

## LIVERWORTS AND MOSSES OF NOVA SCOTIA.

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## ABSTRACT.

The bryophyte flora of Nova Scotia shows an unusually wide range. A list is given of 127 hepatics and 367 mosses, making a total of 494 species found in the Province.

The bryophytes of this Province present features of the deepest interest. It is true that the majority of moss species are rather too small to attract general notice, but to the student, armed with pocket-lens and microscope, they open up a new and varied field of beauty.

As in the case of the phaenogams, the Nova Scotian list of mosses shows an unusually wide range. In 1870, the N. S. Institute of Science published Dr. Lindsay's "List of N. S. Plants," which attracted wide attention. The New England botanists were sceptical of some of the species listed; they pointed out, for example, that *Ilex glabra*, the Inkberry, belonged rightly in Louisiana, and had never been seen north of New Jersey,—how then could it be found in Nova Scotia! Yet here it grows, with many another Southern species not yet discovered in Dr. Lindsay's time, *Lophiola*, *Sabbatia*, etc. On the other hand, also within the limits of our small Province, are found plants belonging to the Arctic Flora. The same is equally true of our mosses, species being found that belong much farther south, others from Greenland, Labrador, and Alaska; and it is a curious fact that still other species, found only on mountain-tops in New England, with us are luxuriating near the sea level. Nova Scotia will thus be seen to provide many surprises.

The first to collect mosses in our Province was Dr. A. H. MacKay, distinguished in almost every branch of Natural Science, and especially in Botany. His collection of mosses he sent to the Department of Botany in Ottawa, and Dr.

Macoun found them of such interest that he himself devoted two summers to Nova Scotia, in 1883, and again in 1898, and formed a greatly increased collection. He was followed by Dr. G. E. Nichols of Yale University, who worked in Cape Breton for four summers, between 1909 and 1916 and added many more species to the list. In 1921 the present writer took up the work but let no one imagine it finished with the publication of the present list; so much ground remains unexplored that it is much to be hoped that other amateurs may be enlisted to carry on.

The collections made by Dr. Macoun and Dr. A. H. MacKay are preserved in the Department of Botany Museum in Ottawa and are listed in Parts VI and VII of Macoun's *Canadian Plants*. The mosses discovered by Prof. G. E. Nichols are in the herbarium of Yale University. His lists were published in the *Bryologist*, vol. XIX, pp. 38-47 (1916) and vol. XXI, pp. 28-29 (1918). Mosses collected by M. S. Brown are in Halifax and may be seen at 36 Kent Street. The list appeared in the *Bryologist*, vol. XXXII, pp. 50-56 (1929).

The Hepatics are given in the order used in McVicar's "Handbook", 2nd Edition, 1926; the mosses follow the order in Dixon's "Handbook of British Mosses", 3rd Edition, 1924. Hepatics 127. Mosses 367. A total of 494 species. Abbreviations:—col. = collector; det. = determined by—; ver. = verified by—.

## HEPATICAE.

### MARCHANTIALES.

*Riccia arvensis*, Aust. (= *R. bifurca* Hoffm.)

Lake Annis, Yarmouth Co., July 10, 1935. col. M. S. Brown, no. 303<sup>H</sup>.  
On damp clay footpath. First record for N. S.; Macoun lists it from Hull, Quebec. Ver. W. C. Nicholson.

*Conocephalum conicum* (L.) Dum.

Margaree, July 1898, col. Macoun; St. Croix; Ellershouse, etc. Not rare, on damp shaded rocks.

*Preissia quadrata* (Scop.) Nees.

Truro, and Grand Narrows, July 1898, col. Macoun. Most frequent on limestone. May be seen growing and fruiting on mortar of old walls, Martello Tower, Hfx. Park, and on York Redoubt.

*Marchantia polymorpha* L.

Truro, col. Macoun. Common all over the Province. A conspicuous, handsome growth.

## JUNGERMANNIALES.

## ANACROGYNAE.

*Aneura Dum.* (= *Riccardia* S. F. Gray).*Aneura pinguis* (L.) Dum.

Barrasois, Vict. Co., July 1915, col. Nichols, no. 1203. Not rare in N. S. on boggy ground; Lake Midway, Digby Co.

*Aneura latifrons* Lindb.

Baddeck, July 1898, col. Macoun; Margaree; Hubbards. Not rare.

*Aneura multifida* (L.) Dum.

Barrasois, Vict. Co., 1915, col. Nichols, no. 1334 b; Lawson Mill Rd., Hfx., 1923; and Tuft's Cove; col. M. S. B. no. 269.

*Aneura sinuata* (Dicks.) Dum.

Barrasois, Vict. Co., col. Nichols, no. 199; also Ingonish Barrens; Peggy's Cove, Hfx. Co.; Ship Harbour; M. S. B., no. 291, det. W. E. Nicholson.

*Aneura palmata* (Hedw.) Dum.

Truro, col. Macoun; Lake Kedji, July 1926, col. M. S. B., no. 260, det. Conklin. On rotten stumps and logs.

*Metzgeria furcata* (L.) Dum.

Indian Brook, Vict. Co., 1909, col. Nichols;<sup>1</sup> Port Mouton, col. M. S. B., no. 254. In small patches on trunks of trees, rarely on rocks.

*Metzgeria crassipilis* (Lindb.) Evans.

Sheet Harbour, Oct. 1923, col. M. S. B. no. 272, det. Evans; again at Ship Harbour Lake; at Lake Annis, Yarmouth Co. On beech trees; new to Canada; a Southern species.

*Pallavicinia Lyellii* (Hook.) Gray.

Barrasois, col. Nichols, no. 1169; Halifax, col. M. S. B., no. 252; Blomidon; Port Mouton. Not rare.

*Pallavicinia Flotowiana* (Nees.) Lindb.

Lake Midway, Digby Neck, Aug. 1926, col. M. S. B. no. 283, det. Evans.

*Pellia epiphylla* (L.) Corda.

Louisbourg, col. Macoun; Halifax; Baddeck; etc. Common. After a wet year, great patches of it, fruiting, have been seen in Halifax Public Gardens in early spring.

*Pellia Fabroniana* Raddi.

Ingonish, 1914, col. G. E. Nichols, no. 722. Only in 3 stations in New England.

*Pellia Neesiana* (Gottsche) Limpr.

Ingonish, 1914, Nichols, no. 704. In 4 stations in New England.

*Blasia pusilla*.

Halfway Brook, C. B., Aug. 1898, col. Macoun; Port Mouton, Advocate, etc. On damp road-sides, not rare.

*Fossombronina foveolata* Lindb.

Aspy Bay, 1909, Nichols, no. 075; Windsor Jc; Port Joli; Folleigh Mt; col. M.S.B., no. 247, det. Evans. Frequent on lake margins.

## ACROGYNAE.

*Marsupella emarginata* (Ehrh.) Dum.

Margaree, Aug. 1898, col. Macoun; Halifax Arm. Very common on stones in brooks.

*M. sparsifolia* (Lindb.) Dum.

Aspy Bay, 1932, col. M. S. B., no. 295, det. W. C. Nicholson.

*M. ustulata* Spruce.

Barrasois, Vict. Co., 1914, col. Nichols, no. 509.

*M. aquatica* (Lindb.) Schiffner.

Barrasois, Vict. Co., 1915, col. Nichols, no. 1500; Aspy Bay, col. M. S. B. 1932, no. 296; also Advocate.

*M. sphacelata* Lindb.

Yarmouth, 1883, col. Macoun; also Halfway Brook, C. B.

These last four species all very rare, alpine and subalpine.

*Alicularia scalaris* Corda. (= *Nardius* Gray).

Arichat, C. B., col. O. D. Allen; <sup>1</sup>Ferguson's Cove, Hfx. and Five Islands, col. M. S. B., no. 263. Grows in dense mats on low cliffs near the sea.

*A. Geoscyphus* De Not.

Musquodoboit River, Aug. 1926, col. M. S. B., no. 286, det. Conklin; also at Jeddore. On damp rocks. Earlier specimens in Yale Museum.

*A. Geoscyphus* var. *suberecta*.

Musquodoboit, Aug. 1926, col. M. S. B., no. 294, det. Conklin. Growing near the typical form.

*Eucalyx obovatus* (Nees) Breidl. (= *Nardia*).

Barrasois, 1915, col. Nichols, no. 1445; Aspy Bay, 1932, col. M. S. B., no. 293, det. H. H. Knight.

*E. subellipticus* (Lindb.) Breidl.

Barrasois, 1915, col. Nichols, nos. 1269 & 1478; Ingonish Mts., no. 1725. These two species are alpine and subalpine, found in Greenland and on Mts. of New England.

*Aplozia crenulata* (Sm.) Dum. (= *Nardia* Lindb.).

Truro, June 1883, col. Macoun; Baddeck, col. Nichols. Very common all over the Province; often on roadsides in damp situations.

*Aplozia cordifolia* Dum. (= *Jungermannia* Hook.).

Big Intervale, Margaree, July 1898, col. Macoun; also col. Nichols, in C. B.

*Aplozia pumila* (With.) Dum.

St. Croix, July 1923, col. M. S. B., no. 274, det. A. W. Evans.

*Aplozia lanceolata* (Schrad.) Dum.

Margaree, July 1898, col. Macoun; Sandy Cove, Digby Co, and Blomidon, col. M. S. B., no. 214.

*Jamesoniella autumnalis* (D. C.) Steph.

Margaree, July 1898, col. Macoun; Pictou; Truro. Common in woods, on rocks and even on trees.

*Jamesoniella heterostipa* Evans.

Barrington Passage, July 1910, col. Macoun, no. 52, growing on stones in a brook. New species, description in Bryologist Sept. 1915.

*Gymnocolea inflata* (Huds.) Dum. (= *Lophozia inflata* Howe.)

Louisbourg, July 1898, col. Macoun.

Rather common all over the Province in boggy spots.

*Lophozia Badensis* (Gottsche) Schiffn.

Ingonish, 1914, col. Nichols, no. 715.

