

# BRITISH BRYOLOGICAL SOCIETY

PRESIDENT: A. C. CRUNDWELL, Esq., B.A.

## BULLETIN

No. 26. July, 1975

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#### 1. NOTES FROM THE SECRETARY

If you still haven't paid your subscription for 1975 (in spite of my reminder in the last Bulletin) we cannot be sure whether this was intentional or you simply forgot. In effect, what will have happened is that your name will have been entered on what we call the Stop List: the Journal will not arrive. It is a way of cutting down on our losses. Several of you who pay by Banker's Order didn't manage to update them before they paid out £3.50 on 1 January this year; you owe us £2.50 extra. A final plea: please pay up now, or let me know that you wish to resign.

Those members who do not claim income tax relief on their subscriptions to the Society would benefit the Society tremendously by making a covenant with the Society. Please let me know if you would be willing to do this.

In this Bulletin you will notice that the next A.G.M. is in September, not October as of late. The accommodation for this meeting is being arranged by Dr Watson to whom bookings should be sent by 15 August at the latest (see page 6).

## 2. REPORTS OF OFFICERS FOR 1974

### (a) SECRETARY'S REPORT

At the end of 1974 we had about 485 fully paid members with about 10 others in arrears. The number of new members joining during the year was 41. A regrettable but necessary decision taken at the Annual General Meeting was that as from 1 January 1975 the Ordinary and Junior membership subscription rates should be raised to £6.00 and £3.00. But though we might expect a slight reduction in membership due to this, present indications are that members have generally accepted the increases as an inevitability of the age in which we live. It was with great regret that we learned of the death of Dr Humphrey Milne-Redhead early in 1974.

The Spring field meeting, from 3 - 10 April, was organized by Mr P. J. Wanstall at Draguignan, Var, France. The Summer meeting was the week beginning 24 August, based on Thurso, Caithness and arranged by Mr J. K. Butler followed by a week in Orkney arranged by Mrs A. Thomson. Though these meetings were successful from a bryological point of view the attendances were disappointingly low, this probably reflecting the relative remoteness of the venues. The University of Exeter might also be considered remote by some, but 38 members and several visitors turned up on 19 October for the A.G.M. and Paper-reading meeting on the general theme of water relations in bryophytes. The splendid culmination of this day's events was a reception given by Prof J. Webster at the *Conversazione* in the evening for which we thank him most heartily. A day in the field completed the weekend which was organized by Dr M. C. F. Proctor. We thank him and his wife Jean (who, it is suspected, did more than give him moral support) for bravely throwing open their home and entertaining us on more than one occasion.

A completely new venture for the Society was the Taxonomic Teach-in, arranged by Dr P. D. Coker at the Thames Polytechnic, London, on 16 November. From the comments of many of the 28 attending, the meeting was not a little successful in introducing them to the practical side of naming bryophytes under the microscope. It was particularly pleasing to see so many new faces. The weekend was completed with a day with the London Natural History Society who had kindly invited us to join them on one of their field meetings in Surrey.

Thanks go to all local organizers of these meetings and to the Meetings Secretary, Dr Giles Clarke, whose shoulders have borne the considerable burden of basic organization.

Work is now reasonably well advanced on the provisional atlas of 100 species of bryophytes, and Dr A. J. E. Smith is to be thanked for all the painstaking work he has put into this and into the production of distribution maps for the *Journal*. He tells me that for the atlas he copied out by hand 7,500 records which included habitat details, grid references, etc. and that the work took him 9 months. Besides all this he is writing a new British Moss Flora!

The Society is extremely fortunate in having a Council whose members have the Society's well-being at heart. To them, and to the Reading Circle Secretary and Referees who do a job on behalf of the B.B.S., I extend my thanks.

A. R. Perry,  
March, 1975.

### (b) TREASURER'S INTERIM REPORT FOR THE YEAR ENDED 31 December, 1974

The final account for printing volume 8 parts 1 and 2 of the *Journal* is not yet available but a provisional account has been received from Blackwell's. Based on this the account for 1974 shows a surplus of income over expenditure of some £750 as compared to a loss in 1973 of £1232 (which included £428 for reprinting volume 1 of the *Transactions*). The improvement in our finances is made up as follows:

Royal Society grant	£500
Increase in sales of back numbers, etc.	£800
Reduction in size of <u>Journal</u>	£550
	<hr/>
TOTAL	£1850

Deduct

Increase in expenditure in circulars  
and postages, etc. £300

BALANCE £1550  
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Having regard to further increases in printing costs and postage it would be unwise to increase the size of the Journal yet; but thought should be given to reprinting volume 2 of the Transactions which is now out of print. On the basis of reprinting volume 1 with an increase of 20% in costs this would cost about £600.

So far subscriptions have kept up this year except that 60 members paying by Banker's Order have not yet revised these and it is not yet known how many of them will ultimately resign.

R. D. Fitzgerald,  
March, 1975.

#### (c) EDITORS' REPORT

The high cost of publishing is forcing us to restrict the size of each part of the Journal, with the result that there is more delay than hitherto between acceptance of a paper and its publication. In effect, the closing date for the acceptance of manuscripts for a particular part is about 4 months earlier in the year than previously. We are trying to minimize this delay in publication by forwarding copy to the publishers earlier in the year than hitherto. The transfer of the annual list of new vice-county records and of the Proceedings of the B.B.S. to the Bulletin, which took place this year, has of course given some extra space in the Journal, but not sufficient to accommodate all the backlog of papers. We have held over the distribution maps of mosses, intended for part 3, until part 4 of volume 8.

Of the 1042 pages in the first seven parts of the Journal, approximately 30% are occupied by papers on taxonomy, 12% by floras, 9% by the bibliographies, 7% by papers on physiology, 5% by papers describing additions to the British flora, 4% by papers on chromosome cytology, another 4% on ecology, and another 4% on nomenclatural papers. Smaller contributions to the total are made by papers on fine structure (3%), and on morphology and fossils (3%), by the distribution maps (3%), book reviews (2%), obituaries (2%), and miscellaneous items including the index (2%). The space occupied (1972-74) by the items now transferred to the Bulletin is 4% for the vice-county records and 2% for the Proceedings. No less than 4% of the pages in the Journal are in fact blank!

H. L. K. Whitehouse,  
H. J. B. Birks,  
March, 1975.

#### (d) REPORT OF THE RECORDER FOR MOSSES

The number of new records was almost exactly the same as in 1973. Just over half were from Scotland, mainly from the north and east.

A. C. Crundwell,  
February, 1975.

#### (e) REPORT OF THE RECORDER FOR HEPATICS

123 new vice-county records were received from 26 contributors; this was nearly as many as in 1973 but from slightly fewer contributors. Once again I am grateful to all those who took the trouble to send with each voucher the appropriate data on a 5" x 3" filing card, from which the final list is typed. Blank cards are available on request.

Jean A. Paton,  
February, 1975.

#### (f) LIBRARIAN'S REPORT (1 January, 1974 to end of February, 1975)

The regular sales feature in the Bulletin has generated a considerable and sustained increase in sales.

Sales:	Census Catalogues	114
	Transactions (parts)	307
	M.E.C./B.E.C. Reports	27
Loans:	17 loans of books/separates, 8 loans of sets of slides	
	18 Xerox copies of separates supplied.	

Despite vigorous attempts to recover all items out on loan for a decade or more 19 library items are reported lost, presumed thrown away. It is to be hoped that the recall of items after the newly introduced limit of 6 months will reduce this irresponsible loss.

The 500 slides recently added to the loan collection (left to the B.B.S. by the late J. H. G. Peterken) have now been catalogued and a typed list is available (s.a.e.).

K. J. Adams,  
March, 1975.

#### (g) BIBLIOGRAPHER'S REPORT

This year my very special thanks are due to Dr G. C. S. Clarke. As a result of his diligence the coverage of eastern European literature is now far more comprehensive than I achieved previously. I am also most grateful to the many B.B.S. members for drawing my attention to items in local publications not available in Bangor and not listed in abstracting journals, and also to works whose bryological content was not at all obvious from the title (in this category ecological studies figure prominently). The steady flow of reprints which I receive from bryologists all over the world continue to provide important additions to the bibliography and are most welcome contributions for the Society's library.

Although several members have indicated that they like the present format of the bibliography (i.e. subdivided into specific areas) suggestions as to what further subjects might be taken out from the rather unwieldy general sections would be most welcome.

Jeffrey G. Duckett,  
March, 1975.

#### (h) CURATOR'S REPORT

294 mosses and 127 hepatics were received from the Recorders in 1974. They have been incorporated. A total of 108 specimens were lent to 8 members.

The use of the National Museum of Wales loan form stamped with 'Herb. Brit. Bryol. Soc.' was approved by Council in 1972. This form has been used ever since, apparently to everyone's satisfaction until a recent criticism of regulation no. 5: 'Not more than half of the Museum's collections of a particular taxon can

be sent on loan at any one time. The balance of the collection may be borrowed only when the first part has been returned safely." It has been suggested that this regulation should not apply to B.B.S. specimens. I feel strongly that it should, but I am willing to abide by Council's decision.\*

Attempts are being made to get an official abbreviation for the Society's herbarium for the next edition of Index Herbariorum. The abbreviation BBS cannot, unfortunately, be used as it belongs to the herbarium of the Suriname Forest Service, Paramaribo.

S. G. Harrison,  
March, 1975.

#### (i) MAPPING SECRETARY'S REPORT

There has been a marked reduction in the number of records received following the spate initiated by the request for information for the provisional atlas of 100 bryophyte species.

The Biological Records Centre is in process of extracting records from the 10 km square record cards. They have agreed to photocopy (or microfilm) the cards so that there is a second set available in case of loss or damage to the master set.

Following the recommendation of the B.R.C. and consultation with executive members of the B.B.S. council it has been decided to use the Irish grid instead of the extended national grid for Irish records. All existing Irish record cards will now have both Irish and national grids on them so that either system can be used.

A. J. E. Smith,  
March, 1975.

#### (j) MEETINGS SECRETARY'S REPORT

There were four meetings of the Society instead of the usual three. The extra one was held at the Thames Polytechnic in Woolwich with the aim of attracting members who do not normally attend the field meetings, and of introducing them to the taxonomy of some difficult genera. In this we seem to have been quite successful.

The Easter field trip to France was disappointingly attended after the original enthusiastic response and the same was true of the summer meeting in Caithness and Orkney. In arranging future meetings we have tried to compromise between areas with rich bryophyte floras and places which are cheap and simple to get to.

G. C. S. Clarke,  
March, 1975.

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### 3. TWO NEW ASSOCIATE EDITORS FOR THE JOURNAL

Council is pleased to announce that they have appointed two new Associate Editors of the Journal, Mr A. C. Crundwell and Dr P. J. Grubb, to serve in addition to Drs Crum and Grolle. Their names will appear on future issues of the Journal.

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\*At a Council meeting in April, 1975 Council decided to retain regulation no. 5.  
HON. SEC.

#### 4. FUTURE MEETINGS OF THE SOCIETY

(a) Summer Field Meeting, 1975: Arklow, Co. Wicklow, Republic of Ireland, 16 - 30 August. Local Secretary: Dr D. Synnott, National Botanic Gardens, Glasnevin, Dublin 9.

