

The Reading Naturalist

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THE READING NATURALIST

No.14 for the Year 1960-61

The Journal of
The Reading and District Natural History Society

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Entomology: B. R. Baker, Esq.

Geology: Professor H. L. Hawkins, F.R.S.

Ornithology: Dr. E. V. Watson

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MR. C. RUNGE

Mr. Conrad Runge, who died on 6th January 1962, at the age of 88, had been a member of the Society for over 40 years, an Honorary Member for the past five years, at one time an Honorary Secretary and President more than once. He will be best remembered for the invaluable help and encouragement that he was always ready to give to young naturalists, many of whom owed much to his inspiration.

EDITORIAL

The considerably enlarged number of the "Reading Naturalist" published last year was inevitably accompanied by increased costs, not only in paper and production, but also in envelopes and postage. It has therefore been necessary to economise this year, but it is at least gratifying to know that the reduced size of the present number is due to this factor and not to slackening interest. We have, indeed, had to hold over some articles till next year.

We offer our warmest thanks to all our contributors, as well as to the Director of the Museum and Art Gallery, Mr. T.L. Gwatkin, for granting production facilities, and to all those members and friends who have given their time so generously to the work of production.

NOTICE TO CONTRIBUTORS

Any members with observations of general or topical interest that do not, by their subject or nature, fall within the scope of the Recorders' Reports are invited to submit them for consideration for the next part of the "Reading Naturalist" before 1st January 1963. Longer papers would also be welcome, but these should reach the Editor by 15th November at the latest. Both observations and articles should be typed, with double spacing if anyhow possible. If this is quite impracticable, clearly legible manuscript with widely spaced lines would be appreciated.

MEETINGS AND EXCURSIONS IN 1960-61

The first evening meeting of the winter was the Annual General Meeting (attendance 55), and Mr. J.F. Newman gave his Presidential Address, on "Man and Natural History", at the second (45). Other lectures given during the winter were "The Origin of Mammals", by Dr. W.E. Swinton (80); "The Sand Dunes of Studland Heath, Dorset", by Dr. K. Wilson (64); "The Natural History of a Piece of Wood" by Professor F.W. Jane (32); "The Value of keeping Animals in Captivity" by Mr. Maxwell Knight (77); "Man Fish", by Mr. M. Hastings (39); and "Some Butterflies and Moths of the British Isles" by Mr. C.L. Bell (70). Two other meetings were devoted to Members' Exhibits (69 and 61) and a programme of nature films was shown at a third (65).

The monthly walks initiated last winter were continued and were as follows:- November, Crowsley (12); December, Surley Row to Grove Hill (6 - a very wet day); January, Bear Wood Lake (15); February, Kingwood Common to Stoke Row via Witheridge Hill (12); March, Pickling Yard, for mosses (18).

The summer excursions were:- April 8th, Bradfield to Yattendon (15); April 17th, the "Dreadnought" Freshwater Biological Station, by kind permission of Reading Microscopical Society (24); April 22nd, Padworth Gully (13); May 6th, Blue Pool (25); May 20th, Mongewell Woods (28); June 3rd, Remenham (14); June 14th, Watlington (24); June 24th, Woolhampton, for entomology (over 17); July 5th, Thames-side meadow (10); July 15th, Streatley Hill, for entomology (8), July 26th, Reading University Horticultural Station (21); August 5th, Peppard to Stoke Row (4); August 19th, Hardwick, for plant galls (12); September 2nd, Wokefield Common, for fungi (19); September 16th, Burghfield Bridge to Theale, for freshwater plants and animals (20); October 7th, Kingwood Common, Fungus Foray (morning, 17; afternoon, nearly 70).

The Young Naturalists' Evening was held on 1st March in the Town Hall. The panel for the Nature Brains Trust consisted of Professor H.L. Hawkins, Professor T.M. Harris, Mr. K.E.L. Simmons and Mr. B.R. Baker, and Mr. W.A. Smallcombe was Questionmaster. The Society's prizes were presented by the Right Worshipful the Mayor of Reading. The film, "Between the Tides", was shown during the evening.

Prizewinners: Margaret Wanless, Alfred Sutton Secondary Girls School (13 years); Carol Helmore, Cintra Secondary School (13 years); John Knight, St. Anne's R.C. Primary School (11 years); Lesley Johnson, Whitley Park Junior School (10 years); John Hodgson, Stoneham School (15 years); Pat Taylor, E.P. Collier Primary School (9 years); Sheila Morgan, Caversham Primary School (11 years); Pamela Jenkins, Alfred Sutton Second Girls School (15 years).

THE COUNCIL FOR NATURE

In Number 13 of the Reading Naturalist a general introduction to the aims and work of the Council for Nature appeared and since that time our members have been kept up to date by "News for Naturalists" the Council's publication which is always available at our winter meetings. *Prominence has recently been given to National Nature Week which the Council is organising from May 18th - 25th, 1963. The Council hopes that member societies will take an active part in this project by organising a series of events during the week. Suggested activities are special lectures and exhibitions, perhaps in conjunction with the local museum, and the setting up of nature trails and special field meetings geared at encouraging the general public to take an active interest in our natural heritage. A memorandum outlining these possible activities will be circulated to member bodies shortly.

THE BERKSHIRE, BUCKINGHAMSHIRE AND OXFORDSHIRE NATURALISTS' TRUST

In each of the three counties work has gone ahead this past year in connection with the Nature Conservancy's Sites of Special Scientific Interest (S.S.S.I's), 28 of which are to be found in Berkshire. The Conservancy visits these sites, with the permission of their owners, and makes records, photographs and maps which build up an ecological survey of the areas. The Naturalists' Trusts throughout the country assist the Conservancy by keeping an eye on the sites in their own counties and knowing their present day condition, not an easy task at any time but easier for the locally based Trust workers than for the Conservancy's officers whose regions cover very many counties.

In 1961 the S.S.S.I. at Ashridge Wood was re-examined by botanists from the Museum and from our Society and a number of the interesting plants previously recorded from the wood were still found to be present although the planting of conifers has reduced the amount of mixed deciduous woodland.

The pond at Wokefield Common, itself an S.S.S.I. was rapidly becoming choked with rubbish whilst willows and other plants were reducing the amount of open water. The co-operation of the Bradfield R.D.C., the Museum and the Trust has resulted in a controlled cleaning of the pond and it now presents a far happier picture than in mid 1961 though doubtless this site will need continual surveillance.

* "News for Naturalists" Vol.3, No.2, January, 1962

An interesting experiment is in progress at one of the Pasque Flower sites on the Berkshire Downs. With the very practical assistance of Reading Museum a rabbit proof fence has been erected around one patch of the plants and we look forward to comparing the control area with conditions on the open Down in early 1962.

These are a few instances of work carried out locally in 1961; a fuller picture is presented by the bulletins and annual reports which are circulated to Trust members.

Any information on Trust matters may be obtained from the Hon. Local Secretary (Berkshire) at Reading Museum - we would commend the supporting of this work by all those who enjoy our countryside and especially by the members of this Society.

CHILTERN RESEARCH COMMITTEE

This Committee was formed to represent the Natural History Societies and Museums of the Chiltern Hills area. It was felt that much interesting work could be done by a corporate group which would bring together knowledge accumulated in the various societies in past years, and provide an objective for field work in the future.

An investigation of the plight of the Juniper bushes, which in many places are dying, was one of the first projects to be introduced. Mr. R.S.R. Fitter was the organiser, and Mrs. A.M. Simmonds our local recorder. It has proved the most successful enquiry so far undertaken, and we of the Committee think this is because it was a study which the amateur naturalist was not afraid to tackle. With this in view, two new botanical projects, on the distribution in the Chilterns of Candytuft and of Orchids, have been introduced. Both are organised by Mrs. V. W. Paul, and anyone who would like typed leaflets on either of them, or on any of the other investigations run by the Committee, should write to her at the address given at the end of this report. (A stamped, addressed envelope would be appreciated.) If the questions on the leaflet are difficult to answer in some circumstances, just a record of the plant and its locality would be extremely useful, so please do not hesitate to send even the bare minimum of information to the organiser. This work will only be successful if we get adequate response.

The bird projects are "Distribution of Woodwarbler and Woodlark" run by Robert Gillmor and "Distribution of Nuthatch", of which the organiser is Arthur Bourne. Professor Hawkins is investigating the "Drift deposits of the Chilterns" and we are interested in the appearance in the area of the Muntjac, a small Chinese deer. Another new survey requires simple records of any reptiles which may be seen in the area.

Some of our early projects met with little response. The Clifden blue butterfly, which feeds on the Horseshoe Vetch, failed, in all probability because only trained lepidopterists felt capable of recognising the Clifden blue and although many of us examined the leaves of the Horseshoe Vetch, we did not find any larvae or signs that the leaves had been eaten. This negative result is disheartening, and so we did not send in our records. In some investigations, for example the Orchid survey, negative results are very important. We want information about woods, rough scrubland, etc., where orchids do not grow, especially from people who have known the spot over a number of years.

With regard to the correct time to send in results, some people find it easier to send in their records as they make them. This is very satisfactory, if they do not mind the extra postage. Others keep them until the end of the season and send them to the organiser or recorder in October or November. We do not really mind when or how they come, as long as they do arrive.

Reading is doubly responsible for supplying information. Many of the organisers are members of this Society, and our nearest neighbour is the Middle-Thames Natural History Society, which is centred at Slough. It will take a number of years to collect information, but we can only judge the success of such a venture by the enthusiasm of our members - so please do try to help us in 1962.

Representative for Reading & District Natural History Society:-

Mrs. V. N. Paul,
Overdale,
Peppard Common,
Oxon.,

who will be pleased to answer any enquiries, or to accept any information and redistribute it to the appropriate person.

SOUTH-EASTERN UNION OF SCIENTIFIC
SOCIETIES

The S.E.U.S.S. Congress at Haslemere in May 1961 was attended by 17 of our members who much enjoyed the opportunity of visiting the Haslemere Natural History Museum, the Gilbert White Museum at the Wakes, Selborne, and the Hanger, as well as of attending excellent lectures in the mornings and joining excursions to study chalk flora, archaeology or Wealden geomorphology in the afternoons. Mrs. Fishlock contributes the following: "On the Sunday, there was an excursion to Juniper Hall Field Station when we were shown a three-month-old fox, which I held in my arms. Its coat was very soft, like a puppy, but when I handed it back to the Warden, I found that I was smelling

like a fox myself! I felt it was a good thing there was not a pack of hounds near, or I might have been torn to pieces. We were also shown a 25 lb. badger, which Mr. Sankey cradled in his arms. He had five or six others in pens. We considered the Congress a great success."

This year's Congress is to be at Horsham on 25th-27th May, under the Presidency of Dr. Maurice Burton. It is hoped that Reading will again be represented by a large party of members. Further information can be obtained from the Society's Secretary, Mrs. A. Fishlock.

PUBLICATIONS RECEIVED

South-Eastern Naturalist

Middle-Thames Naturalist

Journal of the North Gloucestershire Natural History Society

Bird Report of the North Gloucestershire Natural History Society

Journal of the Henley Grammar School Field Club.

Weather Records for 1961

Data supplied by A. E. Moon

The data refer to Reading University Meteorological Station. A "rain day" is a day on which rain-fall exceeds 0.01 in. The averages for temperature refer to the period 1921-50, those for amount of precipitation and number of rain days to 1916-50.

As from 1st January, 1961, "Ground Frost" is recorded when the grass minimum thermometer reading is 32.4°F. or less, instead of 30.4°F. as hitherto.

STATION - READING UNIVERSITY

HEIGHT ABOVE SEA LEVEL - 148 FT.

YEAR 1961

		JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL
MEAN DAILY TEMPERATURES OF	MAX.	44.3	50.4	56.9	58.6	61.9	69.8	70.7	70.0	69.3	60.0	49.3	43.2	58.7
	MIN.	34.8	41.4	38.0	45.0	45.1	50.4	53.5	53.9	53.2	45.7	38.2	32.3	44.3
	MEAN	39.5	45.9	47.5	51.8	53.5	60.1	62.1	61.9	61.3	52.9	43.7	37.7	51.5
EXTREME TEMPERATURES OF	E. MAX DATE	53 29	62 14	71 16	65 18	75 13	85 30	87 1	88 29	85 2	68 4, 10	61 1	58 10, 12	88 Aug, 29
	E. MIN. DATE	28 12	35 4	28 20	39 16, 24, 28	33 28	41 10	45 6	45 3	42 26	31 30	29 24	18 28, 29	18 28, 29 Dec
	E. GRASS MIN. DATE	17 12	25 4	16 20	29 24, 25	25 27, 28	32 10	36 5, 6	36 3	32 26	26 29, 30	17 28	6 28	6 Dec, 28
DAYS WITH	FROST	12	0	5	0	0	0	0	0	0	1	6	19	43
	GROUND FROST	22	11	24	8	9	1	0	0	1	8	16	25	125
SUNSHINE HOURS	SUM.	56.0	59.1	167.3	84.9	227.1	232.6	193.5	170.3	132.5	123.9	54.4	72.5	1574.1
	% POSS.	21	21	46	21	47	47	39	38	35	37	20	29	35
	DAILY MEAN	1.81	2.11	5.39	2.83	7.33	7.75	6.24	5.49	4.42	4.00	1.81	2.34	4.31
PRECIPITATION INS.	AMOUNT	2.99	2.25	0.19	3.03	0.84	1.39	1.87	2.11	3.17	2.56	1.86	3.64	25.90
	RAIN DAYS	15	16	5	18	6	8	10	13	14	20	13	16	154
	MAX. RAIN IN 1 DAY	0.48	0.55	0.09	0.52	0.45	0.89	0.79	0.37	0.81	0.41	0.61	0.55	0.89
	DATE	29	27	18	10	2	12	15	24	13	26	6	30	June 1
	LONGEST RUN OF CONSECUTIVE RAIN DAYS	3	8	0	5	6	2	6	2	5	7	3	6	
	LONGEST RUN OF CONSECUTIVE DRY DAYS	5	7	17	5	25	5	10	7	8	3	9	6	
	SNOW OR SLEET DAYS	0	0	1	0	0	0	0	0	0	0	0	4	5
	DAYS SNOW LYING	0	0	0	0	0	0	0	0	0	0	0	1	1
VISIBILITY	FOG AT 0900	0	3	4	1	0	0	0	0	3	2	6	11	30
THUNDER-STORM ACTIVITY	DAYS OF THUNDER	1	1	0	2	1	0	1	1	1	2	0	0	10
	DAYS OF HAIL	0	1	0	0	0	0	1	0	0	0	0	0	2
AVERAGES MEAN DAILY TEMPERATURE OF	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	35.3	42.9
	MEAN	39.8	40.4	44.0	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	17	13	13	14	13	11	13	13	13	15	15	17	167

MAN AND NATURAL HISTORY

A shortened version of the Presidential Address, November 1960

By J.F. Newman, B.Sc., F.R.E.S.

