BRITISH BRYOLOGICAL SOCIETY

PRESIDENT: MRS J. A. PATON, M.Sc., F.L.S.

BULLETIN

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SUBSCRIPTIONS

Subscriptions for 1977 are now due and should be sent immediately to the Treasurer, Dr W. D. Foster, Department of Pathology, Macclesfield Hospital, Prestbury Road, Macclesfield, Cheshire, SK10 3BL. The Ordinary membership subscription is £6.00; the Junior membership subscription is £3.00. In order to save postage it is proposed not to send invoices to foreign members as has been done in the past. Subscriptions are due each January 1st and the Treasurer would be most grateful if members would pay without his having to resort to the trouble and expense of sending reminders. Members should note that, in any case, if their subscription is not up-to-date, they will not receive the Journal of Bryology. Foreign members should pay their subscription in £ sterling. A convenient means of payment is by a "Post Office Money Order - Mandat de poste international" which seems to be available the world over. Euro-cheques are not accepted by the bank.

THE SUMMER MEETING, 1976.

Melrose was selected as a convenient centre to explore the county of Roxburgh, previously somewhat neglected by bryologists. Instructions provided by the B.B.S. for Local Secretaries did not include hints on rain-making so that bryophytes and bryologists were forced to endure continuous sunshine and severe drought throughout the week. Eleven members attended the whole meeting with a similar number for part. Excursions were primarily in Roxburgh (v.-c. 80) but also in Berwick (81) and Selkirk (79).

22 August. We were joined for the day by an enthusiastic party from the Botanical Society of Edinburgh. First we visited Smailholm Craigs west of Kelso (80), with extensive lava outcrops, but supporting a limited assemblage of saxicolous species. Hedwigia ciliata was abundant with Cynodontium jenneri* and Grimmia stirtonii* in small quantity. At midday we moved to Dogden Moss near Greenlaw (81), an extensive raised bog, normally spongy and treacherous but on this occasion firm and dry. Predictably, small hepatics were of interest, in particular Riccardia latifrons, Cephaloziella subdentata* and Calypogeia sphagnicola*, the last in abundance. A patch of Sphagnum imbricatum*, expertly detected by Dr. Corner, was an unexpected find so far east, while the old record of Dicranum undulatum was confirmed. The prominent Border folly, Hume Castle (81) was visited on the return journey, for members to admire the Tortulas - T. papillosa, T. laevipila and T. virescens on Fraxinus and T. princeps (with sporophytes) on the crags. A brief Tweedside foray opposite Makerstoun House (80) revealed Marchantia polymorpha var. alpestris* and Fissidens rufulus on exposed muddy rocks, and Scleropodium caespitosum* on boulders.

23 August. Minto Crags (adorned by the gaunt Fatlips Castle) near Denholm (80) were very dry and an exhausting scramble produced little of note except Cirriphyllum crassinervium, Mnium cuspidatum and Pterogonium gracile, also Orthotrichum pulchellum and O. stramineum on Sambucus. After lunching in a pleasantly cool but unpleasantly wasp-infested wood we took to the hills north of Hawick, visiting Blind Moss near Shielswood (80). Our walk there involved passing Shielswood Loch and inevitably the cool waters proved too great a temptation for some; indeed, suitable attire was at a premium resulting in some secretive exchanging of garments. Those who resisted found Blind Moss a delightful "basin-mire" (one of many in the district) containing such species as Acrocladium giganteum, Camptothecium nitens, Campylium elodes, Mnium rugicum, Sphagnum contortum and capsule-bearing Scorpidium scorpioides, growing with the rare rush Juncus alpino-articulatus. Sphagnum imbricatum* grew luxuriantly on slightly drier ground.

24 August. An excursion to the Cheviot Hills was abandoned in favour of what we hoped would be moister places; but with mixed success. Catcleuch Reservoir (67) was an obvious choice but exposed mud, although extensive, was dry and barren. Richard's Cleugh near Camphouse (80), a natural wooded glen cut into Old Red Sandstone, had a limited flora including Hypnum cupressiforme var. mamillatum, Rhynchostegiella teesdalei, and Calypogeia arguta*. Farther north, the wooded banks of the Tweed near St. Boswells (80) were more interesting; Scleropodium caespitosum was seen again, also Orthotrichum rivulare, Leskea polycarpa, Anomodon viticulosus, Metzgeria pubescens and, on Fraxinus, Tortula papillosa.

* New vice-county record throughout.

25 August. A 'free day'. Several people elected for sightseeing. Others attempted to view the fauna of the Farne Islands but were enshrouded in mist. Mr. Crundwell searched in vain for dune slacks on Ross Links (68). A 'square-bashing' party ventured into the hills south-west of Hawick (80) where lists were compiled from several unworked grid squares. The best locality visited was a wooded ravine at Gorrenberry, Hermitage Water, in which rarities for the region, Hylocomium brevirostre and Cololejeunea rossettiana* were growing. Noteworthy too were Lejeunea lamacerina var. azorica*, Heterocladium heteropterum var. flaccidum* on wet rocks and Zygodon viridissimus var. vulgaris on Fraxinus. At the remote farm of Dod Fossombronia pusilla* and Ephemerum serratum var. minutissimum* grew on a damp streamside; another valley nearby had Plectocolea subelliptica* and Scapania scandica* (both with perianths) on damp gravel and Scapania aspera on rock. A final stop at Robert's Linn waterfall, Slitrig Water, yielded Barbilophozia hatcheri and Lophozia alpestris.

26 August. The Black Burn near Newcastleton (80), much celebrated as the place where Trochobryum carniolicum was discovered in Britain (but never refound there) was considered worthy of a visit but here too the drought hampered our efforts. Prostrate bryologists scrutinized innumerable rocks and boulders in the burn, bringing to light Plectocolea paroica, P. subelliptica, Scapania subalpina, Solenostoma cordifolium and Anomobryum concinnatum. The shaded rock faces (Carboniferous limestones and sandstones) yielded Brachydontium trichodes, Seligeria doniana, S. pusilla, S. recurvata, Eucladium verticillatum, Gyroweisia tenuis, Tetraphis browniana (all with sporophytes), Orthothecium intricatum, Trichostomum crispulum* and Sphenolobus minutus. More western species in evidence were Lejeunea lamacerina, Mylia taylori and Breutelia chrysocoma. Riccardia incurvata and Fossombronia incurva* were found on damp gravel. Dicranella crispa flourished on a shaded earthy bank. The elusive Trochobryum was not found but could survive in tributary streams unexplored on this occasion.

27 August. The final day was devoted to the Selkirkshire hills (79), the morning locality being the Kirkhope ravine at Ettrickbridge End. The Silurian 'greywacke' strata were base-poor but nevertheless suitable for Plectocolea paroica, Anomodon viticulosus, Anomobryum concinnatum*, Trichostomum brachydontium*, T. crispulum* and its variety elatum*. In the stream Fissidens rufulus abounded; also thriving were Orthotrichum rivulare and Leskea polycarpa on exposed Alnus roots. Pohlia delicatula* grew on damp soil. Mr. Townsend emerged from a Sambucus thicket with several creditable finds, namely Metzgeria fruticulosa*, Cryphea heteromalla* Orthotrichum pulchellum, O. striatum, Tortula papillosa and Ulota phyllantha.

Kingside Loch near Buccleuch, proved a worthy locality for our final excursion. Beyond the Phragmites-fringed east margin was an extensive swampy zone dominated by Carex, Sphagnum and an extraordinary abundance of Mnium cinclidioides. Lenses were focused much of the time on the stem leaves of Sphagnum recurvum during a lively discussion (primarily between Messrs. Crundwell and Hill) on the status of the three varieties of this species (denoted as S. flexuosum vars. flexuosum, tenue, and fallax by Mr. Hill) conveniently growing here in mixed stands. Other species seen were Mnium rugicum*, M. seligeri, and of particular rarity Acrocladium sarmentosum. More base-rich conditions nearby supported Sphagnum contortum, S. teres and S. warnstorfianum. Those who had noted the absence of Mrs. Paton from the lochside knew that the nearby peaty blanket bog which she was assiduously studying on all fours was of hepaticological merit. We were therefore not surprised by her impressive list of Calypogeia neesiana var.

neesiana*, C. sphagnicola*, Cephalozia pleniceps*, C. loitlesbergeri* and Riccardia latifrons*. Some of the party explored the Buck Cleuch ravine nearby, adding Fissidens rufulus, Orthothecium intricatum and Scapania aspera* to the record card.