*L. Kaurini* (Limpr.) Steph.

Aspy Bay, 1914, col. Nichols, no. 1722; also on Ingonish Mts.

*L. longidens* (Lindb.) Macoun.

Cape Smoky, Aug. 1898, col. Macoun; also col. Nichols. Rare.

*L. ventricosa* (Dicks.) Dum.

Baddeck, July 1898, Macoun. Our most common species of *Lophozia*, abundant on damp rocks around Halifax.

*L. porphyroleuca* (Nees) Schiffn.

Barrasois, Vict. Co., 1914, col. Nichols, no. 300; Musquodoboit.

*L. alpestris* (Schleich.) Evans.

Barrasois, 1915, col. Nichols, no. 1371; Purcell's Cove, M. S. B., no. 219, and Halibut Cove, Hfx. Co.

*L. bicrenata* (Schmid.) Dum.

Jollimore's, Hfx. Co., col. M. S. B., no. 266, Sept. 1923, det. A. W. Evans. New to N. S., found in New England also.

*L. excisa* (Dicks.) Dum.

Halifax Park, July 1930, col. M. S. B., no. 292, det. Conklin. New to N. S.

*L. incisa* (Schrad.) Dum.

Truro, 1898, col. Macoun; also Louisbourg; Margaree; Port Mouton. Not rare, growing on rotten wood in shade.

*L. quinquedentata* (Huds.) Cogn.

Margaree, July 1898, col. Macoun; Aspy Bay, 1932, col. M. S. B., no. 297, growing on limestone. Subalpine species.

*L. lycopodioides* (Wallr.) Cogn.

Pirate's Cove, Straits of Canso, col. Macoun; Truro Park, Oct. 1928, col. M. S. B., no. 290. Alpine species, on rocks. Plentiful in the Rocky Mts., sparingly found over Labrador and across Canada.

*Lophozia Hatcheri* (Evans) Steph.

Lake Kedji, July 1926, and at Maitland Falls, Annap. Co., Aug. 1934, col. M. S. B. no. 299, det. W. E. Nicholson. Alpine species, on rocks; widely spread but uncommon.

*L. attenuata* (Mart.) Dum.

Pictou; Baddeck, July 1898, col. Macoun; Halifax Dingle; Ferguson's Cove. Not rare; on rocks, subalpine.

*L. barbata* (Schmid.) Dum.

Cape Breton, "in brooks and ravines," July 1898, col. Macoun; Ship Harbour; Ellershous; Port Mouton; col. M. S. B.

*L. Kunzeana* (Hüb.) Evans.

Tiverton, Digby Co., July 1926, col. M. S. B., no. 304, ver. W. C. Nicholson. Alpine species and very rare. New to N. S.

*L. Binsteadii* (Kaalaas) Evans.

Barrasois, 1915, col. G. E. Nichols, no. 1431b. New to N. S.

*Sphenolobus minutus* (Crantz) Steph.

Cape Smoky Mts., Aug. 1898, col. Macoun; Ship Harbour Lake, col. M. S. B., no. 218; Sandy Cove; Dartmouth Lakes; Purcell's. Subalpine, on damp rocks, uncommon and small plant.

- S. exsectus* (Schmid.) Steph.  
Halfway Brook, Cape Breton, 1898, col. Macoun; Lake Charlotte, Guys. Co.; MacNab's Is., Hfx.; Folley Mt., col. M. S. B., no. 284. Subalpine, on logs and rocks.
- S. exsectiformis* (Breidl.) Steph.  
Ship Harbour Lake, Guys. Co., Aug. 1924, col. M. S. B., no. 206. New to N. S. Later found at Herring Cove, Hfx., and Dartmouth Barrrens. Subalpine and uncommon.
- S. Hellerianus* (Nees) Steph.  
Barrasois, 1909, col. G. E. Nichols. On decaying logs, subalpine and very rare.
- S. Michauxii* (Web.) Steph.  
North West Arm, Hfx., col. Macoun; Barrasois, col. Nichols, no. 263. On rotten wood.
- Plagiochila asplenioides* (L.) Dum.  
Margaree, July 1898, col. Macoun; Yarmouth; Truro. Common all over the Province, on rocks and banks of streams.
- P. asplen. forma laxa* Schiffn.  
Dartmouth Barrrens, Sept. 1923, col. M. S. B.
- Leptoscyphus Taylora* (Hook.) Mitt. (= *Mylia* Gray).  
Pirate's Cove; Straits of Canso, col. Macoun; also at Margaree; and Louisbourg; Kearney's Road, Hfx., col. M. S. B. Subalpine, on wet banks.
- L. anomalus* (Hook.) Mitt.  
Barrasois, 1914, col. Nichols, no. 461; Halifax Co., col. M. S. B., no. 255. Common in bogs, among Sphagnum and other mosses.
- Lophocolea heterophylla* (Schrad.) Dum.  
Baddeck, July 1898, col. Macoun; Halifax; Yarmouth. Common everywhere, and often found fruiting, on damp logs and stumps.
- Lophocolea minor* Nees.  
French River, Vict. Co., 1917, col. Nichols; St. Croix, col. M. S. B., no. 242; also at Port Mouton. Always on limestone; widely spread over Canada but uncommon. Leaves erose with gemmae.
- Chiloscyphus polyanthus* (L.) Corda.  
Truro and Margaree, July 1898, col. Macoun. Not rare in wet places, rocks in streams, etc.
- Ch. polyanthus var. rivularis* (Schrad.) Nees.  
Cape Breton, col. Macoun and Nichols.
- Ch. poly. v. fragilis* (Roth.) K. Müll.  
Barrasois, 1915, col. Nichols, no. 1487; Sandy Cove, Aug. 1926, col. M. S. B., no. 258, det. Conklin.

*Ch. pallescens* (Ehrh.) Dum.

Ingonish and Barrasois, 1914, col. Nichols, no. 721.

*Harpanthus scutatus* (W. & M.) Spruce.

Pirate's Cove and Margaree, 1898, col. Macoun; Halifax; Lake Charlotte; Port Joli, col. M. S. B. On decaying wood, not rare.

*H. scutatus* v. *uliginosus*.

St. Croix, col. M. S. B., no. 273, det. A. W. Evans.

*Geocalyx graveolens* (Schrad.) Nees.

Margaree and Truro, July 1898, col. Macoun; Bedford; Quarry Lake, Hfx., col. M. S. B., no. 270. On shaded rocky banks.

*Cephalozia bicuspidata* (L.) Dum.

Pirate's Cove, col. Macoun, July 1883. Common on moist soil everywhere.

*C. pleniceps* (Aust.) Lindb.

Ingonish Barrens, 1915, col. Nichols, no. 1653b; Purcell's Cove, Hfx., Oct. 1922, col. M. S. B.; also Windsor Jc.; and Melville Park. Alpine species, on moist rock ledges.

*C. connivens* (Dicks.) Lindb.

Specimen at Yale, or in New York Herbarium, collected in N. S.

*Cephalozia Loitlesbergeri* Schiffn.

Barrasois, Vict. Co., 1915, col. Nichols, no. 1243b. New to N. America!

*C. media* Lindb.

Pirate's Cove and Cape Breton, col. Macoun. Frequent, a small delicate plant.

*C. catenulata* (Hüben.) Spruce.

Truro and Baddeck, July 1898, col. Macoun; Kearney's Road, col. M. S. B.

*C. leucantha* Spruce.

Barrasois River, 1914, col. Nichols<sup>1</sup>, no. 575. New to N. S. This minute plant has once been found in Nfld., also in Alaska and the Pacific slope. On rotten logs.

*C. Francisci* (Hook.) Dum.

Yarmouth, May 1910, col. Macoun<sup>1</sup>, no. 41. This was only the 2nd record for N. America, the first being in Maine, U. S. A., 1902. Found in Northern Europe, but rare. Peggy's Cove, Hfx., Aug. 1927, col. M. S. B., no. 288.

*C. fluitans* (Nees) Spruce.

Barrasois River, 1914, col. Nichols, no. 201; Port Mouton, col. M. S. B. Common in Sphagnum bogs everywhere.

1. Nichols. footnote 1. Bryol 19, 40, (1916).



- Nowellia curvifolia* (Dicks.) Mitt. (= *Cephalozia* Dum.).  
Pirate's Cove, 1883, col. Macoun; Baddeck; Margaree. Frequent on rotten logs.
- Cephaloziella Starkii* (Funck) Schiffn. (= *C. byssacea* (Roth) Warnst.)  
Barrasois, 1909 & 1915, col. Nichols, no. 1378; St. Croix, col. M. S. B., no. 265, det. Conklin; also Kearney's Rd., Hfx. Very small plant.
- C. Hampeana* (Nees) Schiffn.  
Halifax, Purcell's Cove, and Spion Kop, Sept. 1923, col. M. S. B., no. 264, det. Conklin and Miss C. C. Haynes.
- C. elachista* (Jack) Schiffn.  
Specimen at Yale or N. Y. Botanical Museum, collected in N. S.
- Hygrobiella laxifolia* (Hook.) Spruce.  
Smith's Brook, Cape Breton, 1914, col. Nichols', no. 629. Aspy Bay, July 1932, col. M. S. B., no. 298. This last was verified by W. C. Nicholson, who says it is an interesting plant belonging to the Arctic flora. Macoun lists it only from Greenland and Labrador.
- Odontoschisma Sphagni* (Dicks.) Dum.  
Louisbourg, 1898, col. Macoun; Peggy's Cove, Hfx. Co., 1928, col. M. S. B., no. 289. Growing in bog with sphagnum moss.
- Odontoschisma denudatum* (Nees) Dum.  
Pirate's Cove, 1883, col. Macoun; Baddeck; Dartmouth. Growing on rotten wood; not rare.
- Calyptogeia Trichomanis* (L.) Corda.  
Baddeck and Margaree, 1898, col. Macoun. Common in Halifax on damp earth, and all over the Province.
- C. Neesiana* (Massal & Carest.) K. Mull.  
Barrasois, 1914, col. Nichols, no. 89; Musquodoboit, 1926, col. M. S. B., no. 287, det. Conklin.
- C. fissa* (L.) Raddi.  
Barrasois, 1915, col. Nichols, no. 1482; Port Mouton, June 1924, col. M. S. B., no. 212, det. Conklin.
- C. suecica* (Arnell & Perss.) K. Mull.  
Ingonish, 1914, col. Nichols, no. 911.
- C. Sullivantii* Aust.  
Ferguson's Cove, Hfx., Sept. 1923, col. M. S. B., no. 262, det. Evans. Small delicate plant, new to N. S. Also at Upper Sackville, Hfx.; Mt. Uniacke; and Lake Annis, Yar. Co.
- Bazzania trilobata* (L.) Gray.  
Halifax, Truro, Baddeck, Margaree, 1898, col. Macoun. Common and large plant, covering mounds and even stumps.

