# BRITISH BRYOLOGICAL SOCIETY

PRESIDENT: DR. S. W. GREENE

# BULLETIN

No. 35. January, 1980 Price £0.40


C O N T E N T S



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## THE BOTANICAL RESEARCH FUND

This small private Trust Fund exists to aid individual research workers in botany. Grants, usually not in excess of £100, are awarded for specific items of expenditure connected with their work and are generally made to those who are not in receipt of any official funding to support their research.

Applications, accompanied by the name of an appropriate referee, should be sent to the Secretary, Dr. K.L. Alvin, 2, Little Gaynes Lane, Upminster, Essex, RM14 2JP. from whom further information may also be obtained.

# B R I T I S H  B R Y O L O G I C A L  S O C I E T Y

## INCOME AND EXPENDITURE ACCOUNTS YEAR TO 31 DECEMBER 1978

| INCOME | £ | EXPENDITURE | £ |
|---|---|---|---|
| Subscriptions | 2,707.00 | Printing Costs (Blackwells) | 3,807.01 |
| Sales - Blackwells Journals | | Bulletin 31 & 32 | 332.42 |
| & Subscriptions 1978 | | Biological Sub. | 7.50 |
| Less Outgoings | 2,709.77 | Prints | 37.71 |
| Investments | | Printing Code of Conduct | 91.64 |
| Profit on Sale :- | | Postages | 23.92 |
| Drayton Premium | 336.32 | Insurance | 12.46 |
| S. & P. Income Units | 164.40 | Expenses | 19.46 |
| Lloyds Bank Units | 60.85 | | |
| Sale of Literature | 323.50 | | |
| Library Receipts | 93.47 | | |
| Post Office Savings | | | |
| Interest - July 1978 | 306.75 | Net Income over Expenditure | 2,369.94 |
| | 6,702.06 | | 6,702.06 |

N.B. Interest P.O. Savings not credited 31.12.78. March 1979 Shows £676.53

## STATEMENT OF AFFAIRS AS AT 31 DECEMBER 1978

| LIABILITIES | | £ | ASSETS | £ |
|---|---|---|---|---|
| Advance Subscriptions | | 130.00 | National Westminster Bank | |
| Blackwells 1978 A/C | | 1,097.24 | Current Account | 672.72 |
| Capital A/C fwd. | 6,882.29 | | Post Office Savings Account | 9,806.75 |
| Add Net Income over Expenditure | 2,369.94 | 9,252.23 | | |
| | | 10,479.47 | | 10,479.47 |

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 31st December 1978.

4 Oakwood Drive,
Prestbury,
Cheshire.

J. Brassington,
Certified Accountant,
13th August 1979.

## THE MEETING AT LUDLOW, APRIL 1979.

The Spring Meeting was held at Ludlow, Shropshire (vc. 40) from 4 to 11 April. During the week, 37 members and other bryologists attended and even on the last day there were still 17. Although the meeting provided relatively few NVCRs and rarities, the total count of about 280 species, from a wide range of habitats provided invaluable experience for the high proportion of near-beginners.

5 April. The morning was spent exploring old, wooded quarries below Wenlock Edge (vc. 40). These produced: Fissidens exilis, Pottia recta*, Weissia controversa v. crispata*, Tortula princeps, Brachythecium glareosum and Phascum curvicolle. Undeterred by a few flakes of snow during lunch the party then split up. One group remained on Wenlock Edge and found Aloina aloides and Mnium stellare, whilst others went either to Wolverton Wood, to record for the Nature Conservancy, to a wooded gorge at Monkhopton, Norton Camp Wood (the turf of the ancient camp had been devastated by tree felling) or to Ash Bridge. These sites were all on limestone though it was seldom near the surface. The species found included Dicranum tauricum*, Orthotrichum rivulare, O. stramineum, Metzgeria pubescens and Ptilidium pulcherrimum.

6 April. In the morning we walked across Leinthall Common to Croft Ambrey, an iron-age fort on the limestone edge (vc. 36) finding both limestone and heathland bryophytes such as Barbula revoluta, Ditrichum cylindricum, Pohlia lutescens* and the woodland form of Ctenidium molluscum. More notable however were the epiphytes Neckera pumila, Leucodon sciuroides and Metzgeria temperata. The afternoon saw us at Downton Gorge (vc. 36), a ravine cut by a glacial overflow in Silurian shales and limestones, the latter yielding Mnium marginatum and Reboulia hemisphaerica. The environs of the river yielded Cinclidotus mucronatus, Scleropodium cespitans and Taxiphyllum wissgrillii whilst diverse epiphytes on old elders included Cryphaea heteromalla and Orthotrichum pulchellum. A few optimists who proceeded further along the river which in the upper part of the gorge is flanked by an apparently depressing conifer plantation were rewarded by Targionia hypophylla, Pohlia cruda, Dicranella stapylina and Bartramia ithyphylla. One member noted Funaria fascicularis and Dicranella schreberana in an unploughed arable field.

7 April. A clear cold morning promised the good weather necessary for exploration of Brown Clee Hill (vc. 40). This consists mainly of Old Red Sandstone with thin calcareous bands. The summit is covered with coal mines leaving a desolate but botanically interesting landscape of overgrown spoil heaps. Confusion about where the path began, split the party into two main groups but nearly all met at the summit just in time to face a blizzard which rapidly obliterated all the bryophytes and prevented the majority from seeing Grimmia incurva. Despite the atrocious conditions 132 species were recorded and nice finds included Blindia acuta, Funaria obtusa, Rhynchostegiella teesdalei and Gyroweisia tenuis. Surprisingly, Racomitrium heterostichum was found on soil.

8 April. This was the 'free' day but most people continued mapping, particularly laudable, considering the day had started wet and continued wetter with a thunderstorm and hail. The main party went to Brampton Bryan Park (vc. 36) an attractive parkland rich

in lichens growing on old specimen trees. Species not seen on previous excursions included Scapania compacta c. spor, Plectocolea hyalina, Dicranum montanum* and Dicranella rufescens. Another party went to Mary Knoll Valley (vc. 40), a pleasant wooded valley finding Zygodon conoideus, then proceeded to Cardingmill Valley in the Long Mynd (vc. 40) hoping to pay their respects to Bryum weigelii and Grimmia montana. Others went to Limebrook (vc. 36) finding Ulota crispa, only seen once before at this meeting, to Corndon Hill (vc. 47) and to Ludlow Castle (Tortula papillosa and T. laevipila).

