

BRITISH BRYOLOGICAL SOCIETY

PRESIDENT: DR. S.W. GREENE

BULLETIN

No. 36. August, 1980 Price £0.60

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AMERICAN MEMBERS

It has been appreciated that our members in U.S.A. have been frustrated by time and costs in remitting in sterling, and Dr. Nancy Slack, Biology Department, Russell Sage College, Troy, N.Y. 12180 has kindly offered to act as collector for your subscriptions. These should be sent to her by personal checks in dollars made out to her and not to B.B.S. Subscriptions are due on 1 January each year so will you please co-operate by sending your subscriptions to Dr. Slack promptly, so that she will not be subjected to unnecessary trouble.

BRITISH BRYOLOGICAL SOCIETY

INCOME AND EXPENDITURE ACCOUNTS YEAR TO 31 DECEMBER 1979

INCOME	£	EXPENDITURE	£
Subscriptions	3,074.48	Cost of Printing (Blackwells)	4,975.96
Sales - Blackwells Journals		Bulletin 33 & 34	518.80
Less Outgoings	3,378.22	Biological Council Sub.	7.50
<u>Investment Income</u>		Mapping expenses	150.24
Post Office Savings	676.53	Bryophyte Atlas	360.00
Interest Deposit A/C	06	Mapping expenses	26.30
Sale Literature	738.11	Librarian's expenses	71.34
Library & Sundries	20.87	Postage	138.67
		Insurance	12.46
		Meetings & Travelling, etc	75.28
		Sundries	29.06
		Net Income over Expenditure	1,522.66
	<hr/>		<hr/>
	7,888.27		7,888.27
	<hr/>		<hr/>

STATEMENT OF AFFAIRS AS AT 31 DECEMBER 1979

LIABILITIES		ASSETS	
Advance Subscriptions	136.00	National Westminster Bank Ltd	
Blackwells 1879 A/C O/S	1,597.74	Current Account	774.14
Capital A/C fwd. 9,252.23		Deposit Account	1.21
<u>Add Surplus 1979 1,522.66</u>	10,774.89	Post Office Savings	11,733.28
	<hr/>		<hr/>
	12,508.63		12,508.63
	<hr/>		<hr/>

<u>NB</u> Interest credited to P.O. Savings A/C at 16 January 1980	
amounted to	1,377.52
	<hr/>

CERTIFICATE.

I hereby certify that the Income & Expenditure Account has been prepared from the books and statements presented to me by W.D. Foster, Hon. Treasurer and to the best of my knowledge and belief show a true statement of the affairs of the Society as at 31 December 1979.

4 Oakwood Drive,
Prestbury,
Cheshire.

J. Brassington,
Certified Accountant,
13 July 1980.

REPORTS OF OFFICERS FOR 1979

(a) GENERAL SECRETARY'S REPORT

The membership seems to have stabilized at around the 520 mark and, thanks to George Geyman (our new Membership Secretary), we are all kept on our toes as regards payments of dues. He now deals with all membership aspects of the Society. During the year, besides the 25 or so expected new members, we have suffered some sad losses. Foreign members who have died during the year were F. Bilewsky (Israel), Prof M. Bizot (Dijon) and our Honorary Member Dr H. Persson (Stockholm). At home, the death of Trudy Side's husband, Ken, a Family Member, after a relatively short illness, took place in December. We offer condolences to all surviving relatives.

Our meetings during the year were well attended and were very worthwhile, especially from a mapping point of view. The Spring meeting, with nearly 40 people taking part, was based on Ludlow and owed its success to the conscientiousness of Michael Pearman. The summer meeting, expertly arranged by Donal Synnott, went very well, with a lot of useful work done in the Limerick area. As Irish meetings go this one was well attended with over 20 participants. Martha Newton efficiently took care of the arrangements for the Manchester Paper-reading meeting in September which attracted about 40 members. The Taxonomic Workshop, this year held in London, was well-organized by Peter Wanstall in October. Thanks are due to all these local secretaries for giving up so much time in order to make the meetings successful.

There have been many activities going on behind the scenes. On the conservation front, work has been progressing well in the production of lists of bryologically important sites, rare species and species under threat, by the Conservation Committee. And the Recorders, besides vetting the usual offering of vouchers, have happily increased their work-load by finalizing a first draft of a revised Census Catalogue of mosses and hepatics. Tony Smith and his editorial board are to be congratulated on the production of two parts of the Journal of Bryology, and it is appropriate that I here publicly thank Dr Peter Grubb who wished to retire from the editorial board during the year; he has been of great service to the Society in maintaining high standards especially in papers concerning physiology and physiological ecology.

At the AGM Dr E.V. Watson was elected an Honorary Member of the Society for his outstanding bryological achievements. We welcome him to the band of a few select people who, for their service to bryology or to the Society, have been given this honour. And the existing Officers of the Society were re-elected for a further 2-year term of office. We enter 1980 with a sense of expectancy.

A.R. Perry,
January, 1980

(b) TREASURER'S REPORT

As usual I am unable to produce a balance sheet as I have not yet had Blackwell's account for 1979. However the following is a brief statement of the society's finances:

Our investments are all in National Investment Account which is currently paying 15% per annum. We have about £14800 invested and therefore an investment income of about £2200 a year. Our current account stands at over £1880.

1979 was an unprecedentedly expensive year although expenditure was still well within our means. But I feel I must draw attention to the fact that exclusive of the cost of producing the Journal of Bryology we spent over £1430 in 1979 as compared with £525 in 1978. This increase is largely accounted for as follows:

1. We paid £360 for purchase of Bryophyte Atlas - an investment, we have already recovered circa £120.
2. Printing the Bulletin was more expensive - £518 cf £332.
3. By far the major increase was in postage - £223 cf £24. Partly this was due to officers submitting accounts which had accumulated a year or two but also to the fact that we now have a membership secretary (£65).
4. Payment of £176 to Joan Appleyard for expenses incurred recording for the mapping scheme.

SUBSCRIPTIONS

We did agree to hold the subscriptions for both members and subscribers for 1980 but, before the next council meeting, Blackwell will be wanting to know what subscriptions should be for 1981. This must therefore be decided at the April council meeting. Our last year's deficit owed to Blackwell was £1087 - an unusually low figure because of our steadily increasing the price of the journal to subscribers. Even supposing a large percentage increase in Blackwell's bill for 1979 and anticipating an even larger one for 1980 we could, from our ample capital, absorb the cost without increasing subscriptions. On the other hand council may prefer not to deplete our capital and raise the subscription for both members and subscribers.

It seems to me that as a society we are well-off and that our reserve capital is rather large. Our subscriptions, particularly for members, is very reasonable and, in their case, unchanged since 1976. Would it not therefore be better to spend a few thousand pounds of our capital on bryological projects rather than just hold down subscriptions which we perfectly well can do?

W.D. Foster,
March, 1980

(c) EDITOR'S REPORT

Twenty-nine papers were submitted for publication in the 1979 parts of the Journal of Bryology of which twenty-six were finally published. Following complaints about the quality of printing Blackwell's were contacted and I was informed that features such as uneven spacing of words were an inherent feature of the method used and that improved print-work would be considerably more expensive. It was also pointed out that the poor reproduction of some figures was the fault of the authors in not using sufficiently thick lines for the degree of reduction required.

A.J.E. Smith,
13 March, 1980

(d) REPORT OF THE RECORDER FOR MOSSES

This has been an exceptionally busy year. Much of the spadework for the new Census Catalogue has now been completed, and a preliminary manuscript draft has been prepared. Herbarium checking for species that were being revised is complete except for a few odd queries.

The pattern of records shows a fairly steady flow of new recording in Britain and a marked increase in Ireland. The increase of recording in Ireland was partly the result of the BBS summer meeting, but there has also been considerable activity among Irish residents. In addition to the 323 additions, there have been 401 deletions, with 275 species or varieties going in round brackets, and 126 going in square brackets or being removed.

	Old spp.	New spp.	Vars.	Total
England	41	32	53	126
Wales	10	1	11	22
Scotland	26	12	13	51
Ireland	81	25	18	124
Total	158	70	95	323

I am conscious of having badgered many members of the BBS with queries, and would like to thank all those who have helped in answering them. Those who have contributed information on particular vice-counties are acknowledged in the "New Vice-county Records and Amendments" for 1979; their contribution is much appreciated. In addition I should like to express my gratitude to Messrs Corley, Crundwell, Smith and Whitehouse, who have lightened the load by identifying specimens and supplying material for comparison.

M.O. Hill,
ITE, Bangor,
December 31 1979

(e) REPORT OF THE RECORDER FOR HEPATICS

Work on the new Census Catalogue is now well advanced, with the bulk of herbarium checking now completed. A first draft of the hepatic part of the new C.C. has been produced.

In the 1979 new vice-county records list there are 251 entries, a great increase over recent years. However 102 of these are amendments, mostly resulting from work associated with the production of the new C.C. Of the remaining 149, 95 are Irish records, indicating the great success of the BBS Excursion last August; a substantial number of new records was also received from Irish bryologists from vice-counties not visited during the meeting. The number of new records for England, Wales and Scotland are 23, 15 and 16 respectively.

I am most grateful to several people who have assisted me in many ways, by sending in amendments, answering queries and checking specimens. These have not always been acknowledged in the list; they are Dr H.J.B. Birks, T.L. Blockeel, A.C. Crundwell, J.C. Gardiner, M.O. Hill, Dr E.W. Jones, D.G. Long, Mrs J.A. Paton,

W. Rubers and Dr A.J. Harrington.

M.F.V. Corley,
March 1980

(f) LIBRARIAN'S REPORT

Sales:	Census Catalogues	43
	Transactions/Journal (parts)	104
	Library Catalogues	3
	BBS & MEC Reports	4
	Bulletins	5

Loans: 8 items of books/separates, 4 loans of slides,
Xerox copies 221

Interleaved Census Catalogue of Mosses (Warburg) now out of print, although an extensive stock of non-interleaved copies still available. All Moss Exchange Club and B.B.S. reports now out of print.

Kenneth J. Adams,
Jan. 1980

(g) BIBLIOGRAPHER'S REPORT

As in previous years, two lists of recent literature dealing with the bryophytes have been produced in 1979. It is good to see that interest in and research on the bryophytes is maintaining the high levels of recent years. It is still true to say that a large proportion of the papers published which cover the group are not written by specialist bryologists but by people who find bryophytes useful material on which to conduct experiments. This is reflected in the many papers on physiology, ecology, biochemistry and similar subjects. One result of this trend is that a large amount of bryological work is carried out by researchers who are not members of bryological societies and who may well be ignorant of the expertise they can offer. In my opinion it should be a resolution for the B.B.S. in the 1980s to try to put this right.

I am, as always, most grateful to those members who have sent in contributions to the bibliography over the past year.

G.C.S. Clarke,
December 1979

(h) CURATOR'S REPORT

Curation of the Herbarium continued with the incorporation of 280 moss and 80 hepatic voucher specimens. Requests for loans were fewer, only 5 members having availed themselves of the service.

S.G. Harrison,
March 1980

(i) REPORT OF THE MAPPING SECRETARY FOR 1979

Information about the progress of the Mapping Scheme has been published in Bulletin 33 and J. Bryol. 11(2). A pilot scheme

to assess the cost of providing travelling expenses for recorders indicated that it costs about £10 to bring the status of unworked or underworked squares to that of well-worked. The Biological Records Centre has agreed to prepare computer-read record cards of bryophytes and it is hoped to call upon the services of volunteers to transfer records from field record cards to computer-read cards.

A.J.E. Smith,
13 March 1980

(j) MEETINGS SECRETARY'S REPORT

The pattern of attendance followed that of recent years. It has been noted that some attempts should be made to mix papers of a purely academic nature with more popular ones at the Paper-reading meetings in order to arrive at a balanced programme; though members should bear in mind that in any particular year there are not many speakers available.

J.G. Duckett,
April 1980

(k) MEMBERSHIP SECRETARY'S REPORT

Records of membership and subscriptions are now organised in a separate unit and will relieve both Secretary and Treasurer of much time-consuming office work. The system is working smoothly, is easier to administer, and in due course will be simple to transfer as a going concern to the next incumbent. An analysis for the period from 7 April till 31 December 1979 is appended.

UK members pd 1979	308	
in arrears		12
Overseas pd 1979	168	
in arrears		7
Hon. members	8	
Resigned as Dec. 1979		6
Died		2
Family members	15	
	<hr/>	<hr/>
	499	27
	27	
	<hr/>	

526 members as shown in the books as at 31 December. The Jan 1980 figure will be 499 plus one or two of the members in arrears who subsequently pay up.

Members in arrears --- length of membership ---	
1 year	2
2 "	8
3-5 year	5
6-10 "	4

Analysis of new members since May 1979 to December

UK Professional botanists	7 + 4 Jr	= 11	
Amateurs	7 No Jr	= 7	
Overseas prof	" 5 + 2 Jr	= <u>7</u>	25

There were 27 UK and 49 Overseas subscriptions paid for 1980 in advance, amounting to £450. During the year Dr H. Persson, Stockholm and F. Bilewsky of Israel have died.

Resignations: P. Newton 1975 Altringham, Mrs Dudley-Smith 1965 Cheltenham, R.B. Ribbons 1974 Glasgow, Miss Lucking 1972 Notts, Dr E. Warnke 1967 Denmark.

George G. Geyman

(1) CONSERVATION OFFICER'S REPORT

As a result of the publicity in 'Habitat', 'Conservation Review' and the 'Bryological Times', nearly 900 copies of the Code of Conduct have been distributed to individuals and organisations in the British Isles and abroad.

The documents resulting from the deliberations of the Conservation Committee are, with one exception, ready for the approval of Council and eventual distribution as Council directs. The list of bryologically important sites and John Birks' lists of rare species and species under threat are presented in their final form after revisions in the light of comments from members of the society. The detailed notes on the 15 rare species considered to be under particular threat are substantially complete apart from the extraction of records from OXF before a final draft is prepared. Copies of these documents have been sent to the secretary and president for comment at this Council meeting. The Committee are most grateful to Mark Hill for his assistance.

The major question which needs to be discussed regarding these documents is their publication or eventual fate. In view of the significance both of the amount of information given and collected, I feel that the sites list and Dr Birks' lists should be more widely available, possibly with some restriction. Similarly, the more detailed information on localities for the 15 species (as noted in the Bulletin, Jan. 1978) could, provide a useful spur to members with an interest in re-finding particular species in vice-counties in which they currently do not occur. Council's views would be appreciated.

After considerable thought, the members of the Committee most actively involved in this last exercise felt that although the herbarium and literature surveys were not absolutely exhaustive, there was, nevertheless sufficient information already accumulated to justify bringing the exercise to a conclusion in the near future. In view of the limited time available to us, we felt that the amount of extra information that could be gathered by an even more exhaustive survey would not be justified.

P.D. Coker,
March 1980

PROCEEDINGS OF THE BRITISH BRYOLOGICAL SOCIETY

THE IRISH MEETING, AUGUST 1979.

Limerick was chosen for the first week of the Irish meeting. It is a good communications centre and allowed us to visit little-known areas in several vice-counties.

19 August. The turloughs are a characteristic feature of the limestone of County Clare (H.9) and our first excursion was to Fin Lough, beyond Sixmilebridge. Ricciocarpus natans, growing on some very soft mud, was the most interesting of several species new to the county. The nearby Lough Cullaunyheeda had some fine Bryum neodamense and Campylium elodes. We finished the day by a visit to some more acid ground on the west side of Slievebernagh, going up a muddy lane to some open ground higher up on the hill. This produced no less than fourteen new county records, including Pohlia mylodermansii, P. camptotrachela, Hypnum lindbergii, Riccia warnstorffii and Pellia neesiana.

20 August. The day's excursion was to Clare Glens, a sandstone ravine a few miles to the east of Limerick. Clare Glens of course are not in Co. Clare - this is Ireland - but partly in Co. Limerick (H.8) and partly in Co. Tipperary (H.10). For the first half of the day the rain was torrential, but it cleared up later. On the Tipperary side of the stream we found nineteen bryophytes new to the vice-county, including Fissidens exiguus (new to Ireland), Hygroamblystegium fluviatile, Leptodontium flexifolium, Cololejeunea calcarea and Zygodon viridissimus var. stirtonii. Other species included Dumortiera hirsuta, Marchesinia mackaii and Lophocolea fragrans. On the Limerick side we spent less time, but made a few additions, including Zygodon conoideus. We finished with a stop at a meadow upstream and added to the North Tipperary flora Dicranella schreberana, Riccia sorocarpa and a few other gap-fillers.

21 August. Keeper Hill, at 2278 feet the highest in the district, had to be visited. After an abortive attempt from the west we eventually assaulted the hill from the south, struggling up through Molinia tussocks on a day of high winds and frequent heavy squalls of rain. Those few brave spirits who reached the top found little to reward them there, but the way up produced several good new records for North Tipperary, including Nardia compressa, Lepidozia trichoclados, Calypogeia neesiana, Sphagnum robustum and Marsupella sphacelata. A very muddy little coppice at the foot of the hill proved rewarding, with Fissidens celticus, Plagiochila killarniensis and fruiting Metzgeria fruticulosa. A visit on the way back to Silvermines, with its extensive spoil heaps, was a little disappointing, but Thuidium delicatulum, T. philibertii and Barbula ferruginascens brought the day's total of new records to twenty-four.

22 August. On this day the party divided. One contingent went south of the Shannon to the Askeaton area of Co. Limerick (H.8). Isoetecium striatulum was seen on the abbey ruins. New records included Amblystegiella confervoides, Gymnostomum calcareum, Gyroweisia tenuis and Pottia recta. Fissidens crassipes was added from Curragh Chase. A second party returned to Co. Clare, visiting first of all a raised bog near Derrymore House, noted as promising-looking on the first day. It proved worthwhile, with a rich Sphagnum flora and three liverworts new to the county: Calypogeia sphagnicola, Cephaloziella subdentata and Cephalozia

media. Visits to a couple of nearby lakes and to Woodcock Hill filled in a few more gaps in the flora of the county.

