

PROCEEDINGS

OF THE

Liverpool Botanical Society

(Sixth Session, 1911).

REPORT FOR THE YEAR 1911.

The development and evolution of an organisation or society is in some degree analogous to the life cycle of a specific organism. In the metabolism of the plant or animal there are phases and processes both of a synthetic and a destructive character, and consequently we find that the health and existence of the organism is governed and determined by the periodicity and duration of supremacy of these two diverse types of change. So in taking a retrospect of the activities of the Liverpool Botanical Society during the year 1911, a careful observer may discern evidences both of anabolism and catabolism.

By way of emphasis it may be well to first indicate several factors which appear in the course of such analysis, and which must be regarded as of catabolic nature, and to which the attention of each Member should be directed. In the Annual Report of 1910 your Council remarked that "In a Society such as our own, in which the trifling annual subscription barely covers working expenses, there is always a risk of progress being retarded by this reason."

The accuracy of this statement of a year ago is likely to become practically evident in the near future unless immediate steps are taken. It must be remembered that there is no other British scientific society of similar nature and scope which asks so insignificant a subscription and exacts no entrance fees from its Members. A glance at the constitution of the Botanical Society of Edinburgh—an association, perhaps, most closely resembling our own—reveals the fact that there is an annual subscription of fifteen shillings for Fellows, though persons may become Ordinary Members for a lower contribution but are not then entitled to receive the Society's publications.

On coming nearer home, no one with any intimate knowledge of learned societies can point to any instance of a single scientific society in which so much is attempted and performed on so meagre

a subscription. There are many associations levying much higher subscriptions and meeting much less frequently, and which do not afford anything like the same facilities to Members.

It is essential for various reasons that the publication of the now overdue *Proceedings* and *Transactions* should be considered at once, for, to quote again from last year's report, "It must be remembered that the standing of any Society such as our own is largely determined by" the periodical issue and "the nature and originality of its scientific publications." The Membership of the Society here calls for notice. After allowing for new Members, resignations, and loss by death, the Society has a Membership of 125 at the close of the year, this shewing a decrease of thirteen on the Membership of the previous session.

From a consideration of the foregoing facts it is evident that the present subscription is quite incompatible with the return which this Society allows its Members, and with its constructive policy and high ideals. If these latter are to be continued and adequately realised it is manifestly impossible on the current or even a much larger membership, although any considerable accession to our numbers might tend to diminish the difficulty.

There appear to be two alternative solutions of the problem. Either the working expenses of the Society must be curtailed by greatly reducing the number of meetings—a course not altogether without objection as possibly tending to lessen the output of scientific work—or else every Member must be ready to enter into the original spirit in which the Society was conceived, and be prepared to take an additional share of responsibility. In this latter connection it is well to remember that merely remitting a trifling annual subscription—possibly after a third or fourth written request—is in itself of little value.

Active practical interest is also needed, for passive sympathy—like excessive criticism—is a very dubious quality! All the foregoing remarks, Council's Reports, and mere pious hopes and sentiments are after all quite valueless unless Members are prepared to shew by their example and support during 1912 that they agree with Ruskin that "Men do less than they ought unless they do all that they can."

Your Council regret to record the death of Dr. J. B. Edouard Bornet, a Corresponding Member of the Society, who died at Paris on December 18th. Dr. Bornet early turned his attention to cryptogamic botany, of which he may be said to have made an almost life-long study. Algae received a large share of his attention, and his work in conjunction with Thuret on Florideae, and especially in connection with their reproduction, will ever remain as a testimony to his memory. Much of his algological work is to be found in his "*Notes Algologiques*" and "*Études Phycologiques*," two large and monumental works which are familiar to all students in this department of botany.

Miss F. Mulcahy, who kindly undertook the Honorary Librarianship subsequent to Miss Roberts' resignation, found it necessary to relinquish this position early in the year, and Mr. H. J. Wheldon was appointed to the vacancy again created. By a strange coincidence, Mr. Wheldon has also been compelled to vacate this position shortly after his appointment, owing to his removal to Coventry. Your Council desire to express on behalf of the Society their thanks to Miss Mulcahy and Mr. Wheldon for their services in this connection. Your Council has appointed Mrs. Wheldon as Acting Honorary Librarian, Mrs. Wheldon having kindly undertaken to assume temporary charge of this aspect of the Society's work.

The Society was officially represented at the Portsmouth Meeting of the British Association for the Advancement of Science in September, when Professor R. H. Yapp was appointed and kindly acted as Delegate at the Conference of Corresponding Societies.

Eight Council Meetings have been held during the year.

Eleven indoor meetings were held during the session, as follows:—

January 9th—	Annual Meeting.
February 21st—	Annual Soirée and Conversazione. Reception by the PRESIDENT and Mrs. HAYDON. Concert. Exhibition of open-air "February Flowers."
March 14th—	Lantern Lecture, "Mendelian Inheritance," by Dr. H. DRINKWATER, F.R.S., F.L.S.
April 10th—	Paper, "The Fixed Oils and their Rôle in Plant Economy," by W. R. SIBBALD.
May 8th—	Papers, "The Unity of Life," by W. J. BAYLISS, M.A. "Welsh Plant Folk Lore and Associations," by A. A. DALLMAN, F.C.S.
June 12th—	Paper, "The Etymology of Plant Names," by W. H. HALFPENNY.
July 10th—	Paper, with lantern illustrations, "Pigmentation in Bacteria," by Dr. E. HARRIES.
September 12th—	Exhibition and discussion of specimens.
October 10th—	Paper, "Old English Herbals," by W. O. DELANEY. This was illustrated by an exhibition of representative herbals.
November 13th—	Paper, with lantern illustrations, "The Colonization of Fungi," by H. J. Wheldon.
December 16th—	Exhibition of work in connection with the Society's Lancashire and Cheshire School Children's Botany and Nature Study Scheme. Distribution of Prizes and Certificates by Miss HAYDON. Address by the PRESIDENT.

Field and out-door meetings have been held as follows:—

	LOCALITY.	ATTENDANCE.
May 6th—	Nant-y-ffrith and Llanfynydd	42
June 10th—	Frodsham and Helsby Marsh	18
July 1st—	Hatchmere, Flaxmere, and Delamere Woods (in conjunction with the Chester Society of Natural Science)	39
July 22nd—	Rufford	13
July 31st—	Freshfield	10
September 2nd—	Llanfihangel-Glyn-Myfyr	12
Average Attendance		22·3

It may be noted that the average attendance of the session's field meetings is the highest since 1908.

As foreshadowed in last year's report, a scheme of prizes and certificates for Botany and Nature Study, open to school children of Lancashire and Cheshire, was inaugurated during the past session. Although undertaken under the auspices of the Society, the cost of this scheme was entirely defrayed by private contributions. There was an excellent response from the children, and teachers, press and educational authorities have shewn practical sympathy in the movement. Those who were present at the exhibition of work and prize distribution were unanimous as to the marked success of this initial experiment. Not the least noteworthy feature was the genuine love of nature and real interest of the work which was clearly reflected in many of the exhibits. Your Council would wish this scheme to be extended and made a permanent feature of the Society's work. This can only be accomplished by the practical support and sympathy of members, whom it is confidently hoped will avail themselves of the privilege of assisting so desirable a work. Your Council desire to take this opportunity of thanking those ladies and gentlemen whose kind assistance, financially and otherwise, contributed to the marked success of this scheme.

Our thanks are once more due to Professor R. J. Harvey Gibson and the University Authorities for continued hospitality and accommodation. Ninety-three specimens of various kinds have been submitted for report or identification during the year. This total does not include the material which has been dealt with by the South Lancashire Flora Committee.

SOUTH LANCASHIRE FLORA.

The Flora Committee has pleasure in presenting its annual report for the year 1911.

The field-work done during the year has been satisfactory and productive in its results. Additional information has been acquired as to the distribution of the various species, and, furthermore, some acceptable additions to the flora of the vice-county have been discovered. Among the flowering plants recorded, the following may be mentioned:—*Fumaria Boraei* var. *muraliformis*, *F. Bastardi* var. *hibernica*, *Hypericum humifusum* var. *magnum*, *Sagina nodosa* var. *moniliformis*, *Hieracium sciaphilum*, *H. umbellatum* var. *dunale*, *G. Meyer*, *Rumex acetoselloides* (Bal.), *Juncus ranarius* (Nees), *Salix aurita* x *cinerea* (*S. lutescens*, Kern.), *S. aurita* x *repens* (*S. ambigua*, Ehrh.), *Carex acutiformis* var. *Kochiana*, *Koeleria gracilis* var. *britannica*, and *Equisetum litorale*. Among the more noteworthy alien plants observed were *Fumaria Vaillantii*, *Papaver Rhæas* var. *Pryorii*, *Eruca sativa*, *Oenothera humifusa*, and *Carthamus tinctorius*.