9 April. Despite the rain and dismal weather forecasts many of the local members still decided to brave the elements, and they were well rewarded. The rain soon ceased and a most enjoyable day was spent exploring the Ystol Bach Brook in Radnor Forest (vc. 43), until stopped by the snow line, well below the Whinyard Rocks. Species not seen before included Amphidium mougeotii, Breutelia chrysocoma, Diphyscium foliosum, Drepanocladus uncinatus, Encalypta ciliata, Plagiobryum zierii, Seligeria recurvata and Porella cordeana.

10 April. In the morning we visited Titterstone Clee Hill, (vc. 40) to examine species growing on the dolerite rocks at the summit. However we found ourselves in dense driving mist with visibility down to barely 50 yards. The party kept well together and was thankful that our leader was able to refind the cars. Despite the difficult conditions, Grimmia incurva was refound. At lunch time we looked for Tortula stanfordensis at Eastham Bridge over the R. Teme (vc. 37), a new station discovered the previous Sunday. The rain then fell torrentially but ceased as we approached Hanley Dingle (vc. 37), a pathless wooded ravine with calcareous outcrops. Particularly notable was the number of species with numerous capsules. These included Eucladium verticillatum, Eurhynchium praelongum var. stokesii, Thamnobryum alopecurum and Conocephalum conicum. Rhynchostegiella teesdalei was abundant on rocks in the stream and Dicranum tauricum and Leicolea turbinata were also seen. This site could well repay further investigation under less difficult conditions.

The meeting had been very carefully organised by Michael Pearman who must have put in much work to find the interesting and delightful places to which we went. We owe him many thanks for doing this and for making the meeting itself such a success.

G. BLOOM.

## THE BRYOLOGICAL TIMES

**The International Association of Bryologists has started a new venture, a Newsletter - The Bryological Times - which will appear every two months, and is free to all members of the I.A.B. Number 1 was issued January 1980. It is intended to be a practical news-sheet dealing with everyday issues particularly problems on which individuals are looking for help. It will include news about expeditions, staff changes, etc., desiderata for specimens required, and an Exchange and Mart section where books for sale or wanted can be advertised. Items for the Newsletter should be sent to the Editor, Dr S. W. Greene, Institute of Terrestrial Ecology, Bush Estate, Penicuik, Midlothian, EH26 0QB, Scotland, while enquiries about membership of the Association should be made to Dr S.R. Gradstein, Secretary of the International Association of Bryologists, Institut voor Syst.Plantkunde, Tweede Transitorium, Uithof, Utrecht, The Netherlands.**

## FUTURE MEETINGS OF THE SOCIETY

(a) Spring Field Meeting, 1980: Haverfordwest, 9-16 April. Local Secretary: Mr. Roy Perry, Dept. of Botany, National Museum of Wales, Cardiff, CF1 3NP Tel: Cardiff (0222) 397951

Headquarters: Hotel Mariners, Haverfordwest, Dyfed, SA61 2DU. (Tel. Haverfordwest 3353). Charges for 1980 are : B. & B. £11.50 to £15.00, double room £19.00 to £22.00. By sharing a twin-bedded room and including Saturday and Sunday nights in your stay, you can take advantage of the hotel's so-called 'Hushaway Winter Break' and reduce these prices very considerably. The hotel manager, Mrs. A. Cromwell, will be pleased to supply details. Invite your bryological friend to join you ! There is other, cheaper, accommodation available in town, details of which can be got from the Local Secretary : prices for 1980 were not available at the time of going to press.

As at the recent Carmarthen meeting, it is hoped to arrange laboratory facilities so that those wishing to examine their treasures may do so on the spot. Microscopes and other apparatus will again need to be brought by participants, but it is hoped to repeat the success of the Carmarthen meeting by having more experienced members aiding the beginners, both in the lab. and in the field. One of the primary objects of this meeting, however, is to record in underworked squares, and this will be borne in mind throughout the meeting.

A Council Meeting will be held at 2015 hrs. in the Hotel/Mariners on Saturday 12 April.

The field excursion programme is being worked out in close conjunction with the Nature Conservancy Council. The B.B.S. last visited Pembrokeshire in 1958, before the launching of the Mapping Scheme (see Trans. Br. bry. Soc. 3, 641-3), but since then several areas of great botanical importance have been discovered there and it is hoped to survey these on our meeting. Though no alpine areas will be available for exploration there will be a wealth of rich lowland areas which ascend to the Prescelly hills (famous for the Stonehenge megaliths) — sand-dunes, limestone and igneous sea cliffs, wooded gorges, massive exposed igneous outcrops, bogs and heathland. Intending participants should inform the Local Secretary from whom details of field excursions may be obtained. Members travelling by car might consider the possibility of contacting other potential participants in their area, so that joint travel arrangements may be arranged; this might be done through the Local Secretary if necessary.

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(b) Summer Field Meeting, 1980: Durham, 26 July —2 August. Local Secretary: Rev. G.G. Graham, Hunwick Vicarage, Crook, Co. Durham, DL15 0JU. Tel: Bishop Auckland(0388)4456

Accommodation has been reserved at St. Aidans College, University of Durham, Durham, which will also be the headquarters. Charges for 1980 are B. & B. £7.30, packed lunch £1.20, evening meal £2.70 (all including V.A.T.). Bar facilities are available. All bookings should be made through the Local Secretary as soon as possible please.

During the week it is hoped to visit some of the underworked but interesting areas of the county, especially the river gorges around the Hamsterley Forest, Upper Weardale and in the Derwent area. Upper Teesdale will also figure in the programme where twelve years ago members found Lophozia longidens, Cephalozia loitlesbergeri, Grimmia homodictyon and Grimmia trichodon on the Westmorland side of the Tees. Other notable taxa in the area include Lophozia obtusa, Leiocolea heterocolpos, Ditrichum plumbicola and Homomallium incurvum not to mention Aplodon wormskjoldii lurking on ovine carcasses amidst the peat hags.

By kind permission of Professor D. Boulter a laboratory will be available in the Botany Dept. of the University during the evenings of the meeting.

Maps: 1" sheets 78, 84, & 85, or 1:50,000 sheets 87, 88, 92, 93.

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(c) Annual General Meeting and Paper-Reading 1980:
Bristol University, 19 - 21 September.
Local Secretary: Dr. D.H. Brown, Dept. of Botany,
The University, Bristol, BS8 1UG

Accommodation has been reserved in a hall of residence and it is hoped that as many members as possible will avail themselves of these facilities. All bedrooms are fitted with washbasins and with full board the cost for the weekend will be about £25. Bar facilities will naturally be available. On the Sunday there will be a field excursion to local limestone sites.

