

A decorative border of roses surrounds the text. The roses are arranged in a rectangular frame, with some roses at the corners and others along the sides.

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.

ARBROATH, - - Printed by T. BUNCLE & CO., Market Place.

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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. $\times$ *canina* L., *Artemisia scoparia* W. & K., *Chenopodium album*, var. *subficifolium* Murr., and var. *lanceolatum* (Muehl.), *Sinapis turgida* Del. and *Medicago praecox* 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 amaran- toides* 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 alterni- folium* Schp., was found, in 1920, in a dune slack at Hightown, and the hepatic, *Plagiochila asplenoides*, 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.

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.		1919.	1920.	1921.	1922.
To Subscriptions,.....	£15 17 6	£16 0 0	£14 17 6	£17 7 6	By Cost of Rooms,.....	£6 17 0	£3 7 6	£2 14 0	£2 12 6
„ Credit Balances,.....	10 4 9½	11 4 3½	16 1 4½	...	„ Printing and Stationery,.....	3 4 4	3 2 7	3 16 3	3 8 9
„ Sale of Proceedings,.....	0 1 0	...	2 12 6	0 12 6	„ Postages,.....	3 8 3	3 17 7	4 6 10	3 19 1
„ Sale of Transactions,.....	...	0 6 0	...	...	„ Lantern Expenses,.....	0 16 0	...	...	...
„ Balance of Soirees,.....	0 2 11	...	...	...	„ Nature Study Scheme,.....	0 17 0	...	...	...
„ Balance of Field Meetings,...	0 0 8	1 7 3	...	...	„ Subscriptions paid to <i>Lanc.</i> <i>and Cheshire Naturalist,</i>	...	0 8 6	0 11 6	0 7 0
„ Debit Balance,.....	...	...	2 19 8½	...	„ Scientific Society,.....	...	...	25 2 6	1 0 0
					„ Cost of Proceedings, 1916-18,	...	...	...	...
					„ 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		£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	By Binding,.....	...	£0 1 11½	...	£0 9 0
„ Donations,.....	0 4 0	0 2 0	0 2 0	0 6 0	„ Postages,.....	£1 2 0	£1 2 0½	£1 4 0½	£1 1 0½
	£1 2 0	£1 4 0	£1 4 0½	£1 10 0½	„ Credit Balances,.....	£1 2 0	£1 4 0	£1 4 0½	£1 10 0½

AUDITORS :—

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

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.

SATURDAY, 2nd October 1920.

Moreton and Moels. *Leader*—Miss J. V. JONES.

The party was taken through winding lanes and marshy fields from Moreton village. The river Birket being in flood, recourse was had to the railway bridge and thence by the level crossing to the Moels shore. Not many plants were still in bloom, but the yellow fleabane made a brave show in places. Search was made in vain for the flowering rush, *Butomus umbellatus* L., which occurred by the Birket, but has apparently been destroyed by drainage operations in 1917.

General Meetings.

TUESDAY, 18th JANUARY 1921.

Miss E. Warhurst in the Chair.

Mr W. G. TRAVIS reported that Dr W. A. Lee had found on Thurstaston Common the lichen, *Cetraria islandica* Ach. (Iceland Moss), a species not recorded for Wirral for half a century.

Mr Travis also showed and described some sub-fossil moss remains obtained from peat bands in the Wallasey sandhills. He also exhibited some interesting hepatics, two of them new to science, which had been found by him on logs of ebony imported into Liverpool from the Cameroons. These hepatics, which were determined by Mr W. H. Pearson, of Manchester, included *Aneura Travisiana* (nov. spec.) Pearson, *Ceratolejeunea Saxbyi* Pears. nov. sp., *Lophocolea Newtoni* Steph., *Homalolejeunea excavata* (Mitt.), and *Cheilojeunea principensis* Steph.

The business of the annual meeting was then proceeded with. The Council's report was read and adopted, as well as the reports of the Hon. Librarian and the South Lancashire Flora Committee. The Hon. Treasurer presented his statement of accounts. The election of Officers and Council for 1921 was then proceeded with, and the following officers were elected:—President—Miss E. Warhurst, L.L.A.; Vice-Presidents—Mr J. A. Wheldon, F.L.S., and Mr A. H. Dudley; Hon. Secretaries—Miss A. Lee, L.L.A., and Mr E. Payne, B.Sc.; Hon. Treasurer—Mr W. A. Lee, Ph.D.; Records—Misses O. R. Bingham and J. Hannah.

FRIDAY, 25th FEBRUARY 1921.

The President, Miss E. Warhurst, in the chair.

The President referred to the serious loss the Society had sustained by the recent death of Mr A. H. Dudley, its President in the previous year, and a vote of condolence to his family was passed.