In August, a visit was paid to the sandhills between Ainsdale and Birkdale by the botanists taking part in what has been called the International Phytogeographical Excursion, and as a result several plants not previously recorded for Lancashire were noted. Some of these are included in the list above given.

At present, while the flowering plants are still under investigation and monopolising most attention, the investigation of the cryptogamic flora is somewhat hampered. Progress can, however, be reported. The number of hepaticae has been increased by two noteworthy additions, namely, *Lophozia bantriensis* and *Cololejeunia calcarea*. The investigation of the lichen flora has been continued, and fourteen species new to our lists have been identified. A lichen which occurs on the sandhills, and which has been known to Mr. J. A. Wheldon for some years, proves to be new to science, and has this year been described under the name *Arthopyrenia areniseda* by Miss A. L. Smith, in Vol. 2 of the Monograph on British Lichens, published by the Trustees of the British Museum. The work in connection with the fungus flora has suffered considerably owing to the removal of Mr. H. J. Wheldon from the district. The Committee is pleased to say that he will still continue to assist so far as circumstances will permit. A considerable number of fungi new to South Lancashire have been found, and many new divisional records have been established. A large quantity of micro-fungi, chiefly Pyrenomycetes, has been collected, and is now being worked out.

In the foregoing, some results of the field-work done during the year are summarised. It will be understood, however, that in addition a good deal of what may be called spade work has been done, the results of which cannot be embodied here. It need scarcely be added that, notwithstanding the mass of information already acquired, there is still plenty of scope for further work in all departments.

The warm thanks of the Committee are due to its co-workers, and in particular to Rev. C. E. Fynes-Clinton, Mr. G. H. Hopley, Mr. J. C. Healey, Mr. C. R. Ritchings, Mr. H. Robinson, Rev. M. Toohey, S.J., and Mr. F. Williamson. The Committee must also express its great indebtedness to Mr. A. Bennett, F.L.S., Mr. G. C. Druce, M.A., F.L.S., Messrs. H. and J. Groves, Rev. E. F. Linton, Mr. H. W. Pugsley, B.A., Rev. E. S. Marshall, and Rev. W. Moyle-Rogers, for their assistance with critical species.

In conclusion, it should be mentioned that the Committee has approached your Council with a scheme for publishing the flora, based essentially on the issue of the work, in parts. This scheme has met with the support of your Council, and the Flora Committee is empowered to take steps towards the publication of the first instalment. The necessary details are under consideration, and particulars will be announced as soon as may be.

LIVERPOOL BOTANICAL SOCIETY.

Dr. Balance Sheet for the Year ended December 31st, 1911.

Ch.

RECEIPTS.			£	s.	d.
To	85 Subscriptions for 1911, at 5/-	...	21	5	0
"	3 " 1911, at 2/6	...	0	7	6
"	3 " 1912, at 5/-	...	0	15	0
"	Credit Balance from Soirée	...	0	0	6
"	Sale of Publications	...	0	5	4
"	Debit Balance ...	...	5	2	10
			£27	16	2

EXPENDITURE.			£	s.	d.
By	Debit Balance, brought forward	...	5	2	9
"	from 1910 ...	...	1	10	0
"	Honoraria (University)	...	11	1	8
"	Printing, Stationery, &c.	...	0	15	0
"	Rent of Room (Hackin's Hey)	...	0	11	0
"	Lecture Expenses (March 14th)	...	3	17	8
"	Expenses of Hon. Secretary	...	3	1	9
"	Hon. Assistant Secretary	...	1	2	11
"	South Lancs. Flora Committee	...	0	13	5
"	Hon. Treasurer	...			
			£27	16	2

LIBRARY ACCOUNT.

[illegible]

Audited and found correct.

January, 1912.

GEORGE LOFTUS, *Hon. Treasurer.*
A. LEE, } *Auditors.*
H. S. MARSH }

GENERAL MEETINGS.

MONDAY, JANUARY 9th, 1911.

ANNUAL MEETING.

The Annual Meeting was held at the Hartley Botanical Laboratories, Liverpool University, on Monday, January 9th, 1911, at 8 p.m., Mr. J. A. Wheldon, F.L.S., President, in the Chair.

The Honorary Secretary submitted the Council's Annual Report for the past year. On the proposition of Dr. J. W. Ellis, seconded by Mr. W. O. Delaney, the Report was unanimously adopted.

The Honorary Treasurer then communicated his Financial Statement for the past year. After some discussion, the motion of Mr. F. J. Routledge, seconded by Dr. J. W. Ellis, "That the Honorary Treasurer's Financial Statement be adopted," was then carried.

The Honorary Librarian then presented her Report, which was adopted on the proposition of Mr. W. O. Delaney, seconded by Mr. W. Chesher.

On the proposition of Dr. W. A. Lee, seconded by Miss M. A. Nugent, a cordial vote of thanks was passed to the retiring Officers and Council in appreciation of their services during the year 1910. Miss A. B. Gleave and Miss M. A. Nugent having been appointed Scrutators, the ballot was then taken, with the following result:—

President: Rev. W. Wright Mason, B.A.

Subsequent to this meeting, Mr. Mason intimated inability to accept this office. The vacancy was accordingly filled by the Council, and Mr. W. T. Haydon, F.L.S., was elected in accordance with the Rule.

Vice-Presidents: Dr. J. W. Ellis; W. T. Haydon, F.L.S.

Owing to the vacancy created by the subsequent election of Mr. Haydon to the Presidency, Mr. F. J. Routledge was elected Vice-President by the Council.

Hon. Treasurer: G. Loftus.

Hon. Secretary: A. A. Dallman, F.C.S.

Council: W. Chesher, M.A., W. O. Delaney, Professor R. J. Harvey Gibson, M.A., F.L.S., Dr. W. A. Lee, M.A., F. J. Routledge, W. R. Sibbald, C. B. Travis, W. G. Travis, Mrs. Wheldon, Miss M. H. Wood, J. A. Wheldon, F.L.S., H. J. Wheldon.

Mr. H. J. Wheldon being subsequently appointed Honorary Librarian owing to the resignation of Miss Mulcahy, the two vacancies on the Council were filled by the election of Miss E. M. Coates and Miss F. Mulcahy.

TUESDAY, FEBRUARY 21st, 1911.

ANNUAL SOIREE.

The Annual Soirée was held at the Palatine Café, Liverpool, on Tuesday, February 21st, 1911. Among the exhibits a series of extremely beautiful water-colour drawings prepared and kindly lent by Dr. H. Drinkwater, F.L.S., of Wrexham, aroused general admiration, and call for special notice. Other exhibits were contributed by the Rev. W. Wright Mason, Mr. H. J. Wheldon, Mr. W. Hackett, Mr. J. A. Wheldon, F.L.S., and others. The exhibit of "February Flowers," which had proved so successful in previous years, was again repeated, and thanks are due to Miss F. Mulcahy who kindly organised the same. As before, this included fresh flowering examples of open-air plants only, British and cultivated, greenhouse productions being excluded. Some eighty species were represented, and in this connection special thanks are owing to the contributors, Miss E. Bray, Miss F. Mulcahy, Miss N. L. Peacock, Miss F. M. Thomas, Mr. R. H. Day and Mr. H. S. Marsh.

Following a reception by the President and Mrs. Haydon, and a short address by Mr. Haydon, a concert was contributed by various members and friends. The various items of this programme were rendered by Miss E. M. Davies, Miss Ada Whitehead, Miss E. Warhurst, Mr. A. J. Kennison (accompanist), Mr. James Barr, and Mr. F. J. Routledge, to whom the Society's best thanks are tendered.

Special acknowledgment is due to the members of the Soirée Committee—The President and Mrs. Wheldon, Miss M. B. Barr, Miss E. M. Coates, Miss F. Mulcahy, Miss E. McMillan, Miss M. H. Wood, and Mr. F. J. Routledge and Mr. J. A. Wheldon.

TUESDAY, MARCH 14th, 1911.

Mr. W. T. Haydon, F.L.S., President, in the Chair.

Messrs. J. Fullerton and H. E. Harriman were elected Members.

Miss F. M. THOMAS contributed some flowering examples of Butcher's Broom (*Ruscus aculeatus*), from a hedgerow near Mollington, Cheshire.

