

**PROCEEDINGS**  
OF THE  
**Liverpool Botanical Society**



**Fourteenth to Seventeenth Sessions  
For the Years 1919-1922 inclusive**

ARBROATH :  
PRINTED BY T. BUNCLE & CO., MARKET PLACE

September 1927



**ARTHUR HORATIO DUDLEY.**  
**PRESIDENT 1920.**



**ETHEL WARHURST, L.L.A.**  
**PRESIDENT, 1921-1922.**

PROCEEDINGS  
OF THE  
Liverpool Botanical Society

HEADQUARTERS:  
HARTLEY BOTANICAL LABORATORIES, UNIVERSITY OF  
LIVERPOOL.

FOURTEENTH TO SEVENTEENTH  
SESSIONS.

For the Years 1919-1922 inclusive.

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Fourteenth to Seventeenth Sessions, 1919 to 1922.

### SUMMARY OF COUNCIL'S REPORTS.

The activities of the Society have been well sustained on the lines followed in previous years. Regret is expressed in the Council's report for 1921 that too large a share of the Society's work is left to a small number of members, and an appeal is made for more active participation in various ways from a wider circle of members.

The membership has continued steady, but unfortunately a marked decline is noted in the attendance at field-meetings, as well as indoor meetings, as compared with the immediately preceding years.

The usual monthly meetings have been held throughout the winter months, but in 1921 and 1922 indoor meetings were discontinued during the summer months. The original papers and communications read at the meetings have been of a varied and instructive character. Some of these papers embody the results of valuable original work relating to the local flora and former local botanists. Many of the papers read before the Society have been published in the official organ of the Society, "The Lancashire and Cheshire Naturalist," and to the same journal we are indebted for publishing accounts of the Society's meetings.

The Society sustained a severe loss, in 1921, by the death of its late President, Mr A. H. Dudley, and also, in 1922, by the death of Mr J. C. Healey.

In October 1922 a cordial invitation was received from Prof. J. M'Lean Thompson, D.Sc., for the Society to make its headquarters at the Botanical Department of the Liverpool University. Consideration of this question was deferred until the annual business meeting early in the following year.

### SUMMARY OF SOUTH LANCASHIRE FLORA COMMITTEE'S REPORTS (1919-1922).

The following summary of the progress of this investigation is compiled from the Flora Committee's Reports for the years 1919-1922:—

*Phanerogamia*.—The following additions to our lists refer to plants collected years ago, but only recently determined:—*Euphrasia Kernerii* Wettst., *Viola Riviniana* Reichb. × *canina* L., *Artemisia scoparia* W. & K., *Chenopodium album*, var. *subfucifolium* Murr, and var. *lanceolatum* (Muehl.), *Sinapis turgida* Del. and *Medicago praeco* DC. Many interesting alien and adventive species have been noted in the period under review, including *Trigonella Foenum-graecum* L., *Nepeta Cataria* L., *Rumex salicifolius* Wein.,



*Lepidium densiflorum* Schrad., *Bidens frondosa* L., *Axyris amarantoides* L., *Trifolium echinatum* Bréb., and *Lythrum Hyssopifolium* L. A number of these plants were collected by Mr F. Collier at Stalybridge. Among several uncommon species reported in 1921 from the Southport district by Mr F. W. Holder was *Allium vineale* L. from Marshside. Mr W. H. Western reported that the dwarf cornel (*Cornus suecica* L.) flowered exceptionally well in 1922 in its only known Lancashire station, and the plant appears to be slowly increasing its area.

*Cryptogamia*.—Two collections of mosses, formerly belonging respectively to Thomas Palgrave and F. P. Marrat, and now preserved in the Liverpool Museums, have been examined by Messrs Lee, Travis and Wheldon, and numerous interesting local specimens were found in these collections. The moss, *Archidium alternifolium* Schp., was found, in 1920, in a dune slack at Hightown, and the hepatic, *Plagiochila asplenioides*, var. *humilis* Lindb., on the Formby sandhills. *Petalophyllum Ralfsii* Gottsche was also found in dune hollows at Hightown. *Nitella opaca* Ag. was sent from the Rochdale district by Mr J. C. Healey. A list of fresh-water algae collected in a pond at Didsbury was contributed by Miss Annie Dixon.

A number of micro-fungi collected by Mr W. G. Travis are reported to be additions to the South Lancashire fungus flora. Among these may be mentioned *Psammia Boemmeriae* R. & S., on marram grass, a species not hitherto recorded for England.

