) Tilehurst Potteries Pond.

Clavicornia

Elmis naugeli Bedel Tidmarsh.

Limnius troglodytes Gyll. Tidmarsh.

The Recorder's Report for Ornithology October 1957 - October 1958

By E. V. Watson, B.Sc., Ph.D.

In the Report that follows I have drawn to some extent on the material made available in the Reading Ornithological Club Report for 1957 (R.O.C. Report No. 11), edited by C. C. Balch. I have also utilized suitable records sent in by members of the N.H.S. together with certain observations of my own. The substance has been arranged in a manner similar to that followed in all recent years.

1. Winter Duck, Gulls and other winter records from gravel pits and similar habitats

By mid-December Teal were well distributed, about 90 being recorded by Mrs. M. W. Tucker at Stratfieldsaye on one date in that period, whilst 20 were noted at Bearwood by Mr. D. R. Over and 25 at Bulmershe by Mr. C. E. Bignal. There was a November influx of Wigeon, with some 87 birds at Bulmershe on November 17th, whilst 70 were reported at Sonning Eye on December 26th and 49 at Bearwood on December 22nd. By comparison the species appeared scarce in Kennet Valley waters. Shoveler reached 50 at Englefield on December 8th (Leighton Park School record). Maximum numbers of Pochard reported were 130 at Sonning Eye on November 24th, 100 at Theale "New" Gravel Pit on November 23rd and 65 at Burghfield on December 14th. Larger waters seem to be preferred.

Among rarer species Pintail featured well, with several records of 1 - 4 birds from Englefield, Whiteknights Lake and Sonning Eye gravel pit. Golden Eye, Common Scoter and Goosander were all recorded by Mr. Bignal at Sonning Eye gravel pit during the period November - December 1957, and a Goosander was noted by Mr. K. E. L. Simmons at Englefield.

As regards Gulls there is not much to report. Some interest perhaps attaches to my observation, on December 29th 1957, of about 500 Blackheaded Gulls coming in to Sonning Eye gravel pit. I formed the impression that these were coming in to roost, as the time was about 4 p.m. and more continued to arrive as light faded. Further observations by Mr. Bignal however suggest that although similar big gatherings habitually occurred about dusk only a small fraction of the flock stayed to roost on the water.

No less than 44 Canada Geese were seen by Mr. D. E. Bradley at Sonning Eye on October 19th 1958.

2. Winter records of other birds (excluding rare visitors)

(a) Waders. Some 200 Lapwings were at Sonning Eye in a field by the gravel pit on February 15th. It may be mentioned that in the same field were 120 Coot, 60-80 Wood pigeons and 8 Canada Geese. 20-30 Golden Plover were associated with Lapwings in fields between Theale and Aldermaston, just north of the Bath Road on February 23rd.

(b) Finches. During the winter period, Redpolls were noted by various observers at Bulmershe, Sonning Eye and Barkham. I noticed two at Aldermaston "Wharf" pit on February 23rd and three were at Colemansmoor on October 26th 1958. Two Siskins were seen in cut willows at Theale gravel pit by Mr. Simmons on March 2nd.

Visiting a stubble field along the approach to Hardwick House, Mapledurham, on January 14th I came upon a big mixed flock of finches - one of those gatherings which are so characteristic of the winter season. In it were some 300 Greenfinches, 100-150 Linnets, a few Chaffinches, at least four Bramblings and at least two Tree Sparrows.

3. Arrival of Spring Migrants

The Spring of 1958 was a late one with a long period of low temperature (for the season) during the critical time in April. The effects of these conditions can be seen in the available records under this head.

A Chiffchaff was noted by Miss J. Kislingbury near Bradfield on March 30th but Mrs. A. M. Simmonds recorded her first more than a week later on April 7th at Colemansmoor, with records of Swallow and Sand Martin following on April 11th at Aldermaston gravel pit. Returning myself to Reading on April 14th after 2 weeks' absence I still heard neither Chiffchaff nor Blackcap at Caversham until April 23rd. A cycle run from Caversham to Goring on May 1st produced only a few Common Whitethroats (nothing approaching a big influx) and Tree Pipit in two places. There were some Willow Warblers about but not as many as one would have expected. My first Swift appeared over Caversham that evening - May 1st. Mr. Simmons reported the arrival of Lesser Whitethroat (Theale "Old" gravel pit) and Garden Warbler (Tilehurst) on May 2nd. By May 4th many Sedge Warblers were established at Sonning Eye, and I heard my first Turtle Dove of the year, at Cleeve, but despite search in several known haunts of the Nightingale in former years (Calcot, Sonning, Chazey Heath) that species could not be found and "shown off" to American enthusiasts who were with us for the day of 4th May. Lest this picture of Spring arrivals should give a misleading picture it must be emphasized that very few records came in from members and owing to the late production of the R.O.C. Report for 1958 this year I have not had access to the records of most of the members of the Ornithological Club in preparing this account. Miss E. M. Nelmes adds House Martin to Mrs. Simmonds' records of April 11th arrivals but it must be assumed that there are other records of many Spring migrants that have not as yet come to light. Doubtless the R.O.C. Report (No. 12) for 1959 will reveal some of these and thereby afford a clearer and truer picture of what was, on any standard, a "late year" for spring arrivals.

4. Noteworthy breeding records

I am indebted to Mr. Simmons for the following records of non-Passerine birds. Canada Goose bred at Woodley gravel pit. Little Ringed Plover again bred in the Reading area. Dabchick bred at Burghfield gravel pit for the first time and was a well-established nesting species at Woodley gravel pit. Here too at least 3 broods of Tufted Duck were reared.

Miss Nelmes reported the nest of a Woodcock with 4 eggs at a spot on the banks of the River Pang near Bradfield (April 20th).

No noteworthy records of Passerines have been submitted to me. In my own garden at Cleeve I was able to observe the parent birds of Cirl Bunting feeding fully grown young on the lawn, the species having bred successfully nearby.

5. Post-breeding movements and the Departure of summer visitors

Few members have been astute enough to observe much under this rather difficult head, for of so many of our summer visitors it may with truth be said that "they fold their tents like the Arab and silently steal away". Mr. Bradley however reports August 14th as his "last date" for Swift at Tilehurst, and for House Martin, October 20th at Aldermaston - quite a late date. The Spotted Flycatchers which nested in my garden at Cleeve were not seen after September 5th and my latest Blackcap was recorded on 9th September.

6. Passage migration

Two records cover the first winter period, that of a Green Sandpiper which was seen by Mr. H. M. Dobinson at Manor Farm as late as December 27th and a most interesting record of 12 Dunlin observed by Mr. Bignal flying up the Thames over Sonning Eye on November 3rd 1957.

Mr. Simmons reports a male Wheatear from Manor Farm, April 23rd. This species, besides nesting in suitable parts of the Chalk Down country, is of course fairly regularly recorded on passage in other habitats. No other Spring passage records have been brought to my notice.

There is only a little more material available at present concerning the autumn passage, 1958. I saw 3 Lesser Black-backed Gulls drifting south-east, at a fair height, over my garden (Cleeve) on July 20th. A Black Tern was reported from Dorchester gravel pit (rather outside our area) on September 20th. One Wheatear was at Theale "new" pit on September 22nd, and finally Mr. Bradley recorded a Stonechat (a species apt to wander in autumn and winter) at this same locality on October 26th. The forthcoming R.O.C. Report will no doubt bring to light further records of migrants seen on return passage.