*Bazzania denudata* (Torrey) Trevis.

Pirate's Cove, 1883; Louisbourg, 1898; Ferguson's Cove, Hfx. Macoun lists these as *B. triangularis*, and Nichols names them *B. tricrenata*, but Evans determines all with caducous leaves and green colouring as *B. denudata*.

*Lepidozia reptans* (L.) Dum.

Truro and Baddeck, 1898, col. Macoun. Very common on shaded earth and rocks everywhere.

*L. sylvatica* Evans.

Hubbard, Hfx. Co., Aug. 4, 1935, col. M. S. B., no. 257B, det. W. C. Nicholson who was the first to discover this species growing in Great Britain. New to Canada.

*L. setacea* (Web.) Mitt.

Barrasois Barrens, 1914, col. Nichols, no. 472; Ferguson's Cove; Hubbard; col. M. S. B. Not uncommon in bogs.

*Blepharostoma trichophyllum* (L.) Dum.

Pirate's Cove, 1883, Yarmouth, Aspy Bay, 1898, col. Macoun. Not uncommon, very small plant.

*Ptilidium ciliare* (L.) Hampe.

Cole Harb., 1923, col. M. S. B., no. 245; also Port Mouton. Growing erect, and forming deep tufts.

*Pt. pulcherrimum* (Web.) Hampe.

Baddeck and Margaree, 1898, col. Macoun; Barrasois, 1909, col. Nichols. Growth prostrate, on tree trunks and on rocks. Common all over the Province.

*Trichocolea tomentella* (Ehrh.) Dum.

Barrasois, 1909, col. Nichols; Lake Charlotte; Hubbard; Ellershouse, col. M. S. B. Large and handsome, spreading over damp mosses; uncommon.

*Diplophyllum albicans* (L.) Dum.

Pictou, 1883, Margaree, 1898, col. Macoun; Halifax, 1923, col. M. S. B., no. 208, det. Evans. In shade, on wet rocks.

*D. taxifolium* (Wahl.) Dum.

Pirate's Cove, 1883, Cape Smoky, 1898, col. Macoun; Sandy Cove, 1926, col. M. S. B.

*D. sp?*

Cole Harb. Rd., Sept. 1923, col. M. S. B., no. 259. Growing with *Anthoceros* on damp grassy track.

*Scapania nemorosa* (L.) Dum.

Cape Breton Is., 1898, col. Macoun. Most common species over the whole Province; on roadsides, etc.; most luxuriant on dripping rocks, growing in reddish cushions.

- S. dentata* Dum.  
Barrasois, 1915, col. Nichols, no. 1397; N. W. Arm, Halifax, 1923, col. M. S. B., no. 244, det. Conklin. On stones in brook. Rare in N. America.
- S. undulata* (L.) Dum.  
Yarmouth, Halifax, Baddeck, Louisbourg, 1898, col. Macoun. Common on stones in running water.
- S. irrigua* (Nees) Dum.  
Truro, col. Macoun, no. 103; Windsor Jc.; Dartmouth Barrens, col. M. S. B., no. 279., det. Conklin.
- S. curta* (Mart.) Dum.  
St. Croix, July 1923, col. M. S. B., no. 268, det. A. W. Evans; Windsor; Folley Mt. On wet rock ledges.
- S. umbrosa* (Schrad.) Dum.  
Barrasois, 1909, col. Nichols; Dartmouth Barrens, July 1924, col. M. S. B.; St. Croix; Maitland River. On decayed wood.
- S. apiculata* Spruce.  
Specimen in Yale Herbarium, collected in N. S.
- S. Bolanderi* Aust.  
Truro, 1898, col. Macoun, and at Pirate's Cove, 1883.
- S. Oakesii* Aust.  
Barrasois, 1914, col. Nichols, no. 294; Ferguson's Cove, July 1923, col. M. S. B., no. 211, det. Conklin.
- S. paludicola* (Loeske) K. Müll.  
Barrasois, 1914, col. Nichols, no. 213; Port Mouton, col. M. S. B., no. 280, det. Conklin; Dartmouth Barrens.
- S. subalpina* (Nees) Dum.  
Barrasois, 1915, col. Nichols, no. 1370.
- Radula complanata* (L.) Dum.  
Cape Breton Is., 1883, col. Macoun. Common everywhere on bark of trees.
- Porella* (= *Madotheca* Dum.).
- Porella platyphylla* Lindb.  
Macoun lists this, the most common species in Europe, from Yarmouth, Halifax, and Margaree. Dr. Evans shows that these collections should be transferred to the following species:—
- Porella platyphylloidea* (Schwein.) Lindb.  
Additional stations are Indian Brook, col. Nichols, no. 42; Big Intervale, C. B., col. Macoun, no. 55, & 58; Sandy Cove, col. J. D. Lowe. Common on trees.

*P. pinnata* L.

Halifax, Old Cobequid Rd., 1923, col. M. S. B., no. 249. On stones in a brook.

*Cololejeunea Biddlecomiae* (Aust.) Evans.

Port Mouton, Aug. 1923, col. M. S. B., no. 256, det. Evans; Lochaber; Glen Margaret; Cow Bay Run. On rocks, a very small plant.

*Lejeunea cavifolia* (Ehrh.) Lindb.

Cape Smoky, 1914, col. Nichols, no. 739; and Barrasois, 1909; Port Mouton, 1924, col. M. S. B., no. 253, det. Evans.

*Lejeunea patens* Lindb.

Big Intervale, Margaree, col. Macoun, July 1898; Sandy Cove, Digby Co., 1926, col. M. S. B., no. 282, det. A. W. Evans. On rock.

*Microlejeunea ulicina* (Tayl.) Evans.

Sandy Cove, Aug. 1908, col. Mrs. J. D. Lowe. On trees. New to N. America. Found in Ireland and in England.

*Frullania eboracensis* Gottsche.

Cape Breton Is., 1898, col. Macoun. Quite common on trees.

*Fr. Asagrayana* Mont.

Truro, Baddeck, col. Macoun. Very common on trees and rocks.

*Fr. Tamarisci* (L.) Dum.

Margaree, July 1898, col. Macoun; Port Mouton, Aug. 1924, col. M. S. B., no. 281. Rare in N. America.

*Anthoceros laevis* L.

Middle River, 1917, col. Nichols, no. 2015; Port Mouton, Aug. 1923, col. M. S. B., no. 239.

*A. punctatus* L.

Truro, 1883, col. Macoun; Barrasois, col. Nichols; East Chester, col. L. S. Brown.

*A. Macounii* M. A. Howe.

Cole Harb., Hfx. Co., Sept. 1923, col. M. S. B., no. 276, det. A. W. Evans. New to N. S.

## MUSCI.

## SPHAGNALES.

## SPHAGNACEAE. Peat mosses.

*Sphagnum cymbifolium* Ehrh. (= *S. palustre* L.).

Pictou, 1907<sup>1</sup>, col. C. B. Robinson; Halifax, col. M. S. B., Sept. 1918. Common in damp grassy places.

- S. papillosum* Lindb.  
Barrasois, col. Nichols, no. 206; Truro, 1898, col. Macoun. Frequent in peat bogs; this was the species most used for hospital dressings during the Great War.
- S. Magellanicum* Brid.  
Barrasois Barrens, col. Nichols, no. 476; also at Barrasois and at Aspy Bay Barrens.
- S. imbricatum* Russ. var. *cristatum* Warnst.  
Louisbourg, col. Macoun.
- S. imbricatum* var. *affine* Warnst.  
Truro, col. Macoun.
- S. rufescens* Bry. Germ.  
Truro, col. Macoun; and Kingston, N. S.
- S. subsecundum* Nees.  
Barrasois, col. Nichols, no. 207; also at Mount Franey.
- S. Pylaisei* Brid.  
Aspy Bay, col. Macoun, 1898; Halifax, 1920, no. 309, col. M. S. B.
- S. Pylaisei* var. *sedoides* Lindb.  
Grand Lake, Hfx. Co., on gravel shore, Sept. 6, 1924, col. M. S. B., no. 305, det. A. L. Andrews.
- S. teres* Aongstr.  
Barrasois, col. Nichols, no. 1164.
- S. squarrosum* Pers.  
Barrasois, col. Nichols, no. 0923.
- S. molle* Sull.  
Sable Is., 1899, col. Macoun, "quite common there."
- S. tenerum* Sull. Lesq.  
Barrasois Barrens, col. Nichols, no. 482; also Ingonish Barrens, and Barrasois.
- S. acutifolium* Ehrh. (= *S. capillaceum* Schaub.).  
Cape Smoky, col. Nichols, no. 1763; Annapolis Royal, col. Prof. J. B. Porter, 1918.
- S. acut.* var. *tenellum* A. L. Andrews.  
Barrasois, col. Nichols, no. 200; Pictou, col. MacKay, "quite common in N. S."
- S. fuscum* Klingr.  
Barrasois Barrens, col. Nichols, no. 465. Quite frequent, in large brown cushions.