The following papers have been published:—"Two by-gone Liverpool Bryologists—Frederick Price Marrat and Thomas Palgrave," by Miss A. Lee (*Lanc. and Cheshire Nat.*, vol. xiii.); "The Liverpool Botanic Gardens," by Miss E. Warhurst (*Lanc. and Cheshire Nat.*, vol. xii.); "The Rev. Henry Hugh Higgins," by Miss A. Lee, and "The First Liverpool Flora and its Author (Thomas Batt Hall)," by Mr A. A. Dallman (*Lanc. and Cheshire Nat.*, vol. xiv.); "The Clay Bank Vegetation of the Mersey Estuary," by Mr W. G. Travis (*Lanc. and Cheshire Nat.*, vol. xiii., February 1921). A paper by Mr F. Taylor in the *Lanc. and Cheshire Nat.*, October-November 1922, gives some old and new records of *Acorus Calamus* L. for Lancashire and Cheshire.

The Flora Committee regret to hear of the death of Mr J. C. Healey, of Rochdale, who for many years actively investigated the flora of the Rochdale district and generously placed his results at their disposal. They have also to regret the death of Mr George Holt, who contributed numerous records for the Manchester district, especially in connection with grasses.

The Flora Committee are particularly indebted for specimens and information to the following contributors:—Miss Annie Dixon, Mr F. Collier, Mr J. C. Healey, Mr C. R. Ritchings, Mr H. Robinson, Rev. M. Toohey, S.J., and Mr W. H. Western; and also to the following botanists for assistance with critical plants:—Mr A. Bennett, A.L.S.; Dr G. C. Druce; Mr W. B. Grove, M.A.; Mr Thomas Hebden; Mr W. H. Pearson, A.L.S., and Miss A. L. Smith, F.L.S.

## SYNOPSIS OF PAPERS, 1919 to 1922.

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### ORDINARY MEETINGS, 1919.

- January 22nd—Annual Meeting.  
 February 21st—"The Significance of Autumn," by Miss F. Swift,  
 B.Sc.  
 March 27th—"Madeira and its Flora," by Miss Eleanora Armitage.  
 April 29th—"Abraham Stansfield, Poet and Naturalist," by J. S.  
 Rowse.  
 May 16th—"The Flowering Plants of the Sussex Downs," by E. F.  
 Payne, B.Sc.  
 July 21st—"The Muscineae of the Wirral," by Dr W. A. Lee, M.A.  
 August 27th—"The Liverpool Botanic Gardens," by Miss E. War-  
 hurst, L.L.A.  
 September 29th—"The Lesser Celandine (*Ranunculus Ficaria* L.),  
 Some Further Notes and Observations (1917-1919)," by A.  
 A. Dallman, F.C.S.  
 October 28th—"The Minute Side of Vegetable Life," by Hesketh  
 Walker.  
 November 11th—"Variegation," by Prof. L. Doncaster.  
 December 10th—"Biological Symmetry" (Part I.), by A. H. Dudley.

### ORDINARY MEETINGS, 1920.

- January 21st—Annual Meeting.  
 January 28th—"The Transmission of Stimuli in Plants," by Miss  
 M. Knight, M.Sc.  
 February 18th—"Biological Symmetry" (Part II.), by A. H. Dud-  
 ley.  
 March 22nd—"Notes on the Flora of Abersoch," by Miss A. C. Grif-  
 fiths.  
 "A Corner of Wirral, from Personal Observations," by Miss  
 J. V. Jones.  
 April 26th—Lantern Lecture—"Seedlings," by A. A. Dallman,  
 F.C.S.  
 May 17th—"The Vegetation of the Clay Banks of the Mersey," by  
 W. G. Travis.  
 June 22nd—"Two By-gone Liverpool Bryologists—Frederick Price  
 Marrat and Thomas Palgrave," by Miss A. Lee, L.L.A.  
 September 14th—"The Moss Flora of Rochdale," by J. C. Healey.  
 October 21st—"Some Observations on *Arum maculatum*," by Miss  
 Eleanora Armitage.  
 "The Identification of Mosses," by Dr W. A. Lee, M.A.  
 November 23rd—"Symbiosis in Plants and Animals," by Miss O.  
 R. Bangham, B.Sc.  
 December 7th—"Some Forms of Fresh-Water Algae," by W. Nar-  
 ramore, F.L.S. (Lantern Lecture).

### ORDINARY MEETINGS, 1921.

- January 18th—Annual Meeting.  
 February 25th—"Linnaeus and His Life's Work," by Miss E. Lind.

- March 16th—"The Work of the Early Botanists," by Miss E. Warhurst, L.L.A.  
 April 12th—"Some Botanical Notes on a Holiday in East Anglia," by E. F. Payne, B.Sc.  
 September 22nd—"The Lichens of Wirral," by W. G. Travis.  
 October 6th—"The Life and Work of the Rev. Henry Hugh Higgins, a Liverpool Naturalist," by Miss A. Lee, L.L.A.  
 December 14th—"Botanical Poetry," by Dr W. A. Lee, M.A.