7. Specific rarities

The somewhat controversial but very fully studied Lesser Scaup which stayed for some time on a lake at Sutton Courtenay in January, 1958, has received due attention elsewhere. Besides, the locality lies rather beyond our immediate area. Likewise a Woodchat Shrike which was studied by Mr. L. R. Lewis of Newbury near Highclere was of great interest but only on the "outer fringe" for us. Nearer home, we have the record of a Waxwing, which was found alive at Woodcote on December 7th, 1957, but which died subsequently and was then brought in to the Reading Museum. A Bittern,

seen at Aldermaston (North Wharf pit) by Mr. Dobinson and Mr. I. R. Walker on December 27th 1957 is mentioned in the R.O.C. Report for 1957. So also are the following three records of species scarce in our area: A Merlin over Leighton Park School, November 21st, 1957; two Short-eared Owls on the Fair Mile (November 13th, 1957), and Mrs. Tucker's observation of two Water Rails at Stratfieldsaye on November 24th. A record of a single Buzzard over the Fair Mile on March 26th 1958 comes from Mr. D. Lang of the Royal Veterinary College.

8. Miscellany

We are inclined to take for granted the many interesting species that can be seen within the boundaries of Reading - "town birds" as we may call them. Thus, from Leighton Park School comes evidence that Northcourt Avenue is quite a stronghold of the Hawfinch; from Miss K. I. Butler comes the record of a Greater Spotted Woodpecker drumming in Morgan Road - at 8 a.m. on March 16th; whilst on the University Lawn on September 25th I watched a Green Woodpecker apparently searching for ants' eggs, but close inspection of the area probed revealed none.

The onset of song in Spring is worth recording, and Mrs. Simmonds supplies a note of Chaffinch, Great Tit and Blackbird all in song on March 2nd. It would be more valuable to go a step further and record the differing incidence of song throughout the months of the year for some chosen species.

Two of our scarcer breeding species, overlooked by some people, are Grey Wagtail and Lesser Spotted Woodpecker. Both are apt to be seen more in the Reading area during the winter months, and this time Mr. Bradley supplies a record of each for late October - Grey Wagtail at Theale and Lesser Spotted Woodpecker at Aldermaston Court. Two birds which are probably best separated by their "voices" are the Marsh Tit and the Willow Tit. Of the latter I have two records from Streatley Golf Course and one from Colemansmoor for the year under review. The Marsh Tit does not necessarily favour the wetter places, having its stronghold (in my experience) in the Chiltern beech woods.

I should like to conclude this Report by making a plea for a fuller contribution of records from members another year.

Members' Records and Observations

Members are reminded that their records for the 1958-59 season should be sent to the Honorary Recorders, whose addresses appear on another page, as soon as possible.

Any Members with observations of general or topical interest that do not, by their subject or nature, fall within the scope of the Reports, are invited to submit accounts of them (typed, with double spacing, if anyhow possible, please) for consideration for inclusion in the next part of the "Naturalist" before 1st January, 1960.

South-Eastern Union of Scientific Societies

The next Congress of the S.E.U.S.S. will be held at Ipswich from 21st to 24th April, 1960. Members of this Society who wish to attend can obtain further information from our Secretary, Mrs. A. Fishlock.

Hover Flies - Family Syrphidae

An Introduction and Interim List of Syrphidae of the Reading Area

By J. H. Cole, B.Sc.

Among the major orders of insects, the Diptera, or true two-winged flies, are sadly neglected by naturalists. Most people, who only notice the comparatively few flies which obtrude themselves by their unpleasant habits, are surprised to learn that there are over 5000 species recorded from Britain. It is a pity that the few which are serious and dangerous pests have influenced general opinion on the order as a whole. The main exception is the Syrphidae or hover-flies, a family whose variety and conspicuousness alone arouse interest, although it must be admitted that two or three species can be serious horticultural pests. Much has been written on the general biology and detailed taxonomy of the group and the following is not offered as an original contribution to the subject, but in the hope of interesting a few more people in Diptera as a whole through the family which first attracted my attention.

There are just over 230 species in Britain and the appended list gives over a hundred recorded from the Reading area in the last 4 years. I have taken all but three (Xylota nemorum F., X. florum F. and Mallota cimbiciformis Fall.) for which I must thank Mr. T. S. Arnold. There are unfortunately no records of Diptera in the Victoria County History of Berkshire, but in the Oxfordshire History 137 species and 6 named varieties are listed. I have taken a further 7 species and 2 named varieties in the Goring district of Oxfordshire. No doubt some of these have been recorded from the county, even if the records have not been published, since the Victoria History was compiled, with the possible exception of Triglyphus primus Loew., listed by Coe (Royal Entomological Society's Handbook 1953) as rare and not recorded from Oxfordshire or Berkshire.

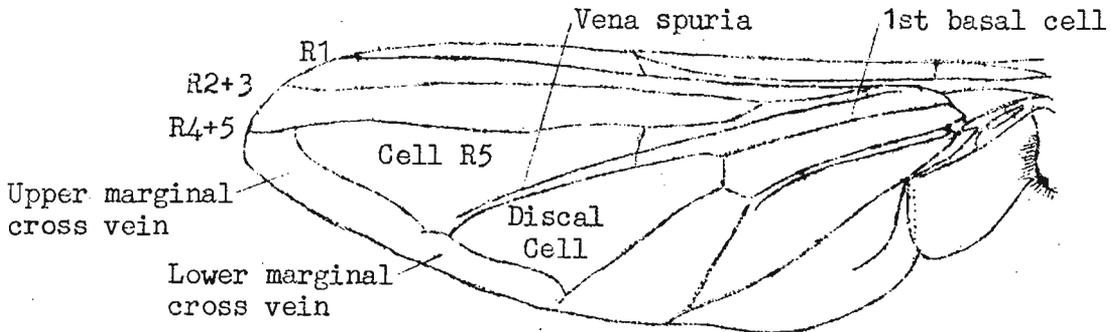
A general acquaintance with flies soon enables one to pick out a Syrphid on sight in spite of the extraordinary wide range of size, shape and colour within the family. This diversity does not however obscure a general Syrphid impression which cannot be put into words.

The scientific characters which distinguish them from all other flies are not readily appreciated by non-specialists and do not help to define this general impression. Syrphids belong to the division of the Diptera known as the Cyclorrhapha, in which the puparium opens by a circular split which separates off a cap or lid at one end when the adult fly emerges. Within this group they are distinguished by characters of the wing venation and the absence of a ptilinal suture enclosing the antennae and face, which, in flies possessing it, marks the cleft from which an eversible sac was protruded to help split the puparium prior to emergence. The wing-venation characters are, briefly,

1. The presence of a vena spuria, or false vein, a vein-like thickening of the wing membrane which passes the 1st basal cell and cell R5 and is free at both ends.

2. The closure of cell R5 by the upper marginal cross vein which runs more or less parallel to the wing margin, and
3. The closure of the discal cell by the lower marginal cross vein which also runs parallel to the wing margin.

Wing of a Syrphid



In general appearance hover-flies may be small and black with a wing length of 3-5 mm. or large and conspicuously marked with yellow bands or spots and with wing lengths of up to 15-19 mm; they may be almost bare or densely furry and bumblebee like, but rarely have the distinct bristles which characterise the majority of Cyclorrhaphous flies. The characters of many of the adult flies are well known even to casual observers. The flies are to be seen in the warmer months in gardens, woods, downs, marshes etc., hovering and darting with extreme agility, sunning on leaves or seeking nectar from flowers.

The Umbelliferae are particularly favoured but most flowers are visited by some species. Hawthorn blossom attracts many early flies and Michaelmas daisies on fine October days are sought by late comers. It is interesting to note how the many species which closely mimic various bees in appearance give themselves away by their different approach to flowers. Bees move in purposefully and land heavily so that all but the stoutest inflorescences droop and sway while the bee pushes into or scrambles over the flowers. Hover-flies of almost identical appearance land with extreme rapidity, but so lightly that even delicate flowers scarcely tremble, and once alighted they usually remain still with only the probing proboscis active. Many of the smaller species have similar habits in miniature and are very common in gardens.

