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Officers of the Society, Session LX., 1895-96

Rev. Dr. David Paul ^a

^a Roxburgh

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TRANSACTIONS AND PROCEEDINGS
OF THE
BOTANICAL SOCIETY OF EDINBURGH.

SESSION LX.

MEETING OF THE SOCIETY,

Thursday, November 14, 1895.

Professor F. O. BOWER, President, in the Chair.

The following Officers of the Society were elected for the Session 1895-96 :—

PRESIDENT.

ANDREW P. AITKEN, M.A., D.Sc., F.R.S.E.

VICE-PRESIDENTS.

PATRICK NEILL FRASER.
SYMINGTON GRIEVE.

Professor F. O. BOWER, Sc.D.,
F.R.SS. L. & E., F.L.S.
Colonel FRED. BAILEY, R.E.

COUNCILLORS.

Sir ALEXANDER CHRISTISON, Bart.,
M.D.
WILLIAM CRAIG, M.D., F.R.S.E.,
F.R.C.S.E.
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ROBERT TURNBULL, B.Sc.
WILLIAM WATSON, M.D.

Honorary Secretary—Professor Sir DOUGLAS MACLAGAN, M.D., LL.D.,
P.R.S.E.

Honorary Curator—The PROFESSOR OF BOTANY.

Foreign Secretary—ANDREW P. AITKEN, M.A., D.Sc., F.R.S.E.

Treasurer—RICHARD BROWN, C.A.

Assistant Secretary—JAMES ADAM TERRAS, B.Sc.

Artist—FRANCIS M. CAIRD, M.B., C.M.

Auditor—ROBERT C. MILLAR, C.A.

TRANS. BOT. SOC. EDIN. VOL. XX.

Issued November 1896.

LOCAL SECRETARIES.

- Aberdeen*—Professor J. W. H. TRAIL, M.A., M.D., F.L.S.
Bathgate—ROBERT KIRK, M.B., C.M.
Beckenham, Kent—A. D. WEBSTER.
Berwick-on-Tweed—FRANCIS M. NORMAN, R.N.
Birmingham—GEORGE A. PANTON, F.R.S.E., 73 Westfield Road.
 „ W. H. WILKINSON, F.L.S., F.R.M.S., Manor Hill, Sutton Coldfield.
Bridge of Allan—ALEXANDER PATERSON, M.D.
Bromley, Kent—D. T. PLAYFAIR, M.B., C.M.
Calcutta—GEORGE KING, M.D., F.R.S., Botanic Garden.
 „ DAVID PRAIN, M.D., F.R.S.E., F.L.S., Botanic Garden.
Cambridge—ARTHUR EVANS, M.A.
Chirnside—CHARLES STUART, M.D.
Croydon—A. BENNETT, F.L.S.
Dundee—Professor P. GEDDES, F.R.S.E.
 „ W. G. SMITH, B.Sc., Ph.D.
Glasgow—Professor F. O. BOWER, Sc.D., F.R.S., F.L.S.
 „ Professor J. CLELAND, M.D., F.R.S.
Kelso—Rev. DAVID PAUL, M.A., LL.D., Roxburgh Manse.
 „ Rev. GEORGE GUNN, M.A., Stichel Manse.
Kilbarchan—Rev. G. ALISON.
Leeds—Dr. JOHN H. WILSON, Yorkshire College.
Lincoln—GEORGE MAY LOWE, M.D., C.M.
London—WILLIAM CARRUTHERS, F.R.S., F.L.S.
 „ E. M. HOLMES, F.L.S. F.R.H.S.
 „ JOHN ARCHIBALD, M.D., F.R.S.E.
Melbourne, Australia—Baron FERDINAND VON MUELLER, M.D., K.C.M.G., F.R.S.
Melrose—W. B. BOYD, of Faldonside.
Nova Scotia—Professor GEORGE LAWSON, LL.D., Dalhousie.
Otago, New Zealand—Professor JAMES GOW BLACK, D.Sc., University.
Ottawa, Ontario—W. R. RIDDELL, B.Sc., B.A., Prov. Normal School.
Perth—Sir ROBERT PULLAR, F.R.S.E.
Philadelphia, U.S.A.—Professor JOHN M. MACFARLANE, D.Sc., F.R.S.E.
Saharunpore, India—J. F. DUTHIE, B.A., F.L.S.
Silloth—JOHN LEITCH, M.B., C.M.
St. Andrews—Professor M'INTOSH, M.D., LL.D., F.R.S.S. L. & E.
 „ ROBERT A. ROBERTSON, M.A., B.Sc.
Wellington, New Zealand—Sir JAMES HECTOR, M.D., K.C.M.G., F.R.S.S. L. & E.
Wolverhampton—JOHN FRASER, M.A., M.D.