#### ORDINARY MEETINGS, 1922.

- January 11th—Annual Meeting.  
 February 22nd—"Ecological Studies," by W. J. Hopkinson, B.Sc.  
 March 22nd—"Liverworts," by Miss E. Armitage.  
 April 26th—"Notes on the Mosaic Cosmogony," by Rev. M. Toohey, S.J.  
 May 18th—"The Work of Sir Jagadis C. Bose, the Indian Scientist," by Miss E. Warhurst, L.L.A.  
 September 28th—"Notes on Colour in Wild-Flowers," by Miss E. Warhurst, L.L.A.  
 October 25th—"Botanizing in the Isle of Man," by J. A. Wheldon, F.L.S.  
 November 29th—"The Relative Importance of the Several Branches of Botany," by Dr W. A. Lee, M.A.  
 December 18th—"Alien Plants," by W. G. Travis.

## BALANCE-SHEETS, 1921-1922.

Dr.

Cr.

	1919.	1920.	1921.	1922.
To Subscriptions, .....	£15 17 6	£16 0 0	£14 17 6	£17 7 6
„ Credit Balances, .....	10 4 9½	11 4 3½	16 1 4½	...
„ Sale of Proceedings, .....	0 1 0	...	2 12 6	0 12 6
„ Sale of Transactions, .....	...	0 6 0	...	...
„ Balance of Soiree, .....	0 2 11	...	...	...
„ Balance of Field Meetings, ...	0 0 8	1 7 3	...	...
„ Debit Balance, .....	...	...	2 19 8½	...
	£26 6 10½	£28 17 6½	£36 11 1	£18 0 0

	1919.	1920.	1921.	1922.
By Cost of Rooms, .....	£6 17 0	£5 7 6	£2 14 0	£2 12 6
„ Printing and Stationery, .....	3 4 4	3 2 7	3 16 3	3 8 9
„ Postages, .....	3 8 3	3 17 7	4 6 10	3 19 1
„ Lantern Expenses, .....	0 16 0	...	...	...
„ Nature Study Scheme, .....	0 17 0	...	...	...
„ Subscriptions paid to <i>Lanc.</i> <i>and Cheshire Naturalist,</i> .....	...	0 8 6	0 11 6	0 7 0
„ Scientific Society, .....	...	...	...	1 0 0
„ Cost of Proceedings, 1916-18, .....	...	...	25 2 6	...
„ Balances—Cash in hand, .....	11 4 3½	16 1 4½	...	6 12 8
	£26 6 10½	£28 17 6½	£36 11 1	£18 0 0

### LIBRARY ACCOUNT.

To Balance from 1918, .....	£0 18 0	£1 2 0	£1 2 0½	£1 4 0½
„ Donations, .....	0 4 0	0 2 0	0 2 0	0 6 0
	£1 2 0	£1 4 0	£1 4 0½	£1 10 0½

By Binding, .....	...	...	...	£0 9 0
„ Postages, .....	...	£0 1 11½	...	...
„ Credit Balances, .....	£1 2 0	£1 2 0½	£1 4 0½	£1 1 0½
	£1 2 0	£1 4 0	£1 4 0½	£1 10 0½

AUDITORS :—

Jan. 1920 } O. R. BANGHAM,  
              } M. BOWEN.

Jan. 1921 } O. R. BANGHAM,  
              } I. HANNAH.

Jan. 1922 } Mrs E. SMITH,  
              } EVA MORGAN.

Jan. 1923 } F. H. GREEN,  
              } H. E. GREEN.

W. A. LEE, *Hon. Treasurer.*



## General Meetings.

WEDNESDAY, 22nd JANUARY 1919.

The President, Mr A. A. Dallman, F.C.S., in the chair.

The Council's report for 1918, and also the report of the South Lancashire Flora Committee, were read and adopted. The Treasurer's statement of accounts was also presented and adopted.

The election of Officers and Council for the year 1919 resulted as follows :—

*President*—Mr A. A. Dallman, F.C.S.

*Vice-Presidents*—Mr A. H. Dudley and Mr J. A. Wheldon, F.L.S.

*Hon. Secretaries*—Miss A. Lee, L.L.A., and Miss E. Warhurst, L.L.A.

*Hon. Treasurer*—Mr W. A. Lee, M.A., Ph.D.

*Council*—Mrs Bangham, Miss L. R. Cooke, Mrs Dallman, Miss A. B. Gleave, B.Sc., Miss F. Hamilton, Miss J. Jones, Miss M. Knight, M.Sc., Miss S. Shobridge, Messrs Cheshier, Connor, Payne and Travis.

