1965 Paton Hepatic Cat. 4th ed.
The PDF of this publication has been subjected to Optical Character Recognition (OCR) to enable searching. Because of this processing, old and unusual fonts and characters can very occasionally give rise to unwanted results. For critical work please refer to the original or an unprocessed PDF of the original.

1965 Hepatics Cat., Ed. 4, BBS, J.A. Paton

# CENSUS CATALOGUE OF British Hepatics <br> (4th edition) 

## J. A. Paton

# CENSUS CATALOGUE OF British Hepatics <br> (4th edition) 

## Prepared by

J. A. PATON

TRURO
for
The British Bryological Society

I965

## INTRODUCTION

the present catalogue attempts to show the distribution of all the hepatics known in the British Isles on a vice-county basis, all vicecounties from which a particular taxon is known being listed.

The first edition was published in 1905, the second in 1913 and the third in 1930. A supplement to the third edition was published in 1935. Since that time numerous additional records have been made and the nomenclature of British hepatics has been revised by Jones (1958).

In the first edition some records were taken from county floras but many were based on manuscript lists which cannot now be found. These lists were sent in by bryologists of varying competence and may have been accepted too uncritically.

For the second edition the name of the person contributing the record was sometimes written into a copy of the first edition, which is in the keeping of the Recorder. Unfortunately, it is frequently impossible to trace the source of records published in the first or second editions. Even where details of the record are known a herbarium specimen can seldom be found to support it. When authors of local floras have failed to substantiate certain records, these have either been deleted or treated as doubtful in the present edition. It must be emphasized, however, that in only a small proportion of the total number of vice-counties has an attempt been made to trace all the records, and that a number of erroneous and doubtful records may still occur in the present edition. Though attempts have been made to trace individually some of the more improbable records in the first and second editions, often these attempts have been unsuccessful. Owners of private herbaria, when they have no further use for them, are strongly urged to give or bequeath them to some institution where they can be preserved.

For the third edition and the supplement the sources of most of the records were entered in a book which is the property of the B.B.S. and is in the keeping of the Recorder. Unfortunately the source sometimes consists only of the name of the person who supplied the record in manuscript form. A few records which are not localized within a vicecounty, and which cannot otherwise be traced, have now been treated as doubtful.

Since the publication of the supplement the policy has been to include as new records only those for which details have been published. The most important source of additional records for the fourth edition consists of the annual lists of records published in the B.B.S. Reports and Transactions. All such records up to and including those in Trans. B.B.S. 1965 are included in this edition. Further records from published literature have been added, and a list of sources is given below. An exception has been made for certain species of Anthoceros, Riccia, Riccardia, Calypogeia, Plectocolea, Cephaloziella and Lejeunea which have recently been revised; for these full records have not been published, but a list of sources is in the keeping of the Recorder. Most of the records which have been added since the supplement are represented by specimens in the B.B.S. herbarium, but some records from other herbaria have also been included.
In general the records which are given in the third edition and in the supplement have been retained in the fourth edition unless there was some special reason for their exclusion.

## Extinctions

An attempt has been made to indicate extinctions. If a vice-county record is enclosed in round brackets () the species in question has not been seen in that vice-county for a long time (usually since 1900). It has been possible to do this for only a few well-worked vice-counties. It is hoped that this treatment will stimulate search for particular plants in areas where they have not been seen recently.

## Doubtful records

Records entered in square brackets [] are considered doubtful, and have been put at the end of each list in order that they may not confuse the general distributional pattern. A record may be considered doubtful either because it has already been regarded as doubtful in an earlier edition, or because of confusion between related species which were formerly not adequately understood, or because the record is not localized within the vice-county.

## Arrangement and Nomenclature

The arrangement follows Jones (1958). The species which have been discovered in the British Isles since that date have been added and the results of some revisions have been incorporated. It has been necessary
to make only very few changes in names but certain names have been retained (as in Anthoceros, Lepidozia, Sphenolobus and Lejeunea), even though they must be changed when the correct names have been agreed upon.
Where varieties occur the type variety is often not lettered separately (e.g. Marchantia polymorpha). This is because the varieties have not always been distinguished and some of the records for the species may belong to the varieties other than the type variety. In a few cases there is no aggregate list and the varieties only are given, that including the type being lettered $\alpha$ (e.g. Calypogeia neesiana).

## Page 6

## This is a Blank Page

## ACKNOWLEDGEMENTS

I would like to thank particularly Dr E. F. Warburg for help and advice in the preparation of this edition, and Mr A. C. Crundwell for help with nomenclature. I would also like to thank the following bryologists, most of whom have seen the Catalogue in manuscript, for sending in additions, pointing out errors or supplying lists of revised distributions of critical species which they have studied. When a person has supplied information relating (though not necessarily only) to a particular vice-county, or to a particular genus, this is indicated:
Mrs J. Appleyard (61-65), A. D. Banwell (56), E. L. Birse, A. C. Crundwell (99), Miss E. H. du Feu (C), Miss U. K. Duncan (90, 91), Mrs J. W. Fitzgerald (H 33, H 36, Lophozia, Barbilophozia), J. L. Gilbert (31), Miss V. Gordon (59), G. Halliday, E. W. Jones, Mrs A. L. K. King (Ireland), T. Laflin (38), Miss E. M. Lobley (67, 68), M. G. McFarlane (32), H. Milne-Redhead (72, 73), R. L. A. Oliver (85), A. R. Perry (39, H 28, H 29, Scapania), A. J. Pettifer (18, 19), M. C. F. Proctor (3, 4), D. A. Ratcliffe, F. Rose (15, 16), E. Saunders (18, 19), M. R. D. Seaward (53, 54), G. A. Shaw (61-65), A. J. E. Smith (41), F. A. Sowter (55), P. E. Stanley, E. L. Swann (27, 28), T. D. V. Swinscow (20), D. M. Synnott, E. C. Wallace, P. J. Wanstall, E. F. Warburg, E. V. Watson, H. L. K. Whitehouse (29), and others, too numerous to mention individually, who have supplied information on particular points.

1965 Hepatics Cat., Ed. 4, BBS, J.A. Paton

## Page 8

This is a Blank Page

## LITERATURE CONSULTED

Topographical - in order of vice-counties.
Macvicar, S. M. (ed.) (1905). Census Catalogue of British Hepatics. 1st ed. York.
Ingham, W. (ed.) (1913). A Census Catalogue of British Hepatics. 2nd. ed. Darwen.
Wilson, A. (1930). A Census Catalogue of British Hepatics. 3rd. ed. Berwick-on-Tweed.
Wilson, A. (1935). Census Catalogue of British Hepatics. Supplement to 3rd. ed. Berwick-on-Tweed.
$1 \& 2$ Rilstone, F. (1949). A bryophyte flora of Cornwall. III. Hepaticae. Trans. B.B.S. 1: 156-65.

3 \& 4 Barnes, E. F. (1958). Flora of Devon. The Mosses and Liverworts (Bryophyta). Torquay.
11 Paton, J. A. (1961). A bryophyte flora of South Hants. Trans. B.B.S. 4: 1-83.
13-16 Paton, J. A. (1954). A bryophyte flora of the sandstone rocks of Kent and Sussex. Trans. B.B.S. 2: 349-74.
15 \& 16 Rose, F. (1950). A bryophyte flora of Kent. II. Hepaticae. Trans. B.B.S. 1: 255-65.
15 \& 16 Rose, F. (1951). A bryophyte flora of Kent. Addenda to part II: Hepaticae. Trans. B.B.S. 1: 464.
15 \& 16 Rose, F. (1952). A bryophyte flora of Kent. IV. Addenda and Corrigenda. Trans. B.B.S. 2: 51-2.
15 \& 16 Rose, F. \& Laflin, T. (1960). Kent bryophytes. Trans. Kent Field Club 1: 66-78.
16-21 Boniface, R. A. (1950). Hepatics of the London area. \& 24 London Nat. 29: 23-7.
16-21 Peterken, J. H. G. (1961). A hand-list of the plants of the \& 24 London area. Bryophytes. London Nat. 40: 43-71.
17 Wallace, E. C. (1940). The hepatics of Surrey. J. Bot. Lond. 78: 257-62.
20 Swinscow, T. D. V. (1959). A bryophyte flora of Hertfordshire. Trans. B.B.S. 3: 509-57.
$22 \& 23$ Jones, E. W. (1952). A bryophyte flora of Berkshire and Oxfordshire. I. Hepaticae and Sphagna. Trans. B.B.S. 2: 19-50.

## LITERATURE CONSULTED

22 \& 23 Jones, E. W. (1955). A bryophyte flora of Berkshire and Oxfordshire. III. Addenda. Trans. B.B.S. 2: 537-8.
Proctor, M. C. F. (1956). A bryophyte flora of Cambridgeshire. Trans. B.B.S. 3: 1-49.
29 Whitehouse, H. L. K. (1964). Bryophyta in F. H. Perring, P. D. Sell, S. M. Walters and H. L. K. Whitehouse, $A$ Flora of Cambridgeshire. Cambridge.
30 Taylor, P. (1953). Hepaticae in J. G. Dony, Flora of Bedfordshire. Luton.
McFarlane, M. G. (1962). A liverwort flora of Northamptonshire. J. Northampt. Nat. Hist. Soc. 34: 139-46.
35 Wade, A. E. (1946). The hepatics of Monmouthshire. Northw. Nat. 21: 44-9.
37 \& 40 Greene, S. W. \& Clark, M. C. (1962). The bryophytes of the Wyre Forest. Proc. Birmingham Nat. Hist. \& Phil. Soc. 20: 3-22.
41 Smith, A. J. E. (1964). A bryophyte flora of Glamorgan. Trans. B.B.S. 4: 539-96.
44 Wade, A. E. (1948). The bryophytes of Carmarthenshire. I. Hepaticae. Trans. B.B.S. 1: 65-9.

53 \& 54 Seaward, M. R. D. (1962). Bryology Report. Lincs. Nat. Union Trans. 15: 193-200.
55 Sowter, F. A. (1941). The Cryptogamic Flora of Leicestershire and Rutland. Bryophytes. Leicester.
55 Sowter, F. A. (1945). Notes on and additions to the bryophytes of Leicestershire and Rutland. Northw. Nat. 20: 49-51.
59 Savidge, J. P., Heywood, V. H. \& Gordon, V. (1963). Travis's Flora of South Lancashire. Liverpool.
61-65 Milsom, F. E. (1946). The hepaticae (liverworts) of Yorkshire. Trans. Yorks Nat. Union 37: 1-34.
67 \& 68 Duncan, J. B. (1950). A list of the bryophytes of Northumberland. Trans. Nat. Hist. Soc. Northumb. (N. S.) 10: 1-80.
Wilson, A. (1938). The Flora of Westmorland. Arbroath.
72 \& 73 Milne-Redhead, H. (1963). A bryophyte flora of Dumfriesshire and the Stewartry of Kirkcudbright, part I. Dumfries and Galloway Nat. Hist. and Antiq. Soc. Trans. 41: 17-29.
74 Duncan, U. K. (1956). A bryophyte flora of Wigtownshire. Trans. B.B.S. 3: 50-63.
81 Duncan, J. B. (1946). A list of bryophytes of Berwickshire (V. C. 81). Trans. Bot. Soc. Edin. 34: 288-315.