For details of accommodation, etc. see Bulletin 25.

(b) Annual General Meeting and Paper-Reading Meeting, 1975: University of Reading, 20 - 21 September. Local Secretary: Dr E. V. Watson, Department of Botany, The University, London Road, Reading, RG1 5AQ.

For this meeting, the University of Reading have allowed us to use the accommodation in one of their Halls of Residence so we will all be able to stay under one roof rather than being scattered round the town at some distance from the lecture hall. I hope as many people as possible will take advantage of this; the likely total cost for people who take dinner on Friday evening and have full board until Sunday morning will be just under £10.00.

As we have to book in advance, please contact Dr Watson for details and send him your bookings by 15th AUGUST AT THE LATEST.

Among those who have agreed to speak at the meeting are:

- Mr M. O. Hill (Institute of Terrestrial Ecology, Bangor): "Why is Sphagnum considered to be a difficult genus."
- Dr N. W. Ashton (Dept of Genetics, University of Cambridge): "Auxotrophic and developmental mutants of Physcomitrella patens."
- Dr R. E. Longton (Dept of Botany, University of Manitoba): "Variation patterns in bryophyte species."
- Dr E. V. Watson (Dept of Botany, University of Reading): "Changing views of bryophyte evolution."
- Dr A. J. Harrington (Dept of Botany, University of Ibadan): "Bryophyte collecting in West Africa."
- Prof G. K. Berrie (Fourah Bay College, Sierra Leone): "Spore dispersal and perennation in West African species of Riccia."

There will be a field trip to interesting local sites on the Sunday.

This year we have arranged for facilities to show exhibits to be available throughout the weekend so we hope as many people as possible will want to display something of their work. Please contact Dr Watson for details.

The Annual General Meeting will take place in Room 1.01 of the Palmer Building, Whiteknights Park on Saturday 20 September at 1650 hrs.

#### ANNUAL GENERAL MEETING, READING, 1975

##### AGENDA

1. Apologies for absence
2. Minutes of the last Annual General Meeting, Exeter, 1974 (see Bulletin 25)
3. Matters arising
4. Changes in Council structure
5. Proposed alterations to Rules  
Rules stand at present as shown in [ ]
  - (a) Alteration to Rule 5c. "The six elected members shall ordinarily serve for two [three] years, three [two] being elected at each Annual General Meeting."
  - (b) Alteration to Rule 5c. "Elected members who have served the full term shall not be eligible for re-election for two [one] years after their term of office."

- (c) Addition to Rule 5c. "Retiring officers shall not be eligible for election as elected members until after an interval of two years."
- (d) Addition to Rule 5c. "Officers are eligible for election to another office immediately after retiring from an office."
- 6. Officers' Reports for 1974 (see pp. 2 - 5 of this Bulletin)
  - (a) 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
- 7. Election of Officers, 1976-7
  - (a) Vice-President
  - (b) Treasurer (R. D. Fitzgerald is resigning at the end of 1975)
  - (c) Recorder for Mosses (A. C. Crundwell is resigning at the end of 1975)
  - (d) Meetings Secretary (G. C. S. Clarke is resigning at the end of 1975)
  - (e) Others
- 8. Election of members of Council (P. D. Coker and S. W. Greene retire at the end of 1975)
- 9. Place and date of Annual General Meeting, 1976
- 10. Other meetings in 1976 and 1977
- 11. Any other business

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(c) Taxonomic Teach-In: Cardiff, 15 - 16 November, 1975.  
 Local Secretary: A. R. Perry, Department of Botany, National Museum of Wales, Cardiff, CF1 3NP.

The success of last year's Taxonomic Teach-in at the Thames Polytechnic has induced us to arrange another similar meeting this year. Again a range of experts will talk about and demonstrate some of the characters they have found useful in identifying species within 'difficult' genera. The meeting will be aimed specifically at beginners and those who lack confidence in naming bryophytes. A day in the laboratory will be followed by a day in the field.

Members intending participating in all or part of this meeting should write to Mr Perry for further information.

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(d) Easter Field Meeting, 1976:

We have had to make a change of plans for this meeting and it will now take place at Knutsford, Cheshire, from 7 - 14 April. The Local Secretary will be Dr Derek Foster, Department of Pathology, Macclesfield Hospital, West Park Branch, Prestbury Road, Macclesfield, SK10 3BL.

Accommodation in Knutsford is as follows:

- H. Q. Royal George Hotel, King Street, Knutsford (Tel. 0565-4151). B. & B. £5.50 or £7.00.
- 2. Ye Angel Hotel, King Street, Knutsford. B. & B. £4.20.

3. Rose and Crown, King Street, Knutsford. B. & B. £4.20.
4. Longview Private Hotel, 55 Manchester Road, Knutsford. B. & B. £3.00.
5. Heatherfield Private Hotel, Tabley Road, Knutsford. B. & B. £2.50.

(All prices at 1975 rates.)

Accommodation in Knutsford is rather limited so early booking is strongly recommended. More details will appear in the next Bulletin, but please contact the local secretary if you intend coming to this meeting.

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(e) Summer Field Meeting, 1976: Melrose, Roxburghshire, 21 - 28 August. Local Secretary: Mr David Long, Department of Agriculture and Fisheries for Scotland, East Craigs, Edinburgh, EH12 8NJ (Tel. 031-334-0355). The HQ hotel will be Burt's Hotel, Market Square, Melrose, Roxburghshire. Further details of accommodation and programme will appear in the next Bulletin.

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#### 5. OTHER BRYOLOGICAL MEETINGS, 1975

The Bryophyte Section of the North Western Naturalists' Union has kindly invited B.B.S. members to join them on the following field meetings:

Saturday 9 August. DOVE HOLES. Leader P. Newton. For limestone ledge and cliff species. Meet and park cars at Dove Holes Station at 1100 hrs. Train from Manchester Piccadilly at 1005. Bring 2 meals.

Saturday 13 September. BLEAKLOW. Leader R. Newton. Meet at Norfolk Arms Hotel, Glossop, at 1206. Bus 125 from M/C Piccadilly bus station at 1112. Car drivers will take bus passengers to starting point. Bring 2 meals.

Sunday 19 October. FRESHFIELD DUNES. Leader Mrs Bess Bescoby. Meet at Freshfield Station car park, 1200. Train from M/C Victoria at 1030. Book return to Southport and there book on to Freshfield. Bring 2 meals.

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#### 6. LIBRARY SALES AND SERVICE

Please refer to pages 16-17 in Bulletin 25 for loans and sales details. These should be amended as follows:

B.B.S. Transactions Vol. 2 part 2 is now out of print

Journal of Bryology Vol. 8 parts 1 & 2 are available (£3.00 each)

Please remember that postage is extra on all items; so please include sufficient money to cover postage and packing - a refund will always be given if too much is sent. It is not much use sending 3p to cover P. & P. for a set of Census Catalogues, but members still do!!

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#### 7. REFEREES: A CHANGE OF ADDRESS TO NOTE

Our referee for the hepatic genera numbers 54-56 has changed her address as follows:

Mrs Hilary H. Birks, 16 Greystoke Road, Cambridge, CB4 1DS

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8. NEW VICE-COUNTY RECORDS AND AMENDMENTS TO THE CENSUS  
CATALOGUES

All undated records are based on specimens collected in 1974. For details of records made on B.B.S. excursions see the accounts of the meetings in Bulletin no. 25, January 1975.

HEPATICAEE

Mrs J. A. PATON

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

- 1/1. Anthoceros punctatus, damp margin of stubble field nr Newpark, West Calder (83), Long.
- 1/2. A. husnotii, slightly peaty stubble, Rashcrook nr Elgin (95), Richter; in Philonotis fontana cushions below wet rock face by Allt a'Choire Reidh nr Culnacraig, Achiltibuie (105), Long.
- 1/3. A. laevis, bank of R. Llyfnant, Pont Llyfnant (47), Benoit.
- 3/1. Targionia hypophylla, place 104 in (), (Birks & Birks, 1974).
- 6/1. Lunularia cruciata, steps in an alley, Lerwick, Mainland (112), Hill.
- 8/1. Marchantia polymorpha Y var. alpestris, calcareous gravel by stream, Shiningpool Moss nr Kettleshieil, N. of Greenlaw (81), Long & Chamberlain; soil at base of calcareous sandstone cliff in wooded ravine, Whitemire nr Brodie (95), Richter.
- 10/5. Riccia glauca, damp clay in stubble field nr Luffness Mains, Aberlady (82), Long & Chamberlain; gravelly track, Merkland Wood, Brodick, Isle of Arran (100), Corley.
- 10/10. R. fluitans, small pools on Flitwick Moor (30), Outen, 1972; Heathcote drain, Tongue End (53), E. J. Radshaw.
- 10/13A. R. cavernosa, mud on margin of Lower Drakelow Pond, Woburn Park (30), P. Taylor, 1948; black drying mud, Loch of Strathbeg (93), Richter.
- 12/1. Riccardia incurvata, damp gravel by Sting Bank Burn above Hopes Reservoir, Lammermuirs (82), Long & Chamberlain; damp gravel by L. Ach'an Lochaidh nr L. Eriboll (108), Long; peaty soil and in moss tufts, valley E. of Helliers Water, Unst (112), Paton & Hill; E. shore of L. Meela, Dunglow (H. 35), Paton, 1969.
- 12/4. R. latifrons, decaying log in bogland nr Dovey Junction (47), Benoit; rotten log in basic flush, Shiningpool Moss nr Kettleshieil, N. of Greenlaw (81), Long & Chamberlain.
- 12/5. R. palmata, rotten log at edge of wood, Craigend Castle nr Torphichen (84), Long et al.
- 14/3. Pellia neesiana, among rushes on wet heath, Penrhos Lligwy (52), Hill; 109, Appleyard (B.B.S. exc.).
- 15/2. Metzgeria fruticulosa, on beech and rhododendron, Merkland Wood, Brodick, Isle of Arran (100), Corley.
- 15/3. M. conjugata, rocks in gully nr Pont Crugnant, between Machynlleth and Llanidloes (47), Hill & Benoit.
- 15/5. M. pubescens, basic rock in ravine, Sluie (95), Richter.
- 17/2. Moerckia flotoviana, sand amongst riverside stones, Fordmouth, Tomintoul (94), E. M. Birse; wet peat on moor, Wester Glenernie nr Dunphail (95), Richter.
- 17/3. M. blyttii, damp soil on steep shaded N.E.-facing slope nr summit of Ben Hope (108), Long & Chamberlain.