- S. quinquefarium* Warnst.  
Barrasois, col. Nichols, no. 0918; Rockingham Woods, Sept. 1918,  
col. M. S. B., no. 299A.
- S. plumulosum* var. *flavicomans* (Card.) A. L. Andrews.  
Barrasois Barrens, col. Nichols, no. 480.
- S. Girgensohnii* Russ.  
Barrasois, col. Nichols, no. 0925; Rockingham, Hfx. Co., 1918, col.  
M. S. B., no. 299B.
- S. robustum* (Russ.) Röll.  
Barrasois, col. Nichols, no. 0919.
- S. recurvum* Beauv. (= *S. intermedium* Hoffm.)  
Barrasois, col. Nichols, no. 0920.
- S. recurvum* var. *amblyphyllum*.  
Kingston, N. S., col. Macoun.
- S. pulchrum* (Lindb.) Warnst.  
Barrasois, col. Nichols, no. 203; Williams Lake, Hfx. Co., 1918, col.  
M. S. B., no. 297C.
- S. cuspidatum* Ehrh.  
Barrasois Barrens, col. Nichols, no. 511; Belcher's Pond, Hfx. Co., 1918,  
col. M. S. B., no. 298A. Flaccid and delicate.
- S. cusp.* var. *Torreyanum* (Sull.) Braithw.  
Ingonish Barrens, col. Nichols, no. 835; Belcher's Pond, Hfx. Co., 1918,  
col. M. S. B. Very large and robust.
- S. Dusenii* (C. Jens.)  
Ingonish Barrens, col. Nichols, no. 2001.
- S. tenellum*. Pers.  
Ingonish Barrens, col. Nichols, no. 1670.

## ANDREAEALES.

## ANDREAEACEAE.

- Andreaea petrophila* Ehrh.  
Truro and Margaree, col. Macoun. Common on rocks near Halifax.
- A. petro.* var. *alpestris* Schimp.  
N. W. Arm, Halifax, June 1883, col. Macoun. On damp rocks. New to  
America.
- A. Rothii* Web. & Mohr.  
Aspotogan, Oct. 1930, col. M. S. B. no. 479. On damp rocks. New to  
N. S.

## BRYALES.

## TETRAPHIDACEAE.

*Georgia pellucida* Rabenh. (= *Tetraphis* Hedw.).

Margaree, 1898, col. Macoun; Pictou. Common on rotten wood.

*G. geniculata* Lindb.

Margaree, 1898, col. Macoun; Lake Charlotte, Aug. 1924, col. M. S. B., no. 357.

## POLYTRICHACEAE.

*Catharinea undulata* Web. & Mohr.

Pictou, col. A. H. MacKay; Barrasois, Vict. Co., col. Nichols, no. 0947. Frequent on damp banks; a large showy moss.

*C. angustata* Brid.

Barrasois & Aspy Bay, col. Nichols, no. 0948 & no. 1022.

*C. Haussknechtii* Jur. & Milde.

Halfway Brook, C. B., Aug. 1898, col. Macoun.

*C. Selwyni* Aust.

Margaree, July 1898, col. Macoun.

*C. crispa* James.

Halibut Cove, Hfx. Co., Oct. 1935, col. M. S. B., no. 545. Not rare in beds of rocky streams, but seldom found fruiting. This collection had abundance of capsules.

*Polytrichum brevicaule* (Brid.) Beauv. (= *Pogonatum tenue* E. G. B.).

Pictou, col. A. H. MacKay; Baddeck, 1898, col. Macoun. Not rare on damp clay banks.

*P. capillare* Rich.

Sherbrooke, Guys. Co., 1924, col. M. S. B., no. 315. Found fruiting here, also on Fort Needham, Hfx.; sterile plants not rare at Melville Park, Hubbard, etc.

*P. alpinum* L.

Louisbourg, Baddeck, Halifax, col. Macoun. Frequent on shaded rocks.

*Polytrichum piliferum* Schreb.

N. W. Arm, Hfx., col. Macoun; Wreck Cove, C. B. Very common on rocks around Halifax.

*P. juniperinum* Willd.

Pictou, col. A. H. MacKay. Abundant all over Canada.

*P. strictum* Banks.

Truro, col. Macoun; Barrasois, col. Nichols, no. 0944; Halifax and Lunenburg Cos.

*P. gracile* Dicks. var. *anomala* Milde.

Aspy Bay Barrrens, 1914, col. Nichols, no. 1002.

*P. ohioense* R. & C.

Margaree, 1898, col. Macoun; not rare; Louisbourg, Halifax, North Sydney.

*P. commune* L.

Pictou, col. A. H. MacKay.<sup>1</sup> Abundant all over the Province, on worn out fields and shady banks.

## BUXBAUMIACEAE.

*Buxbaumia aphylla* L.

Pictou, col. A. H. MacKay, at mill dam; Halifax, col. Dr. Lawson; Barrasois, Lake Kedji. Rare and curious plant.

*B. indusiata* Brid.

Barrasois, 1914, col. Nichols, no. 1. The only collection recorded for N. S. Has been found in B. Columbia.

*Diphyscium foliosum* Mohr. (= *Webera sessilis* Lindb.)

Halifax, Pictou, col. A. H. MacKay; Margaree, col. Macoun. Another curious plant, but more common than *Buxbaumia*; on shaded banks in woods.

## DICRANACEAE.

*Ditrichum tenuifolium* Lindb. (= *Trichodon cylindricus* Schimp.)

Half-way House, Cape Breton, Aug. 1898, col. Macoun.

*D. tortile* Lindb.

Truro, col. Macoun; Barrasois, col. Nichols. Common by roadsides.

*D. homomallum* (Hedw.) Hampe.

Louisbourg, Aug. 1898, col. Macoun; Margaretville, July 1935, col. M. S. B., on cliffs and crevices, Bay of Fundy shore.

*D. vaginans* (Sull.) Hampe (= *D. lineare*.)

Grand Narrows and Baddeck, col. Macoun; Folley Mt. Rather common.

*D. flexicaule* Schleich.

Whycocomagh and Margaree, July 1898, col. Macoun.

*Ditrichum pallidum* (Schreb.) Hampe.

Lake Kedji, July 1926, col. M. S. B., det. H. Dupret; also at Kearney's Lake, Hfx. Co. New to N. S., not reported E. of Ont.



- Swartzia montana* Lindb. (= *Distichium capillaceum*, B. & S.)  
Margaree, 1898, col. Macoun; also col. Nichols, 1914.
- S. inclinata* Ehrh.  
Aspy Bay, 1916, col. Nichols, no. 2014.
- Ceratodon purpureus* Brid.  
Pictou, col. A. H. MacKay. Common especially on burnt ground; the stems of young fruit form bright red patches, which may be seen around Halifax railway terminals.
- Rhabdowisia crispata* (Dicks.) Lindb. (= *R. denticulata* B. & S.)  
Windsor Jc., July 1923, col. M. S. B., no. 318, det. A. L. Andrews.
- Cynodontium polycarpum* Schp. (= *Oncophorus* Brid.)  
Barrasois, 1915, col. Nichols, no. 1461.
- C. Wahlenbergii* Ren. & Card.  
Truro and Margaree, 1898, col. Macoun. Occasional, on damp shaded rocks.
- Dichodontium pellucidum* Schp.  
Louisbourg, 1898, col. Macoun; Truro Park, 1928, and Sandy Cove, Aug. 1926, col. M. S. B., no. 498, det. Dixon. On wet rocks.
- Trematodon ambiguus* Hornsch.  
Pictou, col. A. H. MacKay; Truro, Louisbourg, Baddeck, col. Macoun; Lake Kedji.
- Dicranella heteromalla* Schp.  
Truro, col. A. H. MacKay; Yarmouth; Louisbourg. Common on clay banks.
- D. cerviculata* Schp.  
Louisbourg, col. Macoun, 1898, and at Halfway Brook; Terence Bay. On wet calcareous earth.<sup>1</sup>
- D. varia* Schimp.  
Truro, col. Macoun; Barrasois, col. Nichols, no. 09154.
- D. squarrosa* Starke.  
Cape Smoky, July 1898, col. Macoun, "in wet springy places."
- Blindia acuta* (Huds.) B. & S.  
Halfway Brook, C. B., Aug. 1898, col. Macoun; Aspy Bay. On rocks in ravines.
- Dicranodontium longirostre* B. & S.  
Louisbourg, Aug. 1898, col. Macoun; Musquodoboit River, 1924, col. M. S. B., no. 343.
- Dicranum undulatum* Turn.  
Baddeck, July 1898, col. Macoun. Common, a large handsome moss in cushions.

- D. spurium* Hedw.  
Margaree, 1898, col. Macoun; N. W. Arm, Hfx. Co.
- D. Bergeri* Bland.  
Halfway Brook, C. B., Aug. 1898, col. Macoun; Louisbourg.
- D. Bonjeani* De Not.  
Indian Brook, C. B., Ingonish and Barrasois, col. Nichols.
- D. scoparium* Hedw.  
Pictou, col. A. H. MacKay; Cape Breton, col. Macoun. Common all over the Province, in cushions.
- D. majus* Smith.  
Baddeck, Margaree, col. Macoun; McNab's Is., Hfx. Rather common.
- D. fuscescens* Turn.  
Pirate's Cove, Straits of Canso, col. Macoun.
- D. Mühlenbeckii* B. & S.  
Ingonish Barrens, 1909, col. Nichols, no. 811.
- D. fulvum* Hook.  
Halifax Co., col. A. H. MacKay; Margaree, 1898, col. Macoun.
- D. viride* Schimp.  
Margaree, Aug. 1898, col. Macoun. Quite common, base of trees and on wood.
- D. flagellare* Hedw.  
Baddeck and Louisbourg, 1898, col. Macoun; Halifax, Feb. 1921, col. M. S. B., no. 443; Oxford Jc.
- D. montanum* Hedw.  
Pictou Co., col. A. H. MacKay. Barrasois, 1914, col. Nichols, no. 197.
- D. longifolium* Hedw.  
Big Intervale, Margaree, and Halfway Brook, C. B., col. Macoun; "very common at those stations."
- D. condensatum* Hedw.  
Ingonish Barrens, col. Nichols, no. 818.
- D. consobrinum* Ren. & Card.  
Pirate's Cove, Canso, col. Macoun.
- D. Drummondii* C. Müll.  
Barrasois, col. Nichols, no. 196.
- Leucobryum glaucum* Schp.  
Pictou, col. A. H. MacKay; Margaree. Common everywhere in whitish cushions in woods.