A Presidential Address is conventionally broad and general in its outlook and there is no doubt that the title which I have chosen gives me a wide scope. I want to consider the factors which affect the development of natural history, and to look at the part played by human activities.

There is an increasing interest today in natural history, and the increasing membership of this Society is evidence of this. What is it that interests us in these things? So far as I am concerned - and I can really only speak for myself - it is curiosity as to how things work. When I was small, I was always taking things to pieces in order to see how they worked. This sort of curiosity grows, and we must remember that in any aspect of natural history, whether it is an animal, a plant, or a broad view of a pleasant landscape, we are looking at a complex mechanism, and that there is much interest in considering how it works, how it has come to be as it is, and even what is likely to happen next.

The appearance of a landscape, which is a combination of animal, vegetable and mineral, is the result, first, of what has happened in the past, i.e. geology; second, of what is happening now, i.e. climate; and third, to an increasing extent, of how human activities are interfering with it. The result at any one time of the interplay of these various factors, or at least of the first two groups of them, is often spoken of as a "balance of nature", but I think we should remember that the balancing is pretty poor, with violent swings out of balance one way or the other in the populations of animals and plants, producing scarcities or plagues of individual species. It is relevant to my title to remember that at the present time the world is experiencing a plague of man of unprecedented size. How great this is can be illustrated by some figures recently published by Prof. Dudley Stamp on the utilisation of land:-

	Area in acres/person.	
	Total	Cultivated
World	12.6	1.2
U.S.A.	10.6	3.5
England and Wales	0.8	0.5

Let us now take a series of natural scenes and consider the extent to which the various factors have acted in shaping their appearance. The first is the landscape seen from a hill above Settle in Yorkshire, looking north along the line of the cliff of Giggleswick Scar. It is evident that the appearance of the country is different on the two sides of the line. Here we have a scene in which the whole area is affected by man's activities, but

the extent of utilisation is limited by the basic geology. Giggleswick Scar marks a fault line, and to the east of it the limestone uplands provide a poor soil suitable for little but sheep grazing, while in the downthrown area to the west the shales of the Coal Measures provide a soil more suitable for agriculture.

In Reading we are fortunate in living in an area where a considerable diversity of geology and landscape is within easy reach. A picture taken from the air above the middle of the U.S.A. somewhere near Kansas City, shows a more or less featureless alluvial plain extending as far as one can see in all directions, and indeed it does not vary much for a thousand miles in this area. In contrast, in the Reading area we can look at the arable land of the London Clay in the Thames valley, the heathlands of the Bagshot Sand and the grasslands and woods of the Chalk hills. In all these areas, however, the vegetation is by no means natural, if by natural we mean uninfluenced by man. The clay lands are evidently very different from their original wooded state, while the heaths are affected by burning, both intentional and accidental, and by the quarrying of sand and gravel. The original vegetation of the chalk downs is a matter of some discussion, but it was probably somewhat more wooded than the open grassland which we now regard as characteristic. It is likely, however, that none of the present beech woods of the Chilterns represent natural woodlands, as they have been planted and cropped for timber. In recent years, since the rabbit disease outbreak, the influence of the rabbit on the chalk vegetation has been obvious. The rabbit, although it has been with us for a long time, is an introduced species, and hence its effect cannot be regarded as entirely natural.

Apart from agriculture, human activities in quarrying and engineering have produced, in some places, great changes in the natural scene. We may consider two pleasant scenes on the Kennet and Avon waterway, at Burghfield Lock and at Thatcham. This part of the waterway, although based on a natural river, is much modified, and, instead of meandering through marshes in a wide flood plain, is controlled between banks and regulated in level by locks and weirs. Gravel pits and quarries, while at times scarring the landscape, later provide rock exposures of interest to the geologist and, when eventually abandoned, become in the course of years habitats of interest to the botanist and ornithologist.

Man-made reservoirs and lakes may produce great changes in the landscape. At Waggoners Wells, near Haslemere, is a pleasant woodland lake, which was originally a hammer pond made during the exploitation of the wealden iron. Lake Vyrnwy in the mountains of Wales is similarly pleasant, yet it is a completely artificial water reservoir for Liverpool.

So far we have considered modifications of natural habitats produced by the various human activities indicated. There are also some interesting instances where man's actions have resulted in alterations in species, as distinct from alterations in their distribution. In these cases some vari-

ations in the species concerned have proved beneficial in the changed conditions, and selection, whether we regard it as natural or artificial, has resulted in new forms which can thrive in the changed environment.

The best known case of this sort of thing is the development of industrial melanism. This has been described by Kettlewell for the Peppered Moth, Biston betularia, but a number of other species show the same effect to some extent. This moth occurs in two forms, the light coloured one, which was regarded as normal, and the dark carbonaria form. In 1845, in Manchester, the dark form constituted less than 1% of the population, but by 1895 it had risen to 99% of the population. The light form is cryptically coloured to match the lichen-covered bark of trees. In industrial districts the air pollution prevents lichen growth on tree trunks, which instead become blackened. The light moth is easily visible on a dark trunk, while the dark moth is protected by its colour. Kettlewell has published details of an experiment in which observations were made on the numbers of each type of moth recaptured after the release of equal large numbers of each type in two different localities, one near to the industry of Birmingham and the other in rural Dorset. In Birmingham, three times more dark than light were recaptured, while in Dorset three times more light than dark were taken.

Tinbergen has described experiments on the amount of predation by birds on the two types of moth on lichen-covered trees in Dorset. Observations were made on equal numbers of the two types, and 164 attacks on the dark moths were recorded with only 26 on the light ones.

In this case, the replacement of one form of moth by another seems to have taken place over a period of about 50 years. The other best known case of modification of species in response to man's activity is that of the development of insect resistance to insecticides, where the change has become evident much more quickly. Although some relatively minor cases of resistance have been known since the beginning of this century, this effect has been most marked in the last 20 years, since the introduction of potent synthetic insecticides possessing residual activity. In the field of public health, substances such as DDT facilitated great advances in the control of insect-borne diseases, since a single application to leave a minute deposit of insecticide on the inner surfaces of a building gave good mosquito and fly control for several months. With some mosquitoes and flies, such deposits may affect a large part of the insect population, and the survival value of a measure of resistance is evident. In practice, serious resistance in some species of flies and mosquitoes developed in a few years in many different parts of the world.

We have come to think of evolutionary processes as being very slow, and it is true that it is rare for their results to become manifest in a few years. The two cases described are therefore of great scientific interest. From our point of view they are important in showing something of the working of the mechanism which controls the development of the natural history which is our interest.

THE RECORDER'S REPORT FOR ENTOMOLOGY,

1960 - 61

By B. R. Baker

The Recorder is indebted to Mr. W. M. Bunce and Mr. A. Price for kindly supplying many of the records included in the following report, also to the Director of Reading Museum for permission to use the year's entomological records.

Order Ephemeroptera (May-flies)

Ephemera danica Muell. and E. vulgata L. A mass emergence of both these species was noted on the river Kennet at Burghfield Bridge on 14th May.

Order Odonata (Dragon-flies)

Mr. W.M. Bunce has kindly supplied detailed records of dragon-flies noted at Ascot Place. As east Berkshire is apt to be sparsely mentioned in our entomological records the Ascot Place notes are given in some detail.

The habitat

The areas most frequented are two slow-moving streams and the western, most sheltered, edge of the lake. The western stream is the largest and has considerable areas of clear water. It emanates from the lake and the water passes over a weir into a pool and thence into the stream which at first is thick with rushes and reeds, gradually becoming clearer. Greater reedmace, alders and sallows are present in addition to the usual water plants and rushes. The stream passes between fields before widening into a pool in the centre of which is an island well grown with alders. The water then passes over another weir and forms a stream running through woodland.

The northern stream is much smaller than the one described above. Branched burr-reed and water plantain is abundant, the banks are thick with water mint, water forget-me-not, great hairy willow-herb and meadow sweet.

Species Noted

Ischnura elegans (van der Lind.), Common Ischnura.

First seen on 12th May, but not common until 23rd May. This species tends to spend its time "floating" amongst the tall grasses, reeds and rushes at the edge of the lake or stream rather than over the water's edge. Mating observed on 14th June - last specimens seen on 28th August.

Aeshna juncea (L.)

This species was first observed on 29th October by the sheltered western end of the lake. On 1st November a pair was observed in copula and later the female appeared to be ovipositing in stalks of amphibious persicaria. The

pair of these beautiful dragon-flies allowed the observer to pick them up gently - an indication of the reduced activity of the species at November temperatures.

A. grandis (L.), Brown Aeshna.

First seen at the western end of the lake on 6th July when specimens were hawking over the lake edge and rhododendron bank. A number were observed between 20th - 30th August in the same locality - only once was the species observed on the northern stream.

A. cyanea (Muell.), Southern Aeshna.

Teneral specimens were seen hawking in a sheltered drive amongst rhododendrons on 20th August - in this state the blue colouring is not evident. The first blue specimens were observed on 28th and 30th August on the northern stream and at the western end of the lake. A pair was seen in copula on the northern stream on 9th September. This species was observed on several occasions throughout the autumn, the latest date being 23rd October. On this occasion, after examining the specimen through binoculars, the observer was able to approach to within a few inches of the insect without disturbing it.

Anax imperator Leach, Emperor dragon-fly.

This beautiful species was first noted on the western stream on 19th June, and was subsequently seen on many days up to 1st July. A female was observed ovipositing on reed debris on 21st June. At times she would be disturbed by a male and then, when in flight, the abdomen was seen to be retained in a turned-down position.

Orthetrum cancellatum (L.), Black-lined Orthetrum.

The teneral form was first seen in grass by the western stream on 5th June, and again on 14th June. Mature specimens were present on 19th June and mated specimens were seen amongst grasses at the stream side on 20th June. The species appeared to have its peak at the end of the month.

Libellula quadrimaculata L., 4-spot Libellula.

Fairly common on both streams between 18th June and 11th July. A very active dragon-fly and once seen easily identified. A number of 'clashes' were noted between this species and Anax.

L. depressa L., Broad-bodied Libellula.

Not observed in 1961, but present in some numbers in 1960 on the western stream, June 3rd - July 1st. Females were noted ovipositing in a sheltered part of the stream on 19th June and 1st July. The females fly just above the water in more or less one spot and repeatedly dip the tip of the abdomen into the water to wash off the eggs.

Sympetrum striolatum (Charp.), Common Sympetrum.

Very few specimens were observed in 1961. A few were seen on both streams between 9th and 18th September.

Dragon-flies from other localities

Enallagma cyathigerum (Charp.)

Males and females in tandem with the latter ovipositing on hornwort and frogbit, Thames side-stream, 25th June.

Cordulegaster boltonii (Don.), Golden-ringed Dragon-fly.

This impressive species was first noted by the recorder on 11th September, 1957, when a single specimen was taken on the stream in Pamber Forest, Hampshire. In 1961 a number of specimens were observed in the same locality on 9th, 24th and 25th July. C. boltonii is an uncommon species in our area and must be searched for on streams having a gravel bottom.

Aeshna grandis (L.), Brown Aeshna.

Three females ovipositing on Potamogeton natans at Wokefield Common Pond, 16th September.

A. cyanea (Muell.), Southern Aeshna.

Several specimens at Wokefield Common Pond, 16th September.

Cordulia aenea (L.), Downy Emerald.

A single specimen at rest on a pine tree at Wokefield Common, 14th May.

Sympetrum striolatum (Charp.), Common Sympetrum.

A few at Wokefield Common Pond, 16th September.

Sympetrum danae (Sulz.).

Several species in tandem with the females ovipositing, - Heath Pond, near Finchampstead, 24th September.

Order Neuroptera (Lace-wing-flies etc.)

The handsome Osmylus fulvicephalus (Scop.), Giant Lace-wing, was present in good numbers on the Pamber Forest stream during late May and early June. Its well known habit of congregating under bridges was evidenced by the finding of 25 specimens at rest under the concrete bridge on the Bramley Road on 20th May.

Order Lepidoptera (Butterflies and Moths)

Migrant species

The 1961 records are very few:

Herse convolvuli (L.), Convolvulus Hawkmoth.

A male specimen of this impressive migrant was brought into Reading Museum on 7th October. The moth had been picked up in a Reading street.

Macroglossum stellatarum L., Humming-Bird Hawkmoth.

A single specimen was seen feeding on Buddleia in a local garden, at 8.30 p.m. on 9th July.

Rhometra sacraria (L.), Vestal Moth.

Numbers of this occasional migrant were recorded in the southern counties during the autumn, the nearest local record being at Medmenham, Bucks, on 21st September.

Resident Species

Euphydryas aurinia (van Rott.), Marsh Fritillary Butterfly.

The Pamber Forest colony of this colourful little butterfly fluctuates very much in numbers, and specimens appear in different parts of the marshy area from year to year. Freshly emerged specimens were seen on 22nd May in a boggy area on Silchester Common.

Apatura iris (L.), Purple Emperor.

On 24th July a female Emperor was observed at very close quarters in the marsh at Pamber Forest. The specimen, after gliding around the lower branches of an oak tree, flew purposefully into a willow bush where it was observed crawling over the twigs and leaves, finally disappearing in the centre of the very thick growth.