- 19/1. Petalophyllum ralfsii, fixed dune-slack, Achnahaird Bay, Achiltibuie (105), Long -- new to Scotland.
- 20/1. Fossombronia foveolata, 109, Crundwell (B.B.S.exc.).
- 20/3. F. incurva, margin of L. of Cliff, Burrafirth, Unst (112), Paton & Hill.
- 20/3A. F. fimbriata Paton, new species, recorded from 78, 79, 88, 97, 98, 101, H. 28 (Paton 1974a).
- 20/5. F. caespitiformis, delete 45 (Mynydd Morfa), H. 1 (Staigue Fort), H. 3 (Allihies) and H. 16 (road to Ballynahinch Castle Hotel). Specimens on which records were based are F. husnotii.
- 20/7. F. husnotii, wet cart track, Mynydd Morfa, Mathry (45), Jones, 1950; Currane Lake, and Staigue Fort nr Castle Cove (H. 1), Fitzgerald, 1951 (B.B.S.exc.).
- 20/8. F. pusilla  $\beta$  var. maritima, track on wet heath nr Wood Crates, New Forest (11), Paton, 1973.
- 20/9. F. wondraczekii, steep bank by track in sheltered glen nr Glanmerin, Machynlleth (47), Benoit; damp barley field by White Burn nr Newmill of Inshewan, Kirriemuir (90), Long; bank beside L. of Vatsetter, Yell (112), Paton & Hill; wet peaty mud, drained valley bog, Golden Ball, Kiltarnan (H. 21), Pitkin.
- 21/1. Haplomitrium hookeri, 109, Long et al. (B.B.S.exc.).
- 22/2. Anthelia juratzkana, soil on rocks on sea-cliff slope, 90 m alt. on Ritten Hamar, Saxa Vord, Unst (112), Paton & Hill.
- 27/2. Ptilidium pulcherrimum, Alnus trunk beside R. Hodder, Whitewell Gorge (60), Blockeel; rotten log, Whitmuir Moss (80), Corner.
- 28/1. Trichocolea tomentella, wooded gully nr Llyn Gwyddior N.E. of Llanbrynmair (47), Hill; Langtonlees Cleugh (81), T. Brown, 1833, comm. Long, place in (); 111, Mrs A. Thomson (B.B.S.exc.).
- 29/1. Blepharostoma trichophyllum, damp shaded bank in Cae Cenau ravine, Aberllefenni (47), Benoit, 1973.
- 30/1. Bazzania trilobata, moss-covered grit boulder in rocky gorge, Daren y Dimbath, Cwm Dimbath (41), Perry.
- 31/3. Lepidozia pearsonii, pine forest 3 miles E.S.E. of Braemar (92), A. D. Horrell; bryophyte mats, S. bank of Burn of Skaw, Saxa Vord, Unst (112), Paton & Hill.
- 31/4. L. setacea, wet peat on moor, Wester Glenernie nr Dunphail (95), Richter.
- 31/6. L. sylvatica, tussock on wet heath, Penrhos Lligwy (52), Hill; peaty bank on moor, Wester Glenernie nr Dunphail (95), Richter.
- 33/1. Calypogeia neesiana  $\alpha$  var. neesiana, 109, Appleyard (B.B.S.exc.).
- 33/5. C. sphagnicola, peat on hill top, Loine (95), Robertson & E. L. Birse, 1973; 111, Appleyard (B.B.S.exc.).
- 34/6. Lophozia excisa, earthy wall top, head of Caol Scotnish (101), Kenneth, 1971.
- 34/8. L. capitata, delete H. 3, the Irish specimen, probably Miss Hutchin's plant from Bantry Bay (GL), is Acrobolbus wilsonii, comm. Jones & Crundwell.
- 34/10. L. opacifolia, basic rocks by Striding Edge, Helvellyn (69), Birks, 1964 (Lammes, 1974) -- new to England.
- 35/1. Leiocolea turbinata, shaded chalk exposure, Alderford Common (27), Swann & Libbey; base-rich stream bank, Long Mountain nr Buttington (47), Hill.

- 35/2. Leiocolea badensis, moist basic recess, Buck Cleuch, Rankle Burn, Ettrick (79), Corner; 111, Appleyard (B.B.S.exc.).
- 37/1. Tritomaria quinqueidentata, on Dicranum, Camlough Mt (H. 37), H. W. Lett, 1898 (NMW), comm. Fitzgerald.
- 37/2. T. exsecta, soil in wood, Strath Coille na Fearna, L. Eriboll (108), Crundwell.
- 37/3. T. exsectiformis, sandy base of old pine stump, Culbin Forest (95), Richter.
- 46/4. Solenostoma pumilum, shaded conglomerate in wooded gorge, Woodhall Burn nr Spott (82), Long et al.
- 46/5. S. cordifolium, flush by Rankle Burn, Ettrick (79), Corner; partly submerged in rocky stream, ravine of Linn Dean Water, Soutra Hill (82), Long & Chamberlain; 109, Appleyard (B.B.S.exc.); burn below L. of Voe, Mainland (112), Hill.
- 46/6. S. sphaerocarpum, streamside by road, Channerwick, Mainland (112), Hill.
- 47/1. Plectocolea obovata, rocks by stream, Hareshaw Dean, Bellingham (67), Long, 1973; shaded wet rock face by moorland stream below Bleak Law, Lammermuirs (82), Long & Chamberlain.
- 47/2. P. subelliptica, damp gravel in steep gully on S.W. cliffs, Ben Hope (108), Long & Chamberlain; 111, Appleyard (B.B.S.exc.).
- 47/4. P. paroica, sandy debris on wet rocks by river, Randolph's Leap (95), Richter; 109, Long (B.B.S.exc.).
- 48/1. Nardia compressa, sandstone rocks by Crosswood Burn, above Crosswood Reservoir (83), Long et al.
- 48/3. N. geoscyphus, gravelly slope below rock outcrop in disused Pennant sandstone quarry, Caerphilly Common (41), Perry.
- 52/12. Marsupella aquatica, Meall na Fheur L. nr L. Merkland (107), Kenneth, 1973.
- 54/3. Mylia cuneifolia, birch trunks in woods on steep N.-facing slope at Fairhaven nr Catacol Bay, Isle of Arran (100), Birks.
- 56/5. Plagiochila punctata, shaded grit boulder in rocky gorge, Daren y Dimbath, Cwm Dimbath (41), Perry.
- 56/6. P. tridenticulata, shaded damp recess between boulders on steep N.-facing block-strewn slope, An Scriadan nr L. Ranza, Isle of Arran (100), Birks.
- 57/3. Lophocolea heterophylla, decayed bark of coniferous tree, Gordonstoun (95), Richter.
- 57/5. L. fragrans, with Lejeunea lamacerina var. azorica on wet mudstone rock, wooded glen nr Gelligoch, Machynlleth (47), Benoit.
- 57/6. L. bispinosa (Hook. f. & Tayl.) Gottsche, Lindenb. & Nees, 1 -- new to the British Isles (Paton, 1974b).
- 58/2. Chiloscyphus pallescens, 109, Appleyard (B.B.S.exc.).
- 62/4. Cephalozia rubella, damp soil by track in young conifer plantation, Pressmennan Wood (82), Long & Chamberlain.
- 62/7. C. stellulifera, needle litter, Rowney Warren (30), Outen, 1972.
- 62/8. C. massalongoi, delete 91, the specimen from Mount Shade, J. Sim, 1878 (BM) is C. starkei.
- 63/3. Cephalozia pleniceps, with Mylia anomala among Sphagnum, Wester Glenernie (95), Richter, 1973.

- 63/4. C. loitlesbergeri, among Sphagnum on moor, Wester Glenernie (95), Richter; decaying Sphagnum on S. bank of Burn of Skaw, Saxa Vord, Unst (112), Paton & Hill.
- 63/5. C. connivens, heathy field by main road, Penrhos Lligwy (52), Hill; among Sphagnum on moor, Wester Glenernie (95), Richter.
- 63/10. C. catenulata, damp peat by ditch, Bawdy Moss above Crosswood Reservoir (83), Long et al.; blanket peat, Drynahan (96), Robertson & E. L. Birse, 1967.
- 63/11. C. leucantha, peat on lower slopes of hill, Chlaiginn (94), Robertson & E. L. Birse, 1973; peat on hill top, Loine (95), Robertson & E. L. Birse, 1973.
- 64/2. Cladopodiella fluitans, amongst Sphagnum papillosum, bog nr Dovey Junction (47) Benoit; floating in pool, blanket bog, Strathie Grudie, Achany (107), E. L. Birse; amongst Sphagnum magellanicum, wet hollow of eroded bog, Hill of Vigon, Yell (112), Hill & Paton.
- 65/1. Nowellia curvifolia, 109, Long (B.B.S.exc.).
- 66/1. Odontoschisma sphagni, among Sphagnum on moor, Dava (95), Richter.
- 66/3. O. elongatum, wet moorland ca. 760 m alt., Cairn Toul (92), Wallace, 1954.
- 69/2. Diplophyllum taxifolium, Ceann Garbh, Foinaven (108), Kenneth, 1973.
- 69/3. D. obtusifolium, gravelly bank by Hopes Reservoir, Lammermuirs (82), Long & Chamberlain; beside woodland track, Little Tearie, Darnaway (95), Richter.
- 70/2. Scapania cuspiduligera, 109, Long (B.B.S.exc.).
- 70/11. S. aspera, open turf on E.-facing chalk slope, S. of Isle of Wight Hill, Porton Ranges (12), Rose & Wallace.
- 70/12. S. gracilis, rotten log in boggy flush in glade, Frame Wood, New Forest (11), Rose.
- 70/13. S. nemorea, 109, Crundwell (B.B.S.exc.).
- 70/15. S. degenii, moist N.E.-facing serpentine slope at 30 m alt., Muckle Heog, Unst (112), Paton & Hill.
- 73/4. Porella cordaeana, tree trunk by Afon Tryweryn nr Bala (48), Hill; shaded vertical rocks by river, Falls of Shin, Achany Glen, Lairg (107), Long & Chamberlain.
- 75/1. Lejeunea cavifolia, 109, Long (B.B.S.exc.).
- 75/2. L. patens, 109, Long (B.B.S.exc.).
- 75/3. L. lamacerina  $\beta$  var. azorica, calcareous rocks in deep shaded ravine below waterfall, Linn Dean Water, Soutra Hill (82), Long & Chamberlain; Calgary Bay, Mull (103), E. L. Birse, 1968.

## MUSCI

### A. C. CRUNDWELL

The names and numbers follow Warburg, Census Catalogue of British Mosses ed. 3 (1963). All Sphagna have been determined or confirmed by Miss E. M. Lobley.

- 1/1. Sphagnum palustre, Godwin Plots, Wicken Fen (29), Walters & Whitehouse.
- 1/2. S. magellanicum, bog nr Dovey Junction (47), Benoit.
- 1/4. S. imbricatum, blanket bog nr Gossa Water, S.E. of Voe (112), Hill.