Dr. WILLIAM CRAIG exhibited specimens of *Fistulina hepatica* which had reappeared upon *Castanea vesca* in his garden at Bruntfield Place. See Trans. Bot. Soc. Edin., vol. xix. p. 3.

Mr. CAMPBELL sent for exhibition blooms of *Cytisus fragrans*, *Potentilla alba*, *Myrtus communis*, *Escallonia macrantha*, and other plants from the open ground of his garden at Ledaig, Argyllshire.

From the Royal Botanic Garden were exhibited :—*Vanda Kimballiana*, *Cestrum aurantiacum*, *Ruellia macrantha*, *Tibouchina moricandiana* in flower, and *Vitis heterophylla humulifolia* (the blue-berried vine) in fruit.

The PRESIDENT (Professor F. O. Bower) delivered the following address :—

It is, I believe, usual for a retiring President to address the Society from this chair on some topic of current interest to botanists. On casting round for a subject for this evening, I have thought that I could not do better than turn your attention to the works of the celebrated botanist, Robert Brown, and consider them from the point of view of their bearing on the science as it is at the present day. You will all have been made aware, through the medium of the newspapers, of the main facts of Brown's life; for, in connection with the recent dedication of a bust to his memory in Montrose, his native town, by his kinswoman Miss Paton, the story of his life was eloquently told by Mr. Carruthers, and thus found its way afresh into the public prints. I shall therefore refer you to those sources of information, and devote our time this evening to the discussion of his life's work.

The botanists of his time were fully aware of his great merits; beyond the fact that Humboldt expressed his opinion in the often quoted epithet, that he was "*facile botanicorum princeps*," we have a substantial proof of appreciation in the two volumes of the Ray Society's publications, into which his papers were collected, and edited by J. J. Bennett—his successor in office at the British Museum. Such testimonials come to but few men of science; it is, however, in my opinion a still higher proof of the value of the work of this great man, that after the lapse of half a century his writings should hold the place that they still do. It is only the great buildings of a town which appear to tower above the rest in the distant view; and so in the growing distance of time it is only the great minds which maintain, or it may be increase their prominence above their more common-place contemporaries. Brown's reputation stands above that of his fellow-botanists

like one of those landmarks, a church spire or a castle, which remain visible after the meaner buildings of the surrounding town have sunk in the distance.

Such landmarks are the guides of men; and I wish that our younger writers would hold them as such. In the classics it is customary before writing a composition of Latin prose, to read a few pages of Cicero, Livy, or Tacitus; before writing elegiacs, to read Ovid; before hexameters, Virgil; and by such exercises classical scholars induce, as far as may be, a feeling for the best style of composition. How many botanists, before they rashly hasten into print, consult those models which a writer like Brown provides for them? Instead of this they will post themselves up with the latest, often trivial details of their text, presented it may be in the formless inaugural dissertation of a man of little more experience than themselves; and will absorb almost unconsciously his heavy style, and ill-balanced estimate of the relative value of facts. I would earnestly advise any young writer to study the collected papers of Brown, as models of clearness (the very foundation of style) and of brevity, which is nowhere more truly the soul of wit than in scientific writing. Lastly, his transparent honesty of purpose should be a lesson to us all; he did not write to make or maintain a reputation, but he made a reputation because he had knowledge of value to his fellow-men to write down, and this he did with brevity and clearness.