Panaxia dominula (L.), Scarlet Tiger Moth.

Larvae were present in good numbers on 16th April feeding on leaves of comfrey by the banks of the river Kennet at Woolhampton. When the Society visited the area on 24th June several of the brilliantly coloured moths were seen flying over the reed-bed late in the afternoon of a very warm day.

Leucania obsoleta (Hbn.), Obscure Wainscot Moth.

This uncommon species breeds in the Kennet valley reed-beds at Woolhampton and the adults have frequently been recorded at light. The larva spends the winter months in a state of diapause within a piece of reed stubble; all the searcher has to do is to find which pieces of stubble within a reed-bed are tenanted. The only larva yet found by the recorder was discovered on 16th March, 1961 - there still remains plenty of reed awaiting inspection if other members wish to discover an uncommon wainscot hiding in winter quarters.

Parascotia fuliginaria (L.), Waved Black Moth.

A few larvae were discovered on 13th May in the Sindlesham locality (see

Entom. Report 1959/60). The larvae, which are of a sooty black colour with orange warts, feed on the fungus Polystictus versicolor, which grows on stumps and fallen trunks of birch and other trees. The recorder would be glad to hear of any fallen trunks bearing Polystictus which members may discover in the Sindlesham area.

Sesia apiformis (Clerck), Hornet Clearwing Moth.

The best time to observe this impressive hornet-like moth is between 7 and 8 a.m., when newly emerged specimens may be found resting on the trunks of black poplars. Removal of a number of the trees in the neighbourhood of Coley Recreation Ground now leaves the colonies of the moth there confined to only one or two trees. Early-morning inspection of these trees was made daily from 15th June until the end of the month. Many of the inspections made only a very pleasant before-breakfast walk, but on three occasions during the fortnight moths were discovered:-

18th June - 5, 24th June - 1, 25th June - 1.

Dipsosphesia scopigera (Scop.), Six-belted Clearwing Moth.

Most clearwing moths are best obtained by searching the appropriate food-plants for larvae or pupae. The Six-belted Clearwing however is an exception and may best be discovered in the adult stage. The moths fly in sunshine on chalky slopes where there is an abundance of bird's-foot trefoil and kidney vetch, and though resembling small wasps superficially they can readily be recognised by the careful observer. Sweeping the chalk-slope plants is another method of procuring the species - this is best carried out in the evening when the main flight is over. By employing this method, two specimens were obtained on 3rd July and two on 6th July; on each occasion the area worked was the chalk slope at Fawley Bottom.

Order Coleoptera (Beetles)

Halplus ruficollis (Deg.)

Impunctate females found in the only remaining ditch on Coleman's Moor, July 23rd.

Coelambus impressopunctatus (Schaller).

Dimorphic males and females in the only remaining ditch on Coleman's Moor, July 23rd.

Oreodytes rivalis (Gyll.).

Fairly abundant in the River Pang at Bradfield, May 3rd.

Hydroporus marginatus (Duftschmid).

This uncommon beetle was found in the River Pang at Hampstead Norris on June 17th.

Agabus biguttatus (Oliv.).

This very uncommon species was abundant in a fast-flowing part of the River Pang, over gravel, at Hampstead Norris on June 17th, when 50 per cent. of the specimens were teneral.

A. biguttatus (Oliv.).

Four teneral specimens in the gravel of the dry bed of the Pang above Hampstead Norris, July 15th.

On September 10th, 1961, 100 specimens of A. bipustulatus (L.), two of Colymbetes fuscus (L.), and one each of H. planus (F.), H. memnonius Nicolai, H. erythrocephalus (L.) and Copelatus agilis (F.) were found aestivating under bricks and in decaying vegetation in a completely dried-up pond on Wokefield Common. The first three of these water beetles are known to fly readily. Why do they remain in a dried-up pond for several months?

Creophilus maxillosus (L.), Carrion Beetle.

This beetle was found in a photographic shop in Reading on October 3rd 1961. The shop previously belonged to a butcher, which probably explains its presence there.

Tetropium castaneum (L.) and T. velutinum (Lec.).

These Longicorns were found in green spruce sapwood on July 16th 1961. T. castaneum had been imported from Finland and T. velutinum from Canada. Parker Timber Co., Theale.

Order Diptera (Flies)

Oxyna flavipennis (Lw.).

A single empty gall of this Trypetid was found by Mrs. J.F. Newman on the root of yarrow (Achillea millefolium) at Collins End, Oxon., on August 19th. This is believed to be the first record for the area. The fleshy, roughly spherical gall is 9 mm. in diameter and unilocular. The adults are believed to emerge in July.

THE RECORDER'S REPORT FOR ORNITHOLOGY, 1960-61

By E. V. Watson

Members of the N.H.S. interested in a full Report on Ornithology for the Reading area for the period in question are urged to obtain copies of the Reading Ornithological Club Report for 1960 (now available) and for 1961 (in preparation). The R.O.C. Committee has decided to make these reports available to members of the N.H.S. at 2/- each.

This is the place to mention the few records that have reached me direct from members of the N.H.S. The first concerns an almost completely albino Bullfinch which was seen from time to time during the winter of 1960-61, by Mr. C. J. Leeke, at Tilehurst. The bird fed on buds with other bullfinches but was very unusual in colour. It had the usual black primaries and tail except for a white feather in the latter. There were greyish buff feathers forming a patch of light colour on the abdomen-breast region, but the head, nape, neck, mantle, upper breast and lower abdomen were wholly white, as were the wing coverts.

Other records mainly concern summer visitors.

Mrs. A. Fishlock first noted Swifts (7 in number) in London Road on April 30th. Miss E. Nelmes had already noted Cuckoo at Stamford End Mill on April 15th and both Common Whitethroat and Blackcap in the Moultsford Downs area on April 16th. Spring of course came early in 1961 and I had noted my first Chiffchaff on March 18th at Green Dean Wood. Others will doubtless have heard it earlier.

The only other spring record to come in was one of a bird that seems without doubt to have been a Wheatear of the Greenland race, that was observed in Whiteknights Park on mown grass beside the Government Offices, on May 29th 1961. Unfortunately the name of the observer does not accompany my record of this note. Adequate information was given, in my view, to identify the bird. The comparatively large size (which was noted) and the late date make the Greenland race highly probable.

On June 3rd Miss E. Nelmes observed a Grasshopper Warbler by the Icknield Way, between Watlington Hill and the Oxford Road. This summer visitor is thinly distributed in our area.

My own observations have been very discontinuous over the period. The sight of some 60 Lesser Black-backed Gulls in the flooded water-meadows just west of Reading bridge was an unusual feature of late November, 1960. On February 19th a Sheld-duck was seen on Theale gravel pit. It was associated with some 25 Mallard, 35-40 Tufted Duck and 65-70 Pochard. There was one drake Wigeon present. On the same day it was good to hear the song of the Woodlark over the heath at Mortimer.

I was away from Reading for important parts of both spring and autumn migration seasons. It was noticed, however, that the main influx of Turtle Doves in the Streatley area came about May 10th-11th. Members would do well to keep a look-out for the comparatively "new" British bird, the Collared Dove, which has colonised parts of eastern Britain with such startling speed and success in recent years.

Mr. Robert Gillmor informs me that the month of August, as so often, proved the most interesting so far as the less common waders were concerned, in our area. Greenshanks and several other species halting at the gravel pits on passage were seen at that time.

Cirl Buntings were in and around my garden at Cleeve all through the year; and Corn Buntings sang persistently within a stone's throw, at the edge of the barley field across the road. In early July the first rendering of the Cirl Bunting's monotonous song would come at 4.20 a.m. (British summer time).

On September 22nd it was gratifying to see two Barn Owls within a mile of night motoring in the Cleeve area.

A Chiffchaff, heard in song in the University grounds on September 25th, was my last of the year. The day before I had noticed a dozen or so Swallows moving purposefully over Streatley golf course in a southerly direction, in a manner suggesting day-time migration such as one sees rather commonly in autumn at coastal observatories. At the same time, spectacular gatherings of House Martins on the roofs of certain houses in Caversham had been reported to me by the late Professor C. H. O'Donoghue. But the manner of departure too often eludes us; and "last dates" for common species are notoriously hard to obtain.

Note: R.O.C. Reports obtainable from:
Mr. Robert Gillmor, 58 Northcourt Avenue, Reading.

THE RECORDER'S REPORT FOR BOTANY, 1960-61 *

By K. I. Butler

The last months of 1960 marked the advent of the phenomenal mild weather which broke so many records during the year. On November 5th, during the first winter walk of the Society, 60 plants were recorded, and some such as Taraxacum officinale Weber (Dandelion) and Lamium album L. (White Dead Nettle) were in bloom more or less continuously throughout the winter months.

Inroads of civilisation, with consequent building, drainage, disafforestation and improved methods of cultivation, etc., have been taking an increasing toll of many of our local wild plants. It was, therefore, most gratifying to find that at least two localities have remained completely unspoiled for over 20 years. In 1938, I was taken by Mrs. Lamb and Mr. W. A. Fishlock to see Convallaria majalis L. (Lily of the Valley), growing in a wood near Brimpton, and in the same year Narcissus pseudonarcissus L. (Daffodil) in a wood near Peppard. In the spring of 1961, I took one or two members to these same woods and found them quite unchanged, so that we were able to see in the one case extensive beds of the truly wild Lily of the Valley, and in the other, among the beech trees, a ground flora of the wild Daffodil. Another plant which has been delighting members in its original haunt on Hook Common for many years is Gentiana pneumonanthe L. (Marsh Gentian), the first record being given in 1937 by Miss E. Monk.

Several of the Society's Field Excursions proved of particular interest to the botanists.

PICKLING YARD PLANTATION, NEAR MORTIMER, March 6th. This area was visited under the direction of Dr. E. V. Watson to study mosses, and one of our very junior members, Michael Roberts, found Campylopus introflexus, a moss of the southern hemisphere which has successfully invaded southern England.

PADWORTH GULLEY, April 22nd. The gulley was approached this year from Padworth Common, where Mrs. V. N. Paul searched for and found the little Moenchia erecta (L.) Gaertn., Mey & Scherb. (Upright Chickweed), which she has known here for 30 years, also Ornithopus perpusillus L. (Bird's Foot). By the gulley were seen Viola palustris L. (Marsh Violet), Chrysosplenium oppositifolium L. (Opposite-leaved Golden Saxifrage) and Cardamine flexuosa With. (Wood Bitter Cress). Many fine plants of Polygonatum multiflorum (L.) All. (Solomon's Seal) mingled with Endymion non-scriptus (L.) Garcke (Bluebell) were much admired.

* Nomenclature: J. E. Dandy (1958) 'List of British Vascular Plants'.

MONGEWELL WOODS, May 20th. These woods, with their mixture of oak, beech and birch trees, together with planted conifers, will be remembered for the fine plants of Helleborus viridis L. subsp. occidentalis (Reut.) Schiffn. (Green Hellebore) shown us by Mrs. Paul. In a wood near Ipsden Heath, the orchids, Neottia nidus-avis (L.) Rich. (Bird's-nest Orchid) and Ophrys insectifera Huds. (Fly Orchid) were seen.

REMENHAM, June 3rd. Among the characteristic chalk flora on Sham Hill, Tetragonolobus maritimus (L.) Roth (Dragon's Teeth), a handsome alien from continental Europe, has become well established since it was first recorded from there in 1946.

WATLINGTON HILL, June 14th. Many typical plants of the chalk were seen on this steep escarpment of the Chilterns, chief of which was Coeloglossum viride (L.) Hartm. (Frog Orchid); 24 plants were found growing in the short turf. Other chalk-loving plants seen were Iberis amara L. (Candytuft), Arabis hirsuta (L.) Scop. (Hairy Rock Cress), Hippocrepis comosa L. (Horse-shoe Vetch), Cerastium arvense L. (Field Mouse-ear Chickweed) and Helictotrichon pubescens (Huds.) Pilg. (Hairy Oat).

WOOLHAMPTON, June 24th. The banks of the rivers Kennet and Enborne were explored and yielded, among the riverside plants, two species of Water Speedwell - Veronica angallis-aquatica L. and V. catenata Pennell, Thalictrum flavum L. (Common Meadow Rue) and Impatiens glandulifera Royle (Policeman's Helmet). Medicago arabica (L.) Huds. (Spotted Medick), seen on both sides of the Enborne, was a new record for the district.

FUNGUS FORAY, KINGWOOD COMMON, October 7th. At this very successful meeting, 49 species that have not appeared in the previous lists from this area were found.

Mention must now be made of two wrong identifications, one of long standing, the other of this year.

Symphytum tuberosum L. (Tuberous Comfrey) was recorded by Mrs. Edwards in 1945 from Kingston Lisle, and the Society made an excursion there to see it on August 30th 1952. As Symphytum is one of the critical groups, Mrs. E. Hodgson sent a specimen to Mr. A. F. Wade, the expert on the genus, who subsequently identified it as Symphytum grandiflorum DC.

Ononis spinosa L. The spiny plants of Ononis found when the Society visited Streatley Hill on July 15th 1961 and thought to be O. spinosa were afterwards identified as O. repens L.

MEMBERS' RECORDS

Asplenium trichomanes L. (Maidenhair Spleenwort) and

A. adiantum-nigrum L. (Wall Rue). Both continue to grow on a wall at Theale (Mrs. A. M. Simmonds).

Ceterach officinarum DC (Rusty-back Fern). On a wall in Goring churchyard (Dr. M. Fishenden); on a wall at Kingwood Common and one at Maidensgrove Scrubs. Since 1946 it was thought to be diminishing, but Mrs. Simmonds finds it doing well on the other side of both these last walls.

Azolla filiculoides Lam. River Pang, below the Blue Pool (Mrs. Simmonds); in the Sul stream, Sulham (A. Price).

Ranunculus arvensis L. (Corn Buttercup). Track, Berkshire Downs.

R. sceleratus L. (Celery-leaved Buttercup). New gravel pit, Theale (Mrs. Simmonds); River Whitewater, near Riseley Mill (The Recorder).