- 1/8. S. squarrosus, Old Decoy, Holme Fen (31), Walters, 1955 (CGE).
- 1/10. S. riparium, bog on col between Garbh Choire, Ben Avon, and North Top, Beinn a'Bhuird (94), Birks; streamside flush by Red Burn, nr Channerwick, Mainland (112), Hill.
- 1/17. S. contortum, small bog by lane up N. side of Cwm Einion (46), Benoit; damp depression on margin of Skutes Water, Fetlar (112), Paton & Hill, 1972.
- 1/19. S. fimbriatum, bog nr Dovey Junction (47), Benoit; old peat digging, Cors Bodwrog (52), Hill & Thomas.
- 1/20. S. girgensohnii, among leggy heather by John Boyne's Burn, between Lerwick and Scalloway (112), Hill.
- 1/21. S. robustum, wooded bank on S. side of R. Dulas, nr Aberllefeni (47), Benoit; rocks and moorland, Mossdale nr Dalmellington (75), F. Ambrose, 1973; streamside, Channerwick, W. of Mousa (112), Hill.
- 1/23. S. warnstorffianum, basic flush bog below waterfall, Blaen y Cwm, Pennant Melangell (47), Godwin, 1973.
- 1/27. S. plumulosum, Godwin Plots, Wicken Fen (29), Walters & Whitehouse; damp rocky flush, N. slope of Cockleroy Hill (84), Long et al.
- 3/2. Atrichum undulatum  $\beta$  var. minus, woodland ride, Lyminge Forest (15), Side.
- 3/3. A. angustatum, by R. Lougher, Carmarthen (44), W. E. Nicholson, 1926 (NMW).
- 4/1. Oligotrichum hercynicum, peaty bank above Hopes Reservoir nr Gifford (82), Chamberlain & Long.
- 5/1. Polytrichum nanum, on loamy bank in sandstone pit, Slieve Bawn (H. 25), Rubers et al., 1968 (U).
- 5/10. P. formosum, young conifer plantation, river bank br Abercorn (84), Long & Chamberlain.
- 8/3. Fissidens minutulus  $\beta$  var. tenuifolius, on broken chalk lumps in scrub, St Thellus Well, Sauton (28), Libbey & Swann, 1973; on limestone boulder in wood, Rathcline House, 2 miles S.W. of Lanesborough (H. 24), Rubers et al., 1968 (U).
- 8/4. F. bryoides, limestone pit, Lanesborough (H. 24), Rubers et al., 1968 (U).
- 8/5. F. incurvus, wood nr Elfleet Bay, L. Ree (H. 24), Rubers et al., 1968 (U).
- 8/12A. F. celticus, steep bank, Cae Cenau ravine, Aberllefeni (47), Benoit, 1973.
- 8/14. F. osmundoides, 109, Pitkin (B.B.S.exc.).
- 11/1. Pleuroidium acuminatum, on peaty soil nr Drumdaff House, 6 miles W. of Lanesborough (H. 25), Rubers et al., 1968 (U).
- 12/2. Ditrichum pusillum, 108 & 109, Whitehouse (B.B.S.exc.).
- 12/3. D. heteromallum, loamy bank, Slieve Bawn (H. 25), Rubers et al., 1968 (U).
- 12/5. D. zonatum, rock crevice at 2100 ft., Coire nan Ceum, North Glen Sannox (100), Corley:  $\beta$  var. scabrifolium, on detritus, Slieve Snaght, above Dunlewy (H. 35), Wallace, 1972.
- 17/2. Seligeria pusilla, limestone rock in wooded valley nr Hagbrae quarries, Pathhead (83), Long & Chamberlain.
- 19/1. Blindia acuta, coastal rocks affected by seepage 1 mile S. of Aberffraw (52), Hill & Thomas; on stones by flush, N. side pf Wedder Law, Ettrick (79), Corner, 1969.
- 21/1. Pseudephemerum nitidum, peaty mud by ditch nr Cliff, W. of Haroldswick, Unst (112), Hill & Paton.

- 22/1. Dicranella palustris, muddy flush in field nr Point Lynas E. of Amlwch (52), Thomas.
- 22/2. D. schreberana, newly sown pasture just E. of Llanbrynmair (47), Hill; sandy bank in field, Cliff, W. of Haroldswick, Unst (112), Hill & Paton.
- 22/4. D. varia  $\beta$  var. callistoma, ditch, Druim an Duin, nr Crinan (101), Kenneth, 1970.
- 22/4A. D. staphylinia, damp loamy field nr Newborough, Ormskirk (59), Long; barley field at Alloway, S. of Ayr (75), Whitehouse; stubble field, side of Blackpool Moss, Nether Whitlaw, nr Selkirk (80), Long, 1973; bare soil in field nr Dunfermline (85), Long; barley field by road to Mansea, nr Evanton (106), Whitehouse; oat field at Clashcoig, N.E. of Bonarbridge (107), Whitehouse; roadside ditch, Baltasound, Unst (112), Hill & Paton.
- 22/5. D. rufescens, on soil by newly widened road, Auchincairn, Whiting Bay, Arran (100), Corley.
- 22/6. D. crispa, 109, Long (B.B.S.exc.).
- 22/7. D. subulata, clay face of bank, S.E. side of Llyn Fawr, Craig y Llyn (41), Perry, 1973;  $\beta$  var. curvata, wet earth bank, Danebridge (39), W. D. Foster, 1973.
- 23/1. Rhabdoweisia fugax, rock ledge on sea-cliff slope, Ritten Hamar, Saxa Vord, Unst (112), Paton & Hill.
- 23/2. R. denticulata, Monomore Glen, Arran (100), Kenneth.
- 26/1. Dichodontium bellucidum  $\beta$  var. fagimontanum, fixed dune slope, Gullane Links (82), Long & Chamberlain.
- 27/2. Dicranoweisia crispula, rocks in gully, Coire Ghranda, Ben Dearg (106), Wallace, 1957.
- 28/1. Arctoa fulvella, rock crevice at 2000 ft., Coire nan Ceum, North Glen Sannox, Arran (100), Corley.
- 29/2. Dicranum blyttii, on blocks in N.-facing boulder scree at ca. 3200 ft., Garbh Choire, Ben Avon (94), Birks; rocks, top of Coirrie, S. of summit of Ben Hope (108), Chamberlain & Long.
- 29/7. D. strictum, rotten wood in gully nr Hopton Uchaf, S. of Montgomery (47), Hill; dead birch in boggy wood 1 mile E. of Crossgates, nr Cowdenbeath (85), Long.
- 29/10. D. fuscescens, Elibank Craig, Caddonfoot (79), Corner, 1973.
- 29/14. D. polysetum, forest floor, L. Loy, Culbin (96), Richter.
- 30/3. Dicranodontium denudatum, rotting vegetation of silted-up lake, Hardwick Hall, Sedgfield (66), Graham.
- 31/1. Campylopus subulatus, gravelly layby, Achaglachgach Forest, Knapdale (101), Corley & Kenneth.
- 31/4. C. fragilis, peaty soil on blanket bog margin, Widdybank Fell (66), Graham, 1965.
- 31/6. C. flexuosus  $\beta$  var. uliginosus, boggy ground on W. side of Beinn a'Mhanaich, Luss Hills (99), Crundwell.
- 31/11. C. introflexus, humus by drive, Longleat Park (8), Wallace; bare peat on moor, L. Dallas (95), Richter.
- 35/2. Tortula ruraliformis, carboniferous limestone rocks, Llanymynech Hill (47), Benoit, 1973.
- 35/9. T. latifolia, by R. Severn, Crew Green, nr Welshpool (47), Hill, 1973.

- 35/10. T. subulata  $\beta$  var. subinermis, mud-covered tree base, Ing's Beck, Downham Bridge (64), Duckett, 1973.
- 35/14. T. stanfordensis, by R. Severn, Crew Green, nr Welshpool (47), Hill, 1973.
- 35/15. T. vahliana, place 10, H. 20 & H. 29 in [ ] (Birks, 1974).
- 35/16B. T. amplexa (Lesq.) Steere, 55 -- new to the British Isles (Side & Whitehouse, 1974).
- 37/2. Desmatodon convolutus, earthy bank, cliff path, Oxroad Bay (82), Long et al.
- 38/1. Pterygoneurum ovatum, bare chalk soil nr edge of fallow field nr Cuxton (16), Side.
- 40/4. Pottia intermedia, sandy bank, S.W. end of Gullane beach (82), Chamberlain & Long.
- 40/9. P. davalliana, 111, Gardiner (B.B.S.exc.).
- 40/10. P. commutata, earthy bank by sea, Porth Colmon, nr Llangwnnadi (49), Hill.
- 40/11. P. starkeana, limestone turf, S. side of Worsaw Hill (59), Duckett, 1973.
- 40/12. P. bryoides, path in limestone grassland between Watchet and Blue Anchor (5), M. G. McFarlane et al.
- 43/1. Cinclidotus fontinaloides, rocks in R. Severn, Welshpool (47), Hill.
- 44/1. Barbula convoluta  $\beta$  var. commutata, shaded stone wall, Lyndale House, nr Greshornish, Skye (104), Birks & H. Birks, 1973.
- 44/4. B. hornschurchiana, path by R. Leven just N. of Dumbarton (99), Crundwell; side of layby, Dunardry, S. side of Crinan Canal (101), Corley & Kenneth.
- 44/8. B. reflexa, floor of chalk pit in shade, Cockley Cley Warren (28), Libbey & Swann, 1973.
- 44/9. B. spadicea, old shaded wall, Rosturk Castle, W. of Newport (H. 27), Rubers, 1972 (U).
- 44/18. B. vinealis, top of stone wall, Stamford (53), P. E. Jackson.
- 45/3. Gymnostomum calcareum, 111, Mrs I. A. Joyce (B.B.S.exc.); mica schist by L. of Cliff, Unst (112), Hill & Paton.
- 47/1. Eucladium verticillatum, calcareous seepage in gully nr Hopton Isaf, S. of Montgomery (47), Hill.
- 49/6. Tortella flavovirens  $\beta$  var. glareicola, dunes at Fanore (H. 9), Rubers, 1972 (U); dunes, Arklow (H. 20), Rubers, 1972 (U).
- 51/2. Trichostomum hibernicum, foot of mica-schist cliff at 2600 ft., Beinn Dorain (98), Corley.
- 51/3. T. sinuosum, limestone rock nr Stenswall, Weisdale (112), Hill.
- 52/1A. Weissia perssonii, sheltered cliff crevice, Whale Geo, W. of Harra, Yell (112), Hill & Paton.
- 52/4. W. rutilans, exposed mud, Hopes Reservoir, nr Gifford (82), Chamberlain & Long.
- 52/6. W. microstoma, clay-covered limestone in pit 1 mile S. of Lanesborough (H. 24), Rubers et al., 1968 (U):  $\beta$  var. brachycarpa, meadow below Hagbrae, nr Crichton (83), Chamberlain & Long -- new to Scotland; 109, Long (B.B.S.exc.).
- 52/11. W. crispa  $\beta$  var. aciculata, disturbed ground nr path from Purwell Mill

