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FIELD STUDIES COUNCIL
COURSES FOR NATURALISTS
1966

Many of the one-week residential field courses (held from March to November at seven Centres in England & Wales) are particularly designed for Amateur Naturalists. Among them are the following:—

DALE FORT FIELD CENTRE, near Haverfordwest, Pembs.

13 — 20 July	Intertidal Pools
20 — 27 July	The Pembrokeshire Coast National Park
27 July — 10 August	Archaeology
31 Aug. — 14 September	Estuarine Ecology (either or both weeks)
7 — 14 September	Animal Numbers & their estimation
14 — 21 September	Weather & Bird Movement

FLATFORD MILL FIELD CENTRE, near Colchester, Essex

18 — 23 May	Garden Botany
25 May — 1 June	Whitsun Bird Course
20 — 27 July	Garden Botany
27 July — 3 August	Flowers of East Anglia
24 — 31 August	1. Small Mammals 2. Plant Ecology
31 Aug. — 7 September	Marsh, Fen & Drainage
14 — 21 September	Nature Conservation
21 — 28 September	Fungi
28 Sept. — 5 October	Autumn Birds

JUNIPER HALL FIELD CENTRE, near Dorking, Surrey

6 — 13 April	Bryophytes
31 August — 7 September	Introduction to Molluscs

MALHAM TARN FIELD CENTRE, near Settle, Yorkshire

4 — 11 May	Spring Bird Course
6 — 13 July	Mountain & Moorland Flowers
13 — 20 July	Snails & Slugs
3 — 10 August	1. Archaeology 2. Insects 3. Geology & Scenery
17 — 24 May	Field Botany
24 — 31 May	1. Conservation 2. Mosses & Liverworts
31 Aug. — 7 September	The Dales National Park
7 — 14 September	1. Field Photography 2. Lichens
14 — 21 September	Fungi

ORIELTON FIELD CENTRE, near Pembroke, S. Wales

27 April — 4 May	Birds & Bird-song
3 — 10 August	The Pembrokeshire National Park
10 — 17 August	The Living Countryside

PRESTON MONTFORD FIELD CENTRE, near Shrewsbury

6 — 13 April	Mosses & Liverworts
13 — 20 April	Bird Course
8 — 15 June	Wild Flowers of the Welsh Marches
13 — 20 July	Grasses, Sedges & Rushes
10 — 17 August	Ecology of Mammals & other Vertebrates

SLAPTON LEY FIELD CENTRE, Slapton, Kingsbridge, S. Devon

6 — 13 April	1. Bird Study 2. Lower Plants
27 July — 3 August	Wild Flowers
3 — 10 August	1. Photography in the Field 2. Field Archaeology 3. Conservation — principle & practice
10 — 17 August	The Natural History of South Devon
24 — 31 August	Lichens & Fungi — introductory
31 August — 7 September	Woodlands — practice & conservation
7 — 14 September	Rural Landscape
12 — 19 October	Autumn Bird Behaviour

FEES: The inclusive weekly charge is £10. 10. 0. Members of local natural history societies or groups should enquire about Carnegie Bursaries, by which the fee may be reduced by £3 in certain circumstances.

Single or double rooms are usually available.

APPLICATIONS or requests for further information should be made to the **Wardens of the Field Centres.** General enquiries and requests for full programmes etc. should be sent to: **The Publicity Secretary, F.S.C., Ravensmead, Keston, Kent.**

CAMBRIDGESHIRE AND ISLE OF ELY
NATURALISTS' TRUST LTD.

Registered Office: 1 Brookside, Cambridge
Tel. 58144

Patron: THE LORD FAIRHAVEN

THE COUNCIL 1965-66

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Dr. F. H Perring

Hon. Scientific Secretary of the Hayley Wood Management Committee
O. Rackham

Hon. Secretary of the Education Committee
R. S. George

Hon. Editors
P. G. Hall and Dr. M. Stanier

Auditors
Peters, Elworthy and Moore

CONTENTS

The drawings were especially done for this number by Mr. B. Golding.

EDITORIAL

In these days of quick transport, when nearly all town-dwellers can in a matter of minutes descend on the countryside and despoil it of its fauna and flora (especially the latter), there is perhaps a gleam of encouragement to be seen in the large number of books on various aspects of natural history, particularly those intended for the ordinary reader, which continue to pour from the press. The Book Review Supplement now forwarded to all members of the Trust bears witness to this activity, and it is reported that a Flora was a best seller in 1965. If, as this suggests, there is a demand for such books, we can hope that the general public will eventually come to see that the best way to enjoy nature is to leave it where it is. Discreet notices giving the same advice have lately been making their appearance in this county and elsewhere.

This is a very important activity of the Trust, but other activities continue. The upkeep of Hayley Wood demands a considerable amount of work and money, and there are signs that other areas, different in nature but no less characteristic of the county, may be acquired by the Trust in the near future. For this and for all its other activities the Trust continues to need public support.

NINTH ANNUAL REPORT, 1965

It is good to be able to report on another very active year in which much solid progress has been made in several aspects of local nature conservation. The further increase in activity of the Trust is reflected in the composition of this Annual Report, in which the policy of asking the Secretaries of the various committees to report separately has been extended to cover the main committees, namely Education (Mr. R.S.George), Field and Technical (Dr. Perring), and Hayley Wood (Mr. Rackham).

The Brookside office has been invaluable throughout the year, and we have been particularly fortunate in having extensive voluntary secretarial help from Miss Hazel Marshall. The system of volunteers has continued to provide a very valuable supplement to Miss Marshall's activities. The work of typing and duplicating has now reached such proportions that the Council decided to employ on a part-time basis Mrs. Anne Robinson, who has been working in the evening when needed. By means of these arrangements, Mrs. Crompton's very great burden of work as Assistant Secretary and Membership Secretary has been made tolerable.

Meetings

A full programme of field meetings arranged jointly with the Cambridge Natural History Society was successfully carried out. The A.G.M. was held on 1st May in the County Centre, Shire Hall, Cambridge (by kind permission of the Education Committee); Dr. Thorpe, Chairman of the National Trust Wicken Fen Committee, talked about 'Wicken Fen, New Plans and Possibilities', giving some information about the Appeal for Wicken Fen now in its private phase. After the meeting, which was very well attended, a party of members visited Hayley Wood under the expert guidance of Mr. Rackham.

Two other meetings were organised by the Trust during the year. On February 5th Colonel W. Cottle, Regional Organizer of the World Wild Life Fund, gave a most informative illustrated talk on the work of the Fund entitled 'A Modern Noah's Ark'. On November 24th Mrs. M.P. Whitehouse showed a collection of her stereoscopic slides under the title of 'Natural History in Three Dimensions' at a meeting organised to help the Trust's newly-launched Nature Reserves Funds, (see Treasurer's Report). In addition Mrs. D.M. Watson and Dr. Perring both organized sherry parties at their houses in aid of the Fund. Trust members also received a special invitation to a meeting on the Upper Teesdale Reservoir Threat arranged by the Cambridge Natural History Society on November 26th and addressed by Dr. Walters. Finally, we should record a successful and enjoyable Field Trip organized by Dr. Perring in July for the Field Committee members and friends, when a party some forty strong spent a most enjoyable day on the Cam and the Old West River. Not even an engine failure on the Perring boat seriously marred the pleasure of the occasion!

Publicity and Information

We are again indebted to our Press Secretary, Miss K.B. Gingell, for a very active and successful year's work on behalf of the Trust. The 'Cambridge News' Nature Notes have continued, and much literature has been distributed; and the sale of County Trusts' Christmas Cards (and ties!) has this year expanded so greatly that the Trust stands to make about £115 profit. The thanks of the Trust should also be recorded to the team of workers organised by Miss Gingell to help with Christmas Card distribution.

Largely owing to the persistence and enthusiasm of the Assistant Secretary, the Trust now has an excellent publicity poster, which can be conveniently displayed in libraries, museums and other suitable places. We are most grateful to Miss M. Grierson of Kew for the delightful Pasque Flower motif used on the poster.

Report of the Education Committee

Mr. R.S. George reports:-

The Education Committee has held only two meetings during 1965, a third having to be postponed. Nevertheless, some progress has been made. Dr. M. Stanier was asked to organize a Nature Trail at Wandlebury and this was

done with conspicuous success. (See separate report below).

Dr. Perring was asked to prepare a Memorandum on Nature Reserves for Educational Use in Cambridgeshire and received some aid from Dr. Walters and Mr. George. This report has been submitted to the County Education Officer and has been well received. There is good reason to believe that it has had an important effect upon thinking concerning educational nature reserves, not only within our County, but elsewhere through the S.P.N.R. Trusts Committee.

The Trust hopes for early action by the Local Authority to establish at Hauxton Gravel Pit its first Educational Nature Reserve.

The Committee has established as parts of its endeavours:-

(i) The formation of a panel of speakers to meet requests for lectures from any source in the area.

(ii) The production of a Book Review Supplement to be circulated to all the Trusts' members.

(iii) The preparation of a 'potted' lecture to be available for speakers not fully conversant with the Trust's work.

There has been effective liaison with the officials of the County Education Department, who have brought various matters to the attention of teachers and schools throughout the County. In particular, valuable assistance has been given to surveys of usage of natural history sites by schools. The welcome growth of interest in surveys of sites by schools is reported under the Technical and Field Committee.

Report of the Technical and Field Committees

Dr. Perring reports:-

The Technical Committee did not meet during the year, but the Field Committee met three times. Following several resignations, the composition of the Committee has been reorganised, three new members have been enrolled and several more 'Watch-dogs' registered: an up-to-date list showing these changes was produced in October.

In the same month was published the S.S.S.I. Survey Report prepared by the County Council Planning Department from a text supplied by the Trust. Copies will be available to all Trust Council and Committee members: owners of sites will be issued with the relevant section of the Report. County Council members and Chairmen of Rural District Councils will also receive copies, and it is hoped that the aims and interests of the Trust will thus be more widely appreciated. We are extremely grateful to the Planning Department for their co-operation in a project which might well become a model for other County Councils and Trusts.

No new S.S.S.I.'s have been declared during the year, and one, White Wood, Gamlingay, has been lost to Bedfordshire as a result of boundary changes. A review of sites in the Isle of Ely, however, is imminent. A request has been received from the County Education Officer for a list of sites in the Isle suitable for Education, which has to be considered in relation to the Trust's wish to acquire

land in the Washes, where, in collaboration with the Royal Society for the Protection of Birds, they hope to establish a reserve of botanical and ornithological importance. The first steps have been taken: 10½ acres have been purchased and negotiations opened for the purchase of further areas.

The Norwood Road Site in March has had a most succesful first year. Following the erection of a fence and Notice Board the entrance of small boys has been controlled and the population of nesting birds has risen dramatically. Our member, Mr. G. Lake, counted 152 nests of 20 species on this five-acre reserve, compared with only about 25 nests in previous years. Midsummer flooding produced interesting ecological conditions and several exciting plant records were made. The area now seems worthy of S.S.S.I. status. Its importance for education in March is obvious.

Elsewhere the interest of Cambridgeshire schools in particular sites is being encouraged. The Natural History Society of St. Mary's Convent, Cambridge, is carrying out a survey of Gamlingay Cinques Common. The Perse School for Boys has undertaken to survey Lime Kiln Close at Cherry Hinton: Bottisham Village College Youth Club has received a grant from the British Association to conduct a series of studies at Quy Fen. It is to be hoped that problems of management of sites will also become the responsibility of schools undertaking surveys.

During the year the Trust has continued to organise Work Parties. Besides the great efforts at Hayley Wood, reported elsewhere, visits have been made by the Trust to Steeple Morden Grange Plantation, to Gamlingay Cinques Common (twice), to Ickleton Parish Pit, and to the Roman Road for rubbish clearance, whilst the University Conservation Corps successfully removed many square yards of weed from Barton Village Pond, and opened up the main rides of Hildersham Wood. The reorganisation of future Work Parties has now been agreed to. A leader will be named for each party, and a tools officer will be appointed. The Hayley Wood chain-saw will be available for certain tasks: Mr. P. Moule is in charge of this.

Rubbish-tipping on our sites continues to be a problem - particularly near the City. It is to be hoped that the very large rubbish bins which have been erected by the City Council will attract some of the rubbish which would otherwise be dumped at Cherry Hinton or on the Roman Road. A local rubbish problem at Steeple Morden may be eased as a result of an agreement reached with the shooting tenant and the Melbourn Whiting Co. that a gate should be erected at the entrance to the lane leading to the area from the road.

The maintenance of the rights of way along the Devil's and Fleam Dykes is an endless problem. We were helped this year by a party from Sawston Village College on the Devil's Dyke, and by the Delamere Estate, which was most co-operative in relation to clearing in the Mutlow Hill area of the Fleam Dyke: a University Scout group also helped considerably in this area. It is hoped to encourage local Ramblers' Associations to assume responsibility for some part of these favourite walks in the future.

Report of the Hayley Wood Committee

Mr. O. Rackham reports:-

During the year, the Trust has continued its efforts to restore the diversity and interest of Hayley Wood. We are very grateful to all who have so industriously supported the work. This report covers March-December 1965, and mentions work which we hope to do early in 1966. Further details appeared in the second newsletter, circulated in December.

A start has been made on the third coppice plot by a party from the University. The main effort of the Trust's own parties early in 1966 will be to complete this. A Council for Nature Conservation Corps party has started clearing a four-acre glade in the southern quarter of the wood, in which it is intended to simulate a number of interesting habitats, such as rough grassland, scrub, and woodland margins, which are rapidly declining in the eastern counties. The shape of the glade will be rather complicated to satisfy the needs of both botanists and entomologists. The Trust has recently bought a chain-saw, which will be of great use in this and other work, especially in reducing timber to saleable form. It has proved possible to sell a quantity of pulp-wood, rustic poles, and logs; the clearing of the glade will produce some quite large ash.

The work being done on the north-west main ride by the Council for Nature Conservation Corps and the International Forest Camps organization is now almost complete. The ride has been widened to about double its original width by felling the trees along its south-western side, while the hollows in the original ride have been filled and the drainage improved. This will enable vehicles to reach the scene of other operations in winter. It is expected that the cleared strip (which will not itself be usable by vehicles) will develop the fine plant communities characteristic of wide rides in other boulder-clay woods but hitherto not represented in the narrow shady rides of Hayley. The effects of winter traffic on the vegetation of the ride proper should also be interesting.