23 August. We visited the hills to the west of Newcastle West in Co. Limerick. The main stop was at the ravine of the R. Daar by Glenaster House. The water level was very high and must have reduced the number of species seen. New to the county were Fissidens celticus, Plagiochila britannica, Radula lindenberghiana and Colura calyptrifolia. Other good finds included Frullania germana and fruiting Metzgeria fruticulosa. A roadside stop at Sugar Hill added Ditrichum cylindricum and Pohlia lutescens. Knockanimpaha, visited not only for its name, yielded Pohlia lescuriana, new to Ireland, and, on a cutaway bog, Pallavicinia lyellii.

24 August. The party again divided. Some went north to the shores of Lough Dearg and made some interesting additions to the flora of North Tipperary, including Tortula papillosa, Fissidens crassipes and Scapania aspera. Others paid a final visit to Co. Clare and worked a 10 km square to the west of Ennis. Physcomitrella patens and Anthoceros husnotii were seen by Lough Burke. A fortunate misreading of the map lead to the R. Inagh, a little to the north, and to Fossombronina husnotii, Epipterygium tozeri and Dicranella rufescens.

25 August. A travelling day. We shook the litter of Limerick from our feet and drove to the pleasantly rural village of Glengarriff. On the way we stopped at Tralee, and paid homage to Gyroweisia luisieri first seen on a wall near the station in 1951. We found it without difficulty, though with much less fruit on it than in 1951. The way to Glengarriff led past the Torc Cascade, near Killarney, and it was impossible to pass without stopping - three cars met there without prior arrangement. Most of the population of Kerry seemed to have found the attractions of Torc equally irresistible, but in spite of the crowd we found many of the rarities for which it is well known; and we drove to Glengarriff in rain and low cloud, ruefully remembering that oceanic species must be paid for in wet weather.

26 August. We awoke to brilliant sunshine, inaugurating a spell of five days of warm sunny weather. We had several new recruits so that on some days our numbers were over twenty. We had, too, an additional presence, the benevolent and gentle ghost of Ellen Hutchins (1785-1815) whose home was just round the corner of Bantry Bay. She was a brilliant field cryptogamic botanist and the list of her discoveries is a long one, including not only all those species with the epithet "hutchinsiae", but many more besides. This was her country, and during the week we re-found many of her plants though some, such as Leiocolea bantriensis, were not revealed to us.

The first day's excursion was to the woods in the immediate neighbourhood of Glengarriff. We did not make many additions to the flora of West Cork (H.3). - Fissidens celticus, F. curnowii and Tritomaria exsecta were the most interesting - but we did find a great many oceanic species that people were pleased to see: Fissidens polyphyllus, Daltonia splachnoides, Sematophyllum demissum, Fossombronina husnotii, Lepidozia cupressina, Telaranea nematodes, Lejeunea flava, Colura calyptrifolia, Drepanolejeunea hamatifolia, etc.

27 August. The excursion was to Glen Beag Lough and the adjoining hill of Lackawee, to the west of Glengarriff. On a beautiful day

Leptodontium recurvifolium and Pohlia lescuriana were added to the flora of W. Cork. There was a rich Radula flora, including R. voluta, R. holtii, R. lindenberghiana and R. aquilegia. Other species included Herberta adunca subsp. hutchinsiae, Jubula hutchinsiae, Lejeunea holtii, Marchesinia mackaii and Gymnomitrium crenulatum.

28 August. Uragh Wood by Inchiquin Lough, to the north-west of Glengarriff but in Co. Kerry (H.1) was visited this day. South Kerry is a well-worked vice-county and nothing new to it was found, but the rocks and streams of the wood give it a rich flora including many of the species seen on the two preceding days. Noteworthy were both the Sematophyllum spp., Metzgeria temperata, Lophocolea fragrans, Plagiochila corniculata, Harpalejeunea ovata, Cephalozia catenulata and Adelanthus decipiens.

29 August. We drove a few miles to the north-east, to Gouganebarra lake. Streams and ravines in the conifer plantations surrounding the lake produced many of the small hepatics already seen. In the open ground above Ted Wallace found Campylopus shawii. After lunch we went up by different routes to the ridge above and made several additions to the flora of West Cork: Rhabdoweisia crenulata, Sphagnum recurvum var. tenue (new to Ireland), Cephaloziella hampeana, Anthelia julacea, Lepidozia pearsonii and Anastrepta orcadensis.

30 August. The party divided. One car load went north into Kerry, worked up the Roughty River, and found several species that had not been seen previously on the meeting. New to South Kerry were Metzgeria fruticulosa, Eurhynchium murale, and Gyro-weisia luisieri. Others explored the Sheep's Head peninsula, on the south side of Bantry Bay. Among species new to West Cork were Bryum tenuisetum (new to Ireland), Odontoschisma elongatum (the second Irish record), Fossombronina incurva and Calypogeia sphagnicola.

31 August. By now the spell of fine weather had come to an end and we were confronted with low cloud and driving rain. A wet and not particularly productive stop by the Adrigole River was followed by a rash sortie to some higher ground where at Glen Lough Jean Paton managed to rescue from drowning some Atrichum tenellum, new to Ireland. A descent to the sea shore, where the weather was a little less impossible, produced a few final new records for West Cork: Grimmia trichophylla var. robusta, Leptodontium flexifolium, Bryum ruderale and Lejeunea lamacerina var. azorica.

So ended a most enjoyable and profitable meeting, attended by a good number of Irish and British members and by some very welcome visitors from the Netherlands. We found five species or varieties new to Ireland, made over 150 new vice-county records, of which only a fraction have been listed here, and made lists from twenty-seven 10-kilometre squares, averaging nearly 100 per square. All those who participated owe a big debt of gratitude to Donal Synnott for his efficient organisation and excellent leadership.

A.C. CRUNDWELL.

THE ANNUAL MEETING, 1979, MANCHESTER

A total of 54 members and guests met at Hulme Hall in the University of Manchester for all or part of the autumn paper-reading and annual general meeting, held during the weekend of 22-23 September. We were particularly pleased to welcome a number of new members attending their first meeting of the Society, and to have three overseas visitors. The participation of several members of the Manchester Department of Botany, including three of its professors, was also very welcome.

On the Saturday, the President and Vice-President introduced six speakers whose papers reflected an increasing awareness of the desirability of more experimental work on bryophytes, a trend which was applauded by the Society during its international symposium in Bangor. Thus, we heard accounts of genetical, morphogenetical, biochemical and ecological experiments which, apart from their intrinsic interest, served to emphasize the morphological implications of physiological and behavioural characters. Summaries of these papers are given below.

Mr. P.M. HAYWARD and Dr. R.S. CLYMO (Department of Botany, Westfield College, London): "The growth of Sphagnum: effects of environment."

Two aspects of the environment were considered: water and light. An important feature of these is that they affect the growth of different species in different ways. This point was illustrated with some results from a factorial growth experiment which combined the effects of shade and water level on two species: Sphagnum rubellum and S. papillosum. Growth in mass increased with more light for both species but S. papillosum was more tolerant of higher water levels. Conversely, shading caused the plants to grow longer and become etiolated.

Both water and irradiation affect the plants by acting on the apical growing region. Water gets to the apex by capillary action in the small spaces between plants so that an individual will receive less water when growing above the general surface and more water below. The reverse is true of irradiation which will be reduced below the surface due to shading by neighbouring plants. It was demonstrated that this shading effect followed Beer's Law with absorbance being proportional to depth. In general, S. rubellum attenuated light more strongly than S. papillosum but the exact amount depended on the previous growth history.

A method for measuring profiles of water content in peat was also described. This utilized the attenuating effect of water on gamma radiation. It was demonstrated that the capillary spaces in S. rubellum were smaller than in S. papillosum allowing it to maintain a similar water content in the apex even with lower water-tables. However, the actual moisture profile depended on whether the water-table was raised or lowered to a particular position. This hysteresis effect was often as great as the differences between species.

Finally, a tentative model incorporating these various effects was described.

Miss O.M. BRAGG (Department of Biological Sciences, University of Dundee): "The water relations of Sphagnum communities."

This paper was concerned with the water economy of the surface layers of Dun Moss, a raised bog in the Grampian foothills. The vegetation consisted largely of Sphagnum species, which formed a characteristic mosaic of hummocks and hollows. The seasonal behaviour of the water table in relation to these elements of microrelief was described. It emerged that there were significant differences in the response of the water table to varying meteorological conditions, both between adjacent hummocks and hollows, and between hummocks of S. magellanicum and S. capillifolium. Scanning electron micrographs were presented to illustrate the capacity of individual Sphagnum shoots to retain and conduct water. Microscopic examination of thin sections cut from intact stands of the two species indicated that there were obvious differences in pore structure between associations of their living shoots, but that these differences disappeared within 20 cm of the surface as a result of humification. The spatial variations in structure were reflected by variations in horizontal hydraulic conductivity, whose value at the surface was much greater in S. magellanicum stands, but which decreased exponentially with depth in areas of both species. The greater seasonal variability of water table relief observed in S. capillifolium stands was attributed to the comparatively high resistance to horizontal flow within them. Finally, the possible bearing of pore structure on the rate of vertical water movement, and the effect of the presence of vascular plants, were discussed.

Dr. D.H. BROWN and Dr. G.W. BUCK (Department of Botany, University of Bristol): "The cation content of bryophytes."

Much recent work on the cation content of bryophytes, under natural and polluted conditions, has failed to determine the cellular location of specific elements. Only material within the cell (plasmalemma) can have an immediate effect on metabolism.

A sequential cation elution technique was described, separating four cellular compartments: 1) intercellular soluble, 2) extracellular exchangeable (nickel usually used as the displacing agent) = cell wall, 3) intracellular soluble and 4) residual. Generally, in washed material, potassium and sodium are mainly located in 3 but after seawater treatment non-halophytes show increased sodium in 2 and 3 (potassium in 3 decreases) while halophytes show slight increases in 2. Depending on the species, calcium is present in either 2 and/or 4 and magnesium and zinc show patterns intermediate between calcium and potassium (i.e. in 2, 3, and 4).

Following desiccation stress (storage at 52% and 0% RH) potassium leaks from 3 mainly into 1 while soluble magnesium may be trapped in 2. The degree of potassium loss has been used as a measure of membrane damage and reflected the depth and duration of desiccation, species used, water availability in the habitat and availability of metabolisable reserves to repair membrane damage.

After exclusion of particulate matter material from heavy metal rich sites showed almost identical cellular

locations for strontium and calcium (Brachythecium rutabulum), copper mainly (Solenostoma crenulatum) and lead exclusively (Grimmia donniana) in 2.

Dr. C.J. GLIDDON (School of Plant Biology, University College of North Wales, Bangor): "Studies on the population biology of four species of thallose liverwort."

Natural populations of four species of thallose liverwort (Pellia epiphylla, Conocephalum conicum, Lunularia cruciata and Marchantia polymorpha) were collected from sites throughout Britain. The populations sampled were all riparian and at least two of the species under study were always present in populations sampled. In this way it was hoped to minimise any differences between species which were a result of differences in their physical environment. Populations of the four species were assayed for protein polymorphism using polyacrylamide gel electrophoresis (PAGE). Eight specific enzyme stains were used, which on subsequent genetic analysis yielded data on between 24 and 61 loci, depending upon the species. Estimates of genetic variability in the four species were made (average number of alleles per locus, and the proportion of loci polymorphic). In addition a theoretical estimate was made of the average amount of heterozygosity (\bar{H}) on the assumption that the haploid gametophyte mated at random to form a diploid sporophyte. This was to allow a direct comparison with the literature for higher plants and animals. Estimates of genetic distances between populations were also made.

In comparison with higher plants, the thallose liverworts were genetically uniform ($\bar{H} = 0.020$ for liverworts, $\bar{H} = 0.108$ for 2 species of higher plant). The four liverworts divided into two groups on the basis of variability: P. epiphylla which was genetically uniform ($\bar{H} = 0 + 0.000$) throughout the British Isles; L. cruciata, M. polymorpha and C. conicum which possessed low levels of genetic variation ($\bar{H} = 0.026 + 0.005$). This grouping is in accord with the taxonomic relationships of the four species, P. epiphylla being relatively distantly related to the other three which are all placed in the same super-genus.

The data on genetic distances were only calculated for between-population, within-species comparisons, due to the difficulties with the PAGE-technique of assigning identities to bands which migrate the same distance in different species. Due to their genetic uniformity, P. epiphylla populations of course had a genetic distance of 0 between them. A Canadian population of P. epiphylla was obtained, giving a genetic distance of 0.14 from the U.K. populations. This distance was of the same order as that obtained between populations of the other three species, some populations of which were only separated by about 400 metres. This illustrates the difficulties of utilising genetic distance measures derived from PAGE in taxonomic analysis, as fundamental life-history and genetic parameters may strongly bias the magnitude of such estimates.

Work is in progress to assess the levels of genetic variation in two other species of the genus Pellia (P. endiviifolia and P. neesiana) to see whether the lack of genetic variability in P. epiphylla is a facet of its particular life-history or of the genus as a whole.

Dr. L.P. NYMAN and Prof. E.G. CUTTER (Department of Botany, University of Manchester): "Control of bud outgrowth in the gametophore of Plagiomnium."

In growing shoots of P. cuspidatum and P. undulatum an inhibited bud meristem was present on the stem above each leaf axil. Following decapitation, several buds in upper axils grew out; others were activated, but were re-inhibited by growing buds. Applied auxin failed to inhibit buds in decapitated shoots completely, but after treatment with some concentrations they developed as spherical structures devoid of leaf primordia. Cytokinins permitted initial bud development, but completely inhibited later development. Auxin and cytokinin applied in combination yielded buds which morphologically resembled those which had been released and then re-inhibited naturally.

Enzyme histochemistry of released and inhibited buds suggested that oxidation processes may be important in maintaining bud inhibition in intact gametophores. Further investigations of enzyme histochemistry and of endogenous hormone levels in mosses are likely to be fruitful.

Prof. D.J. COVE (Department of Genetics, University of Leeds): "Genetic studies on the roles of auxins and cytokinins in the development of Physcomitrella patens."

Observations of wild-type and mutant strains of P. patens lead to the following conclusions:

Conclusion

1) Auxins are required for the transition of primary chloronemata (the first cell type to be produced on spore germination or tissue regeneration) to caulonemata.

2) Auxins depress the proliferation of primary and secondary chloronemata (cells morphologically similar to primary chloronemata but arising as side branches on caulonemata) but only in the presence of cytokinins

3) High auxin concentrations interfere with gametophore development and enhance rhizoid production.

4) Cytokinins play no major

Evidence

a) Auxin non-synthesising mutants produce no normal caulonemata.

b) Drip feeding (the supply of a steady stream of fresh medium) of wild-type cultures produces only chloronemata. If auxin is added to the drip-feed medium, caulonema production is restored.

a) Direct observation of the effects of auxins on the wild-type.

b) Auxin non-synthesising mutants produce more chloronemata than wild-type.

c) Cytokinin non-synthesising mutants insensitive to auxins.

a) Direct observation of the effects of auxins on the wild-type.

a) Cytokinin non-synthesising

developmental role until caulonemal side branches have been initiated.

mutants develop normally to this stage.

5) Cytokinins are required for caulonemal side branches to develop into buds. High cytokinin concentrations both lead to every side branch forming a bud and block further gametophore development.

b) The addition of cytokinins to drip-feed medium has no effect unless caulonemata production has been induced by the supply of auxin.

6) Cytokinins depress chloronemal proliferation but only in the presence of auxin.

a) Cytokinin non-synthesising mutants produce no buds or gametophores.

b) Direct observation of the effects of cytokinins on wild-type cultures.

a) Cytokinin non-synthesising mutants produce more chloronemata than wild-type.

b) Direct observation of the effects of cytokinin on the wild-type.

c) Auxin non-synthesising mutants insensitive to cytokinins.

The A.G.M. was held after tea (for Minutes, see below). Members later enjoyed a reception which had been generously provided by the Vice-Chancellor and kindly arranged by Prof. J. Colhoun, who deputized for the Vice-Chancellor on the day. Demonstrations on display during the evening conversazione included the following:

Dr. K.J. Adams: Some acquisitions of the B.B.S. library.

Dr. H.L.K. Whitehouse: Tortula stanfordensis in Britain.

After a day of sunshine, the Sunday dawned distinctly damp but began to clear up before the first field locality was reached, obviously with bryologists in mind. Our first stop was to the north of Heywood where members explored part of the Cheesden Brook valley. The area is one of varied habitats including woodland, rocks in the stream, wet outcropping gritstones, heath and unstable wet clay. Among the species seen were Atrichum crispum, Seligeria recurvata c.fr., Dicranella subulata (recently recorded in v.c. 59 for the first time this century), Gymnostomum aeruginosum c.fr., Discelium nudum c.fr. and Heterocladium heteropterum. The best discovery, however, was undoubtedly Mark Hill's new county record of Fissidens curnowii.

A leisurely picnic lunch above Wardle prepared us for an onslaught on bryophytes in the vicinity of Watergrove reservoir, which we visited by permission of the North West Water Authority. There, we found Nardia compressa, Atrichum crispum, Oligotrichum hercynicum, Tetradontium brownianum c.fr. and plentiful Discelium nudum c.fr., all species that are so typical of the Lancashire hills and, indeed, of similar parts of Yorkshire, as shown by the list

compiled by two members returning home to that county. While most of us were ranging widely to see these plants, some concentrated on the exposed banks of the reservoir itself, to be rewarded by interesting discoveries of Fossombronia wondraczekii, Archidium alternifolium and Pohlia camptotrachela. It was there, also, that Alan Crundwell in finding Atrichum tenellum and Bryum tenuisetum made two further records for v.c. 59. One member seemed oblivious of time at this point but, once collected, we all went on to pay homage to an exceptionally fine population of Schistostega pennata in the vicinity of Brushes Clough reservoir above Crompton, arriving just as the moss was highlighted by the late afternoon sun.

I think it is true to say that this was an enjoyable meeting. For helping to make it so, the Society and I are indebted to Dr. J.N. Hartshorne and Mr. R. Wilson, the warden and administrator of Hulme Hall, for considering our needs so well and, above all, for their tolerance of late bookings and changed plans. My thanks are also due to Prof. Colhoun, whose assistance in organizing the reception I greatly appreciate, and to all those members who kindly sent lists of species seen during the field excursion.

M.E. NEWTON.

MINUTES OF THE ANNUAL GENERAL MEETING, 1979.