The following were appointed as Recorders—Miss Gleave, B.Sc., Mr R. Eldridge, and Mr E. F. Payne, B.Sc.

FRIDAY, 21st FEBRUARY 1919.

The President, Mr A. A. Dallman, F.C.S., in the chair.

Miss E. BRAY, of Hailsham, sent examples of insects bred from bedeguar galls; in one gall a lady-bird was hibernating.

Miss F. SWIFT, B.Sc., read a paper on "The Significance of Autumn," remarking that the life of plants is rhythmic, rest and repair alternating with work and waste. The diminished supply of solar energy in autumn coincided with the ebb-tide of the year, as contrasted with the flood-tide in spring. The fall in temperature in autumn and winter corresponds with a benumbing of the roots and a failure to take in food, which is normally scarce. A safeguard for the continuance of the race is provided by the production and scattering of fruits, and the devices for their distribution were dwelt upon in detail. (For full report, see *Lanc. and Cheshire Nat.*, vol. xvii., No. 6, October 1925.)

THURSDAY, 27th MARCH 1919.

The President, Mr A. A. Dallman, F.C.S., in the chair.

Mrs A. A. DALLMAN showed examples of *Arabis stricta* Huds. and the Glastonbury Thorn (*Crataegus oxyacantha praecox* of nurserymen).

Miss ELEANORA ARMITAGE, of Ross, contributed a paper on "Madeira and its Flora" (illustrated). The flowering plants include 926 species, of which 772 are indigenous. 41 ferns, 145 lichens, and 150 bryophytes have been recorded. Three zones, according to altitude, ranging up to 6000 feet were dealt with, the most interesting being the second from 1500 feet to 4500 feet. Deep ravines undisturbed secured primeval conditions, and here native trees flourished, including four species of the Laurel family. On the hillsides a Bilberry (*Vaccinium maderense*), and a native heath, *Erica scoparia* L. were dominant. Nearly 100 species of grasses were on re-

cord. Cordial thanks were accorded to the lecturer, and to Mr Dallman, who read the paper in the lecturer's absence.

#### TUESDAY, 29th APRIL 1919.

The Vice-President, Mr A. H. Dudley, in the chair.

Mr W. G. TRAVIS showed specimens of *Wolffia arrhiza* Wimm., a duck-weed, the smallest flowering plant known. It flowers in Algeria, but not in Europe.

Dr W. A. LEE exhibited a lichen, *Baeomyces rufus* DC., from Halkin Castle Wood, Flintshire, not previously recorded for the county. He also drew attention to the tendency of *Ranunculus Ficaria* L. to diverge widely in its inflorescence, even in a limited area, quoting instances from local habitats of variations between 8 and 11 petals. A similar feature was observed in *Anemone nemorosa* L. It appeared to him that the tendency to produce large numbers of petals was inherited.

Mr A. A. DALLMAN, F.C.S., exhibited a gall on the inflorescence of *Foeniculum piperitum* Sweet, from Italy, caused by a small fly, *Lasioptera caerophila* F. Löw. The multilocular and conspicuous cecidia arise at the base of the umbels and umbellules.

Mr J. S. ROWSE, who has been an enthusiastic and painstaking biographer of Lancashire naturalists, contributed a paper on "Abraham Stansfield, Poet and Naturalist." A number of photographs and copies of prose and poetical writings enhanced the interest of the paper, which aroused lively interest, and for which Mr Rowse was accorded a hearty meed of appreciation.

#### FRIDAY, 16th MAY 1919.

The President, Mr A. A. Dallman, F.C.S., in the chair.

Miss A. LEE, L.L.A., exhibited *Claytonia perfoliata* Donn, from Heswall, a new Cheshire station for this North American plant. The President also had seen it in quantity on Grange Hill, West Kirby, a station hitherto unrecorded.

Mr W. G. TRAVIS showed specimens of *Stellaria apetala* Ucria from a sandstone wall, Burton, Cheshire.

Mr E. F. PAYNE, B.Sc., read a paper on the "Flowering Plants of the Sussex Downs." Among species exhibited in illustration of the paper were the White Wild Violet, Meadow Saxifrage, Meadow and Bee Orchis, Lady's Tresses, Green Hellebore, Pasque Flower, Spindle Tree, *Viburnum lantana*, and Traveller's Joy. Special attention was drawn to the variety of orchids. The President commented upon the similarity between the flora of the chalk hills and that of the Carboniferous Limestone.

#### MONDAY, 21st JULY 1919.

The President, Mr A. A. Dallman, F.C.S., in the chair.

Miss K. WHITE exhibited *Tragopogon porrifolium* L. from Upton Railway Station, near Birkenhead, a species not previously recorded from Wirral. Mr E. F. Payne, B.Sc., reported having seen it as a casual at Rock Ferry.