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(d) Taxonomic Workshop 1980: Reading University.
Local Secretary: Dr. R.E. Longton.

Full details will appear in Bulletin 36.

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## BRYOLOGICAL COURSES AT FIELD CENTRES, 1980

5-9 April: Drapers' Field Centre, Rhyd-y-creuau, Betws-y-coed, Gwynedd, LL24 0HB.

13-20 August: Malham Tarn Field Centre, Settle, North Yorkshire, BD24 9PU. Tutor: Dr M.C.F. Proctor.

5-12 September: Preston Montford Field Centre, Montford Bridge, Shrewsbury, SY4 1DX. Tutor: Dr Martha Newton.

1-8 October: Kindrogan Field Centre, Enochdu, Blairgowrie, Perthshire, PH10 7PG.

The course at Kindrogan, run by Brian Brookes who is Warden, is particularly suitable for beginners. Individuals and small groups are welcome at Kindrogan, either to participate in an advertised course or on an assisted basis, at any time. The fee for the Bryophyte course is £63, which includes board, accommodation and all academic facilities. Copies of the full programme and further details of all 1980 courses are available from the Warden.

## B.B.S. MAPPING SCHEME, 1961 - 1979.

The B.B.S. Mapping Scheme was launched at the end of 1960, and, effectively, recording of bryophytes in the 10 km squares of the National Grid was commenced in 1961. Most of the records accumulated over the past 19 years are field records although data for several vice-counties (Middlesex, Suffolk, Northampton, Monmouth, Worcester, Leicester, Berwick) are based mainly or exclusively on the literature, some of it 19th century. Although about 150 bryologists have contributed to the scheme, most of the records have been acquired by a small group of about 15 people who have worked systematically in particular areas (Cornwall, Somerset, Wiltshire, Dorset, Hants, Sussex, Kent, Surrey, Essex, Buckingham, Cambridge, Bedford, Huntingdon, Gloucester, Warwick, Glamorgan, Montgomery, Merioneth, Caernarfon, Denbigh, Flint, Anglesey, Lincoln, S.W. Yorks, Northumberland, I.of Man, Peebles, Selkirk, Lothians, Angus, Elgin, Dunbarton, Kintyre, Skye, Meath, Fermanagh, Tyrone). As will be noted from the information below and from the situation map that will appear in Journal of Bryology 11 (1) the best worked parts of the country are southern England and North Wales whilst at the other extreme are the English Midlands, parts of Scotland and most of Ireland.

In addition to field recording about 200 distribution maps have been published since 1963 in Journal of Bryology (formerly Transactions of the British Bryological Society) and a Provisional Atlas of 105 species was published in 1979. It is hoped to use the format of the maps of the Provisional Atlas in a definitive atlas to be prepared after the cessation of recording at the end of 1982.

The figures below indicate the progress of the mapping scheme from 1965 until 1979. From 1970 an attempt was made to assess the completeness of coverage for each square in which records had been made. A well-worked square is one in which 75% or more of the species which might be expected to occur have been found; under-worked squares are those in which more than 10 species but less than 75% of those likely to occur have been recorded. The total number of 10 km grid squares in Britain is 2633 and in Ireland, 947.

| Year | Britain | | | Ireland | | |
|---|---|---|---|---|---|---|
| | Well-worked squares | Under-worked squares | Total | Well-worked squares | Under-worked squares | Total |
| 1965 | - | - | 685 | - | - | 117 |
| 1967 | - | - | 1046 | - | - | 203 |
| 1970 | 754 | 681 | 1435 | - | - | 288 |
| 1973 | 812 | 1110 | 1922 | 56 | 286 | 342 |
| 1977 | 890 | 1099 | 1987 | 47 | 320 | 367 |
| 1978 | 926 | 1120 | 2046 | 47 | 325 | 372 |
| 1979 | 1101 | 1041 | 2141 | 72 | 329 | 401 |

In an attempt to obtain a picture of recording on a vice-comital basis each vice-county has been scored for the number of well-worked and under-worked squares and the result expressed as a percentage of the potential total of well-worked squares. Each well-worked square is given a score of 1 and each under-worked square a score of ½. Thus in vc.12, of the 29 squares in the vice-county, 12 are well-worked and 17 underworked giving a coverage of 12 + 8½/29 = 71%; in v.c. 94 there are 0 well-worked squares,

10 under-worked squares and 19 unworked squares giving a score of 0 + 5/29 = 17%. Coverage of British and Irish vice-counties is as follows:

| vc. | % cover | vc. | % cover | vc. | % cover | vc. | % cover |
|---|---|---|---|---|---|---|---|
| 1 | 100 | 38 | 95 | 75 | 23 | H1 | 36 |
| 2 | 100 | 39 | 33 | 76 | 18 | H2 | 7 |
| 3 | 72 | 40 | 52 | 77 | 25 | H3 | 22 |
| 4 | 44 | 41 | 60 | 78 | 50 | H4 | 16 |
| 5 | 86 | 42 | 47 | 79 | 43 | H5 | 5 |
| 6 | 88 | 43 | 38 | 80 | 31 | H6 | 22 |
| 7 | 78 | 44 | 49 | 81 | 64 | H7 | 14 |
| 8 | 81 | 45 | 31 | 82 | 43 | H8 | 8 |
| 9 | 100 | 46 | 48 | 83 | 69 | H9 | 20 |
| 10 | 100 | 47 | 94 | 84 | 50 | H10 | 29 |
| 11 | 97 | 48 | 100 | 85 | 32 | H11 | 9 |
| 12 | 71 | 49 | 100 | 86 | 33 | H12 | 21 |
| 13 | 85 | 50 | 95 | 87 | 52 | H13 | 22 |
| 14 | 72 | 51 | 88 | 88 | 53 | H14 | 28 |
| 15 | 100 | 52 | 100 | 89 | 64 | H15 | 7 |
| 16 | 100 | 53 | 64 | 90 | 94 | H16 | 48 |
| 17 | 100 | 54 | 68 | 91 | 61 | H17 | 8 |
| 18 | 50 | 55 | 54 | 92 | 33 | H18 | 1 |
| 19 | 58 | 56 | 30 | 93 | 6 | H19 | 8 |
| 20 | 81 | 57 | 34 | 94 | 17 | H20 | 33 |
| 21 | 86 | 58 | 41 | 95 | 56 | H21 | 11 |
| 22 | 51 | 59 | 54 | 96 | 36 | H22 | 49 |
| 23 | 51 | 60 | 73 | 97 | 41 | H23 | 33 |
| 24 | 77 | 61 | 26 | 98 | 58 | H24 | 0 |
| 25 | 58 | 62 | 36 | 99 | 85 | H25 | 7 |
| 26 | 63 | 63 | 54 | 100 | 47 | H26 | 8 |
| 27 | 61 | 64 | 59 | 101 | 80 | H27 | 16 |
| 28 | 66 | 65 | 47 | 102 | 48 | H28 | 20 |
| 29 | 77 | 66 | 56 | 103 | 74 | H29 | 27 |
| 30 | 68 | 67 | 80 | 104 | 89 | H30 | 5 |
| 31 | 71 | 68 | 85 | 105 | 44 | H31 | 2 |
| 32 | 55 | 69 | 55 | 106 | 47 | H32 | 7 |
| 33 | 57 | 70 | 32 | 107 | 30 | H33 | 50 |
| 34 | 73 | 71 | 100 | 108 | 51 | H34 | 19 |
| 35 | 48 | 72 | 37 | 109 | 26 | H35 | 32 |
| 36 | 61 | 73 | 33 | 110 | 30 | H36 | 40 |
| 37 | 55 | 74 | 46 | 111 | 29 | H37 | 28 |
| | | | | 112 | 99 | H38 | 6 |
| | | | | | | H39 | 17 |
| | | | | | | H40 | 17 |
| | | | | | | C | 70 |