- to Wymondley Road, Purwell, Hitchin (20), Wallace; grassy bank by track, Tantallon Castle (82), Chamberlain & Long; stubble field 1 mile N. of Dumbarton (99), Crundwell -- new to Scotland.
- 53/1. Leptodontium flexifolium, crevices in sandstone outcrops, Mynydd Rudry, Rudry Common, N. of Cardiff (41), Perry; soil by track through burnt Calluna, Corndon Hill (47), Benoit; burnt peaty ground, Mynydd Bodafon (52), Duckett, 1973; recently burnt peaty soil, N. slope of N. Berwick Law (82), Long & Chamberlain.
- 53/3. L. recurvifolium, among Trichostomum hibernicum, Sheffrey Hills (H. 27), A. McG. Stirling, 1965.
- 55/3. Grimmia conferta, andesite rocks above Pass of Melfort (98), Corley.
- 55/7. G. alpicola, concrete of weir nr Stenswall, Weisdale (112), Hill.
- 55/24. G. trichophylla, top of wall nr Crowshaw House, Stonyhurst (60), Blockeel.
- 55/26. G. stirtonii, Glen Feochan, nr Oban (98), Kenneth.
- 55/27. G. muehlenbeckii, rocky ground at Dun a'Chogaidh, nr Tayvallich (101), Kenneth.
- 55/29. G. retracta, granite boulder, Glen Lough (H. 35), Rubers, 1972 (U).
- 56/5. Rhacomitrium heterostichum γ var. gracilescens, rocks on S.W. ridge of Ettrick Pen (79), Corner.
- 56/6. R. microcarpon, delete 112, the specimen (GL) is R. heterostichum.
- 58/2. Funaria muhlenbergii, distribution to read 3, 6, 9, 34, 36, 41, 47-50, 57, 60, 62, 64, 69, 88, H. 4, 5. [1, 4, 14, 30, 35, 39, 40, 42, 45, 55, 59, 65, 66, 89, 98, 100, 112, H. 3, 33, 39, 40] (Crundwell & Nyholm, 1974).
- 58/2A. F. pulchella Philib., new to the British Isles, recorded from 2, 3, 6, 13, 34, 41, 52, 60 (Crundwell & Nyholm, 1974); limestone bank, Graig Fawr (51), Hill, 1973.
- 59/1. Physcomitrium pyriforme, cow-trampled meadow by R. Vyrnwy nr Llanfyllin (47), Benoit; ditch side, Cliff, W. of Haroldswick, Unst (112), Hill & Paton; small marsh in discontinuity of limestone pavement, Poul nabrown, E. of Ballyvaughan (H. 9), Pitkin.
- 59/3. P. sphaericum, mud on S.W. side of Harperrig Reservoir, Pentlands (83), Long; exposed mud, Antermory Loch, Milton-of-Campsie (86), J. Mitchell.
- 62/6. Ephemerum serratum α var. serratum, 109, Long (B.B.S.exc.); damp ground by Skutes Water, Fetlar (112), Paton & Hill: β var. minutissimum, stubble field nr Elmsted (15), Side; arable field, Pentraeth (52), Duckett & Thomas, 1972; barley field at Alloway, S. of Ayr (75), Whitehouse; damp soil among grass, field nr Old Langlonlees, Duns (81), Long & Chamberlain; meadow below Hagbrae, nr Crichton (83), Chamberlain & Long; 109, Crundwell (B.B.S.exc.); roadside quarry, Isbister, Mainland (112), Hill.
- 65/2. Tetraplodon mnioides, raised bog, Killashee (H. 24), Rubers, 1972 (U); on bone 2 miles N.W. of Lanesborough (H. 25), Rubers et al., 1968 (U).
- 72/1. Leptobryum pyriforme, barley field by road to Manses, nr Evanton (106), Whitehouse; oat field at Clachcoig, N.E. of Bonarbridge (107), Whitehouse.
- 73/2. Pohlia polymorpha, rock crevice, Coire nan Ceum, N. Glen Sannox, Arran (100), Corley.



- 73/3. P. elongata, rock crevice, Coire nan Ceum, N. Glen Sannox, Arran (100), Corley.
- 73/9. P. rothii, 109, Long (B.B.S.exc.); 111, Lucking (B.B.S.exc.).
- 73/10. P. bulbifera, track nr Foel Friog, Aberllefenni (47), Benoit, 1973; 111, Appleyard (B.B.S.exc.).
- 73/11. P. annotina, on timber road, Mountfin House, 2 km W. of Ferns (H. 12), Rubers, 1972 (U).
- 73/13A. P. pulchella, woodland track, Penselwood, nr Stourton (6), Appleyard; loamy bank in field nr Bangor (49), Hill; damp barley field by White Burn, nr Newmill of Inshewan, Kirriemuir (90), Long; 108 & 109, Whitehouse (B.B.S.exc.); damp clay hedgebank nr Cap Verde, St Lawrence, Jersey (C), du Feu.
- 73/13B. P. lutescens, lane bank nr Dockenfield Farm, S.W. of Frensham, Surrey (12), Crundwell; open soil on bank by track, Corndon Hill (47) Benoit; loamy bank, Llanuwchllyn (48), Hill; sandy river bank, Falls of Shin (107), Long; 109, Crundwell (B.B.S.exc.); bare soil nr stream 3 miles N. of Enniscorthy (H. 12), Side.
- 73/14. P. wahlenbergii  $\beta$  var. glacialis, in snow bed flush at ca. 3200 ft., Garbh Choire, Ben Avon (94), Birks.
- 73/15. P. delicatula, bank of stream 3 miles N. of Enniscorthy (H. 12), Side.
- 75/1. Plagiobryum zieri, 111, Appleyard (B.B.S.exc.); Muckish Mountain, 500 ft. (H. 35), Rubers, 1972 (U).
- 76/1. Anomobryum filiforme, 111, Appleyard (B.B.S.exc.).
- 77/1. Bryum marratii, 109, Long (B.B.S.exc.).
- 77/7. B. knowltonii, dune slack, Achnahaird Bay (105), Long.
- 77/9. B. salinum, rocks by the sea nr L. Ach'an Lochaidh, W. of Inverhope (108), Crundwell.
- 77/12. B. uliginosum, among Schoenus on peat-covered limestone, Annaghmore L., 3 miles N.W. of Strokestown (H. 25), Rubers et al., 1968 (U).
- 77/19. B. pseudotriquetrum  $\beta$  var. bimum, in Schoenus vegetation, St John's Wood, 3 miles S.E. of Knockcroghery (H. 25), Rubers et al., 1968 (U).
- 77/20. B. creberrimum, roadside bank, Bangor (49), Hill.
- 77/21. B. pallescens, delete 20, the locality is in 22.
- 77/25. B. argenteum  $\beta$  var. lanatum, stubble field 1 mile N. of Dumbarton (99), Crundwell; 111, Lucking (B.B.S.exc.).
- 77/26. B. bicolor, 109, Long (B.B.S.exc.).
- 77/27A. B. tenuisetum, disturbed ground in pasture nr Llangernyw (50), Hill, 1973; 108, Whitehouse (B.B.S.exc.).
- 77/28. B. micro-erythrocarpum, field nr Talybont (46), Hill; stubble field by Maybury Road, Corstophine (83), Long; bare soil in field nr Dunfermline (85), Long; 111, Gardiner (B.B.S.exc.); earth at bottom of cattle grid, Southdale, Fetlar (112), Hill & Paton.
- 77/28A. B. bornholmense, old quarry nr sea at Verclut, St Martin, Jersey (C), du Feu, 1971.
- 77/29. B. rubens, stubble field nr Nairn (96), Appleyard.
- 77/29A. B. ruderale, damp soil by small reservoir, W. end of N. Berwick Law (82), Long & Chamberlain.
- 77/30. B. klinggraeffii, wheat stubble nr Dean Farm, Brockworth (33), Whitehouse; bare soil by lane nr Gelligoch, Machynlleth (47), Benoit;

- upper saltmarsh, Humphrey Head (69), Adam; barley field N.W. of Coldstream (81), Whitehouse; barley field by road to Manses, nr Evanton (106), Whitehouse; 111, Appleyard (B.B.S.exc.); roadside ditch, Baltasound, Unst (112), Hill & Paton; fallow field, Rozel, Jersey (C), du Feu, 1972.
- 77/30A. B. violaceum, wheat stubble nr Dean Farm, Brockworth (33), Whitehouse; bank by side of lane from Dolgellau to Llanfachreth (48), Benoit, 1964; barley field N.W. of Coldstream (81), Whitehouse; barley field S. of L. Insh, nr Kincaig (96), Whitehouse; oat field at Clashcoig, N.E. of Bonarbridge (107), Whitehouse.
- 77/31. B. sauteri, loamy bank by sea, Wallog, nr Aberystwyth (46), Hill; bare earth, lane nr Gelligoch, Machynlleth (47), Benoit; bare ground with Blasia and Anthoceros, Harlech Cliff (48), Benoit; earth bank in field, Carreglefn (52), Hill & Thomas; barley field by White Burn, nr Newmill of Inshewan, Kirriemuir (90), Long; oat field at Clashcoig, N.E. of Bonarbridge (107), Whitehouse; 109, Whitehouse (B.B.S.exc.); ditch, Hoswick, Mainland (112), Hill.
- 77/35A. B. riparium, roadside ditch, Capel Hermon, Coed y Brenin (48), Hill; 109, Whitehouse (B.B.S.exc.).
- 77/36. B. donianum, railway embankment, Ramsden Park, nr Wickford (18), E. Saunders, 1965.
- 77/37. B. capillare  $\beta$  var. rufifolium, Rufus Castle, Isle of Portland (9), Appleyard, 1952; stone on cliff path, Oxroad Bay, nr Tantallan Castle (82), Crundwell et al.
- 77/37A. B. elegans, delete 43, the specimen is Plagiobryum zieri.
- 77/37C. B. flaccidum, 3, Long (B.B.S.exc.); on elder, wood nr Chaffcombe (5), Appleyard; elder bole in woodland, Kirtlington (23), Jones; ash trunk in hedge nr Bala (48), Hill; ash trunk in wooded valley, Hareshaw Burn, above Bellingham (67), Long, 1973.
- 77/37E. B. torquescens, old maple, Fermyn Woods, Brigstock (32), Jones; thin soil in disused limestone quarry N. of Llangoed (52), Hill.
- 78/1. Rhodobryum roseum, Hampstead Heath (21 in ( ) ), J. Ralfs, 1832 (BM); soil in acid oakwood, Hill of Doon, L. Corrib (H. 16), Kelly, 1973.
- 79/6. Mnium stellare, 111, Appleyard (B.B.S.exc.).
- 79/10. M. affine, bank by road nr Cemmaes (47), Thomas & Hill; nr Llanffinan (Llanddyfnan) (52), W. Wilson, det. Koponen (BM).
- 79/11. M. rugicum, 109, Long (B.B.S.exc.); 111, Appleyard (B.B.S.exc.).
- 79/12. M. seligeri, bog in depression nr Llanfihangel-yng-Ngwynfa (47), Benoit; grassy flush, N. end of Cockleroy Hill (84), Chamberlain et al; 111, Gardiner (B.B.S.exc.).
- 79/15. M. pseudopunctatum, marsh nr Sand Vatn, S. tip of Bressay (112), Hill.
- 79/16. M. cinclidioides, flush peat digging nr road, Cullivoe, Yell (112), Hill & Paton.
- 83/1. Meesia uliginosa, wet basic rock, Bridge of Brown (95), A. J. Souter.
- 84/1. Amblyodon dealbatus, 111, Appleyard (B.B.S.exc.).
- 85/1. Catoscopium nigrum, wet basic rock, Bridge of Brown (95), Richter.
- 87/2. Bartramia pomiformis  $\beta$  var. elongata, 109, Crundwell (B.B.S.exc.).
- 88/1. Conostomum tetragonum, Bressay (112), J. Shaw, 1864 (BM).
- 90/2. Philonotis fontana  $\gamma$  var. tomentella, flushed ground on gabbro nr Helliers Water, S. of Baltasound, Unst (112), Paton & Hill.
- 90/3A. P. marchica (Hedw.) Brid., 10, 69 -- new to the British Isles (Smith, 1974a).