In spite of the dull nature of some of the localities visited, a few observations can be made on the results of the meeting. Obvious was the unpredictability of the terrain, interesting species occurring in otherwise unexceptional habitats (e.g. Tortula virescens at Hume). A few localities (such as Kingside Loch and the Black Burn) did have more extensive bryophyte communities of greater significance. Of new records made most gratifying are the discovery of Sphagnum imbricatum so far east, and Cololejeunea rossettiana, a species with very few Scottish localities. Equally rewarding is the knowledge that Dicranum undulatum still survives in probably its last locality in southern Scotland. Scleropodium caespitosum, here at its northern limit in Britain, was found to be abundant by the Tweed. Two other species of restricted distribution in lowland Britain were common in the district - Fissidens rufulus and Tortula papillosa. Others were conspicuous by their absence despite apparently suitable habitats - examples being Sphagnum subsecundum var. subsecundum and the Grimmia species characteristic of similar basaltic rocks in the nearby Lothians.

Perhaps the most productive aspect of the meeting was that representative lists were compiled from 13 previously under-recorded grid squares, and clearly this contribution, in the form of future distribution maps, will help to put the Bryophyte Flora of the district into broader perspective.

DAVID G. LONG

THE ANNUAL MEETING, 1976.

The annual meeting was held on the weekend of 24 - 26 September in the School of Plant Biology, University College of North Wales, Bangor, by kind permission of Professor J.L. Harper. The meeting got off to a fine start on the evening of 24th with the special retirement dinner for Professor Paul Richards, C.B.E., an event which proved a delightful reunion for over 60 bryologists from all parts of the world. The highlight of the evening was an address by Professor Richards in which he reminisced on his 50 - plus years as a bryologist. It was especially enchanting to hear, first hand, the now almost legendary tale of his visit, at the age of 12, to the distinguished Welsh bryologist, D.A. Jones. After recovering from the initial surprise that the new recruit to the art was a school-boy the latter kindly identified Paul's mosses amongst which was Hedwigia integrifolia, appropriately later seen in the meeting's excursion.
About 45 members and guests attended on Saturday when the President introduced 6 speakers, whose papers are summarized below.

Professor P.W. RICHARDS (School of Plant Biology, Bangor): 'Robert Hooke's chapter on mosses'. Robert Hooke's Micrographia, published in 1665, records observations on a large variety of biological and other objects seen with the microscope developed and improved by himself. One chapter ('Observation XXI'), headed 'Of Moss and several other small vegetative substances', is illustrated by an engraved plate with four figures showing the external features of the gametophyte and sporophyte (though not the gametangia) of a moss. The audience was invited to identify the species shown in

Hooke's plate. A wide variety of suggestions was made, but Prof. Richards own opinion was that if the figures were indeed all of the same species it could be Bryum capillare Hedw.
After a brief account of Hooke himself, the text of Observation XXI was discussed. It begins with a description of the morphology of the 'common moss' which includes such details as the filaments connecting the spore sac with the capsule wall. The language seems quaint, but it should be remembered that Hooke was handicapped by the lack of suitable descriptive terms and was ignorant of the life-history. He makes some shrewd observations on the physiology and ecology of mosses and gives an interesting discussion of whether moss 'does sometimes originally spring or rise out of corruption'.

Hooke's chapter is one of the most important early contributions to bryology and deserves much closer study than it has so far received.

Dr. L.B. KASS (Genetics DEpartment, Cambridge University, and Cornell University, Ithaca, New York, U.S.A.): 'Chloroplast Replication in the moss Polytrichum'. The chloroplasts of germinating spores of the moss Polytrichum replicate in darkness to a lesser extent than in light. After 48 hrs of darkness a stable mean number (plateau) of plastids per spore or germling is attained and exposure to light then stimulates the plastids to replicate. This light response appears to be phytochrome-mediated because when red light is used the promotive effect of the light can be completely reversed by far-red light. If the plastids at the plateau are given brief exposure to white light further replication of the plastids occurs in the light or in darkness. It appears therefore, that a response to light triggers a series of events that can continue in darkness.
Cycloheximide (CHI) inhibits plastid replication completely, but chloramphenicol (CAP) inhibits only to the same extent as darkness. Neither inhibitor can stop the response of the plastids to light. Replication of plastids in spores that have been incubated in darkness for 48 hrs and transferred to light is prevented by both CHI and CAP but only for as long as the inhibitors are present. If CHI and CAP is washed out when the spores and sporelings are returned to darkness, plastid replication commences. It appears that the plastids exist in two phases with regard to replication: a light sensitive phase and a light insensitive phase.
Shalit (The role of light in the replication of plastids in a moss Polytrichum. Honours thesis, Cornell University, Ithaca, New York, 1976), has recently shown that the effect of a 4 hr light exposure on plastid replication (as measured after 44 hrs of additional dark) can be reduced by 40% by 5 minute exposure to far-red light immediately following the white light treatment. However, if CHI is present during the light treatment, the effect of the light is negated completely by far-red light. It appears that the effect of light on plastid replication is mediated by a shift in the phytochrome balance (P_r/P_{fr} ratio). If protein synthesis is not allowed when the P_r/P_{fr} ratio is favourable, replication of plastids does not occur.
Autoradiographic studies on nucleic acid synthesis in Polytrichum have indicated that light stimulates RNA and DNA synthesis as well as plastid replication. Nuclear and chloroplast DNA synthesis can be separated temporally, chloroplast DNA synthesis occurring before that in the nucleus.

Dr. T.G.A. GREEN and Dr. K.A. CLAYTON-GREENE (Department of Botany, University of Waikato, Hamilton, New Zealand, and Department of Botany, University of Melbourne, Parkville, Victoria, Australia): 'The Growth of Dawsonia superba Grev.'. The growth (increase in length) of female plants without sporophytes of the giant moss Dawsonia superba was monitored for 450 days. Measurements were taken at about two weekly

intervals by measuring increase in length from a marked point on the stem. Temperature, rainfall and humidity were also recorded at the site which was located in forest at 2280 feet on Mt. Te Aroha, North Island, New Zealand, latitude 37°30'. S. Large differences in growth rates between plants were found, from 0 to 53 mm in 450 days. It was suggested that plants grew at between 30-50 mm per annum until archegonia matured when growth decreased. Growth was positively correlated with temperature (mean, $P = 0.000003$; maxima, $P = 0.000003$), day length ($P = 0.004$) and atmospheric water deficit (mean deficit, $P = 0.001$; mean maximum deficit, $P = 0.00006$). Growth was negatively correlated with rainfall ($P = 0.02$). Because these environmental factors are inter-related multiple regression analysis of growth on maximum temperature, day length, rainfall and mean maximum water deficit was carried out. By step-down predictive analysis the best predictor of growth was found to be temperature ($P = 0.00006$).
The apparent independence of the plant from rainfall was probably the result of the capacity of the plant to obtain soil moisture by its extensive rhizome system. The presence of wax on the apical cells of the leaf lamellae was demonstrated using a scanning electron microscope. It was proposed that the function of the wax was to act as a water repellent to prevent flooding of the interlamellar spaces with water.