Miss E. LIND read a paper on "Linnaeus and His Life's Work," in which she described his early struggles and difficulties, his setting up in practice as a doctor, and his appointment as Professor in the University of Upsala. The system of classification which has since borne his name was described.

In moving a vote of thanks, Mr J. A. Wheldon related the story of the acquisition of Linnaeus' papers and collections by the Linnean Society of London.

WEDNESDAY, 16th MARCH 1921.

Mr J. A. Wheldon, F.L.S., in the chair.

A resolution was passed in support of the Plumage Bill, then before Parliament.

Mr J. A. WHELDON showed mosses collected at various altitudes, pointing out that the plants were usually smaller, and that hair points on the leaves became smaller and tended to disappear at high altitudes, although a variety of *Hypnum molluscum* found at 2500 ft. was an exception.

Dr W. A. LEE showed Sphagna, including some new varieties, from Wirral, namely, *S. crassycladum*, var. *magnifolium*, f. *laxissimus*, *S. inundatum* R. et. W., var. *ovalifolium* W., f. *brachyanocladium* W.

Miss E. WARHURST gave her presidential address on "The Work of the Early Botanists." Amongst the pioneers referred to were Theophrastus and King Solomon. One of the earliest botanical writers in this country was John Gerarde, of London, whose quaint "Herbal" is still a living book. The President sketched the development of the science down to the epoch-making publication of Darwin's "The Origin of Species," in 1859.

FRIDAY, 12th APRIL 1921.

The President, Miss E. Warhurst, in the chair.

Mr J. A. WHELDON, F.L.S., showed fruits of Li-Chi or *Nephelina Litchi*, much esteemed in China and Japan.

Mr E. F. PAYNE, B.Sc., read a paper, entitled "Some Botanical Notes on a Holiday in East Anglia." Plant associations and types of vegetation were discussed, including Salt-marsh, Fen, Pebble Ridge, the Broads, and the curious sandy tract known as the Breck near Thetford and Mildenhall.

Among herbarium specimens shown in illustration of the paper were *Lathyrus maritimus* Big., *Sonchus palustris* L., *Silene Otites* Wibel., *Medicago Falcata* L., *Selinum Carvifolia* L., *Peucedanum palustre* Moench, and *Scleranthus perennis* L., the last from the Breck district.

THURSDAY, 22nd SEPTEMBER 1921.

The President, Miss E. Warhurst, in the chair.

Dr W. A. LEE referred to several new and interesting records of mosses in Wirral, including *Campylopus brevipilus* B. & S. from Thurston and *Hylocomium triquetrum* B. & S. from the Wallasey golf links, also to the hepatics *Metzgeria furcata* Dum. and *Frullania dilatata* Dum. found at Irby, which species had been thought to be extinct in Wirral.

Miss WARHURST showed a curious fasciated form of the willow herb, *Epilobium angustifolium* L.

Mr W. G. TRAVIS read a paper on "The Lichens of Wirral." The lichen flora of Wirral was seriously affected by smoke, but was richer than that of South Lancashire, probably because the prevailing westerly wind shielded the district from smoke from the Lancashire towns. Maritime species were noted near Hoylake, but the Wallasey dunes were drier and poorer in lichens than those of South Lancashire.

THURSDAY, 6th OCTOBER 1921.

The President, Miss E. Warhurst, in the chair.

Living specimens of an old-fashioned garden species, the Costmary, *Balsamita vulgaris* W., were exhibited by Dr Lee. This plant, allied to the tansy, was used in olden times for flavouring ale.

Dr LEE referred to his discovery of some interesting manuscripts referring to a Philosophical and Literary Society, founded in Liverpool in 1780, and afterwards called the Society for the Promotion of Useful Knowledge. Botany was one of the subjects it was concerned with. The society came to an end in 1783.

Miss A. A. LEE, L.L.A., read a paper on "The Life and Work of the Rev. Henry Hugh Higgins, a Liverpool Naturalist." Mr Higgins was a frequent contributor to natural history journals, and his botanical work included the discovery of several fungi, musci, and other cryptogamia. He did valuable work in connection with the public museums of Liverpool, and took a leading part in securing for the people that great "lung" of Mersey-side, Bidston Hill. Miss Lee's paper was published in the *Lanc. and Cheshire Nat.*, vol. xiv. (1922).

WEDNESDAY, 14th December 1921.

The President, Miss E. Warhurst, in the chair.

Mr J. A. WHELDON showed photographs of the rare Dwarf Cornel, *Cornus Suecica* L. (apparently galled), sent by Mr W. H. Western.

Mr W. MARSH explained a method of pressing and drying flowers so as to preserve the colour by using wire network presses and layers of cotton wadding strapped together, and then drying the specimens rapidly while in the press by currents of warm air.