Myosurus minimus L. (Mouse Tail). On a sandy farm track near Beenham (Mrs. Simmonds); still growing in the garden of Mr. W. A. Smallcombe.

Thalictrum flavum L. (Common Meadow Rue). Swamp near River Thames, Medmenham (J. A. Cole).

Papaver dubium L. (Long-headed Poppy). Many plants bordering path, sand pit, Kidmore Road, Caversham (Mrs. Simmonds).

P. hybridum L. (Round Prickly-headed Poppy). Edge of cornfield, Berkshire Downs (Mrs. Simmonds).

P. argemone L. (Pale Poppy). Field near Arborfield (Mrs. Simmonds).

Fumaria micrantha Lag. Kingstanding Hill, Berkshire Downs (Mrs. Hodgson).

F. vaillantii Lois. Blewbury, abundant (Mrs. Hodgson).

F. parviflora Lam. Near Streatley, two plants (Mrs. Hodgson).

Diplotaxis tenuifolia (L.) DC (Perennial Wall Rocket). Garden weed in Christchurch Road, Reading (Mrs. Simmonds).

Lepidium ruderae L. (Narrow-leaved Pepperwort). New verge on estate, Woodley (Mrs. Simmonds).

Cardamine amara L. (Large Bitter Cress). A large colony at the edge of river in Hillis Meadow, Caversham (Mrs. Simmonds).

Turritis glabra L. (Tower Mustard). An old record at Sandford Mill Lane; on a bank outside bungalow in built-up area, Woodley (Mrs. Simmonds).

Rorippa sylvestris (L.) Bess (Creeping Yellow Cress.). Establishing itself in Hill's Meadow, Caversham; Whitley Park Lane, waste ground; weed at University Horticultural Station (Mrs. Simmonds).

Polygala calcarea F.W. Schultz (Chalk Milkwort). Berkshire Downs, near Aston Tirrold (Mrs. Simmonds).

Hypericum androsaemum L. (Tutsan). Bix Bottom, handsome plants, constituting a new record (Mrs. Paul).

Elatine hexandra (Lapierre) DC. Fleet Pond (Mrs. Paul)

Silene gallica L. (Small-flowered Catchfly). Near Bramshill (Mrs. Simmonds).

S. noctiflora L. (Night-flowering Catchfly). Goring (Dr. Fishenden); arable field near Ewelme (Mrs. Simmonds).

S. dioica (L.) (Red Campion). Wood near Beenham, plentiful; timber yard in Vastern Road, Reading (Mrs. Simmonds).

Saponaria officinalis L. (Soapwort). Chalk pit near Englefield, old record (Mrs. Simmonds); waste ground, Aston Tirrold (The Recorder).

Sagina ciliata Fr. (Ciliate Pearlwort). Near Bucklebury, a large number of plants in a small area (J. Hodgson).

Radiola linoides Roth (Allseed). Wokefield Common, near pond (Mrs. Simmonds).

Geranium lucidum L. (Shining Cranesbill). Near Sandford Bridge Mill, two plants only (Mrs. Simmonds).

Trifolium striatum L. (Soft Trefoil). Coleman's Moor; Raniket Camp, Tilehurst (Mrs. Simmonds).

T. subterraneum L. (Subterranean Trefoil). Aerodrome, Woodley; new grass verge, Woodley (Mrs. Simmonds).

T. micranthum Viv. (Slender Trefoil). Large clumps on new verge, Woodley (Mrs. Simmonds).

Lotus tenuis Waldst. & Kit. ex Willd. (Slender Bird's-foot Trefoil). Abundant on chalk slope, Nuney Green (Mrs. Simmonds).

Astragalus glycyphyllos L. (Milk Vetch). Has survived on the old Bath Road, Fyford (Mrs. Simmonds).

Lathyrus sylvestris L. (Narrow Everlasting Pea). Flourishing at Ashridge Wood, near East Ilsley (Mrs. Simmonds).

Filipendula vulgaris Moench (Dropwort). Abundant on the Berkshire Downs near Aston Tirrold (Mrs. Simmonds).

Potentilla anglica Laichard. (Trailing Tormentil). Several plants, Tilehurst (J. Hodgson).

Crataegus monogyna x oxyacanthoides = C. x media Bechst. Two large bushes, Theale, determined Kew (Mrs. Hodgson).

C. viridis L. Bird-sown in hedgerow, Emmer Green. Determined Kew (Mrs. Hodgson).

Sedum dasyphyllum L. (Thick-leaved Stonecrop). On walls at Marcham (Mrs. Simmonds).

Saxifraga tridactylites L. (Rue-leaved Saxifrage). Abundant on old walls at Wallingford (J. Hodgson).

Ribes sylvestre (Lam.) Mert. & Koch. Ashampstead Common (Mrs. Simmonds).

Myriophyllum spicatum L. (Spiked Water Milfoil). Bear Wood Lake (Mrs. Simmonds).

Petroselinum segetum (L.) Koch (Corn Caraway). Cornfield near Blewbury (Mrs. Simmonds).

Mercurialis annua L. (Annual Mercury). Waste ground, Eastern Avenue, Reading (The Recorder).

Polygonum bistorta L. (Bistort). Meadow near Cholsey; known to Lady Severn for the last 25 years.

Pyrola minor L. (Common Wintergreen). Witheridge Hill (Mrs. Paul).

Anagallis foemina Mill. (Scarlet Pimpernel, blue form). Cornfield near Arborfield (Mrs. Simmonds).

Gentianella germanica (Willd.) Börner (Chiltern Gentian). Fawley Bottom, chalk slope (Mrs. Simmonds); Harpsden Golf Course (Andrew Isherwood); Henley Golf Course (B. & R. Kemp); Earls Wood, Rotherfield Greys; Turville Heath; Fingest; near Watlington Hill (J.A. Cole); Wormsley Valley (Miss E. M. Nelmes).

G. amarella (L.) Börner (Felwort). Berkshire Downs near Aston Tirrold (Mrs. Simmonds); Peppard Common, Oxon., small colony (B. & R. Kemp).

G. anglica (Pugsł.) E.F. Warb. Streatley Warren (B. & R. Kemp)

Nymphoides peltata (S.G. Gmel.) Kuntze (Fringed Water Lily). Bear Wood Lake (Mrs. Simmonds).

Cuscuta europaea L. (Large Dodder). On Scrophularia aquatica L. (Water Fig-wort), Urtica (Nettle), an unidentified crucifer and other unrecorded hosts on an island in the Thames near Scours Lane, July 1961 (Reading School Natural History Society).

Myosotis secunda A. Murr. (Water Forget-me-not). Silchester, Beggar's Marsh (Mrs. Simmonds).

M. caespitosa K.F. Schultz. Coleman's Moor (Mrs. Simmonds).

Verbascum thapsus L. (Aaron's Rod). Many fine plants near Bolton Farm, Mapledurham (Mrs. Simmonds).

Misopates orontium (L.) Raf. (Weasel's Snout). Field near Arborfield; Theale new gravel pit (Mrs. Simmonds); arable field near Bramshill (The Recorder); Garden, Henley (J.A. Cole).

Linaria repens + vulgaris = L. x sepium All. Field near Bottom Farm (Mrs. Simmonds).

Veronica polita Fr. (Grey Speedwell). Garden weed, Caversham (Mrs. Simmonds).

Lathraea squamaria L. (Toothwort). Still growing in hedgerow, Dyson's Wood (Mrs. Simmonds).

Utricularia vulgaris L. (Bladderwort). Blooming in the ditch in a Thames-side meadow, June 25th (A. Price).

Stachys arvensis (L.) L. (Field Woundwort). Field near Arborfield (Mrs. Simmonds).

Nepeta cataria L. (Catmint). Lower Warren, Caversham; near Ewelme; Woodcote-Wallingford road; bridle path, Mapledurham (Mrs. Simmonds).

Galium pumilum Murr. (Slender Bedstraw). Chalk slope, Gatehampton, Oxon. (Mrs. Simmonds).

G. tricornutum Dandy (Rough Corn Bedstraw). Several robust plants, Fair Mile, Wantage (Mrs. Hodgson).

Sambucus ebulus L. (Danewort). Near White Horse Hill (Mrs. Simmonds).

Bidens cernua L. (Nodding Bur-marigold). Coleman's Moor; Riseley Mill; Theale new gravel pit, where it is unusual in being dominant over B. tripartite L. (Mrs. Simmonds); ground of Medmenham Water Research Association (J.A. Cole).

Senecio integrifolius (L.) Clairv. (Field Fleawort). Much more abundant in valley near Aston Tirrold than was previously thought.

Pulicaria vulgaris Gaertn. (Small Fleabane). Was seen again this year at Springwater Farm, Bramshill, although the pond had been drained.

Solidago virgaurea L. (Golden Rod). An abundance of plants on the reservoir in Great House Wood (Mrs. Simmonds).

Cirsium eriophorum (L.) Scop. (Woolly Thistle). Valley near Aston Tirrold; near White Horse Hill (Mrs. Simmonds); Woodcote-Checkenden Road (The Recorder).

Onopordum acanthium L. (Scotch Thistle). Coleman's Moor, one plant (Mrs. Simmonds).

Centaurea cyanus L. (Cornflower). 20 plants in a field off Cane End Road; one plant, Theale new gravel pit (Mrs. Simmonds).

Picris echioides L. (Bristly Ox-tongue). Very well established at Binfield Heath.

Butomus umbellatus L. (Flowering Rush). Near Aldermaston Station (Mrs. Simmonds).

Allium ursinum L. (Ramsons). The colony in Mapledurham Wood has increased greatly (Mrs. Simmonds).

Leucojum aestivum L. (Loddon Lily). The plants at Sandford Mill are being protected by the owner (Mrs. Simmonds).

Epipactis palustris (L.) Crantz (Marsh Helleborine). Will not survive long at Marnell Dell, near Basingstoke, which is being filled in by the B.R.D.C. (Mrs. Simmonds).

E. leptochila (Godfery) Godfery (Narrow-lipped Helleborine). Hartslock Woods (Mrs. Simmonds).

Spiranthes spiralis (L.) Chevall. (Autumn Lady's Tresses). About 100 plants on a lawn near Peppard Common (an old record); half a dozen plants on a lawn at Yattendon (Mrs. Simmonds).

Neottia nidus-avis (L.) Rich. (Bird's-nest Orchid). About 50 plants in Bottom Wood near Harwick House (Mrs. Simmonds); flourishing colony in Hardwick Wood (B. Kemp).

Terminium monorchis (L.) R. Br. (Musk Orchid). Woodhay Downs, Berkshire (Mrs. Simmonds).

Coeloglossum viride (L.) Hartm. (Frog Orchid). Valley near Aston Tirrold (Mrs. Simmonds); scattered over slope between Bald Hill and Beacon Hill, one in long grass (Miss Nelves); Watlington Hill.

Platanthera chlorantha (Custer) Reichb. (Greater Butterfly Orchid). Large numbers of plants near Maidensgrove Scrubs.

P. bifolia (L.) Rich (Lesser Butterfly Orchid). A few plants near Maidensgrove Scrubs.

Ophrys apifera Huds. (Bee Orchid). About 50 plants in a field near Whitchurch (B. Kemp).

Orchis simia Lam. (Monkey Orchid). Two plants in bloom on May 4th, nearly a month earlier than usual (Dr. A.G. Erith); the same two plants, and also the one on the original slope, of which the flower was picked last year, in bud, May 11th (The Recorder).

O. ustulata L. (Dark-winged Orchid). Near Aston Tirrold (Mrs. Simmonds).

O. morio L. (Green-winged Orchid). Over 200 plants at Marlow Common (J.A. Cole); two or three at Burghfield Common (Mrs. Simmonds and the Recorder).

O. mascula (L.) L. (Early Purple Orchid). Woods at Arborfield (Michael Roberts); fine plants in a wood at Emmer Green (B. Kemp).

Dactylorchis maculata (L.) Vermeul. (Spotted Orchid). Colony in wood, Harpsden, Oxon. (B. Kemp).

D. maculata subsp. ericetorum (E.F. Linton) Vermeul. Plentiful at Silchester Common (Mrs. Simmonds).

D. praetermissa (Druce) Vermeul. (Marsh Orchid). 20-30 plants at Woolhampton intermingled with the variety D. pardalina Pugs1. (Leopard Orchid), now no longer considered a species.

Aceras anthropophorum (L.) Ait. f. (Man Orchid). One plant in its old haunt near Berins Hill (Mrs. Simmonds).

Typha angustifolia L. (Lesser Reedmace). Near Pangbourne (Mrs. Simmonds).

Glyceria declinata Breb. (Flote Grass). Coleman's Moor (Mrs. Simmonds).

Festuca rubra L. (Creeping Fescue). Wood by aerodrome (Mrs. Simmonds).

Vulpia bromoides (L.) Gray. (Barren Fescue). Coleman's Moor; King's Meadow (Mrs. Simmonds).

Poa compressa L. (Flattened Poa). Chalk pit, Lower Henley Road (Mrs. Simmonds).

Hordelymus europaeus (L.) Harz. (Wood Barley). Wood at top of Shan Hill, Remenham, Berks. (Mrs. Simmonds).

Helictotrichon pratense (L.) Pilg. (Meadow Oat). Berkshire Downs (Mrs. Simmonds).

H. pubescens (Huds.) Pilg. (Hairy Oat). Berkshire Downs (Mrs. Simmonds).

Phleum bertolonii DC. (Smaller Cat's-tail). Berkshire Downs (Mrs. Simmonds).

INTRODUCED PLANTS

Adonis annua L. (Pheasant's Eye). Still continues to grow on the Berkshire Downs near Blewbury.

Eruca sativa Mill. Garden weed at Calcot Row (Mrs. Simmonds).

Coronopus didymus (L.) Sm. (Lesser Swine Cress). Garden weed at Marcham, also near new buildings in Whiteknights Park, Reading. This species seem to be on the increase inland (Mrs. Simmonds).

Bunias orientalis L. (Warty Cabbage). Few plants on a rough slope near Aston Tirrold (Mrs. Simmonds); old chalk pit near Hunters Ride, Oxon. (J.A. Cole).