The President showed the gall, *Trichopsylla Walkeri* Förster, on *Rhamnus catharticus* L., sent from Prestatyn by Dr E. Haynes-Thomas, and not previously recorded from North Wales. He also exhibited *Bupleurum tenuissimum* L., gathered in 1904 on the salt marsh at Bromborough, recorded as extinct in 1902.

Mr W. G. TRAVIS illustrated the affinities of the Leek (*Allium Porrum* L.), showing that the sessile bulbs in the umbel of the wild form are lost in cultivation. He also referred to the finding, near Cronton, of the rare white-flowered form of *Lychnis dioica* L.

Dr W. A. LEE read a paper on "The Muscineae of the Wirral," since issued as a separate publication.

#### WEDNESDAY, 27th AUGUST 1919.

The President, Mr A. A. Dallman, F.C.S., in the chair.

Mrs BANGHAM exhibited specimens from Moel Siabod, North Wales, including the Parsley Fern (*Allosorus crispus* Bernh.), and various species of Club-Mosses.

The President showed the following zooecidia:—*Pontania salicis* Chr. on *Salix purpurea* L., Llanrhaiadr yn Mochnant; *Laurus nobilis* L., by *Trioza alacris*, from the same habitat; *Tilia vulgaris*, by *Eriophyes tiliae* Pagenst., Llangedwyn; *Populus tremula* L., by *Phyllocoptes populi* Nal., Llangynog; *Adelgis abietis* Kalt. on *Picea excelsa* Link, Chester; *Psylla buxi* L., on *Buxus sempervirens* L., Chester.

Miss E. WARHURST, L.L.A., read a paper on "The Liverpool Botanic Gardens," detailing the history of the gardens from 1800 to the present time. The paper was published in full in the *Lanc. and Cheshire Nat.*, vol. xii., 6 and 8, December 1919 and February 1920.

#### MONDAY, 29th SEPTEMBER 1919.

The Vice-President, Mr A. H. Dudley, in the chair.

Miss L. R. COOKE exhibited specimen of the Couch grass (*Agropyron repens* Beauv.), with galls due to *Isosoma graminicola* Giraud, found at Higher Bebington. This zooecidium is new to Cheshire.

Mr A. A. DALLMAN showed a specimen of *Galinsoga parviflora* Cav. from the Liverpool Botanic Gardens, where it is a common weed. This curious alien composite is a native of Central and South America.

Dr E. J. HAYNES THOMAS showed a specimen of hazel, from Gresford, with young staminate catkins showing malformation due to the gall midge, *Stictodiplosis corylina* F. Löw.

Dr W. A. LEE gave brief notes on various recent "finds" of Wirral bryophytes, including *Climacium dendroides* W. & M., from "the Pinguicula ground," near Raby Mere. This has only once previously been recorded from Cheshire.

Mr A. A. DALLMAN exhibited a gall on hazel from Borth-y-gest, Carnarvonshire. This was an almost spherical woody lateral excrescence, and was nearly the size of a golf-ball. The agent is unknown and, so far as can be ascertained, this gall does not appear to have been described previously.

The President then read a paper, entitled "The Lesser Celandine (*Ranunculus Ficaria* L.): Some Further Notes and Observations (1917-1919). The paper is published in the *Lanc. and Cheshire Nat.*, vol. xii., January and February 1920.

#### TUESDAY, 28th October 1919.

The President, Mr A. A. Dallman, F.C.S., in the chair.

Miss E. BRAY, Hailsham, contributed a note on colour change in the corolla of *Ranunculus acris* L. A plant showing white flowers, apparently in full vigour, was observed in 1918. The feature re-

mained constant on transplantation, but seedlings, apparently from the fruit of this plant, produced in some cases white, in others, yellow petals.

Dr W. A. LEE showed *Hypericum hircinum* L. from Glanmire, Co. Cork.

Mr HESKETH WALKER lectured on the "Minute Side of Vegetable Life." An ingenious paper-tearing method of illustrating diatomaceous structure aroused much interest.

#### SATURDAY, 8th November 1919.

The Twelfth Annual Soirée was held at the Free Church Rooms, 72 members and friends attending. The President, Mr A. A. Dallman, F.C.S., and Mrs Dallman held a reception, after which a musical programme, interspersed with competitions, refreshments and a collection of botanical exhibits, afforded much enjoyment.

#### TUESDAY, 11th NOVEMBER 1919.

The President, Mr A. A. Dallman, F.C.S., in the chair.

The President remarked on the recent discovery by Mr A. Henderson of *Limosella aquatica* L. and *Littorella uniflora* Asch.—of which flowering specimens were shown—at Carr Mill Dam, St Helens.