Contrasting sharply in appearance and habit are the two species of Baccha, quite common but rarely noticed, as they fly like shadows among the stems of low herbage in woods and thickets. The female abdomen is long and narrow and the male abdomen is remarkably attenuated, being up to 10 mm. long but barely $\frac{1}{2}$ mm. wide for the basal two-thirds and only about 1 mm. wide at the tip.

A character of many Syrphids, well known to collectors, is the habit of emitting a very high-pitched whine when trapped in a net, the mechanism of which has not yet been satisfactorily explained. Species of the wasp-like genus Chrysotoxum, in particular, do this while at rest, sunning on leaves with their wings quite still. I have watched about half a dozen males of C. festivum L. on the sunny side of a small oak, alternatively resting, darting at each other with incredible swiftness, and returning to the same leaf to rest again. The whine started as the flies alighted and continued at the same pitch until it stopped abruptly at the moment of take-off. On another occasion I was able to make a closer observation of this phenomenon in the laboratory. A male C. festivum was left on the bench to recover from light ethyl-acetate anaesthesia before being released. When just able to stagger to its feet it started whining at a much lower pitch than normal. Over a period 5 - 10 seconds the pitch increased steadily and rapidly and stopped suddenly as the fly took off. I recaptured it after a short blundering flight and watched it very closely on my finger tip while it repeated the performance. Both wings and halteres (the pin-like balancing organs which are modified hind wings) were still, and I was quite unable to detect where the sound came from. After the second recapture it had recovered sufficiently to fly straight out of the window. The performance was remarkably like a minute jet engine warming up before taking off.

Reed beds and marshy ground support a varied and very typical Syrphid fauna, Pyrophaena granditarsa Forster is made conspicuous by flashes of reddish-orange which disappear suddenly when the fly lands and the brightly coloured abdomen is covered by the smoky black wings. The genus Chrysogaster contains several rather small species which, unless disturbed, fly more slowly and deliberately than most Syrphids. The male C. solstitialis Fall. is velvety black with red eyes, and other species are metallic blue or green. More recognisably Syrphid are members of the genus Helophilus, the commoner ones of which are large black and yellow or orange flies. H. hybridus Loew., which is reckoned as an uncommon species, I have seen in some numbers in the water meadows at Streatley, hovering and darting rapidly among the reeds a few inches above the water at the end of May.

Syrphids probably show a wider range of larval habits and adaptations than any other family of flies, and in spite of their popularity the early stages of about a dozen British genera are still almost unknown. The larvae of a large number of genera are active predators and make a fascinating study. They have the generalised Cyclorrhaphous larval form, that is cylindrical and tapering to a point at the head end, and move about freely on aphid-infested plants feeding

as they go - a most unusual mode of life for fly larvae which normally live in sheltered moist habitats, if not actually immersed or buried in their surroundings. The larva moves steadily along a stem feeling from side to side with the very mobile anterior end. When an aphid is touched it is immediately seized, lifted off its feet and held struggling feebly in the air, while the larva sucks it dry very rapidly. This attitude has been very aptly likened to a seal balancing a ball on its nose, and a very large number of aphids are consumed in a very short time in this manner.

In June 1957 I bred out adults of three species of aphidivorous larvae from a small clump of sow thistles, Sonchus oleraceus, in a neglected corner of a Goring garden. The larva of one, Scaeva pyrastris L., a handsome black fly with paired creamy white markings on each abdominal segment, is pale pinkish brown with a dorsal longitudinal green stripe. The larvae of Xanthandrus comtus Harris have similar habits but feed on small moth caterpillars.

The "rat-tailed maggots" of the drone flies, Eristalis, show a quite different adaptation. They live in pools of water containing a very high percentage of organic matter, or in semi-liquid mud. These larvae, $\frac{1}{2}$ - 1 inch long, have telescopic tails which can reach 4 or 5 inches up to the surface of the water. The main tracheae or breathing tubes open at the tip of this tail and enable the larvae to obtain air while crawling on the bottom. I have watched a female Eristalis arbustorum L. laying eggs in the side of a compost heap just above a foul puddle which had drained from it. The eggs were very carefully inserted one after the other in a crevice in the same way that a blow-fly lays eggs in meat.

Among the many classical fallacies of zoology was the belief that bees arose by spontaneous generation from decomposing carcasses. Virgil gives a "recipe" for this in his "Georgics". An ox had to be slaughtered, thoroughly beaten and left to putrify, when after a certain time bees would be produced from it. There seems to be little doubt that what actually arose from the carcass were the drone flies, E. torax L., the larvae of which would be quite at home in the putrescent liquid formed by such a carcass.

Myiatropa florea L., a close relative of Eristalis with brighter yellow markings, has similar larvae, several of which I have found in a beech rot-hole half full of water and dead leaves in February. The adults emerged in the last week of May.

Two other species with sub-aquatic larvae showing quite different adaptations are Callicera rufa Schummel and Chrysogasta hirtella Loew. The habitat of the former is similar to that of Myiatropa, but it is restricted to Scots Pine rot-holes in Scotland. The larva has no "rat tail" but the greatly developed tracheae allow it to surface for air at infrequent intervals. C. hirtella is independent of the surface altogether and obtains its oxygen from the roots of the grass Glyceria aquatica by tapping the intercellular spaces with its spine-like hind spiracles. This enterprising adaptation is shared by at least one other quite unrelated fly larva, that of the mosquito, Taeniorhynchus richiardii (Ficalbi).

The genus Volucella contains five British species which I think are among the most handsome in the family. V. pellucens L. is a fairly common large, shining black fly with a broad white basal band on the abdomen. The white is replaced by orange on the similar but less common V. inflata F. Both species are to be seen hovering 6 - 10 feet from the ground in sunlit paths and clearings in or near woods or feeding at blackberry flowers. V. bombylans L. is a densely furry and highly variable species which mimics several species of bumble bee. All gradations are found from black with an orange-tipped abdomen to mainly yellow on thorax and abdomen. The larvae of all Volucella species are scavengers in bees' or wasps' nests, where both larvae and adult flies are unmolested by the inhabitants. It is doubtful if the mimicry of V. bombylans has anything to do with its passing unnoticed by the bees whose nest it enters as it has also been recorded from the nest of a wasp Vespula germanica (F.) which it does not resemble in the least; also Volucella pellucens is quite unlike any wasp or bee. A female V. bombylans that I captured in June this year laid 60 eggs in a glass tube in a few hours. I kept them at room temperature and one hatched after seven days into a flattened white larva with fleshy processes. My attempt to rear it on debris (dead bees and bits of comb, etc.) from a bee hive failed and it died in a few days. None of the other eggs hatched.

Among Syrphids with plant-eating larvae, the Large Bulb Fly, Merodon equestris F., must be mentioned as an important pest to bulb growers; two species of Eumerus do similar damage but are less important. The larvae of both genera bore into and feed on various types of bulbs including onions. The adult Merodon like V. bombylans is a bee mimic with a wide colour variation.

The large genus Cheilosia, with 32 British species, of mostly undistinguished-looking black flies has larvae which feed in fungi and the stems and roots of various plants. Only one has been recorded as a pest, C. antiqua Meigen on Primula spp.

This account does not exhaust the known larval types of Syrphids and has barely touched on the variety of adult flies, but it has, I hope, given a general picture of the family. Anyone wishing to follow up the subject cannot do better than read the relevant chapter in "Flies of the British Isles" by Colyer and Hammond. The authors of this extremely readable book pack in information on a large number of species without reducing it to a catalogue. There are also many beautifully reproduced plates of the adult flies.

References

- Coe, R. L., 1953. Syrphidae. Handbooks for the Identification of British Insects, Vol. X Pt. 1. Royal Entomological Society of London.
- Colyer, C. N. & Hammond, C. O., 1951. Flies of the British Isles (Wayside and Woodland Series) Warne, London.