Mr. W. H. HALFPENNY exhibited a copy of Curtis' *Flora Londinensis*.

Mr. J. A. WHELDON, F.L.S., called attention to the discovery of *Lecanora verrucosa* in Lancashire. This rare lichen had hitherto only been known from two localities in Great Britain.

Mr. A. A. DALLMAN, F.C.S., remarked on the development of hermaphrodite flowers in the common hazel, of which examples were shown. A bush in Nant-y-frith, on the Denbighshire border, was found to have pistillate flowers developed in the staminate catkins. The gynæcium was usually quite distinct from the andrœcium, but in a few cases distinct examples of hermaphroditism were found.

The feature of the evening was a lecture by Dr. H. Drinkwater, F.R.S., on "Mendelian Inheritance." Special interest attached to this lecture in view of the lecturer's pioneer work on the subject of the Mendelian transmission of characters in the human race. In the course of a skilfully-illustrated lecture, Dr. Drinkwater laid emphasis on the essential feature of Mendelism and on the double nature of organisms. The Mendelian and statistical methods of determination were contrasted, and the marked superiority and certainty of the former clearly shown. Special attention was devoted to the subject of Mendelian inheritance in man, and this was accompanied by a number of original and conclusive illustrations. Dealing with the practical aspects of Mendelism and its correlation with eugenics, the lecturer was very pessimistic as to the effect of improved environment. In calling attention to the recent disastrous Glasgow experiment, Dr. Drinkwater was emphatically of the opinion that in cases of vicious inheritance originating in both parents cure must be regarded as entirely out of the question, and that change of environment is quite without effect.

Dr. LEE, in moving a vote of thanks to the lecturer, remarked that this lucid and painstaking address touched upon some of the problems of profoundest interest to the human race. Whatever opinion might be held in regard to certain conclusions, there was, at any rate, cause for gratification that reason and certainty were giving place to chance.

In seconding the proposition, Mr. WHELDON expressed regret that the late hour precluded any discussion, as had been intended. He considered that there was a great future for Mendelism, and especially in connection with the improvement of the human race. From extensive personal knowledge of certain types of criminal and undesirable, he was strongly disposed to support the lecturer's conclusions.

MONDAY, APRIL 10th, 1911.

Dr. J. W. Ellis, Vice-President, in the Chair.

Miss E. BRAY contributed some Sussex examples of a hybrid between the cowslip and the primrose, and also some teratological forms of the primrose with a curiously modified calyx.

Miss N. L. PEACOCK sent some Somerset plants, including the Bristol Rock Cress (*Arabis stricta*) and the Wood Spurge (*Euphorbia amygdaloides*).

Dr. J. W. ELLIS exhibited some coloured drawings of Wirral fungi.

Mr. W. G. TRAVIS showed some herbarium sheets of *Stellaria Dilleniana*, a recent addition to the British flora, and the Composite *Artemisia Stelleriana*, a species which has become naturalised on the Cornish coast, and also in County Dublin.

Mr. H. J. WHELDON called attention to the recent discovery of the fungus *Geaster fimbriatus* in Lancashire.

Mr. J. A. WHELDON, F.L.S., showed a cultivated example of Green Hellebore (*Helleborus viridis*). He considered that this species, though usually regarded as a calciphilous plant, was not strictly such. Mr. Wheldon held that, notwithstanding the partiality of the Green Hellebore to chalk or limestone districts, it was the physical rather than the chemical characters of such formations which were the determining factors in this plant's distribution.

Mr. A. A. DALLMAN, F.C.S., exhibited photographs of a letter written by George Caley in 1800 from Paramatta, New South Wales, and addressed to the Middleton Botanical Society. Mr. Dallman also contributed a brief biographical notice of the writer.

Mr. W. R. SIBBALD delivered an illustrated paper on "The Fixed Oils and their Rôle in Plant Economy." In the course of a very interesting contribution, which was partly devoted to some account of Mr. Sibbald's original investigations, some very suggestive problems were dealt with. In the ensuing discussion it was suggested that greater prominence might well be accorded by the Society to bio-chemical work, a subject of rapidly increasing importance.

MONDAY, MAY 8th, 1911.

Dr. J. W. Ellis, Vice-President, in the Chair.

Professor R. J. HARVEY GIBSON contributed a flowering example of *Sauromatum guttatum*. This exotic Aroid is remarkable in its power of growing more or less independently of water other than what little is contained in the "bulb."

Mr. H. S. MARSH exhibited some roots of ash showing curious nodular swellings due to bacterial action.

Dr. J. W. ELLIS showed some albino examples of *Gentiana campestris* which he has gathered near Killin, Perthshire. The Chairman also commented on the occurrence of *Aecidium leucospermum* on Anemone leaves in Nant-y-Belan, Denbighshire. According to some Continental authorities, this fungus is merely the *Aecidium* stage of *Puccinia fusca*.

Mr. C. WATERFALL, F.L.S., mentioned that a *Chara*, found in a pool near Cefn-y-Bedd Station (Flintshire) on the occasion of the recent field meeting, had proved to be *Chara hispida*.

Mr. H. J. WHELDON called attention to some new Lancashire Pyrenomycetes, and also exhibited a drawing of the "hoof fungus" (*Onygena equina*). This has been found growing on the skull of a sheep.

The following papers were read:—

1. "The Unity of Life," by W. J. Bayliss, M.A.
2. "Welsh Plant Folk Lore and Associations," by A. A. Dallman, F.C.S.

The first paper was necessarily of a polemical character, and it was to be regretted that time limitations precluded adequate expansion or discussion. Mr. Bayliss incidentally contrasted the systems of Lamarck and Darwin, and emphasised the superiority of Lamarck's views from the philosophical standpoint. Darwin fixed his attention on the physical body, and traced the course of its evolution through the operation of what he conceived to be purely physical laws. Lamarck, on the contrary, directed his attention to evolution as an inner process. To him evolution was a development or unfolding of the powers latent in the animal, and the chief agent in this development was the exertion of will power on the part of the animal itself. To Darwin, the animals, and even man himself, are almost passive subjects of forces over which they have no control, while to Lamarck they are themselves the active agents of their own improvement.

Following Lamarck, Mr. Bayliss held that the mind or soul—which slept in the mineral, perhaps barely stirred in the plant, started fitfully in the brute, and fully awoke in man—has played a far more important part in the course of evolution than those material forces which are made to fill the whole field in the theories of Darwin and Spencer. Lamarck was a poet and a philosopher as well as a man of science, and was consequently better qualified to take a more comprehensive view of things than the purely scientific mind of Darwin. Mr. Bayliss held that a belief in the unity of life is not at all incompatible with scientific facts or the most fervent religious faith.

In the ensuing discussion, to which the Chairman, Dr. W. A. Lee and Mr. W. A. Delaney contributed, Dr. Ellis agreed that there had been a strong reaction against Darwinism, as he understood the term, *i.e.*, evolution by natural selection. In his opinion, Professor St. John Mivart's writings had exerted a marked counter influence to Darwin's views. After a brief sketch of Weissman's and Henslow's views, Dr. Ellis remarked that he was a firm believer in the Unity of Life, and he also considered that the modifications of organisms must be attributed more to internal characters than to environmental causes.

MONDAY, JUNE 12th, 1911.

Dr. J. W. Ellis, Vice-President, in the Chair.

Miss N. L. PEACOCK contributed some living examples of Broomrape (*Orobanche minor*), parasitic upon clover.

Dr. J. W. ELLIS exhibited some coloured drawings of hitherto unrecorded Wirral micro-fungi.

Mr. C. WATERFALL forwarded a photograph of *Carex trinervis*.

Mr. H. J. WHELDON showed a number of remarkably accurate and beautifully coloured drawings of Lancashire micro-fungi. These included *Cæoma mercurialis*, from Lathom; *C. orchidis* on *Orchis incarnata* and *Listera ovata*, from the sand-hills; *Puccinia taraxaci* (aecidiospores), from Freshfield; *P. caricis* (aecidiospores) on *Urtica dioica*, from Altcar; and *Coleosporium miniatum* on *Rosa glauca*, from Warton Crag. Mr. Wheldon mentioned that the following fungi had been sent by Mr. J. W. Hartley from Warton Crag:—*Puccinia adoxae*; *P. coronata* (aecidiospores = *Aecidium crassum*) on *Rhamnus catharticus*; *Coleosporium miniatum* on *Rosa glauca*; *Cystopus candidus* on Shepherd's Purse; and *Isaria farinosa*, the conidial condition of *Cordyceps militaris*.