- 90/5. P. seriata, flush on hillside, Bridge of Brown (95), Richter.
- 90/6. P. calcarea, calcareous flush by road W. of Twynau Gwynion, Merthyr Common (41), Perry, 1973; calcareous fen, raised beach nr Rubha Salach, S. of Corrie, Arran (100), Birks; oozing bank in gully of East Burn, Bardister, N. of Sullom (112), Hill; flush on peat, Kilmore Bay, shore of L. Ree (H. 25), Rubers, 1973 (U).
- 96/1. Amphidium lapponicum, N.-facing rocks, 3400 ft., Garbe Choire, Ben Avon (94), Birks & B. Huntley.
- 97/1. Zygodon viridissimus  $\gamma$  var. vulgaris, ash trunks by Plas-rhiw-Saeson, N. of Llanbrynmair (47), Hill; calcareous ledge in ravine, Linn Dean Water, Soutra Hill (82), Long & Chamberlain, 1973; basic rock nr beach, Lossiemouth (95), Richter; by stream, Falls of Shin (107), Long.
- 97/2. Z. conoideus, rowan trunk in wooded gorge, Glen Golly, Strathmore (108), Long.
- 98/9. Orthotrichum rivulare, boulder in stream, Linn Dean Water (82), Long & Chamberlain.
- 98/10. O. sprucei, elm by R. Frome, Scuttsbridge Mill, Woolverton (6), Appleyard; willow by R. Severn at Crew Green, nr Welshpool (47), Hill, 1973; base of ash by R. Ribble, Jumbles, nr Stonyhurst (60), Blockeel.
- 98/12. O. stramineum, sycamore nr Llaneilian (52), Thomas.
- 98/14. O. tenellum, old elder, Mellin-byrhedyn, SE. of Machynlleth (47), Hill & Benoit.
- 98/15. O. pulchellum, elders by abandoned farm 1 miles W. of Glendarragh, nr Newtown Mt. Kennedy (H. 20), Pitkin.
- 99/3. Ulotia crispa, on Salix trunk, bank of R. Almond below Almondell (84), Long & Chamberlain, 1973; granite rock, Beorgs of Skelberry, Mainland (112), P. A. Bassett.
- 100/3. Fontinalis squamosa, submerged in rocky river, Falls of Shin (107), Long & Chamberlain.
- 103/1. Cryphaea heteromalla, elder, Commins Coch, E. of Machynlleth (47), Hill & Thomas; Broughton Hall, nr Skipton (63), J. Nowell, 1860 (CMM); elder trunk by stream, Clauland's Farm, Lamfash, Arran (100), Corley.
- 105/1. Antitrichia curtipendula, place 9, 10, 21, 46, 75, 77, 94, & H. 21 in [ ] (Smith 1974b); amongst serpentine rocks on N.-facing slope, Muckle Heog, Unst (112), Paton & Hill.
- 106/1. Pterogonium gracile, delete 112, the specimen (E) is Pterygynandrum filiforme.
- 115/1. Myurella julacea, shaded limestone rocks, Craig Leek, nr Braemar (92), Birks.
- 116/1. Myrinia pulvinata, willow by R. Severn, Welshpool (47), Hill.
- 121/1. Heterocladium heteropterum  $\beta$  var. flaccidum, half-buried block, Kilmore, E. shore of L. Gill (H. 29), Rubers, 1972 (U).
- 122/3. Anomodon viticulosus, shaded rock and tree in ravine, Sluie (95), Richter.
- 125/1. Cratoneuron filicinum  $\gamma$  var. fallax, boulder, lake shore at Tomies Wood (H. 2), Rubers, 1972 (U).
- 125/2. C. commutatum  $\alpha$  var. commutatum, marsh, Kilmore Bay, shore of L. Ree (H. 25), Rubers, 1973 (U);  $\beta$  var. falcatum, Annaghmore Lough, 3 miles N.W. of Strokestown (H. 25), Rubers et al., 1968 (U);  $\gamma$  var. virescens, submerged just below Glencar Waterfall (H. 29), Rubers, 1972 (U) -- new to Ireland.

- 126/2. Campylium protensum, Waddingham Common (54), M. R. D. Seaward, 1963; 109, Long (B.B.S. exc.); lime-rich clay with Juncus, Hind River at Cloonsellan, 5 miles S.E. of Roscommon (H. 25), Rubers et al., 1968 (U).
- 126/3. C. chrysophyllum, 111, Gardiner (B.B.S. exc.).
- 126/4. C. polygamum, upper saltmarsh turf, L. Ainort, Skye (104), Adam, 1973; among Phragmites, Begnagh Bridge, 1.5 miles S. of Cloondara (H. 24), Rubers et al., 1968 (U).
- 126/5. C. elodes, calcareous dune slack, Morrich Mor, nr Tain (106), Ratcliffe; with Schoenus on W. shore of R. Shannon 1 mile E. of Athlone (H. 25), Rubers et al., 1968 (U).
- 127/1. Leptodictyum riparium, on linoleum in squalid pool, Welshpool (47), Hill.
- 128/1. Hygroamblystegium tenax, rocks in stream, Grimsthorpe Park (53), Chandler, 1965.
- 128/2. H. fluviatile, rocks in R. Severn, Welshpool (47), Hill.
- 129/2. Amblystegium juratzkanum, Trinity Island, L. Key (H. 25), Rubers et al., 1968 (U).
- 129/3. A. kochii, shore of L. Ree 1 mile W. of Lanesborough (H. 25), Rubers et al., 1968 (U).
- 129/4. A. varium, blackthorn bole nr Afon Alun, N. of Castle-upon-Alun, Ewehny (41), Perry; mud in swamp on S. side of Crinan Canal, Dunardry (101), Corley & Kenneth; blocks in stream, Mill Wood, 1 mile W. of Carrick on Suir (H. 6), Rubers, 1972 (U); boulder on N. shore of L. Gill (H. 28), Rubers, 1972 (U).
- 131/1. Drepanocladus aduncus, submerged in drainage depression in field, Wentlooge Level (35), C. Scotter, 1973; stony river bed, Schrute Bridge, 2 miles S.W. of Ballymahon (H. 24), Rubers et al., 1968 (U).
- 131/2. D. sendtneri, among Phragmites, Begnagh Bridge, 1½ miles S. of Cloondara (H. 24), Rubers et al., 1968 (U).
- 131/3. D. lycopodioides, damp depression in old gravel workings, Kingston (95), Richter; calcareous dune slack, Morrich Mor, nr Tain (106), Ratcliffe; submerged in lake, Bethlehem House, L. Ree (H. 23), Rubers et al., 1968 (U).
- 131/7. D. vernicosus, streamside flush nr Llyn Gwyddior, N.E. of Llanbrynmair (47), Hill.
- 132/2. Hygrohypnum luridum, wet rock in limestone quarry 1 mile S. of Lanesborough (H. 24), Rubers et al., 1968 (U).
- 134/1. Acrocladium stramineum, on peat digging, Cors Bodwrog (52), Hill & Thomas.
- 136/1. Scorpiurium circinatum, limestone boulders at water's edge, Hare Island, L. Ree (H. 23), Pitkin.
- 137/3. Camptothecium nitens, basic flush on hillside, Bridge of Brown (95), Richter.
- 138/2. Brachythecium glareosum, shore of Annaghmore L., 3 miles N.W. of Strokestown (H. 25), Rubers et al., 1968 (U).
- 138/4. B. salebrosum, limestone boulder, Rathcline House (H. 24), Rubers, 1972 (U).
- 138/5. B. mildeanum, dunes, Gosford Sands (82), Chamberlain; damp sandy ground by sea, Carriden, nr Bo'ness (84), Long & Chamberlain.
- 138/7. B. rivulare, limestone boulder, shore of L. Ree, St. John's Wood, 3 miles S.E. of Knockcroghery (H. 25), Rubers et al., 1968 (U).

- 140/3. Cirriphyllum crassinervium, limestone rocks nr L. of Asta, Scalloway (112), Hill.
- 141/10. Eurhynchium murale, Carboniferous limestone scree, slope of Llany-mynech Hill above Carreghofa (47), Benoit, 1973; shaded stone wall, Tormore, Sleat Peninsula, Skye (104), Birks & H. Birks, 1973; limestone rocks nr Stenswall, Weisdale (112), Hill; limestone boulder, Rathcline House (H. 24), Rubers, 1972 (U); sheltered limestone wall, Ballagh, 4 miles N.W. of Lanesborough (H. 25), Rubers *et al.*, 1968 (U).
- 141/11. E. confertum, wall, Hoswick, Mainland (112), Hill; shaded limestone wall, St. John's Wood, shore of L. Ree (H. 25), Rubers, 1973 (U); dead wood, mixed ashwood on limestone, Hogs Island, L. Carra, nr Ballinrobe (H. 26), Kelly, 1973.
- 142/1. Rhynchostegiella pumila, soil overlying limestone nr Currie Lee (83), Long & Chamberlain; shady limestone rocks, dean nr Carriden House, Bolness (84), Long & Chamberlain; 109, Whitehouse (B.B.S. exc.).
- 142/3. R. teesdalei, rocks in base-rich stream, Long Mountain, nr Welshpool (47), Hill; sandstone boulder by stream, Mill Wood, W. of Carrick on Suir (H. 6), Rubers, 1972 (U).
- 142/4. R. tenella  $\beta$  var. litorea, ash and maple, roadside hedgerow, Aythorpe Roding (19), K. J. Adams, 1969.
- 143/1. Pterygynandrum filiforme, Whiteness (112), J. Sim, 1878 (E, as Pterogonium gracile).
- 144/2. Orthothecium intricatum, base-rich shale, Cwmlladron, nr Hopton, S. of Montgomery (47), Hill; basic rocks at Buck Cleugh, Buccleugh, Rankle Burn (79), Corner, 1970.
- 145/1. Entodon concinnus, amongst grass on limestone quarry waste, Hagbrae quarries, Pathhead (83), Long & Chamberlain.
- 148/2. Isopterygium depressum, base-rich bank in gully nr Hopton, S. of Montgomery (47), Hill; shaded limestone rocks nr Marle Hall, Conway (49), Hill; Old Red Sandstone, Woodhall Dean, below Weatherly (82), Chamberlain & Long.
- 148/4. I. elegans, soil at base of trees, Dunsby Wood (53), Chandler, 1973.
- 149/1. Plagiothecium latebricola, on rotting wood in mixed woodland, Garadice Lough, nr Ballinamore (H. 29), Kelly -- new to Ireland.
- 149/4. P. denticulatum  $\alpha$  var. denticulatum, heathy coastal turf N. of Llangoed (52), Hill; shady woodland bank nr Shawsmill, Cardenden (85), Long; turf sea-cliff slope, Ritten Hamar, Saxa Vord, Unst (112), Paton & Hill.
- 149/6. P. curvifolium, bank by stream E. of Corndon Hill (47), Hill; earth on wall, Lleiniog (52), Hill; base of tree trunk in wooded dean nr Carriden House, Bolness (84), Long & Chamberlain.
- 149/7. P. laetum, foot of ash on bank of tributary of R. North Esk below Kirkettle, Auchendinny (83), Long & Chamberlain; wet soil in birch wood, Rhonadale Burn, Carradale (101), Corley & Kenneth; 109, Crundwell (B.B.S. exc.).
- 149/9. P. roeseanum, shady conglomerate face of wooded ravine, Langlonlees Cleugh, nr Duns (81), Long & Chamberlain; damp limestone rock in shady valley nr Hagbrae quarries, Pathhead (83), Long & Chamberlain; coastal woodland S. of Ardnoe Point, Crinan (101), Kenneth, 1971.
- 151/1. Pylaisia polyantha, old thorns, Broughton, nr Skipton (63), J. Nowell, 1856 (CMM); elder on river bank by Hopes Water nr Yester Castle, Gifford (82), Long & Chamberlain.