Following the success of the Nature Trail set up this year in Wandlebury, it has been decided to organize one in Hayley Wood. Dr. Margaret Stanier has drawn up plans, and it is hoped to set up the Trail in 1966.

Some excellent aerial photographs of the wood have been taken by the Cambridge University Department of Aerial Photography, and on behalf of the County Planning Department by B.I.S. Air Survey Ltd.

The recording of permanent plots has been started in the coppiced areas in order to follow the changes in vegetation in the years after cutting. A file and a card-index are being started in order to classify other records of the plants and animals of the wood. We should welcome any information on this subject, and also on the history of the wood, which is being investigated at present. Such matter will form the basis of a booklet which it is hoped to publish shortly.

Wandlebury Nature Trail

In spite of the disappointing summer weather, the Nature Trail around the Ring at Wandlebury, opened by Lord Fairhaven on 19th June, has been most popular and successful. The eight-page printed booklet (sold at 1/-), the publicity for the Trail and materials for the Trail itself required an outlay of £60, but we are glad to record that an application via the Council for Nature to the Carnegie Trust for financial help with the Trail was successful, and on the first year's working we have now almost recouped our expenditure. It is hoped to improve the Trail in 1966 and open it (together with a new one at Hayley) in time for National Nature Week. Our very great thanks are due to Dr. Margaret Stanier, who has been in charge of the project, to Miss Gingell and her rota of weekend volunteers, and also to Mr. King and boys of the Cambridge Grammar School for illustrations. We should also record our grateful appreciation of the interest of the Cambridge Preservation Society, owners of Wandlebury, in the project, and the help received from the Wardens, Mr. and Mrs. Braybrook.

Membership

A further net increase in membership to 542 is healthy, but the dramatic rise of 1964 has not been repeated. This is almost certainly due to the success of the special appeal in 1964 to all 'Members of Hayley Wood' to join the Trust, and the absence of any corresponding influx of members for 1965. In terms of activity, however, 1965 has probably been the most encouraging in the history of the Trust, and we can proceed with confidence that on several levels we are succeeding in making the reasoned voice of conservation heard where it is urgently needed.

TREASURER'S REPORT

This has been a year of further progress, made possible by an increase in Membership, in Subscriptions and in Donations.

We are grateful to everyone who supports us in our determination to protect, conserve, and cherish our rich natural heritage within the County, which is daily endangered by various forms of encroachment.

Our actions must be positive, at times acquisitive. For this we need money.

There is much to be done, more than we can do with our present income. It is hoped our membership will, in this coming year, be much increased to strengthen and enlarge our effectiveness. There is no time to spare.

If members who have not yet done so, and prospective members, will convenant their subscriptions - simply and easily done on forms obtainable from the Office, and with no additional cost to the member - this would usefully add to the value of each subscription.

CAMBRIDGESHIRE AND ISLE OF ELY NATURALISTS' TRUST LTD.

General Income and Expenditure Account for the Year Ended 31st December, 1965.

1964		To/				1964		By/			
		Printing, Postage, Stationery and Telephone	201 16 1			444		Subscriptions		552 6 -	
140								Transfer from Life Membership Subscriptions		29 5 -	
22		Publicity and Expenses of Meetings	20 2 7			25					
50		Secretarial Assistance	45 6 1					Income Tax repayable on Subscriptions under Deeds of Covenant		42 19 3	
8		Office Expenses	17 17 5			46					
11		Audit Fee and Accountancy Charges	26 5 -			60		Donations Received		55 - -	
245	-	Bank Charges	10 11 -		395 17 5		102	Sale of Christmas Cards	242 15 -		
						46	56	Less: Purchases of Cards	151 15 6	90 19 6	
		Grants:									
	2	The Council for Nature	5 2 -					Sale of Ties	60 7 6		
		The Society for the Promotion of Nature Reserves	25 - -		30 2 -	-		Less: Purchases of Ties	11 8 -	18 19 6	
19	17					5		Bank Interest		14 5 4	
		Conservation Expenses	116 5 5								
		Local Grants and Donations received	87 9 4		28 16 1						
80											
	115	Printing Annual Report for 1964	127 10 -								
		Local Sales, Advertising and Grant from Cambridge									
98	17	Natural History Society	36 10 6		70 19 6						
		Excess of Income over Expenditure for year									
204					297 19 5						
£646					£823 14 5	£646				£823 14 5	

Hayley Wood Income and Expenditure Account for the Year Ended 31st December, 1965.

		To/						By/			
		Printing, Stationery and Bank Charges		21 - -		726		Subscriptions and Donations		710 6 -	
14								Income Tax repayable on Subscriptions under Deeds of Covenant		104 10 2	
9		Expenses of Hayley Lane Cottage		12 3 6		120					
		Maintenance and Development					10	Bank Interest	10 10 11		
	56	Expenses	54 7 5			83	73	Defence Bond Interest	73 10 -	94 - 11	
53	3	Less Sales of Firewood	23 12 -		30 15 5						
								Rents Received:			
		Depreciation of Furniture and					15	Shooting Rights	15 - -		
6		Equipment	14 11 3			23	8	Hayley Lane Cottage	11 1 -	26 1 -	
		Loss on Sale of Typewriter	8 10 -		23 1 3						
		Excess of Income over Expenditure for Year									
812				927 17 11							
£950				£1,014 18 1		£950				£1,014 18 1	

CAMBRIDGESHIRE AND ISLE OF ELY [illegible] TRUST LTD.

[illegible]

Balance Sheet 31st December, 1965

31.12.64.				
		Hayley Wood Account		
		Accumulated Fund		
	5210	Balance 1st January, 1965	5,574 1 9	
6098	888	Add Excess of Income over Expenditure during Year	[illegible]	5,873 19 8
		Loan, Free of Interest, as at		
	2000	1st January, 1965	1,500 - -	
1500	500	Less Repaid during Year	500 - -	1,000 - -
		Sundry Creditors		43 11 8
		General Account		
		Accumulated Fund		
	126	Balance 1st January, 1965	[illegible]	
		Add Donations for Purchase		
	-	of Buildings [illegible]	[illegible]	
		Excess of Income over		
330	204	Expenditure for Year	297 [illegible]	1,217 19 3
		Life Membership Subscriptions		
	267	Balance 1st January, 1965	432 10 -	
	250	Received during Year	80 - -	
	457		[illegible] 10 -	
		Less: Transferred to Income and		
432	25	Expenditure Account	[illegible] 5 -	482 5 -
		Current Liabilities		
	72	Sundry Creditors	[illegible] 12 1	
	25	Subscriptions received in advance	16 10 -	
797	500	Unexpended Donations	392 5 5	814 7 6
£1[illegible]				£[illegible] 7 2

31.12.64.					
		Hayley Wood Account			
		Freehold Property at cost to			
		1st January, 1965		5,4[illegible] 6	
5411		Add Cost of Bringing on Water Supply		[illegible]	5,[illegible] 7 9
	500	£500 [illegible]		500 - -	
1600	[illegible]	£500 [illegible] at cost		[illegible]	1,[illegible] - -
		Furniture and Equipment at cost to			
	36	1st January, 1965		[illegible]	
		Additional Outlay during Year		[illegible]	
				1[illegible] 7 -	
		Less: Sale at cost	17 10 -		
		Depreciation to			
30	6	Date	17 17 -	[illegible]	98 - -
	3	Sundry Debtors		[illegible]	
221	[illegible]	Income Tax recoverable		[illegible]	142 1 -
		Cash at Bankers:			
	78	Current Account		[illegible]	
318	240	Deposit Account		[illegible]	5[illegible] 2 8
		General Account			
		Freehold Property at cost,			
-		including Legal Charges			[illegible] 16 7
-		Sundry Debtors		5 17 -	
60		Income Tax Repayable		[illegible]	57 17 -
		Cash at Bankers:			
	698	Current Account		[illegible]	
879	181	Deposit Accounts		[illegible]	1,[illegible]
£[illegible]					£[illegible]

Signed J. R. L. Gilmour [illegible] } Council Members
[illegible] Walters Honorary Secretary

Auditors' Report

We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purposes of our audit. In our opinion proper books of account have been kept by the Company so far as appears from our examination of those books. We have examined the above Balance Sheet and Income and Expenditure Account which are in agreement with the books of account. In our opinion and to the best of our information and according to the explanations given us [illegible] 1948 in the manner so required and the Balance Sheet gives a true and fair view of the state of the Company's affairs as at 31st December, 1965 and the Income and Expenditure Account gives a true and fair view of [illegible] for the year ended on that date.

[illegible] Buildings,
[illegible] Street,
Cambridge.

[illegible], [illegible] & Moore
Chartered Accountants

7th February, 1966.

NATIONAL TRUST
WICKEN FEN LOCAL COMMITTEE
EXTRACTS FROM REPORT FOR 1964-65

The death of Dr. J. T. Saunders on 28th April 1965 was a severe loss to the Committee. After his resignation from the Chairmanship, Dr. Saunders had continued to serve on the special Appeal Committee set up in 1964. Dr. Thorpe represented the Committee at a Memorial Service held in Christ's College on Saturday, 22nd May.

The investigation has continued of the calcifuge bryophyte flora of Wicken referred to in the 1963-64 Report. An area on Verrall's Fen is now known to have a similar flora, and Dr. Dickson and Mr. Lock have advised the Committee on protection for the vulnerable parts of the Sedge Fen bryophyte area.

Dr. Smart produced in February 1965 a very useful memorandum on the Swallowtail (Papilio machaon) at Wicken. An offer by Dr. N. Moore of the Nature Conservancy's Monks Wood Experimental Station to help in keeping a laboratory stock of the butterfly has been gratefully accepted by the Committee, and young larvae will be obtained from Norfolk by Mr. A. E. Ellis for this purpose. It is hoped to re-start planned introductions in 1966.

During 1964 6209 people signed the book at the Keeper's House as visitors to the Fen; this figure was made up of 4348 individual signatures, and 68 organised parties varying in number from 6 to 60 individuals.

Warden's Report for the year 1964/65

A. Work on the Fen

1. After the first full year of reasonable (but not complete) control of water on the Reed Field the results are most satisfactory. The field can be covered with water over a large area, the depth varying from an inch to about a foot. The reed beds have spread and thickened rapidly, so that there is every hope that some beds can be cut on alternate years and not yearly. These conditions (large areas of one-year-old reed, not tangled masses of old reed) seem to be very suitable for the Bearded Tit and for other small reed-loving birds. The effect of the flooding on the bird life of the Fen was, in Spring 1965, quite spectacular. Snipe (Capella gallinago) and Lapwing (Vanellus vanellus) abounded, there were several pairs of Red-shank (Tringa totanus) and many broods of ducklings, and over the area cruised several Black-headed Gulls (Larus ridibundus). The numbers of Reed-warblers (Acrocephalus scirpaceus) seemed uncountable. The Reed Field should be a very valuable possession to the Fen; complete control of the water and the planned work round the Mere will make this area even more valuable.

2. The clearance of sedge fields makes steady progress. Thanks to the work parties from H.M.S. Ganges and the Council for Nature Conservation Corps it looks as if something in the order of 4 acres might well be cleared

annually. This coming season will see the first cutting from fields cleared in 1961. It was hoped that some of these areas would be cut last year, but now it appears as if it would normally be at least four years, if not five, before a newly cleared field can be cut commercially. It is almost impossible to make any accurate estimate of the growth of sedge in new fields; even old, well-established fields vary greatly from year to year. The main effort in the current year will be directed in the area immediately West of Malcarse dyke. A good start has been made; about an acre and a half has been cleared and the wood-piles burnt.

3. The whole of Malcarse and the Cross dykes has been cleared by drag-line. The next task for the Fen staff is to level the areas covered by the spoil. If this is not done, the bush will rapidly encroach back to the edge of the dykes. If this area is levelled, it can be treated in the same way as the droves and might well make a most suitable area for summer cutting. A temporary bridge, well capable of carrying the tractor, has been constructed over Drainer's Dyke.

Owing to work on the dykes, the water level in the lengths being cleared had to be lowered, and the large-scale pumping of water on to the Sedge Fen could not be carried out last season.

B. Produce

The demand for sedge is still great. At present the clearing of the fields is the great problem, but if the present clearing programme is continued the main problem will be cutting the sedge. A most interesting experiment is being carried out in Norfolk this summer with a towed reaper and binder. If the experiment is successful, a main labour problem will have been overcome - always provided that a similar piece of equipment can be persuaded to work at Wicken. As indicated in last year's report there is a machine on the market that might well be more suitable than the towed reaper and binder.

A record number of bundles of reed were harvested this season - 2,800 bundles. In addition considerable areas of reed were left uncut. Some of this reed may well come in for cutting next season. From the ornithological point of view it may well be important that we can now contemplate a different method of treatment, more in line with the normal practice in Norfolk.

C. Records

The winter population of Bearded Tits (Panurus biarmicus) increases in a most satisfactory way. There were at least twenty-seven on the Reed Field and more birds, at least six, on the Mere.

An Osprey (Pandion haliaetus) was reliably reported over the Fen in Spring 1965, presumably on passage.

A White's Thrush (Turdus dauma) was twice seen on the Fen, once by the Warden at comparatively short range and for several minutes.

The following Coleoptera records have been contributed by Dr. A. M. Massee:

The Clavicorn beetle, Lathridius bifasciatus Reitter, occurred not uncommonly in litter at the sides of the Main Drove, Wicken Sedge Fen, 3 August, 1964. This is a new Wicken record. L. bifasciatus was first found in Britain at Oxshott, Surrey, in 1950.

The Ground Beetle, Trechus rivularis Gy. (Carabidae), was formerly regarded as one of the specialities of Wicken but it has not been seen for many years. It was discovered again last August confined to the areas of pure sedge and reed. It would seem that this is the ecological condition the beetle requires, and it seems likely that it will become firmly established again. Elsewhere it has been recorded only at Whittlesey Mere and at Holme Fen.