Professor L. DONCASTER, F.R.S., delivered a lecture on "Variation," an abstract of which appeared in the *Lanc. and Cheshire Nat.*, vol. xii., 8, February 1920. Prof. Bateson contributed an interesting collection of various living plants illustrative of variegation of different types and its transmission.

#### WEDNESDAY, 10th DECEMBER 1919.

Mr W. G. Travis in the chair.

The Chairman referred to specimens, gathered at Bootle nearly a century before, preserved in a volume owned by the Rev. S. Gasking. Of these the more noteworthy were:—*Ranunculus heterophyllus* Weber, Bootle shore, 1821; *Erica Tetralix* L., Bootle shore, 1825; *Anagallis tenella* Murray, Bootle shore; *Genista tinctoria* L., Bootle shore, 1826; *Genista anglica* L., Bootle shore, 1821; *Lythrum Salicaria* L., Sandhills, Liverpool, 1825; *Myrica Gale* L., Bootle marsh, 1822; *Pulicaria dysenterica* S. F. Gray, Bootle marsh, 1825; *Hottonia palustris* L., Linacre marsh, 1823; *Narthecium ossifragum* Huds., Linacre marsh, 1826, and *Comarum palustre* L., Linacre marsh, 1823. The volume bears the autograph, "John Ulric Andersson," but no information as to this person was forthcoming.

The Chairman, referring to the relationship between the red and white champions (*Lychnis dioica* L. and *L. alba* Mill.), exhibited, for comparison, seeds and capsules of the two species. He also remarked on the diagnostic value of characters drawn from seeds, especially in regard to forms, colour, and surface markings. The late Mr Clement Reid stated that "almost every species that can be distinguished by other characters can be distinguished also by the seed alone."

A paper, illustrated by diagrams, was read by Mr A. H. DUDLEY on "Biological Symmetry" (Part I. Forms). The lowest forms, *Volvox* and *Pleurococcus*, were spherical. Radial symmetry prevailed in such floral structures as in the Liliaceae and in the starfish and Crustaceae, but bilateralism was the highest form.



## Field Meetings.

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SATURDAY, 3rd MAY 1919.

Shotwick and Burton. *Leader*—Mr A. H. DUDLEY.

Train was taken to Capenhurst, and thence the party walked to Shotwick and Burton. Many of the usual spring flowers to be found in this part of Wirral were seen, including *Viola odorata* L., *Adoxa Moschatellina* L., *Sanicula europaea* L., *Valerianella olitoria* Poll., *Primula vulgaris* Huds., *P. veris* L., and *Chrysosplenium oppositifolium* L. The micro-fungus, *Uromyces geranii* DC. was noted on *Geranium pyrenaicum* Burm. f. at Burton.

SATURDAY, 31st MAY 1919.

Moreton and West Kirby. *Leader*—Mr E. F. PAYNE, B.Sc.

From Moreton the party proceeded to Leasowe Common and behind the embankment to Hoylake. After tea, some of the party continued the walk to Grange Hill, West Kirby. The alien, *Cotula coronopifolia* L., recorded years ago from this locality, was seen on Leasowe Common, and the moss, *Physcomitrium pyriforme* Brid., was found in good fruiting condition near the lighthouse. Other plants of interest noted during the ramble were:—*Taraxacum erythrospermum* Andr. and *Lithospermum arvense* L. near Dove Point, *Phleum arenarium* L., *Cynoglossum officinale* L. (lilac colour flowers), *Ornithogalum umbellatum* L. and *Carduus tenuiflorus* Curt. near Meols, and *Carex Pseudo-cyperus* L. near Newton. The following mosses were recorded:—*Bryum atro-purpureum* W. & M., *Bryum murale* Wils. (on mortared wall), *Hypnum polygamum* Schp., *H. riparium* L., *Brachythecium albicans* B. & S., and *Mnium affine* Bland. at Fornall's Green.

EVENING MEETING, 20th JUNE 1919.

Wallasey Sand Dunes. *Leader*—Miss A. B. GLEAVE, B.Sc.

It was found that the expectation that some extension of rarer species would be evident due to the protection of the dunes from public use for some years was not realised, and it was noticed that even some of the hardier types, such as *Eryngium maritimum* and *Cynoglossum officinale* are gradually disappearing. On the other hand it was consoling to observe that the lament of Lord de Tabley for the gradual extinction of *Geranium sanguineum* in the Mersey area was perhaps premature, as a strikingly beautiful sight was presented by a fine colony in flower on the summit and sides of the sandstone rocks at the "Red Noses." Among the species noted on the Wallasey dunes were *Brassica monensis* Huds., *Oenothera biennis* L., *Saxifraga tridactylites* L., *Arabis hirsuta* Scop., *Jasione montana* L., *Pimpinella Saxifraga* L. Mosses:—*Bryum inclinatum* Bland., *Barbula rubella* Mitt., *Tortula ruraliformis* Dixon, *Encalypta streptocarpa* Hedw., *Mnium rostratum* Schrad., *M. undulatum* L., *Brachythecium albicans* B. & S., *Eurhynchium megapolitanum* Milde, and *Hypnum cupressiforme* L., var. *tectorum*.