A peculiar feature of his writings is how he leads his readers on from an apparently trivial point to the discussion of matters of the widest possible bearing, thus from the investigation of *Kingia*, he leads us to his far-reaching study and comparison of the ovules of phanerogams and gymnosperms. His examination of pollen grains and their contents leads to his description of the "Brownian movements." His investigations on the fecundation of orchids, leads to the recognition of the nucleus as a frequent, perhaps even constant feature in the vegetable cell. These are all object lessons in research; they show how the strong mind, pursuing a legitimate channel of observation, is not merely directed passively by it, but of its own motion widens and deepens the channel till it emerges into the vast sea of general interest.

And, before we consider some of Brown's writings in detail, we may pause to admire the catholicity of his taste. In these days of specialisation, when a man who knows Fungi is probably ignorant of Algæ, a man of Pteridophyta is probably weak in physiology, and a systematist may use the microscope only occasionally, and then with low powers; it is a useful corrective to note how large a field Brown covered. A specially expert collector, he, more than any man of his time, knew how to do justice to his collections when made. He had the true classificatory instinct, and it is fortunate that circumstances gave him an unusually wide field for its exercise. Starting, as so many great botanists have done, as a local collector in the district of his birth, his first contribution to the literature of the science was in the field of critical and topographical botany, in a paper on the plants of Forfarshire, his native county; in this paper is described, perhaps for the first time, *Eriophorum alpinum*, L., a plant now virtually extinct in Scotland. But, on the other hand, many of his most important writings were structural and physiological, and they covered the ground from the Gulf weed (*Sargassum*) and mosses to the angiosperms. Even fossils were not beyond his sphere of interest, and I can personally testify, from a detailed examination of the classical fossil known as "Brown's cone," how accurate and far-reaching were his observations in this most attractive, though specialised, region of our science. Specialism is doubtless an inevitable evil, which follows as a consequence of the advancement of our science; it was probably easier in Brown's day to avoid it; but I hope that the botanists of the present may continue to regard it as an evil, against which they must be on their guard; and not, as some are even beginning to do, glory in specialism, which is at best but a confession of human weakness.

After these general remarks we may turn to a more detailed consideration of some of Brown's memoirs. But I do not propose to discuss his larger contributions to systematic and geographical botany at any length. Over and above the very numerous additions which he made to the sum of known species, his writings developed in the most practical way the natural system of classification.

He did not construct, or even reconstruct, any system; but his works served as the most spontaneous illustration of what the principles of a natural system, then in its infancy, should be. As Sachs points out (History, p. 143), "he discovered that marks which are of great value for classification within the limits of certain groups of affinity, may possibly prove worthless in other divisions," a conclusion which one must examine in the light of the science of his time in order to fully estimate its value as a discovery. Some of his works were purely systematic, as, for instance, the "*Prodromus Floræ Novæ Hollandiæ*," which, though the original edition in England was withdrawn from circulation owing to Brown's sensitiveness to criticism on its Latinity, was repeatedly republished in Germany. But most of his descriptive works are interspersed with general observations, led up to by the study of the plants in question. I have already alluded to his papers on *Kingia* and on the *Orchidaceæ* as examples of this. It is great minds which thus are able to enlarge the area of what might at first appear a small subject, and by the touch of genius, the true philosopher's stone, convert what in other hands might be mere base metal to pure gold.

Probably the strongest and most general interest will at the present day be felt in those papers which in his miscellaneous works are collected under the heading of "Structural and Physiological Memoirs." In a short paper on the "Fructification of Mosses" Brown satisfactorily disposed of the erroneous idea of Beauvois, that the spores are of the nature of pollen and fertilise "seeds" embedded in the columella. A more careful mode of preparation, together with comparison with *Phascum*, which has no developed columella, were the foundation of Brown's argument.