Barbarea verna (Mill.) Aschers. (Early-flowering Yellow Rocket). Three plants on a bank near army huts at Cane End (Mrs. Paul).

B. intermedia Bor. (Intermediate Yellow Rocket). By side of road, Cane End; Rotherfield Grey's Green (Mrs. Paul).

Rorippa austriaca (Crantz) Bess. (Austrian Yellow Cress). By side of un-adopted road off Kidmore Road, Caversham (Mrs. Simmonds).

Montia perfoliata (Willd.) Howell (Claytonia). Has almost disappeared from Cintra Avenue, Reading, but has come up abundantly in Elmhurst Road outside St. George's Hall (Mrs. Simmonds).

Impatiens glandulifera Royle (Policeman's Helmet). On island between bridges at Streatley and Goring, on the Berkshire side of the river (Mrs. Simmonds); stream at Tyle Mill (The Recorder).

I. parviflora DC (Small Balsam). Near lake and bridge, Whiteknights Park, Reading (Mrs. Simmonds).

Lupinus arboreus Sims (Tree Lupin). Abundant, Coleman's Moor (Mrs. Simmonds).

Galega officinalis L. (Goat's Rue, French Lilac). Near Friar Park, Henley (Mrs. Paul).

Rosa multiflora Thunb. Abundant near Blewbury. Determined Kew (Mrs. Hodgson)

Polygonum cuspidatum Sieb. & Zucc. (Japanese Knotweed). Sandford Mill Road, Woodley; approach to Station car park, Reading (Mrs. Simmonds); Star Lane, Reading (The Recorder).

P. sachalinense F. Schmidt (Great Knotweed). Near Reading University (Mrs. Simmonds).

Fagopyrum esculentum Moench (Buckwheat). Arable field near Ewelme (Mrs. Simmonds).

Lysimachia ciliata L. Large and flourishing group near Friar Park, Henley (Mrs. Paul).

Verbascum blattaria L. (Moth Mullein). Water Research Association, Medmenham (J.A. Cole).

V. virgatum Stokes (Twiggy Mullein). A number of plants in rough grassland near Newbury Race Course (Mrs. Hodgson).

Scrophularia vernalis L. (Yellow Figwort). Several large and healthy plants near Henley Grammar School (J.A. Cole). This is the first record for Oxon.

Veronica filiformis Sm. Bridle path, Mapledurham - Whitchurch; Old Mill, Aldermaston (Mrs. Simmonds).

Senecio fluviatilis Wallr. (Saracen's Ragwort). Goring-on-Thames, naturalised and well established. (Dr. Fishenden).

Inula helenium L. (Elecampane). Cutbush Lane, Reading, near Horticultural Station (Mrs. Simmonds).

Rubbish tips and waste ground have received their usual attention.

HENLEY RUBBISH TIP (Mrs. Paul)

Chenopodium hybridum L. (Sowbane), a rare and doubtful native; Borago officinalis L. (Borage); Galinsoga ciliata (Ref.) Blake (Gallant Soldier).

READING RUBBISH TIP (Mrs. Hodgson and J. Hodgson)

Raphistrum rugosum (L.) All., one large plant; Amaranthus blitoides S. Wats., two plants; A. retroflexus L. (Pigweed); Oenothera stricta Ledeb. ex Link, an introduced plant usually found on the coast; Nicandra physalodes (L.) Gaertn. (Apple of Peru).

WOODLEY RURAL DISTRICT COUNCIL SEWAGE DUMP (Mrs. Simmonds)

Sisymbrium orientale L. (Eastern Rocket), well established; Stellaria

pallida (Dumort.) Pire (Lesser Chickweed); Geranium pyrenaicum Burm. f. (Mountain Cranesbill); G. rotundifolia L. (Round-leaved Cranebill); G. molle L. (Dove's-foot Cranesbill); G. pusillum L. (Small-flowered Cranesbill).

WASTE GROUND AT THEALE

Sanguisorba officinalis L. (Great Burnet); Artemisia absinthium L. (Wormwood), first recorded some years ago, continues to flourish.

MARKET GARDEN LAND AT DRAYTON ST. LEONARDS, NEAR DORCHESTER, OXON.

Mr. J. Rhodes recorded from here in early October :- Datura stramonium L. (Thorn-apple); Amaranthus retroflexus; Xanthium spinosum L. (Spiny Cocklebur).

Mrs. Simmonds visited the ground on October 28th and in addition to these plants found one plant each of the following weeds of cultivation or introduced plants growing among the crop of Parsnip:- Nicandra physaloides; Physalis ixocarpa Brot. (Tomatillo), similar to P. alkekengi L., but with yellow flowers; Verbascum virgatum. Most of these are "shoddy" species, and it was ascertained that wool shoddy had been used on the field, though not for ten years. Two species of Medicago, M. polymorpha L. and M. arabica were present in great numbers and very lush.

Mr. Price reports news of the following:-

Nitella translucens Ag. Small quantities of this alga in Wokefield Common Fish Pond.

Chara vulgaris L. (Stonewort). In a ditch at Coleman's Moor.

Riccia fluitans This Liverwort once again covers the ditch in Cow Lane, Reading. Last year owing to an increase in the rate of flow of the water, it disappeared.

Another mild autumn in 1961 has accounted for many species being still in bloom in October. Mrs. Simmonds reports 120 plants, most of them at Coleman's Moor, flowering on October 22nd.

In conclusion, the Recorder wishes to thank all those who have contributed to the Report.

FUNGI AT KINGWOOD COMMON

(Supplementary List)

At the Society's Foray in 1961, at which we were privileged to have the leadership of Dr. J. Ramsbottom, 136 species were collected and identified by him. These included the 49 recorded below, which did not figure in the lists of species found in 1945-57 and 1960 published in Nos. 12 and 13 of the Reading Naturalist.

Auricularia auricula-Judae

Boletus tridentinus
variegatus

Clavaria corniculata
inaequalis

Clitocybe ditopus
infundibuliformis

Clitopilus prunulus

Collybia confluens
platyphylla

Cortinarius albocyaneus
calochrous

Entoloma sericeum

Hebeloma mesophaeum

Hygrophorus ceraceus
miniatus
nigrescens

Hypholoma epixanthum

Hypomyces aurantius
roseus

Hypoxyton rubiginosum

Inocybe geophylla
rimosa

Irpex obliquus

Lactarius mitissimus
serifluus
theiogalus

Lepiota seminuda

Leptonia sericella

Lycoperdon gemmatum

Mycena alba
flavoalba
galopoda var. nigra
inclinata
polygramma

Omphalia hydrogramma

Peziza succosa
vesiculosa

Pistillaria quisquilaris

Polyporus adustus
caesius
perennis

Russula albonigra

Scleroderma verrucosum

Sepedonium chrysospermum

Sparassis crispa

Thelephora laciniata

Tricholoma fulvum
sulphureum

GENERAL OBSERVATIONS

HAEMOPIS SANGUISUGA (L.) IN AN UNUSUAL HABITAT

Six specimens of the leech, Haemopis sanguisuga were found in the fast-flowing River Pang above Hampstead Norris. The normal habitat is a pond or ditch.

A. Price.

FROGS SPAWNING IN CAPTIVITY

Two common frogs, Rana temporaria L., were taken in amplexus in the marsh near Earley Power Station and were placed in an aquarium in Redlands Primary School on March 12th. On March 20th, eggs were laid and 40 per cent. of these hatched on March 26th. This is the first time that the writer has succeeded in hatching out spawn which has been laid indoors.

A. Price,

THE NEST OF CREMATOGASTER SCUTELLARIS OLIVIER AT CAVERSHAM MILL

The colony over-wintered successfully, and built up its numbers to a point at which I was able to count over 60 ants visible simultaneously in the vicinity of the nest, and there must have been several times that number in the whole population.

They were in fact all too successful. On my return from a holiday at the end of August I visited the nest, to find that during my absence someone had poured a quantity of creosote into the principal entrance. Not a single ant was in sight. Having had some experience of trying to destroy ants' nests in the past, I thought it worth while to make another visit later on, and found that a number of survivors were still in business and even appeared to be increasing, though not of course to the peak of early summer. I have hopes that the diminished colony will survive another winter, and if they succeed in building up their numbers as they did last year there is no obvious reason why they should not swarm. If they do, the results should be interesting.

Anyone wishing to see the ants should visit them on a warm, damp, windless evening, for it is under these conditions that they emerge in their greatest numbers.

H. Carter

STEREUM HIRSUTUM AT BURNHAM BEECHES

Stereum hirsutum was very abundant in the autumn of 1960. The dead stumps and trunks at Burnham Beeches were literally orange with this fungus at the end of November.

A. M. Simmonds

GERMINATION OF ACORNS

Scores of acorns were seen germinating among fallen leaves on November 27th 1960. Some radicles were 2 in. in length, but plumules had not developed. I do not remember seeing this in other autumns and can only attribute it to the excessively moist weather.

A. M. Simmonds.

COLEMAN'S MOOR - A BOTANIST'S LAMENT*

By A. M. Simmonds

This area, long known and beloved by local botanists, was, until approximately two years ago, in much the same state as when Reading & District Natural History Society published its "List of Flowering Plants" in 1900 and Druce compiled the "Flora of Berkshire" in 1897.

Bounded by Loddon Bridge Road on the north-west, and Coleman's Moor Road (leading from Woodley to Sandford Bridge Mill) on the south-east, and separated from the aerodrome by a wire fence, its 19 acres contained several interesting and contrasting ecological habitats. It lies in a valley through which the Blackwater once ran, and its geology is of the simplest, gravel on London Clay. Intermixed with the gravel are angular Greensand pebbles brought by the Blackwater from the Hindhead district, and rounded, sea-worn pebbles from the clay. Extensive modern gravel-pits were still being worked close by.

At one time, part of Coleman's Moor had been excavated for gravel, but the pits have been disused for 30 years, and the resulting pools of varying depths, with their intervening low-lying spits and banks of gravel showed an interesting flora. The heavy layer of clay below the gravel has made this a natural catchment area, which through the passage of years has supported a succession of colonization species, which has in turn given way to a more permanent flora. Indeed, a scrub of Salix, Betula, and Populus tremula had developed to such an extent that it was becoming impenetrable.

Mosses and Liverworts flourished on the wet gravel, and in the shallower pools Equisetum fluviatile and E. palustre, Alisma plantago-aquatica, Juncus conglomeratus, J. inflexus, J. effusus, J. articulatus, Eleocharis palustris and Ranunculus aquatilis competed with each other, and gradually merged with Lotus uliginosus and Dactylorhiza praetermissa to form a marsh population. Sphagnum and Salix repens had established themselves in one small area, and one felt it was only a matter of time before Drosera rotundifolia made its appearance.

In the deeper pools, rich in organic matter, Potamogeton natans, Myriophyllum and a Chara flourished. Around the edges a typical reed-swamp vegetation of Typha latifolia, Epilobium hirsutum, Iris pseudacorus, Bidens tripartita and the species of Juncus found in the shallower pools had developed. On the high sandy-gravelly banks flanking the old pits on the north-west, a totally different type of plant-life existed. Here were seen such short-

* Nomenclature according to J.E. Dandy (1958), "A list of British Vascular Plants".

lived annuals as Erophila verna, Arabidopsis thaliana, Cardamine hirsuta and the grasses, Aira praecox, A. caryophyllaea and Vulpia myuros.

The centre of the area contained a fairly large pond, fed by a stream from North Lake half a mile westward. Much Typha grew around the edges, and as the years went by this species increased until the pond became almost a reed-swamp with a stream flowing through it. The marsh surrounding ground supported a varied flora:- Triglochin palustris, Scirpus setaceus, Hydrocotyle vulgaris with its round leaves and minute umbels of tiny flowers, Lysimachia nummularia, R. flammula, Valeriana dioica, the delicate Anagallis tenella, Galium palustre, G. uliginosum, Lychnis flos-cuculi and Achillea ptarmica, to mention but a few.

Rough pasture clothed the gradual slopes west and south of this pond, and here, in addition to the usual plants of such a habitat, were found some usually associated with heath conditions:- Molinia caerulea, Genista anglica, Solidago virgaurea, Ulex europaeus and Sarothamnus scoparius. Pteridium aquilinum was increasing rapidly above the spring line ten years ago.

There was a further stretch of reed-swamp with its attendant vegetation north of the pond and adjacent to this was a small spinney - a very damp mixed wood of Corylus, Alnus and Viburnum opulus, where the rich dark loam supported an early spring flora:-

Endymion non-scriptus, Primula vulgaris, R. ficaria, Caltha palustris, Mercurialis perennis, Lysimachia nemorum, Ajuga reptans and Arum maculatum.

To enumerate all the species observed over a period of years would be tedious. On more than one occasion over 100 species were recorded. Every visit seemed to yield something new and exciting. The Order Leguminosae was represented by eighteen species, ranging from the shrubby Lupinus arboreus, to the tiny Ornithopus perpusillus and including the uncommon Trifolium subterraneum. Compositae numbered at least twenty. The individual numbers of some species varied from year to year. T. striatum, another less common clover, was very abundant one year. On the other hand, the tiny Montia fontana was observed on only one occasion, although owing to its small size it could easily have been overlooked.

Parts of the area had been used as a dump for garden refuse and in consequence such plants as Oenothera biennis, L. arboreus and Sedum spp. had established themselves.

Besides being a happy hunting ground for botanists, Coleman's Moor afforded much other biological interest. Ornithologists and entomologists found it very productive and students from schools and the University did much field work there.

All this has been written in the past tense, for, alas, in 1960 the rumours of "plans for development" became unpleasant facts. Early in the year, in preparation for building, Coleman's Moor and the adjacent existing gravel-

pits on the south-west were "levelled". What a scene of desolation now met the eye! The large pond had been drained and filled in; the mounts and hillocks of sand and gravel bull-dozed out of existence, and, except for two or three oak trees, hardly a scrap of vegetation remained. Very little more was done that year and in the ensuing months Dame Nature resumed her sway botanically. On August 21st 1960, two members of the Society spent several hours listing the species which had miraculously survived. The total was 184, not all flowering. It was amazing to see the frail Anagallis tenella creeping about quite happily in the layer of gravel which now thinly covered the rich alluvium in which it formerly dwelt. T. subterraneum was reduced to one plant, and some species had completely disappeared, whilst other previously unrecorded species had taken advantage of so much bare ground and had staked their claim. Many plants which in the face of much competition affect an upright habit now sprawled in all directions, so that one individual plant occupied several square feet.