Dr. G.A.M. SCOTT (Monash University, Clayton, Victoria, Australia): 'Bryology in Australia'. There are three phases in the history of Australasian bryology, those of: the explorers, the local field naturalists, and the professional bryologists.
1. Explorers. Until roughly 1800, Australia and New Zealand shared the same bryological development. The earliest explorers, Tasman in N.Z. (1642) and Dampier in N.W. Australia (1699) collected no bryophytes. On Cook's first voyage (1769) to New Zealand and Australia (with Parkinson as artist) Banks and Solander collected a few bryophyte specimens which probably were those used by Hedwig in his "Species Muscorum". They are not in Hedwig's herbarium and were presumably borrowed by him. Alternatively they may have been collected by the Forsters and Sparrman on Cook's second voyage (1772) in the "Endeavour", when Dusky Sound was first explored and surveyed. The first substantial collections of bryophytes, however, were made by Menzies in 1791 in Dusky Sound, on Vancouver's "Discovery" expedition; many of the species were later described and illustrated in (3) W.J. Hooker's "Musci Exotici".
Other explorers followed in quick succession: 1792; D'Entrecasteauc in "Récherche" and "Espérance" visited Tasmania and West Australia, taking a botanist LaBillardière (4) who was probably the first to publish illustrations as well as descriptions of Australian bryophytes. 1800; Bauhin visited WA, NSW, and Tasmania with Leschenault as botanist. 1801-3; Flinders, in the "Investigator" visited the same regions with the great Robert Brown as botanist (and Bauer as artist); Brown collected a great many specimens including several bryophytes which, however, were never published. 1818; Captain King, with Alan Cunningham as naturalist, visited WA and Tasmania. 1819; Fréycinet, with Gaudichaud as botanist, visited NSW and Tasmania. 1840-41; J.D. Hooker, in the Antarctic Expedition, visited the Bay of Islands (N.Z.) where he collected many bryophytes with Dr. Sinclair and Colenso, a local naturalist; then on to the subantartic islands and Tasmania where he collected with Gunn, another local naturalist. 1847-9; Captain Stokes in "Acheron" surveyed the N.Z. coast, accompanied by Dr. Lyall who collected bryophytes assiduously; his results appear in (2) Hooker's "Flora of New Zealand" (1867), which includes all plant groups and lasted as the standard reference work for the next century; indeed it is still the only flora for several plant groups. In Australia, botanists were less fortunate. In Tasmania, where terrain and bryophytes are similar to those of N.Z. and

where Hooker collected extensively, his (1) "Flora Tasmaniae" (1859) was the precursor of several accounts of both mosses and liverworts, but the rest of Australia had to wait another century before (7) the first flora appeared (and that only for temperate region mosses), with a corresponding dampening effect on the development of Phase 2.

2. Local Naturalists. This era lasted for approximately the next century (6). A dozen local naturalists of distinction carried on the bryological exploration of N. Z., of whom the two greatest characters were the Rev. Wm. Colenso (coll. c 1833-50 and 1870-99) and Robert Brown tertius (1824-96) both of whom published not wisely but too well. Work carried on into the 20th century, culminating in the era of Hodgson, Allison and Sainsbury whose (5) "Handbook of the N. Z. Mosses" (1955) effectively brought to an end the phase of the local naturalists (for mosses).

In Australia, during the same period, there were fewer collectors, but Ronald Gunn (coll. c 1832-70) in Tasmania, James Drummond in W.A. (Swan River Colony) (coll. c 1829-63) both collected extensively and sent very many specimens to the Hookers.

The emphasis on W.A. and Tasmania shifted to the south-east, to Victoria, with the advent of Baron Ferdinand von Mueller, who dominated Australian botany in the second half of the last century and sent thousands of bryophyte specimens to Kew and elsewhere (1849-97). The Rev. W.W. Watts, and others explored the moss flora of N.S.W.; and Rodway and especially Weymouth, collected extensively in Tasmania about the turn of the century. There was then a considerable hiatus, with a brief revival of interest (8) in the 1950's when J.H. Willis worked on Victorian mosses.

3. Professional Bryologists. This is the era of the present day. With the untimely death, recently, of Bruce Hamlin, New Zealand has been deprived of a promising hepaticologist; and the still more recent death of K.W. Allison, the Grand Old Man of New Zealand bryology, marks the end of the Old Regime. There remain perhaps half a dozen bryologists in New Zealand, four of whom are professional botanists but none of whom seems likely to fill the role of taxonomic arbiter previously filled so ably by Sainsbury, Hodgson and Allison. In Australia, still well behind N. Z. in terms of knowledge of the flora, a similar handful of bryologists is at work - only one of whom is an amateur. Work is in progress on floras of the tropical mosses and of the liverworts, but it will be years before publication. The lack of a working handbook, which has hitherto handicapped bryological activity in Australia, has meant that many regions, especially alpine and tropical, are greatly under-collected, and this is a deficiency which cannot quickly be made good; but there are some signs of a revival of interest and the prospects for the future are bright.

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4. LaBillardière, J.J. (1806-7). Novae Hollandiae Plantarum Specimen. Huzard, Paris. Vol. II.

5. Sainsbury, G.O.K. (1955). A Handbook of the New Zealand Mosses. Bull. R. Soc. N.Z. No. 5. 490 pp.

6. Scott, G.A.M. (1971). New Zealand bryology; past, present and future. N.Z. Jl. Bot. 9: 739-43.

7. Scott, G.A.M., Stone, I.G., Rosser, C. (1976). The Mosses of Southern Australia. Academic Press, London.

8. Willis, J.H. (1955). The present position of muscology in Victoria. Muelleria 1, 55-59.

Dr. S.W. GREENE (Institute of Terrestrial Ecology, Penicuik, Midlothian): 'The Species Problem in Bryophytes'. The text of this paper is published in J. Hattori bot. Lab. 41, 1-6 (1976).

Dr. K. LEWIS and Dr. A.J.E. SMITH (School of Plant Biology, Bangor): 'Bulbiferous Pohlias in Britain'. This paper will shortly be published in J. Bryol.

Dr. P.D. COKER (Thames Polytechnic): 'Microclimates, mosses and man; some views on rare and threatened species of bryophytes'. It is well known that some species of bryophytes are endangered by over-collecting and such environmental factors as air pollution, but little is known about, and even less attention is paid to, the less immediately obvious causes of the decline or extinction of certain species. Changes in agricultural practice, building materials, drainage or forestry operations all cause problems as far as some of the more sensitive species are concerned. The possible effects of small changes in local weather patterns (micro-climate) are also considered, and some suggestions for active conservation of both species and habitats are made.

The Annual General Meeting was held after tea. In the evening members were generously provided with a splendid reception at Plas Gwyn, Hall of Residence, at which the following exhibits were displayed :

Dr. H.L.K. WHITEHOUSE: "Axenic cultures of bryophytes collected on the Knutsford meeting".
Mr. E.C. WALLACE : "The ECW collection of photographs of bryologists".
Dr. M.E. NEWTON : "Heterochromatin and accessory chromosomes in hepatics".
Dr. M.C.F. PROCTOR : "Scanning electron micrographs of peristomes".

The Society is very grateful to the University College of North Wales for making accommodation and lecture hall facilities available for its use. Indeed, the success of the meeting can be perhaps best measured by the fact that bryological activities did not cease until 3.30 a.m. on Saturday morning. At that time the Secretary was apprehended by the Gwynedd constabulary for driving the wrong way down Bangor High Street. He was, however, later discharged after explaining that he had got carried away in his endeavour to find Bryum radiculosum on the walls of the cathedral.

On 26 September, in brilliant autumn sunshine, members set out to explore Craig-y-Dulyn, a cwm on the eastern side of the Carneddau range, previously little known bryologically. Members spread out like sheep over the hillside and recorded over 170 species. Blanket bogs produced 17 Sphagna including S. contortum, S. girgensohnii, S. robustum, S. warnstorfianum,

S. teres, S. flexuosum var. tenue*, and several others with antheridial branches in the peak of condition, a characteristic autumnal feature of the genus in Britain. In the flushes were Acrocladium sarmentosum, Pellia neesiana and Scapania uliginosa in only its 4th Welsh locality. Diverse habitats about the cliffs, including large areas of basic ground, provided a wealth of uncommon mountain species, most notably Amphidium lapponicum, Barbula ferruginascens, Bartramia ithyphylla, Blindia acuta, Dicranella subulata, Fissidens osmundoides, Grimmia funalis, G. stricta, G. torquata, Pterogonium gracile, Rhabdoweisia crenulata, Rhacomitrium ellipticum, Anastrepta orcadensis, Douinia ovata, Gymnomitrion concinnatum, Herberta adunca, H. straminea, Hygrobiella laxifolia and Leiocolea muelleri. On the screes were Antitrichia curtipendula, Scapania scandica, Marsupella ustulata, Barbilophozia barbata, B. atlantica and fine Tetraplodon mnioides, the last a sombre testimony to multiple ovine suicides from the cliffs above.