The paper on "Seeds and Fruits" is chiefly remarkable for its concluding paragraph, which foreshadows so much of his important later work. He points out that the anomalous structures which he has been studying "especially demonstrate the necessity of carefully ascertaining the state of the unimpregnated ovarium; for while its structure remains unknown, that of the ripe fruit can never be thoroughly understood." This passage, published in 1818,

strikes the key-note of several important researches. Obeying his own injunction, he examined the ovule of various angiosperms and gymnosperms in the young state, with the result that he was the first to distinguish the integuments from the nucleus (nucellus) of the ovule; he showed that the hilum represents the point of attachment, and recognised the micropyle as a canal leading to the apex of the nucleus; he noted the different relative positions of these parts in different types of ovule, and that the embryo is always attached at the point in the embryo-sac (amnion) nearest to the micropyle, while its root points towards the micropyle. He also recognised the true nature of the endosperm, perisperm, and arillus. In fact, though many of these parts had previously been the subject of less strict observation, Brown may be said to have laid out the broad lines of the morphology of the ovule, in a manner the permanence of which has been the sufficient proof of its excellence.

But the examination of the angiospermic ovule led him to that of the gymnosperms, and it was he who established on a comparative basis the view that what had previously passed as a female flower is really a naked ovule. It doubtless required Hofmeister's detailed and brilliant work to fully develop the importance of the comparison; nevertheless it was Brown who first showed the way. Moreover, his first communication on this subject in 1825 to the Linnean Society, was followed by one read before the British Association in Edinburgh in 1834, in which he describes and figures the endosperm ("amnios or albumen"), the archegonia, the "funiculi or suspensors," and numerous embryos. In fact, though it remained for Hofmeister to perfect the comparisons and fill in the details, Brown was the pioneer in this most important line of research.

The pollen, also, from time to time occupied his attention. His paper "On the Organs and Mode of Fecundation in Orchideæ and Asclepiadeæ," contains many interesting observations. In a footnote (p. 514) we find a description of the division of the pollen-mother-cells of *Tradescantia* to form the tetrads, and of the maturing of the pollen grain. On p. 507, he confirms the observa-

tions of Amici and Brongniart relating to the formation of the pollen tube; he also observed, as Amici had done, that the tubes make their way to the micropyles of the ovules. He was, however, in doubt whether *all* the tubes originated from the pollen grains, or whether they were indirectly generated by them. He says (p. 539): "It is possible, therefore, that the mucous cords may be entirely derived from the pollen, not, however, by mere elongation of the original pollen tubes, but by an increase in their number, in a manner which I do not attempt to explain." No one was better aware than Brown of the incompleteness of this statement. He remarks (p. 538): "My observations on the *origin* of these tubes are not altogether satisfactory." One may express the wish that all writers would be equally candid at their own expense.

But the part of this remarkable paper which is the most generally known is that which connects Robert Brown's name, perhaps more than that of any other man, with the discovery of the nucleus of the cell. We will endeavour to place his contribution to the subject in its correct light.

He was by no means the first to see, and represent in drawing, the nucleus of the cell; the earliest notice of it of which we at present have record is by Fontana, in his work "*Sur les Poisons et sur le Corps Animal*," Florence, 1781 (vol. ii., pl. 1, figs. 7, 10). He examined the cells detached from the slimy skin of the eel, and described how, after partially drying, there appeared "a small body within, situated in different positions in each globule." In his fig. 10 he represents one of the cells on a larger scale, plainly showing the nucleus in a central position. Thus, probably, the earliest representation of the nucleus appears to have been in the animal, not in the vegetable cell, and to date a full half century before Brown's paper. Doubtless an exhaustive study of the publications from 1780 to 1830 would disclose other isolated observations of a like nature, and Brown himself refers to such by Meyer, Purkinje, and Brongniart (l.c. p. 514) in the vegetable cell. Certainly in the atlas to Meyer's "*Phytotomia*" (1830) several of the drawings indicate the nucleus more or less clearly. Without following out or enumerating such sporadic notes, it may be stated that up to 1830 no general importance

was attached to the granules described or figured. It is to Brown that the credit is due of extending observations of the nucleus to cells of many different parts of the same plants, and to plants of various families, chiefly of Monocotyledons, but also in some cases of Dicotyledons. It is peculiarly interesting to us now that he observes its occurrence in the cells of the ovule, and in the pollen-mother-cells and tetrads. He thus approached at once the focal point of interest, viz. the relation of the nucleus to reproduction; but the demonstration of the part which it plays in this process did not come for nearly half a century after he wrote.