In November, 1960, lay-out plans for over 350 houses and six shops were being considered by the local Rural District Council, and in the spring of 1961 the work of laying sewers and constructing roads was under way. The work was begun from the Loddon Bridge Road end, and at the time of writing many houses are in course of construction and some already occupied at that end. The stream which fed the now non-existent pond has been partly piped in, but the area nearest Sandford Mill Lane is still as it was last year. From this part it has been still possible to record and collect a large number of the former inhabitants during the summer, and many of these have been displayed in the Natural History Section of the Reading Museum.

It is a matter of more than personal regret that the visit paid on November 2nd 1961 will probably prove to have been the last occasion on which botanical material was collected from this much-loved haunt.

NOTES ON THE MICROLEPIDOPTERA OF THE READING DISTRICT

II. A List of Some Species of Microlepidoptera noted in the Reading Area * By H. L. Dolton

The following is a complete list of the Microlepidoptera that I have taken and bred between 1916 and 1958 inclusive. One of them, Lithocolletis emberizipenella Bouch., had not previously been recorded from the food-plant on which it is here recorded. At the time of writing, in November 1961, Little John's Lane has entirely gone as a result of building and road making, and Wigmore Lane and Scours Lane will soon share the same fate - three happy hunting localities gone for ever.

* Classification: Indexed Check-List of British Lepidoptera, Heslop 1947

Pyralidae

<u>Scoparia dubitalis</u> Hubn.	Sulham	6.6.26	
<u>S. ambigualis</u> Treits.	Sulham	6.6.26	
<u>Donacaula mucronellus</u> Schiff.	Burghfield	26.6.36	
<u>Rhodaria aurata</u> Schiff.	Chester St., Reading	Noted in July nearly every year in garden.	
<u>Hapalia lutealis</u> Hubn.	Little John's Lane, Reading	27.7.41 16.8.47	Fairly common at times
<u>Perinephela sambucalis</u> Schiff.	Chester St., Reading	19.6.40 2.7.47	
<u>Microstega hyalinalis</u> Hubn.	Sulham	18.7.34	Could be taken almost every year
<u>Psammotis crocealis</u> Hubn.	Hardwick	8.7.32	
<u>Mesographe forficalis</u> L.	Reading	19.5.52	
<u>Pyralis farinalis</u> L.	Chester St., Reading	17.7.58	
<u>Crambidae</u>			
<u>Pempelia dilutella</u> Hubn.	Sulham	10.8.36	
<u>Dioryctria palumbella</u> F.	Pamber Forest	6.7.35	
<u>Ephestia sericarium</u> Scott	Reading	1937	
<u>Myelois cribrella</u> Hubn.	Little John's Lane, Reading	28.6.52	Larvae in thistle stems
<u>Euzophera suavella</u> Zinck.	Messrs. Suttons, Reading	1944	Larvae on <u>Cotoneaster</u> <u>frigida</u>
<u>Aphomia sociella</u> L.	Reading	27.6.49	From larvae in bicycle shed
<u>Crambus pascuellus</u> L.	Pamber Forest	28.7.34	
<u>C. pratellus</u> L.	Pamber Forest	17.5.33	

<u>C. perlellus</u> Scop.	Pamber Forest	5.6.32	
<u>C. inquinatellus</u> Schiff.	Sulham	19.7.34	
<u>C. tristellus</u> F.	Pamber Forest	3.8.33	
<u>Choreutidae</u>			
<u>Anthophila fabriciana</u> L.	Reading	25.5.25	
<u>Pterophoridae</u>			
<u>Platyptilia gonodactyla</u> Schiff.	Scour's Lane, Reading Tilehurst Burghfield	7.5.53 23.5.54 1944	} Fairly plentiful
<u>Alucita pentadactyla</u> L.	Reading	2.9.53	
<u>Emmelinea monodactylus</u> L.	Tilehurst	7.8.34	Larvae common
<u>Psychidae</u>			
<u>Talaeporia pseudobombycella</u> Hubn.	Sulham	1939	Larvae on beech trunks.
<u>Phaloniidae</u>			
<u>Lozopera dilucidana</u> Steph.	Scour's Lane, Reading	1.5.54	
<u>Euxanthia zoegana</u> L.	Sulham	18.7.34	
<u>E. hamana</u> L.	Woodley	13.6.34	Near aerodrome
<u>Tortricidae</u>			
<u>Cacoecia podana</u> Scop.	Reading	21.6.47	
<u>C. crataegana</u> Hubn.	Sulham	25.5.52	
<u>C. pronubana</u> Hubn.	Reading	1942	Common on un-cut privet
<u>Pandemis corylana</u> F.	Sulham	17.7.38	
<u>Tortrix forsterana</u> F.	Pangbourne Reading	19.5.52 30.5.52	Larvae on ivy between leaves
<u>T. costana</u> F.	Little John's Lane, Reading Thatcham	12.6.53 3-10.6.54	From larvae

<u>Argyrotoxa bergmanniana</u> L.	Reading	7.6.53 18.6.53	Very common on rose
<u>Peronea schalleriana</u> L.	Pamber Forest Peppard Common	- 12.8.33	
<u>P. cristana</u> F.	Maidenhead Thicket Peppard	1943 1944, 1945	
<u>P. hastiana</u> L.	Burghfield Bridge	28.9.37	In osier bed
<u>Eucosmidae</u>			
<u>Evetria buoliana</u> Schiff.	Burghfield Pamber Forest	24.6.44 " "	Larvae. Several could be taken each year
<u>Ancylis lundana</u> F.	Wigmore Lane, Reading	26.7.49	
<u>Bactra lanceolana</u> Hubn.	Pamber Forest Sulham Woodley	5.6.32 9.6.32 8.8.32	
<u>Endothenia gentianana</u> Hubn.	Southcote, Reading	13.7.36	This locality is now all built over
<u>Argyroploce betuletana</u> Haw.	Wellington College Wigmore Lane, Reading	23.8.31 9.6.53	
<u>A. nubiferana</u> Haw.	Little John's Lane, Reading	31.5.52	
<u>A. pruniana</u> Hubn.	Little John's Lane, Reading	13.6.31 11.5.53	
<u>Notocelia aquana</u> Hubn.	Chester St., Reading	11.6.42 3.6.52 15.6.53	
<u>Eucosma pflugiana</u> Haw.	Burghfield	20.5.35	
<u>E. penkleriana</u> F.R.	Reading Hardwick	1936 1934, 1936	On fence round Prospect Park
<u>E. brunnichana</u> L.	Burghfield	23.5.45	A single specimen
<u>Pammene argyrana</u> Hubn.	Burghfield	19.4.35	

<u>P. regiana</u> Zell.	Kensington Road, Reading	4.7.55	
<u>Laspeyresia woeberriana</u> Schiff.	Reading	8.6.45	A single specimen
<u>L. aurana</u> F.	Tilehurst	16.7.54	
<u>L. pomonella</u> L.	Reading	8.6.54	Common in apple orchards. Now gone in Little John's Lane
<u>L. perlepidana</u> Haw.	Wigmore Lane, Reading	20.5.53 25.4.55	
<u>Gelechiidae</u>			
<u>Metzneria metzneriella</u> Staint.	Tilehurst	7.7.54	From larvae
<u>Phthorimaea maculea</u> Haw.	Headley, Hants	June 1953	Larvae
<u>Anacampsis populella</u> Clerck	Wigmore Lane, Reading	18.6.53	
<u>Cosmopterygidae</u>			
<u>Cosmopteryx eximia</u> Haw.	Little John's Lane, Reading	12.8.47	From larvae
<u>Mompha lacteella</u> Steph.	Reading	1952	Very common most years
<u>M. fulvescens</u> Haw.	Little John's Lane, Reading	30.6.52	Fairly common at times
<u>M. ochraceella</u> Curt.	Little John's Lane, Reading	1946	Fairly common at times
<u>Oecophoridae</u>			
<u>Oecophora geoffrella</u> L.	Sulham	29.5.44	Twice only, in same year
<u>Dasycera sulphurella</u> F.	Chester St., Reading	13.5.54	In old decayed willow trunks.
<u>Cheimophila salicella</u> Hubn.	Reading	2.7.47	

<u>Diurnea fagella</u> F.	Burghfield, Sulham, Hardwick.	April	Common most years. Also the dark forms
<u>Depressaria heracliiana</u> Deg.	Tilehurst	August 1958	Larvae
<u>D. assimilella</u> Treits.	Wellington College	16.6.36	
<u>D. arenella</u> Schiff.	Wellington College	16.6.36	
<u>Heliodinidae</u>			
<u>Pancalia leuwenhoekella</u> L.	Sulham	30.6.34	
<u>Elachistidae</u>			
<u>Elachista cerusella</u> Hubn.	Pamber Forest Little John's Lane, Reading	- 1944) Plentiful most years in larval stage
<u>E. argentella</u> Clerck	Burghfield Sulham	- 14.6.54	
<u>Hyponomeutidae</u>			
<u>Argyresthia brockeella</u> Hubn.	Burghfield	27.7.38	
<u>Hyponomeuta padella</u> L.	Thatcham	28.6.52	
<u>H. cognatella</u> Hubn.	Oxford Rd. Reading	7.8.54	
<u>Roeslerstammia pronubella</u> Schiff.	Chester St. Reading	5.9.55	Larvae on apple
<u>Coleophoridae</u>			
<u>Coleophora alcyonipennella</u> Koll.	Headley, Hants	25.5.53	
<u>C. limosipennella</u> Dup.	Reading Purley	14.7.45 1953	3 larvae
<u>C. solitariella</u> Zell.	Headley, Hants	25.5.53	Larvae
<u>C. discordella</u> Zell.	Tilehurst	25.5.53	
<u>C. lineolea</u> Haw.	Little John's Lane, Reading	1956 1958	Larvae

<u>C. caespititiella</u> Zell.	Tilehurst	1.6.58	6 larval cases on <u>Juncus</u> sp.
<u>Gracillariidae</u>			
<u>Lithocelletes</u> <u>cramerella</u> F.	Little John's Lane & Scour's Lane, Reading	May and June 1957	Larvae on oak
<u>L. messaniella</u> Zell.	Chester St., Reading Little John's Lane & Scour's Lane, Reading	8.6.45	From larvae on oak
<u>L. alnifoliella</u> Dup.	Thames bank near Scour's Lane, Reading	19.10.57	Mines on alder
<u>L. coryli</u> Nic.	Little John's Lane & Scour's Lane, Reading	- 14.4.53, 25.4.53, April 1957	From larvae on hazel
<u>L. spinicolella</u> Zell.	Little John's Lane & Scour's Lane, Reading	13.5.53 April 1957	From larvae on wild plum
<u>L. concomitella</u> Bankes	Little John's Lane & Scour's Lane, Reading	April 1957	From larvae on apple
<u>L. blancardella</u> F.	Wigmore Lane, Reading Chester St., Reading	20.3.54 19.10.57	From larvae. Larvae on apple
<u>L. oxyacanthae</u> Frey	Little John's Lane, Reading	30.7.49	From larvae on hawthorn
<u>L. emberizipennella</u> Bouch.	Scour's Lane, Reading	8.4.55	From larvae on snowberry
<u>L. corylifoliella</u> Haw.	Little John's Lane & Scour's Lane, Reading	April 1957	From larvae on hawthorn
<u>L. viminetorum</u> Staint.	Wigmore Lane, Reading	Sept. 1943	Very local on osier
<u>L. viminiella</u> Staint.	Wigmore Lane, Reading	Sept. 1943	Very local on osier

<u>L. schreberella</u> F.	Purley Scour's Lane, Reading	14.8.49 1.5.53	From larvae Mines on elm
<u>L. trifasciella</u> Haw.	Pamber Forest Sulham	1944 } 1944 }	in Mines in Honeysuckle
<u>L. tristrigella</u> Haw.	Little John's Lane & Scour's Lane, Reading	April 1957	Mines in elm
<u>Acrocercops brongniartella</u> F.	Pamber Forest	15.6.56	From larvae on oak
<u>Ornix guttea</u> Haw.	Little John's Lane, Reading	12.8.47	Larvae on apple
<u>Gracillaria syringella</u> F.	Reading.	Very common and noticed most years on lilac and privet	
<u>G. tringipennella</u> Zell.	Sulham Shiplake Tilehurst	21.5.52 } 23.5.52 } 22.5.54 }	On plantain
<u>G. alchimiella</u> Scop.	Sulham	17.5.33	
<u>G. stigmatella</u> F.	Wigmore Lane, Reading Little John's Lane, Reading	4.9.49 6.9.55	
<u>Epermeniidae</u>			
<u>Epermenia chaerophyllella</u> Goeze	Little John's Lane, Reading	1938	From larvae on <u>Heracleum</u>
<u>Plutellidae</u>			
<u>Eidophasia messingiella</u> F.R.	Reading	9.7.16	Once only and one only
<u>Ypsolophus xylostellus</u> L.	Pamber Forest Sulham Burghfield	12.8.36 } 1939 } 1944 }	Very common at times on honey- suckle
<u>Y. radiatellus</u> Don.	Reading	8.6.54	
<u>Y. sequellus</u> Clerck	Tilehurst Shiplake	6.7.42 9.8.42	

<u>Plutella maculipennis</u> Curt.	Reading	20.7.54	Very Common
<u>Lyonetiidae</u>			
<u>Lyonetia prunifoliella</u> Hubn.	Tilehurst	24.9.46	
<u>L. clerkella</u> L.	Chester St., Reading	11.9.46	
	Little John's Lane, Reading	10.9.46	
<u>Bedellia somnulentella</u> Zell.	Little John's Lane,) Reading)	24.9.43, 17.8.45	Local larvae on greater and lesser bindweed
	Purley)	-	
	Tilehurst)	-	
<u>Tineidae</u>			
<u>Scardia boleti</u> B	Reading	2.3.54	One only
<u>Monopis weaverella</u> Scott	Pamber Forest	25.3.34	Larvae
<u>M. ferruginella</u> Hubn.	Chester St., Reading	24.6.52	
<u>Tineola biselliella</u> Hum.	Chester St., Reading	1946	
<u>T. parasitella</u> Hubn.	Sulham	19.5.44 29.5.54	
<u>Lamproniidae</u>			
<u>Incurvaria muscalella</u> F.	Sulham	18.4.38	
<u>Adelidae</u>			
<u>Adela cuprella</u> Thumb.	Streatley Hill Sulham	14.7.45 -	Plentiful at times
<u>Nepticulidae</u>			
<u>Nepticula aurella</u> Staint.	Tilehurst	3-12.5.54	From larvae
<u>Micropterygidae</u>			
<u>Mnemonica unimaculella</u> Zett.	Finchampstead Ridges	1916	
<u>Micropteryx aruncella</u> Scop.	Thatcham	18.5.54	Very plentiful

OBSERVATIONS ON HYGROBIA HERMANNI (F.) IN
CAPTIVITY

By H. Carter

Under the English name of "Screech Beetle" this interesting little insect has long been familiar to "Pond-wallopers" of all degrees as well as to coleopterists.