Mr. W. G. TRAVIS remarked on the recent discovery of a minute liverwort on calcareous shale in the Pendle district. He had determined this almost microscopic plant to be *Cololejeunia calcarea*, a species hitherto unrecorded from South Lancashire.

Mr. J. WHELDON, F.L.S., made a brief communication on the recent discovery by him of a moss, *Swartzia inclinata*, on the Freshfield sandhills, which proved an addition to the county list. It was seen in considerable quantities and in good fruiting condition on Saturday, June 4th. It is singular that it has not previously been found on the sand dunes, as it has long been expected to occur there, as it is an integer of the sand dune flora of the sands of Barrie, and other similar tracts, where it is associated with many mosses which occur on our Lancashire dunes, but which are rare or unknown elsewhere in Britain.

Mr. A. A. DALLMAN, F.C.S., showed some examples of *Carex riparia*, the fruiting spikes of which were infected with the parasitic micro-fungus *Ustilago urceolorum*, Tul. Flowering examples of *Rhamnus Frangula*, an uncommon species around Liverpool, were also exhibited. Several shrubs were found near Oglet, near Speke, where there was evidence which indicated that these and certain associated plants were relics of the old-time mossland vegetation.

Mr. H. J. WHELDON exhibited and distributed a number of *Phanerogamia* from Martin Mere.

The following paper was then read:—

"The Etymology of Plant Names," by W. H. Halfpenny.

In proposing a vote of thanks to Mr. Halfpenny, Dr. LEE expressed his gratification at finding Members of the Society prepared to wander into such interesting byepaths. In the course of some instructive remarks on Welsh and Irish plant names—a subject to which he had been devoting particular attention—Dr. Lee mentioned that he had often been impressed by the poetic charm of many of the Celtic plant names. Names of the Teutonic order, however, were usually of a more or less severely utilitarian type.

MONDAY, JULY 10th, 1911.

Dr. J. W. Ellis, Vice-President, in the Chair.

The Rev. W. W. MASON announced that a plant which he had obtained at Leasowe and submitted to Messrs. Groves had been identified by the latter as *Tolypella glomerata*, Leonh. There is only a single other record for this species in Lord de Tabley's *Flora of Cheshire*.

Mr. W. G. TRAVIS remarked that the same species had already been observed on the South Lancashire sand dunes.

Dr. J. W. ELLIS exhibited some herbarium sheets of Teesdale plants, and also several micro-fungi. In the course of some explanatory remarks on these exhibits, Dr. Ellis mentioned that the heterœcious Pine Fungus (*Peridermium Pini*) was not uncommon in that district. It is interesting to note that steps had been taken to eradicate all groundsel (*Senecio vulgaris*) growing in the neighbourhood, as the earlier stages of the life history of the *Peridermium* are passed on this host. As a result of these measures, the pine fungus appeared to be diminishing in that area.

The Rev. W. W. MASON brought some Lincolnshire specimens of *Astragalus danicus* and Horseshoe Vetch (*Hippocrepis comosa*) for distribution, and also remarked on the occurrence of the Crow Garlic (*Allium vineale*) at Blundellsands.

Dr. W. A. LEE showed some Phanerogamia which he had observed in the neighbourhood of Burton Point, Cheshire.

Miss E. BRAY sent some Sussex plants for distribution, including *Verbascum nigrum*, and several species of Orchidaceae from the Downs.

Mr. W. R. SIBBALD showed a specimen of a Leguminous plant which was popularly known as Calvary Clover from the curious markings of the foliage. He believed this was merely a state of *Medicago maculata*.

Mr. H. J. WHELDON exhibited some flowers of Soapwort (*Saponaria officinalis*), the anthers of which were infected with *Ustilago antherarum*, one of the Smut Fungi. Examples of Sea Lavender were also shown, the foliage of which was infected with *Uromyces Limonii*.

Mr. A. A. DALLMAN showed a peculiar teratological growth in the case of the inflorescence of a Sweet Pea plant.

The following paper was read:—

“Pigmentation in Bacteria,” by Dr. E. Harries.

This interesting contribution, which was illustrated by cultures and photo micrographs, was partly devoted to some account of the author's original investigations on this subject.

TUESDAY, SEPTEMBER 12th, 1911.

Mr. J. A. WHELDON, F.L.S., in the Chair.

Miss E. BRAY forwarded a collection of living specimens of various Sussex Phanerogamia, including *Carduus acaulis*, *Reseda lutea*, and *Spiranthes autumnalis*.

Mr. J. A. WHELDON exhibited a number of plants which had been obtained by Mr. Albert Wilson and himself on Ben Laoigh, Perthshire. These included *Juncus castaneus*, *Dryas octopetala*, *Woodsia hyperborea*, *Cystopteris montana*, *Juncus biglumis*, and *Hieracium anglicum*. Mr. Wheldon also showed two rare lichens (parasitic on *Coccocarpia*) from Loch Tay, near Fearnan, and *Platysma lacunosum* from granite boulders on Rannoch Moor, is new to Scotland, having only been found once previously in Cumberland.

Mr. W. G. TRAVIS exhibited a liverwort *Targionia hypophylla*, the plants shewn illustrating the different aspects when in moist and dry states.

Mr. A. A. DALLMAN contributed some plants of Filmy Fern (*Hymenophyllum peltatum*) from Denbighshire, and also some fruiting examples of Thorn Apple (*Datura Stramonium*).

TUESDAY, OCTOBER 10th, 1911.

Mr. J. A. WHELDON, F.L.S., in the Chair.

Miss E. BRAY forwarded a quantity of fruiting examples of Service Tree (*Pyrus Aria*) from Sussex, and also some specimens of *Senecio viscosus*, which had been obtained on the shingle at Eastbourne.

Mr. W. O. DELANEY exhibited a series of Orkney examples of *Trifolium pratense* and *T. repens*, shewing a remarkable range of foliar modification. In many cases the normal ternate leaves had developed four, five, six, or sometimes even more leaflets.

Mr. K. SUMATI contributed several very fine microscopical preparations illustrative of chalazogamy in Cupuliferae.

Mr. H. J. WHELDON communicated some notices of recently observed South Lancashire fungi and also forwarded several coloured drawings of some of the species noted:—

<i>Psathyrella atomata.</i>	Formby.	}	W. G. Travis.	
<i>Coprinus micaceus.</i>	Below privet bushes in garden.			
<i>Gomphidius viscidus.</i>	} Under firs at Formby.			
<i>Boletus flavus.</i>				
<i>Entoloma rhodopolium</i> and <i>Marasmius oreades</i>	} Formby	}	H. Robinson.	
<i>Pseudopeziza trifolii.</i>				On clover leaves.
<i>Puccinia parnassiae.</i>				On <i>Parnassia palustris.</i>
<i>Coprinus comatus</i> and <i>Psathyrella disseminata.</i>	Colne.			
<i>Cantharellus aurantiacus</i>	Rochdale.	J. Healey.		

The HON. SECRETARY exhibited several mature fruits of *Convolvulus sepium*, which had been observed in the vicinity of Liverpool.

In view of the rarity of the Convolvulus Hawk Moth (*Sphinx Convolvuli*) in the neighbourhood, the Bindweed rarely appears to set seed.

The feature of the evening was a paper by Mr W. O. DELANY, "Old English Herbals." In the course of a very attractive contribution—both from a literary and scientific standpoint—the lecturer presented a very able sketch of an often overlooked phase in the history and development of botanical science. The more noteworthy works received chronological notice and many interesting comments of an antiquarian, biographical, and botanical—not to mention humorous—character contributed largely to the success of a very enjoyable paper.

An excellent representative collection of illustrative old English herbals was on exhibition, and added greatly to the interest. For the loan of certain of these works a special word of thanks is due to Professor R. J. Harvey Gibson.

An application for membership from Mr. J. Southworth, 3, Moss Bank, Parkgate Road, Chester, was submitted to the meeting. This was accepted, subject to such nomination being subsequently assented to by the Council.

MONDAY, NOVEMBER 13th, 1911.

Dr. J. W. ELLIS, Vice-President, in the Chair.

Miss N. L. PEACOCK forwarded some fruits of *Catalpa* (*C. bignonioides*) from the vicinity of Bristol. The long stiff branch-like pods and winged seeds are very rarely produced in Britain, and it was thought that their development in the present instance was due to the abnormal climatic conditions of the year.

Miss F. M. THOMAS contributed some flowering sprays of Rowan from Eaton Park, Chester, where a tree was in full bloom.