A noteworthy feature in the three pages of print into which he compressed his account of the nucleus or areola, is the caution displayed. It is a plain statement of facts of observation. He does not generalise on insufficient grounds; he does not even dwell on cases where the nucleus has not been seen, but he states where it has been seen. He does not state that it is a constant feature of the cell, but his attitude is distinctly that of expectancy that it will be found if properly sought for. His immediate followers, however, were not so reticent, and the varying size, position, and prominence of the nucleus, together with its elusive behaviour in division, greatly delayed further progress. These circumstances, doubtless, explain the position of Meyer, which we may place in antithesis to the truly scientific attitude of Brown. In his "Pflanzen-Physiologie" (1837, vol. i. p. 209) he remarks: "The occurrence of these nuclei within the cells does not seem to be constant at all times in the plant, and where they do occur, these structures are only to be recognised in a few cells. In the majority of cells they are absent. Perhaps the nucleus also is a sort of nourishment-reserve." And so was initiated the idea of a coming and going, a breaking up and reconstitution of the nucleus, while there naturally followed the view that free nuclear formation is a matter of common occurrence. This view largely dominated the expressions of Schleiden and his followers. It was not till forty years later that Strasburger (1879) summed up his evidence on the continuity of existence of the nucleus in the memorable sentence (Bot. Zeit., 1879, p. 278): "I

am no longer able to quote any case of free nuclear formation preceding cell-division." This laid the foundation for connecting the nucleus with opinions on heredity. But, as above noted, the tendency of Brown's statement was such as to avoid the misconceptions which delayed the progress of the science, while his observation of the nucleus in the cells closely connected with reproduction, seems to indicate an opinion, or at least a surmise, of its importance in that process.

We may with advantage try to inquire what the verdict of so careful and reticent a theoriser as Brown would be, could we see the structures of hypothesis (not always built upon the most scientific principles, and apt at times to fall about the ears of their originators) which have arisen in recent years on the basis of observation of the nucleus. I have theorised myself on the subject in last year's address to you, and must not therefore be too outspoken; but I can confidently recommend the reading of Brown's three pages on the nucleus as a corrective against rash speculation.

Before leaving the consideration of this paper, I would direct your attention to another footnote (p. 513), in which he gives a minute account of the staminal hairs of *Tradescantia*; he there describes, as observed under a lens magnifying 300 to 400 times, the "circulation of very minute granular matter," and how the currents pass towards and from the nucleus. This is, I believe, the earliest description of the circulation of protoplasm, though a much more complete account of it is given by Meyer in his "Pflanzen-Physiologie" (1837). But he also dealt with more minute movements which he successfully distinguished from those of circulation. It was three years previous to the memoir we have been discussing (1827), that Brown had printed for private circulation his account of "the general existence of active molecules in organic and inorganic bodies;" these observations of what are now called "Brownian movements" were all made "with a simple microscope, and indeed with one and the same lens, the focal length of which is about $\frac{1}{32}$ of an inch." The investigation arose in connection with the pollen, and its mode of action in fertilisation; since the ideas which then

prevailed are now entirely superseded, the chief interest of this paper will be in tracing how a skilful investigator attacked a difficult question with imperfect instruments, and arrived at a sound conclusion.

But it would be more than could be compressed into an address like this to remark on the many points of interest in Brown's works. I cannot do more than merely mention his masterly treatment of some most difficult families: the morphology of the flower of Orchidaceæ and Asclepiadaceæ, and their mode of fecundation occupied his attention, perhaps the attraction was the very difficulty which attended their study; while his treatise on that newly discovered wonder *Rafflesia*, in which he grouped together that extraordinarily aberrant form with *Hydnora*, *Brugmansia*, *Cytinus*, etc., and his constitution of the natural family Rafflesiaceæ, will always remain as one of his most notable works.