## LITERATURE CONSULTED

99 Crundwell, A. C. (1957). Additions and corrections to the liverwort flora of Dunbartonshire. Glasg. Nat. 17: 264-71.
104 Blackburn, K. B. \& Lobley, E. M. (1939). Some bryophytes of the Small Isles Parish of Inverness-shire and of the Isle of Soay. Proc. Univ. Durham Phil. Soc. 10: 130-40.
110 Wigglesworth, G., Trotter, L. B. C. \& Marquand, C. V.B. (1939). Bryophyta of Harris: Outer Hebrides. B.B.S. Report 4: 112-6.
H 14 Cridland, A. A. (1958). An outline of the bryophytes of County Laois (Queen's County). Trans. B.B.S. 3: 399-417.
H 30, 33 Crundwell, A. C. (1959). Some bryophytes from Counties Cavan and Fermanagh. Irish Nat. Journ. 13: 36-9.
H36 Fitzgerald, J. W. \& Fitzgerald, R. D. (1960). A bryophyte flora of Co. Tyrone. Trans. B.B.S. 3: 653-87.
H 38-40 Megaw, W. R. (1938). Mosses and liverworts in S. A. Stewart \& T. H. Corry, A Flora of the North-East of Ireland. 2nd. ed. Belfast.
H 38-40 Jones, E. W. (1954). Bryophytes seen in north-eastern Ireland, 1952. Irish Nat. Journ. 11: 115-20.
Systematic - in order of the Catalogue.
Jones, E. W. (1952). Advances in the knowledge of British hepatics since 1926. Trans. B.B.S. 2: 1-10.
Jones, E. W. (1958). An annotated list of British hepatics. Trans. B.B.S. 3: 353-74.
10/11 Crundwell, A. C. (1958). Riccia rhenana Lorb. ex K. Müll. in Britain. Trans. B.B.S. 3: 449-50.
13/1 Williams, S. (1950). The occurrence of Cryptothallus mirabilis v. Malmb. in Scotland. Trans. B.B.S. 1: 357-66.
20/3 Crundwell, A. C. (1965). Fossombronia incurva and Aongstroemia longipes in Perthshire, new to the British Isles. Trans. B.B.S. 4: 767-74.
23 Miller, H. A. (1962). On the identity of Herberta adunca. Nova Hedwigia 4: 359-69.
32/1 Richards, P. W. (1938). Telaranea nematodes in Ireland. B.B.S. Report 4: 61-2.

32/2 Paton, J. A. (1965). Lophocolea semiteres (Lehm.) Mitt. and Telaranea murphyae sp. nov. established on Tresco. Trans. B.B.S. 4: 775-9.

33 Paton, J. A. (1962). The genus Calypogeia Raddi in Britain. Trans. B.B.S. 4: 221-9.

33/1 Jones, E. W. (1957). Calypogeia neesiana (Mass. et Car.) K. Müll. in Notes on plants contributed for distribution. Trans. B.B.S. 3: 348.
33/1 Richards, P. W. (1947). Calypogeia meylanii Buch, new to Britain. Trans. B.B.S. 1: 17-8.
33/2 Jones, E. W. (1954). Calypogeia mülleriana Schiffn. in Notes on plants contributed for distribution. Trans. B.B.S. 2: 509.
33/3 Jones, E. W. (1957). Calypogeia trichomanis (L.) Corda sensu K. Müll. in Notes on plants contributed for distribution. Trans. B.B.S. 3: 348.
34/1 Banwell, A. D. (1949). Lophozia silvicola new to Great Britain. Trans. B.B.S. 1: 194-8.
34/8 Jones, E. W. (1950). Lophozia capitata (Hook.) K. M. in Britain. Trans. B.B.S. 1: 353-6.
34/10 Jones, E. W. (1957). Lophozia opacifolia Culmann in Scotland. Trans. B.B.S. 3: 180.
36/2 Fitzgerald, J. W. \& R. D. (1962). Barbilophozia atlantica (Kaal.) K. Müll. in Britain. Trans. B.B.S. 4: 214-20.
50/2 Paton, J. A. (1961). Southbya tophacea Spruce. New to the British Isles. Trans. B.B.S. 4: 98-101.
56/1 Grolle, R. (1964). Jamesoniella carringtonii - eine Plagiochila in Nepal mit perianth. Trans. B.B.S. 4: 653-63.
57/4 See under 32/2.
63/8 Jones, D. A. (1936). Cephalozia affinis Lindb. in Ireland. B.B.S. Report 3: 294.

70/4-5 Jones, E. W. (1963). Scapania curta (Mart.) and S. parvifolia Warnst. in Britain. Trans. B.B.S. 4: 463.
70/7 Perry, A. R. (1965). Notes on the genus Scapania. I. S. mucronata in Britain. Trans. B.B.S. 4: 785-9.
70/15 Richards, P. W. (1947). Scapania degenii Schiffn. ex K. Müll. Trans. B.B.S. 1: 25.
75/1-3 Greig-Smith, P. (1954). Notes on Lejeuneaceae. II. A quantitative assessment of criteria used in distinguishing some British species of Lejeunea. Trans. B.B.S. 2: 458-69.
75/7 Greig-Smith, P. (1953). Notes on Lejeuneaceae. I. Microlejeunea diversiloba (Spr.) K. M. Trans. B.B.S. 2: 285-8.

## VICE-COUNTY DIVISIONS OF THE BRITISH ISLES

## Great Britain

[See Introduction to H. C. Watson, Topographical Botany, ed. II, 1883.]

1 West Cornwall with Scilly
2 East Cornwall
3 South Devon
4 North Devon
5 South Somerset
6 North Somerset
7 North Wilts
8 South Wilts
9 Dorset
10 Isle of Wight
11 South Hants
12 North Hants
13 West Sussex
14 East Sussex
15 East Kent
16 West Kent
17 Surrey
18 South Essex
19 North Essex
20 Herts
21 Middlesex
22 Berks
23 Oxford
24 Bucks
25 East Suffolk
26 West Suffolk
27 East Norfolk
28 West Norfolk
29 Cambridge
30 Bedford
31 Hunts
32 Northampton
33 East Gloucester
34 West Gloucester

35 Monmouth
36 Hereford
37 Worcester
38 Warwick
39 Stafford
40 Shropshire
41 Glamorgan
42 Brecon (Brecknock)
43 Radnor
44 Carmarthen
45 Pembroke
46 Cardigan
47 Montgomery
48 Merioneth
49 Caernarvon
50 Denbigh
51 Flint
52 Anglesey
53 South Lincoln
54 North Lincoln
55 Leicester with Rutland
56 Nottingham
57 Derby
58 Cheshire
59 South Lancashire
60 West Lancashire
61 South-east Yorkshire
62 North-east Yorkshire
63 South-west Yorkshire
64 Mid-west Yorkshire
65 North-west Yorkshire
66 Durham
67 Northumberland (south)
68 Cheviotland, or
Northumberland (north)

| 69 | Westmorland with <br> North Lancashire | 90 | Forfar (Angus) |
| :--- | :--- | ---: | :--- |
| 70 | Cumberland | 92 | Kincardine |
| 71 | Isle of Man | 93 | North Aberdeen Aberdeen |
| 72 | Dumfries | 94 | Banff |
| 73 | Kirkcudbright | 95 | Elginshire (Moray) |
| 74 | Wigtown | 96 | Easterness |
| 75 | Ayr | 97 | Westerness |
| 76 | Renfrew | 98 | (Main) Argyll |
| 77 | Lanark | 99 | Dunbarton |
| 78 | Peebles | 100 | Clyde Isles |
| 79 | Selkirk | 101 | Kintyre (Cantyre) |
| 80 | Roxburgh | 102 | South Ebudes |
| 81 | Berwick | 103 | Mid Ebudes |
| 82 | Haddington (East Lothian) | 104 | North Ebudes |
| 83 | Edinburgh (Midlothian) | 105 | West Ross |
| 84 | Linlithgow (West Lothian) | 106 | East Ross |
| 85 | Fife with Kinross | 107 | East Sutherland |
| 86 | Stirling | 108 | West Sutherland |
| 87 | West Perth with | 109 | Caithness |
|  | Clackmannan | 110 | Outer Hebrides |
| 88 | Mid Perth | 111 | Orkney |
| 89 | East Perth | 112 | Zetland (Shetland) |

## Ireland

[See R. L. Praeger, On the botanical subdivision of Ireland, J. Bot. Lond. 34: 57-66, 1896.]

| H1 | South Kerry | 16 | West Galway |
| ---: | :--- | :--- | :--- |
| 2 | North Kerry | 17 | North-east Galway |
| 3 | West Cork | 18 | Offaly (King's County) |
| 4 | Mid Cork | 19 | Kildare |
| 5 | East Cork | 20 | Wicklow |
| 6 | Waterford | 21 | Dublin |
| 7 | South Tipperary | 22 | Meath |
| 8 | Limerick | 23 | Westmeath |
| 9 | Clare (with Aran Islands) | 24 | Longford |
| 10 | North Tipperary | 25 | Roscommon |
| 11 | Kilkenny | 26 | East Mayo |
| 12 | Wexford | 27 | West Mayo |
| 13 | Carlow | 28 | Sligo |
| 14 | Laois (Queen's County) | 29 | Leitrim |
| 15 | South-east Galway | 30 | Cavan |

1965 Hepatics Cat., Ed. 4, BBS, J.A. Paton

VICE-COUNTY DIVISIONS OF THE BRITISH ISLES

31 Louth
32 Monaghan
33 Fermanagh
34 East Donegal
35 West Donegal

36 Tyrone
37 Armagh
38 Down
39 Antrim
40 Londonderry

C Channel Islands

1965 Hepatics Cat., Ed. 4, BBS, J.A. Paton

## Page 16

This is a Blank Page

## VICE-COUNTY BOUNDARIES

The division of counties into vice-counties in Great Britain follows H. C. Watson's Cybele Britannica, vol. IV, 1859 (pp. 139-42); and that of Ireland follows R. L. Praeger's Irish Topographical Botany, 1901 (p. xli). The following is with minor alterations taken from these books.

## ENGLAND AND WALES

West Cornwall (1) and East Cornwall (2) are separated by a line traced along the high road from Truro, through St Columb, to the inland extremity of Padstow Creek. At the two ends of this line, the saltwater completes the division. - South Devon (3) and North Devon (4) are separated by an imaginary line, adapted to the watershed, commencing at the Tamar, about midway between Tavistock and Launceston, passing over the ridge of Dartmoor, and joining the Western Canal at Tiverton. - South Somerset (5) and North Somerset (6) are separated by a line along the River Parret, from Bridgwater to Ilchester, thence curving round to the northern extremity of Dorset. - North Wilts (7) and South Wilts (8) are separated by a line drawn along the Kennet and Avon Canal. - South Hants (11) and North Hants (12) are separated by a line traced along the high roads from Winchester westward to Stockbridge, eastward to Petersfield, and continued thence to the borders of Wilts and Sussex. - West Sussex (13) and East Sussex (14) are separated by a line traced along the high road from Brighton to Cuckfield, thence through Crawley to the border of Surrey. - East Kent (15) and West Kent (16) are separated by the River Medway and its tributaries, nearly up to Staplehurst, then by the high road through Cranbrook to the border of Sussex near Hawkhurst. - South Essex (18) and North Essex (19) are separated by the high road from Waltham and Epping to Chelmsford, and thence by the Blackwater river to the coast. - East Suffolk (25) and West Suffolk (26), and East Norfolk (27) and West Norfolk (28) are separated by the mathematical line of one degree east longitude. - East Gloucester (33) and West Gloucester (34) are separated by the Thames and Severn Canal, and by the River Severn from the point of conjunction up to Tewkesbury. - South

Lincoln (53) and North Lincoln (54) are separated by the Witham, from Boston to Lincoln, and thence by the Foss Dyke to the border of Nottingham. - South Lancashire (59) and West Lancashire (60) are separated by the River Ribble.