Dr. J. W. ELLIS exhibited some water-colour sketches of Cheshire fungi, and offered a few remarks thereon. Two species—*Leiotia lubrica* and *Cortinarius elatior*, obtained between Willaston and Ness, are apparently rarities in the Liverpool district.

Mr. W. G. TRAVIS exhibited specimens of *Adelanthus dugortiensis*, one of the rarest of European hepaticae. A brief account of its distribution, affinities and recent discovery was also given. This very distinctive plant is only known from Achill Island, off the West coast of Ireland, where it was discovered a few years ago by Canon Lett. Since then it appears to have been lost until last August, when it was re-discovered by a small party of members of the Moss Exchange Club. An example of another liverwort, *Lophozia bantriensis*, recently found in the Wolverden Valley, and an addition to the South Lancashire list, was also shown.

Mr. J. A. WHELDON, F.L.S., called attention to a paper by Dr. F. N. Williams in the *Journal of Botany* on the sandhill

pansies, and suggested that *Viola sabulosa* should be sought for on our coasts. The only forms found on the Lancashire coast hitherto were *V. Curtisii* and *V. Pesneaui*.

A letter was read from Mr. H. J. Wheldon, apologising for his inability to be present to read his paper on "The Colonisation of Fungi," but expressing his thanks to Mr. A. A. Dallman for having undertaken that duty for him, and also for the loan of a number of photographic slides of fungi. The paper itself dealt with the means of dispersal adopted by fungi, and the various methods of colonisation. The part played by wind and animals and the various correlated structural adaptations were explained and illustrated. The Chairman having referred to the original and comprehensive character of this paper, a cordial vote of thanks was accorded to Mr. Wheldon on the motion of Mr. C. Waterfall, F.L.S., seconded by Mr. W. O. Delaney.

SATURDAY, DECEMBER 16th, 1911.

Mr. W. T. Haydon, F.L.S., President, in the Chair.

This meeting was devoted to an exhibition of work and distribution of prizes and certificates in connection with the Society's School Children's Nature Study Scheme.

Letters were received from Professor W. A. Herdman and Mr. J. G. Legge, who wrote regretting inability to attend the meeting owing to other engagements. After the report of the Sub-Committee had been presented, the President delivered an address to the young people present.

In the unavoidable absence of Mrs. Haydon, the prizes and certificates were then distributed to the successful boys and girls by Miss Haydon.

On the proposition of Mr. J. A. Wheldon, F.L.S., seconded by Dr. W. A. Lee, a cordial vote of thanks was passed to Miss Haydon, and the rest of the evening was then devoted to an exhibition of children's work. Thanks are due to the Chester Society of Natural Science for the loan of an exhibit of Nature Study Work by pupils of various Cheshire schools.

A RÉSUMÉ OF THE FIELD MEETINGS OF 1911.

BY THE HONORARY SECRETARY.

Away to the south-eastern extremity of the Clwydian range of hills a little stream cuts its course through the extremely picturesque valley of Nant y Ffrith, and serves as a boundary between the counties of Flint and Denbigh at this point. The valley has been aptly named "the dingle of the forest." In many places, and for

most of its length, it is thickly wooded, with here and there an occasional glade, where large expanses of ladies' mantle, wood-sage, and other less umbrophilous species occur. Elsewhere the dingle is flanked by precipitous limestone rocks, while swamp and moorland are also represented, close by, and so it is scarcely remarkable that so attractive and varied a locality should be the haunt of many noteworthy plants and animals.

The vegetation of many parts of North Wales is considerably earlier than the flora in the immediate vicinity of Liverpool, and so there is always a decided advantage in holding the initial field meeting of the season in the former district. Accordingly, the first excursion was held at Nant y Ffrith on May 6th, when some forty-two members alighted at the little station of Cefn y Bedd. As with so many Celtic place names this is pregnant with meaning, and takes one far back towards the dawn of the human race. Doubtless some pathetic or tragic circumstance of long ago is responsible for the application of the name, but the chronicle has long lapsed into oblivion, and "the ridge of the grave" is all that now remains to commemorate the fact.

Following a pleasant footpath up the hillside many of the usual Spring flowers were encountered along the sunny hedge banks and lane sides on the way to Ffrith. We observed a large quantity of Sweet Cicely (*Myrrhis odorata*) on the outskirts of the little hamlet of Cymmau, and a little further on the Bird Cherry (*Prunus Padus*) was not uncommon in places, but we were just a little too soon to see the flowers at their best. Among the children of the district the flowers are known as "Wild Lilac." At one point some examples of Dog's Mercury were found, which had both staminate and pistillate flowers on the same plant, an unusual occurrence in this normally dioecious species.

Nant y Ffrith yielded several noteworthy plants, including *Chrysosplenium alternifolium*—a much handsomer species than its commoner opposite-leaved relative—*Helleborus fœtidus*, *Polemonium cœruleum*, and the Leopard's Bane (*Doronicum Pardalianches*). The two latter, though seen in some quantity, can hardly be regarded as natives here. The limestone cliffs which fringe the Nant in places, afforded a suitable habitat for various calciphilous plants, and the Yew and Spindle Tree were clearly at home hereabouts. We had intended visiting the caves adjacent to Nant y Ffrith Hall, but on enquiry at the Hall it appeared that the proprietor—after having granted permission to inspect the caves—had thoughtfully gone out and taken a very essential key with him. As time would not permit of our awaiting his return, and having regard to the very hungry condition of certain persons, we left here in duly appreciative mood!

Having strong objections to restricting ourselves to conventional roads and paths, we left the track, and struck up the side of the dingle. After a somewhat steep climb the summit of Gwern Mountain was finally reached. The highest point of Gwern Mountain, and which we ascended, attains an elevation of 1066ft.

This is known as Pen Llun y Gwr (= "the head of the man's image"), and doubtless the name refers to some fancied resemblance of the profile when seen from some particular point of view. Most of the eminence consists of millstone grit, or perhaps more precisely, those rocks to which the term Cefn y Fedw Sandstone has been applied. This rests conformably with the limestone which we had already noticed below. A delightful prospect was visible from the summit, but it must be confessed that just a few persons were too anxiously scanning the horizon for an indication of the caravanserai, to allow of sufficient appreciation of this pleasant spot! The Cowberry (*Vaccinium Vitis-Idæa*), a small shrub simulating its relative the Bilberry, but with evergreen Box-like foliage and red berries, was seen here, and not far away we noticed examples of the Crowberry (*Empetrum*).

Descending to the valley, the little hamlet of Llanfynydd ("the church of the mountain") was reached, and a short climb up the steep lane behind the old church brought us to Ty Uchaf. After a much-appreciated tea at this pleasant farm, the return was made by way of Cymmau, and we were soon at our original starting-point.

The Weaver Valley was next visited on June 10th, when a small party crossed the Mersey and alighted at Frodsham. The route lay along the marshland and intersecting ditches, which extend from Frodsham to Helsby, and, as we anticipated, the locality afforded quite an interesting vegetation, aquatic species of course being well represented. The ditches were perhaps unusually shallow, but nevertheless a number of noteworthy plants were seen. *Rumex Hydrolapathum* (the Water Dock), our largest species, was conspicuous by its prominent foliage. The so-called Water Violet (*Hottonia*) was new to several. The flowers are dimorphous, as in the case of its familiar relative, the Primrose. In the Liverpool area the Arrowhead (*Sagittaria sagittifolia*) is rarely found, but on this occasion the characteristic foliage was seen in some amount in several of the ditches. *Catabrosa aquatica* (Water Whorl Grass) was abundant in a ditch near Frodsham Station.

The various *Lemnae* were much in evidence, and all our native species of Duckweeds—*L. minor*, *L. gibba*, *L. trisulca*, and *L. polyrrhiza*—were seen. These ditches are the haunt of a great variety of plants and animals, and the locality appeared especially rich in insect life. A species of Dropwort (*Oenanthe fistulosa*) was infected with the larvæ of some insect which we were unable to identify at the time. The Black Headed Bunting was a frequent bird on this marshland, and one member accidentally stumbled across a nest and eggs, which were situated in a low bush. An old farmer was very curious to know the use to which we proposed to apply our "Pennies"—this apparently being the descriptive local name for the Frogbit (*Hydrocharis*)—which he noticed us collecting from the ditches. The effect of the answer that:—"It might be employed for demonstrating cyclosis in the epidermal cells of the staminal filaments" was perhaps even more curious!"