The Weevil, Dorytomus filirostris Gyll., was first recorded at Wicken in 1946 on poplar at the entrance to the Main Drove, and still occurs there. The larva breeds in catkins on the branches at the tops of the trees.

CAMBRIDGE NATURAL HISTORY SOCIETY

President: Dr. R. G. West

Report for 1965

At the six General Meetings held during the Lent and Michaelmas terms the following lectures were delivered:

Mr. E. J. H. Corner: Tropical Fungi.
Rev. E. A. Armstrong: The Ecological Aspects of Bird Song.
Sir V. B. Wigglesworth: The Biological Control of Insect Pests.
Prof. M. E. D. Poore: Malaysian Forests.
Mr. W. B. Harland: Ancient Glaciations.
Dr. S. M. Walters: The Upper Teesdale Reservoir Scheme.

The Botanical, Entomological, Geological and Zoological Sections each held six meetings during the year; the attendance at these meetings and at the General Meetings was at the same good level that has been achieved in the past few years. The annual Conversazione was organised by Mr. P. Ferrar and Miss H. Middlemiss. The number of exhibits was not as high as in previous years but the standard of individual exhibits was higher.

The membership of the Society at December 1965 was 498, the same number as recorded in 1964.

M. J. O'Hare
Senior Secretary

Subscriptions: Life membership: 30/-, Annual 10/- (compounding to Life after 4 years), Undergraduate (3 years): 12/6, Members of Training Colleges (annual): 5/-, Corporate Schools (annual): 20/-.
Applications to: Mr. W. H. Palmer, Homerton College (City Sec.)
Mr. J. Dransfield, Caius College (University Sec.)

THE SOUTH CAMBRIDGESHIRE NATURAL HISTORY SOCIETY

R. S. George

It has been felt that a need existed to cater for the very local interests of naturalists in the villages, for people who might rarely feel the need to participate in county-wide activities, but nevertheless wished to have contact with other naturalists within a comparatively restricted area. Accordingly the South Cambridgeshire Natural History Society has been established. At present it is based on the Village College, Sawston, but as time goes by it will move to and fro between the Village Colleges south of the A45. Through the Adult Tutors, with their close contact with local populations, it is hoped that all naturalists in the south of the county will be reached, and that, where appropriate, their consciousness of the breadth of the natural history movement will be enlarged so that they will come within the general scope of the larger organizations such as the Naturalists' Trust.

An inaugural meeting was held on July 17th with Sir Geoffrey de Freitas, M.P., as President and Dr. J.H. Dickson, M.A., Ph.D., as guest speaker.

Dernford Fen has been visited on several occasions, Messrs. Spicers Ltd. having given limited permission for both areas, east and west of the railway line, to be examined.

FIELD MEETINGS IN 1965

Eight field meetings were held jointly with the Cambridge Natural History Society. (Approximate numbers attending each meeting are given in brackets).

Saturday, 24th April. Therfield Heath. (62)

The fine weather produced a large turn-out for the first field meeting, and under the guidance of Mr. W.H. Fordham an interesting visit was made to the chalk grassland of Therfield Heath, near Royston.

The area visited is an attractive stretch of ungrazed grassland and the adjoining beechwoods close to the Royston golf links. It was, of course, too early in the season for many plants to be in flower, but there was a fine display of the Pasque-flower, Anemone pulsatilla. Many of the botanists, however, enjoyed themselves seeing how many plants they could identify amongst the grass by their leaves only. From their lists it is clear that this habitat supports a large number of interesting chalk plants.

Later on, a move was made to the adjoining woodlands to inspect the badger setts. But here a melancholy story has to be related, for these animals have apparently been killed and persecuted systematically during the last four years and it is unlikely that there are any inhabitants at the present time. As the Cambridgeshire Trust is taking a special interest at present in the local badger population, members were not unnaturally horrified to come across this old-fashioned attitude towards these attractive animals.

After tea, a number of members had the privilege of visiting Mr. Darling's attractive and beautifully kept garden at Grey's Farm, which adjoins the heath. This made a delightful conclusion to the afternoon.

Saturday, 15th May. Knapwell Wood. (30)

In beautiful weather an excursion was made to Knapwell Wood under the joint leadership of Mr. P. Moule (birds and animals) and Mr. W. H. Palmer (flowers). This is a particularly attractive wood, chiefly because of the undulating nature of the ground, and it was looking its best with the fresh young foliage on the trees and the bluebells in full bloom.

Some of the botanists were disappointed by the remarkable abundance of the stinging nettles, and, in fact, no very exciting finds were made. Nonetheless some forty different species were noted in the wood itself, and many more in the surrounding fields. The ornithologists were rewarded by hearing the songs of a wide variety of woodland birds. In particular, Mr. Moule was able to point out the characteristic songs of four different warblers - chiffchaff, willow warbler, garden warbler and blackcap. Woodpeckers were also much in evidence, and a few members confessed to having heard the cuckoo for the first time this season!

Later on there was a halt for a picnic tea in a pleasant meadow just outside the woods, and afterwards the party inspected the badger setts situated in the banks of an ancient earthwork. There was abundant evidence that these were fully occupied, and Mr. Moule considers that there are certainly three separate families in residence at present. It was a relief to hear that there was no local prejudice against these harmless animals after the sad news from Therfield Heath of their wholesale destruction. All in all it was a pleasant leisurely afternoon, much enjoyed by all.

Saturday, 19th June. Langley Wood. (30)

By kind permission of the owner, Mr. Edmund Vestey, and with the assistance of the estate gamekeeper, Mr. A. Bigg, a visit was paid to Langley Wood at Camps End, on the Essex borders of the County.

The wood is one of the most attractive on the eastern boulder clay, and its four miles of wide and beautiful rides were traversed with great enjoyment. The primary objective of the excursion was to examine an area of hornbeam coppice which is probably unique in the county. This appeared to be a fairly late addition to the main part of the wood. The size of growth from the stools suggested that no cutting could have taken place during the last twenty years or so. There was much speculation about the possible uses for the timber so produced.

A pleasant feature of the wood was a profusion of Ragged Robin. Numerous fragrant spikes of Greater Butterfly Orchid were seen, as well as Early Purple, Spotted, and Bird's Nest Orchids. Crested Cow Wheat was found in the lane leading to the wood, and the uncommon fern, Adder's Tongue, along its northern verge.

A disused badger sett was closely examined, but no evidence of recent occupation, unless by foxes, could be found. Close watch was kept, too, for traces of a red deer known to be in the wood, but without success.

The bird population appeared remarkably small apart from a fair number of fledgling blackbirds and an occasional warbling blackcap.

On leaving the wood a call was made at a site on the outskirts of Balsham to see Snakeweed (Polygonum bistorta), a plant last seen in the county in 1830.

Saturday, 26th June. Thriplow Meadows and Annual Orchid Count (20)

Wet meadows play no part in modern agricultural practice, and with their disappearance from the country scene many attractive plants are becoming more and more scarce, and measures for their conservation have now become a matter for serious concern.

For the past four years the Cambridgeshire Naturalists' Trust has been conducting, under the auspices of the Nature Conservancy, a detailed investigation of the Marsh Orchids which grow in great profusion in meadows at Thriplow Farm.

Lord Walston has leased a five-acre meadow for the project. A programme of grazing and mowing routines is followed year by year over the four fenced plots, and an annual count of the flowering spikes is organised, usually in late June.

This year members of the Trust again carried out this task, and recorded a total of 2190 flowering orchids. Comparison with previous years' figures confirms that grazing, particularly by horses, suits Marsh Orchids better than mowing. Unfortunately, for the second year running there has been a severe all-round decline in numbers. Only half as many were counted as in 1963. It is suspected that this may be connected with the low average rainfall over the last three years, and the consequent lowering of the water in the soil.

The experiment is to cover a period of five years, during which it is hoped to gain information of value to any organisations concerned in the management of Nature Reserves of this type. Experience gained at Thriplow may point the way towards schemes of management which will ensure the survival of these colourful wild flowers.

After the count had been completed, other interesting plant species in the area were examined, including a number of uncommon sedges and rushes, and the creeping plant, Bog Pimpernel. In the garden of Thriplow Farm a number of wild plants were seen in cultivation, including marsh orchids in an uncut area of lawn and a patch of the very rare Tuberous Thistle.

Saturday, 17th July. Newmarket Heath (36)

A most successful excursion was held under the expert leadership of Dr. F.H. Perring to the Beacon Course, a little used part of the Newmarket Race Course, and to the Devil's Dyke.

Heather is a rare Cambridgeshire plant, not usually found on our heaths, but after a few minutes' diligent searching several small bushes were detected in the grass.

The arable fields by the Course were extremely interesting, and a delightful sight; poppies stretched as far as the eye could see and three different species were discovered. Many other weeds of chalky soils were also abundant, including Venus's Looking-Glass, Flixweed, Night-Flowering Campion, and several Fumitories.

The Devil's Dyke was full of colour, the Pyramidal Orchids being particularly fine this year. A small party made an excursion along the Dyke to look for the very rare Spotted Cat's Ear (Hypochoeris maculata). They were also rewarded with Bastard Toadflax, Squinancywort, and some fine specimens of Clustered Bell-flower.

During the walk the remains of a small dead bird were noticed impaled on a branch; this suggested that the Red-backed Shrike, or Butcher Bird, may still be in the area. During the afternoon several Quail were heard.

The walk back along the Street Way had to be hurried but there was just time to stop and admire the purple and white flowers of the Crown Vetch, a large and growing colony of which is established on the east side. This is an introduction from Central Europe, of which there are several on the margins of the Heath. Is it possible that they all arrived with foreign fodder brought in for the race-horses?

Saturday, 21st August 1965. March, Manea and Welches Dam. (25)

The excursion began at March, where seven members met at the Trust's new local nature reserve at Norwood Road. The fencing of the reserve in the spring of this year, coupled with the good will of local residents, has resulted in a much greater number of birds nesting and rearing young than has been the case for many years. The reserve, an area of some $4\frac{1}{2}$ acres, is managed by a small committee of local Trust members and it is hoped that in the near future the interior will be made more accessible by partial clearance and removal of rubbish so that local schools as well as individual trust members will be able to take advantage of the facilities the reserve offers - the potential usefulness of this small reserve to all branches of natural history has exceeded all expectations. Of particular interest to botanists on this occasion was the presence of Water Dropwort and Compressed Rush, and an unusually good stand of Adder's Tongue Fern.

After a short visit to Graysmoor Pit, notable for the opportunity of comparing beds of Lesser and Greater Reed-mace in close proximity, the party moved on to Manea Pit, where fresh arrivals increased the number to about 25. This latter pit was formed in 1937 by the excavation of clay for embanking and in a comparatively short time has developed into an interesting site. Twelve different species of trees and shrubs were observed, a profusion of a water moss Fontinalis antipyretica, and also Broad Buckler Fern (Dryopteris dilatata,) and Water Violets (Hottonia palustris.) Of the greatest interest was the discovery of Cord Moss (Polytrichum commune,) the first record in the Isle. The Fringed Water Lily, (Nymphoides peltata,) seemed to be a local speciality.

A late Linnet's nest containing young was found, and before leaving Manea Dr. Perring (who led this part of the excursion) was presented with an unusual flower by a local resident who had found it growing in his onion field. This was later identified as Italian Sainfoin, (Hedysarum coronarium) and it is presumed that it was brought in with the onion seed.

On arrival at Welches Dam the excursionists were greeted by the sight of no fewer than seven Kestrel hunting over the washes. A short walk over the wash-land revealed all four species of Duckweed; Frogbit, Hydrocharis morcus-ranae, and Arrowhead, Sagittaria sagittifolia, were also in flower.

The excursion was rounded off with a visit to a locality near the Washes notable for the occurrence of Marsh Stitchwort (the only locality in the County) and Greater Spearwort (the only known Isle record). The weather throughout the day was excellent and the excursion most interesting and fruitful. The Isle members are indebted to Dr. Perring and Mrs. Crompton for their expert assistance.

Sunday, 19th September (20)

Members broke new ground by visiting the gravel pits at Fen Drayton and the neighbouring banks of the Ouse. The expedition was under the expert leadership of Mr. M. Way of the Nature Conservancy.

The main interest of the excursion was to observe the successive colonization of the pits from completely bare gravel to a well-developed scrub consisting chiefly of various willows. This type of vegetation occurs only after a number of years and the older gravel pits where this was to be seen were visited in the morning. Despite the late date a surprisingly large number of plants were seen in flower, including a number of interesting aliens such as the Blue Fleabane and the White Melilot.

After a picnic lunch the newer gravel pits were visited, and here the earlier stages in the colonization of the ground were well shown. The ornithologists, too, found much to interest them on the large sheets of open water, great crested grebe, little grebe, tufted duck and pochard being amongst the water-birds observed. No doubt at other times of the year numerous other species congregate here.

But the most interesting botanical observation was made along the banks of the river. This was the finding of the Great Dodder, a rare parasitic plant, here found growing on stinging nettles. Incidentally the recently published Cambridgeshire Flora gives the University Botanic Garden as its only habitat in the county! The handsome alien Orange Balsam was also seen near by.

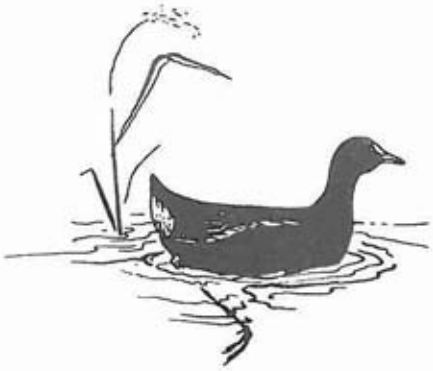
This very pleasant expedition in splendid weather ended with a most welcome cup of tea provided by Mr. and Mrs. Way at their home in the village.