- 154/1. Hypnum cupressiforme  $\delta$  var. mamillatum, in Quercus petraea woodland on S.E. side of R. Dulas, nr Aberllefenni (47), Benoit, 1973; among shrubs on bank, Bodnant Gardens, Eglwysbach (50), Hill; tree, Llansadurn (52), Thomas; hazel by R. South Esk above Trotter's Bridge, Arniston (83), Long & Chamberlain:  $\gamma$  var. tectorum, 109, Appleyard (B.B.S.exc.).
- 156/1. Ctenidium molluscum  $\beta$  var. condensatum, wet basic rocks in ravine, Allt Mor, Beinn Bhreac, Carradale (101), Corley & Kenneth:  $\gamma$  var. fastigiatum, limestone rock by arm of L. Larich, Appin (98), Wallace.
- 161/3. Hylocomium umbratum, slope in oak wood above S. side of R. Dulas, nr Aberllefenni (47), Benoit, 1973.

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CONTRIBUTIONS FOR THE NEXT BULLETIN

SHOULD REACH THE SECRETARY

BY 1st DECEMBER, 1975

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## 9. DISTRIBUTION MAPS SCHEME AND REQUEST FOR RECORDS

Records from 10 km grid squares in many parts of Britain and Ireland are still urgently required. Information on areas for which records are needed and field record cards (20p for 10) are available from the Mapping Secretary, Dr A. J. E. Smith, School of Plant Biology, University College of North Wales, Bangor, Gwynedd, LL57 2UW.

Distribution maps of the species listed below are in the process of preparation. The Mapping Secretary would be grateful for any records of these.

Frullania germana	Ditrichum pusillum
Radula aquilegia	D. zonatum var. zonatum
Glyphomitrium daviesii	D. zonatum var. scabrifolium
Sphagnum imbricatum	D. vaginans
S. fuscum	Telaranea sejuncta
S. warnstorffianum	T. murphiae
S. strictum	Tayloria lingulata
Riccia canaliculata	T. longicollis
Riccia nigrella	Harpanthus flotowianus
Solenostoma oblongifolium	Plagiothecium latebricola

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## 10. HOW FAST IS TORTULA STANFORDENSIS SPREADING IN BRITAIN?

Tortula (or Hyophila) stanfordensis is known only from a limited area (20 mile radius) in California and from scattered localities in England and Wales. It has generally been regarded as an introduction, both in California and Britain, though its country of origin is unknown. The recent realization that the plant is abundant and widespread along river banks in some parts of Britain has raised such questions as how fast is it spreading, or conversely, is it really not spreading at all but is a native plant that has been overlooked? To answer these questions the co-operation of bryologists is sought.

Tortula stanfordensis was discovered in West Cornwall (v.-c 1) in 1958 (Whitehouse, H. L. K. (1961). Trans.Br.bryol.Soc. 4, 84-94) and is known from cliff paths and arable fields in six 10 km squares in the neighbourhood of the Lizard and Penzance (10/42, 43, 52, 53, 61, 71). Subsequently the plant was found in a limestone quarry at Tadcaster (v.-c. 64, grid square 44/44), in a wood at Matching (v.-c. 19, square 52/51) and in the grounds of Chiswick House, London (v.-c. 21, square 51/27). All the other recent finds have been on or near river banks: the river Wye in v.-c.'s 34-36, 42 and 43 (squares 32/14, 24, 34, 50, 52 and 53) and its tributary the Monnow (v.-c. 35, square 32/42); the river Severn in v.-c.'s 33, 37, 40 and 47 (squares 32/19, 29, 81 and 84, and 33/20, 21, 31 and 60); and the river Thames (v.-c. 17, square 51/17) and its tributaries the Crane (v.-c. 21, square 51/17) and Mole (v.-c. 17, squares 51/15 and 16). The known British distribution at the present time thus comprises 14 vice-counties (1, 17, 19, 21, 33-37, 40, 42, 43, 47, 64) and 27 10 km squares. Only about 10 people, however, have been involved in the finds of the plant (K. J. Adams, J. Appleyard, G. C. S. Clarke, A. C. Crundwell, J. G. Duckett, M. O. Hill, J. A. Paton, A. R. Perry, H. L. K. Whitehouse, M. P. Whitehouse) and the present known distribution is possibly largely a reflection of where they have looked for it! The extent to which the plant is under-recorded is indicated by the ease with which 4 new vice-county records and 8 new 10 km square records were made at the last BBS meeting (or on journeys associated with the meeting), though admittedly all these finds were along rivers from which it was already known.

In the hope of remedying the present lack of knowledge of the plant's real distribution, I appeal to members to search river banks for it. The favourite habitat is on otherwise bare ground under bushes or trees where liable to flooding. It has a wider leaf with a more rounded apex than Barbula unguiculata (the only plant likely to be confused with it in the field) and the excurrent point is shorter. Under a microscope the leaf border of narrow cells, and teeth near the leaf apex, will immediately identify it. The plant is normally without fruit and most populations are female, though male plants have been seen by the river Mole near Box Hill (51/15) and at Chiswick House (51/27). Sporophytes, too, have been seen at these localities, and also by the Wye at Hoarwithy (32/53). Mature capsules, however, have been found only once (by G. C. G. Argent) and this was in a very sheltered position on the river bank near Box Hill. The gametophyte as well as the sporophyte is extremely susceptible to desiccation, so the plant vanishes in a dry summer unless growing in a very sheltered place. For this reason, failure to find the plant at a particular locality between May and September does not necessarily mean it is absent. For instance, I failed to find it at Upton-upon-Severn in August 1972, but it was so abundant at the same locality in April this year that I am confident it must have been there for years.

In order to establish that the plant is spreading in Britain, negative records are particularly valuable for comparison with later observations. I hope, therefore, that anyone interested will keep notes of where they failed to find the plant as well as where they were successful. March and April are the best months for recording, as these normally represent the end of the plant's growing season. Negative records made in April this year include stretches of the banks of the Severn and Wye at intervals between altitudes of 300 and 400 feet (where the rivers are perhaps too fast-flowing for the banks to be sufficiently silty), the Vyrnwy at 200 feet (absence unexplained), and the Warwickshire Avon at three places between 50 and 125 feet (river too polluted for any moss except Bryum bicolor!).

At Matching, Essex, T. stanfordensis occurs for half a mile along a path made by badgers. They seem to have been responsible for spreading the moss, since I could find it nowhere else in that part of the wood. So this is another habitat worthy of scrutiny elsewhere.

Details of river banks (and badger paths!) searched, and whether the result was positive or negative, will be welcomed and should be sent to me at Botany School, Downing Street, Cambridge, CB2 3EA. Please include a note of the month as well as the year in which the search was made.

H. L. K. WHITEHOUSE

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## 11. NOTE ON THE VICE-COUNTY DISTRIBUTION OF SPHAGNUM SUBSECUNDUM

Sphagnum subsecundum var. subsecundum has been seriously misunderstood in Britain (M. O. Hill, unpublished). The following list gives the vice-county distribution so far as known in March 1975. Would members who have additional records of the variety please send them to me, Institute of Terrestrial Ecology, Penrhos Road, Bangor, Gwynedd, LL57 2LQ, and not to Mr Crundwell. Specimens are essential, as no British bryologist appears to have had a completely clear idea of the variety until recently. The specimens listed below have all been checked by me, and are in the personal herbaria of their finders unless otherwise stated. Conventions and abbreviations are as in the general lists of vice-county records.



Hense Moor, Luppit (3), Appleyard, 1969; Britty Common, Buckland St Mary (5), Appleyard, 1968 (herb. B.B.S.); shallow pools, boggy ground, Wilverley Walk, New Forest (11), Paton, 1957 (herb. B.B.S.); Aldershot (12), W. R. Sherrin, 1900 (GL); boggy ground, Buxton Heath (27), U. K. Duncan, 1953 (herb. B.B.S.); fen, Roydon Common (28), Birks, 1966; Cors y Sarnau, Bala (48), Benoit, 1973; Afon Aber (49), Lobley, 1949; marsh, Gors Maen-Ilwyd, Hiraethog moors (50), Hill, 1973; marsh, W. end of Rydal Water, Grasmere (69), Paton, 1966; flush bogs, Caud Beck Flowe, Bewcastle (70), Ratcliffe, 1956; boggy ground by Pattieshorn High Loch, Kirkcudbright (73), H. Milne-Redhead, 1964 (herb. A. J. E. Smith); Mark of Luce Moss, Kirkcowan (74), Lobley, 1937 (herb. B.B.S.); L. Merradie, Glen Tig (75), H. Milne-Redhead, 1964 (herb. B.B.S.); marsh W. of Craigallian Loch (86), Crundwell, 1956; spring, alt. 2400 ft, S.E. side of Stob Coire an Lochan, Braes of Balquhider (87), Crundwell, 1964; Black Wood of Rannoch (88), I. D. Clear, 1960 (GL); wet grassy ground  $\frac{1}{2}$  mile E. of Corb, Forest of Alyth (89), U. K. Duncan, 1967 (herb. B.B.S.); head of Forfar Loch (90), U. K. Duncan, 1953 (CGE); between Kingussie and Kincaig (96), U. K. Duncan, 1947 (herb. E. W. Jones); marsh, Tiorran Castle, L. Shiel (97), Lobley, 1972; bog, alt. 1000 ft, W. side of Carn Duchara, Kilmelford (98), Corley, 1969; boggy ground, L. Achanalt (106), U. K. Duncan, 1962.