The great county of York is first divided into the two sub-provinces of East and West Humber, by the Rivers Humber, Ouse and Wiske. South-east Yorkshire (61) and North-east Yorkshire (62) are then separated by the political line which divides the East Riding from the rest of the county, that portion of the East Riding situate westward of the Ouse being taken as part of the Mid-west vice-county. South-west Yorkshire (63) and Mid-west Yorkshire (64) are separated by the Leeds and Liverpool Canal, and by the River Aire below Leeds. Mid-west Yorkshire (64) and North-west Yorkshire (65) are separated by the political boundary between the North and West Ridings, that boundary being deflected westward so as to pass over Whernside to the south-eastern angle of Westmorland in conformity with the watershed. - Cheviotland (68) is cut off from the more southern part of Northumberland by the River Coquet, and a line continued to Carter Fell from the Linn Bridge.

## SCOTLAND

The large county of Perth is divided into three vice-counties. East Perth (89) is cut off from Mid Perth by the Rivers Garry and Tay. Mid Perth (88) is separated from West Perth (87) by a line traced over the high ground or watershed, so as to divide the tributaries of the Tay from those of the Forth, the little county of Clackmannan and a small detached portion of Stirling being taken as parts of West Perth. South Aberdeen (92) and North Aberdeen (93) are separated by a line traced along the road from Newburgh to Old Meldrum and Inverurie and thence along the watershed westwards. - The great county of Inverness is first divided by the line of watershed between the eastern and western sides of Scotland, continued along Loch Ericht to the borders of Perthshire. The easterly portion, with the addition of Nairnshire, forms the large vice-county of Easterness (96). That portion of Inverness which cuts Elginshire (95) into two disjoined parts is deemed to be a portion of this latter county. - The remainder of Inverness, the waters of which drain to the western coast, along with the detached portion of Argyll which is situate to the north-west of Loch Linnhe, make up the vice-county of Westerness (97). - Main Argyll (98) and Kintyre (101) are separated by the Crinan Canal - The Clyde Isles (100)
include Bute and Arran with Cumbrae and other small islets adjacent between Kintyre and Ayr. - The Ebudes are islands belonging by political geography to Argyll and Inverness. South Ebudes (102) include Islay and Jura, with adjacent islets. Mid Ebudes (103) consist of Mull and Coll, with their adjacent islets. North Ebudes (104) include Skye and Rhum, also with their adjacent islets. - West Ross (105) and East Ross (106) are separated by a line traced along the watershed between the western and eastern coasts. - East Sutherland (107) and West Sutherland (108) are also separated by a line of the watershed, this being so traced as to divide the south-eastern portion of the county from the western and northern.

## IRELAND

South Kerry (1) is divided from North Kerry (2) by the approximate south-east and north-west line which separates the baronies of Glanarought, Dunkerron, Iveragh, and Corkaguiny on the south from Magunihy and Trughanacmy on the north. - West Cork (3) is divided from Mid Cork (4) by a line drawn along the Killarney Junction Railway from the border of Co. Kerry to Millstreet, thence running across the county in a straight line to Macroom, thence in a similar line to Bandon and from that town, following the Bandon river, to the sea. - Mid Cork (4) is divided from East Cork (5) by the Great Southern and Western Railway from Charleville to Cork, and thence by the western shore of Cork Harbour to the ocean. - Tipperary is divided into North (10) and South (7) by the Great Southern and Western Railway. - West Galway or Connemara (16) is separated from North-east Galway (17) by Lough Corrib and the River Corrib. - The dividing line between North-east Galway (17) and South-east Galway (15) is the Midland Great Western Railway from Ballinasloe to Oranmore, where the line meets the sea at Oranmore village. - East Mayo (26) is separated from West Mayo (27) by Lough Mask and the course of the River Ayle as far as a small lake above Ballyhean Church, thence it is imaginary for a short distance until it reaches the nearest point on the road from Tuam to Castlebar, and thence descends the course of the water through Lough Cullin, and by the River Moy to the sea at Ballina. - Donegal is divided into East (34) and West (35) by a line dividing the baronies of Bannagh, Boylagh and Kilmacrenan from Tirhugh, Raphoe and Inishowen.

It should be emphasized that the boundaries of the counties to be used are those existing in Watson's time (1859) and not those at the present day. Sometimes this makes little difference, but in some areas, particularly in Scotland, there are large alterations (e.g. the part of Inverness-shire referred to by Watson as cutting Elginshire into two detached portions no longer exists and has been compensated for by transferring a large portion, formerly the southern part of Elginshire, to Inverness-shire). Detached portions of counties completely surrounded by other counties belong to the vice-county which surrounds them. The large detached part of Flint belongs to v.-c. 50, and that of Dunbarton to v.-c. 86. The following may be useful in elucidating vice-county boundaries.

For the boundary between 3 and 4 see Martin \& Fraser, Flora of Devon (1939), p. 1, and map; for alterations in the Wiltshire boundaries see Grose, The Flora of Wiltshire (1957), pp. 58-61; for boundaries of v.-c. 11 see Paton, A bryophyte flora of South Hants, Trans. B.B.S. 4: 4-5 (1961); for boundaries of v.-c. 30 see Dony, Flora of Bedfordshire (1953), pp. 37-9; for v.-c. 33 and 34 see Riddelsdell, Hedley \& Price, Flora of Gloucestershire (1948), pp. xciii-xcv, and map; for v.-c. 59 see Savidge, Heywood \& Gordon, Travis's Flora of South Lancashire (1963), pp. 1-3; for v.-c. 84 and 86 see Ribbons, The boundaries of the vice-counties in Scotland. Part I. Glasg. Nat. 18: 160-8 (1961).

## EXPLANATION OF SYMBOLS

( ) Not seen in the vice-county for many years and possibly extinct.
[ ] Doubtful records.
$\dagger$ Before the name of a taxon. Not recently seen in the British Isles. Brackets enclosing a number following the name of a taxon refers to Notes, p. 49.

## 1. Anthoceros L .

1 punctatus L. (1) $1,2,5,9-12,14,16,17,19,22-24,(29), 30,32,33,36-41,46$, $48,54-56,59,68,69,72,74,75,86,90$. H 27, 36 . [3, 4, $8,13,20,21,25-27,34,35,42,44,45,49,50,52,57,58,62,63$, $67,80,81,89,92,97,99,102,105,109$. H 1, 2, 4, 12, 20, 21, 35, 38-40]
2 husnotii Steph.
$1-6,8,9,11,13,14,16,17,22,23,38,44,48,49,52,58,61,67$, 70, 72-74, 85-87, 90, 97, 99, 101, 102, 109. H 1, 3, 27, 34, $35,38 . \quad[34,59,69]$

## 3 laevis L.

$1-6,8-11,13-15,(16), 17,18,22,33-36,38,40-46,48,49$, $52,59,60,62,(63), 64,69,71-76,80,81,83,84,86-88,90$, 97, 99-102, 109. H 1, 3, 4, 9, 16, 21, 29, 32, 34-40. С.

## 2. Sphaerocarpos Ludwig

1 michelii Bellardi
$1,3,9,16,19,(20), 22,23,25-28,(29), 32,34,36,37,(55,61)$. C. [15]

2 texanus Aust. $1,9,(16), 17,25,27,33,34,36,37$.

## 3. Targionia L.

1 hypophylla L.
$2-4,6,12,17,(26), 37,39,40,43-45,47-49,52,57,83,85$, $87,88,90,98,99,101,104$. H 1, 2, 4, 39. C. $[63,65]$

## 4. Reboulia Raddi

1 hemisphaerica (L.) Raddi
1-17, (20), 22, 26, 27, 33-37, (38), 39-50, 52, 55, 57-60, (61), 62, 64-69, 72-77, 80-83, 85-90, 96, 97, 99, 100, 103-105, 108, 109. H $1,2,4,5,9,16,17,21,27-29,33,35,38-40$. C. [32]
5. Conocephalum Wiggers

1 conicum (L.) Underw.
1-112. H 1-3, 5-7, 9-16, 18-40. C.

## 6. Lunularia Adans.

1 cruciata (L.) Dum. 1-102, 104-106, 108-111. H 1-7, 9-12, 14, 16, 18, 20-22, 27-30, 32-40. C.

## 7. Preissia Corda

1 quadrata (Scop.) Nees
$3,4,6,11,22,26-28,32,35,39,41-50,52,54,55,57-60$, (62), 64-80, 82-94, 96-112. H 1, 2, 6, 8, 9, 14-17, 19, 21, 23, $26-29,33-36,38-40$. [63]

## 8. Marchantia Raddi

1 polymorpha $L$.
1-9, 11-50, 52-70, 72-93, 95-101, 103, 104, 106, 107, 109-112. H 1, 3, 5, 6, 8-10, 16-23, 25, 27-31, 33, 35-39. (C)
$\beta$ aquatica Nees
$3,5,6,11,13,14,17,19,22-24,31,34,36,41,42,49,51,52$, $57-59,61,64,65,67,69,71,72,74,76,83,88-90,94,95,110$. H 18, 28-30, 33, 39, 40.
$\gamma$ alpestris Nees
52, 68, 70, 83, 88-90, 92, 94, 96, 98, 108, 112.
9. Dumortiera Nees

1 hirsuta (Swartz) Nees
1-4, 14. H 1-4, 6, 7, 9, 20, 29, 39. [55]
10. Riccia L.
[1 ciliata (Weber) Hoffm.] (2) [1, 3]
[2 michelii Raddi] (2) [1, 2, 14, 61]

3 crozalsii Levier $1-3,42,43,48,49,52$. H 36.

4 warnstorfii Limpr. $2,4,5,7,8,10,11,13,14,17,19,24,29,34-37,40,43,45-47$, $72,74,97,99$. H 1, 16, 33, 35, 36, 39, 40. C. $[16,59$, $69]$

5 glauca L. (1) $1-5,8-17,20,22-24,26,29-33,36,38,41,45,48,54,55,58$, $62,64,65,67,69,75,83,86-88,90,97,99$. H 1, 15, 16, 33, $37,39,40$. C. $[6,7,19,25,27,34,35,37,39,40,42-44$, $49,52,56,57,59-61,63,68,70,72,73,78,81,84,85$. H 20 , 21, 34, 35, 38]
6 bifurca Hoffm. $1,7-9,14,16,36,48,52,59,64,69,75,88,(90)$. H 16. [41]
7 beyrichiana Hampe
$1,2,26,41-43,45,46,48,49,52,59,60,64,69,73-76,82-86$, 88, 90, 99, 101. H 1, 9, 20, 23, 26, 35, 39. [38]
8 sorocarpa Bisch.
$1-11,13-20,22-50,52,54-78,80,82-92,94,96-99,101,103$, 105, 106. H 1, 9, 15, 16, 20-22, 27, 28, 33-40. C.
9 nigrella DC. 1, 37, 43, 48, 49. C.
10 fluitans L.
$3-7,11-29,(30), 31,33-38,40,41,44,47,50,52,54-64,69$. H 8, 19, 20, 21, 29, 32, 36-39.
11 rhenana Lorbeer ex K. Müll. 7, 17, 29.
12 canaliculata Hoffm. 48, 83, 87, $88 . \quad$ [85]
13 crystallina L.
$1,4-6,8,11,14,(16,17), 20,22,26-30,32,33,36,(38), 39$, $41,44,48-50,52,54-56,59,61,63,64,67,83,85,90,101,110$. H 1, 38, 39.
$\beta$ angustior Nees $4,6,9,26,44$.
14 huebenerana Lindenb. $13,14,17,42,52,58,67$.
11. Ricciocarpus Corda

1 natans (L.) Corda $6,12-15,18-22,24,26-29,31,32,36,38,40,50,53-55,58$, 61-64, 66. H 8, 15, 19, 21-23, 25, 31.