Later in the day one party visited the River Conwy near Trefriw to collect Fissidens monguillonii only to be thwarted by heavy overnight rain which had submerged the plant under several feet of water. Brian O'Shea was only restrained from swimming for the Fissidens by abundant Orthotrichum sprucei on riverside alders, (i.e. he nearly fell in). The excursion did, however, finish on a successful note with a pilgrimage to see Ditrichum plumicola together with Weissia controversa var. densifolia and Cephaloziella hampeana at Pen-yr-Allt mine near Llyn Crafnant. The meeting finally concluded with a soirée at the author's house, but alas it was too dark to see Fissidens celticus and Pohlia lutescens in the garden.

J. G. DUCKETT

MINUTES OF THE ANNUAL GENERAL MEETING, 1976

Minutes of the Annual General Meeting held at 1650 hrs on Saturday 25 September, 1976, in the School of Plant Biology, University College of North Wales, Bangor.

PRESENT: Mrs J. A. Paton (President - in the Chair) and 39 other members.

CONDOLENCES: It was announced that our distinguished member, Dr C. E. B. Bonner, had died at the beginning of August.

(1) APOLOGIES: Apologies for absence received from Dr K. J. Adams, Dr G. C. S. Clarke, Mr S. G. Harrison, and Mr M. Walpole.

(2) MINUTES: The Minutes of the Annual General Meeting held on 20 September, 1975, in the University of Reading (published in Bulletin 27), were approved and signed.

(3) MATTERS ARISING:

Reported: That the Secretary was attempting to revitalize the Reading Circle, though the costs involved might make this impracticable. Journals such as J. Hatt. Bot. Lab. were costly and heavy (thus expensive to post).

Considered: That members wishing to subscribe to the Reading Circle should let the Secretary know. Meanwhile the Secretary was to investigate the possibility of circulating lists of contents of the J. Hatt. Bot. Lab.

(4) OFFICERS' REPORTS FOR 1975: There were no comments.

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* see p. 19 of this Bulletin.

(5) ELECTION OF RECORDER FOR HEPATICS:

Resolved: That Mr M. F. V. Corley, nominated by Council, be elected to serve as Recorder for Hepatics, to replace Mrs J. A. Paton who is resigning at the end of 1976.

(6) ELECTION OF THREE MEMBERS OF COUNCIL:

Resolved: That as there were no further nominations, Dr Martha Newton, Mr Donal Synnott and Dr Anne Southorn, all nominated by Council, be elected to serve for two years from 1 January, 1977.

(7) CREATION OF NEW POST OF CONSERVATION OFFICER:

Considered: That following our Working Party Report, Council advise that this new post be created.

Resolved (proposed Dr S. W. Greene, seconded Prof P. W. Richards, agreed unanimously): That a new post of Conservation Officer be created on Council as from 1 January, 1977.

(8) ELECTION OF CONSERVATION OFFICER:

Considered: That Dr P. D. Coker, already working on Council in the conservation field, but unofficially, was the Council's nomination for this post.

Resolved (proposed Mr E. C. Wallace, seconded Mr R. M. Shand, agreed unanimously): That Dr P. D. Coker be elected as Conservation Officer, to serve on Council as from 1 January, 1977.

(9) PLACE AND DATE OF A.G.M., 1977:

Resolved: That Leicester be investigated as a possible venue for the 1977 A.G.M. and Paper-reading meeting.

(10) OTHER MEETINGS IN 1977 AND 1978:

(a) TAXONOMIC WORKSHOP, 1977:

Reported: That Council had suggested Oxford as a possible venue for this and that Dr E. W. Jones was already making preliminary arrangements.

(b) SPRING FIELD MEETING, 1978:

Considered: That this might be held in Carmarthenshire and that the Secretary was to investigate this possibility.

(c) SUMMER FIELD MEETING, 1978:

Considered: That this might be in Cumbria, possibly based on Alston.

(d) BRYOLOGICAL SYMPOSIUM:

Reported: That the Society was taking steps towards arranging a Bryological Symposium in the near future in conjunction with the Systematics Association.

(11) ANY OTHER BUSINESS:

(a) FUTURE FOREIGN MEETINGS OF THE SOCIETY:

Considered(by Mr P. J. Wanstall): That we might consider holding another spring field meeting abroad, and that our member M Pierrot had offered to arrange a meeting in the Cognac region. [Fifteen members expressed interest in this.]

(b) STOP LIST:

Reported (by the Secretary): That to date there was a list of about 40 members who were in arrears in subscriptions for 1975 or 1976 or both. [The list was read out and several suggestions as to the whereabouts of

some of the defaulters were made.]

(c) HEPATIC REFEREE:

Reported: That as from the end of 1976 Mrs J. A. Paton was relinquishing the refereeing of all genera except Cephaloziella.

(d) DIXON'S HANDBOOK:

Reported (by the Secretary): That several members had been trying to obtain a copy of Dixon and it was planned to put an advertisement in the Bulletin asking members to let the Secretary know if they had a copy they wished to sell or donate to the Society.

(e) FUTURE BRYOLOGICAL PUBLICATIONS:

Considered (by Mr B. J. O'Shea): That several bryological publications were imminent or in preparation and that it would be useful to know when they would appear.

Reported: (By Dr A. J. E. Smith) That his new British moss flora was nearly ready for the press, and that the Provisional Atlas of 100 commoner bryophytes was forecast for publication in April, 1977. (By Mrs J. A. Paton) That her new British hepatic flora was not nearly ready for the press. (By Dr E. W. Jones) That the Forestry Commission booklet on Woodland Mosses was being revised. (By Dr Anne Southorn) That a booklet on the mosses and liverworts of the Gwydyr Forest was coming out shortly.

(f) TAXONOMIC WORKSHOP, NOVEMBER 1976:

Reported(by Dr P. D. Coker): That not many enquiries had been received about this so far, but that arrangements are going ahead. And that Mr E. C. Wallace was willing to lead the associated field excursion.

(g) THANKS:

Resolved: That we thank our host Prof Richards, the local secretary Dr Duckett, and all the speakers for making the Paper-reading meeting such a grand success.

The meeting closed at 1745 hrs.

A. R. PERRY,
Hon. Secretary,
29 September, 1976.

TAXONOMIC WORKSHOP, NOVEMBER 1976

The third taxonomic workshop opened with a laboratory session on 20 Novembers in the School of Biological Sciences, Thames Polytechnic, by kind permission of Mr M. D. Morisetti, Head of the School. The session was attended by 30 members and guests.

Mrs J. A. Paton started the day by discussing the identification of hepatics using sexual structures. Diagrams were drawn showing dioecious and various monoecious conditions, and the structure of antheridia and archegonia. Methods were described for finding these structures in specimens, and various problems mentioned. Fresh material was stated to be a great advantage in identifying hepatics. Mrs Paton gave a very useful list of genera and species of hepatics requiring fertile material for adequate identification. The ensuing laboratory work was based on material provided by Mrs Paton

and gave several members the opportunity to examine antheridia and archegonia for the first time; and allowed all to consolidate the theoretical discussion with excellent practical examples.

Dr J. G. Duckett talked about the genus Barbula in the afternoon, covering all but 3 of the 22 U.K. species. He pointed out first that one of the characters stressed by Dixon, the shape of the basal cells of the leaves, was not a good character, and then listed the characters he found most useful in distinguishing Barbulas. These characters were: leaf shape, excurrent nerve, elongated/short cells over the nerve. Within each group the species were distinguished by other key structural characters and habitat differences. The session continued with the examination of prepared microscope slides of all the species described. The slides, together with specimens from Dr Duckett's herbarium, were available to be taken away by interested members. Dr Duckett also made available copies of the section on Barbula from Dr Smith's projected new moss flora, and copies of a checklist of British Mosses from Dr Smith showing all the British taxa now recognized, including much updated nomenclature.

Members were very pleased to welcome Mr A. J. Pettifer to the afternoon session - unfortunately not now able to be a very frequent visitor to meetings. Another ex-President, the globe-trotting Mr Wallace, very kindly distributed duplicates from his herbarium.

On the second day of the weekend, ten members gathered on a cold but dry day at Gomshall Station, near Shere in Surrey. Whilst waiting for the train from London to arrive (it didn't), speliologists in the party found Schistostega pennata in a sandstone cave by the railway track. The party continued up to the chalk of Hackhurst Downs where Dr Duckett immediately found Barbula acuta new to Surrey. Other plants seen on the Downs included Aloina aloides, Barbula convoluta and var. commutata, B. hornschuchiana, B. fallax, B. unguiculata, Entodon concinnus, Fissidens incurvus, Thuidium hystricosum, Tortella inflexa, Weissia crispa and W. sterilis. Jean Paton was not in her element in such a predominantly mossy place, but produced Leiocolea badensis from a chalk pit.