Minutes of the Annual General Meeting held at 1650 hrs on Saturday 22 September, 1979 in Hulme Hall, University of Manchester.

PRESENT: Prof. P.W. Richards (President - in the Chair) and 37 other members.

(1) APOLOGIES: Apologies for absence received from Mrs. B. Bescoby, Mr. R. Carpenter, Dr. P.D. Coker, Prof. J.G. Duckett, Mr. M.V. Fletcher, Dr. W.D. Foster, Mr. S.G. Harrison, Mrs. J.A. Paton and Dr. A.J.E. Smith.

(2) MINUTES: The Minutes of the Annual General Meeting held on 19 August, 1978 in the University College of North Wales, Bangor, were approved and signed.

(3) MATTERS ARISING: There were none.

(4) OFFICERS' REPORTS FOR 1978:

(a) GENERAL SECRETARY: Mr. Perry said that Mr. Geyman, the Membership Secretary, now deals with all membership matters, including non-payment of dues, non-delivery of Journal, etc.

(a') MEMBERSHIP SECRETARY: Mr. Geyman reported 12 members in arrears over subscriptions, and said about 20 new members had joined the Society since last March.

(b) TREASURER: The balance sheet for 1978 was circulated. It was agreed that Prof. Richards thank the Hon. Auditor for his excellent work.

(c) EDITOR: There were no comments.

(d) RECORDER FOR MOSSES: Mr. Hill announced that the draft of the new Census Catalogue (mosses) had been prepared. Twenty species were being thoroughly revised. Deletions from the last Census Catalogue would be published in the Bulletin.

(e) RECORDER FOR HEPATICS: Mr. Corley said that his work on the new Census Catalogue (hepatics) was not so far advanced as Mr. Hill's. There had been very few new county records during 1979.

(f) LIBRARIAN: Dr. Adams thanked members for not sending cash with their orders, especially as postage rates keep changing.

(g) BIBLIOGRAPHER: Dr. Clarke said that bryology was in a very flourishing state if the numbers of papers being produced was anything to go by. He thanked the various people who had sent him references; however obvious these may seem he was always keen to receive them.

(h) CURATOR: There were no comments.

(i) MAPPING SECRETARY: Dr. Smith had written to say that it would be helpful if those who had completed record cards would send them to him and that a situation map would appear in Journal of Bryology 11 part 1. He hoped to be able to call on volunteers to help in the transfer of records from field record cards to optically-read computer cards.

(j) MEETINGS SECRETARY: Dr. Clarke announced that the Bryophyte Symposium volume that he and Prof. Duckett were editing was now in page proof and should be published in December. Members would be entitled to a 25% discount.

(k) CONSERVATION OFFICER: Prof. Richards said that the B.B.S. Code of Conduct had been sent to all members, to all offices of the Nature Conservancy Council, and to Field Centres. It was intended to send it to all Universities. The Council for Nature and the Society for the Protection of Nature Conservation had been asked to give it publicity. A list of endangered bryophyte species and sites was currently being worked on.

(5) ELECTION OF OFFICERS, 1980-81:

(a) VICE-PRESIDENT: Dr. H.L.K. Whitehouse was unanimously elected as the new Vice-President.

(b) OFFICERS: All officers were due for re-election; they were unanimously re-elected en bloc. It was agreed that a note asking for nominations for Officers be placed in the Bulletin when required.

(6) ELECTION OF THREE MEMBERS OF COUNCIL: The Council's nominees, Messrs Long, Preston and Stern, were unanimously elected to serve on Council for 2 years from January, 1980.

(6') HONORARY MEMBER: Dr. E.V. Watson was unanimously elected an Honorary Member of the Society in recognition of his outstanding bryological achievements.

(7) PLACE AND DATE OF ANNUAL GENERAL MEETING, 1980: It had been suggested that Bristol would be a suitable venue for this and, accordingly, Dr. Brown had been approached; he was willing to make the necessary arrangements for the meeting based on Bristol University. Dr. Newton commented that future programmes at Paper-reading meetings should perhaps not be as biased in one direction (i.e. physiological) as this meeting had been. Dr. Clarke answered that it was difficult to get someone to talk about descriptive bryology that would appeal to the amateur; suggestions of speakers on taxonomy would be welcomed. It was suggested from the floor that the A.G.M. and Paper-reading Meeting might be held in October occasionally.

(8) OTHER MEETINGS IN 1980, 1981 and 1982:

(a) SPRING, 1980: It was announced that this was being arranged in Pembrokeshire, based on Haverfordwest, 9 - 16 April. Prof. Richards suggested

that the Conservation Committee might get together to arrange a conservation-orientated meeting some time.

(b) SUMMER, 1980: It was announced that this was being arranged by Rev. G.G. Graham in Durham, 26 July - 2 August.

(c) TAXONOMIC WORKSHOP, 1980: It was suggested that this might be in November in Reading, and organized by Dr. Longton.

(d) SPRING, 1981: Northamptonshire, East Kent and Suffolk were discussed as possibilities for this.

(e) SUMMER, 1981: It was suggested that the first week might be based on Huntly, Aberdeenshire and the second week on Arisaig.

(9) ANY OTHER BUSINESS:

(a) GRANTS FOR BRYOLOGICAL WORK: Prof. Richards announced that Council had set up a sub-committee to discuss this.

(b) HONORARY MEMBERSHIP: Dr. Greene said that a sub-committee had been set up to discuss this. Mr. Crundwell noted that some societies make awards, for example the Linnean Society makes the Bloomer Award, and that perhaps the B.B.S. might consider this system an alternative to Honorary Membership.

(c) GENEVA MEETING: Dr. Greene announced that at the recent bryological meeting in Geneva a scheme had been discussed whereby Institutions might receive J. Bryol./Lindbergia/J. Hatt. Bot. Lab./Revue Bryol. under a joint marketing scheme, thereby being eligible for a discount. It had also been suggested that the Bibliographies in these Journals might be amalgamated, but Dr. Greene and Prof. Richards were unable to recommend this to the B.B.S.

The meeting was brought to a close at 1813 hrs.

A.R. PERRY,
Hon. General Secretary,
September, 1979

TAXONOMIC WORKSHOP, 1979

This was held over the weekend of October 27th and 28th at the Plant Biology Field Station of Queen Mary College near Brentwood, Essex. About eighteen members and two guests attended the Workshop and in addition the organiser was assisted by Drs. K.J. Adams, A.J. Harrington and H.L.K. Whitehouse.

On Saturday Grays and Warren chalk quarries at Thurrock were visited. The Essex Naturalists' Trust Reserve warden, Mr. Colin Studholme, kindly acted as guide around the largely overgrown Grays Quarry where no unusual bryophytes were found but a good range of chalk scrub and grassland species were collected for later examination. At the more recently opened Warren pit we failed to refind the unidentified acrocarp discovered by Mark Hill a few years ago but Harold Whitehouse and Chris Preston did add Lophozia perssonii to the records for v.c. 18.

The afternoon and evening were spent in the field laboratory examining the morning collections and Dr. Whitehouse gave a talk on 'Arable Field Bryophytes'. On Sunday it was intended to follow up the talk by examining local arable fields but the recent mild weather had persuaded local farmers to plough all their fields and the party visited instead Mores Wood, Navestock, to see a good range of bryophytes on basic and acid soils. We also visited South Weald Country Park to see the locally abundant Dicranum tauricum which grows on a variety of tree and shrub barks. After lunch laboratory work continued interspersed by a talk by Peter Wanstall on the problems and methods of examining members of the Polytrichales.

P.J. WANSTALL.

FUTURE MEETINGS OF THE SOCIETY

(a) Annual General Meeting and Paper Reading Meeting, 1980:

Bristol University, 19-21 September.

Local Secretary: Dr. D.H. Brown, Dept. of Botany,
The University Bristol, BS8 1UG. (Tel: Bristol 24161 ext. 331).

Accommodation has been reserved in a Hall of Residence,
Badock Hall, where lectures will also take place.

Costs for accommodation are:-

Bed & Breakfast - £7.50. Lunch - £2.50. Dinner - £3.60.

Coffee - 35p. Tea - 35p. Packed lunch - £1.75.

N.B.

Dinner will not be available on Sunday evening.

Since we must book in advance, please contact Dr. Brown as soon as possible for full details and booking forms which must be returned not later than 31 August 1980. Meals will be available to those who are not staying at Badock Hall but these must also be booked in advance.

If you intend to travel to Bristol by train the special conference travel rates may be of interest. Please ask Dr. Brown for details.

Amongst those who have agreed to speak at this meeting are:-

Miss A. Christie (Sheffield University): "Carbohydrates and Chemotaxonomy in the Ptilidiaceae".

Mr. T. Blockeel (Leeds): "Bryologists and Bryophytes from South Yorkshire".

Mrs. A.G. Side (Rochester): "Amateur bryological work in Kent".

Dr. R.C. Longton (Reading University): "A British Bryologist in Canada".

Mr. D. Long (Edinburgh): "Bryophyte Exploration in Bhutan".

Prof. J.G. Duckett (London) & Prof. Z.B. Carothers (Illinois, USA). "Pellia neesiana ; the biggest spermatozoid in the bryophytes".

The Annual General Meeting will take place on 20 September 1980, at 1650 hrs. in Badock Hall.

ANNUAL GENERAL MEETING, BRISTOL 1980

A G E N D A

1. Apologies for absence
2. Minutes of the last A. G. M., Manchester, 1979 (See pp 17-19 of this Bulletin)
3. Matters arising
4. Officers' Reports for 1979 (see pp 2-8 of this Bulletin)
 - a) General Secretary
 - b) Treasurer
 - c) Editor
 - d) Recorder for Mosses
 - e) Recorder for Hepatics
 - f) Librarian
 - g) Bibliographer
 - h) Curator
 - i) Mapping Secretary
 - j) Meetings Secretary
 - k) Membership Secretary
 - l) Conservation Officer
5. Election of Treasurer (Dr Foster will resign at the end of 1980. Nominations for a new Treasurer should be sent to the General Secretary)
6. Election of three members of Council (Mr Fletcher, Dr Pitkin and Mr Woods retire at the end of 1980. Nominations should be sent to the General Secretary).
7. Place and date of Annual General Meeting, 1981.
8. Other meetings in 1980, 1981 and 1982.
9. Any Other Business.

After dinner there will be a reception. Members who would like to display exhibits should contact Dr Brown regarding their requirements for space and facilities.

Sunday 21 September. Field Excursion to the Avon Gorge, a Barbula paradise. Members of the Botany Department at Bristol University would be very pleased to meet members of the BBS on Friday or Monday, for assistance in additional field trips to local sites for recording purposes.

- (b) Taxonomic Workshop, 1980: Reading University, 1-2 November.
Local Secretary: Dr R. C. Longton, Dept. of Botany, Plant Science Laboratories, The University of Reading, Whiteknights, Reading, RG6 2AS. Tel: (0734) 85123, ext. 7914.
Full details are available from Dr Longton.
Topics will include the identification of Bryum and Pohlia (Dr E. V. Watson) and the cultivation of bryophytes (Mr M. Fletcher).
- (c) Spring Field Meeting, 1981: Suffolk, a forgotten county.
Local Secretary: Prof J. G. Duckett and Dr K. J. Adams.
Full details in next Bulletin.
- (d) Summer Field Meeting, 1981: Scotland, late July and early Aug.
Local Secretaries: Mr D. Long and Dr P. Pitkin, Newtonmore and Tyndrum. Two weeks in exceptional underworked territory in the Highlands.
Full details in next Bulletin.

REFEREES (August, 1980)

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. If anyone has difficulty in getting a specimen named they should send it to the appropriate Recorder - Mr Corley for hepatics or Mr Hill for mosses (addresses below).

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: Prof. J.G. Duckett, Plant Biology & Microbiology, Queen Mary College, Mile End Road, London, E1 4NS
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, 22 Rutherford Road, Cambridge.
57-61, 75: M.O. Hill, Institute of Terrestrial Ecology, Penrhos Road, Bangor, Gwynedd, LL57 2LQ
62: Mrs. J.A. Paton, Fair Rising, Wagg Lane, Probus, Truro, Cornwall, TR2 4JU

Moss Referees:

- 1: M.O. Hill, (address above); A. Eddy, Dept. 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 Rd., Sutton, Surrey
35-53: Dr. D.F. Chamberlain, Department of Botany, Royal Botanic Garden, Edinburgh, EH3 5LR
70-78, 90: Dr. E.V. Watson, Little Court, Cleeve, Goring on Thames, Reading, Berkshire RG8 0DG
79: Dr. P.D. Coker, School of Biological Sciences, Thames Polytechnic, Wellington Street, London, SE18 6PF
98, 99: Dr. S.W. Greene, Institute of Terrestrial Ecology, Bush Estate, Penicuik, Midlothian, EH26 0QB
125-130, 132-161: Mrs. J. Appleyard, Sunnyside, West Horrington, Wells, Somerset, BA5 3ED

CONTRIBUTIONS FOR THE NEXT BULLETIN
SHOULD REACH THE SECRETARY BY
1 DECEMBER 1980

THE READING CIRCLE

The Reading Circle exists to circulate copies of the contents lists of the leading bryological journals, such that photocopies of any papers of interest may be requested. There are at present five journals involved, and as they may not be familiar to all, their contents are described briefly below:

The Bryologist (4 issues per year of 600-700 pages in total). Published by The American Bryological and Lichenological Society. Something up to a quarter of each issue is devoted to lichens. Many local US bryophyte lists, but principle outlet for American bryologists.

Revue Bryologique et Lichenologique (4 issues per year of 450-500 pages in total). Written mainly in French, with perhaps more than half the papers being on lichens. Spread of subject matter is similar to J. Bryol., but with rather less taxonomy.

Lindbergia (4 issues per year, usually published with two parts per issue. About 350 pages per year). A joint publication of the Dutch and Nordic Bryological Societies written largely in English, but with some local native language contributions. Particularly strong on taxonomy.

Journal of the Hattori Botanical Laboratory (One issue per year, of 400-600 pages). A luxuriously produced hardback. Occasional papers on lichens, otherwise purely bryological. Specialises in longer papers, of high standard. Asiatic and Pacific studies are well represented.

Annales Botanici Fennici (4 issues per year of 200-300 pages in total). A general botanical journal, in English. Strong on ecology. Only one or two bryological papers per issue, usually by Koponen.

The Reading Circle works by sending out to members copies of the contents lists of any of the journals required, at a cost of 15p per list. Subscribing to all five journals will cost about £2 per annum. Any articles that look of interest may be requested, and a photocopy is returned at a cost, currently, of 3p per sheet. Payment for the service is in advance, with a credit account held for each member, which is used to pay both for distribution of contents lists and for requested copies of papers. When an account is running low, the member concerned is invited to replenish the account. No member is allowed to go into debit.

Although it might seem simpler to distribute the journals themselves, this is not done because of the expense, the damage to the journals (or even their loss) and the prolonged unavailability to other members of an important Library resource. It is hoped that the provision of a photocopying service via the Reading Circle is an acceptable, if second-best, alternative.

The Reading Circle welcomes all members of the BBS, and provides a service which seems of value both to the professional (who are able to keep up-to-date with publications as they occur rather than waiting for our Journal's bibliography) and to the amateur (who

will find this a good way of keeping up with the bryological world at large). Anyone interested in joining the Reading Circle and requiring further details, or anyone with any suggestions to make on improvements to the service provided, or to the journals distributed, should get in touch with the Reading Circle Secretary:-

Brian O'Shea, 58 Thornlaw Road, LONDON SE27 0SA.

B.B.S. MAPPING SCHEME

With only 2½ years recording left there is an urgent need for gaps to be filled. Areas where recording is necessary are indicated in the vice-county list in the last Bulletin (No.35) and on the situation map in J. Bryol. 11 (1). It has been found that half-an-hour's recording in an unworked square can produce 20-30 records - these include such easily recognized species as Barb conv., Cera purp., Hypn cupr which must be present in every 10 km square. Such short lists are valuable as they contribute to the completeness of maps of common species. Hand-written lists are perfectly acceptable although I can provide field record cards (50p for 10) if required.

Subsidized recording

The Society has set aside a sum of money to pay travelling expenses (5p per mile and possibly subsistence) for recording in unworked squares. Will anyone who is willing to record but who would like their expenses paid please contact me.

A.J.E. SMITH.
MAPPING SECRETARY.

PROVISIONAL ATLAS OF BRYOPHYTES

Copies of the Provisional Atlas of Bryophytes of the British Isles, reviewed in J. Bryol. 10(4), p.579-580, are available from me at £3.00 plus 50p postage.

A.J.E. Smith, School of Plant Biology, U.C.N.W. Bangor, Gwynedd, LL57 2UW.

NOMINATIONS FOR TREASURER AND ELECTED MEMBERS

Nominations for Treasurer and three elected members of Council for 1981-82 should be sent to the General Secretary in good time for the Annual General Meeting, 1980. No person may be nominated without their consent. The Treasurership will become vacant at the end of 1980 when our present Treasurer, Dr Derek Foster, resigns after serving us well since 1976. Council's nomination for this office is Mr Michael Pearman. Three of our present Elected Members, Mr Fletcher, Dr Pitkin and Mr Woods retire at the end of 1980 and are not eligible for re-election as members of Council.

All undated records are based on specimens collected in 1979. There is an exceptionally large number of records this year, both of additions and deletions. The large number of additions is due to there having been a meeting in Ireland. The large number of deletions is due to preparations for the new Census Catalogue. With many of the deletions, no authority has been cited. Their origin is as follows: v.-c. 9, notes kept by M.O. Hill; v.-c.'s 15, 16, notes kept by Mrs. A.G. Side; v.-c. 17, notes kept by J.C. Gardiner; v.-c. 20, notes kept by G. Bloom; v.-c.'s 22, 23, notes kept by Dr. E.W. Jones; v.-c. 29, notes kept by Dr. H.L.K. Whitehouse; v.-c.'s 47-52, notes kept by M.O. Hill; v.-c. 63, notes kept by T.L. Blockeel; v.-c. 104, see Birks & Birks, J. Bryol. 8 (2), 252, 1974.

HEPATICAE

M.F.V. Corley

The names and numbers follow Paton, Census Catalogue of British Hepatics, ed.4 (1965).