More records are required from most vice-counties and especially those with less than 50% coverage or from which there are only literature records (for which records of common species are frequently needed). Information and field record cards (40p for 10 plus 10p postage) are available from the Mapping Secretary.

A.J.E. Smith.

## VICE-COUNTY DISTRIBUTIONS OF SEGREGATES OF POTTIA STARKEANA

Dr. D.F. Chamberlain has kindly supplied the following data.

Pottia starkeana subsp. starkeana var. starkeana, place 19,20,25, 26,36,57,60-64,85 in square brackets; distribution otherwise as published for P. starkeana in the Census Catalogue plus additions.

P. starkeana subsp. starkeana var. brachyodus. garden, N.Cove, Kynance (1), Chamberlain, 1964 (E); Gorran Haven (2), T. Laflin, 1958; Hope's Nose, nr Torquay (3), D. Turner, ca 1820 (BM); track, Woolacombe (4), Chamberlain, 1964 (E); bare soil in turf, Church Ope Cove, Portland (9), Chamberlain, 1964 (E); bare soil in turf, Freshwater Bay (10), Chamberlain, 1964 (E); stubble field, Balcombe (14), W.E. Nicholson, 1912 (CGE); E of Hastings (16), W. Borrer, 1836 (BM); bare chalk, Boxhill (17), Paton, 1953; Kelvedon (19), E.G. Varenne, 1845 (UCNW); soil on limestone cliff, Rossilli, Gower (41), Paton, 1965; sloping banks, Chapel, nr St. Goven's Head (45), Warburg, 1958 (OXF); Aberffraw (52), W. Wilson, 1830 (BM); Messina, Holy Island (67), H. Milne-Redhead, 1963; Ethie Haven, Forfar (90), anon., 1885 (E); Youghal (H.5), anon., 1851 (BM); Killeney Hill, Dublin (H.21) Jany, 1830 (BM); Le Jaonnet Bay, Guernsey (C), Crundwell, 1953.

P. starkeana subsp. conica, distribution as for P. davalliana in Census Catalogue plus additions, but delete H. 23, which is subsp. minutula.

P. starkeana subsp. minutula, Brean Down (6), A.J.E. Smith, 1960; Tidpit Common (8), Paton, ca 1960; Holwell (9), H.H.Wood, 1879 (OXF); Arreton Down (10), Paton, 1964; bare soil on path, Winterdown Copse (11), Paton, 1957; Hurstpierpoint (13), anon., 1867 (OXF); Wooton nr Dorking (17), A.E. Black (BM); felled wood, Streatley Hill (22), Warburg, 1942; Port Meadow (23), N.M. Hamilton, 1964; Titchwell (28), W.E. Thomson, 1903 (E); field, Worts Causeway (29), Chamberlain, 1963 (E); woodland ride, Temple Guiting (33), Laflin, 1962; fallow earth, S end of Banum's Wood, Morton Bagot (38), Laflin, 1961; bare soil, Monks Dale (57), Chamberlain, 1965; nr Hertford (58), anon., 1859, (BM); Castle Howard (62), Wilson 1858 (BM); on mound, Darrington (63), W. Ingham, 1900 (CGE); Sherburn (64), Ingham, 1898 (K); Whittle Dene Reservoirs (67), R.D. Fitzgerald, 1966; Lough Derg (H.15), D. Moore, 1865 (BM); nr Dublin (H.21), B. Carrington, ca 1850 (BM); Newtown Commons, Duleek (H.23), Synnott, 1965 (BBSUK); Port Stewart (H.40), A.E. Richards, 1923.

Please send any additions or corrections to these data to the Recorder of Mosses.

M.O. HILL.

## LIBRARY SALES & SERVICE, 1980

Members wishing to borrow papers from the Library should indicate when a xerox copy would do instead of the original. With bound journals this would save enormously on postage. The cost of xerox copies is 5p per exposure. It should be noted that the Librarian is under no obligation to supply xerox copies but is willing to do so while xeroxing facilities are available.

Members wishing to consult items in the Library in person are asked to contact the Librarian (Tel: 01 508 7863), at least three days in advance. The nearest underground station is Loughton on the Central Line.

FOR LOAN:

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

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

FOR SALE:

British Bryological Society Bulletins: All back numbers 40p each.

Transactions of the British Bryological Society:

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

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

Vol. 7 parts 1-4 (£2.50 each)
Vol. 8 parts 1 & 2 (£3.00 each), part 3 (£3.50), part 4 (£5.00)
Vol. 9 parts 1 & 2 (£4.50 each), parts 3 & 4 (£6.00 each)
Vol.10 parts 1 & 2 (£7.00 each), parts 3 & 4 (£8.00 each)

Census Catalogues:

| | | |
|---|---|---|
| Duncan, J.B. | Census Catalogue of British Mosses, 2nd edition 1926 | (13p) |
| Sherrin, W.R. | Census Catalogue of British Sphagna. 1946 | ( 5p) |
| Paton, J.A. | Census Catalogue of British Hepatics, 4th edit. 1965 | |
| | Remaining stock at half price: plain 19p, interleaved 22p. | |
| Warburg, E.F. | Census Catalogue of British Mosses, 3rd edition 1963 | |
| | Remaining stock at half price: plain 19p. | |

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Customers will be invoiced for the correct amount including P & P with goods to minimise correspondence.