Saturday, 2nd October. Fern and Fungus Foray. (70)

A large party, which included many children and students, met in the grounds of Chippenham Park by kind permission of Mrs. Bacon. Under the expert leadership of Dr. J. Dickson and Dr. H. Hudson of the Botany School, the beautiful grounds of the Park and a nearby conifer plantation were explored. The afternoon was warm and sunny but the recent wet weather resulted in the presence of a very large number of fungi, and baskets were soon filled with a large variety of species. Only two species associated with alkaline soils were recorded - Clitocybe nebularis (Cheese Cap) and Lepiota rhacodes (Shaggy Parasol), since Chippenham, lying so near the Breckland, has similar soils which are not found elsewhere in the county. A large specimen of the perennial Bracket fungus, Ganoderma applanatum, was much admired and other species seen were Polyporus giganteus, Hygrophorus conicus, H. niveus, Boletus elegans, Armillaria mellea (Honey fungus), Stropharia aeruginosa (Verdegris Agaric) and Xylaria polymorpha (Dead Man's Fingers).

The conifer plantation, besides being rich in fungi, is remarkable for containing six species of ferns - a unique site in a country poor in fern species. Last year two species new to the county had been recorded here, Dryopteris borreri and Polystichum setiferum. The species seen were Pteridium aquilinum (Bracken) and Dryopteris borreri, D. dilatata, D. felixmas and D. carthusiana but not even the combined efforts of 70 people were able to rediscover Polystichum and one can only hope that the six plants found last year have not since been "collected" out of existence.

The party was also fortunate in having the company of two of the authors of the new Flora of Cambridgeshire. Dr. H. L. K. Whitehouse found a rare moss Bryum microerythrocarpum, which is only the third record for the county. Dr. S. M. Walters determined a pink-flowered Campion as the hybrid Silene alba x dioica, a plant occasionally found on our borders despite the absence of the Red Campion parent.



THRIPLOW MEADOWS GRAZING EXPERIMENT: V

G. Crompton

The management experiment described in previous numbers of the Journal (Nos. 5 - 8) has continued, and a brief summary of last year's work is given here.

Grazing: The two retired ponies continue to graze Strip 1; the ponies receive additional feed near the gate into the Strip, and this has resulted in an extensive area of bare ground (which includes the whole of Quadrat 1) caused by trampling while the ponies are waiting to be fed.

1965

Strip 1	Strip 4
2 ponies (shut in)	(with access to adjoining meadow)
February 14 - March 31 34 hours	May 17 - 21 20 cows and 8 heifers
May 2 - June 5 30½ days (24 hrs per day)	July 20 - August 6 24 cows
July 1 - October 28 61½ days (24 hrs per day)	September 13 - 16 23 cows
(during August all flowering plants of Senecio erucifolius were hand pulled)	November 10 24 cows
	November 23 - December 2 25 cows and 15 heifers, (with additional hay in adjoining meadow)

Cutting: Strip 2 was cut by a Hayter Rotary Cutter on 3 July. The hay was raked by hand and carted to the west end of the strip as before.

Control: The plot of Carex acutiformis in Strip 3 was cut by hand on June 1 to a height of ca. 3 cm. Colonisation by over 20 species has now extended over the entire plot and Lychnis flos-cuculi, Cerastium holosteoides, Dactylis glomerata, Rumex acetosa and species of Poa Agrostis and Ranunculus were in flower on May 30.

Orchid Count: This has been described in detail in the account of Field meetings. Mr. J. C. Faulkner took the count and 20 people took part, holding a knotted rope.

Strip	1965	1964	1963	1962	1961
1	905	1222	2049	1516	1047
2	440	500	658	409	486
3	194	309	498	-	693
4	651	908	1231	716	250 (est.)

Quadrats: The species present in the four quadrats were recorded between 27 June and 5 July.

Water Level: Although there was an average rainfall this year, the water table was the lowest since recording began in 1958. The level did not ever reach ground level; the highest recordings were on 21 March and 9 May at -3 cm., and -1 cm. from 5 December to the end of the year. For most of the year the level was well below -10 cm.

An account of the experiment by G. Crompton and S. M. Walters was published in Society for the Promotion of Nature Reserves' Handbook for 1964 and a synopsis of this article was published in Nature, Feb. 13, 1965.

A short account of the experiment was given to the "Symposium on Grazing" held at Monkswood in April 1965.

The Thriplow Meadow experiment has been included by the S.P.N.R. in the list of British experiments in Conservation compiled by the Sub-committee on Conservation of Terrestrial Communities of the British National Committee for the International Biological Programme.

NOTES ON SOME HEDGEROWS IN CAMBRIDGESHIRE

M. D. Hooper

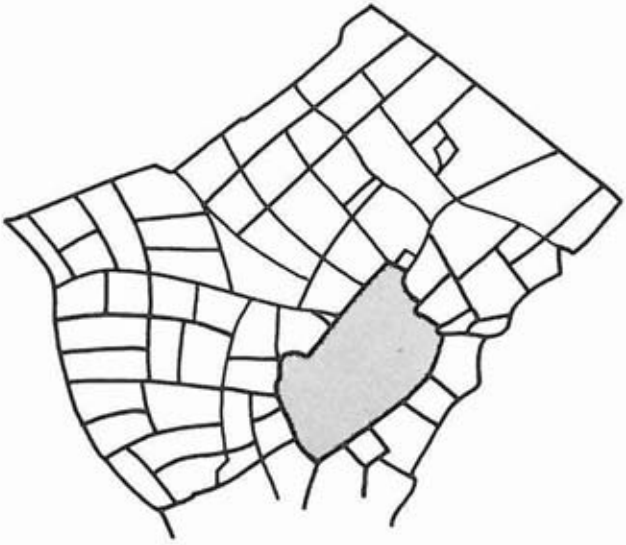
Hedges have been part of the agricultural landscape at least since Saxon times: in some parts of England hedges mentioned in Saxon charters can still be traced today. For Cambridgeshire there are two Saxon charters which give boundaries but with no mention of hedges. The earlier, dated 974, is for a grant of land from King Eadgar to the thegn Elfhelm at West Wratting. Here the Saxon boundary is still preserved as the present parish boundary and now has hedges almost throughout its length. The later charter, dated 1012, is actually for land in Huntingdonshire but the boundary given is now also that of the northern part of the contiguous parish of Conington in Cambridgeshire. The first mention of actual hedges in Cambridgeshire is in various entries in Domesday book. The usual form of entry for woodland in the western half of the county indicates that a village had wood for fences; Childerley, for example, had wood for fences and Graveley had wood for both fences and houses. Such entries, particularly when the wood will do for houses as well, seems to imply a supply of fairly bulky timbers, and this in turn may indicate that the fences were true fences and not hedges. At most they might have been "dead" hedges made of stakes driven into the ground with brushwood woven between them to make an impenetrable screen.

Now even if these fences mentioned in 1086 were true fences or "dead" hedges there can be little doubt that where either were permanently in place a live hedge could arise by colonisation from seed or the rooting of some of the plants used in making the dead hedge, so that it is very probable that all three types were to be found in the county a thousand years ago.

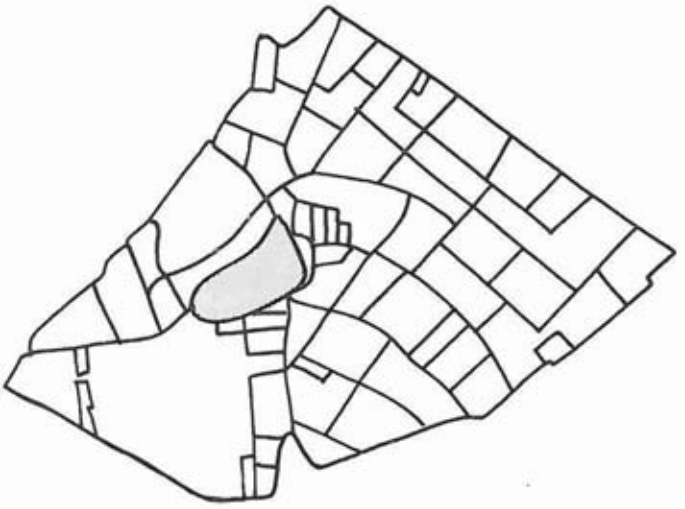
Hedges at this time were of course very much less frequent than they are now. Hedges would be found primarily where stock had to be kept away from growing crops, and in the Open Field system of agriculture this would mean a ring fence round the manor estate and fences around the pastures or meadows that were never cultivated. The bulk of the land lay in two or three large fields, which even if they were fenced would have required only about a tenth of the mileage of hedge now found.

Variants of this system of agriculture persisted until comparatively recently, so that there are maps available showing the general layout of the fields and pastures. Unfortunately only a few for Cambridge villages have survived. One of the most interesting of these is for Boxworth by Mathew Haywarde, dated 1654, which can be seen in the Huntingdon Record Office. This map shows the village, its boundary fence, and the grassland enclosures with their fences. It also shows the open fields divided up into furlongs and the furlongs divided up into strips. Most of the furlongs adjoined driftways, which were primarily wide grass paths used for access to the strips, but which were also very frequently used for grazing and may therefore have had hedges of some sort. If one compares the position of these putative hedges in 1654 with the boundaries shown

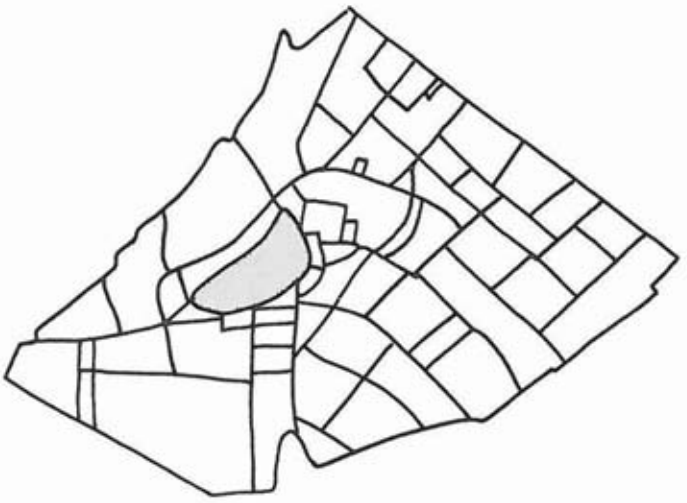
Map No. 1. Boxworth in 1654. Solid lines indicate permanent fences, broken lines indicate driftways which were used as field boundaries at the time of enclosure.



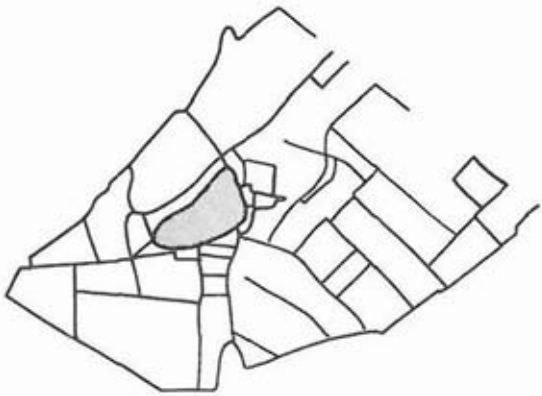
Map No. 2. Boxworth in 1853. Solid lines indicate the fences erected after enclosure.



Map No. 3. Conington in 1800. The field boundaries after enclosure.



Map No. 4. Conington in 1946. Hedges, redrawn from aerial photographs.



Map No. 5. Conington in 1964. Hedges, redrawn from aerial photographs.

on a map of 1853 (also in the Huntingdon Record Office) there is a remarkable conformity. It looks as though when the open fields were enclosed those who carried it out took the easiest course open to them and put their fences where there was at least a line of bushes before. (See maps 1 and 2).

In this early system of farming the basic unit was the strip within the furlong; each man in the village worked a number of strips in each field, but in the beginning his strips would be widely scattered. In some places this scattered form of holding lasted until the nineteenth century, since strips were periodically reallocated, but in other places the same man worked the same strips year after year. This latter practice led to the exchanging of strips until all the strips belonging to one person lay side by side. When this occurred the owner stood a reasonable chance of putting a fence round his own land, but he had to have luck on his side, for enclosing in this way was going against custom and, when undertaken on a large scale, thought to be deleterious to the welfare of the village. Many statutes up till the early seventeenth century forbade it, but there were often loopholes of one sort or another in the law. In some reigns such enclosures, though properly illegal, were allowed on payment of a fine. In 1633-34 it was proposed that all enclosures made since 1619 should be thrown open unless compounded for. The amounts of composition are known for several dates and several counties, and from them it appears that enclosure was not prevalent in Cambridge; the total composition for 1637 was £170, whereas Huntingdon, which also had very little enclosure in this period, paid £1,837.

Apart from those who profited by such connivance, the feelings against enclosure among the people ran very high. This was because early large-scale enclosure was invariably associated with sheep ranching rather than arable farming: sheep needed a small labour force and many people were thrown out of work.

Nevertheless enclosure continued, and where there was enclosure there were hedges planted. There can be little doubt that these enclosures of Tudor and Stuart times were hedged, for the farming textbooks of the time give careful instructions for making hedges and make no mention of fences. Less direct but still useful evidence comes from the fact that our language was being enriched with hedge terms in this period. 'Hedge' itself is Anglo-Saxon in date, but early combinations such as hedgehog appear about 1450, hedge sparrow in 1530 and hedge-parson as a term of contempt also in 1530.

Another type of evidence comes from descriptions of the country. Gonner (1912), for example, compares descriptions by Leland in the 1580's with descriptions by Ogilby in 1675. He shows that although there was an increase, in Cambridgeshire, of enclosures between these two dates, 60% of the roadside lands were still unenclosed in 1675. This figure of 60% must be compared with 67% for Huntingdon on the one side and 3% for Essex on the other. Enclosure cases brought under the first Elizabethan act which are in the Exchequer Memoranda Rolls also indicate a paucity of enclosure in the area: there were only three cases in Cambridge and Huntingdon but thirty-four cases in Northampton. Both Huntingdon and Cambridge were still largely unenclosed in the seventeenth century.