Both works contain many further references,

Syrphidae Recorded from the Reading Area 1956-59

* = not in the Oxfordshire Victoria County History

Syrphinae

- Paragus tibialis Fall. Reading garden. 1 taken 24. 8. 59.
- Baccha elongata F. Goring and Streatley Woods, common.
- B. obscuripennis Meig. Goring and Streatley Woods, common.
- Pyrophaena granditarsa Forster. Wallingford open Sewage Farm, common until closed 1957; Goring, Streatley and Silchester June-August, 1959.
- P. Rosarum (F.) Upper Basildon 9. 8. 59; Silchester 1. 8. 59.
- Platychirus manicatus Meig. Goring and Streatley, common.
- P. peltatus Meig. Goring and Streatley, common.
- P. scutatus Meig. Goring and Streatley, very common.
- P. albinus F. Goring and Streatley, very common.
- P. clypeatus Meig. Goring, frequent.
- P. immarginatus Zett. Streatley Golf Course. 1 taken 14. 8. 56.
- P. fulviventris Macq. Coleman's Moor, Woodley. 1 taken 10. 7. 58.
- Melanostoma mellinum L. Goring and Streatley, very common.
- M. scalare F. Goring and Streatley, very common.
- M. ambiguum Fall. Goring and Streatley, 1 each, both taken 27. 4. 58.
- Spacrophoria ruepelli Weidemann *Goring, frequent.
- S. scripta var./typ./L. Goring and Streatley, very common.
- S. scripta var./dispar Loew. Goring and Streatley, very common.
- S. scripta var./strigata Staeger Goring and Streatley, very common.
- S. menthastri var. taeniata Meig. *Goring and Streatley, very common.
- S. menthastri var. picta Meig. Goring and Streatley, very common.
- S. menthastri var. dubia Zett. *Goring and Streatley, very common.
- Xanthogramma pedissequina Harris (=ornatum Meig.) Reading garden. 1 taken 24. 8. 56.
- X. citrofasciatum Deg. *Goring, frequent.
- Leucozona lucorum L. Goring and Streatley. Woods and hedgerows, common.
- Scaeva (=Catabomba) pyrastri L. Goring and Streatley, common. 2 Bred from larvae taken on Sonchus sp. -. 7. 57.

<u>S. selenitica</u> Meig.	Goring, frequent.
<u>Syrphus</u> (=Ischyrosyrphus) <u>laternarius</u> Mueller	Goring, frequent.
<u>Syrphus torvus</u> O.-S.	*Goring and Streatley, common.
<u>S. ribesii</u> L.	Goring and Streatley, common.
<u>S. vitripennis</u> Meig.	Goring and Streatley, common.
<u>S. albostriatus</u> Fall.	Goring and Streatley, common.
<u>S. eligans</u> Harris (= <u>bifasciatus</u> F.)	Goring and Streatley, common.
<u>S. corollae</u> F. (=consisto Harris)	Goring and Streatley, very common. Several bred from larvae taken on <u>Sonchus</u> sp. Goring -. 7. 57.
<u>S. luniger</u> Meig.	Goring and Streatley, common.
<u>S. balteatus</u> Deg.	Goring and Streatley, very common.
<u>S. cinctellus</u> Zett.	Goring and Streatley, common.
<u>S. auricollis</u> var. <u>maculicornis</u> Zett.	Goring and Streatley, common.
<u>S. venustus</u> Meig.	Goring, frequent.
<u>S. diaphanus</u> Zett.	Goring, frequent.
<u>S. tricinctus</u> Fall.	Goring, frequent.
<u>S. punctulatus</u> Verrall.	Goring, frequent.
<u>S. umbellatarum</u> F.	Goring, frequent.
<u>S. labiatarum</u> Verrall.	Goring, 2 taken 23. 6. 57.
<u>S. compositarum</u> Verrall.	Goring, 1 taken 28. 4. 58.
<u>S. latifasciatus</u> Macq.	Streatley, 1 taken 18. 8. 57.
<u>S. nitidicollis</u> Meig.	Goring, 1 taken 18. 5. 58.
<u>S. annulatus</u> Zett.	*Goring, 1 taken 15. 6. 57.
<u>S. triangulifer</u> Zett.	*Goring, 1 taken 21. 5. 56.
<u>S. lasiophthalmus</u> Zett.	Goring, 1 taken 10. 5. 59.

Chrysotoxinae

<u>Chrysotoxum cautum</u> Harris.	Goring, frequent.
<u>C. festivum</u> L.	Goring, frequent.
<u>C. bicinctum</u> L.	Streatley, 1 taken 14. 8. 56.

Cheilosinae

<u>Rhingia campestris</u> Meig.	Goring and Streatley, very common.
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- Ferdinandea (=Chrysochlamys) cuprea Scop. Goring, in woods, 2 taken
8. 6. 58 and 14. 9. 58.
- Chrysogaster sub. gen. Liogaster metallina F. Goring, 1 on 12. 6. 57.
L. splendida Meig. Coleman's Moor, Woodley, 4 taken
on 11. 6. 58.
- sub. gen. Orthoneura nobilis Fall. Goring, 2 taken, 19. 6. 57.,
21. 6. 57.
- Chrysogaster sensu. str. hirtella Loew. Burghfield, 1 taken 21. 5. 58.
- C. macquarti Loew. Burghfield, 1 taken 21. 5. 58.
- Neosascia podagrica F. Goring and Streatley, common.
- N. geniculata Meig. *Goring, frequent.
- Triglyphus primus Loew. *Goring, 1 taken 12. 6. 57. Coe lists as
rare. Oxfordshire is not in his
distribution.
- Pipiza luteitarsis Zott. Goring, 1 taken 25. 5. 57.
- P. fenestrata Meig. Goring, 1 taken 4. 6. 58.
- P. lugubris F. *Goring, 1 taken 4. 5. 58. Reading garden,
2 taken 24. 8. 56.
- P. noctiluca L. Goring, frequent.
- Pipizella varipes Meig. Goring, frequent.
- P. virens F. Goring, 26. 6. 59.
- Cnemodon vitripennis Meig. Goring, frequent.
- Cheilosia illustrata Harris. Goring, common.
- C. variabilis Panz
(=funebres Harris) Goring, common.
- C. paganus Meig.
(=pulchripes Loew.) Goring, common.
- C. albitarsis Meig. Goring, common.
- C. scutellata Fall. Goring, common.
- C. longula Zett. *Goring, common.
- C. barbata Loew. Goring, common.
- C. honesta Rond. Goring, common.
- C. impressa Loew. Goring, 1 taken 15. 6. 57.
- C. soror Zett. Goring, 1 taken 8. 9. 57.
- C. vulpina Meig. Goring, 2 taken 23. 6. 57.
- C. praecox Zett. (=ruralis
Becker nec Meig) Goring, frequent.
- C. vermalis Fall. Goring, 1 taken 1. 5. 58.

- C. velutina Loew. Goring, frequent.
C. proxima Zett. Goring, 1 taken 1. 7. 56.
- Volucellinae
- Volucella bombylans L. Goring, frequent.
V. pellucens L. Goring, common.
V. inflata F. Goring, 1 taken 21. 7. 57. Pair in cop. taken 29. 6. 58.
- Eristalinae
- Merodon equestris var. transversalis Meig. Streatley, 21. 5. 59.
Myiatria florea L. Goring and Streatley, common. Bred several from larvae in beech-stump rot-hole. Fair Mile -. 4. 58.
Helophilus pendulus L. Goring and Streatley, common.
H. trivittatus F. Goring, frequent.
H. hybridus Loew. Goring, frequent.
H. lineatus F. Streatley, 31. 5. 59.
H. versicolor F. Streatley, 31. 5. 59.
H. transfugus L. Streatley, 21. 5. 59; Thatcham, 4. 7. 59.
Mallota oimbiiformis Fall. Goring, 1 taken by T. S. Arnold, 17. 6. 58.
Eristalis sepulchralis L. Goring, 2 taken, 3. 5. 57. and 8. 8. 57. Frequent at Wallingford open Sewage Farm until closed in 1957.
E. pertinax Scop. Goring and Streatley, common.
E. arbustorum L. Goring and Streatley, very common.
E. tenax L. Goring and Streatley, very common. Bred several from larvae from farm-yard pool, Long Lane, Tilehurst -. 7. 56.
E. intricarius L. Goring, frequent.
E. nemorum L. Goring, frequent.
E. horticola Deg. Goring and Streatley, frequent.
- Xylotinae
- Xylota sylvarum L. Goring, common in woods.
X. florum F. Silchester, 26. 7. 59. (taken by T. S. Arnold).
X. segris L. Goring, common in woods.