## 12. Riccardia Gray

1 incurvata Lindb. $11,13,(14), 17,48,49,52,65,75,(81), 90$. [4-6]

2 multifida (L.) Gray
$1-6,8-22,24-29,34,36-52,54-112$. H 1-3, 5, 6, 9-12, $16-21,23,24,27,29,31-33,35-40$. C. $[23,30]$
3 sinuata (Dicks.) Trev.
1-6, 8-26, 29, 31-39, 41, 44-64, 66-72, 74, 76, 78, 80, 81, 85, $86,88,90,91,93-100,103-111$. H 1-3, 5-7, 12, 14, 16, 20 , 21, 27-30, 33-39. C.
4 latifrons (Lindb.) Lindb. (1) $1-3,6,8,9,11,17,22,26,28,35,40,46,48,50,67,70,73,83$, 90-92, 94-97, 108-110. H 1, 8-10, 14, 15, 19, 21-23, 27-29, $33,35-37,40$. $[4,5,13,14,36,47,58-60,71,74,77,78,80$, $84,86,88,93,98,100,101,103-107,111,112$. H 2, 3, 6, $17,18,20,30,38,39]$
5 palmata (Hedw.) Carruth.
$3,17,24,42,48,50,58,(62,63), 67-70,(72), 73,75,85-92$, 94-112. H $1-3,15,16,18,20,27,29,30,33-36$. [59]
6 pinguis (L.) Gray
$1-6,8-29,(30), 31-42,44-52,54-112$. H 1-3, 5-10, 13-21, 27-29, 32-40. C.
13. Cryptothallus Malmb.

1 mirabilis Malmb. $3,6,12,17,22,24,69,86,92,98,99,105$.
14. Pellia Raddi

1 epiphylla (L.) Corda 1-6, 8-30, 32-112. H 1-3, 5-23, 26-30, 33-40. C.
2 borealis Lorbeer (2) 99. H 2 .

3 neesiana (Gottsche) Limpr. (1) $1-6,9,12,14,17,22,34,36,37,41,42,44,46,48,49,53,57$, 64, 66-69, 72, 80, 88-92, 96-99, 104, 107, 110, 112 . H 1, 3, 36,37 . C. $[13,35,59,60,62,63,74,76-79,83,85-87$, 95, 100, 102, 105, 106, 109, 111]
4 endiviifolia Dicks. (P. fabbroniana Raddi) 1-24, 26-95, 97-112. H 1-4, 6, 9-12, 14-23, 27-40. C.
15. Metzgeria Raddi

1 furcata (L.) Dum. 1-112. H 1-7, 9-23, 25-40. C.

## $\beta$ ulvula Nees

$1-3,5,13,97 . \quad \mathrm{H} 1,15$.
2 fruticulosa (Dicks.) Evans
$1-14,16,17,22-25,27-29,32-35,40-42,45-50, ~(58), 62,64$, $65,68,70,72-75,78,80-83,85-91,93,95,99,106,107,109$, 111. H 1, 2, 9, 10, 13-18, 20, 21, 23, 24, 27-40.

3 conjugata Lindb.
$1-6,13,14,33-37,40-46,48-50,57,60,62-65,67-83,85-92$, 95-106, 108-111. H 1-3, 6-9, 12, 13, 16-18, 20-22, 27-30, 33-36, 38-40.
4 hamata Lindb.
$46,48,49,64,69,70,72,73,75,76,85-88,97-106,108,111$. H 1-3, 7, 16, 27, 35, 39.
5 pubescens (Schrank) Raddi
(10), 34-36, 39, 48-50, (56), 57, 60, (62), 63-70, 72, 78, 81, 83, 85-94, 96-98, 104-106, 108, 109. H 39 . [3, 55]
16. Pallavicinia Gray corr. Trev.

1 lyellii (Hook.) Gray ex Trev.
$6,10,(11,13), 14,17,25,46,48,52,(59,62), 64,(65,69)$. H 1, 2, 19-21, $27 . \quad[3,4]$
17. Moerckia Gottsche

1 hibernica (Hook.) Gottsche (3) 90, 112. H 20.
2 flotoviana (Nees) Schiffn. (3)
(1), 4, 26-28, 41, 44, 46, 48-50, 52, 57, 59, (62), 63-69, 82, 85, 90-92, 97, 105, 108, 110, 112 . H 17, 21, 27, 33, 35, 38-40.
3 blyttii (Mörch) Brockm.
88-90, 92, 94, 96-98, 105-107.
18. Blasia L.

1 pusilla L.
$1-10,12-15,(16), 17-20,(21), 22,(23), 25,28,32-46,48-50$, 54, 55, 57-60, (61), 62, (63), 64, 65, 67-81, 83-102, 104-112. H 1-3, 7, 12, 16, 18-22, 27-40.
19. Petalophyllum Gottsche

1 ralfsii (Wils.) Nees \& Gottsche
$1,4,6,28,41,44-46,48,49,52,59,(62), 68$. H 1, 2, 21, 27, 35, 39, 40.

## BRITISH HEPATICS

20. Fossombronia Raddi

1 foveolata Lindb.
$1-3,9,11,13,14,17,22,27,48,49,54,58,59,(61), 62,69,70$, 74, 86-88, 95-97, 99, 105, 108, 112 . H 1, 2, 9, 16, 27, 39.
2 crozalsii Corb. 1, 7, 22.
3 incurva Lindb.
88.

4 angulosa (Dicks.) Raddi
$1,2,48,49,110$. H 1-3, 16, 27, 34, 35. C.
5 caespitiformis De Not.
$1,2,6-8,13,14,(16), 23,34,37,39,40,45,48,52$, (54), 58-60, 69. H 1, 3, 16, 34 .
$\dagger[6$ mittenii Tindall] (4)
[4]
7 husnotii Corb. var. anglica Nich.
1-3, 7, 41, 44 . C.
8 pusilla (L.) Dum. $1-11,13-25,27,29-45,47-75,77,81,84,90,91,93,97,99$, 100, 102, 106, 109. H 1-3, 5, 11, 16, 19, 21, 23, 33, 35-39. C.
$\beta$ decipiens Corb.
13, 14, 58, 59, 102, 103.
9 wondraczekii (Corda) Dum. $1-18,20,22-24,30,32-37,39,40,42-46,48,49,52,56,57$, $61-64,67-70,72,73,78,81,83,84,86-88,90,92,96,97,99$, 102, 103, 105, 109. H 1, 15, 33, 35, $38 . \quad$ [38]
[10 loitlesbergeri Schiffn.] (2) [1]
21. Haplomitrium Nees

1 hookeri (Sm.) Nees $(1,3,11,13,61), 70,88,90,93,95-97,110 . \quad \mathrm{H}(1), 21$.
22. Anthelia Dum.

1 julacea (L.) Dum.
$42,46,48,49,64,(65), 68-73,75,85-90,92,94-101,103-112$. H 1, 2, 7, 16, 20, 27, 34, 35, 38, 40.

2 juratzkana (Limpr.) Trev.
48, 49, 88-90, 92, 96-98, 101, 105, 106, 108-110. H 35. [103]
23. Herberta Gray corr. Lindb. (5)

1 straminea (Dum.) Lett (H. adunca auct.) 48, 49, 70, 86-88, 90, 96-99, 103-108, 110-112.
2 adunca (Dicks.) Gray (H. hutchinsiae (Gottsche) Evans) $48,49,69,70,73,75,86-88,97-106,108,110,111 . \mathrm{H} 1-3$, $6,7,16,27,29,33-35,39 . \quad$ [90]
24. Pleuroclada Spruce

1 albescens (Hook.) Spruce 88-92, 94, 96-98, 100, 105, 106.
25. Hygrobiella Spruce

1 laxifolia (Hook.) Spruce
(14), 42, 46, 48, 49, 57, (62), 64-70, 72, 73, 75, 77, 86-92, 94-106, 108-110, 112. H 1-3, 16, 20, 21, 33, 34, 36, 39, 40.
26. Mastigophora Nees

1 woodsii (Hook.) Nees 88, 97-99, 103-108, 110. H 1, 2, 16, 27.
27. Ptilidium Nees

1 ciliare (L.) Hampe
$2-5,12,13,15,17,(19), 21,22,24-28,30,34-50,52-102$, 104-112. H 1, 2, 20, 21, 27, 36, 39.
2 pulcherrimum (Weber) Hampe 5-9, 11, 13-18, 20, 22-24, 29, 32, 35, 37, 38, 41, 42, 47, 50, 51, 54, 55, (56), 57, 59, (61, 62), 64, (65), 67-70, 75, 78, 81, 83-86, 88, 90-92, 95, 96, 99, 100, 106, 108. H 31 .
28. Trichocolea Dum. corr. Nees

1 tomentella (Ehrh.) Dum.
$1-6,8,9,11,(12), 13-18,(20), 26,34-40,42,44-46,48,49,52$, $57,58,(59), 60,62-77,79,83,85-92,94-106,108,109$. H 1, $2,5,6,8,10,14,16,18,20,27,29,30,33-36,38-40$.
29. Blepharostoma (Dum.) Dum.

1 trichophyllum (L.) Dum. $1,3,4,14,16,23,33-37,39-44,46,48-50,54,57,59,60,62-81$, 83, 85-92, 94, 96-112. H 1-3, 6, 16, 20, 27-29, 31, 33-35, 38, 39.
30. Bazzania Gray corr. Carringt.

1 trilobata (L.) Gray
(1), 2-5, 11, 14, 34-37, 39, 40, 42-50, 52, 57-60, (62, 63), $64-74,80,81,85-92,96-105,108,111,112$. H 1-3, 5, 13, $16,20,21,27,28,33,35,38-40$. С.
2 tricrenata (Wahlenb.) Trev.
$42,44,48,49,60,(64,65), 69,70,72,73,75,76,78,86-90,92$, 94, 96-112. H 1-3, 6, 7, 16, 20, 27-30, 33-36, 39, 40.

3 pearsonii (Steph.) Pears. 92, 97, 98, 105-108, 110 . H 1, 2, 16, 27, 35.
31. Lepidozia (Dum.) Dum.

1 pinnata (Hook.) Dum.
$1-5,34,43-46,48,49,52,58,60,(63), 64,67,68,70,71,75$, $96-105,108,110-112$. H $1-4,6,8,16,20,21,27,29,30$, 33-36, 39, 40.

2 reptans (L.) Dum.
1-7, 9-25, 27, 28, (30), 32-112. H 1-3, 5-9, 12-16, 18-31, 33-40. C.

3 pearsonii Spruce
$46-50,57,59,60,63-65,67-76,78,86,87,90,97-106,108$, 109, 111. H 1, 27, 33-35, 39.
4 setacea (Weber) Mitt. $1-6,8-17,22$, (23), 24-28, 34, 35, 37, 39-50, 52, 54, (55), 57-60, (61), 62-83, 85, 87-92, 96-112. H 1-3, 6, 7, 9-11, 14-18, 20-23, 25, 27-31, 33-36, 38, 39 . C.
5 trichoclados K. Müll. $46,48,58,60-65,69,70,73,75,83-93,95-98,100,102,103$, 105-111. H 1, 2, 9, 16, 20, 21, 23, 27-30, 33-36, 39. [5]

6 sylvatica Evans $13,14,16,42,48,62,67,70,80,96 . \mathrm{H} 1,33$.
32. Telaranea (Spruce ex Sydow) Schiffn.