Enough will now have been said to revive your interest in this most extraordinary man. And while we feel a peculiar satisfaction in noting that he was a Scotchman by birth and education, and that his work commanded the respect and admiration of foreign as well as British Botanists, we may for our own advantage draw the moral: we mark as special features of his work his clear and concise style; his reticence, which prevented him from rash hypothesis, so subject to later demolition; lastly, his transparent honesty, which led him at times to indicate to the reader where the weak point or deficient observation lay. If only those who now write on kindred subjects, with perhaps a mere fraction of Robert Brown's ability, would follow him in these characteristics, how much fewer would be the obstacles which writers themselves unwittingly place in the way of the progress of their science. I should like to see the Structural and Physiological Memoirs of Robert Brown prescribed as a classic to be read by all aspirants to a degree of Bachelor of Science in Botany; such experience would bring untold advantages to style and accuracy of thought, at the same time the information actually so gained would be such as still maintains its value, for the writings of this most remarkable man, though often dealing with freshly broken ground of the science, have maintained their position as much as those of any

writer; and it is this, combined with a native originality, which make his name respected to-day as highly as it was at the time of his death some forty years ago. Permanence of influence may be held as a title to high rank in the scientific world,—on this ground Robert Brown's place is among the highest.

On the motion of Dr. WILLIAM CRAIG the thanks of the Society were given to the President for his address.

The President made the following announcement regarding the Roll of the Society:—

During the past year the Society lost by death:—2 Honorary British Fellows—Charles Cardale Babington; Hugh Francis Clarke Cleghorn. 3 Resident Fellows—Thomas Alexander Goldie Balfour; Lady Henry Grosvenor; Henry E. Hole. 3 Non-Resident Fellows—Dr. Robert Brown, Ph.D.; A. G. More; Charles Eyre Parker. 1 Corresponding Member—Professor Fr. Schmitz.—Total, 9.

During the same period the Society received the following accessions:—1 Honorary British Fellow—George King, M.D. 5 Honorary Foreign Fellows—Ed. Bornet; Wilhelm Pfeffer; Charles S. Sargent; M. Treub; Hugo de Vries. 3 Resident Fellows—William Oliphant Gibb; R. Stewart Macdougall; Ralph Stockman, M.D. 7 Corresponding Members—Oscar Brefeld; Fred. Elving; A. Franchet; L. Guignard; E. Stahl; Henry Trimen; H. Vöchting.

The Roll of the Society stands at present thus:—

Honorary Fellows—					
Royal	.	.	.	.	3
British	.	.	.	.	4
Foreign	.	.	.	.	24
					31
Resident Fellows	.	.	.	.	126
Non-Resident Fellows	.	.	.	.	139
Corresponding Members	.	.	.	.	51
Associates	.	.	.	.	24
Lady Associate	.	.	.	.	1
Lady Members	.	.	.	.	5
Total of Roll					377

The following papers were read:—

FUNGI OBSERVED IN GLEN URQUHART, INVERNESS-SHIRE. By REV. DR. DAVID PAUL, ROXBURGH.

The Cryptogamic Society of Scotland held their annual meeting for 1895 in Glen Urquhart, Inverness-shire, using the Drumnadrochit Hotel as their headquarters, under the

Presidency of Professor Trail of Aberdeen. The day of meeting was 16th September. Owing to the remoteness of the Glen the number of members present was small, consisting of the President, Dr. Stevenson, of Glamis, the Secretary; Professor King, of Glasgow, the Treasurer; with Dr. Paul, of Roxburgh, Dr. Watson, of Edinburgh, and Messrs. Polson and Crawford.