X. nemorum F.

²Goring, 1 taken by T. S. Arnold,
7. 5. 58.

Tropidia scita (Harris)

Thatcham, 4. 7. 59.

Brachypalpus bimaculatus (Macq).

Goring, 18. 5. 59.

Criorhina berberina F.

Goring, 18. 5. 59.

C. floccosa Meig.

Goring, frequent.

C. asilica Fall.

Goring, 18. 5. 59.

Syritta pipiens L.

Goring and Streatley, very common.

Eumerinae

Eumerus tuberculatus Rond.

Goring, frequent, Reading garden,
1 taken 24. 8. 56.

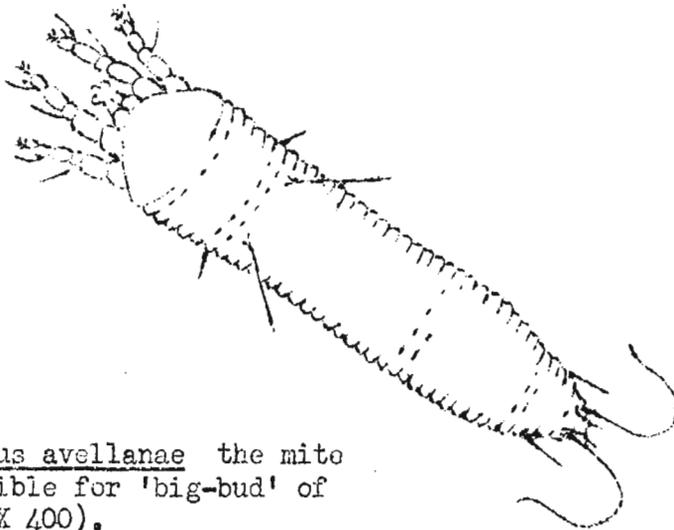
E. strigatus Fall.

Goring, frequent, Reading garden,
1 taken 24. 8. 56.

AN ANNOTATED LIST OF GALL MITES (ACARINA: ERIOPHYIDAE)
OCCURRING IN CENTRAL BERKSHIRE AND SOUTH OXFORDSHIRE

By Donald Leatherdale, F.L.S., F.R.E.S.

The gall mites (Eriophyidae), a family of the Acarina, comprise one of the largest groups of arthropods responsible for the formation of galls on plants. They are of microscopic size, ranging from about 80 to 280 microns in length, have an elongated, multi-segmented abdomen, and are distinct from the majority of mites in that they possess only two pairs of legs. Their size has been one of the main factors militating against their more popular study, for a good microscope and an expert control of its lighting are essential if some of their taxonomic characters, especially the configuration of the so-called "feather-claws", are to be distinguished. It is not, therefore, surprising that most work has been limited to their galls alone, but this has resulted in a false picture being presented of the ecology of the family, for only a minority of the Eriophyidae cause galls:



Phytoptus avellanae the mite
responsible for 'big-bud' of
hazel (X 400).

most of them are free-living (vagrants). They are generally remarkably host-specific, whether as gall-causers or as vagrants, and it is perhaps fortunate, although sometimes misleading, that many species may be identified from the plant on which they have been found. Galls, when they occur, are of simpler types than the sometimes complex structures associated with some gall wasps (Hymenoptera: Cynipidae) and gall midges (Diptera: Cecidomyiidae), but they are equally variable in form. Galls often take the form, unknown in galls of insect origin, of an erineum; this is a felt of abnormal hairs,

usually on the surface of a leaf, resembling a patch of mildew, and indeed such galls were described and identified as fungi until the middle of the nineteenth century.

Eriophyids are of little economic significance on the whole, but some species are major pests in their role as vectors of plant viruses, such as reversion of black currants carried by the gall-causing Cecidophyes ribis in Britain and wheat streak mosaic transmitted by the vagrant Aceria tulipae in the U.S.A. The life-cycles and bionomics of most species have never been investigated, and offer a fruitful field for anyone possessing the necessary patience and diligence. The lack of available literature is a handicap to be surmounted. For the basis of modern classification we are indebted to Alfred Nelepa of Vienna, who produced a voluminous series of papers, many of which are now difficult to obtain except for reference purposes; his most complete list appeared in the year of his death (1929), but his volume of "Das Tierreich" (1898) is more useful for the beginner. H. Roivainen in Helsinki and H. H. Keifer in Sacramento are the only workers currently engaged in a serious study of the Eriophyidae. The former is co-author of a handbook on the family (Liro & Roivainen 1951) which is extremely useful, although it is technically restricted to those species occurring in Finland and is written in Finnish. Keifer (1952) summarised his work to that date, and is still revising his concepts of the family in an important series of "Eriophyid Studies" published by the Californian Department of Agriculture. A list of Eriophyids recorded in the London area (Niblett, 1959) appeared whilst the present paper was in preparation; it is limited to gall-causing species, as was an earlier but still useful list by Burkill (1930).

The following list, compiled from records over the six years 1954-59, represents the results of casual rather than intensive collecting; it is biased in favour of the area around Whitchurch and Pangbourne, and it also exaggerates the proportion of gall-causing species. A few of the records have been published previously (Leatherdale, 1956, 1957). The Eriophyid nomenclature is that used by Liro & Roivainen, except that they considered Aceria and Cecidophyes as subgenera of Eriophyes, and Vasates as a subgenus of Phyllocoptes, whereas I at present follow Keifer and give them full generic status. It has been considered a convenience to arrange the list in the alphabetical order of host-plant genera. Insufficient material has so far been recorded to allow of an indication of the relative abundance of the species, but those most widely encountered are marked with an asterisk.

References

- Burkill, H. J., 1930, British gall mites, Lond. Nat. 1929: 58-68.
Keifer, H. H., 1952, The Eriophyid mites of California, Bull. Calif. Insect Surv. 2 (1): 123 pp. Leatherdale, D., 1956, The incidence of some gall-causing insects in south Oxfordshire, 1955, Ent. mon. Mag. 92: 46; 1957, The incidence of some gall-causing insects and mites in south Oxfordshire and central Berkshire, 1956, Ent. mon. Mag. 93: 26-29. Liro, J. I. & Roivainen, H. 1951, Suomen Eläimet, Animalia fennica, no. 6 "Äkänpunkit, Eriophyidae, Helsinki: 281 pp. Nalepa, A., 1898, Eriophyidae (Phytoptidae), Das Tierreich Leif. 4, Berlin: ix + 74 pp.; 1929, Neuer Katalog der bisher beschriebenen Gallmilben, ihrer Gallen und Wirtspflanzen, Marcellia 25: 67-183. Niblett, M., 1959, The gall mites (Eriophyidae) of the London area, Lond. Nat. 38 (1958): 51-54.