At this time, just after the Civil War, the feeling against enclosure waned somewhat. This period from 1650 to 1750 in fact saw the beginnings of a new agriculture. Turnips were suggested as a crop first by Weston in 1645 and then by Jethro Tull, who also began the mechanization of husbandry with the seed drill in 1701, and their virtues were finally established by "Turnip" Townshend. Potatoes were another crop suggested (in 1699 by Worlidge) and it rapidly became apparent that such improvements in crops and techniques were difficult to apply in the Open Field system. Bills were frequently introduced into Parliament to facilitate enclosure, but did not become law. It was not until about 1730 that Acts began at last to be passed. Up to 1801, when the first general act was passed, each of these acts dealt with a single parish, and we have a mass of records dealing with the enclosures of this time. There is often the act itself with a map of the new fields created, and there are also general surveys for most counties, published around 1800 by the Board of Agriculture, which deal quite fully with enclosures.

One parish in Cambridgeshire which can be studied from both these sources is Conington. Here enclosure was in the planning stages around 1780, when questionnaires were sent to a number of parishes as part of a plan for the General Survey of the Agriculture of Cambridge. The incumbent of Conington was extremely worried by the possible effects of enclosure and returned depressing answers to the questions. The parish was enclosed in 1800 and the Survey by Gooch was published in 1811 with the answers to the questions of 1780, so that there is a fairly clear picture before and after enclosure.

The parish of Conington is roughly 1500 acres in extent. Before enclosure it followed the Open Field system and it was divided up into:

1.	Open field arable land	981 acres
2.	Common meadow	41 acres
3.	Lot grass	93 acres
4.	Common pasture	246 acres
5.	Old enclosures, village and gardens	104 acres

The Rector thought that enclosure would mean a decrease in productions of both crops and livestock.

In 1800 the parish was enclosed at a cost of some £2,000. Allotments of land were made to the Rector in lieu of tithes and to the other landowners (the resulting field system is shown in map 3), and by 1811 Gooch could report that the enclosure had doubled the Rector's income! Somewhat illogically he seems to have continued to maintain that enclosure was not a benefit.

The enclosure movement of which Conington is an example continued until recent times. Certain modifications of form were made from time to time but most acts are very similar, with allotments in lieu of tithe, allotments to the landholders and sometimes, as at Sawston, very small allotments of about one acre to people who had no land in the open field but who did possess common rights because they occupied old houses in the village.

This enclosure period was responsible for the majority of hedges in the Midlands, for each act laid down that an allotment had to be fenced within a year and often went so far in detail as to allow a landowner access to a neighbour's land for seven years to build a fence to protect the young hedge from grazing animals. Many other hedges were planted at this time as subdivisions of large allotments, either because theorists on horse husbandry declared that the ideal field size was 25 to 30 acres or because graziers such as Bakewell declared that small paddocks gave better yields than large fields.

In general there was very little change in the hedge system between the enclosure act and the 1939-45 war, as the maps of Conington show (see maps 3 and 4), but now we are experiencing more major changes in agriculture - a swing to arable farming and intensive mechanization - which are leading to a decline in hedges, as the last map (map 5) of Conington shows.

All this at first sight may not appear to be important to a conservationist. It is true that even in a country with an expanding population, where food production is important, some areas have been set aside as nature reserves. But with an expanding population more and more space is required for houses and roads; and reserves have to be in more and more inaccessible places. Much of England was originally wooded, but as the population increased the woods were cleared for farming and habitats for woodland plants and animals became less frequent. Yet even on the most intensively farmed land there is still a considerable amount of wildlife which has managed to survive because of the presence of hedges, and much of this has a woodland character. Hence a historical study of the increase in

hedges and the decrease in woods and the transfer of wildlife from one habitat to another should prove interesting to a naturalist. A beginning has been made. For example, by comparing the flora of hedges on Saxon boundaries at West Wratting and Conington, which may be a thousand years old, with hedges planted more recently we can now give a rough estimate of the rate of colonization of hedges by shrubs. Colonization appears to proceed at the rate of one new species of shrub per 100 years. The Saxon hedges have about ten, Tudor hedges four, and enclosure-act hedges two species of shrub. Perhaps this study may never be completed, for this part of the country is now losing what it has taken centuries to gain - the hedge, which is our largest reserve of woodland species.

Acknowledgement

I am indebted to Mr. P. G. M. Dickinson, F. S. A., County Archivist of Huntingdonshire, for drawing my attention to the maps of Boxworth and allowing me facilities to study them.

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Legend for Maps

The stippled area represents houses and gardens in all maps.

A HISTORY OF THE VERTEBRATES OF BASSINGBOURN AND KNEESWORTH *

P. D. Sell

The parish of Bassingbourn occupies an area of 3,204 acres, and at the 1961 census had a population of 2,509 people. The adjacent hamlet of Kneesworth occupies 879 acres, and in 1961 had a population of 144 people. The area as a whole is situated on the southern border of Cambridgeshire, adjoining the Hertfordshire town of Royston. The whole of its southern half is occupied by large fields surrounded by low hedgerows. From east to west through the centre of this southern area is a low ridge, rising to about 175 ft. above sea level, the highest point in the villages, and dropping southward to the Royston-Baldock road, and northward to the main part of the two villages.

The light, dry, shallow soil overlies the chalk. Where the Kneesworth-Royston road crosses the ridge is the Kneesworth chalk pit. Until a few years ago it was surrounded by a short turf, similar in constituents to that of Royston Heath. It is possible that at one time the whole of this area was covered with such turf and grazed by sheep. On the flatter ground, between the ridge and Kneesworth, running from the east at Melbourn westward to Ashwell, is the broad grassy track known as Ashwell Street, Roman or pre-Roman in origin, little disturbed except by camping gypsies and farm vehicles, and also by the laying of a water pipe up it during 1965. A few farm buildings are the only signs of habitation in the area south of Ashwell Street.

To the east of the Kneesworth-Royston road (hamlet of Kneesworth) and north of Ashwell Street, a plantation runs north and links up with the trees surrounding Kneesworth Hall. Scattered trees continue the belt through the hamlet itself until it joins the plantation at the back of Jarman's farm. In 1949 most of the plantation near Ashwell Street was cut down, but it is now growing up again. Until the war the grounds of Kneesworth Hall were beautifully kept. They deteriorated while occupied by American servicemen during the war, and have improved little in the hands of the Approved School Authority which has been there ever

* Part 2, being an account of the birds, will be published in next year's Journal.

since. There is a fair amount of grassland about the Hall and around Jarman's Farm. On both sides of Chestnut Lane running to the boundaries of Whaddon and Meldreth is more arable land separated by ditches and/or hedgerows. From Kneesworth running west to Litlington is the road by which most of the houses in the village of Bassingbourn are built. By this road there used to be a number of old orchards, but most of them have now been cut down. Between this road and Ashwell Street run two parallel connecting roads. The one nearest Kneesworth, appropriately called Spring Lane because of the number of springs that arise in its vicinity, has by it a number of meadows and old orchards. The other, South End, is more heavily populated. A track leads from it to the area known as Well Head. From the numerous springs to be found at Well Head arises the small river known variously as Brook, Mill or Fen River, which runs from south to north and joins the River Cam at Wendy. The springs are surrounded by a thicket of bushes and tall trees including poplars and willows. Adjacent is the Bassingbourn chalk pit, also surrounded by a thicket of bushes. This beautiful area was ruined a few years ago when the springs were leased by the Council to a watercress firm, who cut down many of the bushes and cleaned out the pool. It was afterwards found that the Council had no right to let the pool, and operations ceased. There is now a cleared pool surrounded by a mass of arable weeds. All the remaining area between the Kneesworth-Litlington road and Ashwell Street is arable land. The Bassingbourn-Litlington boundary is here divided by a trackway known as Abington Baulk.
is more arable land, which finally opens out on to the open expanse of the aerodrome. North of the High Street and east of the North End road runs a series of gardens, meadows, old orchards, and small fields. Trees are here fairly numerous. Between the Cross and Brook Bridge north to Mill Lane are more meadows and old orchards with numerous trees. By the small river near Brook Bridge is the area known as Mill Homes, intersected with dykes, which used to act as an overflow to store up water used to work the mill wheel. A marshy area with marshy vegetation, it is now drying out and becoming overgrown with nettles. Nearly all the remaining land in the village is arable, and was that now occupied by the aerodrome until 1937. North of Fen Bridge, until about ten years ago, there was a meadow, often flooded in winter, with wide hedgerows, a thicket, and some broad, usually empty dykes. These dykes probably had some connection with John O'Gaunt's castle, which formerly stood near by. This meadow and two fields had their boundary ditches and hedgerows removed, and the whole was levelled to form one very large field. The fields from Shadbury Lane west to the Litlington and Abington Pigotts boundary (Newcut) were formerly the site of coprolite digging. A long pit, bounded by a thicket on its west side, on the Litlington boundary marks the beginning of the diggings. A long mount at the north-east end of the field covered with a thicket is made up of the earth taken from it. A small mount in the field to the north shows where much of the cleaning work was carried out. A long pit in the next field,

now filled up with rubbish, shows the end of the diggings. The soil gets heavier and deeper as one goes north, and finally runs into the glacial deposit of chalky boulder clay. The hedgerows in the northern half of the village used to be higher and wider than those in the southern half, but more and more of them are being completely cut down.

The whole area appears to be getting much dryer. Fields are now very rarely water-logged in winter, and more and more ditches remain empty throughout the year. The ditch running from Spring Lane to Guy's Lane, and the small river running along the Abington Pigotts boundary, are badly polluted from sewage disposal. The pit on the Litlington boundary has also been polluted from an unknown source. Trees are slowly disappearing from the villages and no attempt is being made to replace them. Very few tall hedgerows now exist, many having been completely uprooted or cut to the ground. Nearly all the fields are now regularly sprayed for weeds, a practice which started around the beginning of the 1950's and had become regular by the end of that decade. Potatoes, beans, and green crops are also sprayed for various reasons. Barley is now the main cereal crop, followed by wheat. Up till and including the 1940's, wheat was the main cereal, and a good acreage of oats was also grown. Oats are now rarely seen, and the same is true of rye and beans. There is a large acreage of Brussels sprouts and sugar beet, and cabbage, peas, and occasionally a small acreage of vegetables are grown. Manuring of the ground has also brought a change. Formerly the fields were dunged in rotation, and then left fallow every three or four years. Now they are all treated with artificial manure yearly, and rarely left fallow. Fields where Trefoil (actually Medicago lupulina) is grown for seed are probably the only ones in which there has been little change in management. The harvest has also much changed. Until the early 1950's the corn was cut by the binder and the sheaves were put in stooks and later carted to stackyards to be thrashed out some time during the winter. At least some straw stacks were always left in the yard. Now all the corn is cut by combine-harvester. The straw is either baled and put in heaps near the farmyard, or burnt together with the stubble. In the last year or so much more of it has been burnt, and many hedgerows and trees have been scorched in the process. These drastic changes in farming over the last fifteen years have had a profound effect on the fauna of the area.

Most of the orchards in the villages are badly neglected. Little pruning is done and no spraying. The trees are old and many of them are dying. As with the wild trees very few are being replaced. Several housing estates have been built since the war, but so far they have had little effect on the fauna. Meadows were always few in number and they are now being slowly ploughed up. Roadsides instead of being scythed once a year are being machine-cut two or three times a year. The aerodrome, in area nearly a mile square, is an open waste of well-trimmed grass and runways with an absence of trees.

The following account is based on the records published by J. P. Nunn and H. A. Course from the Royston area, my own work from about 1940 onwards, and information

gleaned from the local people during that period. Many records from the Royston area are doubtfully within the boundaries of the parishes. Nunn lived at Hoy's Farm for the latter part of his life, and during this period he was writing his 'Notes from Royston' for the Naturalists' Journal. Many of his day-to-day observations would be made from his farm, which is well within the village of Bassingbourn. The telegraph wires he complains about so bitterly, because of the birds that were injured on them, are almost certainly those which used to run by the Old North Road. I have myself seen many birds killed by them. The Royston Sewage Farm is on the southern boundary of Kneesworth, and it is very improbable that birds visiting it do not pass through the area here discussed. For this reason and because it shows the trend of migratory birds passing through the area, I have included all the species recorded by Course from there. Species that have not been expressly recorded from Bassingbourn or Kneesworth, and those that are doubtful, are unnumbered and enclosed in square brackets.

During the 1940's I systematically combed the hedgerows and trees of the villages with a party of helpers, to determine the status of the breeding birds. A general impression of the status of each species was written down in 1946. During the latter part of the 1940's I examined specimens of all the common species occurring in the villages. Such species are marked in the text with an asterisk. Throughout the remainder of the period I have made a large series of notes now included in a card index in my possession. A further general impression of the status of each species was written down in 1954. I was unfortunately away from Bassingbourn during the severe winter of 1962-3. In 1965 I spent my weekends and part of my holiday systematically working the area, but it was an unusually wet summer and I do not think it particularly safe to make general impressions from my results. The remarks made on the agricultural methods are not those of an outsider, but those of a countryman who has over many years done practically all the jobs that have to be done on a farm.

I am especially grateful to the farmers of Bassingbourn and Kneesworth for tolerating the birds-nesting escapades of my youth, and for allowing me to wander over their land in later years. I am also grateful to the Department of Zoology, Cambridge, and the British Museum, Natural History, London, for allowing me to use their libraries, and to the Radcliffe Science Library, Oxford, for loaning me the relevant volumes of the Naturalists' Journal. To my former schoolmates who reported all their nesting discoveries to me and to the many local people with whom I have discussed birds I am much indebted. If any readers have additions or corrections to this account I should be glad to hear from them at Fen Road, Bassingbourn.

PISCES (FISH)

The decrease in numbers of the fish of the area is due to the drying up of most of the ditches, and perhaps to the pollution of others.

1. * Salmo trutta (L.) Trout

Has always been fairly numerous in the river between Well Head and Wendy, and in its small tributaries between Brook Bridge and the Mill. Formerly in the small river on the Abington Pigotts boundary and may still occur there. They do not seem to attain so large a size as they did fifteen years ago.

2. * Esox lucius (L.) Pike or Jack

Formerly in Fen River and in the river on the Abington Pigotts boundary, but not seen in the last decade.

3. * Scardinius erythrophthalmus (L.) Rudd

Large numbers in the pit on the Litlington boundary until a few years ago. They must originally have been introduced there, and pollution seems to have now exterminated them. Numbers of fish from this pit were introduced into Fen River, where I have occasionally seen them since. Local fishermen have reported Roach (Rutilus rutilus (L.)) from the river, but I am not convinced that they know them from Rudd. Either Roach or Rudd used to occur in the stream that runs through Kneesworth to Whaddon.