After tea had been obtained at Frodsham, the hill behind the village was visited. Some sandstone caves and crevices in the neighbourhood are the haunt of the so-called "phosphorescent moss" (*Schistostega osmundacea*), but time would not allow of a visit to the spot. The vegetation of the hill was of a markedly xerophytic type, and afforded a study in local ecology. Bracken, Bilberry, and the grass *Deschampsia flexuosa* were quite the dominant species. Less abundantly distributed, although still plentiful, were *Calluna*, *Erica*, *Erica cinerea*, *Rumex Acetosella*, *Potentilla Tormentilla*, and Furze. Here there might also be noticed the Rowan, Broom, *Galium saxatile*, the moss, *Dicranella heteromalla*, and a Bramble, which Mr. J. A. Wheldon identified as *Rubus dasypyllus*.

The third field meeting was held on July 1st in conjunction with the Chester Society of Natural Science, and the area chosen for investigation included Delamere, Flaxmere, and Hatchmere. Although comparatively close to Liverpool, Delamere Forest is only accessible by a somewhat circuitous journey, the orthodox route being by way of Manchester. On this occasion we travelled to Chester, crossed the city to Northgate Station, and continued the journey to Delamere Station, and found that this mode of approach afforded a considerable economy of time. Leaving Delamere Station, under the guidance of Mr. J. Southworth, we were soon following a picturesque road through the Forest, and Flaxmere was presently reached.

These Cheshire meres are delightful spots, and full of interest to all Nature lovers. To many of us this was quite new ground, and quite unlike anything in the immediate vicinity of Liverpool. From the ecological point of view the Forest is of special interest, and affords some useful studies in the evolution and characteristics of various plant associations, and of marsh and bog plants more particularly. Flaxmere is now an extensive swamp, studded with small pools and occasional ditches, and the Mere proper is apparently a thing of the past. The gradual drying up of the Mere has proceeded to such an extent that one may now safely walk over the former bed of the lake. Among the many noteworthy bog plants seen here were the fragrant Bog Myrtle—sweetly reminiscent of happy days amid the wild uplands of Ireland, Scotland, and Snowdonia—Marsh Cinquefoil (*Potentilla Comarum*), Marsh Andromeda (*Andromeda polifolia*), Cranberry, Bog Asphodel, and numerous other species of similar proclivities. Floating about in small pit holes were masses of *Utricularia minor*, a familiar insectivorous species, but a plant rarely seen around Liverpool. All three of our British Sundews—*Drosera rotundifolia*, *D. intermedia*, and *D. anglica*—were seen hereabouts, but *Drosera anglica*, which is our rarest species, was only found in small amount, and appears to be gradually decreasing in this station. A bramble which was growing in fair quantity close to this mere proved to be *Rubus Sprengelii*. Crawling over the heather we noticed numbers of large conspicuously-coloured caterpillars, which proved to be the larvæ of the Emperor Moth (*Saturnia pavonia* (= *carpini*)), a somewhat uncommon insect.

The flora of Hatchmere, which adjoins Flaxmere, is in some contrast to that of the latter, for Hatchmere is a typical mere with an attractive marginal vegetation. *Ranunculus Lingua* (The Greater Spearwort), the largest British member of its genus, was seen here, but the flowers were not yet quite out. The Butterwort (*Pinguicula*) grows by Hatchmere, but is absent from Flaxmere; on the other hand, the *Droserae* were apparently unrepresented about Hatchmere. The large Loosestrife (*Lysimachia vulgaris*) kept company with the Prickly Twig Rush (*Cladium Mariscus*), and here, too, were the sedges *Carex ampullacea* and *C. paniculata*, the last forming typical tussocks. After tea the return journey was made by attractive by-roads and paths to Mouldsworth Station. The roadsides of the "Forest" yielded quite a moorland type of vegetation, and included such components as *Calluna*, *Erica cinerea*, Bilberry, *Galium saxatile*, *Potentilla Tormentilla*, *Nardus*, *Deschampsia flexuosa*, and *Hypericum pulchrum*.

A sand pit which was encountered on the way to the station yielded some examples of Carline Thistle, a variety (*subglabrum*) of the Houndstongue, and *Senecio sylvaticus*. A patch of that peculiar fern, the Adderstongue (*Ophioglossum*) was found on the roadside at one point, and the Sweet Violet, a rare plant in Cheshire, was seen near Mouldsworth. A curious form of the Common Thistle (*Cirsium arvense*) was found by Miss L. R. Cooke. This plant differed from the normal form in having broader and almost glabrous leaves, which were nearly devoid of prickles, and was evidently the form or variety which has been termed *mite*. It was significant that this departure from the type was growing in a wet situation. While waiting for the train at Mouldsworth Station several members explored the adjoining railway embankment and siding. A number of waifs and strays were seen here, and included such suspicious plants as *Sisymbrium orientale*, Chicory, *Echium vulgare*, and *Lepidium campestre*.

There was only a small attendance of members on July 22nd—probably owing to the holiday season—when the fourth field meeting was held at Rufford. This district is an excellent locality for studying marsh vegetation, and at one time much of it formed a portion of the large area of more or less impassable swamp which extended over a considerable part of South Lancashire. At the present time most of the district is under cultivation, and the greater part of the old mossland has been drained and reclaimed. Here and there, however, are patches of the former swamp, and these, together with numerous ditches, still serve as fastnesses wherein many members of the ancient marsh flora still linger comparatively undisturbed, save perhaps for the occasional raid of some wandering botanist!

The present occasion was extremely favourable for our purpose, as, owing to the drought, many marsh plants were readily accessible, but which otherwise would have been quite unapproachable. Attention was chiefly devoted to the strip of swamp which skirts the railway, and which yielded a rich flora. The dense vegetation here

afforded an ideal home for many marsh-loving birds, and the coot, moor hen, and various other aquatic species were often seen. The common Reed Mace (*Typha latifolia*) was quite a predominant plant, and here and there were masses of its rarer relative *Typha angustifolia*, readily recognised, even at a distance, by its narrower foliage and more graceful habit. These two plants are popularly known as "Bulrushes," and the fruiting stems are often used as ornaments, and sold for this purpose. The true Bulrush (*Scirpus lacustris*) is, however, a very distinct plant. We found the closely allied species *Scirpus Tabernæmontani*, but this is scarcely as imposing a plant as *Scirpus lacustris*, which sometimes attains a height of eight or nine feet.

Here, too, were the Giant Dock (*Rumex Hydrolapathum*), *Carex Pseudo-Cyperus*, Purple Loosestrife (*Lythrum Salicaria*), Moneywort (*Lysimachia Nummularia*), and the two Dropworts *Oenanthe fistulosa*, and *O. Phellandrium*. The Water Violet (*Hottonia*) was also found, but we were too late for the flowers. The Marsh Cinquefoil (*Potentilla Comarum*) was quite abundant, and there was a profusion of the strawberry-like "fruits." As in its relative the Strawberry, the receptacle enlarges after fertilization, and results in the achenes being elevated upon the prominent floral disc. These prominent fruits bore a tantalizing resemblance to a Strawberry, but a somewhat scientific member of the party, who tasted one, reported that these delusive structures were comparatively dry and spongy and quite inedible!

The Liverpool and Lancaster Canal was next visited. The Yellow Water Lily was flowering in great abundance, and the blossoms swarmed with small pollen-devouring beetles, which doubtless play an important rôle in this case. The Great Loosestrife (*Lysimachia vulgaris*) was also found here, and other plants of the canal were Gipsywort (*Lycopus*), Skullcap (*Scutellaria*), the ubiquitous *Elodea*, and a rather ornamental grass *Festuca arundinacea*.

The Lancashire sand dunes were visited on the evening of July 31st, when a small party travelled to Freshfield. As this locality will be familiar to most members, and as we have previously held field meetings here, it is scarcely necessary to say much concerning the present occasion. The various Orchidaceæ were quite over, but the familiar Wintergreen (*Pyrola rotundifolia* var. *Maritima*) was seen at its best. The Sea Buckthorn (*Hippophaë rhamnoides*), which has been largely planted in one place, seemed quite at home, and bore an abundance of berries. A considerable area of the inland side of the sand dunes has been planted with *Pinus maritima*, apparently with a view to reclaiming this region, and the experiment appears to be succeeding. On the sand dunes along parts of the French coast this tree has been largely employed for a similar purpose. Several examples of the little Natterjack Toad were seen in the slacks, and as we returned to the station a Nightjar was seen flying in the twilight and busily engaged in capturing various winged insects.