Plant	Eriophyid
<u>Acer campestre</u> L.	* <u>Eriophyes macrochelus</u> (Nal.). Leaf galls; widespread throughout the area. * <u>Eriophyes macrorhynchus</u> (Nal.). Leaf galls; ubiquitous.
<u>Acer pseudoplatanus</u> L.	* <u>Eriophyes macrorhynchus</u> (Nal.). See above.
<u>Aesculus hippocastanum</u> L.	* <u>Aceria hippocastani</u> (Fockeu). Leaf erineum; the horse chestnut without this small gall is a rarity.
<u>Alnus glutinosa</u> (L.) Gaertn.	<u>Eriophyes laevis</u> (Nal.). Leaf gall; Bradfield, Pangbourne, Reading, Goring, Henley, but unaccountably absent from many stations.
<u>Centaurea scabiosa</u> L.	<u>Aceria centaureae</u> (Nal.). Leaf gall; Whitchurch, Bracknell, Wokingham, Ewelme, South Stoke, Streatley.
<u>Convolvulus arvensis</u> L.	<u>Aceria convolvuli</u> (Nal.). Leaf gall; Whitchurch (not every year).
<u>Corylus avellana</u> L.	* <u>Phytoptus avellanæ</u> Nal. Bud gall; Whitchurch, Warfield, Burghfield, generally common.
<u>Crataegus</u> spp.	* <u>Eriophyes goniothorax</u> (Nal.). Leaf gall; widespread, but not on cultivated species of <u>Crataegus</u> .
<u>Euonymus europæus</u> L.	<u>Eriophyes convolvens</u> (Nal.). Leaf gall; Mapledurham, local.
<u>Fraxinus excelsior</u> L.	<u>Aceria fraxinivorus</u> (Nal.). Inflorescence gall; Warfield, Wokingham, Theale, Streatley, Woodley. <u>Vasates epiphyllus</u> (Nal.). Vagrant; Whitchurch.
<u>Galium aparine</u> L.	<u>Cecidophyes galii</u> (Karp.). Leaf gall; one of the few examples of an Eriophyid infesting an annual plant; Whitchurch, Goring Heath, Ewelme, Mapledurham, Theale, Reading.
<u>Geum urbanum</u> L.	<u>Cecidophyes nudus</u> (Nal.). Leaf gall; Whitchurch Hill, local.
<u>Glechoma hederacea</u> L.	<u>Vasates glechomæ</u> (Liro). Vagrant; Whitchurch.
<u>Juglans regia</u> L.	* <u>Eriophyes tristriatus erineus</u> (Nal.). Leaf erineum; occurs in most stations.
<u>Populus tremula</u> L.	* <u>Aceria populi</u> (Nal.). Leaf erineum; Pangbourne, Woodley, Warfield, Bradfield, Theale, generally common.

- Prunus domestica insititia L.
Poiret. Eriophyes padi (Nal.). Leaf gall;
Whitchurch.
- Prunus spinosa L. Eriophyes similis (Nal.). var. pruni-
spinosa Nal. Leaf gall; Warfield,
local.
- Fyrus communis L. Eriophyes pyri (Pagenst.). Leaf gall
(blister mite); Warfield, probably
widespread.
- Ribes nigrum L. ^{*}Cecidophyes ribis (Westw.). Bud gall (big
bud); Reading, Warfield, Pangbourne,
widespread.
- Salix alba L. Eriophyes triradiatus (Nal.). Witches' broom;
Wokingham, Whitchurch, Reading,
Henley, Pangbourne, Goring, widespread.
The etiology of this gall requires
further investigation, for a fungus
may also be involved.
- Salix alba L. var.
vitellina (L.) Stokes Eriophyes triradiatus (Nal.). See above;
Whitchurch.
- Salix caprea L. Aceria tetanothrix (Nal.). Leaf gall;
widespread.
- Salix fragilis L. Anthocoptes salicis Nal. vagrant; Warfield,
Whitchurch, Pangbourne.
^{*}Eriophyes triradiatus (Nal.). See above;
widespread.
- Sambucus nigra L. ^{*}Epitrimerus trilobus (Nal.). Leaf gall;
Whitchurch, Whitchurch Hill, Goring
Heath, Crays Pond, Pangbourne, Warfield,
Reading, widespread.
- Senecio jacobaea L. Eriophyes lioproctus (Nal.). Leaf gall;
Whitchurch Hill, Mapledurham.
- Senecio squalidus L. Eriophyes lioproctus (Nal.). See above;
Reading, Wallingford.
- Taxus baccata L. Cecidophyes psilaspis (Nal.). Bud gall;
Mapledurham.
- Tilia x vulgaris Hayne ^{*}Aceria tiliae (Pagenst.). Leaf gall;
Tilehurst, Pangbourne, Whitchurch,
Theale, Reading, Warfield, Woodley,
common.
- ^{*}Phytoptus tetratrichus Nal. Leaf gall;
widespread.
- Ulmus glabra Huds. Eriophyes ulmi (Nal.). Leaf gall; Ewelme.
- Ulmus procera Salisb. ^{*}Eriophyes ulmi (Nal.). See above; ubiquitous.
- Urtica dioica L. Epitrimerus urticae Liro. Vagrant; Whitchurch.
- Viburnum lantana L. Eriophyes viburni (Nal.). Leaf gall; Whitchurch

A MONTH WITH WOL.

By C. J. Leeke, B.Sc.

Wol (with apologies to A. A. Milne) is a young Tawny Owl, Strix aluco. We met following an announcement by the school caretaker that he had a "Little Owl" in the basement. I found that he meant a "little owl", without capitals, and that Wol, as he (?) was later christened, had been taken from the nest by boys who did not know what to do with him.

This was mid-day on Wednesday, 8th July, and Wol had been without food for at least 24, and possibly 36, hours. This was remedied very soon by giving him three strips of stewing steak, each about 3 inches long and $\frac{1}{2}$ inch thick, which he swallowed whole with a few quick jerks.

The immediate problem of feeding was solved, so Wol was placed in a cardboard box to sleep. After school, he was carried home where he was transferred to a large wooden box with a glass front. This box was his sleeping place for the next ten days. At first the floor was covered with several thicknesses of newspaper, which rapidly disintegrated due to the action of eight powerful claws aided by foecal moisture. Later the remnants of paper were replaced by a layer of broken-down bark.

The second problem was pellet-formation. No pellets appeared up to Thursday evening and the droppings were, I thought, too fluid even for a bird of prey. On Friday, cotton wool was wrapped round each piece of raw meat, and an urgent call for small mammal carcasses was circulated to several local cats. The medicine-chest was raided each day for small quantities of cotton wool, and the first small mammal, a short-tailed vole, was supplied on Thursday, 16th July.

Up to this time, a number of irregular, grey, cotton-wool pellets had been ejected. The vole, an adult female, was swallowed whole and tail first, two facts that caused me some surprise. The first "real" pellet, resulting from the vole, was ejected on Saturday evening about 48 hours after the meal. It was some 2 inches long and $\frac{3}{4}$ inch in diameter, tapering at each end. The condition of the droppings had become more "normal" and I felt that a critical period had passed.

As Wol grew, he became more active, producing loud and prolonged nocturnal thumpings as he banged about in his box. After he had kept us awake for two nights, a move outside was strongly indicated and indeed was underlined by the increased size of the droppings. On Saturday, 18th July, a small enclosure was constructed using the chain-link wire from a collapsed fence, some pine posts, three sheets of corrugated iron, several rustic planks and a wooden box. The whole, a somewhat unedifying sight, was designed more for comfort for Wol than convenience for me. It allows him room to fly and gives shade and privacy.

So much for the general management of an owl in and around the house. We felt, and may be open to criticism on this point, that an attempt should be made to fuss Wol to make up to him for the loss of his parents and brethren. Consequently many hours were spent in talking

mostly rubbish to him, and in handling him, and have resulted in a remarkably tame owl. Although I am quite sure he loves being fussed, since he is loath to fly from my hand or shoulder, he asserts his independence by chiding in a high-pitched, chattering voice. Wol is very gentle when he nibbles ears or fingers, or even when "preening" hair and moustaches, but he often underestimates the strength of his claws, evoking sharp remonstrations, especially when he grabbed an ear in a careless moment!