4. * Anguilla anguilla (L.) Eel

Common in the river between Well Head and Wendy, though perhaps not so frequent as formerly. Formerly in the small river on the Abington Pigotts boundary, where it may still occur.

5. * Cottus gobio (L.) Miller's Thumb

Occurs in the river between Well Head and Wendy wherever there are suitable stones and brickwork for it to hide under. Formerly in some of the tributaries of this river now dried up, and in the ditch running from Spring Lane to Wendy, where I have not seen it in recent years.

6. * Gasterosteus aculeatus L. Three-Spined Stickleback

Until the end of the 1950's very common in the small rivers and streams throughout the villages. Now only certainly in the river between Well Head and Wendy, its tributaries between Brook Bridge and Shadbury Lane, and the stream running through Kneesworth to Whaddon. The drying up of all the small ditches and streams during the summers of the last few years has exterminated them elsewhere. The small river on the Abington Pigotts bound-

ary and the stream from Spring Lane to Guy's Lane are so discoloured by pollution that I am unable to ascertain whether there are now any fish there at all.

BATRACHIA

Total or nearly total extinction of the last two species is almost certainly connected with spraying, since the disappearance occurred before the drying up of ditches that were their main breeding haunts.

1. * Triturus vulgaris vulgaris (L.) Smooth Newt

In the 1940's in a number of ditches and in the river between Well Head and Wendy. I have not seen it since.

2. * Rana temporaria temporaria (L) Common Frog

During the 1940's and early part of the 1950's it was abundant throughout the two villages, breeding in the spring wherever there was shallow water. During harvest the stubble was alive with young frogs, and on a wet summer's evening large numbers of young and adults could be seen hopping up the roads. By the end of the 1950's I thought they were extinct, but one young one was seen in Newcut fields in 1965. The only water in that area was in the pit on the Litlington boundary, and in the small river on the Abington Pigotts boundary. Both these areas of water are polluted.

3. * Bufo bufo bufo (L.) Common Toad

Though never quite as common as the Frog, it was nevertheless as widespread, and bred in all the same areas of water, the spawn often being intermixed. Disappeared at the same time as the Frog and apparently now extinct.

REPTILIA

1. Anguis fragilis (L.) Slow Worm

One with six young brought to J. P. Nunn on the 21st August 1893 (Nunn, 1893).

2. * Lacerta vivipara (Jacquin) Common Lizard

Seen several times at the Well Head chalk pit during the 1940's. One lived under a stone in our garden by Fen Road for some months in 1954.

3. * Natrix natrix natrix (L.) Grass Snake

Seen frequently in the 1940's and early 1950's, especially in dung heaps, but not since.

MAMMALIA

The main general factor that has brought about a change in the population of mammals is the changing cycle of the farming year. Shooting and trapping do not seem to me to be the cause of a decline in numbers of any species. Sprays may have some effect.

1. * Erinaceus europaeus (L.) Hedgehog

Common throughout the area.

2. * Sorex araneus castaneus (Jenyns) Common Shrew

Common throughout the area.

3. Neomys fodiens bicolor (Shaw) Water Shrew

Two seen by the stream running from Spring Lane to Guy's Lane in 1947. One seen in Fen River in February 1952.

4. * Talpa europaea (L.) Mole

Very common throughout the 1940's and 1950's as it apparently had been for many years. Formerly large numbers were trapped for their skins. Much reduced in numbers during the last few years.

5. * Nyctalis noctula (Schreber) Noctule

There used to be colonies somewhere in the regions of Fen Bridge and of Shadbury Lane, for they flew regularly in these areas until the early 1950's. One seen over the cemetery in 1954. Not seen since 1954.

6. * Pipistrellus pipistrellus (Schreber) Pipistrelle

Occurs throughout the villages, but apparently not so common as formerly.

7. * Myotis daubentoni (Kuhl) Daubenton's or Water Bat

One brought to me alive was caught on the Wendy boundary in July 1950.

8. Plecotus auritus (L.) Long-Eared Bat

One in an old air-raid shelter at North End on 21 September 1949.

9. * Oryctolagus cuniculus (L.) Rabbit

Very common before the war. Numbers were kept down during and after the war by shooting, trapping and gassing. Almost completely exterminated by myxomatosis in 1955. A few survived through the remainder of the 1950's, then suddenly increased in the 1960's. Now very

common and probably in greater numbers than before myxomatosis. Black varieties often seen. They are apparently changed in their habits since myxomatosis. Before 1955, the majority lived in burrow communities and only a few above ground in the hedgerows. Great concentric zones radiating from the burrow communities showed the feeding area. The few left in the late 1950's lived mainly above ground. It may be that those living above ground originally had a greater chance of survival through having less contact with each other. The population of the present day does go underground, but not as much as the pre-1955 Rabbits did. The characteristic feeding zones seem to be no longer in evidence, the Rabbits wandering all over the fields, rather supporting the theory that they have no definite home. This is also supported by their actions during the cutting of the cornfields. Formerly they hid in the corn before making a final direct dash to their homes. Now they wander in and out of the corn and seem loth to leave the field as though it was their home. Sporadic outbursts of myxomatosis still occur, but fewer Rabbits seem to die from them.

10.* Lepus europaeus occidentalis De Winton Brown Hare

Common in all the fields of the villages. Some of the farmers say it has increased in the last few years, but I see no evidence of this. Special shoots are now sometimes organised outside the normal season, to lower the numbers.

11.* Microtus agrestis hirtus (Bellamy)
Short-Tailed or Field Vole

One impaled by a Red-Backed Shrike on a thorn on 1 July, 1893 (Nunn, 1893). Formerly common in the stooks during harvest. Presumably still frequent as I see runs which are probably of this species in the hedgerows (I have never seen a Bank Vole (Clethrionomys glareosus) in this area), and our cat regularly caught them during the autumn of 1965.

12.* Arvicola amphibius amphibius (L.) Water Vole or Rat

In the river between Well Head and Wendy, the small river on the Abington Pigotts boundary and the stream running through Kneesworth.

13.* Apodemus sylvaticus sylvaticus (L.)
Long-Tailed Field Mouse or Wood Mouse

Formerly commonly seen during the harvest in the stooks and during the cutting and carting of the corn, and very common about the stackyards in winter. Still seen often enough to suggest that the population is quite high.

14.* Micromys minutus soricinus (Hermann)
Harvest Mouse

Seen from time to time in fields about the two villages, but never consistently in one place. This of course does not mean they are absent. Though I have seen nearly every harvest in the Newcut fields for nearly thirty years, sometimes I see the nests and sometimes I do not. In 1956 there was a particularly large number of nests in Newcut.

15.* Mus musculus domesticus (Rutty) House Mouse

Formerly in great abundance in stackyards during winter and still common about buildings, as well as in the hedgerows.

16. Rattus rattus (L.) Black Rat

Nunn (1893) writes: 'March 5th [1893] two of the old English black rats (Mus rattus) were killed here [? his farm], and are now being preserved by Mr. W. Norman, of this town [Royston]. It is now more than forty years since I found a litter of them in a corn stack.' One dead near Shadbury Lane on 5 December 1965. Its length of head and body was 215 mm., the tail 225 mm. The head and ear shape was characteristic and the hair blackish-grey. Its presence there was unexplainable.

17.* Rattus norvegicus (Berkenhout) Brown Rat

Mentioned by Nunn (1892). Abundant throughout the area especially around buildings, but also in hedgerows and along ditches. They often feed on sugar beet in winter. Do much damage in buildings, because of which they are much trapped and poisoned. Formerly abundant in corn and straw stacks.

18.* Sciurus carolinensis (Gmel) Grey Squirrel

Occasionally seen during the 1940's especially in the neighbourhood of the vicarage. Steadily increased throughout the 1950's and now throughout the village wherever there are trees. Black varieties are occasionally seen.

19.* Vulpes vulpes crucigera (Bechstein) Fox

There have always been some half-dozen earths scattered about the villages. The area was formerly ridden over by the hunt, but it has not been for many years. Foxes are shot by the farmers whenever the opportunity occurs.

20. Meles meles meles (L.) Badger

One caught in some wire netting at Spring Lane was reported in the Herts. and Cambs. Reporter for 28 February 1964. There was formerly said to be a set in a mound of earth near where John O' Gaunt's Castle once stood.

21.* Lutra lutra (L.) Otter

One shot in the river near the Wendy boundary in December 1949. According to the local people used to be in a stream that runs through Kneesworth to Whaddon. Some farm labourers have occasionally seen them along Fen River and in the river by the Abington Pigotts boundary.

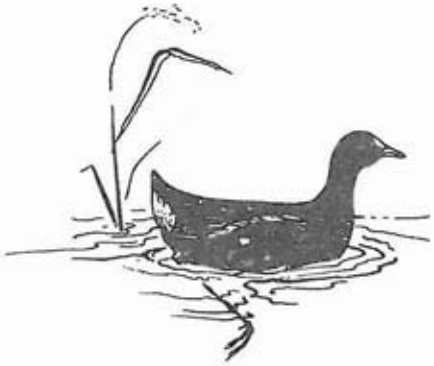
22.* Mustela erminea stabilis (Barrett-Hamilton) Stoat

During the 1940's and much of the 1950's could be found throughout the area, but now seems to be extinct.

23. Mustela nivalis nivalis (L.) Weasel

Occurs throughout the villages.

[In the 1940's and early 1950's feral Ferrets including those like the Polecat (Mustela putorius L.) were occasionally seen. With the extinction of the Rabbit the keeping of Ferrets stopped.]



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THE CAMBRIDGESHIRE FLEAS: A SPECIES LIST AND NOTES ON COLLECTION

R. S. George,

Fleas are small ectoparasitic insects which feed on the blood of mammals and birds; their larvae feed on organic debris in the nest material or on droppings in the roosting area. A number are host-specific and others can breed successfully when feeding on any of a variety of hosts. Generally speaking they breed in their hosts' nest material, and it is from this material that the largest numbers can be gathered. Nevertheless many species are most conveniently collected from their hosts' bodies. Clearly then a siphonapterist needs to be a mammalogist, an ornithologist, and an ecologist. Herein lies the fascination of fleas. But many ornithologists and mammalogists are quite ignorant of the parasitic fauna of the animals they study and thus lose the opportunity to add to scientific knowledge.

Nest collection provides the greatest number of specimens and species. The nest material should be stored in very tightly sealed tins or, preferably, stout polythene bags. At convenience the material can either be subjected to extraction procedures such as the use of Tullgren or Berlese funnels or be searched manually, which takes many hours but gives far better results. The apparatus needed is: a large steep-sided white bowl, specimen tubes containing 70% alcohol, dissecting needle, large sheet of white paper, large tin. The collector should wear a white shirt and work with sleeves rolled up.

A small amount of nest material is placed in the bowl and adult fleas picked up on the alcohol-moistened tip of the needle and transferred to the specimen tube. In the nest material there may be cocoons which can be opened at the truncated end, and, usually the adult flea will emerge with a rush, only to be collected. When it seems that the nest sample contains no more fleas, it can be put, as debris, into the large tin, which will prevent any overlooked specimens from escaping. Any which jump free on to the table and surrounds will be seen on the white paper or the bare forearms or white shirt of the collector. This method of collecting will produce several hundreds of specimens as against the scores given by funnel methods, and will thus provide more accurate information concerning species/population studies and more certainly show up any which may be present in very small numbers. It is the easiest way of collecting bird fleas.

Body collection is the easiest way of gathering rodent, badger, fox, squirrel, cat, dog and hedgehog fleas, and almost the only way of gathering bat fleas. Many human fleas are collected from bodies! Mammals shot or trapped for other purposes can yield fleas; bats should be hand gathered. The methods of flea collecting vary according to size:-

(i) Large bodies, such as fox or badger, should be visually examined first of all and specimens tubed. Then they can be hung over a wide pan of water to which a little detergent has been added. As the fleas drop in the water they sink and drown, to be collected later.

(ii) Medium bodies, such as squirrels, rats, and hedgehogs, should be put into a polythene bag with a little ether or chloroform. After a few minutes they can be searched over white paper, and all parasites including lice, ticks and mites collected. If the host is to be kept alive the anaesthetic should be ether and a glass container should be used. Searching should then be done immediately the animal becomes unconscious.
(iii) Small bodies, such as mice and shrews, are most easily obtained by trapping. If they are live-trapped and live-release is the objective, very slight anaesthesia should be obtained with ether or the animal can be held by the scruff of its neck over white cloth while the collector blows through its fur. HThe fleas will, generally, hop off and get entangled in cloth fibres. However, live-traps are bulky and expensive, and most mice and shrews are so common that losses resulting from the use of nipper traps, which are small and cheap, make negligible effects on the population. (This may not be a valid comment for very small islands). Here I propose to describe my own method, which needs a minimum of equipment and cost. The equipment, apart from the traps, is a largish tin, a supply of old envelopes, collecting tubes, 70% alcohol, and an anaesthetic. The traps, which should be set very fine, should be visited at least twice a day, early and late. When I find that a trap contains a body I place on the ground close to it an open envelope. I very gently lift trap and body, lower them into the envelope, and then release the body. The envelope is rolled shut and put in the tin with some anaesthetic, the lid replaced, the trap rebaited and reset, and the tour of the trap line continued. By the time I reach home all ectoparasites are dead. The envelopes and bodies are examined one by one and the parasites collected. Often fleas will crawl into seams, and each envelope is torn apart in the search for these (N.B. Mites have a far greater resistance to both chloroform and ether than insects). Some collectors use cloth bags, but these introduce a considerable risk of a parasite's being overlooked in a seam and shaking loose with a different host species later on, thus resulting in inaccurate host/parasite records; the envelope method eliminates this potential error.
(iv) Bat fleas should always be collected from live hosts, for bat populations are rarely very large. The apparatus is a jam jar, blotting paper, and ether. The bat is put into the jam jar, then a small piece of blotting paper with three drops of ether (never chloroform) is put in, and the jar closed with a hand. Immediately the bat becomes unconscious it is tipped out and searched. Usually it will recover in two or three minutes.
(v) Living birds should be examined with the use of the Williamson apparatus (Williamson, 1954), which is expensive and, in part, fragile. A rough version can be made out of a piece of oil-cloth and a jam jar. Some anaesthetic is put in the jar, the bird's head put through a small hole in the oil-cloth, and the body of the bird lowered into the jar. The oil-cloth closes the top of the jar and keeps fumes away from the bird's head. As

the bird flutters, the parasites amongst its feathers are anaesthetized and fall off, and can be collected later. It is essential that the jar should be cleaned with great care to prevent parasites from one bird from being collected into a tube referring to a bird that is examined later.