The concluding excursion took the form of a whole-day field meeting, and one of the most remote spots in North Wales was chosen for the purpose. The locality in question rejoices in the name of Llanfihangel Glyn Myfyr, which is equivalent to "The Church of St. Michael in the Glen of Myfyr." This picturesque spot is situated on the banks of the Alwen, far from any railway station, and the little valley, which is surrounded by steep hills and wild moorland, is visited by very few travellers. Only a few members caught the train for Corwen on September 2nd, as, owing to the dislocation of the service resulting from the railway strike, travelling was in a very uncertain state. On arrival at Corwen, very much behind time, the only train for Derwen had departed, and so the party had to charter a wagonette, and Derwen was eventually reached. After several miles' walk over the primitive moorland roads the party at last arrived at Llanfihangel Glyn Myfyr some four hours late. As a result little time remained for botanising, and soon after tea had been obtained we had to commence the return journey to Derwen. Under the circumstances comparatively little botanical work was accomplished. The Sawwort was seen in abundance on the bank of the Alwen, just above the inn, and the Peppermint was growing not far away. The handsome Melancholy Thistle (*Cirsium heterophyllum*) occurred higher up the valley, and the dainty little Ivy-Leaved Bellflower (*Wahlenbergia*) also occurred hereabouts.

It was nearly dark when Derwen was reached, and there was no opportunity for inspecting the quaint church and the famous Derwen Cross, which is probably one of the best preserved old churchyard crosses to be found in North Wales. We all regretted that our time for investigating this delightful district was altogether insufficient, and so we came away hoping that perhaps at some future date, when railway strikes were things of the past, it might be possible to make a renewed acquaintance under more congenial conditions.

Obituary Notice.

By the death of Dr. Edouard Bornet at the advanced age of 83, the Liverpool Botanical Society loses one of its most distinguished Corresponding Members. Dr. Bornet may be regarded as one of the pioneer investigators into the structure and life-history of Cryptogams, and although in his early years a student of Fungology, under the great Tulasne, his name will be chiefly associated with his work upon Algae. His investigations in that branch of Botany first took definite shape when he began to collaborate with Thuret on the life-history and fertilisation, more especially, of the Florideae, and the two great monographs published by these algologists set a standard of research which few workers on seaweeds have ever reached and never exceeded. The "Notes Algologiques" and the "Etudes Phycologiques" will remain for all time as a model of what research should be. Bornet also published a large number of papers dealing more especially with the systematic position of certain groups, in several cases involving a very extensive revision of specific Florae.

Bornet's name is also associated with the great controversy as to the dual character of Lichens, and his work on that curious group of plants contributed in no small degree to the acceptance of Schwendener's views, which were, at the time, so strenuously opposed, more especially by the English School.

Down to quite recent times Dr. Bornet placed at the disposal of his fellow-workers in other countries his vast knowledge of his subject, and was ever ready to aid them in the solution of problems submitted to him. The writer looks back with gratification on the correspondence which he was permitted to carry on with Dr. Bornet on the identification of doubtful forms collected with a view to the publication of a list of Algae of the Liverpool Bay District, and he, in common with many others who consulted Dr. Bornet, has to acknowledge the extreme courtesy which Dr. Bornet always showed to those who wrote to him on specific algological problems, and to acknowledge as well, with gratitude, the time and trouble which he took to answer, authoritatively, questions, however trifling.

There are few workers in this department of plant investigation now extant in Britain. Traill, Batters, Murray—to mention only three—had predeceased the great savant whose loss we mourn, and others who, twenty years ago, devoted themselves, wholly or in part, to the investigation of problems on which Dr. Bornet's advice was invaluable, are now engaged in other branches of research, but all of them—whether alive or dead—would, had they been asked, agree not only in a lofty estimate of Dr. Bornet's services to Cryptogamic Botany but also in grateful appreciation of the aid they always received from him.

Dr. Bornet was a Gold Medallist of the Linnean Society and a Foreign Member of the Royal Society, to mention only two of his British decorations. That the Botanical Society was able to number him amongst its Foreign Members was an honour of which the Society might well be proud.

R. J. HARVEY GIBSON.

PRIZES AND CERTIFICATES FOR BOTANY AND NATURE STUDY.

The following are offered by the Liverpool Botanical Society to Boys and Girls residing in Lancashire and Cheshire.

The First Prize in each class will be Half-a-Guinea, together with the Society's Certificate.

Contributors not gaining a Prize may be awarded Certificates if of sufficient merit.

FOR SECONDARY AND PRIVATE SCHOOLS.

1. For the best account of the processes of absorption and excretion of water by a plant. This should be illustrated by sketches, and also, if possible, by descriptions of any experiments performed by the writer.

2. For the best set of Six Photographs, illustrative of the various stages of growth of any plant.

3. For the best account of the life history of one of the following, viz.:—The Sycamore (*Acer Pseudo-Platanus*); Red Campion (*Lychnis dioica*); Marsh Marigold (*Caltha palustris*); White Dead Nettle (*Lamium album*; *Convolvulus*; or the Furze (*Ulex europæus*).

4. For the best description of the development of the flower, floral structure, and pollination of one of the following, viz.:—Cow Parsnip (*Heracleum Sphondylium*); Dandelion (*Taraxacum officinale*); Garden Nasturtium (*Tropæolum*); or the Canterbury Bell (*Campanula Medium*).

5. For the best set of twelve Drawings, Paintings, or Photographs, of representative sandhill plants.

6. For the best Nature Diary, Journal, or Calendar. This must include observations taken during at least any four consecutive months of 1911. Competitors in this class must be under 14 years of age.

FOR PUBLIC ELEMENTARY SCHOOLS.

1. For the best description of a series of observations on the plant life of a local park.

2. For the best set of drawings (pen, pencil, or colour), illustrating growth of the potato, onion (or other bulb), and bean.

3. For the best collection of fruits and seeds (accompanied by drawings) illustrating dispersal.

4. For the best set of three colour drawings of twigs, flowers, or leaves. These must be worked in school from living specimens.

5. For the best Nature Diary, Journal, or Calendar. This must include observations taken during at least any three consecutive months of 1911.

GENERAL CONDITIONS GOVERNING COMPETITIONS.

All competitors from Secondary Schools must be under the age of 18, and those from Elementary Schools under 15.

All essays, descriptions, drawings, &c., must be competitors' own work. It is desirable that assistance should be obtained from every available source, but mere copied or dictated work will be disqualified.

All drawings, exhibits, &c., &c., must be received on or before October 31st, 1911, at the

HARTLEY LABORATORIES, LIVERPOOL UNIVERSITY,

Addressed, " SECRETARIES, LIVERPOOL BOTANICAL SOCIETY "

(Carriage to be prepaid).

All entries must be accompanied by a sealed letter, stating the full name and address, exact age of, and school attended by, the competitor.

An Exhibition of the work sent in for Competition, and presentation of Prizes and Certificates, will be held early in December at the Hartley Laboratories.

LIST OF AWARDS.

FOR SECONDARY AND PRIVATE SCHOOLS.

- 1.—For the best account of the processes of absorption and excretion of water by a plant; illustrated by sketches, and also, if possible, by descriptions of any experiments performed by the writer:—

PRIZES AND CERTIFICATES—

Gwladys Lewis, Aigburth Vale School, Liverpool.

Bertha Doris Tyrrell, Queen Mary High School, Liverpool.

CERTIFICATE OF MERIT—

Agnes B. Gordon MacDermott, Holt Secondary School, Liverpool.

- 2.—For the best account of the life history of one of the following, viz. : Sycamore (*Acer Pseudo-Platanus*); Red Campion (*Lychnis dioica*); Marsh Marigold (*Caltha palustris*); White Dead Nettle (*Lamium album*); *Convolvulus*; or the Furze (*Ulex europæus*).

PRIZES AND CERTIFICATES—

Cecilia W. Chidlow and Phyllis Lewthwaite, Girls' Secondary School, Birkenhead.

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Brighton and Hove Natural History and Philosophical Society—Abstracts of papers read, 1909, 1910.
Burton-on-Trent Natural History Society—Transactions, 1910.
Chester Society of Natural Science—Report and Proceedings, 1909, 1910.
Dublin Naturalists' Field Club—Reports 1909, 1910.
Edinburgh Field Naturalists' and Microscopical Society—Transactions, 1909, 1910.
 Parasitic Moulds and Mildews.
Edinburgh Botanical Society—Transactions and Proceedings. Vol. 24, 25 (Distribution of Hepaticae).