*Rh. sudeticum* var. *validius* Jur.

Ingonish, July 1932, col. M. S. B., det. J. H. Albrecht. On rocks by river.

*Rh. microcarpon* Brid.

Salmon River, Sept. 1932, col. M. S. B., det. J. H. Albrecht, no. 454C.

*Rh. affine* (Schleich.) Lindb.

N. W. Arm, Hfx., 1883, col. Macoun.

*Rh. Nevii* C. Müll.

Truro, col. Macoun. On stones in brook.

*Rh. robustifolium* Kindb.

Halifax Park, July 1898, col. Macoun.

*Rh. lanuginosum* Brid.

Hfx. Co., col. A. H. MacKay; Ingonish and St. Anne's, 1898, col. Macoun  
Louisbourg; Peggy's Cove.

*Rh. canescens* Brid.

Margaree, 1898, col. Macoun; Blomidon, North Mt., 1927, col. M. S. B.,  
no. 386.

*Campylostelium saxicola* B. & S.

Port Mouton, Queen's Co., July 1924, col. M. S. B., no. 346, det. A. W.  
Andrews. This minute plant is new to N. S. and grew on a silicious rock.  
Dr. Macoun collected it on a sandstone boulder in P. E. I. in 1884.

*Hedwigia ciliata* Ehrh.

Halifax; Yarmouth; Cape Breton. Common on rocks all over the Pro-  
vince.

## TORTULACEAE.

*Pottia truncatula* (L.) Lindb.

East Chester, Nov. 1926, col. L. S. Brown, no. 433.

*Tortula ruralis* Ehrh.

Aspy Bay, July 1917, col. Nichols, no. 1807.

*T. mucronifolia* Schwaeg.

Truro, col. Macoun; Aspy Bay, col. Nichols, no. 2008.

*Barbula unguiculata* Hedw.

Pictou, col. A. H. MacKay; Baddeck, 1898, col. Macoun; Windsor; Pur-  
cell Cove, Hfx. Co.

*B. sp?*

Margaree, Sept. 1933, col. L. S. Brown, no. 515.

*B. rubella* Lindb. (= *Didymodon rubellus*)

Truro and Halfway Brook, C. B., col. Macoun, Truro Park and Folley  
Mt., col. M. S. B.

## FISSIDENTACEAE.

*Fissidens minutulus* Sull.

Pictou, col. A. H. MacKay.

*F. osmundoides* Hedw.

Pirate's Cove and Margaree, 1898, col. Macoun.

*F. adiantoides* (L.) Hedw.

Pictou, col. A. H. MacKay; Pirate's Cove and Whycocomagh, col. Macoun.

*F. decipiens* De Not. (= *F. cristatus*).

Whycocomagh, col. Macoun; Newport; Windsor; Yarmouth. Frequent.

*F. taxifolius* (L.) Hedw.

Windsor, Oct. 1929, col. L. S. Brown.

## GRIMMIACEAE.

*Grimmia angustum* (= *Schizidium*).

Sherbrooke, 1924, col. M. S. B., det. Loeske. no. 408.

*G. apocarpa* Hedw.

Earltown, col. A. H. MacKay; Margaree, on dry rocks, col. Macoun. Frequent.

*G. conferta* Funck.

Pictou, col. A. H. MacKay; Barrasois, col. Nichols.

*G. gracilis* Schleich.

Margaree, 1898, col. Macoun; Wolfville, Ellershouse, 1933, col. M. S. B., det. J. H. Albrecht.

*G. maritima* Turn.

Peggy's Cove, Aug. 1927, col. M. S. B., no. 463. On rocks by the sea; new to N. S.

*G. Olneyi* Sull.

Lake Kedji, July 1934, col. M. S. B., no. 526, ver. A. J. Grout. New to N. S.

*Racomitrium aciculare* Brid.

Halifax Co., col. A. H. MacKay; Aspy Bay, Aug. 1898, col. Macoun. Frequent on rocks in streams.

*Rh. fasciculare* Brid.

Cape Smoky and Margaree, 1898, col. Macoun; Lake Charlotte, Aug. 1924, col. M. S. B., no. 394.

*Rh. sudeticum* B. & S.

Truro, col. Macoun; Ingonish, col. Nichols, no. 1663B.

- Tortella tortuosa* (L.) Limpricht (= *Trichostomum* Dixon.)  
Cow Bay Run, Hfx. Co., col. M. S. B., no. 489; St. Croix; Dingwall.  
On calcareous soil.
- T. caespitosa* (Schwaeg.) Limpricht.  
Boulardrie, C. B., Oct. 1920, col. M. S. B., no. 310, det. E. G. Britton;  
St. Croix. New to N. S.
- Weisia viridula* Hedw.  
Barrasoia, 1909, col. Nichols, no. 09150; Halifax, col. M. S. B., no. 441.  
Very small plant, not rare.
- W. calcarea* (C. M.) Nees & Hornsch.  
Pictou, col. A. H. MacKay; Windsor; Newport.
- W. rupestris* C. M.  
Pictou, col. C. B. Robinson, 1907<sup>1</sup>.
- W. curvirostris* C. M.  
Cape Dauphin, 1914, col. Nichols, no. 595.
- W. tenuis* C. M. (= *Gymnostomum pusilla* Kindb.)  
Grand Narrows, 1898, col. Macoun. On earth in ravine.

## ENCALYPTACEAE.

- Encalypta ciliata* Hoffm.  
Barrasoia, 1914, col. Nichols, no. 1470.
- E. streptocarpa* Hedw. (= *E. contorta* Lindb.)  
Margaree, 1898, col. Macoun; North Sydney, 1922, col. M. S. B., no.  
516.

## ORTHOTRICHACEAE.

- Zygodon lapponicus* B. & S.  
Margaree, July 1898, and Truro, col. Macoun.
- Z. Mougeotii* B. & S.  
Margaree, July 1898, col. Macoun; Lake Charlotte, Guys. Co., Aug.  
1924, col. M. S. B., no. 340.
- Z. conoideus* Hook. & Tayl.  
Sheet Harb., July 1924, col. M. S. B., no. 456, det. Cheney; Lake  
Kedji; Lake Annis, Yar. Co. Very rare in N. America. New to Canada.
- Z. Sullivantii* (L. & J.) C. Müll. (= *Leptodontium excelsus*)  
Halfway Brook, C. B., Aug. 1898, col. Macoun.

*Drummondia clavellata* Hook.

Milton, Queens Co., Sept. 1929, col. M. S. B., no. 474. On old willow tree. New to N. S.

*Ulota Ludwigii* Brid.

Pictou, col. A. H. MacKay; Whycomagh. Quite common on trees all over the Province.

*U. Drummondii* Brid.

Big Intervale, Margaree and Halfway Brook, 1898, col. Macoun.

*U. crispa* Brid. (= *U. ulophylla*)

Pictou, col. A. H. MacKay; Truro; Margaree. Frequent on trees.

*U. intermedia* Schimp.

Baddeck, July 1898, col. Macoun. Frequent on trees.

*U. crispula* Brid.

Pictou, col. A. H. MacKay. Often found on trees.

*U. phyllantha* Brid.

Louisbourg, July 1883, col. Macoun; also at Yarmouth. Rare species, on trees.

*U. maritima* C. M. & Kindb.

Big Intervale, on boulders in the Margaree River, July 1898, col. Macoun.

*U. Americana* (Beauv.) Limpr.

Truro, col. Macoun; Barrasois, col. Nichols, no. 1345.

*Orthotrichum rupestre* Schleich.

Margaree, July 1898, col. Macoun.

*O. speciosum* Nees.

Pictou, col. A. H. MacKay; Annapolis, col. M. S. B., no. 459, det. L. S. Cheney.

*O. affine* Schrad.

Baddeck, July 1898, col. Macoun. On trees.

*O. affine* var. *fastigiatum* Bruch.

Margaree, 1898, col. Macoun. On trees.

*O. strangulatum* Beauv.

Pictou, col. A. H. MacKay; Annapolis Royal, on trees, Aug. 1926, col. M. S. B., no. 447, det. L. S. Cheney.

*O. sordidum* Sull. & Lesq.

Annapolis Royal, Aug. 1926, col. M. S. B., no. 446, det. L. S. Cheney.

*O. obtusifolium* Schrad.

Margaree, July 1898, on poplar trees, col. Macoun; Musquodoboit, Tatamagouche, col. M. S. B.

## SPLACHNACEAE.

*Splachnum ampullaceum* L.

North Sydney, Baddeck, 1898, & Canso, col. Macoun; Pt. Mouton; Lake Annis, Yar. Co. On cow dung in bogs and damp woods.

*Tetraplodon australis* Sull. & Lesq.

Isle Madame, col. J. A. Allen.

*T. angustatus* Sw. B. & S.

Ingonish Barrens, 4 collections, col. Nichols, no. 827 & 1632; Lake Kedj, col. M. S. B., no. 522.

*T. bryoides* (Zoeg.) Lindb.

Barrasois and Ingonish Barrens, col. Nichols, no. 493 & 824. The Tetraplodon mosses are found on animal droppings in woods. Rare

*Tayloria tenuis* Schp.

Pirate's Cove, 1883, col. Macoun; Tiverton, July 1926, col. M. S. B., no. 366; Baddeck, 1898, col. Macoun.

## FUNARIACEAE.

*Physcomitrium turbinatum* (Mx.) Brid.

Halifax, May 1925, col. L. S. Brown, no. 434. Elderbank; Falmouth,

*Entosthodon neoscoticus* M. S. Brown Nov. sp.