SATURDAY, 28th JUNE 1919.

Cronton, Pex Hill and Tarbock Green. *Leader*—W. G. TRAVIS.

The prescribed route was departed from owing to lack of time to complete the journey, but the party were well satisfied with the route taken, which included the lane across Chapel Brook and by the side of Halsnead Park, eventually taking a charming overgrown way to Duke's Clough. Several very interesting areas were inspected, the chief of these being woodlands suffering from the onslaught of the fellers, and bye-roads in which a surprising display of bloom was observed. The species noted included the following:—*Aegopodium Podagraria* L., near Chapel Bridge; *Matricaria suaveolens* Buch.; *Oxalis Acetosella* L.; *Epilobium angustifolium* L.; *Tamus communis* L.; *Circaea lutetiana* L.; *Scrophularia nodosa* L.; *Nymphaea alba* L., on the Curling Pond, Rainhill; *Carex remota* L., in some abundance near cleared woodland; *Sieglingia decumbens* Bernh.; *Phalaris arundinacea* L.; *Deschampsia flexuosa* Trin.; *Equisetum maximum* Lam., in great quantity and of unusual luxuriance. Also the following Gallae:—*Psyllopsis fraxini* L., Duke's Clough; *Perrisia acrophila* Winn., Duke's Clough; *P. Crataegi* Winn., near Halsnead; *P. veronicae* Vallot, near Halsnead; *P. urticae* Perris, Cronton; *P. Ulmariae* Bremi, Cronton, and *Neuroterus lenticularis* Oliv.

SATURDAY, 12th JULY 1919.

Barnston Irby and Thurstaston. *Leader*—Miss A. LEE, L.L.A.

The route chosen was from Storeton Station over Barnston Heath to Barnston Dale, thence through Pensby and Irby to Thurstaston Common, the journey concluding by an inspection of the flora on the clay cliffs at Dawpool. The interest mainly centred upon the heath flora, several areas of this type being visited. Among the species noted were the following:—PHANEROGAMIA—*Potamogeton obtusifolius* Mert. & Koch, near Barnston; *Drosera rotundifolia* L., Barnston Heath (a new station found by the leader), and on Thurstaston Common; *Epilobium angustifolium* L., in fine flower especially at Thurstaston. On Thurstaston Common were seen:—*Eriophorum vaginatum* L., *Juncus articulatus* L., *Narthecium ossifragum* Huds., *Scirpus caespitosus* L., *Eriophorum polystachion* L., and *Drosera intermedia* Hayne. The following at Dawpool, on clay banks:—*Sedum acre* L., *Blackstonia perfoliata* Huds., *Erythraea centaurium* Pers., *Geranium sanguineum* L., and *Glaux maritima* L. FILICES:—*Lastrea dilatata* Presl, unusually luxuriant in Butcher's Wood, Pensby; *Lomaria spicant* Desv., Thurstaston (a new station). MUSCI and HEPATICAE:—On Barnston Heath—*Leucobryum glaucum* Schp., *Hypnum cupressiforme* L., var. *ericetorum* B. & S., *Campylopus pyriformis* Brid., *Dicranum scoparium* Hedw., *Sphagnum rigidum* Schp., *Lepidozia setacea* Web., *Cephalozia bicuspidata* L., and *Cephaloziella byssacea* Warnst. Thurstaston Common—*Dicranella cerviculata* Schp. c.fr., *Sphagnum rigidum* Schp., var. *subsquarrosulum*, *Hypnum fluitans* L., var. *falcatum* Schp., *Webera nutans* L., var. *longiseta* B. & S., c.fr., *Gymnocolea inflata* Huds., *Cephalozia connivens* Dicks., and *Odontoschisma Sphagni* Dum. GALLAE:—*Eriophyes macrorrhynchus* Nalepa, on *Acer Pseudo-platanus* L.; *Rhodites eglanteriae* Htg., on *Rosa arvensis* Huds.; *Perrisia veronicae* Vallot, on *Veronica Chamaedrys* L.

SATURDAY, 23rd AUGUST 1919.

West Derby, Croxteth, and Knowsley Park. *Leaders*—Miss E. WARHURST, L.L.A., and Mr F. MOLYNEUX.