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

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

## REQUEST FROM THE LIBRARIAN

Since I took over the library and sales service members have received loans and sales items without having to pay for the packaging. That this has been possible is largely due to Peter Wanstall who religiously collects card Journal packets and padded bags from staff at Q.M.C. and hands them over to me every few weeks. We are however always running short of padded bags, particularly of a size that will take two or three Journal parts. I would be grateful if any members that attend meetings regularly and have access to a supply of used but unripped padded bags could bring an occasional bundle along.

Finally would members receiving loans from the library please repack items for return in a polythene bag before covering with a good layer of corrugated cardboard. The G.P.O. are not too particular these days and just recently for example our only complete bound set of B.B.S. Reports returned by 'recorded delivery' was just left on my doorstep in the pouring rain, and was thoroughly soaked by the time we found it.

KEN ADAMS

## PHILONOTIS MARCHICA (Hedw.) Brid. IN THE ISLE OF WIGHT

Mr. J.H. Field has already noted in this Bulletin (No. 32, p.26) the discovery of P. marchica beneath the cliffs at Shanklin by Mrs. Lorna Snow. Having recently planned a family holiday at Shanklin, I contacted Mrs. Snow, who was kind enough to give further details. However, her discovery was made in January 1978 and on visiting what appeared to be the same spot in early September of 1979, I found that whole area of detritus covered with a sward of Equisetum telmateia Ehrh. - which would not be present in winter. The Philonotis was thus not seen there, nor on any bare area of detritus (though a good quantity of Bryum gemmiferum, growing with B. bicolor, is worth mentioning). A later visit to Shanklin Chine, where P. marchica has apparently not been seen since Wilson's 1869 gathering, produced a small, very poor Philonotis which seemed to me to be P. marchica. Mr. Field has kindly confirmed the determination. The moss grew in sparsely scattered patches on friable-surfaced sandstone rocks with a permanent surface film of water in considerable shade. No other moss grew with it, and it was so small as to resemble a Pohlia such as P. delicatula.

It is notable that I did not find Philonotis rigida (reported as found "in some quantity" on the B.B.S. visit to the Chine in 1964), nor did Mrs. Snow see this species on a recent visit. In the report of the B.B.S. meeting, P. rigida is not reported as fruiting, which it usually does. Like P. marchica, P. rigida has papillae in the upper ends of the leaf cells. It might be worth while if B.B.S. members who participated in the 1964 excursion were to reexamine their material in order to be sure that this poor, stunted marchica was not misidentified on that occasion as P. rigida.

C.C. TOWNSEND

## HERBARIA OF J.B. DUNCAN AND U.K. DUNCAN

Dr. Ursula Duncan of Arbroath has recently generously donated to the Royal Botanic Garden, Edinburgh (E) her own extensive bryophyte and lichen herbaria, particularly rich in Scottish material, along with that of the late J.B. Duncan.

These two fine herbaria, the products of many years vigorous field work by two highly competent bryologists, contain about 20,000 specimens (including lichens) and that of J.B. Duncan is particularly rich in specimens of almost all the rarer British and Irish species, in addition to its valuable content of overseas material. J.B. Duncan was prolific in his exchange of specimens so that many other collectors are represented, the following list being representative but by no means comprehensive.

Main collectors represented in herb. J.B. Duncan

J.B. Duncan
E. Cleminshaw
D.A. Jones
H.H. Knight
W.E. Nicholson

Other well-represented collectors

E. Armitage
J.E. Bagnall
C.H. Binstead
W.H. Burrell
C.A. Cheetham
W.A. Clarke
H.N. Dixon
E.C. Horrell
W. Ingham
R. Jackett
J.R. Lee
E.M. Lobley
J. McAndrew
S.J. Owen
W. Tetley
W. Watson
A. Wilson

After transfer of the herbaria, hopefully in January 1980, requests for loans should be directed to the Regius Keeper, Royal Botanic Garden, Edinburgh, EH3 5LR.

David Long

## MARCHANTIA ALPESTRIS AS A HORTICULTURAL WEED

During the last couple of years I have found Marchantia alpestris (M. polymorpha var. alpestris) as a horticultural weed in Cornwall, especially in commercial nurseries from where it can easily become widespread in private gardens. It is often associated with M. polymorpha, which is a well-known garden weed, but is readily distinguished by the absence of a dark median line on the dorsal surface of the thallus. Since it would be interesting to know whether M. alpestris occurs as a horticultural weed elsewhere in the British Isles, would you please make a point of looking for it. I would be glad to examine any small, lightly dried samples of M. alpestris from gardens and nurseries.

Mrs. J.A. Paton, Fair Rising, Wagg Lane, Probus, Truro, Cornwall, TR2 4JU.

# FAMOUS BRYOLOGISTS. I.

## JOHN NOWELL OF TODMORDEN (1802 - 1867)

By

W.D. Foster

Working-men botanists.

Towards the end of the 18th century in that part of England where the borders of Lancashire, Cheshire and Yorkshire abut, there occurred a remarkable flowering of botany among a group of men where it would be least expected - the humblest working-men. These factory operatives and other labourers were for the most part born in poverty and all their lives, though toiling ten or twelve hours a day, barely maintained themselves and their families at subsistence level. For the most part they had negligible schooling, were put to work by the age of ten and commonly reached young manhood hardly able to read. Yet,despite these disadvantages, no small number of these men employed their scant leisure in making themselves competent, scientific botanists. Somehow, perhaps taking advantage of Sunday Schools, they taught themselves to read, borrowed or clubbed together and bought such works as Culpeper's 'Herbal', Wakefield's 'Introduction to Botany' and Withering's 'Botanical Arrangement' and learned the characters of species and mastered the Linnean names of plants. John Horsefield, a hand-loom weaver, is said to have copied out generic characters and fixed them to the post of his loom that he might memorise them as he worked.