Peggy's Cove, Hfx. Co., Sept. 19, 1928, col. M. S. B., no. 485, det. E. G. Britton. This new species combines characteristics of *Funaria* with those of *Physcomitrium*. Description in *Bryologist*, March 1932, vol. XXXV, p. 17-18 and on p. 48.

*Funaria hygrometrica* Sibth.

Pictou, col. A. H. MacKay; Baddeck; Yarmouth. Common on burnt land everywhere, and on stone walls.

## MEESIACEAE.

*Meesia trichoides* Spruce.

Truro, in bogs, col. Macoun.

*Aulacomnium palustre* Schwaeg.

Pictou, col. A. H. MacKay; Baddeck; Yarmouth. Common on damp ground.

*A. androgynum* (L.) Schwaeg.

Pirate's Cove, col. Macoun; Barrasois, col. Nichols, no. 0937; Port Mouton; Lake Charlotte.

*A. heterostichum* B. & S.

St. Croix, July 1923, col. M. S. B., no. 317; Aspy Bay, col. M. S. B., no. 496, det. Andrews. New to N. S.; reported also from Ontario.

## BARTRAMIACEAE.

*Bartramia Oederi* Schwartz.

Margaree, 1898, col. Macoun; Cape Breton; Straits of Canso; Truro.

*B. pomiformis* (L.) Hedw.

Pictou, col. A. H. MacKay; Barrasois, C. B., col. Nichols, no. 0992. Frequent in rocky ravines.

*B. crispa* Schwartz.

Margaree and Grand Narrows, col. Macoun. Dixon makes this merely a variety of *B. pomiformis*.

*Philonotis fontana* Brid.

Pictou, col. A. H. MacKay; Margaree. Common everywhere in wet springy places, roadsides, etc.

*Ph. Marchica* (Willd.) Brid.

Aspy Bay Mts., col. Nichols, no. 1004.

*Ph. americana* Dismier.

Northern Cape Breton, col. Nichols<sup>1</sup>.

## BRYACEAE.

*Leptobryum pyriforme* Wils.

Pictou, col. A. H. MacKay. Frequent all over the Province.

*Webera elongata* Schwaeg. (= *Pohlia* Hedw.)

Lake Charlotte, Guys. Co., Aug. 1924, col. M. S. B., no. 324, det. Andrews.

*Webera cruda* Schwaeg.

Pirate's Cove and Margaree, 1898, col. Macoun.

*W. nutans* Hedw.

Pictou, col. A. H. MacKay; Barrasois, col. Nichols. Very common everywhere throughout the Province.

*W. annotina* Schwaeg.

Pictou, col. A. H. MacKay; Halifax and Herring Cove, col. M. S. B.

*W. proligera* Bryhn.

Sandy Cove, Aug. 1926, col. M. S. B., no. 335.

*W. pseudo-carnea* Kindb.

Sable Is., col. Macoun.

*W. carnea* Schimp.

Truro, col. Macoun.

*W. albicans* Schp.

Pictou, col. A. H. MacKay; Windsor; Lake Charlotte, 1924, col. M. S. B.



- W. lescuriana* L. & J. (= *W. pulchella* Schimp.)  
Truro, col. Macoun; Purcell Cove, col. M. S. B., no. 314, det. A. L. Andrews; Beaver Bank.
- W. sphagnicola* Schimp.  
Kingston, N. S., in a peat bog, col. Macoun.
- Bryum pendulum* Schimp.  
St. Croix, col. M. S. B., no. 403F, det. A. L. Andrews.
- B. inclinatum* B. & S.  
Truro, col. Macoun; Aspy Bay and Cape North, col. Nichols, no. 201 & no. 1805.
- B. uliginosum* B. & S.  
Boulardrie, Oct. 1920, col. M. S. B., no. 311, det. C. G. Britton.
- B. pallens* Sw.  
Grand Narrows, 1898, col. Macoun; St. Croix, col. M. S. B., no. 392, det. Andrews. Ferguson's Cove, Hfx.
- B. fallax* Milde.  
Barrasois, col. Nichols, no. 1806.
- B. Duvalii* Voit.  
Barrasois, col. Nichols, no. 389.
- B. cyclophyllum* B. & S.  
Barrasois, col. Nichols, no. 1304.
- B. pseudo-triquetrum* Schwaeg. (= *B. ventricosum* Dicks.)  
Margaree, 1898, col. Macoun; Lake Charlotte, 1924, col. M. S. B., no. 355, det. Andrews.
- B. binum* Schreb.  
Hfx. & Pictou Cos., col. A. H. MacKay; Aspy Bay, col. Nichols, no. 1044.
- B. affine* Lindb.  
St. Croix, July 1923, col. M. S. B., no. 403D, det. Andrews.
- B. affine* var. *cirratum* Braithw.  
St. Croix, col. M. S. B., no. 403B, det. Andrews.
- B. pallescens* Schleich.  
Grand Narrows and Halfway Brook, C. B., col. Macoun; also col. Nichols, in C. B.
- B. intermedium* Brid.  
Truro, col. Macoun.
- B. caespiticium* L.  
Halifax and Pictou Cos., col. A. H. MacKay. Very common everywhere and, as it fruits freely, often collected.

- B. capillare* L.  
Pictou, col. A. H. MacKay; Barrasois, col. Nichols, no. 09136; Port Mouton, col. M. S. B.
- B. erythrophyllum* Kindb.  
Truro, 1883, col. Macoun. This species is close to *B. obtusifolium* found in Greenland.
- B. acutiusculum* C. Müll.  
Summit of Cape Smoky, Aug. 1898, col. Macoun.
- B. Knowltoni* Barnes.  
Sable Is., "not uncommon," col. Macoun; also found in Nfld.
- B. Rauli* Aust.  
Truro, col. Macoun.
- B. torquescens* B. & S.  
Truro, col. Macoun. Dixon makes this a var. of *B. capillare*.
- B. argenteum* L.  
Truro, col. Macoun; North Sydney; Yarmouth. Widely spread over N. S.
- Rhodobryum roseum* Schreb.  
Boulardrie, Oct. 1920, col. M. S. B., det. E. G. Britton, no. 307B; also at Aspy Bay, 1932.
- Mnium affine* Bland.  
Pictou Co., col. A. H. MacKay; Whycomagh, col. Macoun.
- M. ciliare* Grev.  
St. Croix, July 1923, col. M. S. B., no. 444; Big Intervale, Margaree, 1898, col. Macoun.
- M. cuspidatum* Hedw.  
Pictou, col. A. H. MacKay. Barrasois and Ingonish, col. Nichols. Common everywhere, base of old trees, banks in woods, etc.
- M. hornum* L.  
Pictou Co., col. A. H. MacKay. Very common on banks of streams, throughout the Province.
- M. serratum* Schrad. (= *M. marginatum* Beauv.)  
Barrasois, col. Nichols, no. 638; Lochaber, Guys. Co., 1924, col. M. S. B., no. 330, det. H. Dupret.
- M. orthorrhynchum* B. & S.  
Pirate's Cove, Canso, col. Macoun; Ingonish, col. Nichols, no. 710.
- M. pseudo-lycopodioides* C. M. & Kindb.  
Pirate's Cove, col. Macoun.
- M. stellare* Reich.  
Margaree, 1898, col. Macoun; St. Croix and Oakfield, Hfx. Co., June 1924, col. M. S. B., no. 445, det. H. Dupret.

*M. cinclidioides* Huebn.

Ingonish and Barrasois, col. Nichols, no. 717 & no. 1172; French Village, col. M. S. B., no. 471, and Lake Kedji.

*M. punctatum* L.

Pictou, col. A. H. MacKay; Pirate's Cove; Baddeck; Margaree. Frequent in wet places in woods.

*M. punctatum elatum* Schp.

McNab's Is., Hfx., 1924, col. M. S. B., no. 470.

*M. subglobosum* B. & S.

Grand Lake, Hfx. Co., June 1924, col. M. S. B., no. 331; Lake Charlotte, 1930; Aspy Bay.

*M. medium* B. & S.

Barrasois and Ingonish, col. Nichols, no. 0956 & no. 705.

*M. spinulosum* B. & S.

Pirate's Cove, col. Macoun; Barrasois, col. Nichols, no. 0958.

*M. Drummondii* B. & S.

Pictou, col. A. H. MacKay.

*M. hymenophylloides* Huebn.

Pirate's Cove, col. Macoun; and Halfway Brook, C. B.

*Cinclidium stygium* Swartz.

Truro, in swamp, col. Macoun.

*C. subrotundum* Lindb.

Truro, 1883, col. Macoun; Oakfield, Hfx. Co., June 1924, col. M. S. B.

## FONTINALACEAE. Aquatic mosses, floating in brooks.

*Fontinalis antipyretica* L.

Barrasois, no. 1207, and Ingonish, no. 682, col. Nichols; Pictou Co., col. A. H. MacKay.

*F. dalecarlica* B. & S.

Pirate's Cove and Halfway Brook, C. B., col. Macoun; Margaree.

*F. seriala* Lindb.

Halfway House, C. B., Aug. 1898, col. Macoun.

*F. gigantea* Sull. (Dixon makes this a var. of *F. antipyretica*).

Truro, Louisbourg and Margaree, July 1898, col. Macoun.

*F. Delamarei* Ren. & Card.

Aspy Bay, Aug. 1898, col. Macoun; also col. Nichols, in C. B.

*F. bififormis* Sull.

Barrasois, col. Nichols, no. 214.

*F. Cardoti* Ren.

Barrasois, col. Nichols, no. 1281.

*F. flaccida* Ren. & Card.

Cape Smoky, col. Nichols, no. 728B.

*F. Lescurii* Sull.

Ingonish, col. Nichols, no. 700.

*F. Novae-angliae* Sull.

Yarmouth, 1883, and Halifax, col. Macoun; Barrasois, col. Nichols, no. 416.

*F. Sullivantii* Lindb.

Aspy Bay Mts., col. Nichols, no. 1012.

*Dichelyma capillaceum* B. & S.