Although the weather was somewhat showery, some pleasant ground was inspected and fine forest trees in the grounds evoked general interest. Although a special search was made in the lake for the rare species previously recorded, *Elatine hexandra* DC. could not be found; but the following were noted and good specimens obtained:—*Littorella lacustris* L., *Ceratophyllum demersum* L., *Potamogeton obtusifolius* Mert. & Koch, and the moss, *Fontinalis anti-pyretica* L. *Tanacetum vulgare* L. and *Malva rotundifolia* L. were seen near Knowsley village.

## General Meetings.

WEDNESDAY, 21st JANUARY 1920.

The President, Mr A. A. Dallman, F.C.S., in the chair.

Reports of the Hon. Treasurer, Secretary and Librarian and of the South Lancashire Flora Committee were received and adopted. The election of Officers and Council was proceeded with. Mr A. H. Dudley was elected President; Miss E. Warhurst, L.L.A., and Mr A. A. Dallman, F.C.S., Vice-Presidents; Dr W. A. Lee was re-elected Hon. Treasurer, and Mr E. F. Payne, B.Sc., was elected Hon. Secretary.

WEDNESDAY, 28th JANUARY 1920.

The President, Mr A. H. Dudley, in the chair.

Examples of pine bark from the submerged forest near Meols, washed up during recent storms, were exhibited.

Mr A. A. DALLMAN, F.C.S., showed *Tanacetum vulgare* L. from Rock Ferry, galled by *Rhopalomyia tanaceticola* Karsh, not previously recorded for Cheshire.

Miss M. KNIGHT, M.Sc., read a paper on the "Transmission of Stimuli in Plants," an abstract of which was printed in the *Lanc. and Cheshire Nat.*, vol. xii., No. 11, May 1920.

WEDNESDAY, 18th FEBRUARY 1920.

Mr A. A. Dallman, F.C.S., Vice-President, in the chair.

The President, Mr A. H. DUDLEY, read the second part of his lecture on "Biological Symmetry—Form and Origin." The origin of forms was dealt with first from the point of view of biological antithesis. The alternation of generations in the life-cycles of plants and animals was discussed, together with the essential factors in the production of spore and zygote, and their bearing on the nuclear changes in the pollen-grain and embryo-sac. In the animal life-cycle spore formation is omitted, meiosis being deferred until the formation of the actual gametes. The nutrition and reproduction of plants and animals may be regarded as the dextro and laevo nature of their construction, and this antithesis may be correlated with chemical antithesis. A cordial appreciation was voted on the motion of Mr W. T. Haydon, F.L.S.

# Donations and Additions to the Library (1919 to 1922).

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## BY PRESENTATION.

- BOTANICAL SOCIETY AND EXCHANGE CLUB OF BRITISH ISLES—Report for 1917, presented by C. Waterfall; Report for 1921, presented by W. G. Travis.
- PLANT GALLS OF GREAT BRITAIN (E. Connold), presented by Miss E. Bray.
- SOME ZOOCECIDIA (A. A. Dallman), presented by the Author.
- FLORAL DEVELOPMENT AND EMBRYOGENY IN WHEAT (A. H. Dudley), presented by the Author.
- FLORA OF LIVERPOOL (T. B. Hall), presented by A. A. Dallman.
- THE MUSCINEAE OF THE WIRRAL (W. A. Lee and W. G. Travis), presented by the Authors.
- LIVERPOOL MICROSCOPICAL SOCIETY—Report (1914), presented by A. H. Dudley.
- NATURALIST, THE (1912), presented by W. A. Lee.
- VAN RIJK'S HERBARIUM—Report 1919-1921.
- POEMS, SONNETS AND TRANSLATIONS (A. Stansfield), presented by J. S. Rowse.

## BY EXCHANGE.

- BOTANICAL SOCIETY OF EDINBURGH—Trans. and Proc. 1916-1919.
- BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE—Report for 1918, and Report of Corresponding Societies' Committee.
- BRISTOL NATURALISTS' SOCIETY—Report and Proc., vol. 5, Pts. 1 and 2.
- CHESTER SOCIETY OF NATURAL SCIENCE, &c.—49th Annual Report.
- CONNECTICUT ACADEMY OF ARTS AND SCIENCES.—Transactions—"Russia's Contribution to Science," by A. Petrunkevitch; Studies in the Calcite Group, by W. E. Ford.
- NEW YORK BOTANICAL GARDEN—Bulletin, April-September 1921.
- UNITED STATES NATIONAL HERBARIUM, CONTRIBUTIONS FROM—"Flora of the Glacier National Park, Montana;" "North American Grasses."
- UNITED STATES, DEPARTMENT OF AGRICULTURE—Yearbook (1918).
- WISCONSIN ACADEMY OF SCIENCE, ARTS AND LETTERS—Transactions, vol. 18, Part 2.

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