These working-men botanists were sufficiently numerous to be able to form local clubs for the exhibition of specimens, field excursions and, perhaps most important, the acquisition of books which, individually, members could not possibly have afforded. The earliest of these botanical clubs is said to have been formed in Eccles in 1777 with forty members. In the ensuing years many other local societies were set up, some short-lived, but soon numerous enough to hold joint, general meetings. Not a few of these men became highly competent botanists and even authors of some of the earliest local floras. Naturally most studied the flowering plants but a few took up the far more difficult bryophytes, far more difficult not only in the technical sense but also in that knowledge of this group of plants was in a much more primitive state and the available literature far less useful than that for the flowering plants. For the most part they studied their bryophytes with nothing more powerful than a common hand-lens although some botanical clubs did own a microscope which could be loaned to members. Certainly Edward Hobson who was the respected correspondent of such muscologists as W.J. Hooker, R.K. Greville and T. Taylor and who issued an exsiccata of his own, his 'Musci Britannici' which Hooker described as 'very correctly named and got up just as I could wish' never had a microscope until quite late in life when Hooker gave him one.

Through eponymic good fortune the best known of these working-men bryologists is John Nowell of Todmorden. In 1870 William Mitten decided that the plant known as Cephalozia curvifolia was sufficiently distinct to be separated into a new genus which he named Nowellia. However when, in 1902, W.H. Pearson published his 'Hepaticae of the British Isles' he regretted that he could not consider the special characters sufficiently distinct and returned the plant to Cephalozia. But Pearson was soon over-ruled : S.M.

Macvicar thought the plant quite characteristic and returned it to Nowellia where it has since remained. Nowellia curvifolia is an extremely widely distributed species throughout the northern hemisphere. An attractive plant, sufficiently uncommon to be always a pleasure to come across the name Nowellia must be familiar to most bryologists in the world. The object of this article is to give some account of Nowell, his life and his contribution to bryology.

The social conditions of hand-loom weavers.

John Nowell was born in 1802, in abject poverty, on a bleak hillside above Harleywood, on the outskirts of Todmorden, on the Yorkshire-Lancashire border. He became early inured to toil and his schooling was of the scantiest. Upland farmers in this part of England eked out a living by hand-loom weaving, an occupation in which the whole family could be employed. The weaving was organised by agents who supplied families with wefts of wool to be woven and collected the finished cloth when ready. About the time of Nowell's birth cotton was replacing wool but the system of manufacture remained the same. By working all the daylight hours, in good times, a family might earn about eight shillings a week in this way. Nowell was thus brought up a hand-loom weaver. He worked from his home at Scout high up on the steep slopes above Harleywood and must have continued to do so until at least 1829. But in that year Messrs Fielden Brothers of Todmorden, who had had a mill there for spinning since 1786, opened a weaving shed for 800 hand-looms. The days of the independent, if precarious, upland weavers were over; their wages rapidly fell to little over four shillings a week whereas the factory operative could earn eight. Nowell was therefore soon forced into Fielden's for whom he continued to work for the rest of his life. For some twenty laborious years, in all weathers, he daily made a journey of several miles from his little hillside cottage to Fielden's but, about 1850, he moved into Todmorden, to a house in Queen Street, close to the weaving sheds. In the spring of 1858 he moved to another house in White Hart Square and there, in 1867, he died. It is possible to glimpse something of the life-style of the hand-loom weavers of the Todmorden area through the eyes of a local doctor, Dr. Robert Howard, who wrote a pamphlet describing an outbreak of typhoid fever in the district in 1844. Howard devoted a chapter to the physical and domestic conditions of the hand-loom weavers - the background against which Nowell managed to become a bryologist with an international reputation.

First, with regard to the weavers' cottages Howard reported them 'cold, damp and dreary: the chambers are next to the slate, without being underdrawn; and, in many instances, the interior being accessible to rain, wind and snow.' The floors were dilapidated and decayed and the ground floors commonly well below the surface of the earth. Open sewers flowed past the doors or even through the cottages. The only privies were communal ones constructed of rough stones and the only seat a rough pole inserted into the stones on each side about two feet from the ground. The quality of the water supply varied and came from springs or streams but the risk of contamination with sewage was always high. Dr. Howard gave as the average furniture to be found in a weaver's cottage the following : a bed with a small shelf for a candlestick, a mattress and pillow of coarse sacking filled with chopped straw,

a couple of cotton blankets, a rugged three legged table, an old chair or two, one or more low stools and, occasionally, a chest of drawers. In such surroundings Nowell must have studied his mosses, written his letters and somewhere maintained his herbarium. As to cooking utensils, there would be a frying pan or porridge pan but not one cottage in twelve boasted a kettle. There might be one or two old knives but often none and seldom a fork. Two or three odd tea-cups, saucers and plates and perhaps a jug completed the list. Regarding the hand-loom weaver's diet it 'may fairly be said oatmeal and potatoes are well nigh what they contrive to exist upon', reported Dr. Howard. Typically dinner consisted of 'small pieces of suet fried, with the addition of water and salt, a quantity of boiled potatoes is now added, and the whole blended into a partial pulp; this with a portion of oaten bread, constitutes the dinner'. Tea and supper were combined into one meal 'ordinarily oatmeal porridge, old milk and oaten bread'. Every now and then 'in those families whose finances are a little better a small portion of bacon, a little butter, some sugar, coffee or tea might be added to the diet'. The weaver's only clothes consisted of but a much-patched fustian cotton suit and darned and redarned stockings.

At the time Dr. Howard was writing, 1844, the average wages 'in exchange of a hard week's work' were six shillings and six pence. The price of provisions was always high in comparison with the renumeration of labour and the weaver's standard of life was always at the mercy of fluctuation in employment. Dr. Howard went on to give a harrowing account of the effects of illness in a family and of child-birth in a poor cottage. These then were the conditions under which the average weaver lived and we have no reason to suppose that John Nowell's were different.

Nowell's education and early interest in botany.

As a child Nowell received little education but, as a young man, he attended a Sunday School at Shore, a mile or so from his home. It was here that he must have learned to read and write properly; his letters are those of an educated man and Nowell is said, in later life, to have read widely. Nowell was introduced to botany by an otherwise unknown individual, one Edmund Holt, who lived at Lumbutts, a tiny hamlet high up on the other side of the valley. Nowell was fortunate that his boyhood friend, Abraham Stansfield, a nurseryman of Todmorden, likewise became, about the same time, an enthusiastic botanist. By hard saving the two young men were able to purchase jointly copies of Culpeper's 'Herbal' and Wakefield's 'Introduction to Botany' and, with their aid, 'rambling together, they gradually acquainted themselves with the wild plants of the neighbourhood, extending their explorations as the years went on'. Stansfield became particularly interested in ferns but when and how Nowell's interest in bryophytes was first aroused is not known. He was not however unique in his neighbourhood; his earliest extant letter to William Wilson is a joint letter signed also by John Hanworth and, in later years, they contributed the record of Leucodon sciuroides from Wharfedale to Wilson's 'Bryologia Britannica' jointly with a W. Greenwood.