On Tuesday the 17th it rained nearly the whole day, and very little could be done in the way of exploration, but next day, Wednesday the 18th, was fine, and the whole party, under the guidance of Mr. Angus Grant, a local botanist, spent the day in the woods surrounding the Earl of Seafield's mansion-house. Fungi were tolerably abundant, more rain having fallen there than in the eastern and southern parts of the country. About a hundred different species of Hymenomycetes were noted, most of them being those that may be found in suitable woods anywhere in Scotland, and which need not be specially mentioned here. A full list, however, is set down at the end of the paper as a contribution to the geographical distribution of Fungi in Scotland, the locality having probably not before been specially examined. But some of the less common and rare Fungi found on the first day may be mentioned. Not far from the mansion-house rises a knoll covered with rocks on the top, and clothed with old Scotch firs everywhere but on the very summit, whose dark-green foliage forms a striking contrast to the lighter tints of the mixed woods around, and presents a conspicuous object as seen from the neighbourhood of the hotel. Many of the trees are magnificent specimens of the *Pinus silvestris*. On one side of this knoll a great number of specimens of *Cortinarius armillatus*, Fr., were found along with *Lactarius vietus*, Fr., in still greater abundance. One specimen of the rare *Trametes pini*, Fr., was discovered. Near the path leading from the house to this knoll a minute and beautiful Polyporus was detected on a fallen and decayed birch bough, which proved to be *Polyporus ciliatus*, Fr., and which, so far as is known, has not been found before in Britain. In another part of the grounds a fine Hydnum occurred, which has been identified as *Hydnum compactum*, Pers. These were the principal finds of the first day.

On the second day, Thursday the 19th, only two of the party remained to go out again with Mr. Grant, and they were moderately successful in their search. On the knoll already mentioned were found *Sparassis crispa*, Fr., and *Polyporus Schweinizii*, Fr., both rare Fungi. *Lactarius uvidus*, Fr., was also found. In a fir wood on another part of the property *Hydnum zonatum*, Batsch, was seen in considerable quantity, at one spot forming a nearly complete circle of 9 yards in diameter. It was not observed in any other place. *Ag. porrigens*, Pers., *Ag. pyrotrichus*, Holmsk., *Elaphomyces granulatus*, Fr., *Boletus pachypus*, Fr., *Cantharellus infundibuliformis*, Fr., *Craterellus cornucopioides*, Pers., and *Clavaria abietinus*, Pers., were also observed. As only a small part of the ground could be carefully gone over in the limited time at the disposal of the members, the results obtained seem to warrant the conclusion that the district, where it is wooded, would repay a more prolonged and minute search. A great deal has still to be done before we can be said to have much knowledge of the Hymenomycetes of Scotland, and the number of observers in this department of botany is so few that progress is but slow. The Society has mapped out the whole of Scotland into carefully defined districts with the view of gradually obtaining lists of the Fungi found in each, and hopes soon to publish a full list of Scotch Fungi as a guide for the tabulation of the different species. When this is done it may be expected that the finds of competent observers will so be chronicled as not to be lost sight of through being either not noted at all except on the margin of a private flora, or else recorded here and there in different publications. Greater interest may thus also be aroused in this sphere of Cryptogamic Botany, and the number of workers being by degrees increased the accuracy of their work will be increased also, and its permanence secured.

Fungi found in Glen Urquhart during the Annual Conference of the Cryptogamic Society of Scotland, 17th to 19th September 1895, inclusive:—

Agaricus mappa, Fr.
 — *muscarius*, L.
 — *rubescens*, Pers.
 — *spissus*, Fr.

Agaricus vaginatus, Bull; also *var.*
 fulvus, Schæff.
 — *granulosus*, Batsch.
 — *melleus*, Fl. Dan.