Mr W. G. TRAVIS showed Ergot (*Claviceps purpurea* Fries) on Sea Couch Grass from Leasowe, and a fungus, *Protomyces*, parasitic on the goutweed.

Dr W. A. LEE then read a paper on "Botanical Poetry," discussing and quoting from the works of Crabbe, Richard Mant, a Lord Bishop in Ireland, Abraham Stansfield, the Lancashire Nature Poet, and Lord de Tabley. The paper was much appreciated.

Field Meetings.

SATURDAY, 28th APRIL 1921.

Spital Park and Raby Mere. *Leader*—Mr E. F. PAYNE, B.Sc.

From Bebington station the party was led by Mr Payne through Spital Park and Dibbinsdale to Raby Mere. The meeting was well attended and the ramble through these picturesque haunts on a fine sunny afternoon in early spring was much enjoyed.

SATURDAY, 7th MAY 1921.

Burton. *Leader*—Mr H. S. MARSH.

Owing to a curtailed train service, the party walked by lanes and paths from Hooton station and returned by a different route. Most of the usual plants of the district in flower at the time were observed, including *Geranium pyrenaicum* Burm. f., *Aquilegia vul-*

garis L. (not native), *Anchusa sempervirens* L. and a double-flowered variety of gorse.

SATURDAY, 21st MAY 1921.

This meeting, which was a joint one with the Liverpool Naturalists' Field Club, was held at West Kirby. Grange Hill and the Frankby district were visited. This excursion was poorly attended by members of the Society.

SATURDAY, 11th JUNE 1921.

Formby. *Leader*—Miss REID.

The drier portion of the dunes was traversed, and most of the species usually met with in this habitat were seen.

SATURDAY, 25th JUNE 1921.

Shotwick. *Leader*—Miss E. WARHURST.

Owing to the intense heat, very few members attended, but those who did had a pleasant ramble through shaded lanes and field-paths from Capenhurst to Shotwick, where the old church was inspected. No ferns, except the commonest, were observed, the dry season having affected them. The viatical flora, though typical of central Wirral, did not produce any unusual species.

SATURDAY, 2nd JULY 1921.

Speke and Oglet. *Leader*—Miss O. BANGHAM, B.Sc.

An examination of the clay bank vegetation was engaged in, and also of the tract of salt-marsh. The absence of any species of sea-lavender (*Limonium*) was commented on, as it occurs on the more restricted but similar tract on the other side of the estuary. *Populus canescens* Sm. was seen on the wooded clay banks, this being an addition to the recorded tree flora of the site. A few micro-fungi were collected. *Hysterium angustatum* Alb. & Schwein. occurred on tree-bark, on decaying nettle stems, *Leptosphaeria acuta* Moug. et Nestl., *Phoma Urticae* Schulz and *Phoma herbarum* Sacc.; on old stems of the cow-parsnip, the discomycetes, *Mollisia atrocineria* Phill. and *Helotium cyathoideum* Karst. The pyrenomycete, *Leptosphaeria pellita* Sacc., var. *cirsicola* Grove was collected on decaying thistle stems, and determined by Mr W. B. Grove. *Pistillaria micans* occurred on decaying stems of cow-parsnip.

SATURDAY, 13th AUGUST 1921.

Hoylake. Joint field-meeting with the Liverpool Geological Society.

Leaving the station, the party proceeded, under the leadership of Mr T. A. Jones, to Redstones and Hilbre Point. The leader called attention to some of the more noteworthy features of the rocks, and of the probable conditions attending their deposition. Afterwards, attention was directed by the sections of the party to various aspects of the geology and botany of the locality. A strip of salt-marsh revealed an interesting halophytic association, having amongst other components *Apium graveolens*, *Samolus Valerandi*, *Juncus Gerardi*, *Juncus maritimus*, *Glaux maritima*, *Oenanthe Lachenalii*, *Scirpus maritimus*, and *Carex extensa*. This place represents a new station for the last-named sedge. Several types of plant galls were encountered between Hoylake and West Kirby, the handsome zooce-

cidium on the burnet rose, and due to the gall wasp, *Rhodites spinosissimae*, being especially conspicuous. After tea at West Kirby, an interesting and enjoyable excursion was terminated by a visit to Grange Hill.

SATURDAY, 10th SEPTEMBER 1921.

Ainsdale.

The party proceeded inland, and investigated the flora of the streams and ditches which occur on this low-lying land. A feature in the ditches was the Nodding Bur-Marigold (*Bidens cernua* L.), which was very plentiful, and the rarer, handsome radiate form was also seen. This area was formerly a peat-moss, and *Myrica Gale* L. still exists by many of the ditches. *Rumex maritimus* L., *Lysimachia vulgaris* L., and many other marsh species were noted. Afterwards, a visit was made to the sand-dunes.