In appearance, Wol has always been predominantly "round", a stocky bird who intrigued everyone with his fearless friendliness. When first obtained he was covered in nestling down-feathers except for a narrow band of new primaries and rectrices showing some $\frac{3}{4}$ inch wide. The very dense down-feathers contributed considerably to the round appearance and they were so soft that it was difficult to perceive exactly when they were touched. His head was just like a powder-puff.

A detailed description of plumage is not necessary here, but a few impressions may be of interest. The colour is generally a mixture of splashes and bars in all shades of brown from off-white to near-black, much richer and darker than the nestling down. The whole is a good example of cryptic coloration.

The large eyes attract immediate attention, appearing ludicrous when partly closed during daytime. The pale-blue nictitating eyelids close obliquely downwards and outwards under sky-blue upper lids, which are bare except for a few small fawn-coloured feathers, mostly along the margins. In the evening, however, there is nothing ludicrous about these beautifully efficient photoreceptors which can function well in incredibly poor light intensities.

Around the bluish, horn-coloured beak, which is more powerful than I had hitherto believed, appear to be stiff, black filoplumes. In fact, they are peculiar feathers, each with widely spaced, whitish barbs, unconnected by barbules. The black rachis, which extends distally beyond the barbs, may be of some tactile value.

Perhaps the feet, next to the eyes, are the most noteworthy feature. In general, one is used to slender tarsi on most birds, but owls have remarkably robust ones. The claws are sharp, nearly $\frac{1}{4}$ inch long and, actuated as they are by powerful muscles, they make formidable weapons. As in parrots and woodpeckers, the outer toes normally point backwards. Occasionally Wol will settle with one pointing forward, but never for more than a moment.

By reports the Tawny Owl has a catholic taste in food, including all the usual small rodents, young rabbits, leverets, shrews and even chickens and fish! H. N. Southern also reports that earthworms are taken in quantity, this from direct observation on nesting birds and also from the discovery of pellets composed entirely of earthworm chaetae. (There are four chaetae to each segment.) Wol has eaten in addition to the above (whole or in part) a mole, a young robin and blackbird, unfortunately killed by a cat, a large stag-beetle larva and a variety of butcher's meats. I believe that, with few exceptions, a wide range of foods is to

be desired in order that a captive animal may be healthy. Incidentally, the more densely furred animals, such as shrews and moles, are not taken so readily as mice and voles, which in turn are less favoured than liver or beef - Wol is nobody's fool!

On behaviour, it would be possible to write much. At first, the only sounds Wol emitted were made by clapping the beak shut several times in rapid succession. This is a typical noise made by owls as a warning and indeed it must be very effective against potential nest plunderers. Later, as he came to recognise me as the provider of his food, he developed a subdued, squeaky call with which he would indicate hunger, his prime stimulus. Subsequently he added the chattering call, previously mentioned, which he gives out if he is touched while feeding and, less excitedly, when annoyed in any other way. Later still, a new call developed. This was a double "note", of a high frequency, penetrating and insistent, produced when he was hungry. Since the month, he has answered the calls of a pair of wild tawnies, still squeaky but copying in general form the exciting pattern of the wild birds.

In feeding, he always uses his feet for holding the food while looking around, either for a suitable feeding place, or if distracted. He can exert considerable force in tearing off pieces, making an audible "thump" as the tissues give way. But it was only after the first week that he was seen to tear his food; previously it was bolted whole and hurriedly. Presumably nestlings have not the time for the niceties of genteel behaviour. Now that he is larger and more capable of swallowing large pieces, he always picks some off first. If he is given more food than he wants immediately, he sometimes refuses it, but often takes it up into his box, where he will push it as far into a back corner as possible and then, pausing at each step, he will back away slowly, while intently watching his cache until, on reaching the edge of the box, he will turn quickly, with a shrug, and depart. This storing of food is so consistent that I think it may be an important behaviour pattern in times of plenty. This view could only be supported if a general observation to this effect was made in a number of owls.

I have never seen him drinking and he may well have obtained enough moisture from his food, especially as refrigerated meat was always warmed by hot water before it was wrapped in cotton wool, which became saturated. On 3rd and 4th August, in the evening he attempted to bathe in a green pie-dish of water. Since he accomplished this only with difficulty, a white enamel bowl was purchased a day or two later. Probably because of the different colour, Wol would have none of it; until one very hot afternoon he was seen standing in the bowl with his wings widely stretched and his eyes closed. After some minutes of sheer bliss he bathed vigorously and flapped wetly on to a perch to dry.

Among Wol's many amusing traits and habits is the following, which occurs when he is interested in anything - which is almost all the time. He moves his head sideways or up and down or, more often, with a circular motion while concentrating his attention on the object concerned. This action I believe makes use of parallax in observing and possibly in range-finding. The eyes, placed as they are at the front of the head - not at the sides - allow a wide field of stereoscopic vision. Thus, aided by

their behaviour pattern owls have become particularly efficient hunters. It is interesting to note that the ears of owls are markedly asymmetrical, and it has been suggested that this confers on them a stereophonic faculty which is also capable of direction and range-finding.

There emerges a picture of a bird beautifully adapted for the capture of small animals, and since its eyes are so fitted for night vision and its hearing is so acute it has become the scourge of all nocturnal small mammals. It has been estimated that a pair of Tawny Owls will each take 1,500 mice and voles in a year, excluding those needed for the rearing of young! The fact that they can subsist on a territory of 50 acres also says something for the reproductive rate of these rodents.

The B.S.B.I. Distribution Maps Scheme

By L. E. Cobb, B.A.

Non-botanists cannot have failed to become aware of, and perhaps mystified by, the preoccupation of their colleagues with "squares" over the past five years. Now that the field work for the Botanical Society of the British Isles plant-mapping scheme is virtually over, it may be useful to explain the object and scope of the scheme and briefly review the preliminary results.

The flora of British counties has been comparatively well known for a great many years, thanks to the work of devoted botanists, many of them amateurs, who studied the plants of their own districts and published books on the subject or lists in the Victoria County Histories or elsewhere. Britain has, however, lagged behind many other countries in obtaining information on the prevalence of species within these comparatively large areas by breaking them down and subjecting the sub-divisions to more detailed study. To remedy this, the B.S.B.I., working from headquarters at Cambridge, decided to map the flora of the British Isles by dividing the country into squares with sides 10 km. ($6\frac{1}{4}$ miles) long and endeavouring to obtain records of all the vascular plants growing wild in each. The records were assembled from three sources: herbarium collections, the literature and observations made for the purpose in the years 1954-58 by collaborating botanists, professional and amateur, each of whom made himself or herself responsible for one or more squares. Several members of this Society have taken part in the scheme and between them have been responsible for collecting records in most of the squares in the Reading area.

The bulk of the data has now been assembled and is being analysed and recorded by the punch-card system at Cambridge, where it will be available for reference, and an Atlas of distribution maps is being

produced for publication, it is hoped, in the autumn of 1960. Already many interesting and sometimes surprising facts have been established, particularly about the commoner species, which have in some ways most rewarded study, though naturally the thorough searching to which some hitherto comparatively neglected areas have been subjected has resulted in the discovery of new localities for certain rare plants. Outstanding among these is the location in Suffolk of a large colony of the military orchid (Orchis militaris L.), a species formerly recorded only from the Chiltern and North Downs area and there perilously near extinction.

In general, the richness of flora revealed has been surprising. In March 1959, nearly 500 of the 3,500 squares in the British Isles had more than 450 records each and of these over 100 had 550-650, 33 had 650-750 and two had over 750. The richest was Ampthill, near Bedford, with 828 species. Only about 100 squares in England and Wales had less than 250 species, though such low totals were common in Scotland and general in Ireland. The specialised mountain and bog habitats that form much of these countries produce an interesting but not a varied flora. The richest areas are in Eastern and South-Eastern England. The squares around Reading generally maintained an honourable average of 350-550 species, exceptions being two squares with over 550 and one to the East of Reading with less than 250. This one was thoroughly worked by one of our most competent botanists and disposes, in this case at least, of the possible criticism that the number of records reflects the enthusiasm of the recorder rather than the richness of the flora. One of the two rich squares was, surprisingly, the one largely under the bricks and mortar of the County Borough itself. Is this an indication of how outstanding the locality must have been in its rural state, of the zeal of the staff and students of the Botanical Department of Reading University or the recorder responsible for the square, or of the carelessness of local gardeners? The second very productive square, well known to the Society as a happy hunting ground, is the subject of the article below.