Labelling. It is desirable that each collection, i.e. from individual nests or bodies, be tubed separately, and essential that each tube be adequately labelled. The data should include: host species, whether body or nest, locality, county, date, collector's name, written in pencil or indian ink on a slip of paper placed inside the tube. Identification is a comparatively simple matter with the aid of Smit (1957b).

In the notes which follow, the textual arrangement of A Flora of Cambridgeshire has been followed with modifications. After the scientific name, a vernacular name is given in the few cases where such use is justified. Then the most frequent hosts are named, those which are commonly casual hosts are underlined, and the words body and/or nest indicate the source from which specimens are normally collected. Distribution is indicated by listing the Ordnance Survey Grid Reference numbers given on the map in the Flora. In some cases the published records are not sufficiently precise to allocate the record to a square, and the term "Cambs." is used. Where the most recent record is post-1950 the square number is given in roman numerals, between 1930 and 1950 underlined, and pre-1930 in square brackets. The paucity of and age of many of the records becomes immediately obvious for even the commonest of species. Finally references are made to the bibliography. At the end of the list of species already recorded in the county is a forecast of those which may yet be found. Material which has come to my notice up to 31st October 1965 has been included.

PULICIDAE

Pulex irritans Linnaeus, 1758. The Human Flea. Man, badger, pig. Body, nest. [45].
Hopkins and Rothschild, 1953; Nuttall and Strickland, 1913; Smit, 1957a.

Archaeopsylla e. erinacei (Bouché, 1835). The Hedgehog Flea. Hedgehog. Body. [36], 44, 45, [46].
George, 1965; Hopkins and Rothschild, 1953; Smit, 1957a.

Ctenocephalides canis (Curtis, 1826). The Dog Flea. Dog, cat, fox. Body. [36], [45].
Hopkins and Rothschild, 1953; Smit, 1957a.

Ctenocephalides f. felis (Bouché, 1835). The Cat Flea. Cat, man. Body. 44, [45].
George, 1965; Hopkins and Rothschild, 1953; Smit, 1957a.

Spilopsyllus cuniculi (Dale, 1878). The Rabbit Flea. Rabbit, cat, fox. Body. 49, 55.
Briggs and Page, 1964; Briggs, 1964.

HYSTRICHOPSYLLIDAE

Hystrichopsylla t. talpae (Curtis, 1826). The Mole Flea. Field Mouse, Bank Vole, Field Vole, Common Shrew, Pygmy Shrew, Mole. Body, nest. 36, 44, 55, 57.
George, 1965; Hopkins and Rothschild, 1962; Smit, 1956, 1957a; Thompson, 1955.
Rhadinopsylla pentacantha (Rothschild, 1897). Field Mouse, Bank Vole, Field Vole. [36], 44, 45, 55.
Hopkins and Rothschild, 1962; Smit, 1957a.
Doratopsylla d. dasycnema (Rothschild, 1897). Common Shrew, Pygmy Shrew, Water Shrew. Body. 44, 45, 55.
George, 1965.
Palaeopsylla m. minor (Dale, 1878). Mole. Body, nest. 44.
George, 1965; Smit, 1957a.
Palaeopsylla s. soricis (Dale, 1878). Common Shrew, Pygmy Shrew, Water Shrew. Body. 44, 45, 55, 57.
George, 1965.
Ctenophthalmus n. nobilis (Rothschild, 1898). Field Mouse, Water Vole, Bank Vole, Field Vole, House Mouse, Common Shrew, Pygmy Shrew, Stoat, Weasel, Brown Rat, Mole. 25, 36, 44, 45, 55, 56, 57, 40.
George, 1965; Nuttall and Strickland, 1913; Pearce, 1915; Rothschild, 1898; Smit, 1955, 1957a.
Ctenophthalmus bisoctodentalus heselhausi (Oudemans, 1914). Mole. Body, nest. [36], 44, 45.
George, 1965; Nuttall and Strickland, 1913; Rothschild, 1900; Smit, 1957a.
Ctenophthalmus c. congener Rothschild, 1907. Field Vole, Bank Vole. 44, 45, 55.
George, 1965.

ISCHNOPSYLLIDAE

Ischnopsyllus elongatus (Curtis, 1832). Noctule Bat. Body. [45], [58]
Hopkins and Rothschild, 1956; Rothschild, 1898; Smit, 1957a.
Ischnopsyllus octactenus (Kolenati, 1856). Pipistrelle. Body. [58].
Hopkins and Rothschild, 1956; Rothschild, 1898; Smit, 1957a.
Ischnopsyllus hexactenus (Kolenati, 1856). Long-eared Bat. Body. [45], [46].
Hopkins and Rothschild, 1956: Smit. 1957a.
Nycteridopsylla eusarca (Dampf, 1908). Noctule Bat. Body. [45].
Hopkins and Rothschild, 1956; Rothschild, 1909, 1915; Saunders, 1892; Smit, 1957a, 1957b.
Nycteridopsylla longiceps (Rothschild, 1908). Pipistrelle. Body. [58].
George, 1965.

LEPTOPSYLLIDAE

Leptopsylla segnis (Schönherr, 1811). The House Mouse Flea. House Mouse. Body, nest. Cambs.
Smit, 1957a.
Peromyscopsylla silvatica spectabilis (Rothschild, 1898). Bank Vole, Field Vole. Body, nest. 44, 45, 49.
Briggs and Page, 1964; George, 1965.

CERATOPHYLLIDAE

Dasypsyllus g. gallinulae (Dale, 1878). Many birds. Nests. 33, 44.
Smit, 1957a; Thompson, 1958.
Malaraeus penicilliger mustelae (Dale, 1878). Bank Vole, Field Vole, Field Mouse. Body, nest. 44, 45, 55.
George, 1965; Smit, 1957a.
Orchopeas h. howardi (Baker, 1895). The Grey Squirrel Flea. Grey Squirrel. Body, nest. 55.
A new species to the County List, taken from a ♂ Grey Squirrel, roadside, Babraham, 28.i.65. G.D.Grainge.
Nosopsyllus fasciatus (Bosc, 1800). The Rat Flea. Brown Rat, Field Mouse, House Mouse, Bank Vole, Field Vole. Body, nest. 44, 45, 55, 56.
George, 1965; Nuttall and Strickland, 1913; Smit, 1957a.
Megabothris turbidus (Rothschild, 1909). Bank Vole, Field Vole, Field Mouse. Body, nest. 44, 45.
George, 1965.
Megabothris walkeri (Rothschild, 1902). Water Vole, Bank Vole, Field Vole, Field Mouse. Body, nest. 44, 45.
George, 1965.
Monopsyllus s. sciurorum (Schrank, 1803). The Red Squirrel Flea. Body, nest. Cambs.
Smit, 1957a. Probably extinct in the county.
Ceratophyllus g. gallinae (Schrank, 1803). The Hen Flea. Many birds. Nests. 36, 44, 45.
George, 1965; Rothschild, 1952; Smit, 1957a; Strickland and Merriman, 1913.
Ceratophyllus fringillae (Walker, 1856). House Sparrow, Starling. Nests. 44, 45.
George, 1965; Smit, 1957a; Thompson, 1955, 1958.
Ceratophyllus rusticus (Wagner, 1903.) House Martin. Nest. 36, 45.
Smit, 1957a; Thompson, 1955.
Ceratophyllus hirundinis (Curtis, 1826). House Martin. Nest. 36, 44, [45], 55.
Pearce, 1915; Smit, 1957a.
Ceratophyllus farreni Rothschild, 1905. House Martin. Nest. 36, 44, 55.
George, 1965.
Ceratophyllus s. styx Rothschild, 1900. Sand Martin. Nest. 45, 46.
George, 1965.
Ceratophyllus s. jordani Smit, 1955. Sand Martin. Nest. 45, 46.
George, 1965.
Ceratophyllus s. jordani x s. styx. Sand Martin. Nest. 45, 46.

George, 1965.
Ceratophyllus garei Rothschild, 1902. Many birds. Nests. 45, 55.
George, 1965; Smit, 1957a; Thompson, 1955.

The following are species which may yet be found in the county:
Typhloceras poppei Wagner, 1903. Field Mouse. Body, nest.
Palaeopsylla kohauti Dampf, 1910. Mole. Body, nest.
Ischnopsyllus intermedius (Rothschild, 1898). Serotine and Leisler's Bats. Body.
Ischnopsyllus s. simplex Rothschild, 1906. Whiskered and Natterer's Bats. Body.
Paraceras m. melis (Walker, 1856). Badger. Body.
Ceratophyllus r. rossittensis Dampf, 1913. Crow. Nest.
Ceratophyllus vagabundus insularis Rothschild, 1906. Crow, Rook, Jackdaw. Nest.
Ceratophyllus columbae (Gervais, 1844). Feral domestic pigeon. Nest.

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FRESH-WATER SNAILS ON COE FEN, CAMBRIDGE.

L. M. Walters

In response to a request by the British Association for contributions to a Science Fair, held in Cambridge in September 1965, St. Paul's C. E. Primary School decided to submit a survey of the Natural History of a part of Coe Fen. The part of the Fen we chose for our work was the roughly rectangular piece bounded on three of its sides by the river, Fen Causeway and the Leys School grounds. We made a study of the trees, flowering herbs, birds, and water life of the two streams. The stream next to the river (Stream A) is very sluggish, whilst the one running down the middle (Stream B) is fast-moving and clear. Part of the investigation of the two streams involved taking simple "dippings" from each stream early in every month from September 1964 to August 1965. From these samples certain interesting facts about water snails emerged.

The accompanying graph of the two commonest snails (Limnaea and Planorbis) shows:-

(1) Snails in general are most plentiful in August to September in both streams. (This was true of all the water animals).

(2) The commonest snail in Stream A is the Ramshorn (Planorbis spp.) and some could be found in every dipping.

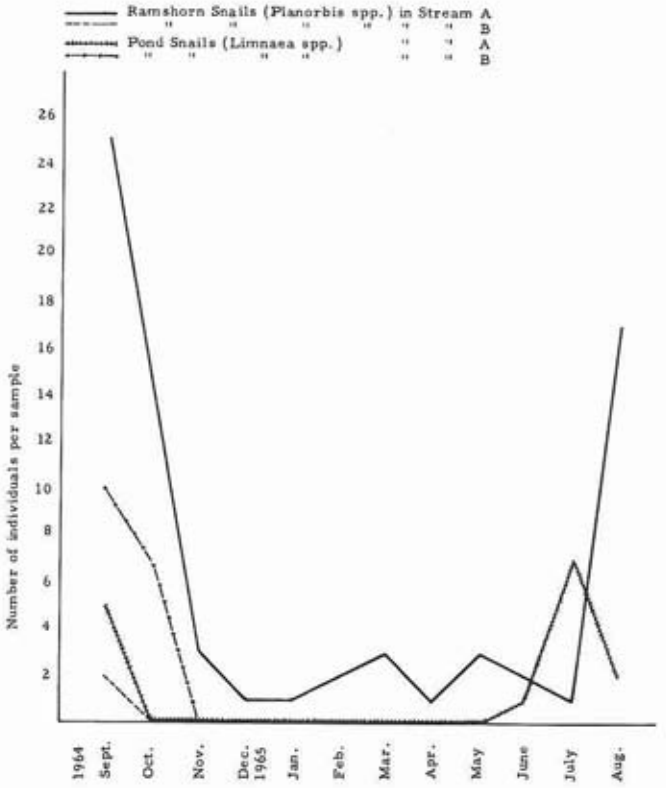
(3) The commonest snail in Stream B is the Pond Snail (Limnaea spp.)

Altogether we identified the following snails:-

Bithynia tentaculata
Hydrobia jenkinsi
Limnaea peregar (most Limnaea were this species)
" truncatula
Physa fontinalis
Pisidium sp. (one specimen only)
Planorbis planorbis (most Planorbis were this species)
" corneus

Key used for identification: Macan, T. T. (1960) Key to British Fresh- and Brackish-water Gastropods (ed. 2).

Graph on next page


Ramshorn Snails (Planorbis spp.) in Stream A
" " " " " " " B
Pond Snails (Limnaea spp.) " " A
" " " " " " B
Number of individuals per sample
26
24
22
20
18
16
14
12
10
8
6
4
2
1964
Sept.
Oct.
Nov.
Dec.
1965
Jan.
Feb.
Mar.
Apr.
May
June
July
Aug.

CAMBRIDGESHIRE BRYOPHYTE RECORDS

Since publication of "A Flora of Cambridgeshire"

H. L. K. Whitehouse

As noted on an introductory page in the Flora, some exceptionally interesting bryophyte finds were made at Wicken Fen by J. M. Lock in 1963, including two species (Sphagnum fimbriatum and Hookeria lucens) not previously known in the County. He wrote an account of these finds in "Nature in Cambridgeshire", No. 7, 1964, pp. 34 - 38. Further bryological study of the Fen by J. M. Lock and Dr. J. H. Dickson has revealed a number of other calcifuge species and has also shown that their occurrence is by no means restricted to a limited area: they occur in old carr dominated by Frangula alnus near the Brickpits, on Verrall's Fen and on St. Edmund's Fen. The Wicken finds are in 10 km. grid square 57 and are listed at the end of this account. They include three more species new to the county: Campylopus introflexus, Aulacomnium palustre and Plagiothecium undulatum, and one species, Leucobryum glaucum, found only once before in the County. It seems likely that these bryophytes of acid substrata have reached Wicken by natural means, probably mostly during the last decade, and that they have been able to grow as a result of the lowered water table which has allowed raised areas such as old Molinia tussocks to remain non-calcareous.