- Missouri Botanical Garden—Report, 1909, 1910.
New York Botanical Society—Bulletins, Nos. 24, 25.
North Staffordshire Field Club—Annual Report and Transactions, 1909, 1910.
Perthshire Society of Natural Science—Transactions and Proceedings, 1910.
Report of British Association Corresp. Societies' Committee (Sheffield), 1910.
United States Natural Herbarium Contributions :—
Vol. XIII. Part 1. Studies of Tropical American Ferns.
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Vol. XIV. Part 2. History of Cocoanut Palm.
Vol. XV. North American species of *Panicum*.
British Association—79th Meeting at Winnipeg. Report, 1909.
Wisconsin Academy of Science Arts Letters—Transactions, 1910.
Verhandlungen und Sitzungsberichte des Naturhistorischen Vereins der Rheinlande und Westfalens, Bonn, 1910.
Bulletin de la Société Linnéenne du Nord de la France, 1908-1909.
Sitzungsberichte der Naturforschenden der Gesellschaft in Leipzig, 1910.
La Naturaleza Periodico Cientifico del Museno N. de Historia Natural y de la Sociedad Mexicano de Historia Natural, 1910.
Bulletin de la Société Impériale des Naturalists de Moscou, 1909-1910.
Atti della Società Toscana di Scienze Naturali, Vol. XVIII., 19, 20, 1910.
Vierteljahrsschrift der Naturforschenden Gesellschaft in Zurich, 1909-1910.

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Warming (E.)

Oecology of Plants.

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LIVERPOOL BOTANICAL SOCIETY.

FOUNDED 21st MAY, 1906.

RULES.

Adopted at the General Meeting of the Society on Monday, 21st May, 1906.

Subsequent additions are shewn in italics.

I.—AIMS AND OBJECTS.

The object and aims of the Liverpool Botanical Society shall be :—To stimulate and promote the study of the various branches of Botany.

To bring local workers, students, and those interested in the subject into contact and for mutual assistance.

To encourage original work and research, especially in connection with local Botany. These objects are cultivated :—

- (1) By holding meetings for mutual assistance and for the interchange of botanical information; for the exhibition, study and identification of specimens; for the reading of original papers or translations, abstracts or reviews of botanical works, regarding any branch of botanical knowledge—practical, physiological, histological, geographical, systematic and palæontological.
- (2) By making excursions to places of botanical interest.
- (3) By publishing annually Proceedings, including a List of Members and Donations.
- (4) By appointing Committees of Research for the more effective investigation of definite branches of work.

II.—MEMBERSHIP.

(1) **ORDINARY**—Every applicant for membership must be proposed and seconded by two Members of the Society. The names and addresses of all such applicants, together with their proposers and seconders, shall be submitted to the Members on the Circular calling the next Meeting. Applications shall be first submitted to the Council and balloted for; no application shall be brought before the General Meeting except by the unanimous consent of the Members at the preceding Council Meeting. The election shall be determined by show of hands unless a request be made to the Chairman of the Meeting for the vote to be taken by ballot; if the nomination be supported by a majority of the Members present, the applicant shall be declared elected, and on payment of the subscription shall be entitled to all the privileges of membership. All persons accepting membership must be prepared to comply with the Rules of the Society.

(2) **LIFE**—Donors of five guineas and upwards to the Society shall be entitled to Life membership and shall have all the privileges of ordinary Members.

(3) **HONORARY**—Persons distinguished by their attainments in the study of Botany, or who have rendered valuable service to the Society, shall be eligible for Honorary Membership. Such Honorary Members, who shall not exceed ten in number, shall be nominated by the Council and elected by a majority of votes at a General Meeting, and have all the privileges of ordinary Members.

III.—SUBSCRIPTION.

Every ordinary Member shall pay an annual subscription of five shillings, payable in advance on the first day of January. The subscription in the case of a new Member shall be paid within one month of his or her election, otherwise such election shall be void. If, however, a candidate be elected during the months of October, November or December, he or she shall not be called upon to pay any annual subscription for the current year, and shall not be entitled to receive the publications of the Society for that year. The annual subscription for persons under twenty-one years of age shall be half-a-crown. Such Members shall not have the right to vote in the proceedings of the Society.

IV.—ARREARS.

No member shall be entitled to take part in the proceedings of the Society whose subscription is unpaid. Any member whose subscription is not paid by the thirty-first day of October in any year is liable to be excluded from the membership of the Society by the vote of the Council.

V.—RESIGNATION.

A Member desirous of resigning shall give written notice to the Honorary Secretary prior to the first day of December. If such notice of resignation of membership shall not have been received prior to the first day of December in any year, such Member shall be liable for the payment of the subscription for the following year.

VI.—MANAGEMENT.

The government of the Society shall be vested in a Council elected annually from amongst its Members. The Council shall consist of a President, two Vice-Presidents, Honorary Treasurer, Honorary Secretary, *Honorary Librarian*, *Honorary Curator*, and twelve other Members. Five to form a quorum. The President, or in his absence, one of the Vice-Presidents, shall take the Chair at all Meetings, but if both should be absent, the Members present shall elect a Chairman from among themselves. The Honorary Treasurer shall be responsible for the disbursements, receipts, and funds of the Society. The Honorary Secretary shall keep Minutes of all Meetings and send all notices and publications of the Society to the Members, and conduct the general correspondence of the Society under the direction of the Council. The Honorary Secretary may after consultation with a Vice-President, call Meetings of Council for the transaction of business; but he shall call a Meeting of Council at the desire of the President, or of two Vice-Presidents, or of any three Members of Council. *The appointments of Honorary Librarian and Honorary Curator shall be determined by the Council.* The Council is empowered to fill up all vacancies which may occur in its number during the year. The Council has the power of appointing Committees and defining the scope of their investigations, and of including in them such Members as are most capable of organising and carrying on such investigations.

VII.—NOMINATION AND ELECTION OF COUNCIL.

Nomination forms shall be sent by the Honorary Secretary to each Member of the Society whose subscription is not in arrear (as provided by Rule IV.) not later than the first week in December in each year. Each Member proposed for election to the Council must be nominated by two duly qualified Members. Retiring officers shall be eligible for re-election. All nominations must be sent in to the Honorary Secretary by the twenty-fourth day of December. A list of such nominations shall be sent to each duly qualified Member not later than the first week in January. The election of the Council shall be by ballot. In the event of a sufficient number not having been nominated, any duly qualified Member present at the Annual Meeting may propose or second any other duly qualified Member for the vacant office or offices.

VIII.—ANNUAL MEETING.

The Annual Meeting of the Society shall be held in the second week of January. At this Meeting the Annual Report and the Honorary Treasurer's Financial Statement for the past year shall be presented; the election of the Council for the year shall then take place, together with the consideration of such other business as may be contained in the notice summoning the Meeting.

IX.—ACCOUNTS.

The Accounts of the Society shall be made up from the first day of January to the last day of December of each year, and, before presentation to the Annual Meeting shall have been duly audited by two auditors nominated for the purpose by the Members from amongst their number at the last Meeting of the Session.]

X.—MEETINGS.

The Meetings shall be held on the second Monday in each month, *or on such other day of that week as may be determined by the Council*, and also on such other occasions as may be arranged.

XI.—SPECIAL MEETINGS.

A special Meetings of the Members may be called at any time by the Council; and they shall be bound to call such a Meeting upon receipt of a requisition specifying the business to be submitted to such Meeting, and signed by not less than twelve Members of the Society. The Meeting shall be held within twenty-one days of the receipt of the requisition by the Honorary Secretary, and seven days' notice shall be given to each Member of the time and place of Meeting, and of the business to be considered. No business shall be transacted at a Special Meeting except that for which it has been called.

XII.—VISITORS.

Any Member whose subscription is not in arrear may have the privilege of introducing not more than two friends at any Meeting of the Society.

XIII.—RE PAPERS.

The Manuscript or copy of every paper read or a clear and legible duplicate thereof on foolscap, shall become the property of the Society.

XIV.—ALTERATION OF RULES.

No alteration in, or addition to, any of these Rules shall be made except by a majority of votes of the Members qualified at an Annual Meeting. Notice and full particulars regarding all such proposed alterations shall be sent to the Honorary Secretary prior to the second week of October, and to each Member not later than the last week of December.

XV.—COPY OF RULES.

A copy of these Rules shall be furnished by the Honorary Secretary to each Member, together with the intimation of election to Membership.

XVI.—PUBLICATIONS.

A Publications Committee shall be elected annually by the Council, under whose direction it shall work, and to whom it shall be responsible. Such Committee shall consist of four Members of the Society, and the President, Honorary Treasurer, and Honorary Secretary, ex-officio.

XVII.—UNDETERMINED MATTERS.

The Council shall have power to decide any matters or difficulties that may arise, not specifically provided for in these Rules.