A Three-Kilometre Square

By V. N. Paul

The B.S.B.I. Mapping Scheme has made us conscious of "squares", and the necessity to investigate small areas thoroughly. The North-West corner of the Ordnance Survey Sheet 41/78 includes Russell's Water, Maiden's Grove and Nettlebed, but most important of all Bix Bottom. Entrance to this Naturalist's Paradise may be gained in two ways, either by leaving Henley along the Fair-mile, turning right through Lower Assendon, and finally, when you come to the timber yard, taking the first turning to the left, which is clearly labelled Bix Bottom, or by the more breath-taking descent from the top of Bix Hill, down past Bix Hall with its lovely garden, shielded from the road by an unruly, yet controlled yew hedge. The roads are twisting and narrow, and visibility is poor - half-way along the authorities tell you that it is unfit for motor traffic, but, unless you value your car greatly, this may be safely disregarded, for there is a most convenient parking spot near the Rifle Range, just beyond Page's Farm.

To those who know this area, it is now extremely difficult to decide where to go first. There is the wall of Page's Farm, on which Ceterach officinarum DC persisted until a year ago. Another search might bring this little fern, commonly known as Rusty-back, to light again. If not, then Pale Toadflax (Linaria repens (L.) Mill.) with its delicately pencilled pale mauve flowers, and Wall-rue (Asplenium ruta-muraria L.) will be found growing among the flints. Then across the road, past the bee-hives, and through a healthy crop of stinging nettles to the slope of the wood beyond. Here is an extraordinary sight - Herb Paris (Paris quadrifolia L.) outgrowing Dog's Mercury (Mercurialis perennis L.) a sea of dark green leaves, growing in fours at the top of slender stems, with the spider-like flowers in their centre. The fruit is a purplish black berry, and the slender petals and sepals, four of each, often persist long after fertilization. There are many thousands of plants in this one area, and one never tires of revisiting it. For those interested in the two "bird's nests", Yellow Bird's-nest (Monotropa) and the Bird's-nest Orchid (Neottia nidus-avis (L.) Rich.), it is better to stay in the wood. The slope is steep, but Columbine (Aquilegia vulgaris L.) has been found in one place, and may grow in others; it was recorded for Bix by Druce thirty years ago. Later in the year, Narrow-lipped Helleborine (Epipactis leptochila (Godf.) Godf.) is fairly frequent in this wood, and at the top, where Neottia is in its full beauty, Violet Helleborine (E. purpurata Sm.) is found.

Going on to the open chalk slope, and finally down the fire-break next to the wood, one may find the rigid spikes of Hairy Rock-cress (Arabis hirsuta (L.) Scop.) Deadly Nightshade (Atropa bella-donna L.) Early Purple Orchis (Orchis mascula (L.) L.), and Bee Orchid (Ophrys apifera Huds.). Covering the ground in the open spaces are Candytuft (Iberis amara L.) and L. repens, together with a host of other chalk-loving plants.

Coming back to the Rifle Range again, a visit must be made to see Green Hellebore (Helleborus viridis L.). This is growing in the hedgerow bordering the road. Thirty years ago only a small cluster of plants were

there, but now it has spread along the bank, and an occasional plant can be found on the opposite side of the road. It is better to keep to the road for about 200 yards, until you come to a large post on the left-hand side which marks the beginning of a footpath which goes through to Nettlebed. Just inside the hedge, Creeping Jenny (Lysimachia nummularia L.) grows among the grass, but search among the undergrowth for the Adder's Tongue (Ophioglossum vulgatum L.); there are many leaves of the Twayblade Orchid (Listera ovata Br.) to confuse you, but every year the tiny fern can be found somewhere on the slope. On the footpath, plants of the Greater Butterfly Orchid (Platanthera chlorantha (Cust.) Rchb.) grow, and in the wood the Lesser Butterfly (P. bifolia (L.) Rich.). The chance to compare their pollinia is rarely so close at hand. In the smaller, more delicate, P. bifolia, the pollinia are almost parallel, whereas in P. chlorantha the two heads come together, forming an inverted V. Three plants of the Fly Orchid (Ophrys insectifera L.) grew for many years near a rotting tree stump, and although O. insectifera is fairly common in the woods, these three seemed to be more important than the rest. White Helleborine (Cephalanthera damasonium (Mill.) Druce), Broad Helleborine (E. helleborine (L.) Crantz.), and Ploughman's Spikenard (Inula conyza DC) help to make up the undergrowth.

After the footpath joins the main lane it is possible to strike up to a higher slope among the plantations on the 500 ft. contour overlooking the valley below. Here you may find O. insectifera with ten flowers to a spike, wonderful specimens of P. chlorantha, and many specimens of O. apifera. It is very easy to lose your way in these woods, but when in doubt, turn down the hill to the valley below, along which runs the road. On the slope there are several clusters of Solomon's seal (Polygonatum multiflorum (L.) All.) with their small clusters of white bell-like flowers hanging below the arching stems of leaves. On the road once more, and facing towards the Rifle Range, with almost a surfeit of things to remember, the Lady's Mantle (Alochemilla vulgaris L. s.l.) may be passed by unnoticed. Yet this inconspicuous plant is fairly rare in the Reading District, and here it grows plentifully on the edge of the road. Hound's Tongue (Cynoglossum officinale, L.), Common Gromwell (Lithospermum officinale L.), with fruits like tiny white china beads, and the Fragrant Orchid (Gymnadenia conopsea (L.) R. Br.), may be found on the opposite side of the road among the plants of Bugle (Ajuga reptans L.) which form a blue carpet when in flower.

If time permits, or perhaps on another day, a visit to the old clay pits on Nettlebed Common is well worth while. One of the pits contains a forest of Water Soldiers (Stratiotes aloides L.) growing like giant aloes under the water. Anchored by a long underwater stem to the bottom of the pond, they float up to the surface in the flowering season. Male and female flowers are on different plants, and the three-petalled white female flowers are much commoner than the male flowers, which have longer stalks. June is the best month to visit this plant. Growing in the same pond, there is an abundance of Marshwort (Apium inundatum (L.) Rchb.), but it is difficult to reach because of the slippery clay on the sides of the pond.

Growing on the mixture of clay and sand, are Common Birdsfoot (Ornithopus perpusillus L.), Buckshorn Plantain (Plantago coronopus L.) and Heath Grass (Sieglingia decumbens (L.) Bernh.). In the wetter parts

of the heath, Lousewort (Pedicularis sylvatica L.) and the sedges, Carex demissa Hornem., and C. ovalis Gooden, occur. Horse Mint Mentha longifolia (L.) Huds.) grows among the brambles, and a cluster of Tansy (Chrysanthemum vulgare (L.) Bernh.) by the roadside.

So many plants have been neglected in this account, but you may find the pond with Sweet Flag (Acorus calamus L.), with its strange stout spike of flowers; the bare patch on the common where Trifolium striatum L. is struggling to gain a hold; the Musk Orchid (Herminium monorchis (L.) R. Br.) which grows in two different places in the square; and the Lizard Orchid (Himantoglossum hircinum (L.) Spreng.), which was reported many years ago. Just one cluster of Wood Barley (Hordelymus europaeus (L.) Harz.) was found at Maiden's Grove, but if you make this journey, please do not disturb or pick these plants, but leave them for all to enjoy.