- 1/1. Anthoceros punctatus, place 48 in ().
- 1/2. A. husnotii, marshy field beside L. Burke, W. of Ennis (H.9), Paton.
- 1/3. A. laevis, side of ditch, Petersville Crossroads, N. of Moynalty (H.22), Synnott, 1978.
- 3/1. Targionia hypophylla, crevices of limestone rocks in wooded gorge, Downton Gorge, W. of Ludlow (36), Corley.
- 4/1. Reboulia hemisphaerica, crevice of limestone/chert bluff, Fore (H.23), Synnott.
- 7/1. Preissia quadrata, on marl, sandpit in esker, Longford, between Roscrea and Kinnitty (H.18), Rubers, 1973.
- 8/1. Marchantia polymorpha, add 94, H.34, H.40, transferred from var. aquatica: β var. aquatica, delete entire entry, now treated as a form of var. polymorpha (Warncke, 1968): γ var. alpestris, base-rich flush near Coulin Lodge, S. of Beinn Eighe (105), Paton.
- 10/3. Riccia crozalsii, place 48 in ().
- 10/4. R. warnstorffii, wet track near Killuran R., N.W. slope of Slieve Bernage, N. of Broadford (H.9), Paton.
- 10/5. R. glauca, sandy soil in lane above Porth-y-Parc, Abergavenny (35), Garlick, 1971; banks of R. Mersey, Hale (59), W.G. Travis, 1910; wet track near Killuran R., N.W. slope of Slieve Bernage, N. of Broadford (H.9), Paton & Lockhart; bank of Clare R., Clare Glens, S. of Newport (H.10), Paton.
- 10/6. R. bifurca, place 48, 52 in square brackets, dubious records; delete 59, specimen (LIV) is incorrectly named.
- 10/8. R. sorocarpa, field on N. side of Clare R., 3 km. E. of Clare Glens (H.10), Crundwell.

- 10/10. R. fluitans, delete 52, specimen (NMW) is incorrectly named.
- 10/11. R. rhenana, ornamental pond at Stoke Poges (24), G.K. Berrie (Berrie, 1964) no date; delete 27, specimen (BBSUK) is incorrectly named, comm. Paton.
- 10/12. R. canaliculata, place 48 in ().
- 10/13A. R. cavernosa, on mud in turlough, L. Coole, Gort (H. 15), Lockhart.
- 11/1. Ricciocarpos natans, soil by inflowing stream, N. end of Fin Lough, N.W. of Sixmilebridge (H. 9), Crundwell et al.
- 12/1. Riccardia incurvata, delete 17, specimen is incorrectly named, comm. Gardiner; roadside pit, near Sally Gap, Wicklow Mts. (H. 20), Rubers, 1973.
- 12/2. R. multifida, place 84 in square brackets, dubious record.
- 12/4. R. latifrons, on decaying alder log in carr, Llanerch-y-cawr, Elan Valley, nr Rhayader (42), Woods; rotting logs in alder/birch wood, Blaenocoel Valley, near Garreg Ddu Reservoir, Elan Valley (43), Woods.
- 13/1. Cryptothallus mirabilis, beneath Sphagnum in birch wood, Hirnant, Garreg Ddu, Elan Valley, Rhayader (43), Woods.
- 14/3. Pellia neesiana, Bledington Wood, near Stow-on-the-Wold (33), Appleyard; Salix marsh near top of waterfall, Glenastar, W. of Ardagh (H.8), Paton; wet track near Killuran R., N.W. slope of Slieve Bernage, N. of Broadford (H.9), Paton & Wallace; marsh near stream, S. slope, Keeper Hill (H.10), Paton & Crundwell.
- 15/2. Metzgeria fruticulosa, on elders beside track, Llysdinam, Newbridge-on-Wye (42), Woods; on tree by Roughty R., near Kenmare (H.1), Stern.
- 15/2A. M. temperata, Perrott's Brook, near Cirencester (33), Appleyard; on sallow in swampy woodland, Tycanol, W. of Eglwysrw (45), Corley, 1978; on Salix, Fota Island (H.5), Kirby; beech bole in fringe woodland, by Moate Farm, Moynalty (H.22), Synnott, 1978.
- 15/3. M. conjugata, Clare Glen (H.10), Jones.
- 15/4. M. hamata, place 64 in ().
- 15/5. M. pubescens, place 49 in square brackets, dubious record.
- 16/1. Pallavicinia lyellii, place 52 in square brackets, dubious record; hollow in cutover bog, Sugar Hill, S. of Knockanimpaha (H.8), Paton.
- 17/2. Moerckia flotoviana, place 50 in (); place 82 in (); on marl, sandpit in esker, Longford, between Roscrea and Kinnitty (H.18), Rubers, 1973; add H.20, transferred from M. hibernica, which is not separable from M. flotoviana (Sloover, 1959).
- 18/1. Blasia pusilla, place 23 in square brackets, dubious record.
- 19/1. Petalophyllum ralfsii, place 49 in square brackets, dubious record.
- 20/1. Fossombronina foveolata, place 49 in square brackets, dubious record;

marshy field north of car park, Sheep's Head (H.3), Paton.

- 20/3. F. incurva, on track S. of road, S. of League Point, Sheep's Head Peninsula (H.3), Paton.
- 20/5. F. caespitiformis, place 48, 52 in square brackets, dubious records.
- 20/7. F. husnotii, place 7 in square brackets, dubious record; flat earthy rock near Inagh R., W. of L. Burke, W. of Ennis (H.9), Paton & Crundwell.
- 20/9. F. wondraczekii, marshy woodland beside Glengariff R., (H.3), Paton; wet track near Killuran R., N.W. slope of Slieve Bernage, N. of Broadford (H.9), Paton; marshy field above Clare Glens, S. of Newport (H.10), Paton.
- 22/1. Anthelia julacea, bank of mountain stream, Mtn. W. of Gougane Barra (H.3), Lockhart.
- 25/1. Hygrobiella laxifolia, place 57 in ().
- 27/2. Ptilidium pulcherrimum, young ash tree, woodland on Sydmonton Court Estate, Echinswell (12), Stern.
- 30/1. Bazzania trilobata, place 81 in ().
- 31/1. Lepidozia pinnata, block scree in sessile oakwood, Coed Cnwch, Elan Village, nr Rhayader (42), Woods; place 58, 60 in ().
- 31/3. L. pearsonii, place 57, 59, 60, 63 in (); peaty bank in valley S.W. of Gouganebarra L., Shehy Mts. (H.3), Paton.
- 31/4. L. setacea, place 49 in square brackets, dubious record.
- 31/5. L. trichoclados, peaty bank, S. slope of Keeper Hill (H.10), Paton.
- 31/6. L. sylvatica, steep peaty bank in N. facing deciduous woodland above shore, Badachro, L. Gairloch (105), Paton.
- 33/1. Calypogeia neesiana α var. neesiana, humus on bank in old pine wood, S. of R. Carron, E. of Craig, Glen Carron (105), Paton; peaty bank, S. slope of Keeper Hill (H.10), Paton; dry peat bank by the road through birch-invaded cut-over bog, 1m. due E. of Castlerickard Ho., Longwood (H.22), Synnott, 1978; rotten stump in woodland, peninsula at S.E. end of L. Derravaragh (H.23), Synnott.
- 33/5. C. sphagnicola, on Sphagnum papillosum, Loughs 1m. N.E. of Rosnacaharagh, Muntervary (H.3), Synnott; on Sphagnum, bog W. of Derrymore Ho., N. of Kilkishen (H.9), Synnott.
- 33/7. C. arguta, muddy ride, Great Wood, near Wootton Bassett (7), Appleyard.
- 34/1. Lophozia ventricosa, bank in Fagus forest on Lower Greensand scarp, N.E. part of Longleat Park (8), Rose & Wallace, 1974; sandy bank in oakwood, Longmoor Inclosure, Woolmer Forest, Greatham (12), Rose, 1977; place 23 in (); shady rock face, Ringnanean Wood, near mouth of Stick R. (H.4), Corley, 1966; moorland on south side of Keeper Hill (H.10), Crundwell; bog S. of Teevurcher, N. of Moynalty (H.22), Synnott, 1978; peat on old red sandstone rock, Slieve Bawn, N. of Lanesborough (H.25),

- Rubers, 1972 (U): β var. silvicola, bank by stream, The Black Banks, Mt. Leinster (H.13), Paton, 1975: δ var. confertifolia, place 48 in square brackets, dubious record.
- 34/3. L. porphyroleuca, place 48 in square brackets, dubious record.
- 34/4. L. alpestris, damp sandy places by roadside, Cefn-y-Galchen, Bloreng, Llanfoist (35), Garlick, 1967; top of boulder beside N.E. tributary of Glengarriff R. (H.3), Paton.
- 34/5. L. longidens, birch trunk in wood, Coulin Lodge, S. of Beinn Eighe (105), Paton.
- 34/6. L. excisa, place 63 in (); quarry S.E. of Killarney near Danesfort (H.2), Rubers, 1973; sand dune bank, Mornington (H.22), Synnott, 1978.
- 34/6A. L. perssonii, on chalk ridge under Salix atrocinerea, Warren Farm chalk pit, South Stifford (18), Whitehouse.
- 34/7. L. obtusa, place 48 in ().
- 34/9. L. incisa, place 52 in square brackets, dubious record; place 63 in ().
- 34/11. L. bicrenata, soil bank, Keeper Hill (H.10), Lockhart.
- 35/1. Leiocolea turbinata, old red sandstone rock ledge, Clare Glens, near Newport (H.10), Crundwell.
- 35/2. L. badensis, wet calcareous loam, sandpit in esker, Longford, between Roscrea and Kinnitty (H.18), Rubers, 1973.
- 36/3. Barbilophozia attenuata, place 23 in ().
- 36/6. B. hatcheri, place 48, 49 in ().
- 36/8. B. barbata, place 52 in square brackets, dubious record; place 63 in ().
- 37/1. Tritomaria quinquedentata, place 51, 63 in ().
- 37/2. T. exsecta, place 49 in (); rock in wood, Glengarriff (H.3) Crundwell.
- 37/3. T. exsectiformis, place 63 in ().
- 39/2. Sphenolobus minutus, place 51 in square brackets, dubious record.
- 43/1. Anastrepta orcadensis, among Herberta on bank in corrie above Gougane-barra L. (H.3), Crundwell.
- 45/1. Jungermannia lanceolata, shaded base-rich flush, near Coulin Lodge, S. of Beinn Eighe (105), Paton - new to Scotland.
- 46/1. Solenostoma triste, rock at foot of waterfall, Glenastar, W. of Ardagh (H.8), Paton; crevices of limestone boulder, shore of L. Sheelin, Ross (H.22), Synnott, 1978; add H37, transferred from S. sphaerocarpoidea, not now considered distinct from S. triste (Váná, 1973).
- 46/4. S. pumilum rock on S. side of Clare R., Clare Glens, S. of Newport (H.8), Paton; silt-covered rocks on N. bank, Clare R., Clare Glens, S. of Newport (H.10), Paton.

- 46/8. S. crenulatum, pathside near top of waterfall, Glenastar, W. of Ardagh (H.8), Paton.
- 47/2. Plectocolea subelliptica, moist soil at top of gully, Stob Garbh, Balquidder (87), Corley.
- 47/3. P. hyalina, edge of field above waterfall, Glenastar, W. of Ardagh (H.8), Paton; by spring in farmyard, E. of Toor, Keeper Hill (H.10), Jones; cattle-trampled site on transition zone dune-bog, L. Doo, E. of Doogort, Achill Island (H.27), Rubers, 1972.
- 47/4. P. paroica, detritus-covered boulders in stream, Owenashad R., at quarry N. of Lismore (H.6), Rubers, 1972.
- 48/1. Nardia compressa, rocks in stream, S. slope of Keeper Hill (H.10), Paton.
- 48/2. N. scalaris, quarry, Teevurcher, N. of Moynalty (H.22), Synnott, 1978.
- 48/3. N. geoscyphus, damp shady places by roadside, Cefn-y-Galchen, Bloreng, Llanfoist (35), Garlick, 1967.
- 49/1. Jamesoniella autumnalis, place 34, 37, 91 in ().
- 49/2. J. undulifolia, place 77 in square brackets, dubious record; delete 90, specimen is incorrectly named.
- 50/1. Southbya nigrella, thinly friable surface of calcareous rock in shade of tree, St. Catherine's Point, Isle of Wight (10), Townsend.
- 52/7. Marsupella ustulata, on wet siliceous rock face, Boughill (H.1), Rubers, 1973.
- 52/9. M. funckii, place 7 in ().
- 52/11. M. emarginata, damp rock in gully on south side of Keeper Hill (H.10), Crundwell.
- 52/13. M. sphacelata, wet rock in stream, S. slope of Keeper Hill (H.10), van Melick.
- 53/3. Gymnomitrium corallioides, place 49 in ().
- 53/4. G. crenulatum, place 52 in square brackets, dubious record.
- 54/1. Mylia taylorii, place 84 in (); wet heath near summit of Keeper Hill (H.10), van Melick.
- 54/2. Mylia anomala, amongst Sphagnum papillosum in streamside bog, Rhiwnant Valley, near Rhayader (42), Woods.
- 55/1. Pedinophyllum interruptum, delete H.20, H.38, specimens (DBN) are not this species; place H.27 in square brackets, dubious record.
- 56/2. Plagiochila asplenioides β var. major, woodland beside Glengarriff R. (H.3), Paton; limestone quarry, S. of Crazy Corner, N.E. of Mullingar (H.23), Synnott.
- 56/2A. P. britannica Paton, new species, recorded from 44, 52, 65, 67, 78, 89, 95, 96, H.37 (Paton, 1979); on limestone, The Slaughter, Symonds Yat,

- near Monmouth (34), Paton, 1965; flat rock beside waterfall, Glenastar, W. of Ardagh (H.8), Paton; limestone pavement, N. slope of Cappanawalla, Ballyvaughan (H.9), Paton, 1968.
- 56/3. P. spinulosa, delete 14, specimens (BM) are not this species; place 63 in (); delete 92, specimen (E) is not this species.
- 56/3A. P. killarniensis, cliffs E. of Clovelly (4), E.F. Warburg, 1957 (OXF); place 11 in (); shady rocks, Ardingley (14), G. Davies, 1866 (BM), place in (); near Laxey (71), H. Beesley, 1904 (GL); Glenlee Glen, New Galloway (73), J. McAndrew, 1893 (E); fallen birch trunk, Ness Glen (75), H. Milne-Redhead et. al., 1953, (GL); boulder in birchwood above shore, Boor, Poolewe (105), Paton; limestone bluff, Fore (H23), Synnott.
- 56/4. P. atlantica, boulders in N. facing oak-birch woodland, Coed y Rhygen, near Trawsfynydd (48), Birks - new to Wales; boulders on N. facing wooded slope, south side of Loch na Beiste, near Kyleakin, Isle of Skye (104), Birks.
- 56/5. P. punctata, by waterfall, Keeper Hill (H.10), Stern.
- 56/6. P. tridenticulata, place 64 in (); face of boulder in shaded gully, Bracken Gill waterfalls, Dentedale (65); place 75 in ().
- 58/1. Chiloscyphus polyanthos, submerged on sandstone block in stream, Slieve Bloom Mts. (H.18), Rubers 1973; submerged, R. Liffey at Ballymore Eustace (H19), Rubers, 1973.
- 58/2. C. pallescens, Salix marsh beside L. Burke, W. of Ennis, (H.9), Paton.
- 60/1. Geocalyx graveolens, place 105 in ().
- 62/3. Cephalozia subdentata, on Sphagnum, bog W. of Derrymore House, N. of Kilkishen (H.9), Paton & Crundwell.
- 62/5. C. hampeana, dead Molinia tussock, N. slope of Foilastookeen, Shehy Mts. (H.3), Paton; amongst Leucobryum, S. slope of Keeper Hill (H.10), Paton.
- 62/7. C. stellulifera, place 50 in ().
- 62/8. C. massalongoi, place 49 in (); place 50 in square brackets, dubious record.
- 62/9. C. starkei, gravelly quarry, N. side of Sugar Hill, S. of Knockanimpaha (H.8), Paton; peat S. slope of Keeper Hill (H.10), Paton.
- 62/11. C. turneri, place 48 in ().
- 63/2. Cephalozia bicuspidata β var. lammersiana, place 50 in square brackets, dubious record.
- 63/4. C. loitlesbergeri, place 48 in (); bog, N. of Tollie Bay, N.W. end of L. Maree (105), Paton.
- 63/7. C. media, rotting stump in wood S. of Clare R., Clare Glens, S. of Newport (H.8), Paton; on Sphagnum, bog W. of Derrymore House, N. of Kilkishen (H.9), Paton & Crundwell.; rotten log in wood above Clare R., Clare Glens, S. of Newport (H.10), Paton.

- 63/10. C. catenulata, place 84 in square brackets, dubious record.
- 63/11. C. leucantha, place 82, 83 in ().
- 64/1. Cladopodiella francisci, place 48 in ().
- 66/2. Odontoschisma denudatum, decaying log in oakwood, Allt Cynhelyg, near Builth Wells (42), Woods, 1978.
- 66/3. O. elongatum, margin of small loch, Feith an Leothaid, S.W. of Glen Docherty (105), Paton; moist soil on rocky ground above the shore, S. of League Point, Sheep's Head Peninsula (H.3), Paton.
- 69/3. Diplophyllum obtusifolium, sandy soil, old Roman road, Blakeney Hill Woods, Blakeney (34), Garlick, 1973.
- 70/8. Scapania irrigua, wet bank by path, Slievebernagh (H.9), Lockhart; on cut-over bog with Juncus effusus, Clonbrickan Bog, S. of Moate (H.23), Synnott.
- 70/9. S. umbrosa, on decorticate log in shaded valley, Hen Nant, Nant Irfon, Abergwesyn (42), Woods; heathy slope, S. side of Keeper Hill (H.10), Paton.
- 70/10. S. aequiloba, place 85 in (); amongst Anoetangium aestivum, schist rocks, Bulbin Mountain, Inishowen (H34), Paton, 1969.
- 70/11. S. aspera, place 39, 71, 76, 95, H.2 in (); boulders, shore of L. Derg, nr. Gortmore, Ferryglass (H.10), Wallace; sand dunes, Mornington (H.22), Synnott, 1978.
- 70/12. S. gracilis, gritstone boulder, Sutton Clough, Glusburn, near Keighley (63), Blockeel.
- 70/13. S. nemorea pathside near top of waterfall, Glenastar, W. of Ardagh (H.8), Paton.
- 70/17. S. uliginosa, stone in flush, N. slope, Plynlimon Fawr (46), Paton, 1972.
- 70/18. S. paludosa, marsh, N.E. end Llyn Cwmorthin, N.W. of Tanygrisiau (48), Hill, 1978, replacing earlier record (NMW) which is not this species; delete 67, H.40, specimens are not this species, comm. Paton.
- 70/19. S. subalpina, place 63 in square brackets, dubious record.
- 70/22. S. nimbosea, place 49 in ().
- 71/1. Radula complanata, place 63, 84 in ().
- 71/2. R. lindbergiana, rock on hillside between streams, Lackawee, Slieve Miskish Mts. (H.3), Paton; Glenastar ravine, near Ardagh (H.8), Jones.
- 71/5. R. aquilegia, place 88 in ().
- 71/6. R. voluta, place 75 in ().
- 75/1. Lejeunea cavifolia, Salix trunk near S. bank of Clare R., Clare Glens, S. of Newport (H.8), Paton.