Although it thrives, and will even breed, in very restricted quarters, I have never come across any connected account of its life history since Balfour-Brown's paper of 1922, which is largely morphological but includes some observations on feeding, respiration and pupation. These notes can hardly claim to make good the deficiency, but may encourage others to repeat an easy and fascinating experiment and compose a more adequate natural history of Hygrobia.

The larva is a shrimp-like creature, marked with a pattern of black and white which changes from instar to instar. It has the typical sickle-shaped mandibles of a carnivorous water-beetle larva, but is unusual in possessing two rows of gills along its underside and three long tail-filaments.

Some 40 of these larvae appeared in a tank in Reading Museum housing adult Screech Beetles. I had seen two of the adults apparently in copula not long before, but it is possible that the eggs were introduced with fresh weed which I put in about that time. The larvae swam rapidly about the tank with a crawling motion of their legs, which like those of many other swimming insects bear a fringe of stiff hairs. When hungry they swam or crawled close to the bottom until they encountered a Tubifex worm about an inch away, and then stalked it cautiously until they were able to seize it by a sudden lunge of the head, which was normally tucked closely against the prosternum. Sometimes this lunge was accompanied by a forward dart of the whole body. In either case the prey was seized between the mandibles and speedily swallowed. Balfour-Brown studied the swallowing process in great detail, concluding that the worm was in fact sucked in whole. This contrasts with the feeding habits of Dytiscid larvae which suck the juices of their prey. This, being mainly arthropod, has of course much more indigestible residue than an Annelid.

When not feeding, the larvae spent much of their time resting in clusters on floating plants and snail shells, head upwards or in the normal swimming posture. Only once did I see one suspended from the surface film by its tail filaments, though these sometimes touched the surface when the larva was standing in very shallow water. Within three seconds at most after coming to rest they began respiratory movements, holding on with three legs and using the other three to send a current of water over their gills. The anterior and posterior legs of one side always operated in conjunction with the middle leg of the opposite side, as in the normal walking movements of insects, at least in rapid motion. I never saw any other combination of legs in use, though the shortness of the anterior pair made observation difficult.

Counts of "Two right, one left" and "Two left, one right" came out approximately equal, but I was unable to determine whether individuals were consistently right- or left-footed.

All the aforementioned activities continued unchecked right up to the time when the larvae began to leave the water to pupate. This presented some practical difficulties which I was unable to overcome successfully. Like other water-beetle larvae, they require to bury themselves in soft but not water-logged soil. Under natural conditions there must be a wide range of dampness and texture to choose from, and my problem was to offer as wide a choice as possible within a small compass. This I attempted by filling an enamel photographic dish with dry soil to about two-thirds of its length, with a retaining wall of stones, raising the "Landward" end 4 cm. and filling the "Pondward" end almost to the brim with water. Into the "Pond" I emptied the whole stock of larvae, most of which were now full-grown. Those which were ready to do so soon made their way ashore, and after an hour or two of exploration dug small round holes in the drier, more friable spots, leading to oval cavities about 15 mm. long by 10 mm. wide by 10 mm. high. In due course others followed them, but the majority died, no doubt from overcrowding as much as from any other cause, before leaving the water.

Since mould is one of the principal enemies of pupae in captivity, I dug out four pupae and kept them on a shelf over water, covered by a sheet of glass. They were in a saturated atmosphere, but out of contact with soil containing fungal spores. One emerged successfully, creamy white at first but darkening and hardening to normal beetle complexion in 24 hours.

The rest wriggled themselves into the water, and although rescued while still alive they died soon afterwards without expanding their wings. Of those which were left undisturbed in the soil, two more emerged successfully, a total of three from over 40 larvae. All the survivors came from the extreme landward end of the tray, and obviously pupation goes best under rather drier conditions than I had aimed at.

The adult beetles are absurdly pot-bellied little creatures, whose habits in many ways resemble those of the larvae. They are air-breathers, however, carrying a large bubble attached to the tips of the elytra and abdomen. This they replenish at intervals from the surface, and are able to withdraw under the elytra when at rest (though this is not often done) or during copulation when its presence might well prove an embarrassment.

Like the larvae, they take Tubifex from the bottom, but their approach is less stealthy, for they command a sufficient turn of speed to achieve surprise without stalking. When a layer of fine sand was laid on the floor of their tank they could be seen ploughing through it with heads buried and tails aloft hunting for worms, and according to Balfour-Brown this is their natural mode of feeding. The same attitude, head downwards but not quite vertical, is often adopted at rest, encouraged no doubt by the shortness of the front legs and the buoyancy of the air bubble.

Balfour-Brown states that Tubifex is the sole diet of the larva, and ~~this~~ may well be true of the adult also. I have never met with a case of cannibalism, so common with Dytiscus.

The stridulation which they employ when netted or taken in the hand out of water is also plainly audible when they are submerged. In Balfour-Brown's opinion it is a way of expressing annoyance, but mine appeared to use it in courtship. Perhaps the discrepancy is more apparent than real.

His specimens, which he kept separately, remained buried for 11 days before pupating, and emerged after a further 16 days. I was unable to keep track of individuals, but my beetles emerged within a maximum of three weeks after burial.

Finally I must express my gratitude to Mr. Arthur Price, doyen of Berkshire pond-wallopers, for specimens, suggestions and advice.

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COLEY PARK HERONRY: A STUDY IN SURVIVAL

By Arthur G. Bourne

Coley Park Heronry became an interesting study in the relationship between man and heron following the recent encroachment of the new buildings, and, in particular, the large blocks of flats that now dominate the scene at Coley.

Already some attempts by the herons to adapt themselves to the new situation have been observed (1), but this ability must have its limitations and it is interesting to try and find out what they are.

It might help if we start our study by examining the evolutionary background of the Order Ciconiiformes, which includes the Sub-order Ardeae to which the herons belong (fig.1) (2), and by so doing we may gain some insight into their ability to cope with the new situation in which they find themselves.

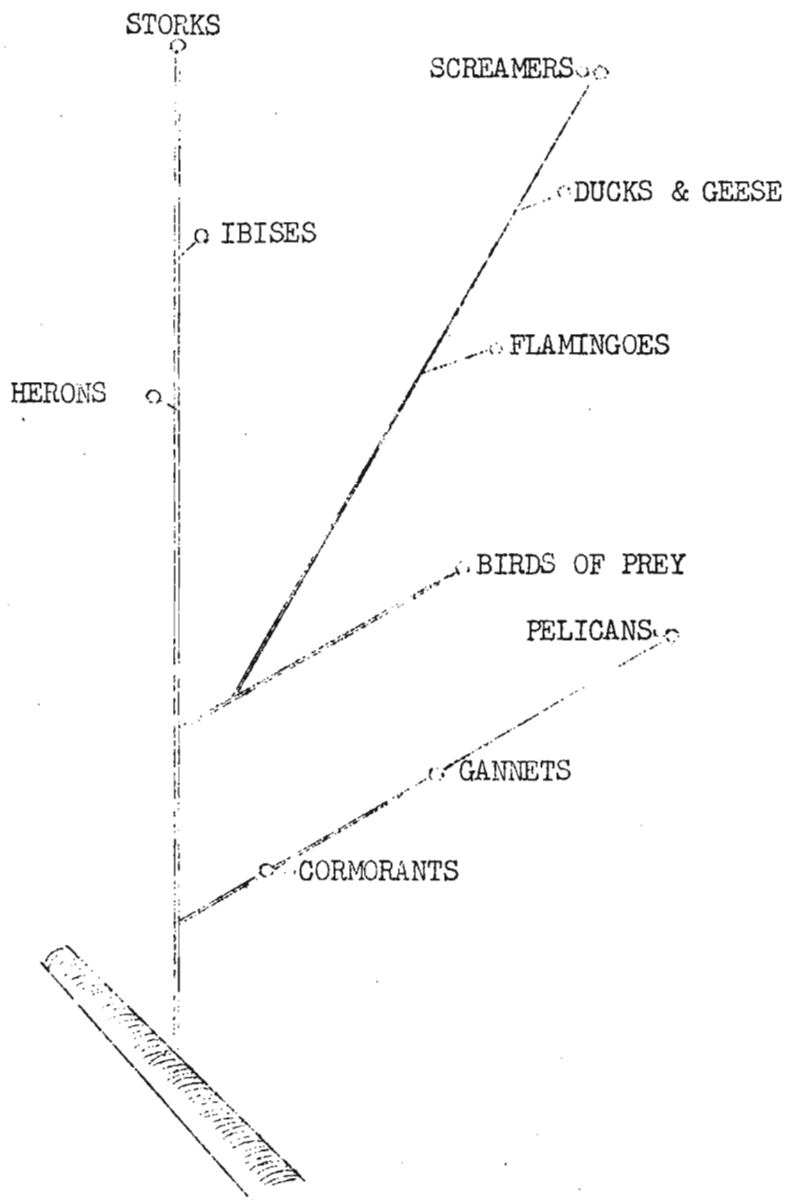
Hérons have lived in close association with man for thousands of years and have entered into the fabric of the folk-history of many nations (3). Their own history, however, goes back many millions of years and starts obscurely some one-hundred million years ago during the Cretaceous period, when we find in Denmark two species belonging to a now extinct family, *Scaniorhynchidae*, showing relationships to both the herons and the flamingoes (4).

By the time of the Eocene, some 70 million years ago, herons and flamingoes were recognisable as belonging to the families living today.

The Ciconiiformes have branched out into a number of successful families and have claimed for themselves a world-wide distribution (fig.2). Few places are without representatives of the Order, even the far away Galapagos Archipelago has a subspecies of the North American Heron. It is obvious that they constitute a very plastic group; a group that shows a variety of specialisation based on a single form, living for the most part in marshes, feeding on aquatic animals, nesting usually in colonies. All are strong flyers, and some perform extensive migrations. It is this habit of living near shallow water that has been responsible for such fossil evidence of their lineage that we have, the habitat being ideally suited for the formation of fossils. The London Clays have preserved for us one of two Eocene fossils (*Proherodias* - a heron), and the Parisian Clays, the other (*Agnoptera* - a flamingo).

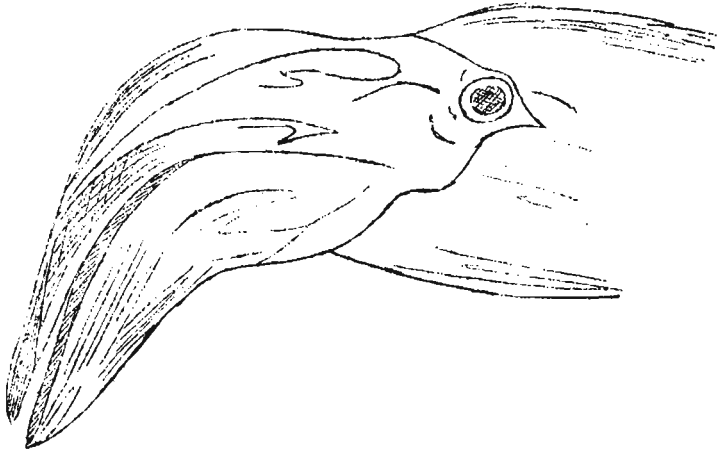
The early specialisation in some of the groups making up the Order has been at once their strength and their weakness, for on the one hand it has, while the climate was suitable and the lakes and marshes were plentiful, ensured an abundant supply of food, both for the young and the adult birds,

Fig.1.

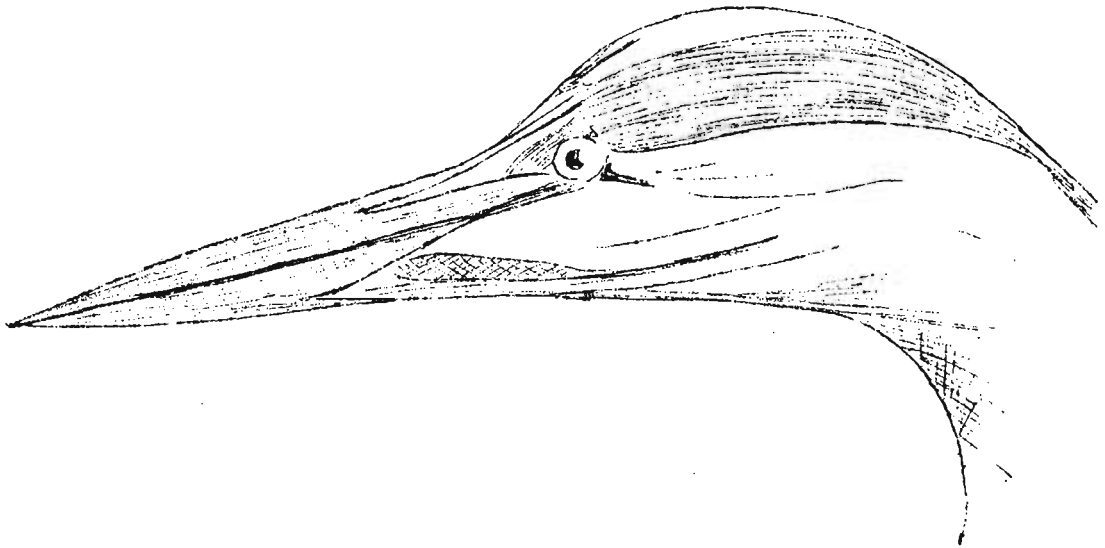


THE EVOLUTIONARY AFFINITIES OF THE ARDEAE.
(Adapted from Fisher, 1941).