1 sejuncta (Ångstr.) S. Arnell H 1-3, 16, 27.
2 murphyae Paton (6) 1.

## 33. Calypogeia Raddi

1 neesiana (Mass. \& Carest.) K. Müll. (1)
$\alpha$ neesiana
11, 47, 59, 62-64, 66-68, 72, 80, 85, 88-92, 96, 97, 106. Н 28. [77]
$\beta$ meylanii (Buch) Schuster
14-17, 58, 60, 64, 66-68, 70, 72, 86. H 1, 33.
2 muellerana (Schiffn.) K. Müll. (1)
$1-5,9-14,16-25,27,35-37,39-44,46-50,54,55,57-60$, $62-64,66-70,72,73,75-77,80,83,86,88-102,104,105$, 108-110. H 1, 2, 6, 7, 16, 17, 19, 20-23, 25, 27-29, 31-36, 38-40.

3 trichomanis (L.) Corda emend. Buch (1) 49, 57, 64, 66-70, 80, 88-90, 92, 93, 96, 97, 99, 105, 106, 108. H 33, 35, 36, 40.
4 fissa (L.) Raddi
1-24, 26-50, 52, 54-100, 102-112. H 1-3, 5, 7, 9-12, 14-16, 18-29, 31-40. C.
5 sphagnicola (Arn. \& Pers.) Warnst. \& Loeske
$3,8,9,11-15,17,22,26,28,40,46,50,58,(60), 64-67,70,73$, 87, 88, 92, 96, 97, 105, 109, $110 . \quad \mathrm{H} 10,14,29,32,33,36,37$.
6 suecica (Arn. \& Pers.) K. Müll.
97, 105. H 33, 36.
7 arguta Nees \& Mont.
$1-6,8-20,22-24,27,32-50,52-79,81-84,86,90,91,93$, 96-100, 102-106, 108-112. H 1-3, 6, 7, 9-16, 18-21, 23, 25, 27, 29-40. С.
34. Lophozia (Dum.) Dum.

1 ventricosa (Dicks.) Dum. (7)
1-6, 9-11, 13-18, 20-28, (29), 30, 32, 34-52, 54-112. H 1-3, $6,7,12,14-18,20,21,23,26-40$. C.
$\beta$ silvicola (Buch) E. W. Jones $1-5,11,16,17,22,35,41,42,45,47-49,55,56,63-67,69,70$, 72, 73, 80, 88, 95, 97, 99, 104. H 1, 33, 36.
$\gamma$ longiflora (Nees) Macoun 39, 88, 90.
$\delta$ confertifolia (Schiffn.) Husn. 14, 16, 20, 25, 40, 48, 70. H $35 . \quad[37]$
2 wenzelii (Nees) Steph. (7) 88, 89, 92, 96, 97.
3 porphyroleuca (Nees) Schiffn. (7) $2,16,27,35,36,38,39,48,57,58,60-62,64,66,69,70,72-78$, 85-92, 96-98, 100-102, 105, 107-112. H 12, 20, 27, 31-33, 35-39.
$\beta$ guttulata (Lindb. \& Arn.) Warnst. 92, 96.
4 alpestris (Schleich. ex Weber) Evans $2,42,43,46-49,57,60,64-66,68-70,72,73,75,79,86-92$, 94, 96-98, 105-110, 112. H 1, 2, 9, 12, 13, 20, 21, 27, 28, 30, 36-39.
5 longidens (Lindb.) Macoun 48, 65, 66, 88, 90-92, 94-99, 106, 108.
6 excisa (Dicks.) Dum. $1-8,10,11,13-19,(20), 22,23,25-28,33-42,44-50,52,54-64$, $66-70,72,73,76-85,87,89-92,94-97,100,103,106,109,110$. H 1, 3, 7, 16, 27-29, 33, 35-39. С.
$\beta$ cylindracea (Dum.) K. Müll. 5, 48, 89, 92, 96, 108.
7 obtusa (Lindb.) Evans 48, 49, 67, 71, 88, 96-99, 105, 106.
8 capitata (Hook.) K. Müll. (11), 12, 14, 17, 19, 22 . H 3.

9 incisa (Schrad.) Dum. $1-6,9,11,13-17,25-27,35,37,39,41-46,48-50,52,55,57$, 58, (59), 60-83, 85-112. H 1-3, 6, 8, 14, 16-22, 24, 26-30, 32-40. [20, 23]
10 opacifolia Culm. 88-90, 92, 96, 97, 105, 106.
11 bicrenata (Schmid.) Dum. $1-3,5-17,19-25,27,33-45,47-50,54-58,(59), 60-64,66-70$, 72-75, 77, 78, 80-86, 88-93, 96-99, 101, 105, 106, 109, 112. H $1,2,4,7,12,16,20,21,36,38,39$. C.
35. Leiocolea (K. Müll.) Buch

1 turbinata (Raddi) Buch $1-25,29,30,32-42,44,48-52,54,56-73,75,77,80-85,87$, 89-91, 93, 94, 98, 100, 101, 106-109, 111 . H 1, 2, 4-6, 9 , 12-14, 17-21, 28, 29, 32-40. [78]
2 badensis (Gottsche) Jörg.
$1,4-6,9,12-14,17,18,20,24,25,33-36,41,44,48,50,52,57$, $59,60,62-68,72,75,78,80-85,88-92,94,97,105,106$, 108-110. H 9, 17, 27, 28, 33-36, 39, $40 . \quad[8,38]$
3 muelleri (Nees) Jörg. 34-36, 40-42, 44, 47-49, 57, 60, 62-67, 69-73, 75, 76, 78-80, 82, 83, 85-90, 92, 94-100, 102-109, 111, 112 . H 1, 16, 27-29, $33,36,39$. $[25,59]$
4 bantriensis (Hook.) Jörg.
$35,36,38,40-42,44,48,49,57,59,60,62,64-70,72,73,75$, $78,79,81,83,85,86,88-92,94,96-100,102,105-107,109$, 112. H $1-3,16,20,27-29,33,36,38-40$. $[4,77,82,84$. H 14]
5 heterocolpos (Thed.) Buch 42, 48, 49, 72, 86-88, 90, 92, 98.
6 gillmanii (Aust.) Evans 88, 89, 92, 109.
7 rutheana (Limpr.) K. Müll. 27, 28.
36. Barbilophozia Loeske

1 floerkei (Web. \& Mohr) Loeske
$2,4-6,14,35,37,39-52,55,57-60,62-112$. H 2, 20, 21, 27, 28, 33, 35, 36, 38-40.
2 atlantica (Kaal.) K. Müll. $47-49,60,63-70,72,73,80,90-93,96,100,105,108,109,111$. H 34.
3 attenuata (Mart.) Loeske (1), 2-6, 11, 13, 14, 16-18, (20), 23, 24, 27, 28, 34-37, 39-42, 44-52, 54, 55, 57-76, 79-92, 94-103, 105, 106, 108, 109 . H 1, 7, 16, 20, 21, 27, 33, 35-40. C. [107]
4 quadriloba (Lindb.) Loeske 88, 92, 98.
5 kunzeana (Hüb.) K. Müll. 64, 67, 68, 71, 88, 90, 92, 96, 97, 110. H 28.

6 hatcheri (Evans) Loeske 26, 28, 40, 48-50, 59, 60, 65-68, 70, 71, 80, 81, 83-97, 105-109.
7 lycopodioides (Wallr.) Loeske 64, 65, 68-70, 88-90, 92, 94, 96, 97, 104-107. [108]
8 barbata (Schmid.) Loeske
(1), 2, (14), 26, 37, 40-42, 44, 47-50, 52, 54, 55, 59, 60, 62-70, 72-74, 77-99, 104-107, 109, 112 . H 1, 6, 12, 20, 21, 27, 30, 35, 37, 40. [3, 4]
37. Tritomaria Schiffn.

1 quinquedentata (Huds.) Buch
5, 6, 35-37, 40, 42-44, 46-52, 57, 60, 62-70, 72-92, 94-112. H 1-3, 6, 7, 16, 20, 27-29, 31, 33-36, 38-40. [1, 3, 4]
2 exsecta (Schmid.) Schiffn. (1)
35, 40, 48, 49, 70, 87, 97-100, 103, 105. H 1, 2, 27 . [69]
3 exsectiformis (Breidl.) Schiffn.
$1,3-5,7,9-17,22,23,25-27,30,34,36,37,39,40,42,48-51$, $54,57,58,(59,61), 62-64,66-70,72-74,78,80,81,85-94$, 96-101, 104-110, 112. H 1-4, 6, 9, 17, 20, 22, 24, 27, 28, 33-40.
4 polita (Nees) Schiffn. 88, 89, 92, 97-99.
38. Chandonanthus Mitt.

1 setiformis (Ehrh.) Mitt. 68, 88-97, 105, 106, 108, 109.
39. Sphenolobus (Lindb.) Steph.

1 helleranus (Nees) Steph. 48, 69, 70, 88, 92, 96, 97, 105. H 33, 40.
2 minutus (Schreb.) Steph. $4,11,(14), 44,46,48,49,51,57,58,60,(62,63), 64,66,68-70$, 72-75, 78, 83, 85-92, 94, 96-112. H 1-3, 6, 7, 20, 21, 27, 33-36, 38, 39.
3 saxicola (Schrad.) Steph. 88, 92, 96.
40. Anastrophyllum (Spruce) Steph.

1 donianum (Hook.) Steph. 88, 92, 94, 96-98, 105-108. [90]

2 joergensenii Schiffn. 96, 105-108.
41. Eremonotus Kaal. in Pears.

1 myriocarpus (Carringt.) Pears. $42,49,69,70,87-89,96-98,104-106,111$. H 2, 34.
42. Acrobolbus Nees

1 wilsonii Nees 97, 104. H 1-3, 27.
43. Anastrepta (Lindb.) Schiffn.

1 orcadensis (Hook.) Schiffn. 4, 47-49, 60, 64, 65, 68-70, 72, 73, 75, 78, 85-90, 92, 94, 96-111. H 1, 6, 16, 27, 33, 35.
44. Gymnocolea (Dum.) Dum.

1 inflata (Huds.) Dum. 1-22, 24-28, 33-112. H 1-3, 6, 7, 10, 12, 14-16, 18, 20, 21, 24, 27-30, 33-40. C.
$\beta$ heterostipa (Carringt. \& Spruce) K. Müll. $49,57,60,73,88-90,92,97-99$. H 35.
2 acutiloba (Kaal.) K. Müll. 48.
45. Jungermannia L. emend. Jörg.
$\dagger 1$ lanceolata L. (14, 62, 64, 69). [3]
46. Solenostoma Mitt.

1 triste (Nees) K. Müll. $1-9,13,14,23,32-37,39-51,55,(56), 57-92,94-112$. H 1-5, $7,9,16,20,27-30,33,35,36,38-40$.
2 sphaerocarpoidea (De Not.) Paton \& Warb. (S. atrovirens (Schleich. ex Dum.) K. Müll. var. sphaerocarpoidea (De Not.) K. Müll.) $34-36,57,64-67,69,70,72,76,80,87-92,97,100,101$, 106-108, 112. H 9, 28, 29, 33, 36, 39.
3 schiffneri (Loitl.) K. Müll. 88, 89, 92.