- 75/3. L. lamacerina α var. lamacerina, delete 37, locality is in 39, comm. Fisk; Cliffe Wood, Wyre Forest (39), Streeter, 1959: β var. azorica, damp basic rock in gully, Helmside Gill, Dent (65), Blockeel; shaded rock, west side of Adrigole harbour (H.3), Paton; stream bank, wood on S.E. side of Woodcock Hill, Sixmilebridge (H.9), Paton.
- 75/8. L. ulicina, oak in wet woodland, head of Estyn Brook, Llys dinam, New-bridge-on-Wye (42), Woods.
- 78/1. Cololejeunea calcarea, vertical old red sandstone face, Clare Glens, N. side, (H.10), Crundwell.
- 78/3. C. minutissima, place 65 in square brackets, dubious record; place 70 in ().
- 79/1. Aphanolejeunea microscopica, shaded boulders in gully, Bracken Gill waterfalls, Dentdale (65), Blockeel; place 88 in ().
- 80/1. Colura calyptrifolia, on ash tree, Glenastar ravine, near Ardagh (H.8), Jones.
- 81/1. Jubula hutchinsiae, wet rockface in river gorge, Pontneddfechan (42), Woods.
- 82/2. Frullania germana, place 52 in (); rocks E. of Carnbane West, Oldcastle (H.22), Synnott, 1978.
- 82/5. F. dilatata, place 63 in (); place 84 in ().

MUSCI

M. O. HILL

The names and numbers follow Warburg, Census Catalogue of British Mosses ed.3 (1963).

- 1/5. Sphagnum compactum, place 63 in ().
- 1/7. S. teres, slightly flushed boggy ground, Gleann Domhainn, Kilmelfort (98), Corley, 1978; cut-over bog between L. Bane and Dromone, Oldcastle (H.22), Synnott, 1978.
- 1/12. S. recurvum var. mucronatum, Wicken Fen (29), Birks, 1975, comm. Whitehouse; moorland on S. side of Keeper Hill (H.10), Crundwell: β var. amblyphyllum, base-rich fen, Docker Bog (60), Wigginton, 1978; boggy ground, Skell Gill, nr Grantley, E. of Ripon (64), Blockeel: γ var. tenue, flush in corrie, alt. 300 m. Gouganebarra Lake (H.3), Crundwell - new to Ireland.
- 1/17. S. contortum, cut-over bog between L. Bane and Dromone, Oldcastle (H.22), Synnott, 1978.
- 1/18. S. subsecundum β var. inundatum, fen, 3 km N. of Oldcastle (H.22), Synnott, 1978: γ var. auriculatum, water-filled depression in woodland, Saverlake Forest (7), Appleyard; place 23 in ().
- 1/19. S. fimbriatum, wet ground in birch carr, Moine Mhor, Kilmartin (98), Corley, 1978.

- 1/21. S. robustum, place 17 in (); in wet flush on mountain slope, Keeper Hill (H.10), Lockhart.
- 1/22. S. fuscum, Flanders Moss (86), Bignal.
- 1/25. S. capillaceum, two patches, recently developed, Lodge Road Bog, Epping Forest (19), Adams.
- 1/26. S. quinquefarium, place 9 in square brackets, dubious record.
- 2/1. Andreaea alpina, place 50 in square brackets, no specimen traced.
- 2/2. A. rupestris δ var. alpestris, andesite rock face, Pass of Melfort (98), Kenneth, 1971.
- 2/3. A. rothii, place 63 in (); on acidic boulders, Keeper Hill (H.10), Lockhart: δ var. crassinervia, near Tongue (108), D. Lillie, 1912 (GL): ϵ var. huntii, Ballancary, 100 m. alt. (71), G.A. Holt, 1884 (MANCH); slopes of Crois above Glen Loin (98), J.R. Lee, 1922 (GL).
- 3/1. Atrichum crispum, on gravel beside stream, Rhiwnant Valley, nr Rhayader (42), Woods.
- 3/2. A. undulatum β var. minus, place 20 in (); place 48 in square brackets, not traced: γ var. haussknechtii, place all records in () (Smith, 1978); place 20 in square brackets, not traced.
- 3/3. A. angustatum, place 17 in ().
- 3/4. A. tenellum, marshy soil beside track, N.E. end of Glen Lough, Adrigole (H.3), Paton - new to Ireland.
- 5/1. Polytrichum nanum, place 29, 50, 51 in ().
- 5/2. P. aloides β var. minimum, place 22, 23 in (); place 48, 49, 50 in square brackets, not traced.
- 5/3. P. urnigerum, steep sandy bank in open woodland, Mardley Heath (20), Bloom.
- 5/4. P. alpinum, place 52 in square brackets, dubious record; place 63 in ().
- 5/7. P. juniperinum, bank in wood, N. side of Clare Glens, nr Newport (H.10), Crundwell.
- 5/8. P. alpestre, place 9 in square brackets, not traced; place 15 in square brackets (cf. Trans, BBS (1952), p.51), comm. Side; place 17 in (); place 63 in ().
- 5/9. P. aurantiacum, delete 47, specimen (BBSUK) is incorrectly named; place 48 in square brackets, dubious record.
- 5/11. P. commune, Wicken Fen (29), J.M. Lock, 1963, comm. Whitehouse: β var. perigoniale, place 17 in (); place 48 in square brackets, dubious record; Widdup (63 in ()), W. Sutcliffe, 1860 (Bankfield Museum, Halifax): γ var. humile, place 17 in (); place 48 in square brackets, dubious record.
- 7/1. Diphyscium foliosum, place 63 in ().

- 8/1. Fissidens viridulus, sandstone beside Clare River, Clare Glens, S. of Newport (H.10), Paton.
- 8/3. F. minutulus β var. tenuifolius, on rock in stream, Torc Waterfall (H.2), Bloom.
- 8/5. F. incurvus, among grass on banks of Belvide Reservoir nr Breewood (39), J. Ashton; place 48 in square brackets, dubious record.
- 8/7. F. crassipes, on concrete by lake in grounds of Curragh Chase (H.8), Bloom; submerged on rock, Lough Derg, nr Terryglass (H.10), Bloom; rock at high water mark R. Boyne, $\frac{1}{2}$ mile below Obelisk Bridge (H.31), Synnott, 1978.
- 8/9. F. curnowii, place 9 in square brackets, dubious record; under overhang of rocks by Cheesden Brook, Ashworth Valley, nr Rochdale (59), Hill; wet soil bank, Glengariff Wood (H.3), Lockhart.
- 8/12* F. celticus, damp clay bank, Laurach (H.1), Synnott, 1978; woodland bank, ravine of R. Daar, below Carrigkerry (H.8), Paton & Crundwell; bank in wood below conifer plantation, S. slope of Keeper Hill (H.10), Paton.
- 8/13. F. exiguus, sandstone beside Clare River, Clare Glens, S. of Newport (H.10), Paton - new to Ireland.
- 8/15. F. taxifolius β ssp. pallidicaulis, dripping Lias rock in stream-bed nr Thorncombe (9), Hill, 1966; vertical rock face in oakwoods beside A. Cothi, Abergorlech (44), Jones, 1945; wet clay beneath overhang, nr Trefriw (49), Jones, 1978; sheltered crevice by Burn of Sevdale nr Bigton, South Mainland (112), Hill, 1974; on rocks by stream, Kylemore (H.16), Appleyard, 1957 - all conf. Corley or Wallace.
- 9/1. Octodieras fontanum, place 21, 33, 34, 37, 40, 58, 59 in (), comm. Smith.
- 10/1. Archidium alternifolium, place 63 in (); edge of field above waterfall, Glenastar, W. of Ardagh (H.8), Paton; thin soil on flat rocks nr Inagh River, W. of L. Burke, W. of Ennis (H.9), Paton & Crundwell.
- 11/1. Pleuridium acuminatum, clay bank of track, Knock, Sleat Peninsula, Skye (104), Corley, 1978; bank in field, W. side of Slievebernagh (H.9), Crundwell.
- 11/2. P. subulatum, grassy slope below Rassal Wood, Kishorn (105), Paton; track on N. slope of Knocksise, W. of Broadford (H.9), Paton.
- 12/1. Ditrichum cylindricum, muddy banks of R. Medina above The Wilderness, Rookley (10), Townsend; top of garden wall, house by Glenbeg Lake (H.3), Bloom; bank in field, E. of Ballygarvan, S. of Cork (H.4), Paton; bank in field above road, E. side of Sugar Hill, S. of Knockanimpha (H.8), Paton.
- 12/2. D. pusillum, sandy ground in large gravel pit, west side of Rewell Wood, Arundel (13), Stein & Wallace, 1976.
- 12/4*. D. plumbicola, lead-mine waste, Tyndrum (88), J. Proctor, comm. Chamberlain - new to Scotland.
- 12/5. D. zonatum, crumbling rocks in N.-facing corrie, Polmood Craig, Broad Law, Tweedsmuir (78), Long, 1978; exposed rock face, W. side of Coire

- Creagach, Sgairneach Mhor, Atholl Forest (89), Long, 1978: *β* var. scab-rifolium, among rocks above Stickle Tarn, Langdale (69), Appleyard, 1965; Coire Uaigneich, Bla Bheinn, Skye (104), Corley, 1978.
- 12/7. *D. flexicaule*, place 63 in ().
- 13/1. *Distichium capillaceum*, place 17 in (); place 52 in square brackets, not traced.
- 13/2. *D. inclinatum*, steep calcareous bank adjacent to old dune-ridge, opposite power station, Heysham (60), Wigginton.
- 15/1. *Ceratodon purpureus* *β* var. *conicus*, place 48 in square brackets, no specimen traced; place 63 in ().
- 16/1. *Brachydontium trichodes*, place 48 in ().
- 17/2. *Seligeria pusilla*, on oolite stones, Out Wood, nr Castle Combe (7), Appleyard; place 22 in square brackets, record based on sterile material.
- 17/3. *S. acutifolia*, block of oolite, old quarry between Stow and Winchcombe (33), Appleyard; limestone pebble in pasture above West Wood, Ozleworth (34), Garlick, 1959, comm. Appleyard.
- 17/5. *S. paucifolia*, on detached lumps of chalk, Grimes Graves, Weeting (28), R.P. Libbey & E.L. Swann.
- 17/7. *S. recurvata*, on damp stonework by stream, Meldon Burn, below White Meldon, N. of Peebles (78), Long, 1978.
- 21/1. *Pseudephemerum nitidum*, meadow by Clare River, ca 140 m. alt. (H.10). Jones.
- 22/2. *Dicranella schreberana*, field beside Clare River, S. of Derrygareen, E. of Newport (H.10), Paton.
- 22/4A. *D. staphylina*, stubblefield nr. Cirencester (7), Appleyard; path nr old quarry, nr Stow-on-the-Wold (33), Appleyard; hotel garden, Nethy Bridge (95), Whitehouse; soil in arboretum, Fota Island (H.5), Kirby; potato field, Beagh Castle, Askeaton (H.8), Jones; waste ground, W. side of Slievebernagh (H.9), Crundwell; wheat stubble, 1 km W. of Julianstown (H.22), Synnott, 1978.
- 22/5. *D. rufescens*, waste ground by R. Inagh, 11 km W. of Ennis (H.9), Paton & Crundwell.
- 22/6. *D. crispa*, place 17, 48, 63 in ().
- 22/8. *D. cerviculata*, place 47 in square brackets, not traced; place 49, 52 in ().
- 23/1. *Rhabdoweisia fugax*, place 47 in square brackets, not traced; place 63 in ().
- 23/2. *R. denticulata*, delete 63, Todmorden records are all from Greene's Clough, which is in v.-c.59.
- 23/3. *R. crenulata*, on wet rocks of cliff face, Llanerch-y-Cawr, Elan Valley, Rhayader (42), Woods; place 47 in square brackets, not traced.
- 24/1. *Cynodontium bruntonii*, place 63 in ().

- 24/4. C. jenneri, place 104 in square brackets.
- 27/1. Dicranoweisia cirrata, W.-facing Silurian rock, E. of Carnbane, Oldcastle (H.22), Synnott, 1978.
- 27/2. D. crispula, place 47, 48 in square brackets, dubious records.
- 28/1. Arctoa fulvella, place 48 in ().
- 29/2. Dicranum blyttii, place 48 in ().
- 29/3. D. starkei, place 49 in square brackets, dubious records.
- 29/5. D. montanum, old Betula, N.E. side of Threepwood Moss (80), Corner; on Quercus in woodland, Methven Woods, nr Almondbank (88), Long, 1978.
- 29/6. D. flagellare, place 39, 88 in (), comm. Smith; place H.2 in square brackets, dubious literature record, comm. Corley.
- 29/7. D. strictum, base of tree, Wolverton Wood, Wenlock Edge (40), Stern.
- 29/8. D. scottianum, gritstone outstone outcrop, S. side of Cooms Fell, New-castleton (80), Corner, 1977.
- 29/9. D. elongatum, place all except 92 in (), comm. Corley.
- 29/10. D. fuscescens, place 52 in square brackets, not traced; β var. congestum, place 48 in square brackets, not traced.
- 29/16. D. spurium, place 3, 54, 61, 68, 69, 72, 85, 91 in (), comm. Smith.
- 30/3. Dicranodontium denudatum, place 9 in square brackets, dubious record.
- 31/1. Campylopus subulatus, place 5 in square brackets, no specimen traced, comm. Appleyard; on fine gravel between larger stones on edge of R. Tees, nr confluence with Langley Beck (66), Corley; layby, Allt Mhalagain, Glenshiel (105), Corley, 1978.
- 31/2. C. schimperi, large tufts on steep, N.-facing grassy slope, 330 m alt., Coire Uaigneich, Bla Bheinn, Skye (104), Corley, 1978.
- 31/5. C. pyriformis β var. azoricus, Shapwick Heath (6), Appleyard, 1966; stump in woodland, nr Ansty (8), Appleyard, 1978; rotting stumps and fern stools, alder fen carr, The Wilderness, Rookley (10), Townsend; boggy ground, Seckar Wood, Newmillerdam (63), Blockeel - all conf. Corley.
- 31/8. C. setifolius, place H.20, H.38 in (), comm. Smith.
- 31/11. C. introflexus, old stump in cleared woodland, Great Wood, nr Wootton Bassett (7), Appleyard; bare peat, Comin-y-Garth, nr Llanafan-fawr (42), Woods.
- 31/12. C. brevipilus, place 48 in ().
- 34/2. Encalypta vulgaris, clay soil on wall-top, Mount Nugent Road, 1 km N. of Oldcastle (H.22), Synnott, 1978.
- 34/4. E. rhabdocarpa, place 49 in (); delete 50, specimen (NMW) is incorrectly named.

- 35/2. Tortula ruraliformis, on grey dune, just N. of Crabnowe Spit, Harwich (19), Adams, 1977; on concrete beside drive to Marden Hill Farm, nr Tewin (20), Bloom; on Carboniferous Limestone rocks, N.E. end of Craig y Rhiw, nr Rhydygroesau (40), Benoit; asbestos roof of old stable, Balloch Park (99), Bignal, 1977.
- 35/5. T. princeps, place 47 in square brackets, dubious record.
- 35/6. T. laevipila, place 63 in (): β var. laevipiliformis, base of willow, Teston, nr R. Medway (16), Side; ash trunk by R. Nanny, E. of Cooper Hill Bridge, Julianstown (H.22), Synnott, 1978.
- 35/7. T. virescens, silt on bole of willow by R. Thames, Oxford (23), Wigginton.
- 35/8. T. papillosa, on old poplar at the harbour, Terryglass, Lough Derg (H.10), Jones et al.
- 35/10. T. subulata β var. angustata, place 20 in ().
- 35/13. T. marginata, place 51 in square brackets, dubious record; stonework of old mill by R. Derwent nr Howsham Hall (61), Blockeel.
- 35/14. T. stanfordensis, footpath in field under scattered trees, nr mouth of Quair Water, Traquair, Innerleithen (78), Long, 1978.
- 35/15. T. vahliana, place 17 in ().
- 35/16. T. cuneifolia, place 17, 52 in ().
- 36/1. Aloina brevirostris, place 57 in ().
- 38/1. Pterygoneurum ovatum, place 47 in square brackets, not traced; wall in lane before Cefn (50 in ()), J.E. Bowman, ca 1830 (OXF); place 52 in ().
- 40/2. Pottia caespitosa, place 17 in ().
- 40/3. P. heimi, Abergale (50 in ()), W. Wilson, 1830 (BM); place 63 in ().
- 40/4. P. intermedia, delete 48, specimen (BBSUK) is incorrectly named.
- 40/7. P. wilsonii, place 49, 50, 52 in (); place 85 in square brackets (Chamberlain in Smith, 1978).
- 40/9. P. davalliana (= P. starkeana ssp. conica), on soil in arboretum, Fota Island (H.5), Kirby, 1978; delete H.22 (Chamberlain in Hill, 1980).
- 40/11. P. starkeana, place 19, 20, 25, 26, 36, 57, 60-64, 85 in square brackets (Chamberlain in Hill, 1980): β var. brachyodus, 1, 2, (3), 4, 9, 10, (14,16), 17, (19), 41, 45, (52), 67, (90), (H.5), (H.21), C. (Chamberlain in Hill, 1980): γ ssp. minutula, 6, 8, (9), 10, 11, (13,17), 22, 23, (28), 29, 33, 38, 57, (58, 62-64), 67, (H.15, H.21), H.22, (H.40), (Chamberlain in Hill, 1980).
- 40/12. P. bryoides, side of track, Savernake Forest (7), Appleyard; bank, Colwyn (50 in ()), W. Wilson, 1863 (BM).
- 40/13. P. recta, old stone pit, Wenlock Edge (40), Jones; roadside by sea, Beagh Castle nr Askeaton (H.8), Bloom.