After a rather late lunch, a quick inspection was made of an old wall in Shere where Barbula recurvirostra, B. rigidula, B. revoluta and B. trifaria were added to the list, but predominating was B. vinealis which was present in luxurious abundance. Orthotrichum anomalum and Grimmia pulvinata were also present. To provide a contrast, the party then moved on to the Lower Greensand at Pitch Hill, where Brachydontium trichodes and Polytrichum urnigerum c. spor. were seen. Further on towards Peaslake Bartramia pomiformis was frequent on a roadside bank, but steadily diminishing light and temperature forced an end to a day enjoyed by beginner and expert alike.

Many thanks must go to Mr Wallace for taking us to places that could provide such a wide range of interest, to Dr Paddy Coker for being Local Secretary, laboratory technician and tea-boy, and to Mrs Paton and Dr Duckett who did us proud both in the laboratory and in the field. We will all be looking forward to next November.

B. J. O'SHEA

FUTURE MEETINGS OF THE SOCIETY

(a) Easter Field Meeting, 1977: Wareham, Dorset, 30 March - 6 April. Local Secretary: Mr M. O. Hill, Institute of Terrestrial Ecology, Penrhos Road, Bangor, Gwynedd, LL57 2LQ.

Headquarters: Black Bear Hotel, A.A.* (B. & B. £5.95). Details of other less expensive accommodation and the full programme is available from the local secretary. Further information about localities can be found in Bulletin 28, p. 12.

(b) Summer Field Meeting, 1977: Blair Atholl, Perthshire, 23 - 30 July. Local Secretary: Dr P. D. Coker, School of Biological Sciences, Thames Polytechnic, Wellington Street, London, SE18 6PF.

In view of the costs of hotel accommodation and the closeness of the Kindrogan Field Centre to the Blair Atholl area, it has been suggested that a slight change to the arrangements might be in everybody's interest. The Warden of Kindrogan, Mr Brian Brookes, has offered the use of the facilities of the field centre (dinner, laboratories, library and evening tea) for the week at a charge of £30. As the normal booking period for the centre is from a Wednesday, he is unable at present to offer full board for the 23-30 July since preference has to be given to people booking on a Wednesday to Wednesday basis. However, should places become available which would allow him to accept a weekly booking from 23 July, he would be happy to do so although this will not be certain until a fortnight or so before the start of the meeting. The weekly charge at Kindrogan is £42.50 inclusive of full board. Rooms are mainly singles and twins. The field centre has a number of advantages to offer as the meeting H.Q. and will be able to cater adequately for our requirements. (Kindrogan Field Centre, Enochdu, Blairgowrie, PH10 7PG (tel. Strathardle 286)). Mr Brookes has contacted two places which offer Bed and Breakfast in Pitlochry, and a copy of the area accommodation register can be obtained from Dr Coker. Early booking is essential.

Mr Stevenson, 'View Moor', Atholl Road, Pitlochry (tel. 2065): B. & B., packed lunch, £4 + VAT.
Mrs A. M. Thompson, 'Torr Darach', Golf Course Road, Pitlochry (tel. 2136): B. & B. £4.50 incl. VAT.
There is a caravan and camping site 2 miles north of Pitlochry, at Faskally Home Farm (tel. 2007) and another at Milton of Fonab, ½ mile from Pitlochry (tel. 2882).

It would be appreciated if participants would let me know where they will be staying in case they have to be contacted as a result of a change in programme, etc.

Proposed Programme

Permission has been sought from landowners to visit and collect bryophytes in the following localities:

Glen Tilt (from Bridge of Tilt to Forest Lodge): A fascinating valley in Dalradian limestone with many interesting saxicolous and woodland species. Schichallion (two days): The main part of the mountain is on acidic rocks and should prove interesting for Grimmia spp., while there are many extensive patches of Dalradian limestone at low and moderate altitudes. Trematodon ambiguus was once found here, and the limestone pavement and flushes are very rich. Ben Dearg (near Bruar): Mainly granite and diorite but with a potentially interesting patch of graphitic schist on the north-east, near

Elrig'ic Toisich. Edintian (near Blair Atholl): An area of sugar limestone (metamorphosed Dalradian) with many interesting species, including Rhytidium. Loch Loch: The mica schist cliffs are bryologically very good and there are some interesting Sphagna (including S. imbricatum in small quantity) in the bog at the southern end of the loch.

Maps: 1" sheets 37, 48 and 49, or 1:50 000 sheets 43, 52 and 53.

Elgin, Morayshire, 30 July - 6 August. Local Secretary: Dr R. Richter, 55 Dunbar Street, Burghead, Elgin, Morayshire.

Headquarters: St Leonard's Hotel (B. & B. £4.50). It is suggested that all participants stay at this hotel although the local secretary can provide a list of alternatives including caravan sites. Further details about the programme are available from the local secretary (see also Bulletin 28, p. 12).

(c) Annual General Meeting and Paper-Reading Meeting, 1977: University of Leicester, 1 - 2 October. Local secretary: Dr C. A. Stace, Department of Botany, The University, Leicester, LE2 2NA.

Accommodation has been reserved in a University Hall of Residence.

(d) Taxonomic Workshop, November, 1977: Oxford University.

(e) Easter Field Meeting, 1978: Carmarthenshire.

(f) International Symposium and Field Meeting, Summer 1978: University College of North Wales, Bangor, Gwynedd, LL57 2UW.

J. G. DUCKETT

DAY EXCURSION IN THE NEW FOREST, 1977

A day excursion for lichens and bryophytes in the New Forest, Hampshire, will be held on Saturday 19 March, 1977 under the leadership of Dr F. Rose, in conjunction with the Southampton Natural History Society. Meet at Lyndhurst Road Station at 1100. Train leaves Waterloo, London, at 0930 for Southampton; change at Southampton for Lyndhurst Road. Gum boots and packed lunch are essential. The Rufus Stone area, Stricknage Wood and Stubbs Wood will be visited in cars provided by local members. Stricknage Wood is an ancient beech wood in a deep valley, while Stubbs Wood is one of the best ancient oakwoods in western Europe. Please note that collecting will be restricted. There are return trains from Lyndhurst Road at 49 minutes past each hour. Please check train times before departure.

F. ROSE

BRYOLOGICAL COURSES AT FIELD CENTRES, 1977

6 - 13 April. The Drapers' Field Centre, Rhyd-y-creuau, Betws-y-Coed, Gwynedd, LL24 0BH. Mosses and Liverworts, Dr. D. H. Dalby.

29 April - 1 May. Preston Montford Field Centre, Montford Bridge, Shrewsbury, SY4 1DX. Introducing Mosses, Dr. J. G. Duckett.

3 - 10 August. Orielton Field Centre, Pembroke, Dyfed. Wild Plants of Pembrokeshire, Roy Perry.

19 - 26 August. Preston Montfort Field Centre, address above. Mosses and Liverworts, Dr. J.G. Duckett.

24 - 31 August. The Leonard Wills Field Centre, Nettlecombe Court, Williton, Taunton, Somerset, TA4 4HT. Mosses and Liverworts, Malcolm Macfarlane.

28 September - 5 October. Kindrogan Field Centre, Enochdu, Blairgowrie, Perthshire, PH10 7PG. Bryophytes, Brian Brookes.

Further information may be obtained from the Wardens of the Field Centres.

The course at Kindrogan is run by our member Brian Brookes who is Warden there. He welcomes individual adults and small groups at Kindrogan at any time, either to participate in advertized courses or on an independent basis. The fee for his bryophyte course is £45 which is inclusive of board, accommodation and all academic facilities. He would be pleased to supply copies of the programme and further details of all courses in 1977 on request.

FIELD STUDIES AT ARDTORNISH, MORVERN, ARGYLL.