4 pumilum (With.) K. Müll.
$1-6,13-16,34-37,39-50,52,57,59,60,62-81,83-92,94-100$, 102-106, 108-111. H 1-3, 16, 20, 21, 27, 29-31, 33-40. [22, 23]
5 cordifolium (Hook.) Steph.
$42,44,47-50,57,59,60,62,64-73,76-80,83,85-92,94$, 96-99, 102, 104-106, 108, 110 . H 1, 2, 35, 38-40.
6 sphaerocarpum (Hook.) Steph.
$3,36,42,46-50,55,57-60,62-73,75,80,83,86,88-92,96-99$, 104, 107-110. H 1-3, 6, 16, 20, 21, 27, 29, 31, 33, 36-40. C. $[4,5,11,14,21,35,40]$

7 caespiticium (Lindenb.) Steph. (10, 17, 33), 63.
8 crenulatum (Sm.) Mitt. 1-28, 32-50, 52, 54, 55, 57-112. H 1-3, 7, 9, 10, 12, 14-16, 20, 21, 27, 29-31, 33-40. C. [H 28]
47. Plectocolea (Mitt.) Mitt.

1 obovata (Nees) Mitt. 2, 42, 45-50, 57-60, 62-80, 83, 86-92, 94-110, 112. H 1, 2, $6,7,9,16,20,21,27,30,35,36,38,39$.
2 subelliptica (Lindb.) Evans 88, 89. [71]
3 hyalina (Lyell ex Hook.) Mitt. (1) $1-6,8-17,20,22,23,36-38,42-44,48,49,55,59,60,62,64$, $67-69,71-73,75,76,80,83,85,86,88,90-92,96-100,107$, 108. H 1, 20, 30, 31, 33, 34, 36, 39, 40. [33, 34, 39-41, 45, $46,50,57,63,65,66,70,74,77-79,82,84,87,89,94,95$, 101-106, 109-112. H 2, 13, 16, 21, 27, 35, 37, 38]
4 paroica (Schiffn.) Evans (1)
$35,41-44,46,48,49,(62), 63,65,67,68,70,72,73,75,78$, 80, 81, 86-91, $97-101,105,107,112$. H 36, 38, 40. [59, 92, 96, 108]

## 48. Nardia Gray

1 compressa (Hook.) Gray
2-4, 14, 41, 42, 44, 46-49, 57-60, 62-67, 69-71, 73, 75, 86-92, 94, 96-105, 108, 110-112. H 1-3, 6, 7, 16, 20, 21, 27, 33-36, 38, 39.
scalaris (Schrad.) Gray 1-18, 20-25, 27, 28, 30, 32-112. H 1-3, 6-10, 12-14, 16-21, 26-31, 33-40. C.
3 geoscyphus (De Not.) Lindb. $3-5,11-14,16-18,22,28,34,48,49,57-59,(61), 62-67,69$, 72, 77, 87-90, 92, 93, 97, 98, 104, 105, 109. [10]
4 breidleri (Limpr.) Lindb. 88-90, 92, 94, 96, 97.
49. Jamesoniella (Spruce) Schiffn.

1 autumnalis (DC.) Steph. $2,3,(14), 34,37,40,48,50,69,70,73,86-88,90,91,97-99$, 105. [49]

2 undulifolia (Nees) K. Müll. 2, (34), 69, 77, $98 . \quad$ [90]

## 50. Southbya Spruce

1
nigrella (De Not.) Spruce 9, 52.
2
tophacea Spruce 1, 41. H 28.
51. Gongylanthus Nees

1 ericetorum (Raddi) Nees 1. C.
52. Marsupella Dum.

1 adusta (Nees) Spruce $48,49,69,70,72,77,88-90,92,94,96-99,104,106,108$.
2 varians (Lindb.) K. Müll. 88-90, 92, 94, 96-98, 105, 106.
3 condensata (Ångstr.) Kaal. 88, 92, 94, 96, 97.
4 boeckii (Aust.) Lindb. 97, 98.
5 stableri Spruce 48, 49, 69, 70, 88, 90, 92, 94, 96-98.
6 sparsifolia (Lindb.) Dum. 92.

7 ustulata (Hüb.) Spruce $3,13,42,44,48,49,(62), 65,66,68-70,72,73,79,87-90,92$, 94, 96-99, 101, 103, 105, 106, $108 . \mathrm{H} 2,36,39,40$.
8 sprucei (Limpr.) Bernet 48, 49, 88, 90, 92, 97, 98.
9 funckii (Web. \& Mohr) Dum. $1,3,7,9,14,37,40,42-44,46-49,58,68-70,72,(73), 75,79$, 86, 88-92, $96-103,105,108$. H 2, 16, 20, 27, 35, 37-39. C.

10 alpina (Gottsche) Bernet 48, 49, 69, 70, 73, 88-92, 94, 96-98, 105, 108.
11 emarginata (Ehrh.) Dum.
$1-6,13,14,16,34-37,40-50,52,(55), 57-60$, (61), 62-112. H 1-3, 6, 7, 9, 12-14, 16, 18, 20, 21, 27, 28, 30, 31, 33-40. C.

12 aquatica (Schrad.) Schiffn.
$3,36,41,42,44,45,47-49,59,60,62,65,66,68-71,73,74$, 76, 78, 80, 83, 86-92, 94, 96-100, 102-106, 108-112. H 1-3, 16, 20, 21, 27, 28, 34-36, 38, 39.
$\beta$ pearsonii (Schiffn.) E. W. Jones
$3,42,47-49,65,68-70,73,88,90,92,96-99,103,108,110$, 112. H 1, 2, 20, 27, 31, 38.

13 sphacelata (Gies.) Dum.
$42,49,62,(73), 86,88-90,92,94,96-98,105,106,108,110$, 112. H 20, 27, 33, 35.
53. Gymnomitrion Corda

1 concinnatum (Lightf.) Corda 48, 49, (64, 65), 68-70, 72, 73, 75, 77, 78, 86-101, 103, 105-110, 112. H 16, 35, 39.

2 obtusum (Lindb.) Pears. 4, 48-50, 65-70, 72, 73, 75, 78, 85-92, 94-99, 103-106, 108-110. H 1, 6, 16, 27, 35, 38.
3 corallioides Nees $49,88,89,92,97,105,108,109$.
4 crenulatum Gottsche $3,4,45,46,48,49,52,68-70,72,73,75,78,88,90,92,96-101$, 103-106, 108-111. H 1-3, 6, 7, 16, 20, 21, 27-29, 31, 33-36, 38-40.
5 apiculatum (Schiffn.) K. Müll. 92, 96, 97.
54. Mylia Gray corr. Lindb.

1 taylori (Hook.) Gray
39, 40, 42, 44, 46-50, 57-74, 76-80, 82-94, 96-112. H 1-3, 6, 9, 14, 16-21, 26-31, 33-40. [53]
2 anomala (Hook.) Gray
$2,4-6,8,9,11-17,22,24-28,35,39,40,43,44,46-48,50$, (55), 57-60, (61), 62-70, 72-101, 103-112. H 1-3, 10, 14, 17-20, 22, 23, 27, 28, 31-33, 35-40. [3]
3 cuneifolia (Hook.) Gray $48,87,88,97-99,101,103,105,108$. H 1-3, 16, $27,35$.
55. Pedinophyllum Lindb.

1 interruptum (Nees) Lindb. $6,42,47,49,57,(62,63), 64,65,69,97,98$. H 1, 9, 20, 27-29, 33, 35, $38 . \quad$ [56]
56. Plagiochila (Dum.) Dum.

1 carringtonii (Balf. ex Carringt.) Grolle (Jamesoniella carringtonii (Balf. ex Carringt.) Schiffn.) 88, 90, 92, 94, 96-99, 102-108, 110-112. H 27.
2 asplenioides (L.) Dum.
$\alpha$ asplenioides (1)
$1-17,19,20,22-24,30-112$. H 1-3, $5-40$. C. $[18,21$, 25-28]
$\beta$ major Nees
$1-19,22-24,27-38,40-50,53-55,57,58,60,62,64-70,72-77$, 79-111. H 1, 2, 5, 6, 8, 10, 13-16, 24, 28, 29, 33, 35-40. C.

3 spinulosa (Dicks.) Dum. $1-6,(11,14), 34,37,40-50,52,57,(59), 60,63-65,67,69-76$, 78-80, 83, 85-92, 96-106, 108-112. H 1-3, 6-14, 16, 18, 20-22, 26-30, 33-40. C.
$\beta$ killarniensis (Pears.) Macv.
H 2.
$\gamma$ inermis Carringt.
$48,60,69,70,86,98,99,101,103,110,111$. H 1, 2, 27.
$\dagger[4$ ambagiosa Mitt.] (4)
[H3]

5 punctata Tayl.
1-5, 42-49, (65), 69-73, 75, 86-88, 96-105, 108, 110. H 1-3, 6, 7, 13, 16, 20, 27-30, 33-35, 39.
$\beta$ owenii (Steph.) Macv. H 2.
6 tridenticulata (Hook.) Dum. $48,49,64,69,70,73,75,87,88,97-99,101,103-105,108$. H 1-3, 16, 27, 28, 35, 39, 40.
57. Lophocolea (Dum.) Dum.

1 bidentata (L.) Dum. 1-112. H 1-16, 18-23, 25-30, 32-40. C.
2 cuspidata (Nees) Limpr.
1-30, 32-112. H 1, 2, 4, 6, 7, 9-12, 14-16, 19-25, 27-29, 31, 33, 35-39. C.
3 heterophylla (Schrad.) Dum.
1-42, 44-51, 53-77, 79-91, 93, 96-102, 105, 106. H 1-3, 5, 7, 12, 16, 19-21, 27, 30, 34-36, 38, 39 . C.
4 semiteres (Lehm.) Mitt. (6) 1.

5 fragrans (Moris \& De Not.) Moris \& De Not. $1-5,9,35,40,41,43-45,48,49,52,57,70,72-76,81,97,98$, $100-103,105,110$. H $1-3,5,11,13,15,16,20,27,29,33$, 39. C. [H 6]
58. Chiloscyphus Corda

1 polyanthos (L.) Corda $1-8,11-27,31-52,54,55,(56), 57-112$. H 1-3, 5-7, 9, 10, $12,14,20,21,23,27,29-33,35-40$. C.
$\beta$ rivularis (Schrad.) Nees $1-3,5,6,9,10,12,14,16,22,30,35,37,39-42,45,48,49,57$, 59-64, 69-71, 73, 75-78, 82, 83, 87, 88, 90, 91, 97, 99, 100, 102, 104, 108. H 1-4, 6, 9, 27, 39, 40. [38]
2 pallescens (Ehrh.) Dum. $1-20,22,23,26-29,31-37,39-45,47-52,54,57-65,67-70$, 72-74, 80, 82-92, 96-100, 102-106, 111, 112. H 1, 2, 5, 16, $21,28,29,33,35-38 . \quad[56,93-95,108]$
59. Harpanthus Nees

1 flotovianus (Nees) Nees (73), 88-90, 92, 96-98, 105-109, 112. [62]

2 scutatus (Web. \& Mohr) Spruce $3,14,16,36,46,48,49,60,(62), 64,67,70,72,80,86,87,89$, 97, 98, 100, 101, 103-105. H 1-3, 20, 27, 33, 35, 36, 39, 40.
60. Geocalyx Nees
graveolens (Schrad.) Nees 97, 105.
61. Saccogyna Dum.

1 viticulosa (L.) Dum. $1-6,11,14,34,35,37,39-50,52,59,60,63-67,69-76,85-89$, (90), 91, 97-106, 108, 110-112. H 1-3, 5-7, 9-14, 16, 18, 20, 21, 27-36, 38-40. С.
62. Cephaloziella (Spruce) Schiffn.