- 41/1. Phascum curvicollum, place 50 in ().
- 41/2. P. cuspidatum, hedgebank, lane S. of Rosroe Lough E. of Newmarket of Fergus (H.9), Paton: γ var. maximum, place 17 in (); arable field nr Kimpton Bottom (20), Bloom, 1978.
- 41/3. P. floerkeanum, place 49 in (); place 50 in square brackets, not traced; place 63 in ().
- 42/1. Acaulon muticum, soil by track, Savernake Forest (7), Appleyard; place 48, 50, 63 in ().
- 43/3. Cinclidotus mucronatus, place 49, 52 in ().
- 44/1. Barbula convoluta β var. commutata, ledge on wall at Hollybush (37), Fisk.
- 44/8. B. reflexa, delete 9, specimen (OXF) is incorrectly named; place 49 in square brackets, dubious record; place 63 in (); foot of roadside bank, E. of Roachtown Mill, Crossakeel (H.22), Synnott, 1978.
- 44/9. B. spadicea, place 9 in square brackets, not traced; place 48, 49, 51 in square brackets, dubious records; place 52 in ().
- 44/10. B. glauca, delete 11 (Crundwell & Whitehouse, J. Bryol., 10, 7, 1978); place 13, 65 in (), comm. Whitehouse.
- 44/19. B. ferruginascens, place 51 in square brackets, not traced; bare ground by waste tip, Silvermines (H.10), Stern.
- 44A/1. Trichostomopsis umbrosa, damp old railway bridge between Shanklin and Wroxall (10), Townsend; on concrete nr Lakes, Battersea Park (17), Milnes-Smith & Gardiner.
- 45/1. Gymnostomum aeruginosum, wet, lime-encrusted stones, shore of L. Sheelin, Ross (H.22), Synnott, 1978.
- 45/2. G. recurvirostrum, place 9, 48, 52 in square brackets, not traced.
- 45/3. G. calcareum, on oolite boulder, Dodleaze Wood, nr Bath (8), Appleyard, 1978; mortar of wall, ruined abbey, Askeaton (H.8), Jones & Bloom.
- 46/1. Gyroweisia tenuis, place 48 in square brackets, dubious record; place 49 in (); old mortar, crevices of wall in refectory undercroft, Askeaton Friary (H.8), Jones et al.
- 47/1. Eucladium verticillatum, old mortar, crevices of wall in refectory undercroft, Askeaton Friary (H.8), Jones & Bloom; shaded rock above Clare River, Clare Glens, S. of Newport (H.10), Paton.
- 48/1. Anoetangium aestivum, place 52 in square brackets, provenance of specimen dubious; rock by Fin Lough nr Newmarket on Fergus (H.9), Wallace.
- 49/3. Tortella nitida, limestone wall, Clare Hill, Moate (H.23), Synnott.
- 49/8. T. inflexa, oolitic limestone pebble in cornfield, Widdin Hill, Horton (34), Garlick, 1967, comm. Appleyard.
- 50/1. Pleurochaete squarrosa, sand dunes, Mornington (H.22), Synnott, 1978.

- 51/3. Trichostomum sinuosum, on wall at roadside, 6 km S.W. of Ennis (H.9), Crundwell & Paton.
- 51/5. T. brachydontium, rocks on river-bank, N. side of Clare Glens, nr Newport (H.10), Crundwell; limestone bluff, L. Bane, S. of Oldcastle (H.23), Synnott, 1978.
- 52/4. Weissia rutilans, place 20 in ().
- 52/6. W. microstoma β var. brachycarpa, place 17, 20, 48 in square brackets, not traced; muddy field, Cockersdale, nr Tong (63), Blockeel.
- 52/7. W. squarrosa, place 9 in square brackets, not traced.
- 52/9. W. mittenii, place 17 in () (Smith, 1978).
- 52/11. W. crispa, place 50 in square brackets, not traced.
- 53/1. Leptodontium flexifolium, place 9 in square brackets, not traced; soil on rocks by shore, Adrigole (H.3), Wallace; Clare Glens (H.10), Bloom.
- 53/2. L. gemmascens, place 5 in (), comm. Appleyard.
- 53/3. L. recurvifolium, place 49 in (); mildly base-rich turfy slope near stream, Lackawee, Slieve Miskish Mts (H.3), Paton.
- 55/4. Grimmia stricta, place 47, 50 in square brackets, not traced.
- 55/5. G. trichodon, place 49 in ().
- 55/10. G. commutata, place 48 in square brackets, dubious record.
- 55/11. G. laevigata, place 7, 14, 22, 43, 48, 52, 55, 82, 83, 85, 87, 88, 89, 99, H.3, H.39, in (), comm. Smith.
- 55/13. G. doniana β var. arenaria, place 50 in ().
- 55/15. G. montana, place 48, 49, 65, 73 in (), comm. Smith.
- 55/16. G. ovalis (= G. affinis), place 3, 4, 39, 48, 68, 69, 83, 85, 89, 91, 92, 93, 97, 108, H.4, H.38, H.39 in (); place 64, H.21 in square brackets, dubious literature records, comm. Smith.
- 55/17. G. elongata, place 92 in (), comm. Smith.
- 55/21. G. orbicularis, place 3, 9, 37, 40, 43, 48, 60, 82, 83, 85, 88, 89, H.21, H.38 in (), comm. Smith.
- 55/22. G. funalis, place 65 in (), comm. Smith.
- 55/30. G. decipiens, place 47 in (); β var. robusta, place 48 in (); on rocks by the sea, Adrigole (H.3), Wallace.
- 56/3. Rhacomitrium aquaticum, place 51 in square brackets, dubious record.
- 56/4. R. fasciculare, on clay tiles of shed, Glebe House, Old Knebworth (20), Bloom.
- 56/7. R. canescens α var. canescens, on sand dunes, golf course nr Donabate

- (H.21), Wallace: β var. ericoides, Verwood (9 in ()), H.H. Wood, 1880, (OXF).
- 56/8. R. lanuginosum, heath on S. slope of Keeper Hill (H.10), Paton.
- 58/3. Funaria attenuata, place 63 in (); wet rocky bank by road, E. side of Sugar Hill, nr Newcastle West (H.8), Jones.
- 59/3. Physcomitrium sphaericum, place 17 in ().
- 62/1. Ephemerum recurvifolium, roadside bank nr Doddenham (37), Fisk.
- 62/5. E. intermedium, place 13 in () (Smith, 1978).
- 62/6. E. serratum α var. serratum, on muddy clay in old meadow, Spitalbrook valley (20), T.D.V. Swinscow, 1957; damp soil in flush, N.-facing sloping moorland nr Sheep's Head (H.3), Crundwell et al.: β var. minutissimum, edge of marshy ground, E. of Ballygarvan (H.4), Paton; hayfield, Caraguban, Duleek (H.22), Synnott, 1978.
- 64/1. Tayloria lingulata place 86, 98 in () (distr. map, J. Bryol. 9 (1), 120, 1976).
- 65/11. Tetraplodon angustatus, place 49 in (); place 61 in square brackets, dubious record in CCI, inexplicably upgraded in CC2.
- 67/1. Splachnum sphaericum, on sheep dung in blanket bog, Mynydd Llyn Coch Hwyad, nr Llanbrynmair (47), Woods.
- 67/2. S. ampullaceum, place 47 in square brackets, not traced.
- 71/1. Orthodontium gracile, place 3, 39, 50, 51, 58, 68, 75, 77, 86 in () (distr. map, J. Bryol. 9 (3), 401, 1977).
- 71/2. O. lineare, on rotting stump in woodland, Fota Island (H.5), Kirby, 1978.
- 73/3. Pohlia elongata, Ratten Clough (59 in ()), W. Sutcliffe, 1857 (Bank-field Museum, Halifax); rocky stream gully, above Glenbeg Lough, Ard-groom (H.3), Stern.
- 73/4. P. cruda, delete 52, erroneous record.
- 73/7. P. drummondii, place 47, 50 in square brackets, not traced.
- 73/8. P. gracilis, lay-by, Glenshiel (105), Corley, 1978.
- 73/10. P. bulbifera, bank of streamlet, Loch nan Dubhrachan, Sleat Peninsula, Skye (104), Corley, 1978; marshy soil beside track, N.E. end of Glen Lough, Adrigole (H.3), Paton.
- 73/11. P. annotina, gravelly soil in roadside quarry, Sugar Hill, S. of Knockanimpaha (H.8), Paton; side of ditch, west side of Slievebernagh (H.9), Crundwell.
- 73/12A. P. camptotrachela, damp soil at edge of marshy meadow nr Halton (60), Wigginton, 1978; ruts in farmyard, Milton of Drimmie, N. of Blairgowrie (89), Chamberlain & Long, 1978; field beside Clare River, S. of Derrygareen, E. of Newport (H.10), Paton.

- 73/12B. P. muyldermansii, damp soil at edge of marshy pasture nr Halton (60), Wigginton, 1978; soil in pasture, Sutton Clough, Glusburn, nr Keighley (63), Blockeel; lay-by, Tarskavaig Bay, Sleat Peninsula, Skye (104), Mrs. M.E. Vickers, 1978; anthill in pasture, N. bank of Kinlochewe River (105), Paton.
- 73/13. P. ludwigii, place 48 in ().
- 73/13*. P. pulchella, damp track in woodland, nr Wardour Castle (8), Appleyard, conf. Whitehouse; wet woodland ride, Pine Wood, Littlebourne (15), Side; damp acidic soil by small stream, Greenwood Lee, Hebden Valley (63), Blockeel, 1978; ditchbank on clay soil, Sulby (71), Wigginton; top of garden wall, house by Glenbeg Lake (H.3), Bloom; nr road by stream, E. of Knockanimpaha (H.8), Bloom - new to Ireland.
- 73/13B. P. lutescens, soil on upturned tree stump, Cobham Frith Wood, Saver-nake Forest (7), Corley; damp track in woodland W. of Ansty (8), Appleyard, 1978; bank of ditch, Little Warley Common nr Brentwood (18), Corely; clayey bank beside path, Leinthall Common (36), M. Crundall; bank of R. Esk, East Arnecliff Wood, nr Glaisdale (62), Blockeel, 1978; acidic rather sandy, friable soil, Greenwood Lee, above Hebden Bridge (63), Wigginton, 1978; earthy bank of Cailness Burn, Loch Lomond (86), Crundwell; clay bank by track, Knock, Sleat Peninsula, Skye (104), Corley; stream-bank in field above road, E. side of Sugar Hill, S. of Knockanimpaha (H.8), Paton.
- 74/1. Epipterygium tozeri, bank of R. Inagh, 11 km W. of Ennis (H.9), Crundwell.
- 75/1. Plagiobryum zieri, Hardcastle Crag (63 in ()), J. Needham, 1898, comm. Blockeel.
- 76/1. Anomobryum filiforme, place 47, 63 in square brackets, dubious records.
- 77/1. Bryum marratii, place 60, 70, 75, 85 in () (distr. map, J. Bryol. 7 (3), 450, 1973).
- 77/2. B. warneum, place 58, 60, 66, 75, H.21 in () (distr. map, J. Bryol. 7 (3), 451, 1973).
- 77/3. B. mamillatum, place 28, 59 in (), comm. Smith.
- 77/4. B. pendulum, place 17 in (); sandy roadside nr golf links, Rhyl (51 in ()), T. Barker, 1899 (MANCH).
- 77/7. B. knowltonii, place 4, 9, 25, 26, 52, 58, 59, 60, 66, 68 in (); place 56 in square brackets, not traced (distr. map, J. Bryol. 7 (3), 452, 1973).
- 77/8. B. inclinatum, place 17 in (); delete 51, specimen (MANCH) is incorrectly named; links, Rattray Head (93), E.L. Birse, 1957 (conf. Crundwell - not v.-c. 96 as published in Trans. B.B.S., 1968).
- 77/9. B. salinum, place 5 in (), comm. Appleyard.
- 77/10. B. calophyllum, place 4, 52, 58, 66, 68, 85, 109 in () (distr. map, J. Bryol. 7 (3), 453, 1973).
- 77/12. B. uliginosum, place all except 65, 72, H.25 in () (distr. map J. Bryol. 7 (3), 454, 1973); place 49 in square brackets, dubious record.
- 77/13. B. pallens β var. fallax, place 49 in square brackets, not traced.

- 77/14. B. turbinatum, place all except 104, H.27 in () (distr. map, J. Bryol. 7 (3), 455, 1973).
- 77/18. B. neodamense, on wet lime-encrusted stones, E. shore of L. Sheelin (H.22), Synnott, 1978; E. shore of L. Lene, Fore (H.23), Synnott.
- 77/19. B. pseudotriquetrum β var. bimum, place 47, 48, 49 in square brackets, not traced; Llandegfan Common (52), A.E. Wade, 1949 (NMW).
- 77/21. B. pallescens, in old quarry nr Chipping Norton (38), Appleyard; wall of derelict farm house, W. slope of Slieve Bernagh, in valley of Killuran River (H.9), Jones.
- 77/22. B. intermedium, place 9, 50 in square brackets, not traced; place 17, 48, 49, 52 in ().
- 77/23. B. caespitium β var. imbricatum, among Carboniferous Limestone rocks, Worlebury Hill, Weston-super-Mare (6), Appleyard, 1977; on south-facing dolerite slope, Roundton, nr. Church Stoke (47), Hill, 1975; on shallow soil on south-facing limestone rocks, Esgyryn, nr Llandudno Junction (49), Benoit; sunny south-facing Carboniferous Limestone rocks, Bwrdd Arthur, nr Llanddona (52), Hill, 1977.
- 77/26A. B. gemmiferum, bank of R. Trent, North Muskham, N. of Newark (56), Whitehouse; field nr Longfield's Bridge, W. of Mallow (H.4), Paton; bank of R. Maigue, S. of Croom (H.8), Paton.
- 77/26C. B. dunense, bare ground by small stream nr sea, Degnish Pt., Loch Melfort (98), Corley, 1978.
- 77/27. B. radiculosum, on mortar, wall of Brew House, Traquair Estate, Innerleithen (78), Long, 1978; pocket of soil on limestone rock, N. end of L. Cullaunyheeda, S. of Tulla (H.9), Crundwell.
- 77/27A. B. tenuisetum, among rocks by the sea, coast nr League Pt, S.W. of Bantry (H.3), Crundwell - new to Ireland.
- 77/28. B. micro-erythrocarpum, bare ground nr Splatts Wood, nr Hillesley (34), Appleyard; bare ground by track, Dalavil, Gleann Mheadonach, S. of Tarskavaig, Sleat Peninsula, Skye (104), Corley, 1978.
- 77/29*. B. ruderale, calcareous stubblefield nr Yealand (60), Wigginton, 1978; roadside nr Adrigole (H.3), Bloom; track by L. Brackan, nr Drumconrath (H.22), Synnott, 1978.
- 77/30. B. klinggraeffii, stubblefield nr Inkberrow (37), Fisk; hotel garden, Nethy Bridge (95), Whitehouse; grounds of Golf Links Hotel, Glengariff (H.3), Bloom; field beside Clare River, S. of Derrygareen (H.10), Paton.
- 77/30*. B. violaceum, hotel garden, Nethy Bridge (95), Whitehouse; roadside by sea, Beagh Castle, nr Askeaton (H.8), Bloom; on soil, N. end of Fin Lough, N.W. of Sixmilebridge (H.9), Crundwell.
- 77/31. B. sauteri, damp boulder-clay in soil pocket, grassy bank of dyke, Middleton (60), Wigginton, 1978; bare patch of soil, bank of R. Esk, East Arnecliff Wood, nr Glaisdale (62), Blockeel, 1978; soil of rock ledge, E. side of Hebden Water, N. of Gilson Mill (63), Preston; nr road by stream, E. of Knockanimpaha (H.8), Bloom.

- 77/33. B. gemmiparum, delete 5 (Smith, 1978).
- 77/34. B. alpinum, gravelly quarry, N. side of Sugar Hill, S. of Knockanimpaha (H.8), Paton.
- 77/35. B. mildeanum, place 49, 65, 69, 87, 88, 92 in (), comm. Smith.
- 77/37. B. capillare β var. rufifolium, place 104 in square brackets.
- 77/37A. B. elegans, slate crags, Combe Scar, Dent (65), Miss J. Robertson - record for v.-c. 65 indicated in J. Bryol. (1974) was never published.
- 77/37B. B. stirtonii on basic rocks, 640 m alt., S.E. margin of Loch Brandy, Clova (90), Townsend.
- 77/37C. B. flaccidum, on elder, Abberley Hill (37), Fisk; elm trunk, Flint-ergill, Dent (65), Blockeel.
- 77/37E. B. torquescens, place 23 in ().
- 77/40. B. canariense, place 13, 14, 34, 36 in (), comm. Smith.
- 78/1. Rhodobryum roseum, place 63 in ().
- 79/2. Mnium orthorhynchum, place 60 in (), comm. Smith
- 79/4. M. marginatum, place 51 in square brackets, dubious record; place 52 in ().
- 79/7. M. cuspidatum, place 104 in square brackets; base of ash tree, N. bank of Kinlochewe River (105), Paton.
- 79/10. M. affine, woodland path, Cockersdale, Tong (63), Blockeel; grassy wall by road, E. of Dent, Dentdale (65), Blockeel.
- 79/11. M. rugicum, place 17 in square brackets, not traced; marsh on shore of L. Derg, S. of Terryglass (H.10), Jones.
- 79/12. M. seligeri, about the springs at upper end of Hachem Bottom (17 in ()), Mr. Denyer, ca 1910; place 51 in square brackets, not localised.
- 81/1. Aulacomnium palustre, Wicken Fen (29), J.M. Lock, 1965, comm. Whitehouse: β var. imbricatum, place 49 in square brackets, not traced.
- 84/1. Amblyodon dealbatus, place 49 in square brackets, not traced.
- 85/1. Catoscopium nigrum, place 109 in (), comm. Smith.
- 87/2. Bartramia pomiformis, bare peaty soil beside forest road, Nant-y-Ffrith (51), B. Ing.
- 88/1. Conostomum tetragonum, place 49 in ().
- 89/1. Bartramidula wilsoni, place 48 in ().
- 91/1. Breutelia chrysocoma, place 9 in square brackets, not traced; The Haven, Erringden (63 in ()), R. Leyland, ca 1840 (Bankfield Museum, Halifax), det. & comm. Blockeel.