Members of the BBS who belong also to the Botanical Society of the British Isles may possibly have seen a short note I published a year ago in B. S. B. I. News No. 11. In that note I outlined for the first time the project of using my family's large Victorian house at the head of Loch Aline, near the centre of the little-known and unspoilt peninsula of Morvern, as, among other things, a Field Studies Centre. In response to that preliminary note enough keen botanists offered themselves as guinea-pigs to enable me last summer, with expert assistance, to run 3 courses of various sizes in straighthforward field botany. Despite generally adverse weather most of the participants seemed to enjoy themselves, all saw plants which they had never before seen growing wild in Britain and all must have learnt, even if they learnt nothing more, that the flora of the neighbourhood is exceptionally rich and diversified. And a little later in the season a party consisting of David Chamberlain, Mark Hill, David Long and Jean Paton most effectively demonstrated, in all too brief a visit to Ardtornish, that the same can be confidently said of the bryophytes of the district. Among the more notable of their discoveries, all within the space of 4 days, were - Anoectangium warburgii, Calypogeia suecica, Ditrichum zonatum, Eremonotus myriocarpus, Fossombronia foveolata, F. incurva, Haplomitrium hookeri, Mylia cuneifolia, Plagiochila atlantica, P. killarniensis, Sematophyllum novae-caesareae, Solenostoma levieri, S. oblongifolium, and Sphenolobus helleranus.
Accordingly, my greatly extended programme for 1977 will include not only

4 or 5 courses around midsummer of much the same kind as last year's, but also 2 on birds in the spring and, I hope, 2 on bryophytes in the autumn. Martin Corley has very kindly consented to run the first bryophyte course from 17 - 24 September; and the other will be run by Roy Perry from 5 -12 October to follow on the heels of Brian Brookes' course at Kindrogan (see this Bulletin, p. 15). I shall, owing to the cost of overheads in so commodious a building, be compelled to charge participants around £60 for the week, depending on the rate at which the cost of living continues to rise between now and then. I shall of course be there myself to supervise the housekeeping and catering, to organize the transport and to help any who need it with my local knowledge. I have little doubt that 2 such weeks would add many more to the already long list of known Morvern plants, particularly if there happened to be a lichenologist and/or a mycologist in either party. At all events I should welcome enquiries from anybody interested in coming; and, since I propose to restrict numbers to a maximum of 12 on each course, obviously the sooner the better. All such enquiries, or other correspondence concerning courses at Ardtornish, should be addressed to John Raven, Docwra's Manor, Shepreth, Royston, Herts. SG8 6PS.

CONFERENCE ON LOCAL NATURAL HISTORY COLLECTIONS

Under the auspices of The Biological Curator's Group, Geological Curator's Group and the Systematics Association a conference on The Function of Local Natural History Collections will be held at the University of Liverpool Halls of Residence 22 - 23 September 1977.
In this country there is a wealth of botanical, zoological and palaeontological material held by varied provincial institutions. The purpose of this meeting is to assess the relevance of such collections to the solution of scientific and environmental problems and to stimulate co-operation nationally. Speakers will include those involved professionally in organising collections and a wide variety of users.

Further details, programme and registration form are available from : Mr. E. F. Greenwood, Assistant Director (Academic), Merseyside County Museums, William Brown Street, Liverpool L3 8EN.

NEW HEPATIC RECORDER

Mrs J. A. Paton resigned as Recorder for Hepatics as from the end of 1976. The new Hepatic Recorder is Mr M. F. V. Corley, Pucketty Farm Cottage, Faringdon, Oxon., SN7 8JP to whom in future all voucher specimens for new vice-county records should be sent.

READING CIRCLE

The Secretary is attempting to revitalize the Reading Circle. It is not known yet if this is a viable proposition, but in the meantime would any member who would be interested in subscribing to a revitalized Reading Circle please let him know.

REFEREES (JANUARY 1977)

Specimens sent to the referees should have a 4- or 6-figure grid reference in addition to the locality description. THEY SHOULD ALWAYS BE ACCOMPANIED BY A STAMPED, ADDRESSED ENVELOPE, EVEN IF MATERIAL IS SENT TO UNIVERSITIES OR INSTITUTIONS.

The general Referee will help beginners who are having difficulty in placing their material in a genus. The numbers refer to genera in the current editions of the Census Catalogues.

General Referee: Mrs. A.G. Side, 82 Poplicans Road, Cuxton, Rochester, Kent, ME2 1EJ.

Hepatic Referees:

1-9, 14-19, 21-30, 66,67, 76-82: Dr. J.G. Duckett, School of Plant Biology, University College of North Wales, Bangor, Gwynedd, LL57 2UW.

10,11,71-74: Dr. H.J.B. Birks, Botany School, Downing Street, Cambridge, CB2 3EA.

12,13,20,31-33, 45-47, 68-70: D.G. Long, The Herbarium, Royal Botanic Garden, Inverleith Row, Edinburgh, EH3 5LR.

34-44, 63-65: M.F.V. Corley, Pucketty Farm Cottage, Faringdon, Oxon., SN7 8JP.

48-53: Dr. G.C.S. Clarke, Department of Botany, British Museum (Natural History), Cromwell Road, London, SW7 5BD.

54-56: Mrs. Hilary H. Birks, 16 Greystoke Road, Cambridge, CB4 1DS.

57-61, 75: M.O. Hill, Institute of Terrestrial Ecology, Penrhos Road, Bangor, Gwynedd, LL57 2LQ.

62: Mrs. J.A. Paton, Trekewny, 31 Dobbs Lane, Truro, Cornwall, TR1 3NB.

Moss Referees:

1: M.O. Hill (address above); A. Eddy, Department of Botany, British Museum (Natural History), Cromwell Road, London, SW7 5BD.

2-7, 131: M.O. Hill (address above).

8-9, 54-56: Dr. A.J.E. Smith, School of Plant Biology, University College of North Wales, Bangor, Gwynedd, LL57 2UW.

10-33: M.F.V. Corley (address above).

34, 57-69, 80-89, 91-97, 100-124: E.C. Wallace, 2 Strathearn Road, Sutton, Surrey.

35-53: Dr. D.F. Chamberlain, Department of Botany, Royal Botanic Garden, Edinburgh, EH3 5LR.

70-78, 90: Dr. E.V. Watson, Department of Botany, The University, London Road, Reading, RG1 5AQ.

79: Dr. P.D. Coker, School of Biological Sciences, Thames Polytechnic, Wellington Street, London, SE18 6PF.

98,99: Dr. S.W. Greene, c/o I.M.E.R., 4 Craighill Terrace, Edinburgh.

125-130, 132-161: Mrs. J. Appleyard, Sunnyside, West Horrington, Wells, Somerset, BA5 3ED.

CONTRIBUTIONS FOR THE NEXT BULLETIN

SHOULD REACH THE SECRETARY

BY 1st JUNE, 1977

LIBRARY SALES AND SERVICE, 1977

FOR LOAN:

(a) Approximately 200 bryological books, bryological journals and several thousand reprints of individual papers. Catalogue to the books and journals available from the librarian, price 10p.

(b) Transparency collection, list available (s.a.e.). 624 slides in the collection. Loan charge 25p plus return postage. Only 50 slides may be borrowed at once to minimise possible loss.

FOR SALE:

Moss Exchange Club Reports for 1902 (5p each)

British Bryological Society Reports: 1927, 1928, 1934, 1935 (13p each)
1944/5 (25p)

Transactions of the British Bryological Society - annual parts:

Vol. 1 parts 1-5 (£1.60 each, reprints)
Vol. 2 parts 1-4 (£3.00 each, reprints)
Vol. 3 parts 1-5 (£3.00 each, reprints)
Vol. 4 part 1 (£3.00, reprint), part 2 (£1.50), parts 3-5 (£2.00 each)
Vol. 5 part 1 (£2.00), parts 2-4 (£3.00 each)
Vol. 6 part 1 (£3.00), part 2 (£4.00)

Vol. 7 parts 1-4 (£2.50 each)
Vol. 8 parts 1 & 2 (£3.00 each), part 3 (£3.50), part 4 (£5.00)
Vol. 9 part 1 (£4.50)

Volume 6 part 2 completes the series of Transactions: volume 7 part 1 continues the series, but is renamed Journal of Bryology.

Postage and packing is extra on all orders. Standard packing charge 7p per one to five parts for Jiffy bag.

Duncan, J. B. Census Catalogue of British Mosses, ed 2. 1926. (13p)

Sherrin, W. R. Census Catalogue of British Sphagna. 1946 (5p)

Paton, J. A. Census Catalogue of British Hepatics, ed 4. 1965. (38p plain, 43p interleaved)

Warburg, E. F. Census Catalogue of British Mosses, ed 3. 1963. (38p plain, 43p interleaved)

POSTAGE EXTRA. If including cash with order please allow sufficient for postage and packing.