Outside Wicken Fen there have been two additions to the bryophyte flora. In June 1965, S. J. P. Waters found Lepidozia reptans on tree stumps in Hayley Wood. This small liverwort is abundant in the west, but rare in eastern England. Several other rare calcifuge bryophytes have been found at Hayley Wood, namely, Tetraphis pellucida, by O. Rackham and S. J. P. Waters, Ptilidium pulcherrimum by O. Rackham, and Calypogeia fissa by J. M. Lock. In August 1965, Mrs. G. Crompton and Dr. F. H Perring found a sterile Dicranella at Manea Pit (52/4889) and in November Dr. J. H. Dickson found it in fruit, thus establishing its identity as D. cerviculata. This is a species which is widely distributed in the British Isles and is particularly characteristic of the banks between peat cuttings. At Manea Pit it is associated with Polytrichum commune, P. juniperinum and Pohlia nutans, all of which are calcifuge. This bryophyte community occurs under Phragmites at the edge of a path.

Two rediscoveries have been made of mosses growing in localities where they were known formerly but have not been seen for many years. In June 1963, Dr. F. H. Perring and O. Rackham found Polytrichum commune in the valley fen adjoining Gamlingay Heath. It was last seen at Gamlingay 82 years before. In June 1965, M. O. Hill rediscovered the calcifuge moss Pleurozium schreberi in Hardwick Wood, where it had not been seen for 85 years. It was growing in association with Hylocomium splendens, which is another rare species in Cambridgeshire, and Lathyrus sylvestris. He has also found P. schreberi on the Breck fringe at Chippenham.

There have been additional finds of two species previously known only from single localities in the county. In February 1964, M. O. Hill found Brachythecium populeum on limestone rocks in a garden in Chaucer Road, and in January 1965 he found it in fruit in a bare patch of the lawn at Wandlebury. In November 1965, H. J. B. Birks found Cephaloziella hampeana growing on decaying wood in Gamlingay Wood.

In October 1964, M. O. Hill found Metzgeria furcata in fruit on elms on Cracknow Hill near Orwell. This appears to be the first record of fruiting material in Cambridgeshire.

J. L. Gilbert has kindly informed me that in a book of plants collected by Samuel Doody (1656 - 1706) there is a specimen of Plagiochila asplenioides from Madingley Wood. The book is kept in the botanical library of the British Museum. This is the earliest record of the plant in Cambridgeshire and the only record of it from Madingley Wood.

Mosses

Sphagnum fimbriatum 57 (J. M. L.)
Atrichum undulatum 46 (J. H. D.), 66 (M. O. H.)
Polytrichum juniperinum 48 (G. C. & F. H. P.), 66 (M. O. H.)
" aurantiacum 35 (M. O. H.), 57 (J. M. L.)
" formosum 57 (J. M. L.), 76 (H. L. K. W.)
" commune 25 (F. H. P. & O. R.), 48 (G. C. & F. H. P.), 57 (J. M. L.)
Fissidens minutulus var. tenuifolius 35 (M. O. H.)
" bryoides 65 (L. B. & G. C.)
" crassipes 46 (H. J. B. B.)
Ditrichum cylindricum 25 (F. G. B.), 66 (H. L. K. W.)
Seligeria calcarea 44 (M. O. H.)
Dicranella cerviculata 48 (G. C., F. H. P. & J. H. D.)
" heteromalla 66 (M. O. H.)
Dicranoweisia cirrata 24, 47, 76, 30 (P. J. B.)
Dicranum scoparium 57 (J. M. L.), 65 (M. O. H.)
Campylopus pyriformis 57 (J. M. L.)
" flexuosus 25 (H. J. B. B.), 57 (J. M. L.)
" introflexus 57 (J. M. L.)
Leucobryum glaucum 57 (J. M. L.)
Tortula ruralis 40 (P. J. B.)
" laevipila 30 (P. J. B.)
" latifolia 47 (H. L. K. W.)
" subulata 35 (M. O. H.)
Pterygoneurum ovatum 57 (P. J. B.)
Pottia caespitosa 66 (E. F. W.)
" truncata 46 (M. O. H.)
" davalliana 75, 76 (P. J. B.)
" bryoides 55 (M. O. H.)
Barbula tophacea 47 (H. L. K. W.)
Hyscomitrium pyriforme 55 (M. O. H.)
Physcomitrella patens 35 (M. O. H.)
Tetraphis pellucida 35 (O. R.), 57 (J. M. L.)
Orthodontium lineare 57 (J. M. L.)
Leptobryum pyriforme 46 (J. M. L.)
Pohlia nutans 35 (M. O. H.), 48 (J. H. D.), 57 (J. M. L.)
Bryum pallens 46 (J. M. L.)
" caespiticium 55 (M. O. H.)
" rubens 67, 75 (P. J. B.) 76 (M. O. H.)
" ruderale 56, 40 (P. J. B.)
" violaceum 66 (H. L. K. W.) 40 (P. J. B.)
" klinggraeffii 75 (P. J. B.), 76 (M. O. H.), 40, 41 (P. J. B.)
Mnium undulatum 24 (P. J. B.)
Aulacomnium palustre 57 (J. M. L.)
" androgynum 47 (P. J. B.), 57 (J. M. L.)
Orthotrichum affine 47 (H. L. K. W.)
Neckera complanata 35 (M. O. H.)
Hookeria lucens 57 (J. M. L.)
Leskea polycarpa 35 (M. O. H.), 47 (H. L. K. W.)
Thuidium tamariscinum 57 (J. M. L.)
Cratoneuron filicinum 47 (H. L. K. W.) 65 (M. O. H.)
Campylium stellatum 65 (M. O. H.)
" protensum 35, 55 (M. O. H.)
Leptodictyum riparium 24 (P. J. B.)
Acrocladium cuspidatum 24 (P. J. B.)
Isothecium myurum 36 (P. J. B.)
Brachythecium populeum 45 (M. O. H.)
Eurhynchium riparioides 75 (P. J. B.)
" murale 55 (M. O. H.)
" megapolitanum 56 (M. O. H.)
Pleurozium schreberi 35, 66 (M. O. H.)
Plagiothecium denticulatum 57 (J. M. L.)
" curvifolium 66, 57 (M. O. H.)
" undulatum 57 (J. M. L.)
Hypnum cupressiforme var. resupinatum 76 (M. O. H.)
Ctenidium molluscum 57 (J. M. L.)

Liverworts

Conocephalum conicum 46 (M. O. H.)
Lunularia cruciata 66 (M. O. H.)
Marchantia polymorpha 46, 66, 67 (M. O. H.)
Riccia glauca 55 (M. O. H.)
Ricciocarpus natans 44, 55 (M. O. H.)
" pinguis 46 (J. M. L.), 55 (M. O. H.)
Pellia fabroniana 67 (M. O. H.)
Metzgeria furcata 67 (M. O. H.), 40 (P. J. B.)
Lepidozia reptans 25 (S. J. P. W.)
Ptilidium pulcherrimum 25 (O. R.)
Calypogeia fissa 57 (J. M. L.)
Plagiochila asplenioides var. major [45] (S. D.), 65 (L. B. & G. C.)
Lophocolea bidentata 24 (P. J. B.) 57 (J. M. L.)
" cuspidata 24 (P. J. B.) 67 (M. O. H.)
" heterophylla 47 (P. J. B.)
Cephaloziella hampeana 25 (H. J. B. B.)
Radula complanata 57 (J. M. L.)
Frullania dilatata 45 (M. O. H.)

Collectors

Miss F. G. Bell, H. J. B. Birks, the late P. J. Bourne, Miss L. Brown, Mrs. G. Crompton, J. H. Dickson, S. Doody, M. O. Hill, J. M. Lock, F. H. Perring, O. Rackham, E. F. Warburg, S. J. P. Waters, H. L. K. Whitehouse.

VASCULAR PLANT RECORDS FOR 1965

F. H. Perring

Dryopteris dilatata (Hoffm.) A. Gray. Manea Pit. 21 August. F. H. Perring. First Fenland record.

Ophioglossum vulgatum L. Norwood Road Nature Reserve, March. 29 June. F. H. Perring. Only recent record for the Fens.

Lepidium heterophyllum Benth. Sand-pit at Chippenham. 7 August. M. O. Hill. First certain record for Cambridgeshire.

Camelina sativa (L.) Crantz. Lime-kilns, Newmarket. 23 May. J. R. Ironside-Wood.

Linum anglicum Mill. Devils Dyke. June, 1965. A. Palmer.

Impatiens capensis Meorb. Old West River at Earith. 4 September. P. D. Sell. First certain record for Cambridgeshire.

Medicago falcata L. Sandy heath near Derisley Wood Stud, G. R. 52/668606. 25 June. O. Vaughan.

Hedysarum coronarium L. Onion field near Manea. 21 August. F. H. Perring et al. New County record. One fine plant.

Vicia angustifolia L. var. bobartii (Forst.) Koch. Ride of plantation near Chippenham. G. R. 52/681688. 7 August. M. O. Hill.

Myrrhis odorata (L.) Scop. By roadside near Old West River between Cottenham and Wilburton. 5 June. Mr. & Mrs. R. Wortley. New County record.

Apium graveolens L. Wilbraham Fen. 13 July. M. O. Hill.

Polygonum bistorta L. Roadside north of Balsham. 1 June. J. C. Faulkner. First record since 1830.

Salix aurita L. x caprea L. Edge of Hayley Wood. April 1965. S. M. Walters, det. R. D. Meikle. New County record.

Cuscuta europaea L. Near River Ouse opposite Holywell. 2 October. Mrs. A. Berens. Only recent record outside the University Botanic Garden.

Galium parisiense L. Sand-pit near Chippenham. 7 August. M. O. Hill. First record for the County since 1946.

Solanum sarrachoides Sendtner. Gravel pit at Chippenham. 2 October. J. Raven and S. M. Walters. New county record.

Carex ericetorum Poll. Fleam Dyke. 8 May. D. E. Coombe.

Carex paniculata L. Melbourn Bury. 6 May. G. Crompton. Only recent record from the south.

Apera interrupta (L.) Beauv. Sand pits at Chippenham. 7 August. M. O. Hill.

Setaria lutescens (Weigel) C. E. Hubbard. Weed in Garden, Green Park, Brinkley. October 1965. J. C. Faulkner. First certain record for the county.

WEATHER NOTES FOR CAMBRIDGESHIRE 1965

Rainfall in 1965 was above average for the first time since 1960. The first two months of the year continued the dry tendency apparent in 1964; in fact the winter 1964-5 was the driest for many years. But in the spring the weather became unsettled and wet and continued so, with very few fine spells until autumn. October and November were fine months. September and December were unusually wet.

The summer was very poor; dull, cool and sunless conditions persisted almost without a break from May to October. July was a particularly bad month with a mean maximum temperature 6° F. below average at Swaffham Prior, and a sunshine total almost equalled by January. Although no July day had a temperature over 80° F., and this is unusual in Cambridgeshire, 83° F. was recorded on 14th May during a short fine spell. Record temperature of the year was 73° F. on 29th March. The only fine and warm period of the summer was 11th - 20th August, when 70° F. was exceeded each day.

The coldest spells of the year came in March and November. The first week of March had the lowest temperature, 14° F. on 3rd, and snow lying every day. The second half of November was very much colder than average. On the 15th the thermometer did not rise above 29° F. and this was reported to have been the coldest November day since records began. Several days had snowfall - on 23rd it was lying all day. The year ended with another cold spell during the last week of December, when a minimum of 18° F. was recorded on the 28th.

Number of days over 80° F. - 1
Number of days over 70° F. - 39
Number of days with a maximum under 32° F. - 5
Number of nights under 32° F. - 82

I am grateful to Rev. Francis Hicks for the records below.

Temperature °F	WEATHER RECORDS AT SWAFFHAM PRIOR 1965						
Month	Mean Max.	Mean Min.	Highest	Lowest	Rain fall	Rain Days	Sunshine (Approx.)
January	42 (+1)	31 (-2)	53 on 11th	22 on 5th	1.67	18	94
February	42 (-1)	31 (-2)	48 on 12th	23 on 3rd	0.68	15	28
March	50 (+2)	33 (-2)	73 on 28th & 29th	14 on 3rd	1.86	14	127
April	54	38	64 on 5th	30 on 2nd	1.92	19	108
May	62	44 (-4)	83 on 14th	32 on 19th	1.32	15	167
June	68	49 (-2)	73 on 14th	40 on 4th	2.29	12	181
July	65 (-6)	50 (-5)	72 on 19th	36 on 4th	2.58	18	98
August	69 (-1)	50 (-3)	78 on 15th	44 on 1st & 30th	2.80	14	185
September	62 (-4)	48 (-1)	73 on 22nd	42 on 9th	3.18	16	125
October	58 (+2)	42 (-2)	73 on 7th	31 on 23rd	0.59	4	145
November	45 (-3)	33 (-8)	59 on 1st	19 on 14th	1.36	20	96
December	44 (+1)	34 (-1)	57 on 19th	18 on 28th	3.25	19	70
Annual Means & Totals	55	40			23.50	184	1424

Why the Trust has been formed

The countryside is changing rapidly before our eyes. Some change is, of course, inevitable; but nearly all the alteration is tending towards a loss of variety, interest and beauty, and the destruction of areas still in a natural and semi-natural state. There is a very urgent need for a local organisation to take action, before it is too late, to safeguard what remains, and to encourage the intelligent conservation of nature.

Aims of the Trust

To record and study the chief places of natural history interest in Cambridgeshire and the Isle of Ely. This interest is not confined to botany and zoology, but should include geology, archaeology and local history.

To protect these places if they are threatened.

To acquire and administer any such place as a Local Nature Reserve, if this action is the most appropriate method for conservation.

To co-operate with other local and national bodies with interests in natural history and nature conservation.

To encourage interest and understanding for an intelligent policy of nature conservation, which should not run counter to the best interests of agriculture, forestry, sport, and other rural industries and occupations.

Membership

Minimum subscription: Ordinary £1 p.a., Life £20. Children and Students 10/-. Full particulars may be obtained from the Hon. Sec., 1 Brookside, Cambridge.

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