Fig.3. SPECIALISATION AND VERSATILITY IN BEAK FORMS.



(1). THE GREATER FLAMINGO (*Phaenicopterus ruber* Linnaeus).



(2). THE GREY HERON (*Ardea cinerea* Linnaeus).

BEAK FORMS IN TWO MEMBERS OF THE CICONIIDAE.

(1). The highly specialised beak of the flamingo contrasts vividly with the versatile 'dagger' of the heron (2).

throughout the season. But, on the other hand, when climatic conditions changed, as they did during the Pleistocene, and later when man made inroads into their habitats by draining the ponds and marshes, they have been unable to cope with the new situation, and have either ceased to exist or, at best, have retreated from their former areas.

An excellent example of where specialisation has led to exceptional efficiency, whilst imposing severe limitations on habitat choice, is given by the Greater Flamingo (Phoenicopterus ruber Linnaeus). This bird has evolved a highly efficient filter system of the bill and tongue (fig. 3) enabling it to strain small crustaceans, particularly the brineshrimp (Artemia sp.), and other small aquatic animals from the brackish waters of the lagoons, estuaries and river deltas in which it lives. The limited habitat is largely responsible for the discontinuity found in the flamingo's distribution; it also follows, therefore, that in the event of drainage or other alteration to the habitat, whether it be by man or natural causes, this discontinuity will increase and the distribution area will contract with the resultant decline in population. This has indeed happened in historical times through the disturbance and destruction brought by man in many parts of the world, so that today the distribution of the Greater Flamingo (fig.4) is only a relic of what it was not so very long ago.

Fig.4.



DISTRIBUTION OF THE GREATER FLAMINGO

On the other hand, the Cattle Egret (Bubuleus ibis (Linnaeus), which is closely related to the herons and bitterns, is seemingly only just exploiting its potential as a successful species. This bird, previous to 1910, was confined to the Old World, centred on Africa. Some time shortly after that year, it was recorded in South America, presumably having found its own way across the Atlantic, and there seemed good evidence for this possibility in the fact that it had often been reported from St. Helena, an island in the Atlantic, midway between the two continents.

Since then, it has expanded its territory explosively, spreading in the New World (fig. 5), both to the north and the south, and it is now well established in several states in North America, it has colonised Bermuda, and has been found as far north as Newfoundland.

Its success is obviously due to lack of native competitors in a ready-made ecological 'niche', living as it does on insects disturbed by browsing cattle (5).

We have here then two extremes, one of which shows that over-specialisation has halted the species, which is possibly now, unless we can ensure rigorous protection, on the road to extinction. The latest estimations of the total Greater Flamingo population in the western world are between 25 and 30 thousand (6). On the other hand we have a bird belonging to the same group which is still showing adaptability and the potential to utilise opportunities when they arrive.

In between these extremes, we have the herons. Closely related to the Cattle Egret, and though they have gone some way to a specialised living in that they feed almost entirely on aquatic animals such as fish, amphibians, small mammals and invertebrates, they are by no means as restricted as the flamingo; they have an extensive world distribution (fig.6), and are showing great adaptability to a changing environment by extending their range, particularly in North-western Europe as the climate in that part of the world ameliorates.

In America the Grey Heron (Ardea cinerea Linnaeus) is replaced by two species, the Great Blue Heron (Ardea herodias Linnaeus) in the north, and the White-necked Heron (Ardea coccyi Linnaeus) in the south. Some workers consider that the two American herons and the Grey heron together constitute a 'superspecies' as they are obviously very closely related. Though herons normally nest in tall trees, they will, when necessary, breed in low bushes and when neither of these is to be found they have taken to nesting in reeds (Italy); they are found from sea-level to over 11,000 at the eastern end of their range, and, as mentioned earlier, one subspecies of the Great Blue Heron of North America is the wholly marine heron (Ardea herodias cognata) of the Galapagos Islands.

This short survey of the Ciconiiformes gives the impression of a still vigorous group, and of the heron and egrets particularly so, but for all this

Fig.5.

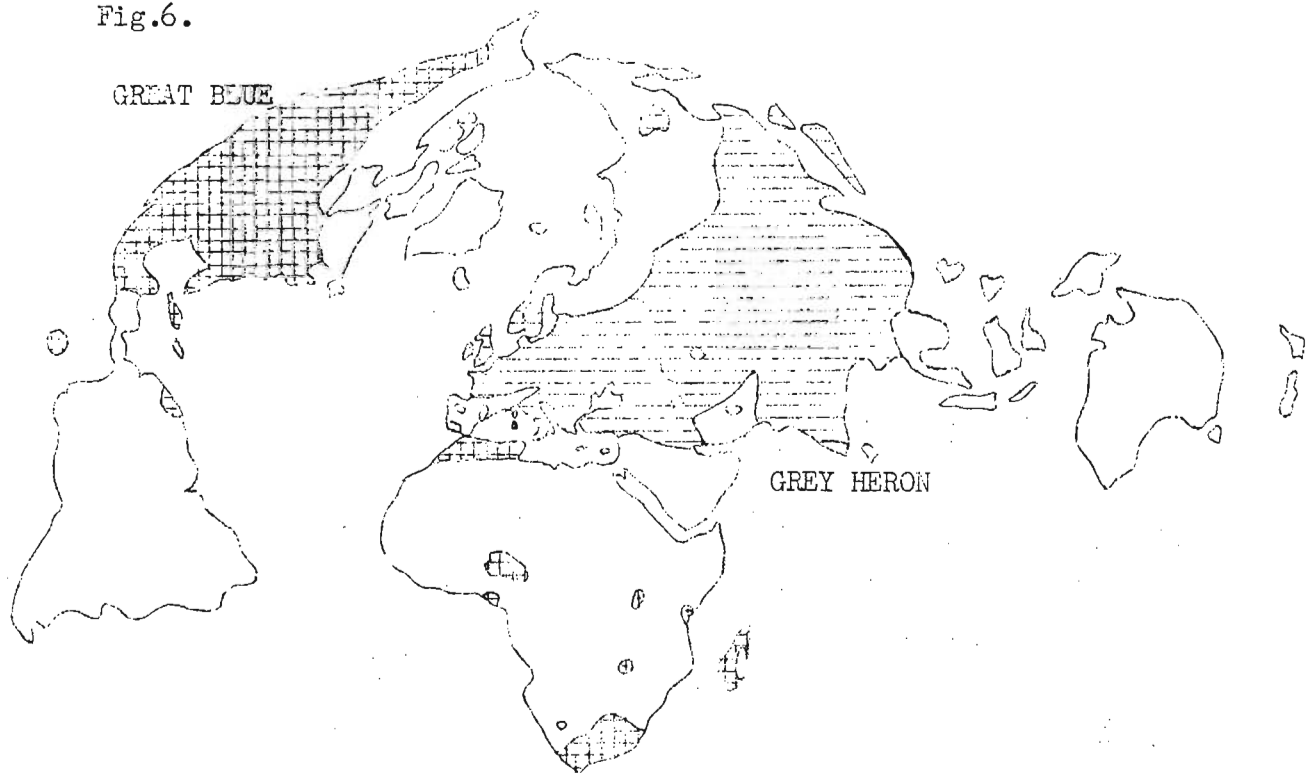


DISTRIBUTION OF THE CATTLE EGRET

Fig.6.

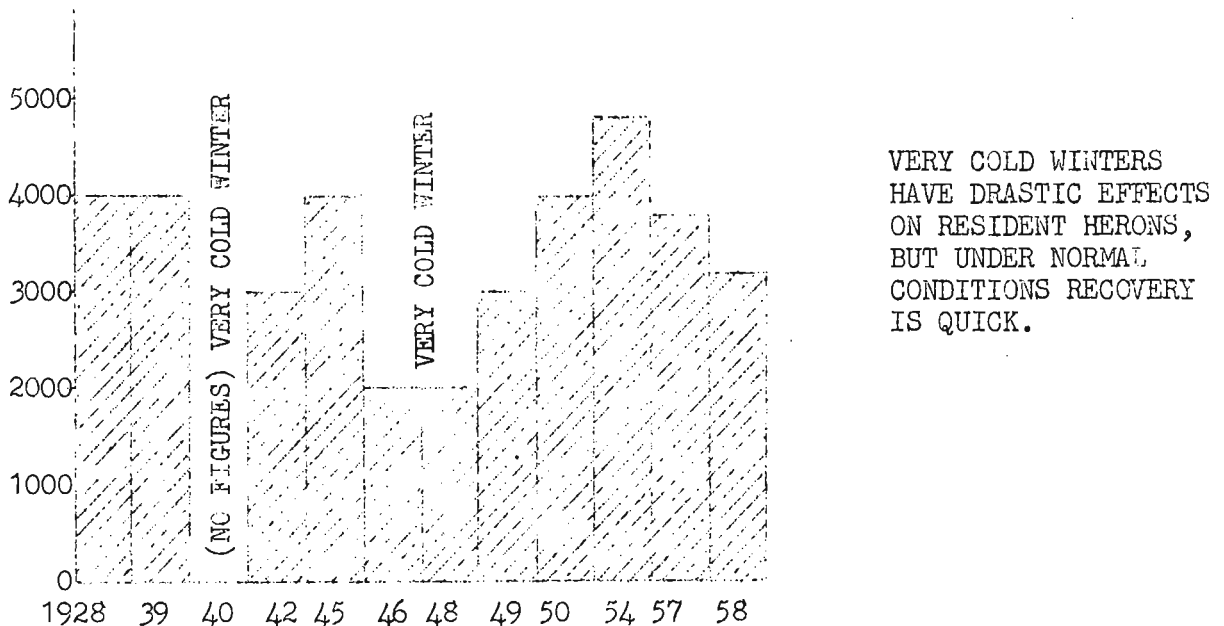
GREAT BLUE

GREY HERON



great potential the Grey Heron does show signs of retreating from some parts of its former range, and the pattern may well be similar to that which the flamingo underwent in the early stages of its retreat, and what many of the Ciconiiformes, including the White Stork (*Ciconia ciconia* Linnaeus) and several of the Ibises, are sharing today. In many parts of Western and Central Europe, the heron has completely or almost disappeared as a breeding species.

Fig.7.



In the British Isles only local and, in some cases, temporary decreases have been noticed and from Fig.7 the only factors that can be in any way related to a decline in population are the severe winters of 1940 and 1947, from which, however, the birds seem to recover fairly successfully. What then is the cause of the general decline observed in parts of Western Europe and locally in the British Isles?

Factors that are known to affect heron population, besides the direct persecution by man, are the destruction of the heronries by tree felling, as has been the case in many countries, including Britain, during World War II, and the increasing urbanisation of the countryside, the spread of towns and cities over wide areas and particularly along water courses, with the resultant drainage and land reclamation and the pollution of rivers and streams. All this reduces the number of herons a given locality can support. It is, therefore, inevitable that herons will show a decline in heavily industrialised countries like Britain.

The herons have countered this to some extent by dispersal and by moving to new sites, but there is a limit to this for every species is just as strong as its food supply and herons are no exception to this maxim. In the Upper Thames Valley, the heronries are spaced about every five miles or so, and despite the attraction and advantages of colonial breeding for the species, the birds do not collect into one large colony (8). It is evident that severe restrictions are imposed on the size of each colony by the food supply, and further, the same factor seems to govern the upper limit of heronry size in different parts of England and the Continent.

We have seen then that four main factors may contribute to a decline of the heron population and these can be tabulated thus:-

1. Direct predation by man
2. Destruction of feeding localities by drainage and land development
3. Destruction of nest sites by the felling of trees
4. Severe cold winters

Which of these factors are found at work in Coley Park? At the moment, 2 and 3 are not in evidence, and 4 is unpredictable, and in any case is unlikely to cause 100% mortality. Even if it did, the heronry would probably be re-inhabited by birds from other areas. This has been observed in colonial breeding birds (9). The first factor, however, is one that must be reckoned with. Today in the area, youths with air-guns and pistols are taking a heavy toll of bird life; quite recently, swans and other species have been slaughtered within a quarter of a mile of Coley, and if this goes on the heronry's future is not a happy one.

Providing the herons are given protection from predation are there other factors at work at Coley which may tip the scales on the side of extinction? One thing immediately comes to mind - the large flats and the increased number of people moving about. Does this disturb the herons? Obviously it must, but herons are very tolerant, as was observed during the war at the great heronry at Walthamstow; this heronry suffered little loss in spite of the continuous hail of bombs that fell all around (10). There was, in fact, an increase of three nests in 1941, compared with 1940, when the severe winter brought a decrease in heronries all over the country.

The flats are presenting a problem to the herons. They are higher than their nesting trees, and are therefore possibly causing some distress, particularly at night. Some evidence can be judged by the alteration in the flight patterns which have been observed (1). In spite of this, the colony could probably survive, given protection and if its food supply were made secure; but any encroachment on this would cause the colony to decrease and eventually become extinct, and we should have lost a valuable and aesthetic part of our scenery.

Therefore, a close and continuing study of Coley Park Heronry in the next few years, should be rewarding. From it we may learn something of

what can be reasonably expected from a wild species under the inevitable threat of man; we may learn the factors governing the relationship of one species with another, which could be a guide to the management of wildlife. Coley Park Heronry can provide, therefore, an important study in survival, and its lesson could have far-reaching implications on the future of Wildlife Conservation.

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