****

All the above items are available from the B.B.S. Librarian:

Dr K. J. Adams, 63 Wroths Path, Baldwins Hill, Loughton, Essex IG10 1SH

SPHAGNUM FLEXUOSUM AND ITS VARIETIES IN BRITAIN

By M. O. HILL

I have recently prepared an account of Sphagnum for inclusion in Dr A. J. E. Smith's forthcoming moss flora. In order to bring our taxonomy in line with that in other recent floras, it is proposed to recognize three varieties of Sphagnum flexuosum Dozy & Molk. (= S. recurvum auct.). The varieties are described in several standard floras, e.g. Crum (Mosses of the Great Lakes Forest), Gams (Kleine Kryptogamenflora)and Nyholm (Illustrated Moss Flora). The following remarks apply only to British material, as I have not examined more than a handful of foreign specimens.

Var. flexuosum (= S. fallax var. flexuosum, = S. recurvum var. amblyphyllum). Stem leaves triangular-lingulate to lingulate, apex ± plane, rounded and often strongly eroded; leaves of pendent branches with or without large (i.e. greater than 12 µm) pores. Usually a greenish plant, lacking red pigment in stem. Probably the common form in the SE; much less common than var. fallax in the N and W. Vice-counties 2, 6, 9, 17, 22, 27, 30, 41, 46, 48-50, 61-63, 65, 69, 79, 97, 105, H3, H16.

Var. tenue (this will require a new combination; = S. recurvum var. tenue, = S. fallax var. angustifolium). Stem leaves traingular, apex subacute, not eroded, sometimes ± cucullate; leaves of pendent branches with at least a moderate number of pores exceeding 12 µm (nip off some pendent branches, dip them in stain and scan up and down under the low power of the microscope). Greenish or orange plant, commonly with red pigment in stem. Relatively uncommon, mainly northern, preferring more base-rich localities than var. fallax but often mixed with it. Vice-counties 4, 47, 48, 49, 60, 67, 69, 72, 79, 90, 95, 98, 101, 105, 107-109.

Var. fallax (this will require a new combination; = S. fallax var. fallax, = S. recurvum var. recurvum sensu Crum). Stem leaves triangular, acute, not eroded at apex, the sides normally inrolled to form a distinct cusp; leaves of pendent branches lacking pores bigger than 12 µm. Green or orange plant, normally lacking red pigment except sometimes in the branch-bases. Abundant in the N and W; probably frequent in the SE.

My preliminary impression, based on examination of about 160 specimens, is that var. tenue is the most distinct of the varieties. Var. flexuosum and var. fallax differ essentially only in one character, which could easily be the expression of a single gene. When var. tenue and var. fallax grow intermixed theyoften look very distinct. On the recent Melrose meeting, Mr. Crundwell and I sawbothvarieties abundant and intermixed by Kingside Loch. They could readily be distinguished stem-by-stem in the field. However, the "wrong" combinations of characters are not uncommon, and on the basis of British material it is certainly not possible to recognise three distinct species as is sometimes done in continental Europe.

For the purposes of vice-county recording I am happy to examine putative new county records of var. tenue and var. flexuosum, but only if they have preliminarily been examined by a conscientious observer. In particular, please note that I have no intention of naming all members' specimens "on spec". If you don't want to examine your material critically, then fine; but don't bother me with something you are not prepared to bother with yourself !

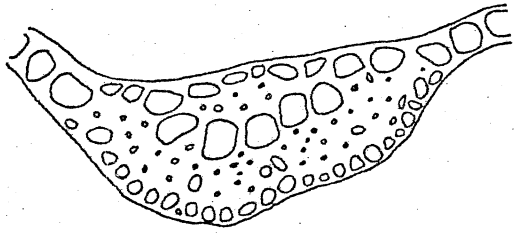
NERVE SECTIONS IN THE DICRANALES. 2. DITRICHUM AND DICRANELLA

By M. F. V. CORLEY

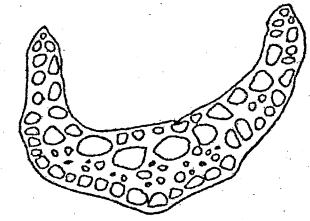
Within these two genera, four species that are frequently confused when sterile are Ditrichum heteromallum, Dicranella subulata, D. cerviculata and D. heteromalla. Fruiting plants are, of course, readily identified. Dicranella heteromalla is a more robust plant than the others, with longer leaves, usually serrate in the upper half. The remaining three species have entire or faintly denticulate leaves. In these three species the nerve section changes rapidly from the base of the leaf upwards (see two illustrations of D. subulata). The characters used here are derived from sections taken at about $\frac{1}{4}$ leaf length from base. The nerve section of Dicranella heteromalla is not illustrated, but nearly resembles that shown for Ditrichum heteromallum.

1. Ventral layer of small thin-walled cells present — 2
   Ventral layer of cells absent — Dicranella subulata
2. Stereids very few, confined to dorsal side; nerve almost flat — Dicranella cerviculata
   Stereids numerous on dorsal side of nerve, fewer or absent on ventral side; nerve strongly convex on dorsal side — 3
3. Nerve biconvex; stereids numerous on both sides of nerve, less so on ventral side — Dicranella heteromalla
8. Nerve ± flat on ventral side; stereids few or absent on ventral side — Ditrichum heteromallum

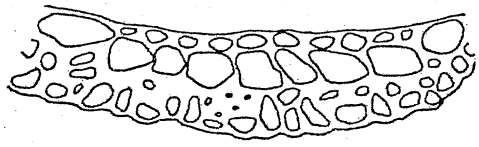
Sections taken at the extreme base of the leaf in D. cerviculata lack ventral cells. Sections taken from about $\frac{1}{3}$ leaf length upwards in D. subulata have ventral cells present.



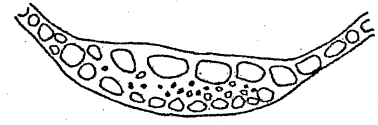
Ditrichum heteromallum



Dicranella subulata (mid-leaf)



Dicranella cerviculata



Dicranella subulata

Leaf sections x375, taken at $\frac{1}{4}$ leaf length from base (except where otherwise stated).

FREEHAND SECTIONING OF BRYOPHYTES

By W.D. FOSTER

Tyro bryologists commonly neglect section cutting rightly believing that the conventional method using elder pith or carrot to support the bryophyte tissue requires skill only to be obtained with practice. The object of this note is to draw attention to a technique by which good sections of bryophytes may be obtained at the first attempt without any acquired skill whatever. The principle was described by E.C. Taylor (Bryologist 60, 17 (1957)) in an "attempt to find a substitute for skill" and deserves to be better known. The technique to be described is a minor modification of that of Taylor.

METHOD

About half fill a Pyrex test-tube (150 x 15 mm) with dry sand. Add a few flakes of Gurr's Carbowax 20M, melting point approximately 70°C, (Searle Scientific Services, P.O. Box 53, Lane End Road, High Wycombe, Bucks.) melt over a spirit lamp and allow to cool; the sand is thereby sealed in and forms a cool butt by which the test-tube may be held. Add more flakes of Carbowax and melt in the flame until the tube is almost full. Allow to cool.

Obtain some gutter-shaped pieces of plastic about 3.0 x 0.5 cm - plastic tubing bisected longitudinally, or any similar material which is to hand - as a mould. Lay the fragment of dry bryophyte to be sectioned in the gutter. Holding the tube of Carbowax by its butt melt the surface in a flame and pour a few drops over the bryophyte. The Carbowax will set in about a minute and the block can then be shelled out of its mould. Trim away excess Carbowax from the sides of the specimen and then cut it across with a scalpel. Place the block on a slide under a low-power dissecting microscope and, holding it steady with the left hand, shave away at the cut surface of the bryophyte embedded in the block with a disposable scalpel blade. (A dissecting microscope is by no means essential; good sections can be obtained sectioning under a mounted hand lens or even naked eye.) When 5-10 sections have been cut (obviously excessively thick sections can be discarded with dissecting needles) add a drop of water to the sections and, after a few seconds, when the Carbowax will have completely dissolved and the sections rehydrated, cover with a coverslip and examine. The drop of water should be rather smaller than would usually be used under a particular coverslip since the solution of the Carbowax lowers the surface tension and causes it to spread more extensively than would otherwise be the case.