- Agaricus equestris*, L.
 — *maximus*, Fl. Wett.
 — *resplendens*, Fr.
 — *albobrunneus*, Pers.
 — *rutilans*, Schæff.
 — *vaccinus*, Pers.
 — *terreus*, Schæff.
 — *saponaceus*, Fr. (?).
 — *virgatus*, Fr.
 — *sulphureus*, Bull.
 — *clavipes*, Pers.
 — *fragrans*, Sow.
 — *laccatus*, Scop; also *var. amethystinus*.
 — *radicatus*, Rehl.
 — *maculatus*, A. and S.
 — *butyraceus*, Bull.
 — *confluens*, Pers.
 — *tuberosus*, Bull.
 — *tenacellus*, Pers.
 — *dryophilus*, Bull.
 — *purus*, Pers.
 — *galericulatus*, Scop.
 — *polygrammus*, Bull.
 — *ammoniacus*, Fr.
 — *sanguinolentus*, A. and S.
 — *epipterygius*, Scop.
 — *muralis*, Sow.
 — *porrigens*, Pers.
 — *cervinus*, Schæff.
 — *rhodopoli*, Fr.
 — *prunulus*, Scop.
 — *pascuus*, Pers.
 — *variabilis*, Pers.
 — *squarrosus*, Müll.
 — *flammans*, Fr.
 — *mutabilis*, Schæff.
 — *hirsutus*, Lasch.
 — *rimosus*, Bull.
 — *geophyllus*, Sow.
 — *glutinosus*, Lind.
 — *arvensis*, Scop.
 — *hæmorrhoidarius*, Kalchbi.
 — *ærginosus*, Curt.
 — *capnoides*, Fr.
 — *epixanthus*, Fr.
 — *fascicularis*, Huds.
 — *pyrotrichus*, Holmsk.
 — *velutinus*, Pers.
 — *semilanceatus*, Fr.
Coprinus atramentarius, Fr.
Cortinarius cærulescens, Fr.
 — *elatio*, Fr.
 — *anomalus*, Fr.
 — *cinnamomeus*, Fr.
 — *torvus*, Fr.
 — *armillatus*, Fr.
 — *hemitrichus*, Fr.
Gomphidius glutinosus, Fr.
Paxillus involutus, Fr.
 — *atrotomentosus*, Fr.
Hygrophorus cerasinus, Berk.
 — *pratensis*, Fr.
 — *virgineus*, Fr.
 — *coccineus*, Fr.
 — *conicus*, Fr.
 — *chlorophanus*, Fr.
Lactarius torminosus, Fr.
 — *turpis*, Fr.
Lactarius blennius, Fr.
 — *uvidus*, Fr.
 — *piperatus*, Fr.
 — *deliciosus*, Fr.
 — *quietus*, Fr.
 — *vietus*, Fr.
 — *rufus*, Fr.
 — *glyciosmus*, Fr.
 — *volemus*, Fr.
Russula nigricans, Fr.
 — *adusta*, Fr.
 — *vesca*, Fr.
 — *foetus*, Fr.
 — *fellea*, Fr.
 — *emetica*, Fr.
 — *fragilis*, Fr.
 — *alutacea*, Fr.
 — *vitellina*, Fr.
Cantharellus cibarius, Fr.
 — *aurantiacus*, Fr.
 — *infundibuliformis*, Fr.
Nyctalis parasitica, Fr.
Marasmius peronatus, Fr.
 — *androsaceus*, Fr.
Boletus luteus, L.
 — *flavus*, With.
 — *piperatus*, Bull.
 — *chrysenteron*, Fr.
 — *subtomentosus*, L.
 — *pachypus*, Fr.
 — *edulis*, Bull.
 — *luridus*, Schæff.
 — *versipellis*, Fr.
 — *scaber*, Fr.
Polyporus Schweinizii, Fr.
 — *ciliatus*, Fr.
 — *perennis*, Fr.
 — *varius*, Fr.
 — *betulinus*, Fr.
 — *ignarius*, Fr.
 — *annosus*, Fr.
 — *radiatus*, Fr.
 — *versicolor*, Fr.
Trametes pini, Fr.
Dædalea quercina, Pers.
Hydnum repandum, L.
 — *rufescens*, Pers.
 — *zonatum*, Batsch.
 — *compactum*, Pers.
Craterellus cornucopioides, Pers.
Sparassis crispa, Fr.
Clavaria rugosa, Bull.
 — *abietina*, Pers.
 — *vermicularis*, Scop.
Calocera viscosa, Fr.
Tremella albida, Huds.
 — *mesenterica*, Retz.
Lycoperdon gemmatum, Fr.
Scleroderma vulgare, Fr.
Leotia lubrica, Pers.
Geoglossum glabrum, Pers.
Spathularia flavida, Pers.
Peziza macropus, Pers.
 — *scutellata*, L.
Xylaria hypoxylon, Grev.
Bulgaria inquinans, Fr.
 — *sarcoides*, Fr.
Elaphomyces granulatus, Fr.