Barrasois, col. Nichols, no. 1171; Windsor Jc., 1923, col. M. S. B., no. 469; Lake Kedji; Ellershhouse.

## NECKERACEAE. Tree-mosses.

*Neckera pennata* Hedw.

Pictou Co., col. A. H. MacKay; Whycomomagh. Common where there are shady woods, forming thick ruffs of a yellowish hue.

*N. complanata* Huebn.

Pictou Co., col. A. H. MacKay; Margaree, col. Macoun; George's River; Ellershhouse; Lake Kedji. Rare.

*Homalia Jamesii* Schimp.

Big Intervale, Margaree, col. Macoun, July 1898; on rocks in ravine, Lochaber 1924, col. M. S. B., no. 390.

*H. Macounii* C. M. & Kindb.

Pirate's Cove, col. Macoun.

*Anacamptodon splachnoides* (Froelich) Brid.

Halifax, in knot-hole of elm, Oct. 28, 1924, col. M. S. B., no. 341; in Cape Breton, col. Nichols.<sup>2</sup> Rare.

## LEUCODONTACEAE. Tree-mosses.

*Leucodon brachypus* Brid.

Pictou, col. A. H. MacKay; Lake Charlotte, col. M. S. B., no. 373, det. H. Dupret. Not rare, on trees in woods.

*L. sciuroides* (L.) Schwaeg.

Barrasois, no. 0994, and Ingonish, no. 917, col. Nichols; Lake Charlotte, col. M. S. B., no. 436.

2. Nichols. footnote 5. *Bryol* 19, 40, (1916).

## LESKEACEAE.

*Thelia hirtella* (Hedw.) Sull.

Five Rivers, Queen's Co., July 1, 1924, col. M. S. B., no. 312, det. Dr. A. L. Andrews; Lake Kedji, Annap. Co.; Lake Annis, Yarm. Co.; North Mt., Annap. Co. New to N. S. Handsome dark green moss, clinging closely to trunk of trees.

*Myurella julacea* B. & S.

Cape Dauphin, col. Nichols, no. 599.

*M. Careyana* Sull.

Pirate's Cove, 1883, col. Macoun; also at Big Intervale, Margaree; Truro Park. On calcareous soil.

*Leskia polycarpa* Ehrh.

Musquodoboit, July 1924, col. M. S. B., no. 303, det. A. L. Andrews. On rough bark of willows. Annapolis; Middleton; Yarmouth.

*L. obscura* Hedw.

Lochaber, Guys. Co., July 1924, col. M. S. B.; no. 301, det. Dr. A. L. Andrews.

*L. nervosa* Myrin (= *Leskeella* Loesk.)

Barrasois, col. Nichols, no. 0966; Blomidon, col. M. S. B., no. 387, det. H. Dupret.

*Anomodon attenuatus* Huebn.

Pictou Co., col. A. H. MacKay; Whycocomagh, col. Macoun. Frequent on trees and rocks.

*A. rostratus* (Hedw.) Schimp.

Pictou, col. A. H. MacKay; Ingonish, col. Nichols. Less frequent, but in large masses when found.

*A. viticulosus* Hook. & Tayl.

Big Intervale, Margaree, on rocks, col. Macoun.

*A. tristis* (Cesati) Sull.

Lake Charlotte, on tree, col. M. S. B., no. 368, det. H. Dupret. New to Canada, a very small fine moss, a Southern species.

*A. Rugelii* (C. Müll) Keissl. (= *A. apiculatus* B. & S.)

Lake Kedji, Aug. 1934, on dead tree, col. M. S. B., no. 524, ver. A. J. Grout; again at North Mt., Annap. Co. New to N. S.

*Pterygynandrum filiforme* Hedw.

Lake Kedji, on trees, col. M. S. B., no. 302, det. Dr. Andrews; Upper Sackville; Mt. Uniacke.

*Pt. filiforme* var. *decipiens* (W. & M.) Limpr.

Margaree and Halfway Brook, on rocks, col. Macoun.

*Heterocladium dimorphum* B. & S. (= *H. squarrosulum* Lindb.)

Barrasois to Aspy Bay, 10 collections, col. Nichols; White Rock, Kings Co., col. M. S. B. Alpine and subalpine.

*Thuidium abietinum*. B & S.

Pirate's Cove, col. Macoun; Barrasois, col. Nichols, no. 0963; Falmouth.

*Th. Blandovii* B. & S.

Truro, col. Macoun; Aspy Bay, col. Nichols, no. 972; Dartmouth Barrens, col. M. S. B., no. 334.

*Th. delicatulum* Mitt.

Pictou Co., col. A. H. MacKay. A beautiful moss, common in shady woods all over N. S.

*Th. recognitum* Lindb.

Truro, col. Macoun; Barrasois, col. Nichols, no. 0961. Very like the last, but more rare.

*Th. Philiberti* Limpr.

Margaree, July 1898, col. Macoun; Lake Kedji, Annap. Co., col. M. S. B., Aug. 1934.

## HYPNACEAE.

*Climacium dendroides* W. & M.

Barrasois, col. Nichols, no. 0990; Halifax, July 1922, col. M. S. B., no. 442. Rather common in damp grassy places.

*Pylaisia polyantha* B. & S.

Big Intervale, Margaree, col. Macoun, July 1898; Lake Charlotte, col. M. S. B., Aug. 1924, no. 452, det. H. Dupret. On trees.

*P. Schimperii* (= *P. intricata* B. & S.)

Pictou Co., col. A. H. MacKay. Macoun found it common at Baddeck and Margaree.

*P. intricata* (Hedw.) Ren. & Card.

Barrasois, col. Nichols, no. 1484; Upper Sackville, Hfx. Co., Oct. 1927, col. M. S. B., no. 438, det. H. Dupret.

*P. pseudo-platygyrium* Kindb.

Baddeck, 1898, col. Macoun.

*Platygyrium repens* (Brid.) B. & S.

Oakfield, col. M. S. B., no. 348, det. H. Dupret. Bedford; Port Mouton; Lake Charlotte.

*Camptothecium nitens* (Schreb.) Schimp.

Barrasois, col. Nichols, no. 1208.

- Brachythecium albicans* B. & S.  
Barrasoïis, col. Nichols, no. 1486.
- B. salebrosum* B. & S.  
Pictou, col. A. H. MacKay; Baddeck; Margaree. Common in woods, on boulders and on trees.
- B. rutabulum* B. & S.  
Pictou Co., col. MacKay; Barrasoïis, col. Nichols, no. 09104.
- B. rivulare* B. & S.  
Big Intervale, Margaree, col. Macoun; Fall River, Hfx. Co., col. M. S. B. Frequent in stony places near streams.
- B. Starkei* B. & S.  
Barrasoïis, col. Nichols, no. 0999; Halifax, 1920, col. M. S. B., no. 351, det. H. Dupret.
- B. glaciale* B. & S.  
Margaree, on trees in a swamp, col. Macoun.
- B. reflexum* B. & S.  
Margaree, July 1898, col. Macoun; Bedford, May 1924, col. M. S. B., no. 409A, det. H. Dupret.
- B. velutinum* B. & S.  
Blomidon, Aug. 1927, col. M. S. B., no. 404, det. H. Dupret.
- B. populeum* B. & S.  
Pictou Co., col. MacKay; Margaree, col. Macoun. In damp woods on rocks.
- B. plumosum* B. & S.  
Pirate's Cove and Halfway House, C. B., July 1898, col. Macoun; Margaree.
- B. digastrum* C. M. & Kindb.  
Big Intervale, Margaree, on stones, col. Macoun.
- B. flexicaule* Ren. & Card.  
Barrasoïis, col. Nichols, no. 1542.
- B. oxycladon* (Brid.) J. & S.  
Mt. Uniacke, June 1927, col. M. S. B., no. 418, det. H. Dupret.
- B. laetum* Brid.  
Pictou Co., col. MacKay; Truro, col. Macoun. On stones in woods.
- Bryhnia Novae-angliae* (Sul. & Lesq.) Grout.  
Barrasoïis, col. Nichols, no. 09100; Oakfield, col. M. S. B., no. 322; Advocate; Blomidon.

- B. graminicolor* (Brid.) Grout.  
Lake Charlotte, Aug. 1926, col. M. S. B., no. 300, det. H. Dupret. Very rare, a delicate moss, on rocks.
- Eurhynchium praelongum* Hedw.  
Barrasois, col. Nichols, no. 09173.
- E. myosuroides* Schp.  
On trees, Nova Scotia, col. James; Yarmouth, col. Macoun; Papermill Lake, Hfx. Co., Sept. 1935, col. M. S. B., no. 544.
- E. stoloniferum* (Hook.) J. & S.  
Port Mouton, July 1924, col. M. S. B., no. 377, det. H. Dupret; Sandy Cove, Digby Co.; Lake Annis, Yar. Co.
- E. strigosum* (Hoffm.) B. & S.  
Pictou Co., col. MacKay; Barrasois, col. Nichols, no. 09102; Lake Kedji; Yarmouth Co.
- E. hians* Hedw.  
Pirate's Cove, on earth, col. Macoun.
- E. rusciforme* Milde.  
Pirate's Cove and Margaree, col. Macoun; Margaretville. Not rare on stones in brooks.
- E. rusciforme* var. *complanatum* Schultze.  
Barrasois, col. Nichols, no. 1539.
- Sematophyllum recurvans* (Mx.) E. G. Britton.  
Barrasois, col. Nichols, no. 265; Port Mouton, 1924, col. M. S. B., no. 408; Bedford; Dartmouth Lakes; Lake Kedji. Not rare.
- S. Carolinianum* (C.M.) C. G. Britton.  
Fall River, Hfx. Co., 1924, col. M. S. B., no. 410, det. H. Dupret.
- S. tenuirostris* (B. & S.) E. G. Britton.  
Barrasois, col. Nichols, no. 266.
- S. delicatulum* E. G. B. (= *Rhaphidostegium laxepatulum*)  
Margaree, on old logs, col. Macoun.
- Plagiothecium elegans* Sull.  
Pictou, col. MacKay; Barrasois, col. Nichols, no. 1339.
- P. Mühlerianum* Schp.  
Barrasois, col. Nichols, no. 1308; Halifax, Sept. 1920, col. M. S. B., no. 350, det. H. Dupret.
- P. pulchellum* B. & S.  
Barrasois, col. Nichols, no. 1336.