With thin specimens such as leaves the tissue is virtually embedded, in the histological sense, and excellent sections can be cut, but with thicker tissues such as thallose liverworts results are less satisfactory, though still useful. Using this method the writer has obtained satisfactory sections of bryophytes such as Sphagnum, Leucobryum, Campylopus, Grimmia, Riccia and Riccardia, at the first attempt.

On receipt of a stamped addressed foolscap envelope the write will be pleased to supply any reader who cares to try this technique with a small quantity of Carbowax.

W. D. Foster, Department of Pathology, Macclesfield Hospital, Prestbury Road, Macclesfield, Cheshire, SK10 3BL.

ADDITIONS & AMENDMENTS TO THE MEMBERSHIP LIST

NEW MEMBERS, JUNE 1976 - JANUARY 1977

BURNETT, B.W., Min Y Grug, Llandegla, Clwyd, LL11 3AA. (1976)
CHURCHILL, Dr. S.P., Division of Botany, W-532 Nebraska Hall, University of Nebraska State Museum, Lincoln, Nebraska 68508, U.S.A. (1977)
EVANS, D.E., 41 Waverley Road, Kenilworth, Warwickshire, CV8 1JL. (1977 Junior)
KASS, Dr. L.B., Dept. of Genetics, University of Cambridge, Downing St., Cambridge. (1977)
KUWAHARA Dr. Y., 5 - 139 Kokubu Machi, Kurume City, Fukuokaken, 830 Japan. ([1967] 1976)
MACKINTOSH, Miss Jane, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, Cambs., PE17 2LS (1976)
MELICK, H. Van, Uniastate 47, Eindhoven 4507, Netherlands. (1976)
PEACE, W.J.H., 63, Station Road, March, Cambs., PE15 8LE. (1976 Junior)
SCOTTER, Mrs. B., c/o Dept. of Biology, Leicester Museum, 96 New Walk, Leicester, LE1 9TD. (1976 Family)
SCOTTER, Dr. C.N.G., Dept. of Biology, Leicester Museum, 96 New Walk, Leicester, LE1 9TD. (1976)
SIDE, K.C., 82 Poplicans Road, Cuxton, Rochester, Kent, ME2 1EJ. (1976 Family)
STRACHAN, Ian, 2, Southfield, Hessle, E. Yorks. HU13 0EX. (1977 Junior)
STERN, R.C., 50 Fordwater Gardens, Yapton, Arundel, West Sussex, BN18 0HU (1976)

CHANGES OF ADDRESS.

BERRIE, Dr. G.K., Faculty of Science, University of Jos, P.O.B. 2084, Jos, Nigeria
BIZOT, Prof. M., Laboratoire de Botanique, Faculté de Medecine-Pharmacie, Bld Jeanne d'Arc, 21000 Dijon, France.
BURTON, Miss M.A.S., M.A.R.C., Octagon Building, 459A Fulham Road, London, S.W. 10.
COLLMAN, J.R., 2 St. Michaels, 5 Courtenay Road, Newton Abbot, Devon, TQ12 1HW.
GODFREY, M.F., B.Sc., 12 Downing Road, RAF Horsham St. Faith, Norwich, Norfolk.
ODU, E.A.A., B.Sc., Dept. of Biology, University of Ife, Ile-Ife, Nigeria.
OLARINMOYE, Dr. S.O., Dept. of Botany, University of Ibadan, Ibadan, Nigeria.
PERKINS, R.J. 63 Wheatley Drive, Carlton, Nottingham.
PRESTON, C.D. Botany School, Downing Street, Cambridge, CB2 3EA.
SHIMWELL, D.W., B.Sc., Ph.D., Dept. of Geography, The University, Oxford Road, Manchester.
SWINSCOW, T.D.V., M.Sc., M.B., B.S., F.L.S., 24 Monmouth Street, Topsham, Exeter, Devon.
SYRATT, W.J., B.Sc., Ph.D., 16 St. Sunniva Street, Lerwick, Shetland, ZE1 0HL.
THORPE, P., B.Sc., 9 Amberley Close, Shoreham-by-Sea, West Sussex.
WOODS, R.G., B.Sc., Nature Conservancy Council, Llysdinam, Newbridge-on-Wye, Powys.

DEATH

BONNER, Dr C. E. B.

RESIGNATIONS

AMBROSE, F.
GJAEREVOLL, O,
GOATER, Mrs J. L. E.
HORNE, S.D.
TUTIN, Prof. T. G.

INDEX HEPATICARUM

Dr C. E. B. Bonner died in August, 1976, leaving volumes VII and IX of the Index Hepaticarum nearly completed, volume VII being practically ready for the printer; both volumes are likely to be ready for publication by the end of 1976. The remaining volumes of the Index will be prepared by Dr Helen Bischler of Paris, with the collaboration of other well-known hepaticologists and of Dr Bonner's widow, Ruth.

REQUEST FOR MATERIAL

Mr A. C. Crundwell, Department of Botany, The University, Glasgow, G12 8QQ is interested in the tuber-bearing form of Fissidens taxifolius and would be grateful for particulars of any records, especially with ecological data, and for the loan of specimens. He would also be glad to know if anyone has observed male plants in F. taxifolius, which is reported to be sometimes dioecious.

! ! WANTED ! !

Dixon's Handbook of British Mosses is now out of print and makes extremely rare appearances in secondhand book catalogues. Consequently our younger members are unable to identify their mosses because most of them have been unable to find a copy of Dixon! Several of them have written to me asking if I know the whereabouts of a copy they can buy. There must be hundreds of copies not being made use of by their owners all over the British Isles. If you are one of these owners, and wish to see your copy of Dixon going to a good home, would you please let me know. This also applies to any other bryological books or journals that you may wish to dispose of.

In the first instance please write to me listing the publications you have for sale, their condition and what you wish to charge. The Society will then make the purchase, and re-sell, any profits going into the Society's purse. Hence, donations would be most acceptable. Postage will be refunded.

A. R. Perry, National Museum of Wales, Cardiff, CF1 3NP.

USEFUL ADDRESSES

Subscriptions - Treasurer: Dr. W.D. Foster, Department of Pathology, Macclesfield Hospital, Prestbury Road, Macclesfield, Cheshire, SK10 3BL.

Papers for the Journal - Editor: Dr. H.L.K. Whitehouse, Botany School, Downing Street, Cambridge, CB2 3EA.

Moss vouchers and information on previous moss records - Moss Recorder: M.O. Hill, Institute of Terrestrial Ecology, Penrhos Road, Bangor, Gwynedd, LL57 2LQ.

Hepatic vouchers and information on previous hepatic records - Hepatic Recorder: M.F.V. Corley, Pucketty Farm Cottage, Faringdon, Oxon., SN7 8JP.

Purchase of back numbers of Journal and Bulletin, and of Society's other publications; loans of bryological books and papers and of 35 mm transparencies - Librarian: Dr K. J. Adams, 63 Wroths Path, Baldwins Hill, Loughton, Essex, IG10 1SH.

Bibliographical queries - Bibliographer: Dr G. C. S. Clarke, Department of Botany, British Museum (Nat. Hist.), Cromwell Road, London, SW7 5BD.

Loans from Society's herbarium - Curator: S. G. Harrison, Department of Botany, National Museum of Wales, Cardiff, CF1 3NP.

Purchase of mapping cards; completed mapping cards; information on 10 km recording - Mapping Secretary: Dr A. J. E. Smith, School of Plant Biology, University College of North Wales, Bangor, Gwynedd, LL57 2UW.

Information on future meetings - Meetings Secretary: Dr J. G. Duckett, School of Plant Biology, University College of North Wales, Bangor, Gwynedd, LL57 2UW.

Conservation - Conservation Officer: Dr P. D. Coker, School of Biological Sciences, Thames Polytechnic, Wellington Street, London, SE18 6PF.

Membership; non-arrival of Journal; address changes; articles for Bulletin; and anything else not mentioned above - Secretary: A. R. Perry, Department of Botany, National Museum of Wales, Cardiff, CF1 3NP.

A. R. Perry, Hon. Secretary, National Museum of Wales, Cardiff, CF1 3NP