1 pearsonii (Spruce) Douin 46, 48, 49, 69, 70, 73, 75, 87, 97, 98, 103. H 1, 3, 27, 31.
2 elachista (Jack) Schiffn. 12, 14, 22, 27. H 20, 21.
3 subdentata Warnst. $1,3-5,8,12-14,17,22,24,34,48,52,77,88,89,92,97,104$, 108. H 27, 29.

4 rubella (Nees) Warnst. $1,2,6,12-14,17,20,22-25,28-30,33,34,36-41,46,48,50$, $51,56,58,62-64,67-69,72,74,76,80,81,85,86,89-99,105$, 107, 111. H 37, 39. С.
5 hampeana (Nees) Schiffn. $1-7,9-17,22-24,26,29,34,35,39-43,45-50,56,57,59-64$, $66-70,72,73,75,76,79,80,82,85-92,95,96,98,99,103$, 105-109. H 1, 2, 9, 13, 20, 27-29, 33, 35-40. [18, 19, 25, $32,36,38,58,74,78,83,84,97,100,110,112$. H 3 , 12, 17, $18,21,30$ ]
6 baumgartneri Schiffn. 9, 10, 13-15, 17, 34.
7 stellulifera (Spruce) Schiffn. (1) $1-3,6,10,13,14,16,33,34,36,37,41,44,49,50,56,57,77$. H 27 . $[7,8,26,38,45,80,97,103]$

## BRITISH HEPATICS

8 massalongoi (Spruce) K. Müll. 1-4, 48-50, 52, 91. H 3.
9 starkei (Funck) Schiffn. (1) $1-6,8,11-17,20-23,26,28-30,33-35,37,38,40-42,44,45$, $47-49,52,54,55,58-64,66-70,72-74,77,80-86,88-92$, $95-101,104,105,107,110,111$. H $1-3,6,9,12,16,20,21$, $27,29,30,33,36-39$. C. $[7,9,10,18,19,25,27,32,36$, $39,43,50,51,53,56,57,65,75,78,79,87,103,106,108,109$, 112. H 31, 35]
$\beta$ scabra (Howe) Clark \& Frye $1,14,17,50,82,88,89,96,98$.
10 dentata (Raddi) K. Müll. 1.

11 turneri (Hook.) K. Müll. $1-3,10,13,14,33-36,(38), 44,45,48$. H 2, 3, 20. C.
12 integerrima (Lindb.) Warnst. 7, 13, 14, 22, 26.
13 calyculata (Mont. \& Dur.) K. Müll. 1, 41.
63. Cephalozia (Dum.) Dum.

1 ambigua Mass. 88, 92.
2 bicuspidata (L.) Dum. 1-30, 32-112. H 1-3, 5-10, 12-23, 25-40. C.
$\beta$ lammersiana (Hüb.) Breidl. $1,2,5,8,11,13-19,22,27,36,39,41,42,44-46,48,50,53$, 54, 56-65, 67-70, 72-78, 81, 83-86, 88-92, 95-99, 101, 103-106, 108-112. H 1-3, 6, 7, 9, 12, 14, 16-18, 20, 21, 27, 30, 35, 37-40. [38]
3 pleniceps (Aust.) Lindb. 6, 14, 27, 49, 88-90, 92, 94, 96, 97, 105, 108. [34]
4 loitlesbergeri Schiffn. $48,60,64,66,69,73,74,77,88-90,92,94,96,97,108,109$. H 37.
5 connivens (Dicks.) Lindb. $1-3,5,6,8-20,22,(23), 24-28,32,34,35,(38), 39-43,45$, 46, 48-50, 54, 57-70, 72-93, 96-112. H 1-3, 7, 8, 14-21, 23-25, 27-29, 33, 35-40. С.

6 hibernica Spruce ex Pears.
H 1, 2, 40.
7 media Lindb.
$1-6,9,11-17,20,22,23,34-37,39,40,43,44,46,48-51$, 55-75, 77-106, 108-111. H 1, 2, 5-7, 15, 16, 18, 20, 21, 27, 28, 33, 35-38, $40 . \quad$ [38]
[8 affinis Lindb. ex Steph.] (2)
[H 2]
9 macrostachya Kaal.
$2,3,8,9,11,13-15,17,22,24,27,28,39,40,46,48,50,58$, 60, 62, 64, 67, 68, (69), 77, 80, 81, 89, $96 . \quad$ [90]
$\beta$ spiniflora (Schiffn.) K. Müll.
13.

10 catenulata (Hüb.) Lindb.
$2,3,13,14,42,44,48,49,58,59,(62-64), 67-72,80,84,88$, $90,92,97,98,105,110$. H 1-3, 7, 9, 13, 16-18, 20, 21, 27-30, $33,35,36,38,39 . \quad$ [73]
11 leucantha Spruce
(17), 48, 49, 68, 72-74, 77, 78, 81-83, 86-93, 96-101, 103-112. H 1, 2, $9,12,16,27,29,34-36$. [62]
64. Cladopodiella Buch

1 francisci (Hook.) Buch
$1-3,8,9,11-14,16,17,22,24-28,34,35,41,45,48,52,58$, (61), 62, (64), 71, 88, 90-92, 96, 98, 100, 105, 110. H 1, 3, 6, 21, 27, 29, 35, 38, $39 . \quad$ [59]
2 fluitans (Nees) Buch
$1-3,8,9,11,13-15,(16), 17,27,28,39,40,43,44,46,48-50$, 58-60, 62-68, (69), 70, 71, 73, 80, 83, 88, 92, 95, 97, 104-106, 108-110. H 1, 2, 16, 20, 21, 23, 27, 37-39.
65. Nowellia Mitt.

1 curvifolia (Dicks.) Mitt.
$1-6,13,17,24,29,33,39-44,46-50,57,59,62-81,83-92$, 94-106, 108, 110-112. H 1-3, 5, 7, 9, 15, 16, 20, 21, 26, 27, 29, 33-36, 38-40. [14]
66. Odontoschisma (Dum.) Dum.

1 sphagni (Dicks.) Dum.
$1-5,8,9,11-17$, (21), 22, (23), 24, 25, 27, 28, (29), 34, 35, 37, 39-42, 44, 46, 48-52, 54, (55), 57-70, 72-81, 83-94, 96-112. H 1-3, 7-10, 12-40. [20, 56]

2 denudatum (Mart.) Dum. $3,8,9,11-14,16,17,22,26,40,45,46,48,49,57,58,(59), 60$, $61,(62,64), 66-68,(69), 70-74,78,80,81,83-85,87,88,91$, 94, 96-103, 105-112. H 1, 2, 9, 14, 16-19, 21, 24, 27-29, 33-38.
3 elongatum (Lindb.) Evans 88, 99, 104, 108, 111.
$\dagger 4$ macounii (Aust.) Underw. 88.
67. Adelanthus Mitt.

1 decipiens (Hook.) Mitt. 48, 49, 70, 97-101, 103, 104. H 1-3, 6, 7, 16, 27-29, 33, 35, 39, 40. [4. H 30]
2 unciformis (Tayl.) Mitt. H 16, 27, 35.
68. Douinia (C. Jens.) Buch

1 ovata (Dicks.) Buch
$1-4,42,44,48,49,57,(65), 68-71,73,86-92,94,96-100$, 102-106, 108, 109 . H 1, 20, 21, 27, 31, 34, 35, 38.
69. Diplophyllum Dum.

1 allicans (L.) Dum. 1-25, 27, 28, (30), 32-112. H 1-3, 5-7, 9-16, 18-23, 26-40. C.

2 taxifolium (Wahlenb.) Dum. 49, 68, 69, 87-90, 92, 94, 96-98, 105, 106.
3 obtusifolium (Hook.) Dum. $2-5,13,14,16,17,35,43,46,48,49,58$, (61), 69, 73, 74, 77, 85, 88-91, 93, 97, 108, 112. H 1, 3, 4, 21, 32, 37.
70. Scapania (Dum.) Dum.

1 gymnostomophila Kaal.
89, 92.
2 cuspiduligera (Nees) K. Müll. 35, 44, 57, 64-66, 69, 88-92, 97, 108.
$\dagger 3$ calcicola (Arn. \& Pers.) Ingham 88.

## $\dagger 4$ parvifolia Warnst.

97. 

13, 88. [1-7, 9, 11-18, 20, 22, 24, 27, 33-37, 39, 40, 42-52, 56-60, 62-65, 67-92, 96-100, 102, 103, 105-112. H 1, 2, 6, 16, 20, 27-30, 35, 36, 38-40]
scandica (Arn. \& Buch) Macv. (8) 2, 42, 48, 49, 64-68, 72, 88-92, 95-98, 105, 106. H 34. [100]
irrigua (Nees) Dum. $1-3,5-18,20-28,30,33-45,47-52,54,55,57-75,77-112$. H 1-3, 6, 10, 16, 20, 26-31, 33, 35-40.
umbrosa (Schrad.) Dum. $2-6,13,14,16,34,37,39,46,48,49,57-60,62-70,72-74,76$, 78-93, 95-112. H 1, 2, 6, 7, 16, 20, 21, 25, 27-29, 33-40.
10 $6,48,49,52,57,59,60,62,64-66,69,70,72,76,79,80,85-92$, 94-98, 105-108. H 1-3, 8, 9, 13, 16, 20, 21, 28, 29, 33-35, 39, 40. [3]
11 aspera Bernet $3,6,8-11,13,14,17,20,23,24,32-35,39-43,47-51,53,(55)$, $57,60,64-67,69-72,78,80,87-90,92,94,96-101,104-106$, 108-110. H 2, 6, 9, 13-16, 21, 23, 26-30, 33-36, 38-40.
12
gracilis (Lindb.) Kaal.
$1-5,14,16,34-36,39-52,57-62,64-112$. H 1-3, 6, 7, 9-13, $16,20,21,27-31,33-40$. C. $[6,11,20]$
13 nemorea (L.) Grolle (S. nemorosa (L.) Dum.)
1-27, 30, 32-52, 54-60, 62-81, 83-107, 110, 111. H 1-3, $5-7,9,12,13,16,20,21,27-31,33-40$. C.
$\dagger 14$ crassiretis Bryhn 49, 88.
15 degenii Schiffn. ex K. Müll. 66, 88, 89, 92.
16 undullata (L.) Dum. 1-18, (19-21), 22-25, 32, 34-52, 54, 55, 57-60, 62-112. H 1-3, 5-7, 9-23, 26-31, 33-40. [27]
17 uliginosa (Swartz) Dum. 48, 49, 60, (62, 64), 69, 70, 86-90, 92, 94, 96-99, 103-106, 108. H 1, 2, 12, 20, 27, 31, 35 . [3]

## BRITISH HEPATICS

18 paludosa (K. Müll.) K. Müll. 48, 88, 90, 92, 96, 106. H 1, 40.
19 subalpina (Nees) Dum. 2, 3, 42-44, 48-51, 60, (63), 64, (65), 66-68, 70, 72-81, 83, 85-99, 101, 103-112. Н 1, 2, 6, 20, 27, 35, 36, 38, 39. [1]
20 compacta (Roth) Dum. $1-6,10,11,13-17,20,22,24-27,32,34-37,40-50,52,54,55$, $57,59,60,(62,64), 66-103,105-112$. H 1, 2, 4, 13, 16, 20 , 21, 27, 31, 32, 35, 37-40. C.
21 ornithopodioides (With.) Pears. 49, 69, 70, 88, 92, 94, 96-99, 102-108, 110. H 1, 16, 27, 35. [90]
22 nimbosa Tayl. 49, 88, 92, 94, 96-98, 102, 105-108. H 1, 27, 35.
71. Radula Dum.