Nowell's bryological work.

Nothing is known of Nowell's first faltering footsteps in the study of bryophytes but, by the mid-1830s, he was certainly no mere

beginner, indeed he comes to bryological notice for the first time, in June 1836, as the discoverer of Cinclidium stygium new to Britain, in a bog near Malham Tarn. It may have been this discovery that first put Nowell in touch with William Wilson - certainly the earliest extant letter is dated April 29 1838, although it is clear previous correspondence had taken place. This letter enclosed five bryophytes for identification including (as can be seen from Wilson's diagnoses scribbled on the letter) Barbula spadicea, a plant which might well have troubled more than the tyro. Also was enclosed a specimen of Tetraphis browniana and the offer of other relatively rare species for Wilson's collection. Remarks in the letter bear testimony to Nowell's powers of close, critical observation and bryological intelligence and maturity. On the other hand Nowell's name was probably not widely known in bryological circles at this time. Thus he contributed no records to the second edition of Hooker and Taylor's 'Muscologia Britannica' published in 1827 nor to the bryophyte volume of Hooker's 'British Flora' published in 1844 - indeed the latter does not even include Nowell's discovery of Cinclidium stygium. But Nowell was one of the chief contributors of records for Wilson's 'Bryologia Britannica' which came out in 1855. It would seem therefore that Nowell took up bryology about 1830 and remained an enthusiast to his dying hour for Abraham Stansfield junior, son of Nowell's old friend, who spent with him his last night on earth, testifies that 'to the last breath, his talk, in his delirium, was of mosses'.

A major part of Nowell's contribution to bryology was the help he gave to others. William Wilson was particularly indebted not only for new records but for specimens in various states when he was working on his moss flora. During the 1850s and 1860s letters and accompanying packages of mosses travelled to and from Warrington and Todmorden two or three times a year although personal meetings were rare. In return Wilson patiently identified Nowell's problem species and Nowell felt free to request specimens of species he had not met with. When the 'Bryologia Britannica' appeared Wilson let Nowell have a copy on favourable terms - he was delighted with it; 'I am very pleased with it, it will throw a great deal of light on the subject, and make the study of mosses a great deal more easy in some respects than it has been before', he wrote. Nowell contributed bryophyte records for H. Baines' 'Flora of Yorkshire' which was published in 1840, but he complained to Wilson that Baines had not been as accurate in giving localities as he should have been for several of the rarer and more interesting species had not actually come from Yorkshire but from the Lancashire side of the valley. One such species was Schistostega pennata which Nowell discovered 'in company with my kind and excellent friend John Hanworth..... growing in considerable plenty on shady sandstone..... I cannot describe to you our delight as we stood gazing at the beautiful golden green light (as you call it) which was abundant', he wrote. In 1854 when a supplement to Baines' flora was published Nowell wrote the section on mosses (he did not deal with hepatics). This is a thirty page list, representing an enormous amount of personal observation, of 323 species, arranged according to Hooker's 'British Flora' although he would have preferred to use Bruch and Schimper's 'Bryologia Europea' or Wilson's forthcoming manual had they been available.

Dr. B. Carrington freely acknowledged Nowell's help in the production of his 'Flora of the West Riding', which contains very

many of the latter's records, writing, 'to my friend Mr.J.Nowell, of Todmorden, I owe special thanks. There are few districts of Yorkshire or the adjacent counties with the rareties of which he has not become acquainted during his long and useful life, and I paid my first visit to many of the stations recorded below under his guidance'. By the 1850s Nowell was recognised as being among the top flight of British bryologists; Sir William Hooker offered him a position at Kew but 'the shy, retiring man chose to remain in poverty in his own little Lancashire nook, where, as toil remitted, he could botanize in freedom his native hills'. One of Nowell's distinguished foreign correspondents was Professor Schimper of Strasbourg and when, in the early 1860s, the professor visited Britain, he thought it worth his while to call on Nowell and go out in the field with him. With his friend, Abraham Stansfield, Nowell was, for many years, engaged on a flora of Todmorden but it was unfinished at the time of his death and only appeared in print, edited by Abraham Stansfield junior, some forty-one years later. But, even then, as the editor pointed out, the work was 'of great and peculiar value' for, as regards bryophytes, 'probably no similar area of England has at any time been so thoroughly ransacked'. In an area which must have roughly corresponded with the Todmorden 10 km square 245 species of bryophytes are listed, each with several localities and a note as to frequency.

In 1856 whilst bryologising at Middle House, near Malham Tarn, Nowell came across sterile plants of a species of Zygodon new to science. He sent a specimen to Wilson who, missing the opportunity to pay a graceful compliment to his deserving friend, named it Zygodon gracilis. Some ten years later in Heselden Gill, in Littondale, Nowell found some of the same Zygodon in fruit (and this is the only occasion it has ever been found in fruit in England). He once again supplied Wilson with some of the material and also forwarded some, through his friend, Dr. J.B. Wood, of Manchester, to Schimper who, more thoughtful than Wilson, promptly named the new species Zygodon nowellii. Under this name the species had a short life in the literature but soon the rules of nomenclature unhappily prevailed and it is now known by its earlier name. However the whole story is surely a tribute to Nowell's most acute powers of observation.

In 1852 Nowell and his friend Stansfield, founded the Todmorden Botanical Society; Stansfield was President, Nowell Vice-president, an office to which he was re-elected every year until his death, and Stansfield's son Thomas, was Secretary. The society met monthly, on Monday evenings, at the White Hart Hotel. Here plants were exhibited, papers read and books from the society's library, which rapidly grew to considerable size and included journals as well as books, borrowed. The society also owned a microscope which was lent to members for short periods. Botanical rambles in the Todmorden district and, occasionally, much further afield, were made on Saturday afternoons. Nowell was very proud of the botanical society and to it he bequeathed his herbarium.

Bryological expeditions.