- 95/1. Glyphomitrium daviesii, place 48, 49 in ().
- 96/1. Amphidium lapponicum, place 48 in square brackets, not traced.
- 96/2. A. mougeotii, place 51 in square brackets, not traced.
- 97/1. Zygodon viridissimum β var. stirtonii, on rock, Clare Glens (H.10), Bloom: γ var. vulgaris, oak trunk, Savernake Forest (7), Corley; damp basalt rocks, 350 m alt., The Storr, Skye (104), Corley, 1978.
- 97/2. Z. conoideus, on oak trunk, Bookham Commons (17), O.B.J. French; on willow, S. side of Clare Glens, nr Newport (H.8), Crundwell.
- 97/4. Z. forsteri, cleft in old beech tree, S. side of path from Bell Ringers Hollow to Goldings Hill Ponds, Epping Forest (18), Adams, 1978.
- 98/1. Orthotrichum rupestre, place 49 in (); place 51 in square brackets, dubious record.
- 98/3. O. cupulatum, limestone boulder beside Fin Lough, N.E. of Newmarket on Fergus (H.9), Paton: β var. nudum, rocks by Lough Sheelin, Ross (H.22), Synnott.
- 98/7. O. striatum, place 17 in (); elder below Helmside Gill, Dentdale (65), Blockeel.
- 98/8. O. lyellii, place 51 in ().
- 98/9. O. rivulare, place 9 in ().
- 98/10. O. sprucei, stones at waters edge beside Esk, Grosmont, Eskdale (62), Blockeel.
- 98/12. O. stramineum, place 17 in (); place 51 in square brackets, dubious record; elm-trunk, Flintergill, Dent (65), Blockeel.
- 98/14. O. tenellum, on Sambucus nr Clonlea Lough, E. of Kilkishen (H.9), Paton.
- 98/15. O. pulchellum, place 17 in (); on elder, Ty Mawr Mill, Llanfihangel Brynpabuan, nr Builth Wells (42), Woods.
- 98/17. O. obtusifolium, place all except 90, 95 in (), (Smith, 1978).
- 99/1. Ulota phyllantha, willow branch, Mor Brook, Morville (40), Corley.
- 99/3. U. crispa, place 63 in ().
- 99/5. U. bruchii, alder carr, The Strings, nr Lyneham (7), Appleyard, 1978; on sallow by Lough Bane, Oldcastle (H.22), Synnott, 1978.
- 99/6. U. drummondii, place 47 in square brackets, not traced; place 63 in ().
- 99/7. U. ludwigii, place 48 in ().
- 100/1. Fontinalis antipyretica β var. gigantea, tributary of R. Wandle, Carshalton Park, Carshalton (17), Milnes-Smith & Gardiner, 1977; place 48 in square brackets, not traced: γ var. gracilis, place 50 in square brackets, not traced.

- 103/1. Cryphaea heteromalla, place 63 in ().
- 103/2. C. lamyana, on Fraxinus in flood zone of Afon Teifi, just W. of Cwmcog, Newcastle Emlyn (44), M.J. Harrison & Preston.
- 104/1. Leucodon sciuroides, bole of Tilia, Pluscarden Priory grounds (95), Richter.
- 106/1. Pterogonium gracile, place 26 in (), comm. Whitehouse; place 51 in square brackets, dubious record.
- 108/1. Leptodon smithii, place 48 in ().
- 110/1. Onalia trichomanoides, place 63 in ().
- 112/1. Daltonia splachnoides, place H.21 in (), comm. Smith.
- 115/1. Myurella julacea, place 49 in ().
- 117/1. Habrodon perpusillus, on old Acer in parkland, Traquair House, Innerleithen (78), Long, 1978.
- 118/1. Leskea polycarpa, on Sambucus by pond, nr Well Pool, Traquair House, Innerleithen (78), Long, 1978.
- 120/1. Pseudoleskea catenulata β var. acuminata, damp basalt rock crevice, 450 m alt., The Storr, Skye (104), Corley, 1978.
- 121/1. Heterocladium heteropterum β var. flaccidum, shaded rock in wood above Clare River, Clare Glens, S. of Newport (H.10), Paton.
- 123/1. Thuidium abietinum, place 49 in ().
- 123/4. T. delicatulum, place 17 in (); mine waste, Silvermines (H.10), Lockhart & Stern, Newbridge Fen (H.19), Crundwell et al.
- 123/5. T. philibertii, place 63 in (); place 104 in square brackets; foot of spoil-heap, Silvermines Mt (H.10), Wallace; top of lock wall, Royal Canal between Ballinla and Footy's Hill, Killucan (H.23), Synnott.
- 123/6. T. recognitum, place 49 in square brackets, not traced.
- 125/2. Cratoneuron commutatum α var. commutatum, Old Red Sandstone face, N. side of Clare Glens, nr Newport (H.10), Crundwell.
- 126/3. Campylium chrysophyllum, damp flat in sand dunes, Mornington (H.22), Synnott, 1978.
- 126/4. C. polygamum, place 23 in (); place 50 in square brackets, not localized.
- 126/5. C. elodes, place 17 in (); damp limestone rocks by L. Bane, Oldcastle (H.22), Synnott, 1978.
- 126/6. C. calcareum, place 9 in square brackets, not traced; place 49 in (); place 52 in square brackets, dubious record.
- 127/1. Leptodictyum riparium, submerged alder stems beside lake, The Lake, Llandrindod Wells (43), Woods; in carr, N. end of Fin Lough, N.W. of Sixmilebridge (H.9), Crundwell.

- 128/1. Hygroamblystegium tenax, on rock by margin of Loch Choille-Bharr, nr Crinan (101), Kenneth.
- 128/2. H. fluviatile, place 52 in (); rocks in river, north side of Clare Glens, nr Newport (H.10), Crundwell.
- 129/3. Amblystegium kochii, place 63 in ().
- 129/4. A. varium, place 63 in (); muddy roots of Alnus, shore of Loch Tay, Remony (88), Long, 1978.
- 130/1. Amblystegiella confervoides, limestone wall, Barrigone, nr Askeaton (H.8), Stern.
- 130/2. A. sprucei, place 36, 66 in (), comm. Smith.
- 131/1. Drepanocladus aduncus, place 47 in square brackets, not traced.
- 131/2. D. sendtneri β var. wilsonii, place 63 in ().
- 131/3. D. lycopodioides, place 63 in ().
- 131/4. D. fluitans α var. fluitans, swamp nr Gresford (50), Hill, 1972; damp ground on Saxavord (112), Paton & Hill, 1974: β var. falcatus, damp hummock or raised bog, Fenn's Moss, Maelor (50), Hill, 1972: boggy moorland nr Rhydtalog (51), Hill, 1972; Heldaale, Hoy (111), P.D. Hulme, 1977.
- 131/5. D. exannulatus β var. rotae, basic flush, gully below Cairn Law, Tweedsmuir (78), Long, 1978; depression on moorland nr Channerwick, South Mainland (112), Hill, 1974; peaty soil on rocks above the shore, S. of League Points, Sheep's Head Peninsula (H.3), Paton.
- 131/7. D. vernicosus, place 63 in (); cut-over bog between L. Bane and Dromone, Oldcastle (H.22), Synnott, 1978.
- 131/8. D. uncinatus, place 17 in (); place 52 in square brackets, not traced.
- 132/1. Hygrohypnum ochraceum, Clare Glen (H.10), Jones.
- 132/2. H. luridum, gravel path in woodland, Longstowe Hall (29), Bloom, 1978.
- 132/3. H. eugyrium, place 52 in square brackets, not traced.
- 133/1. Scorpidium scorpioides, place 51 in ().
- 136/1. Scorpiurium circinatum, place 36, H.1 in (), comm. Smith.
- 137/3. Camptothecium nitens, place 98 in square brackets, not traced (distr. map, Trans. BBS, 4, 527, 1963).
- 138/2. Brachythecium glareosum, place 48 in (); clay bank in lane with high hedges, 400 m N. of Ratoath (H.22), Synnott, 1978.
- 138/12. B. populeum, stone beside woodland path nr Ardnagashel House, N. side of Bantry Bay (H.3), Paton & Crundwell.
- 139/1. Scleropodium caespitosum, place 63 in ().

- 139/2. S. tourretii, place 20 in ().
- 141/4. Eurhynchium praelongum β var. stokesii, Home Wood, Longstowe Hall (29), Bloom. 1978.
- 141/5. E. swartzii β var. rigidum, stone in old quarry, Compton Bassett (7), Appleyard.
- 141/6. E. schleicheri, on calcareous boulder-clay, coppiced Ash-Elm-Hazel wood, Dalton (69), Wigginton, 1978.
- 141/7. E. speciosum, place 48, 49, 63 in ().
- 141/9. E. alopecuroides, place 51 in square brackets, not traced; place 104 in square brackets.
- 141/10. E. murale, rock by R. Roughty at Roughty Bridge, $\frac{1}{2}$ km W. of Greenlane (H.1), Bloom.
- 141/13. E. rotundifolium, place 33 in () (Smith, 1978).
- 143/1. Pterigynandrum filiforme, place 49 in (): β var. majus, place 49 in ().
- 144/1. Orthothecium rufescens, place 48 in ().
- 144/2. O. intricatum, place 51 in square brackets, not traced.
- 148/3. Isopterygium pulchellum, place 51 in square brackets, dubious record; rock crevice above Glenbeg Lough, Ardgroom (H.3), Stern; among Amphidium mougeotii, wet rocks by stream, Keeper Hill (H.10), Stern.
- 148/5. I. muellerianum, rock cleft in gully, 760 m alt., Stob Garbh, Balquidder (87), Corley; cliff ledge, 900 m alt., Coire Creagach, Sgairneach Mhor (89), Long, 1978.
- 149/4. Plagiothecium denticulatum α var. denticulatum, woodland bank above Clare River, Clare Glens, S. of Newport (H.10), Paton.
- 149/10. P. succulentum, stream bank in wood on S.E. side of Woodcock Hill, Sixmilebridge (H.9), Paton; wood below conifer plantation, S. slope of Keeper Hill (H.10), Paton.
- 149/11. P. sylvaticum, shaded bank nr Ardnagashel House, N. side of Bantry Bay (H.3), Paton & Crundwell; hedgebank nr Killuran River, N.W. slope of Slieve Bernage, N. of Broadford (H.9), Paton.
- 149/12. P. undulatum, wooded peninsula, S.E. end of L. Derravaragh (H.23), Synnott.
- 150/1. Sematophyllum demissum, place 70 in square brackets, specimen cannot be traced, comm. C.C. Haworth & D.A. Ratcliffe.
- 150/2. S. novae-caesareae, place 48 in ().
- 151/1. Pylaisia polyantha, place 49 in square brackets, dubious record; place 52, 63 in ().
- 154/1. Hypnum cupressiforme δ var. mamillatum, old elder, Quidhampton Wood nr

Wroughton (7), Appleyard, 1978; Wentwood (35), A.E. Wade, 1925 (NMW); Highgreenwood, Hebden Bridge (63 in ()), W. Sutcliffe, 1859 (Bank-field Museum, Halifax); trunk of tree by roadside N. of Kilmalcolm (76), Crundwell, 1953 (BBSUK); Braemar (92), E.M. Holmes, 1903 (NMW); birch in wood by R. Deveron, Glass, W. of Huntly (93), Crundwell, 1962 (BBSUK); birches, Lairig Ghru nr Aviemore (96), A. Wilson & J.A. Wheldon, 1908 (NMW); trunks of birches, woods nr Falls of Slien (107), Crundwell, 1951 (BBSUK); on tree, Curragh Wood, Inch (H.12), J.S. Thomson, 1954 (BBSUK); in Rockingham Woods nr Boyle (H.25), A.L.K. King, 1960 (BBSUK); rock top of Cuilcagh (H.30), W.N. Tetley, 1909 (BBSUK); on rocks in quarry, La Crete, nr Gorey (C), Crundwell, 1951 (BBSUK) - most records having been determined by their finders as *var. filiforme*, a taxon not now recognised.

- 154/2. *H. imponens*, delete 9, specimen (herb. Furzebrook Research Station) is incorrectly named.
- 154/5. *H. callichroum*, place 47 in square brackets, not traced.
- 154/7. *H. lindbergii*, verge beside lane, W. side of Slievebernagh (H.9), Crundwell.
- 156/1. *Ctenidium molluscum* β var. *condensatum*, place 48, 50 in square brackets, not traced: γ var. *fastigiatum*, place 104 in square brackets: δ var. *robustum*, place 49 in square brackets, not traced.
- 159/1. *Rhytidium rugosum*, Witney (23 in ()), F. Westall, ca 1900 (BM, BIRA), comm. & conf. Jones; place 29 in (), comm. Whitehouse; grassy ledges below basalt cliffs, above Cleadale, Isle of Eigg (104), Stirling.
- 160/1. *Rhytidiadelphus triquetrus*, place 63 in ().
- 160/3. *R. loreus*, place 63 in ().

REFERENCES

- Berrie, G.K. (1964). Experimental studies on polyploidy in liverworts, I The *Riccia fluitans* complex. *Bryologist*, 67, 146-152.
- Hill, M.O. (1980). Vice-county distributions of segregates of *Pottia starkeana*. *Bull. Br. bryol. Soc.* 35, 9.
- Paton, J.A. (1979). *Plagiochila britannica*, a new species in the British Isles. *J. Bryol.* 10, 245-256.
- Sloover, J. de (1959). Considérations sur la valeur spécifique de *Moerckia flotoviana* (Nees) Schiffn.; *Dilaenacée* nouvelle pour la flore Belge. *Bull. Jard. bot. Brux.* 29, 157-181.
- Smith, A.J.E. (1978). *The Moss Flora of Britain and Ireland*. Cambridge University Press, London.
- VánĎ, J. (1973). Studien über die *Jungermannioideae* (Hepaticae). 2, *Jungermannia* subg. *Jungermannia*. *Folia Geobot. Phytotax.*; Praha, 8, 255-309.
- Warncke, E. (1968). *Marchantia alpestris* in Denmark. *Bot. Tidskr.* 63, 358-368.

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LOGO

Members are invited to submit designs of a logo for use on British Bryological Society writing paper and possibly on ties and scarves which we may decide to have manufactured. Black and white designs (with indications of colour positions) will do if you do not feel capable of great artistry. Send your efforts to the General Secretary (address on page 56). All designs received will be published in the Bulletin.

REQUEST FOR MATERIAL

We still require fresh material of Atrichum undulatum (not necessarily with capsules) for chromosome counts. Gatherings of 15-20 shoots per population (i.e. patch) are needed and the more gatherings from separate populations, even if from the same area, the better. Material survives well if wrapped in a polythene bag in an envelope despite the activities or inactivities of the Post Office. Postage will be refunded.

A.J.E. Smith, School of Plant Biology, U.C.N.W. Bangor, Gwynedd, LL57 2UW.

HYPNUM JUTLANDICUM and H. CUPRESSIFORME var. LACUNOSUM

I would be grateful for the loan of herbarium material of Hypnum jutlandicum (H. cupressiforme var. ericetorum) and H. cupressiforme var. lacunosum (H. cupressiforme var. tectorum) with mature capsules. Postage will be refunded.

A.J.E. Smith, School of Plant Biology, U.C.N.W. Bangor, Gwynedd, LL57 2UW

I am carrying out research on the Hepatic - Cyonophyte relationship and require live material of Blasia pusilla, Anthoceros husnotii, A. laevis and A. punctatus, for culture. Could material please be sent to : Miss C. Jones, School of Plant Biology, University College of North Wales, Bangor, Gwynedd, LL57 2UW. Postage will be refunded.

THE HERBARIUM OF THE BRITISH BRYOLOGICAL SOCIETY, BBSUK

By S.G. Harrison
(National Museum of Wales)

Formation of a joint Herbarium and Library was proposed and agreed at the Society's Annual Meeting at Llanberis on 4 September, 1924. In the Report for 1925 it was announced that Mr W.R. Sherrin had "kindly undertaken to take charge of the books and plants belonging to the Society. In due course members may have the free use of the books and specimens on payment of postage both ways. Any botanical books of interest and duplicates of Mosses and Hepatics will be gladly received by him." According to the Minutes the collections were to be housed at the South London Botanical Institute but Mr E.C. Wallace has told me that he does not remember ever seeing the Society's herbarium there. Not only its location but also its size at that time, and also the sources from which individual specimens had been obtained, remain obscure.

Sherrin was a keen naturalist and collector. Despite lack of academic training he became an acknowledged expert in both botanical and zoological fields. He collected and studied coleoptera, lepidoptera and mollusca as well as phanerogams and bryophytes. As an articulator in the Department of Zoology at the British Museum (Natural History) he must have had a good working knowledge of the vertebrates (a rat from what is now Pakistan and a bat from New Guinea were named after him). He was employed full-time in the Department of Zoology from 1895 to 1919, when he became Curator of the South London Institute. He continued to work part-time in the Department of Zoology until 1928 when he was transferred to the Department of Botany to work (still part-time) on the bryophyte collections until his retirement in 1947. Throughout this period and until his death in 1955 he remained Curator of the South London Botanical Institute.