Amongst various cecidia noted at Ainsdale were the following :—*Aulacidea hieracii* Bouché, *Aphis atriplicis* L., *Eriophyes galii* Karp, *E. Thomasi* Nalepa, *Perrisia persicariae* L., *P. plicatrix* H. Loew., *P. ulmariae* Bremi, *P. urticae* Perris, *P. crataegi* Winn., *P. viciae* Kieff., *Pontania proxima* Lepel. and *Perrisia terminalis* H. Loew on *Salix fragilis* L., *Cryptocampus* sp. (galling the petioles of *Salix viminalis* L.), and *Pontania salicis* Christ, on *S. purpurea* L.

General Meetings.

WEDNESDAY, 11th JANUARY 1922.

Annual Meeting. The President in the chair.

Miss WARHURST gave an account of negotiations regarding the federation of local scientific societies.

The Council's report for 1921 was read and adopted, and the Treasurer then presented his statement.

The South Lancashire Flora Committee reported several interesting new records.

The following Officers were elected for 1922 :—

President—Miss E. Warhurst, L.L.A. (re-elected).

Vice-Presidents—Mr J. A. Wheldon and Mr W. G. Travis.

Hon. Secretaries—Miss O. R. Bangham and Mr E. F. Payne, B.Sc.

Hon. Treasurer—Dr W. A. Lee.

Recorders—Miss Cooke and Miss Hannah.

Council—Miss Adamson, Mrs Bangham, Miss L. R. Cooke, W. Cheshier, M.A., Mrs A. A. Dallman, A. A. Dallman, F.C.S., Miss F. Hamilton, Miss I. Hannah, W. Lind, Miss A. Lee, H. S. Marsh, and Mrs E. Smith.

WEDNESDAY, 22nd FEBRUARY 1922.

The President, Miss E. Warhurst, in the chair.

Mr J. A. WHELDON showed (a) specimens of *Sphagnum fimbriatum*, var. *concinnum* (Berggn.) Warnst., collected in 1921 by the Oxford University Spitzbergen expedition. This species is a characteristic arctic and sub-arctic plant of Europe and North America,

Obituary.

Arthur Horatio Dudley (1857-1921).

The death of Mr A. H. Dudley, on 2nd February 1921, came as a heavy blow to his many personal friends and admirers; and in him the Society lost a highly-esteemed and talented member, and one who had been its President during the preceding year.

The following biographical particulars are mainly derived from an obituary notice by Miss E. Warhurst in the *Lancashire and Cheshire Naturalist* (1922).

Mr Dudley was born at West Wycombe, Buckinghamshire, in 1857, and removed with his parents to Liverpool at the age of ten. His love of natural-history pursuits, begun in early youth, was continued during the time he spent at the Farndon Boarding-School, Cheshire, under Dr Armstrong. His definite scientific studies, however, did not begin until after his return to Liverpool and he had commenced his business career. Mr Dudley was the teacher of the botany classes at the Liverpool Technical School from 1890 to 1899, but the work had to be relinquished owing to ill-health.

He took an active part, in his time, in various scientific societies in Liverpool. He succeeded his intimate friend, the late Mr W. T. Haydon, as president of the Liverpool Science Students' Association in 1908. He was also for many years connected with the Liverpool Microscopical Society, and was elected its President in 1908 and 1909. His first presidential address was on "Floral Development and Embryogeny in Wheat," and it was illustrated by many original photo-micrographs and diagrams. Among Mr Dudley's other scientific contributions, some of which have been published, were "The Life-History of *Adoxa*," "The Nucleus in Plant Cells," "Correlation in Science," and "Biological Symmetry." The last-named paper, which has not been published, was delivered before the Liverpool Botanical Society. In it the author pursued a line which he hoped offered a feasible interpretation of the origin of biological symmetry. In regard to this paper, Sir German Woodhead, of the Medical School, Cambridge, wrote: "An enormous amount of work has been put into this paper, and great ingenuity and research are in evidence."

Microscope work and technique had a special attraction for him and he was very skilled in this direction. Always extremely methodical and painstaking, he was particularly skilled in histological and cytological work and prepared excellent micro-slides of difficult subjects. He was deeply imbued with religious principles, and in his study of nature the inner meaning and purpose of things were always kept in view. He was a charming companion in the open air, and many treasure pleasant reminiscences of rambles with him on those rural excursions he loved so well.

For over 20 years he was superintendent of the Sunday School in the U.M. Church, Grove Street, Liverpool, and in this sphere of work he gave unstinted service.

A son and a daughter remain to mourn their father's loss.

The interment took place in Smithdown Road Cemetery, Liverpool, on February 5, 1921, in the presence of representatives of various scientific societies and of members of the church he loved. By

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

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.
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 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.

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- 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. Petrunkovitch; 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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