1 complanata (L.) Dum. 1-112. H 1-30, 32-40. C.
2 lindbergiana Gottsche $1-3,40,48,49,52,65,68-70,72,73,75-78,85-90,92,96-101$, 103-106, 108-111. H 1, 2, 27-29. [11, 74]
3 carringtonii Jack 97, 103. H 1-3, 27, 33. [88]
4 holtii Spruce H 1-3, 27.
5 aquilegia (Tayl.) Tayl. ex Gottsche \& Lindenb.
$48,49,69,70,73,86-88,97-100,103-105,108,110,112$. H $1-3,6,7,16,27,28,34,35,38$.
6 voluta Tayl. ex Gottsche \& Lindenb. $48,49,70,75,98$. H 1-3, 6, 16, 27, 30.
72. Pleurozia Dum.

1 purpurea Lindb.
73-75, 86-88, 92, 96-112. H 1-3, 9, 16-18, 20, 21, 23-25, 27-30, 33-36, 38-40. [90]

## 73. Porella L.

1 laevigata (Schrad.) Lindb.
$1,3-6,9-14,16,17,24,33-37,39,40,42-50,52,60,62,64-67$, $69,70,72-75,77,79,80,82,83,85-90,96-105,108$. H 1-3, 6, 9, 16, 20, 28-30, 33-35, 39, 40. C. [H 36]
$\beta$ killarniensis (Pears.) Jörg.
3. H 2.
$\gamma$ obscura (Nees) Jörg.
1, 40, 48, 49, 82, 83, 85, 99 . С.
2 thuja (Dicks.) C. Jens.
$1-5,9,15,34,45,46,48-50,52,72-75,81,82,85-88,90,91$, 96-104, 110-112. H 1-3, 5, 6, 16, 18, 20, 38, 39 . С.
3 platyphylla (L.) Lindb.
1-60, 62-73, 75-77, 79-81, 83, 85-92, 94, 95, 97-99, 101, 103, 106, 108 . H 1, 2, 4-9, 12-14, 19-22, 26-30, 32, 33, 36, 38-40.
C.

4 cordaeana (Hüb.) Evans
$3,5,13,17,40,42-45,47,49-51,57,64-73,75-96,98,99,101$, 106, 108, 109, 112. H 5, 15, 31-33, 36, 38, 39, [16]
$\beta$ simplicior (Zett.) Arnell
36, 73, 77, 83, 87, $88 . \quad$ H 32, 38, 39.
$\gamma$ faeroensis (C. Jens.) E. W. Jones
112.

5 pinnata L.
$2-5,45,48-50$. H 1, 2, 5, 15, 20, 30. [1, 9]
74. Marchesinia Gray corr. Carringt.

1 mackaii (Hook.) Gray
$1-4,6,9,10,34-36,39-41,43-46,48-50,52,60,64,69,70$, 72-75, 86, 97-104. H 1-5, 9, 15-17, 20-23, 26-29, 33-35, 38, 39.
75. Lejeunea Lib.

1 cavifolia (Ehrh.) Lindb. (9)
$1-6,8,9,11,14-17,19,22-24,29,30,32-36,38,40-43,45-50$, $52,57,59,64-67,69,72,73,75,79-81,85,87-100,104-108$, 112. H $2,5,13,17,20,21,27,29,33,35,36,38-40$. [12, $13,20,37,39,44,53-55,58,60,62,63,68,70,71,74,76-78$, 82-84, 101-103, 109-111. H 1, 3, 4, 6-9, 12, 14-16, 18, $22,26,28,30,34$. C]

2 patens Lindb. (9)
41, 46-49, 64, 68-70, 72, 73, 75, 79, 80, 85-88, 92, 94, 97-100, 102-106, 108, 110, 112. H $1-3,9,10,13,15,16,20,21,25$, $27-29,31,33-40 . \quad[4,43,45,50,62,65,66,74,76,83,89$, 90, 96, 101, 109, 111. H 6, 14]
3 lamacerina Gottsche ex Steph. (9)
$\alpha$ lamacerina
$37,42,47-50,52,64,67,69-73,75,79,80,86,97,99,101$, 104, 105, 110, 112. H 1-3, 5, 6, 9, 10, 15, 16, 27, 29, 35-39.
$\beta$ azorica (Steph.) Greig-Smith $1-6,10,11,17,41-43,45-49,69,70,72-74,90,97,99,100$, 110, 112. H 1, 2, 6, 10-12, 15, 21, 27-29, 33-36, 39, 40. C.
4 flava (Swartz) Nees H 1-3, 16.
5 holtii Spruce H 1-3, 6, 16,
6 mandonii (Steph.) K. Müll. 1,97. H 29.
7 diversiloba Spruce H 1-3, 16.
8 ulicina (Tayl.) Tayl. $1-17,20,22-24,33-35,40,41,45,46,48-50,52,60,(62), 64$, $65,69,70,72-76,86-88,97-105,110$. H 1-7, 9, 11, 12, $14-16,18,20,21,25,27-31,33,35-40$. [59]
76. Drepanolejeunea (Spruce) Schiffn.

1 hamatifolia (Hook.) Schiffn.
$48,49,64,(65), 69,70,73,86,97-101,103-105,108,110$. H $1-3,9,14-17,20,21,27,29,31,33-35,38,39$. [4]
77. Harpalejeunea (Spruce) Schiffn.

1 ovata (Hook.) Schiffn. $1,48,49,64,69,70,73,75,86,87,97-101,103-105,110$. H $1-3,6,7,9,15,16,27,29,33-35,38,39$. [4]
78. Cololejeunea (Spruce) Schiffn.

1 calcarea (Lib.) Schiffn.
$34-36,41,42,48-50,57,59,60,64-67,69,70,72,73,75,80$, 82, 86-92, 94, 96-101, 103-109. H 1, 2, 9, 16, 21, 28, 29, 31, 33, 38-40. [4]

2 rossettiana (Massal.) Schiffn.
3, 6, 10, 34-36, 40, 57, 60, 64-66, 69, 70, 72, 75, 81, 91, 98. H 2, 6, 9, 21, 28, 29, 33, 36.
3 minutissima ( Sm .) Schiffn.
$1-4,6,8-11,13-17,45,48,52,(65), 70,97,98,100,103$. H 1-3, 5, 6, 8, 9, 15-18, 21, 27-29, 33, 35. C. [90]
79. Aphanolejeunea Evans

1 microscopica (Tayl.) Evans
48, 49, 64, 69, 70, 72, 73, 75, 86-88, 97-101, 103-105, 108, 110. H $1-3,9,10,16,27-29,33,35,36,39$. [1]
80. Colura Dum.

1 calyptrifolia (Hook.) Dum.
$1,14,48,70,73,86,87,97-100,103-105,108,110$. H 1-3, $6,9,10,15,16,21,27,33,35,38,39$. [49. H 7]
81. Jubula Dum.

1 hutchinsiae (Hook.) Dum.
(1), 2-5, 34, 35, 44-49, 63, 64, 69, 70, 72-74, 76, 97, 98, 100-104. H 1-4, 6, 16, 20, 27, 35, 36, 38, 39 . [71]
82. Frullania Raddi

1 tamarisci (L.) Dum.
1-17, (18), 20, 22-24, 26, 32-52, (54-56), 57-60, 62-112. H 1-22, 25-40. C.
$\beta$ robusta Lindb.
$1,2,4-6,42,44,48,49,86,89,92,97,99,100,104,105,111$. H 1, 2, 20, 33, 36.
$\gamma$ cornubica Carringt.
$1,2,4,45,48,60,71,73-76,89,93,97,98,103,105,108$, 110-112. H 1, 2, 16, 27, 28, 31, 35, 39 . C.
2 germana (Tayl.) Tayl. ex Gottsche, Lindenb. \& Nees
$1-3,43,45,48,49,52,70-72,74,75,85,88,97-105,108,110$, 112. H 1-3, 9, 16, 18-20, 26-30, 33, 35, 36, 38-40.

3 microphylla (Gottsche) Pears.
$1-4,42,45,48,49,64,69-71,73,74,86,87,97,100,101$, 103-105, 110. H 1-3, 7, 16, 27, 33-35.

1965 Hepatics Cat., Ed. 4, BBS, J.A. Paton
BRITISH HEPATICS
4 fragilifolia (Tayl.) Tayl. ex Gottsche, Lindenb. \& Nees $1-4,11,34,40,43,45,47-50,52,60,64-67,69-75,81,83$, 85-89, (90), 91, 92, 94-110, 112. H 1-3, 7, 16, 20, 27, 33, 35, 38, 39. C.
5 dilatata (L.) Dum. 1-112. H 1-40. C.

## NOTES

(1) The distribution of this species has been revised by me for the fourth edition.
(2) The material on which this species was recorded is unsatisfactory.
(3) It is doubtful whether these two species are distinct.
(4) The material on which this species was described may have been an abnormal form of the preceding species.
(5) A third species of Herberta has been found in West Ross by D. A. Ratcliffe, but it has not yet been named.
(6) This species is only known on Tresco, Isles of Scilly, where it is probably an introduction (Paton 1965).
(7) The distribution of this species is being revised by Mrs J. W. Fitzgerald. Recent records have not been published and are not included here.
(8) The distribution of this species has been revised by A. R. Perry. Only records of specimens with perianths have been accepted. S. scandica as accepted here may consist of more than one species.
(9) The distribution of this species has been revised according to Greig-Smith (1954).

## INDEX TO GENERA

Acrobolbus, 33
Adelanthus, 42
Anastrepta, 33
Anastrophyllum, 32
Anthelia, 26
Anthoceros, 21
Aphanolejeunea, 47
Barbilophozia, 31
Bazzania, 28
Blasia, 25
Blepharostoma, 28
Calypogeia, 29
Cephalozia, 40
Cephaloziella, 39
Chandonanthus, 32
Chiloscyphus, 38
Cladopodiella, 41
Cololejeunea, 46
Colura, 47
Conocephalum, 21
Cryptothallus, 24
Diplophyllum, 42
Douinia, 42
Drepanolejeunea, 46
Dumortiera, 22

Eremonotus, 33
Fossombronia, 26
Frullania, 47
Geocalyx, 39
Gongylanthus, 35
Gymnocolea, 33
Gymnomitrion, 36
Haplomitrium, 26
Harpalejeunea, 46
Harpanthus, 39
Herberta, 27
Hygrobiella, 27
Jamesoniella, 35
Jubula, 47
Jungermannia, 33

Leiocolea, 31
Lejeunea, 45
Lepidozia, 28
Lophocolea, 38
Lophozia, 29
Lunularia, 22
Marchantia, 22
Marchesinia, 45
Marsupella, 35
Mastigophora, 27
Metzgeria, 24
Moerckia, 25
Mylia, 37
Nardia, 34
Nowellia, 41
Odontoschisma, 41
Pallavicinia, 25
Pedinophyllum, 37
Pellia, 24
Petalophyllum, 25
Plagiochila, 37
Plectocolea, 34
Pleuroclada, 27
Pleurozia, 44
Porella, 45
Preissia, 22
Ptilidium, 27
Radula, 44
Reboulia, 21
Riccardia, 23
Riccia, 22
Ricciocarpus, 23
Saccogyna, 39
Scapania, 42
Solenostoma, 33
Southbya, 35
Sphaerocarpos, 21
Sphenolobus, 32
Targionia, 21
Telaranea, 29
Trichocolea, 27
Tritomaria, 32

1965 Hepatics Cat., Ed. 4, BBS, J.A. Paton