M. O. HILL

## 12. FUNARIA PULCHELLA IN THE BRITISH ISLES

According to Crundwell & Nyholm (1974), in Europe the Funaria muhlenbergii group comprises 3 species, F. muhlenbergii Turn. (= F. calcarea Wahlenb.), F. pulchella Philib. and F. convexa Spruce. The first two of these occur in the British Isles (see p. 16 of this Bulletin for their present known vice-county distribution). Descriptions given by Crundwell & Nyholm of these two are as follows:

1. Funaria muhlenbergii Turn. Leaves to 3 mm long (excluding the point), obovate to oblong, acuminate, rather suddenly contracted to a long point (up to 700  $\mu$ m), the terminal cell very elongated (to 450  $\mu$ m); nerve usually ceasing well below the tip, but exceptionally extending into it; margin toothed, usually strongly so, in the upper half of the leaf with projecting cells or cell ends; marginal cells below the teeth usually longer and often wider than the adjacent cells. Seta typically thicker and longer than in the other species, 7-11 mm long in British material; lid conical, mamillate, orange-yellow, 1-2 rows of cells at margin more strongly coloured, but not contrasting in colour nor conspicuously different. Spores rather coarsely papillose, 20-27(-30)  $\mu$ m.
2. Funaria pulchella Philib. Leaves to 3 mm long (excluding the point), ovate to obovate, usually a little broader than in F. muhlenbergii, acuminate, rather more gradually contracted to a shorter or longer point (up to 450  $\mu$ m); terminal cell shorter than in F. muhlenbergii, occasionally to 280  $\mu$ m but in most specimens very much shorter; nerve usually ceasing well below the tip, on average a little shorter than in F. muhlenbergii, but in some exceptional forms percurrent; margin entire or slightly sinuose, occasionally with a few inconspicuous teeth in the upper part; marginal cells usually hardly differentiated in size or shape from the adjacent ones. Seta slender and shorter than in typical F. muhlenbergii, 5-8 mm in British material; lid conical, mamillate, orange-yellow, the marginal cells red or orange-red. Spores finely papillose, 20-25(-28)  $\mu$ m.

Reference: Crundwell, A. C. & Nyholm, E. (1974). Funaria muhlenbergii and related European species. Lindbergia 2, 222-9.

### 13. KEY TO BRITISH AND IRISH SPECIES OF FISSIDENTACEAE

By A. J. E. Smith

Each leaf of Fissidens and Octodiceras consists of three parts: a conduplicate portion, referred to here as the sheathing laminae (and sometimes elsewhere as the true or vaginant laminae); the apical lamina (or superior lamina) continuing beyond the sheathing laminae; the dorsal lamina (or inferior lamina) forming the whole of the dorsal side of the leaf. In the key cell measurements are from cells of the apical and dorsal laminae midway between nerve and margin about three-quarters the way up the leaf.

1. Sheathing laminae  $1/4$  to  $1/3$  total leaf length, capsule barely emerging from perichaetial lvs Octodiceras fontanum  
Sheathing laminae about  $1/2$  total length of lf, seta long 2. (Fissidens)
2. Lvs with border of narrow, elongated cells at least on sheathing laminae of perichaetial lvs, margin entire or obscurely denticulate above 3  
Lf unborded, margin crenulate, denticulate or irregularly dentate above 14
3. Lvs  $\pm$  tapering from below middle to acuminate apex, cells about twice as long as wide Fissidens algarvicus  
Stem lvs  $\pm$  abruptly narrowed to acute to obtuse or obtuse and apiculate apex, cells about as long as wide 4
4. Border present only on sheathing laminae of perichaetial lvs, plants 1.5 - 2.5 mm Fissidens exiguus  
Border present on all laminae at least of perichaetial lvs 5
5. Capsule  $\pm$  horizontal, antheridia in small branch at base of female shoot Fissidens incurvus  
Capsule erect or inclined but not horizontal, antheridia usually in small basal shoot or in bud-like axillary shoots or plants synoecious or dioecious 6
6. Fertile plants small, 2-6 mm, border of stem lvs not confluent with nerve at lf apex, antheridia never in bud-like axillary shoots 7  
Plants 3-25 mm and lf less than 5 mm then border of stem lvs confluent with nerve at lf apex and antheridia in bud-like axillary branches 9
7. Perichaetial lvs linear-lanceolate, longly acuminate, 7-9 times as long as wide, nerve percurrent to excurrent Fissidens viridulus var. tenuifolius  
Perichaetial lvs wider, acute, 4-6 times as long as wide, nerve ending in or below apex 8
8. Plants usually autoecious or dioecious, lf cells mostly 8-14  $\mu$ m wide, border of perichaetial lvs usually extending to apex Fissidens viridulus var. viridulus  
Plants synoecious, lf cells 6-10  $\mu$ m wide, border of perichaetial lvs poorly developed and ending well below apex Fissidens bambergerei
9. Border of stem lvs confluent with nerve at lf apex, antheridia usually in bud-like axillary branches 10  
Border not confluent with nerve, antheridia never in axillary branches 13

10. Older parts of stems matted with deep red rhizoids  
Fissidens curnovii  
 Older parts of stems not matted with rhizoids, rhizoids reddish-brown or brown 11
11. Border thin, unistratose, usually colourless, spores 10–14  $\mu\text{m}$   
Fissidens bryoides  
 Border two or more stratose, stout, usually yellowish, spores 14–20  $\mu\text{m}$  12
12. Perichaetial lvs  $\pm$  similar to upper stem lvs, cells 8–10  $\mu\text{m}$  wide  
 capsule  $\pm$  erect Fissidens rivularis  
 Perichaetial lvs markedly narrower than upper stem lvs, cells mostly 10–14  $\mu\text{m}$  wide, capsule inclined Fissidens monguillonii
13. Lf cells mostly 10–18  $\mu\text{m}$  wide, a row of chlorophyllose cells outside border of sheathing laminae Fissidens crassipes  
 Cells mostly 6–10  $\mu\text{m}$  wide, no chlorophyllose cells outside border of sheathing laminae Fissidens rufulus
14. Plants not exceeding 5 mm, nerve ending below apex to percurrent 15  
 Plants larger, main branches 5–100 mm, nerve ending below apex to excurrent 16
15. Stems with 4–8 lvs, nerve straight, cells 8–12  $\mu\text{m}$  wide  
Fissidens exilis  
 Stems with up to 36 lvs, nerve with distinct bend about halfway up lf, cells 12–20  $\mu\text{m}$  wide Fissidens celticus
16. Lvs irregularly dentate towards apex, 3–4 rows of marginal cells forming pale band especially in older lvs 17  
 Lvs crenulate or regularly serrate towards apex, marginal cells not differentiated 19
17. Lf cells with conical mamillae Fissidens serrulatus  
 Cells not mamillose 18
18. Lf cells 6–12  $\mu\text{m}$  wide, partially bistratose, spores 10–16  $\mu\text{m}$   
Fissidens cristatus  
 Cells 12–20  $\mu\text{m}$  wide, unistratose throughout, spores 18–24  $\mu\text{m}$  Fissidens adianthoides
19. Nerve excurrent, cells 6–10  $\mu\text{m}$  wide, main branches to 3 cm long, seta reddish 20  
 Nerve ending below apex to percurrent, cells 8–22  $\mu\text{m}$ , main branches 2–10 cm long, seta purple or yellowish 21
20. Main branches to 2 cm long, lvs lanceolate–lingulate, acute to obtuse and apiculate, margin crenulate or serrulate, capsule inclined or horizontal Fissidens taxifolius ssp. taxifolius  
 Main branches 2–3 cm, lvs lanceolate to linear–lanceolate, tapering from end of sheathing laminae to acuminate apex, margin finely crenulate or finely serrulate, capsule erect Fissidens taxifolius ssp. pallidicarpus
21. Lvs broadly lingulate, cells 12–22  $\mu\text{m}$  wide, seta purple Fissidens osmundoides  
 Lvs narrowly lingulate to narrowly lanceolate, cells 8–14  $\mu\text{m}$  wide, seta yellowish Fissidens polyphyllus

#### 14. REQUESTS FOR PLANT MATERIAL AND BOOKS

(a) Paul Wilkins, School of Biological Sciences, Thames Polytechnic, Wellington Street, London, SE18 6PF, requires specimens of Bryum argenteum, Tortula muralis and Marchantia polymorpha from sites throughout the British Isles as an aid to his research work on the relationships between British bryophytes and heavy metals. Any members wishing to help in the collection of material of these three species are invited to write to him and he will reply giving details of his needs. All postage will be refunded.

He would also be pleased to hear from members who are in a position to collect material of other species which they suspect may be growing in situations where they are likely to encounter above-average concentrations of heavy metals.

(b) Wayne R. Guerke, Department of Botany, Southern Illinois University, Carbondale, Illinois 62901, U. S. A., requests living plants of Amphijubula, Hattoria, Jubula, Jubulopsis, Neohattoria and Schusterella (Hepaticae), for use in biosystematic studies. Reimbursement of air mail postage and exchange of local specimens are available on request.

(c) Dr A. J. E. Smith, School of Plant Biology, University College of North Wales, Bangor, Gwynedd, LL57 2UW, wishes to obtain a copy of Conspectus Muscorum Europaeorum by J. Podpěra. If any member has a copy which they are prepared to dispose of he would be very grateful to hear from them.

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#### 15. NEW MEMBERS, DECEMBER 1974 - JUNE 1975

ADAMS, G. H., M.B., Ch.B., M.R.C.S., L.R.C.P., 7 Marlbrook Lane, Bromsgrove, Worcestershire, B60 1HP  
BESCOBY, Mrs B. E., 30 Oak Road, Withington, Manchester, M20 9DA  
BRAITHWAITE, M. E., Houghton Castle, Hexham, Northumberland, NE46 4AY  
BRETT, M. C. A., White Webbs, Norton Way South, Letchworth, Herts., SG6 1SX (Junior)  
CRUNDALL, M. L., 104 Longbarn Lane, Woolston, Warrington, WA1 4QR  
DOBSON, J. E., Computing Laboratory, The University, Newcastle upon Tyne, NE1 7RU  
DURING, Drs H. J., Institute of Systematic Botany, Transitorium II, Heidelberglaan 2, Utrecht, Netherlands.  
GUTTERIDGE, Mrs J. D., 3 Anne's Walk, Caterham, Surrey, CR3 5EL  
GUTTERIDGE, R. N., 3 Anne's Walk, Caterham, Surrey, CR3 5EL (Family)  
HAWKSFORD, J. E., 46 Buxton Old Road, Disley, Stockport, SK12 2BW  
HIGTON, R. N., 17 Manor Gardens, Southbourne, nr. Emsworth, Hants., PO10 8PA  
HOMBLE, Kaare, N-2032 Maura, Norway.  
HORNE, S. D., 1 Bramhall Road, Skelmersdale, Lancs.  
JACQUES, E., Theo Verellenlaan, B-2170 Wuustwezel-Gooreind, Belgium.  
LAWLEY, M., 29 Chamberlain Road, King's Heath, Birmingham, B13 0QP (Junior)  
MAHU, Dr M., Facultad de Ciencias U. de Ch., Casilla 653, Santiago, Chile.  
MOZINCO, Prof H. N., Box 8041, Reno, Nevada 89507, U. S. A.  
NEWTON, P., 57 Bloomsbury Lane, Timperley, Altrincham, Cheshire, WA15 6LU  
NEWTON, K., Oben, Jackson's Lane, Hazel Grove, Stockport, SK7 5JW  
RATCLIFFE, J. B., Oaktree Farm, Nant Mawr Road, Buckley, Clwyd, Wales.  
SERGIO, Dr C., Instituto Botânico, Faculdade de Ciências, Lisboa 2, Portugal.  
TRANter, Dr J. V., 14 Willow Road, Finchfield, Wolverhampton, WV3 8AF  
VINCE, R. B., 1 Bell Avenue, Sutton, Macclesfield, Cheshire, SK11 0EE  
WALL, Miss C. L., Bridge House, Chesterfield Road, Unstone, Sheffield. (Junior)

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