It seems remarkable that a man in John Nowell's position in life could ever have found the time, energy or will to become a bryologist. Nowell was 45 years old before the Ten Hour Bill became law - a measure largely pushed through parliment by his own em-

ployer, John Fielden. This act limiting the hours of work of children, in practice, had the effect of reducing the hours of adults too. Nonetheless Nowell's working day, including the trudge to and from his cottage, must have been about twelve hours long and even Saturdays were by no means half-days. The botanical society's outings began quite late on a Saturday - 3p.m. - but Nowell certainly managed to go on some of them. Although there was no question of proper annual holidays for mill-workers nor had Bank Holidays been introduced, he does seem to have been able to take a few days off each year to devote to his hobby. Nowell grew to middle age in the days before railways (the railway came to Todmorden in 1841) and his opportunities to travel further afield and study the bryophyte flora of districts other than Todmorden must have been limited indeed. However, his discovery of Cinclidium stygium shows that he was acquainted with the Malham area as early as 1836. Malham is about 35 miles from Todmorden and had been a famous botanical locality since the days of John Ray 150 years before. The fine limestone country, with a different flora, was in marked contrast to Nowell's home ground and was a favourite spot. There is evidence in his letters to Wilson that between 1836 and 1866 Nowell visited the Malham area no less than nine times; he had also evidently got as far as Teesdale before 1852.

The coming of the railways which, by the 1850s, were offering special, cheap excursions and day-return tickets, greatly increased Nowell's scope for travel and he took full advantage of it; poor as he was he does not seem to have been too poor to spend an average of four or five days a year, during the 1850s and 1860s away botanizing. He made at least two two-day trips to Snowdonia, two to the sand-dunes at Southport, two to the limestone around Pontefract and one visit each to the Lake District, to Derbyshire, to Bolton Abbey and to Selby. Nowell's most ambitious bryologizing expedition was to the west of Ireland in the summer of 1860; he went with Abraham Stansfield and two younger companions and took a week excursion ticket. He described his visit in a letter to William Wilson; 'we got to Dublin on the Monday evening about 11 o'clock and started at 7 the following morning by rail to Galway, arrived there about 1 pm then pushed forward by cars about 40 miles in the afternoon and got to a place called the Recess Hotel about the middle of the Connemara range of mountains and took up lodgings there and stopped three nights. We had a ramble up a part of the twelve pins the day after, but it would take many a month to look over this range of mountains, a good number of rare plants in this part, the Menziesia polifolia abundant everywhere, Saxifraga serrata and stellaris are also common on the hills, several good ferns have been got, and Mr. Stansfield has met with a good number of curious forms of Blechnum. I have met with a number of mosses, but do not think it so rich in this department as one would imagine from the variety of surface and altitude, this is I think partly owing to the want of wood, this is the great draw-back of Connemara..' Nonetheless Nowell was pleased to find such rare species as Glyphomitrium daviesii, Ulota coarctata and Ulota hutchinsiae whilst Ulota phyllantha was so abundant that it covered whole tree trunks. At Wilson's suggestion Nowell had been using bags of some kind for collecting specimens and considered them 'quite superior to a box except to something that requires to be straight'. On Friday they began to wend

their way back jumping off the car to botanize as they drove to Galway. Back in Dublin Nowell and Stansfield paid a flying visit to the Glasnevin Gardens where a Mr. Moor showed them 'as many of the rareties in the garden as time would allow'. They sailed from Kingstown to Holyhead on the Sunday night and 'took the first train in the morning for this was the last day for our return tickets'. To Nowell's regret he never had the opportunity to visit the mountains of Scotland.

Of Nowell's family life practically nothing is known; he married young 'as is the custom', his wife's name being Hannah and she about a year younger than himself - she died in 1865. One daughter, aged 22, died after a thirteen week illness in 1856 but Nowell certainly had other children who reached adult life and he himself died surrounded by family and friends. Nowell is said to have looked younger than his years and, despite the hard conditions of his life, to have kept physically fit. A letter to Wilson tells that, in March 1853, he was laid up in bed for a month by a low fever and, even by July, he confessed himself 'not so strong as I was before'. In January 1867 he complained to Wilson that he had been unwell since the onset of the severe weather with 'a very bad cough and having no spirit for looking at anything'. He improved as the weather got milder but did not get out much that winter. Early in October Nowell became ill again but, at first, his family and friends did not regard it as serious. But his condition deteriorated and his local doctor, Dr. Foster, and the Manchester physician and his bryological friend of thirty years standing, Dr. Wood, were summoned. The doctors diagnosed heart disease 'the right ventricle being most seriously disordered'. When the news was communicated to Nowell he accepted it quite calmly for he himself had, from the start of his illness, been sure he would not recover. Difficulty in breathing was the main symptom and as Nowell lapsed into a semi-comatose state he developed typical Cheyne-Stokes respiration with periods of hyperventilation followed by periods of complete apnoea. Dropsy was soon added to the clinical picture and Nowell died on October 28.

> So with the throttling hands of death at strife,
> Ground he at mosses.
> Still through the rattle would he mosses name -
> While he could stammer,
> Hypnums, Bry--, Mniums, Sphagnums, Phascums came.

A very old friend wrote of Nowell that he 'was a man of so sweet and gentle a disposition that none could look upon him without loving him' and another working-man botanist wrote that 'his extensive and accurate knowledge, joined to an excellent disposition, has always made his company a source of pleasure to me'. At the first meeting of the Todmorden Botanical Society after Nowell's death a member said that 'a more loveable man than their late Vice-president he never came in connection with'. Nowell was, in character, quietly genial, modest, totally honest and never out of temper.

Nowell's funeral, which took place on November 2, became a public event. The square outside his house and the streets leading to Cross Stones churchyard were thronged with his fellow mill-workers and, after the burial, a hundred persons, brother botanists from far and wide, sat down to a memorial dinner at the White Hart Hotel. The Botanical society immediately set up a committee to

decide on some permanent monument to Nowell. The President, Abraham Stansfield, was commissioned to prepare a biography at the society's expense (a task he does not seem to have completed). However, a little over a year after Nowell's death an inscribed obelisk of red Aberdeen granite was set up in St. Mary's churchyard in his memory, the cost, £90, being subscribed by members of the botanical society and friends - it stands there today.

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I am grateful to Dr. Alan Harrington for arranging my access to the Wilson correspondence at the British Museum (Nat. Hist.).


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## REQUEST FOR MATERIAL OF ATRICHUM UNDULATUM

We are carrying out a survey of the distribution of the different chromosome races of Atrichum undulatum and would be most grateful for living material from anywhere in Britain or Ireland. We require gatherings of 10-20 shoots with or without capsules, with brief details of habitat, locality, altitude if possible, and a four or six figure grid reference. We would like to see as much material as we can, hence collections from more than one population in a particular locality would be useful. We have received about 200 samples in response to our request in Bulletin No.34 and these have proved most valuable. Please send gatherings to Dr. A.J.E. Smith, School of Plant Biology, University College of North Wales, Bangor, Gwynedd LL57 2UW. Material travels well if wrapped in a polythene bag in an envelope.

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


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