With this background it is scarcely surprising that one of Sherrin's first acts as Curator of the British Bryological Society's Herbarium was to ask members to contribute more specimens. His initial request for any duplicates may have been rather over-enthusiastic. The Report for 1926-27 was modified a little asking members to kindly make contributions of authentic specimens of mosses and hepatics from time to time. However, the Secretary's Reports from 1928 to 1946 continued to state that any specimens would be acceptable. The Report for 1944-45, published in 1946, was the last of its kind. From 1947 to 1951 Reports were published in the Proceedings as part of the Transactions. No further mention was made of any specimens being acceptable for the Herbarium. There was no recorded mention of any debate or vote on this change of policy but subsequently accessions seem to have been practically restricted to voucher specimens, with few exceptions apart from major bequests. It is surprising that the standing invitation for members to send specimens to the Herbarium had persisted so long, for shortage of space was not a new state of affairs. To quote from the Minutes of an Informal Meeting held in January, 1932 - "A very valuable collection of Mosses comprising over 10,000 specimens and including 35 fascicles of Bauer's European Exsiccata of Mosses, up to date, all arranged, mounted on sheets & catalogued was very generously offered to the Society by our member the Rev. Dr. Rhodes. Unfortunately Mr. Sherrin, our Curator, was unable to house the

herbarium, so other arrangements had to be made. It was suggested that the herbarium should go to the Natural History Museum at South Kensington subject to the approval of Dr. Rhodes and, also, to conditions that would benefit our members directly. The Secretary paid a visit to the Museum yesterday and approached Mr. J. Ramsbottom, Keeper of Botany to discuss the matter. He offered to accept the herbarium subject to an arrangement by which he promised to form a Standard Herbarium, based on the collection & other herbaria belonging to the B.B.S. for the sole use of the members, the remaining mosses after the formation of the Standard Herbarium, to belong to the Museum Trustees. He stipulated also that specimens out of the Standard Herbarium could be sent to members for examination on application to the Keeper of Botany." The outcome of this was that one packet of each species in the Rhodes collection was retained for the B.B.S. Herbarium, all the rest being handed over to the British Museum (Natural History).

In the following year Sherrin reported on - "the Standard Herbaria (Mosses & Hepatics) at the British Museum (St^h. Kensington) based on the collections of the B.B.S., Dr. Rhodes, Mr. Millar (Mosses) and also on the collection of Hepatics of the B.B.S. & the residue of the late Dr. Macvicar's Herbarium."

At an Executive Meeting in June, 1937, the disposal of two fascicles of North American Mosses collected by Drummond was discussed. Mr. Ramsbottom was to be requested to store them with the B.B.S. collection of British Mosses at the British Museum (Natural History) and under the same conditions as the British Mosses. This would be the Musci Americani or Specimens of the Mosses collected in British North America and chiefly among the Rocky Mountains during the Second Land Arctic Expedition Under the Command of Captain Franklin, R.N. This is a set of exsiccata of considerable historical interest, dated 1828. It is no longer in the B.B.S. Herbarium if indeed it was ever accessed into the collection. It would be interesting to know where it is today.

F.E. Milsom died on 5th December, 1945, bequeathing his collection of bryophytes to the Society. After a period of indecision it was announced in 1947 that Leicester University had agreed to accommodate it. In the same year W.R. Sherrin relinquished the office of Librarian (to Mrs. H. Wright) but continued as Curator until the following year when A.H. Norkett of the Department of Botany, British Museum (Natural History) was duly elected to that office (Dr. Ramsbottom's permission having been obtained). Within a few years it became apparent that storage space was still a problem and that pressure of official duties restricted the amount of time available for arranging and incorporating additional material in the B.B.S. Herbarium. Nevertheless in 1958 the Curator's Report showed that the Moss Herbarium had been re-housed and more shelf space was available. In 1959 Mrs. J.A. Paton and Messrs. Norkett, Dalby, Pettifer, Smith, Wallace and Wanstall re-arranged, catalogued and re-housed the Society's Herbarium in labelled boxes. Mrs. Paton's subsequent report stated that the Herbarium at that time consisted of 10,850 packets of mosses, (an average of nearly 17 packets per species), and 2,450 packets of hepatics, (an average of nearly 9 packets per species). There were also several boxes of Sphagna in need of some attention, and of foreign species that do not occur in Britain. It was suggested that duplicates and at least some of the foreign material should

be eliminated at the discretion of the Curator, the foreign material to be presented to the British Museum (Natural History).

In 1960 Mr. A.H. Norkett resigned from the Curatorship and was replaced by Dr. D.H. Dalby.

In the following year it was agreed that the Milsom Herbarium should be moved from Leicester to the British Museum (Natural History) if room could be found for it. Any lichens in it were to be presented to the British Lichen Society. By April 1963 the move had been made and the Milsom sphagna and hepatics had been incorporated in the B.B.S. Herbarium. The Curator told the 1963 A.G.M. that he would appreciate help in incorporating material and stamping packets with the name of the collector where necessary.

In 1964 Dr. Dalby reluctantly resigned as Curator and Mr. Norkett, proposed by Dr. Warburg and seconded by Mrs. Appleyard, was again elected to the Curatorship. It seems that there were still difficulties over the housing and curating of the collection; shortages of both allocated space and time.

In 1969 an offer to house the Herbarium in the Department of Botany, National Museum of Wales, Cardiff, was accepted. Mr. Norkett resigned and his place as Curator was taken by the present writer. Before the Herbarium was transferred to Cardiff it was again sorted and many foreign bryophytes were removed. When handed over to NMW the estimated number of specimens was c. 21,000. In recent years accessions have been practically restricted to V.C.R. voucher specimens, with few exceptions apart from the J.H.G. Peterken bequest of c. 3,000 packets and the smaller donation of 223 bryophytes ex Herb. P. Hunt. During the past decade the B.B.S. Herbarium total has grown to c. 28,000, of which only eight were other than V.C.R. vouchers apart from those mentioned above.

Recently I checked the dates of collection of the specimens contained in seven boxes, two of them hepatics and one of sphagna. The percentages for each decade worked out as follows:

1840-1849,	.006%	1910-1919,	6.98%
1850-1859,	.012%	1920-1929,	16.3%
1860-1869,	.006%	1930-1939,	7.1%
1870-1879,	.006%	1940-1949,	6.6%
1880-1889,	.02%	1950-1959,	18.3%
1890-1899,	1.13%	1960-1969,	28.5%
1900-1909,	7.54%	1970-1979,	6.85%

It is doubtful whether these figures could have any statistical significance but they may be of interest as indicators of certain trends. For instance they show that the Society's herbarium today contains a good number of specimens collected before the Society was formed, despite what seems to have been a drastic pruning operation on the Rhodes collection and a certain amount of judicious slimming in other areas. Without knowing the true extent of these operations how large the Herbarium might have been is anyone's guess. The fluctuating percentages since the 1940s also seem interesting.

Since the B.B.S. Herbarium was moved to Cardiff it has been the practice for the Curator's Report to give the number of voucher

specimens received annually. It may be useful to tabulate these figures for the past decade.

Year	Voucher specimens		Others	
	Musci	Hepatics	Musci	Hepatics
1970		202		
1971	268	173	(223 bryophytes ex Herb. P. Hunt)	
1972	313)		
1973	225)	M 3	
1974	294	127	M 1 (+c. 3000 Peterken bequest)	
1975	294	116		
1976	278	132		
1977	190	86		H 4
1978	172	61		
1979	194	80		
1980	280	138		

SOUTH LONDON BOTANICAL INSTITUTE

The South London Botanical Institute is appealing for £25,000.

This money is urgently needed to enable the Institute to continue and to expand its activities. The considerable increase in these activities recently has coincided with a decrease in the Institute's real income due to inflation - and with the need for extensive and expensive repairs to the Victorian buildings in which the Institute is housed. These premises, which were bequeathed to the Institute by its founder, Allan Octavian Hume, in 1911, are substantial and house the large herbarium and library as well as providing lecture and study rooms.

Through its many distinguished members and officers the Institute has made major contributions to botanical knowledge. Names associated with the Institute include: W. R. Sherrin, Curator, 1919-1955. A distinguished field botanist, President of the British Bryological Society; author of "An illustrated Handbook of British Sphagna". John Ramsbottom, O. B. E., M. A., D. Sc. President, 1938-1968. Keeper of Botany at the British Museum, President of the Linnean Society; author of many articles and books on fungi and other plants. J. Edward Lousley. President, 1968-1976, Vice-President and Hon. Curator for many years. Few amateur botanists have achieved the level of distinction reached by Ted Lousley who became President of the Botanical Society of the British Isles.

Contributions - however small - will be much appreciated, and should be sent to our member, R. N. Gutteridge, South London Botanical Institute, 323 Norwood Road, London, S. E24.

ADDITIONS AND AMENDMENTS TO THE MAILING LIST

NEW MEMBERS TO JULY, 1980

- ASHTON, J., 4 Long Mill North, Wednesfield, Wolverhampton, West Midlands, WV11 1JD. (1980)
- ASHTON, Dr N. W., Dept. of Biology, University of the West Indies, Cave Hill, Barbados. (1979)
- ATKINSON, M. D., 86 Saltwell Road South, Low Fell, Gateshead, Tyne & Wear, NE9 6HA. (1980)
- BAMFORTH, N., 1 Corporation Road, Audenshaw, Manchester, M34 5LY. (1980)
- BEEVER, Dr J. E., Dept of Botany, University of Auckland, Private Bag, Auckland, New Zealand. (1980)
- BULLARD, P. F., c/o National Trust, Phoenix House, Phoenix Way, Cirencester. (1979)
- CAMPBELL, Dr Ella O., Dept of Botany & Zoology, Massey University, Palmerston North, New Zealand. (1979)
- CLEMONS, L., 76 Tonge Road, Sittingbourne, Kent, ME10 3NR. (1979)
- DELGADILLO, Dr Claudio., Dept de Botanica, Instituto de Biologia, UNAM, Apartado Postal 70-233, Mexico 20, D.F. Mexico (1980)
- DIRKSE, G., Trekvogel 62G, 3815 LP Amersfoort, Holland. (1979)
- GARLICK, G. W., 147 Melrose Avenue, Yate, Bristol, BS17 5AP. (1979)
- GRACE, Marcus M., Inner Farne, The Farne Islands, Seahouses, Northumberland (1980 Junior)
- HEARN, Miss K. A., The National Trust, Phoenix House, Phoenix Way, Cirencester, Glos. GL7 1QG. (1980)
- HOBBS, Mrs V. J., Dept of Botany, Aberdeen University, St. Machar Drive, Aberdeen, AB9 2UD. (1979 Junior)
- JACKSON, P. W., School of Botany, Trinity College, Dublin 2, Ireland. (1980)
- JAMIESON, Dr D. J., Dept of Botany, Fort Lewis College, Durango, Colorado 81301, USA. (1979)
- JARDINE, Dr N., Dept of History and Philosophy of Science, Cambridge, CB2 3RH (1980)
- JONES, Miss C., 'Merddyn', Pentraeth, Ynys Mon, Gwynedd, LL57 8DZ. (1980 Junior)
- KIRBY, Dr K., Nature Conservancy Council, Godwin House, George Street, Huntingdon, Cambs. (1980)
- LARKMAN, A. L., 41 Willow Lane, Stannion, Kettering, Northants, NN14 1DT. (1979)
- LINDSAY, Dr D. W., 10 Wordsworth Avenue, Maldon, Essex CM9 6BZ (1979)
- LOCKHART, N., 25 Essex Quay, Dublin 8, Ireland. (1980)
- LOFKIN, Mrs K., 131, Carrington Lane, Sale, Cheshire. M33 5WJ. (1980)
- LUITINGH, A. J., Merellaan 13, 5552 BZ Valkenswaard, Holland. (1980)
- MOGENSEN, Dr G. S., The Botanical Museum, University of Copenhagen, Gothersgade 130, DK-1123 Copenhagen, Denmark. (1979)
- MURRAY, Miss B. M., Museum, University of Alaska, Fairbanks, Alaska, USA. 99701. (1980)
- McANDREW, R. T., 103 Granville Avenue, Hartlepool, Cleveland, TS26 8NA (1979)
- NEUMAYR, Dr L., Dechbettener Str. 35, D - 8400 Regensburg, Western Germany. (1980)
- NORDHORN-RICHTER, Dr G., Universitat Duisburg, Loetherstrasse 65, D-4100 Duisburg 1, Germany. (1980)
- PARKES, R., 82 Summerfields Avenue, Halesowen, West Midlands, B62 9NR (1980)
- QUINN, R., Dept of Biology, University of Southwestern La., Lafayette, Louisiana 70604, USA. (1979 Junior)

ROSSELLO, T.P., Massanet 4 1^o 2^a, Palma, Mallorca, Spain.
(1979 Junior)

ROTHERO, G.P., Hafan, Peniel Terrace, Ffestiniog, Gwynedd, North Wales. (1980)

STEVENSON, R., 13 Brookside Gardens, Sunderland, Tyne & Wear (1980)

TAYLOR, S.M., 'Glenalan', 20 Station Road, Nailsea, Bristol, BS19 2PD.
(1980)

THORNLEY, J.S., 36 Summerhill, Sutton Hill, Telford, Salop. TF7 4EY.
(1979)

WARD, Mrs J.E., The Cottage, Highcliffe, Eyam, Sheffield, S30 1QT.
(1979)

WILLIAMS, Mrs V., Rosenannon, Llanfihangel Crucorney, Nr. Abergavenny,
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CHANGES OF ADDRESS

BIRKS, Mrs H.H., 22 Rutherford Road, Cambridge.

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CLAUSEN, Miss E., Uglevang 54^{2^{tr}}, DK 3450, Allersød, Denmark.

FOSTER, Dr W.D., 12 Castle Gate, Prestbury, Cheshire, SK10 4AZ.

GEISLER, Dr P., Conservatoire et Jardin Botaniques, Case Postale 60,
CH-1292 Chambésy, Switzerland.

GLADING, P.R., 23 Montrose Court, Ridgeway Road, Rumney, Cardiff.

GRIFFIN, Dr D.G., Dept of Natural Sciences, Florida State Museum,
Museum Road, University of Florida, Gainesville, 32611, USA.

HALLET, Dr J.N., Laboratoire de Biologie Vegetale, Univ. De Nantes,
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HOUSE, K.L., Garden Flat, 69 Springfield Road, Cotham, Bristol.

JOYCE, Mrs I.A., Brynnaval, 11 Ferry Road, Golspie, Sutherland.

LOCK, Dr J.M., 10 Old School Lane, Milton, Cambridge, CB4 4BS

LONGTON, Dr R.E., Dept of Botany, University of Reading, Reading, RG6 2AS.

MUHAMMAD, M.A. Haji, Dept of Botany, The University of Malaya,
Kuala Lumpur, Malaya.

PANNELL, Miss C.M., Bridge End Farm, Cat's Corner, Lower Tasburgh,
Norfolk, NR15 1NB.

PEARMAN, M.A., The Library, Chatsworth, Bakewell, Derbyshire, DE4 1PP.

PITKIN, Dr P.H., Nature Conservancy Council, 12 Hope Terrace,
Edinburgh, EH9 2AS.

RAMSAY, Mrs H.P., School of Botany, Univ. of New South Wales,
Kensington 2033, New South Wales, Australia.

SLACK, Dr Nancy G., Dept of Systematic Botany, Carl Skottsberg Gata 22,
University of Goteborg, S-413 19 Goteborg, Sweden.

SMITH, B.M., 139 Beccles Road, Oulton Broad, Lowestoft, Suffolk.

SPARE, R., 10 Belsize Road, Worthing, West Sussex, BN11 4RH.

STERN, R.C., 14 Cherry Avenue, Yapton, Arundel, West Sussex, BN18 0LB.

SYRATT, Dr W.J., 36 Ashbrook Road, Old Windsor, Berkshire, SL4 2NB.

VICKERS, M.D., Druim Diomhain, Achnacloich, Tarskavaig, Skye via Kyle,
Scotland.

VICKERS, Mrs M.E., Druim Diomhain, Achnacloich, Tarskavaig, Skye via
Kyle, Scotland.

VOGELPOEL, Drs D.A.J., H. Swarthln 13, 9721 TR Groningen, Netherlands.

WATTEZ, J.R., 14 Rue Frangais Villon, 80 Amiens, France.

DEATHS

BILEWSKY, F., Israel

BIZOT, Prof M., Cote d'Or, France
FANNING, A.P., Tralee, Co Kerry
PERSSON, Dr H., Stockholm
SIDE, K.C., Rochester

RESIGNATIONS

BINGLEY, F.J., Flatford Mill Field Centre, East Bergholt
DUDLEY-SMITH, Mrs D.S., Winchcombe
HAKELIER, N., Orebro, Sweden
LUCKING, Miss H.M., Attenborough
NEWTON, P., Timperley
RIBBONS, B.W., The University, Glasgow
WARNCKE, E., Risskov, Denmark

DELETIONS

GREEN, Dr T.G.A., Univ. of Waikato, New Zealand
HARTMAN, F.A., Ann Arbor, USA
HONG, Dr W.S., College of Great Falls, Montana, USA
VOGEL, Miss J.R., Boca Raton, USA

GRANTS AVAILABLE TO HELP TAXONOMIC PUBLICATIONS

In a recent issue of the Natural Environment Research Council's Newsjournal (Vol. 2, No.7, p.7, 1979), it was announced that:

"The Council has decided to provide limited financial support for the preparation of taxonomic publications. This will most often take the form of NERC support for taxonomists to employ a few skilled illustrators for a limited period. Priority will be given to the preparation of keys and publications on the taxonomy of organisms which are of prime interest to our understanding of the natural environment. Scientists or editors wishing to apply for support should do so on application forms obtainable from the University Support Section of NERC HQ, Polaris House, North Star Avenue, Swindon, Wilts SN2 1EU. The closing dates for such applications will be the same as those for ordinary research grant applications, viz 1 July and 1 December. Further details of this scheme can be obtained on request, from Mr. H.J. Killick at the same address".

This support has been made available as a result of recommendations in "Taxonomy in Britain" Report by the Review Group on Taxonomy set up by the Advisory Board for the Research Councils under the chairmanship of Sir Eric Smith FRS, London, HMSO, £3.50, 1979. Members requiring further information including application forms should contact Mr. Killick of Polaris House, Swindon.

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