- P. denticulatum* B. & S.  
Pictou, col. MacKay; Pirate's Cove, col. Macoun. The most common species, in damp woods everywhere.
- P. sylvaticum* B. & S.  
Barrasois, col. Nichols, no. 09167; Hfx. Dingle, Sept. 1920, col. M. S. B., no. 553, det. H. Dupret.
- P. Roeseanum* Hampe. (= *P. Sullivantiae* Schp.)  
Truro, col. Macoun. On earth and on rock.
- P. Mühlenbeckii* B. & S. (= *P. striatellum* Lindb.)  
Pictou, col. MacKay; Margaree and Halfway Brook, col. Macoun.
- P. turfaceum* Lind.  
Pictou Co., col. MacKay; Barrasois, no. 1314 & Ingonish, no. 1716, col. Nichols.
- P. deplanatum* Schp.  
Truro, col. Macoun.
- P. aciculare-pungens* (C. M.) Kindb.  
Margaree ravine, col. Macoun; Halifax, col. J. Moser.
- Amblystegium Sprucei* B. & S.  
Ingonish, col. Nichols, no. 1714; Peggy's Cove, Oct. 1931, col. M. S. B., no. 492.
- A. confervoides* B. & S.  
Cape Dauphin, col. Nichols, no. 594; George's River, col. M. S. B.; Peggy's Cove, no. 304, det. Andrews.
- A. serpens* (L.) B. & S.  
Halifax Public Gardens, on coral rock, col. M. S. B., no. 384, det. H. Dupret.
- A. varium* (Hedw.) Lindb.  
Newport, N. S., col. M. S. B., no. 500, det. H. Dupret; Pictou, col. MacKay, (as *A. porphyrhizon*); Mt. Uniacke.
- A. irriguum* B. & S.  
Blomidon, in ravine, Aug. 1927, col. M. S. B., no. 388, det. H. Dupret.
- A. Kochii* B. & S.  
Public Gardens, Hfx., on limestone rock, no. 384A, col. M. S. B., det. A. G. Grout.
- A. fluviatile* B. & S.  
Cape Breton, on stones in brooks, col. Macoun.
- A. adnatum* (Hedw.) J. & S.  
Oakfield, on tree, 1924, col. M. S. B., no. 325, det. H. Dupret.

- A. filicinum* De Not.  
Truro, by springs, col. Macoun; Aspy Bay, col. Nichols, no. 969.
- A. subtilis* (Hedw.) Loeske.  
Barrasois, col. Nichols, no. 091.
- A. orthocladon* (Beauv.) L. & J.  
Pictou Co., col. MacKay.
- Sciaromium Lescurii* (Sull.) Broth.  
Maitland Falls, Annap. Co., Aug. 1934; Ellershouse, July 1935, col. M. S. B., det. A. G. Grout. New to N. S.

## CAMPYLUM.

- Hypnum riparium* (L.) Braithw.  
Ingonish, col. Nichols, no. 683; Hfx. Public Gardens and Dartmouth Lakes, col. M. S. B., no. 509.
- H. vacillans* Sull.  
Ingonish, col. Nichols, no. 888.
- H. polygamum* Schp.  
Barrasois, col. Nichols, no. 540; Lochaber, Guys. Co., col. M. S. B., no. 399, det. H. Dupret.
- H. stellatum* Schreb.  
Barrasois, col. Nichols, no. 672; also Ingonish and Aspy Bay; Elderbank; Peggy's Cove. Not rare.
- H. chrysophyllum* Brid.  
Pictou Co., col. A. H. MacKay; Barrasois, col. Nichols, no. 09175; Aspy Bay; St. Croix.
- H. chrys.* var. *brevifolium* Grout.  
Mt. Uniacke, June 1927, col. M. S. B., no. 285, det. H. Dupret. On trees.
- H. hispidulum* Brid.  
Truro, col. Macoun; Barrasois, col. Nichols, no. 09108. This and the four preceding, on calcareous soil.
- H. sinuolatum* Kindb.  
Big Intervale, Margaree, July 1898, col. Macoun.

## DREPANOCLADUS (C.M.) Roth =HARPIDIUM

- Hypnum aduncum* Hedw. non Linn.  
Various parts of N. S. Harpidium Section are all swamp mosses, and very variable, found in many forms, and variously named by different authors.

- H. ad.* var. *aquaticum* Sanio.  
Lake Kedji, col. M. S. B., no. 532, det. Grout.
- H. uncinatum* Hedw. (= *H. aduncum* Linn.)  
Common all over the Province. Pictou, col. MacKay; Truro, col. Macoun; Barrasois, no. 099, col. Nichols. Dr. Nichols also lists the varieties following, all in Cape Breton:—  
var. *plumosus* Schp.—no. 09122.  
var. *gracilascens* B. & S.—no. 09126.  
var. *gracillimus* Berg.—no. 09127.  
var. *alpinus* Ren.—no. 1200.  
var. *plumulosum* Schp.—Port Mouton, col. M. S. B., no. 422.
- H. Sendtneri* Schp.  
Aspy Bay, Aug. 1898, col. Macoun. On stones in brook.
- H. pseudo-lycopodioides* Kindb.  
Margaree, col. Macoun. On stones in woods.
- H. Moseri* Kindb.  
Margaree, col. Macoun.
- H. fluitans* L.  
Sable Is. and Halifax, in peat bogs, col. Macoun; Barrasois, col. Nichols, no. 503.
- H. fluitans* var. *gracilis* Boul.  
Dartmouth Barrens, col. M. S. B., no. 431, det. L. S. Cheney.
- H. fluitans* var. *Jeanbernati* Ren.  
Clam Harb., col. M. S. B., no. 380, det. L. S. Cheney.
- H. fluitans* var. *falcifolius forma viridis* Boul.  
Dartmouth Barrens, Sept. 1923, col. M. S. B., no. 427, det. L. S. Cheney.
- H. exannulatum* Guemb.  
Sable Is., col. Macoun; Barrasois, col. Nichols, no. 88; Ingonish Mts., no. 795.
- H. exan.* var. *purpurascens* Schp.  
Ingonish Mts., col. Nichols, no. 1659.
- H. revolvens* De Not.  
Ingonish Mts., col. Nichols, no. 794.
- H. serratus* Milde.  
Barrasois, no. 1911, col. Nichols.
- H. submersus* Schp.  
Ingonish, No. 822, col. Nichols.

## DREPANIUM.

*H. cupressiforme* L.

Pirate's Cove and Truro, col. Macoun; Barrasois, col. Nichols, no. 097; Halifax. Very common, on trees and on rocks, all over the Province, and very variable.

*H. imponens* Hedw.

Pictou Co., col. MacKay; Margaree, col. Macoun. Quite common, and fruiting freely, on rocks in woods.

*H. reptilis* Michx.

Pictou Co., col. MacKay; Barrasois, col. Nichols. Everywhere in Bedford and around Halifax. Also common, on trees, old stumps, on flat rocks in woods; smaller than *H. imponens*, and forming a thinner mat.

*H. curvifolium* Hedw.

Truro, col. Macoun, 1898; Pictou, 1907,<sup>3</sup> col. C. B. Robinson; Musquodoboit, col. M. S. B., no. 460. Larger than *H. imponens*, and uncommon.

*H. callichroum* Brid.

Shelburne, col. James; Ingonish Mts., col. Nichols, no. 1664; Musquodoboit, 1924, col. M. S. B., no. 359A, det. L. S. Cheney.

*H. fertile* Sendt.

Baddeck and Margaree, col. Macoun; Dingle, Hfx., col. M. S. B., no. 326, det. H. Dupret.

*H. canariense* Mitt. (= *H. Waghornei* Kindb.)

Baddeck, July 1898, col. Macoun.

*H. pallescens* Hedw. (= *H. Jamesii* Sull.)

Barrasois, col. Nichols, no. 09113; North Mt., Blomidon, 1928, col. M. S. B., det. L. S. Cheney.

*H. molluscum* Hedw.

Pictou Co., col. MacKay.

*H. molluscoides* Kindb.

Baddeck, July 1898, col. Macoun. On old logs.

*H. fastigiatum* Brid.

Halifax, June 1883, col. Macoun. On trees.

*H. Canadensis* Kindb.

McNab's Is., Hfx., col. Macoun. On stones.

*H. crista-castrensis* L.

Pictou, col. MacKay; Truro, col. Macoun; Barrasois, col. Nichols, no. 09118. Not uncommon in woods, a very distinctive and handsome moss, the "knight's plume."

3. Nichols, footnote 6. *Bryol* 19, 40, (1916).

- H. Haldanianum* Grev.  
Pictou Co., col. MacKay. Truro, col. Macoun; Barrasois, col. Nichols,  
no. 1391. Common everywhere.
- H. Patientiae* Lindb.  
Barrasois, col. Nichols, no. 0910; Ingonish Mts.
- H. Patient.* var. *elatus* Schp.  
Fall River, Hfx., 1924, col. M. S. B., no. 319, det. A. L. Andrews.
- H. pratense* Koch.  
Ingonish, col. Nichols, no. 13; Barrasois, no. 0930.

## LIMNOBIUM. Mosses on wet rocks in brooks, etc.

- H. palustre* Huds.  
Barrasois, col. Nichols, no. 1133.
- H. dilatatum* Wils.  
Cape Dauphin, col. Nichols, no. 601.
- H. arcticum* Sommerf. (= *H. Smithii* Sw.)  
Barrasois, col. Nichols, no. 1448.
- H. eugyrium* var. *Mackayi* Schp.  
Pictou Co., col. MacKay; Margaree and Pirate's Cove, col. Macoun.  
Common in beds of streams.
- H. alpestre* Sw.  
Barrasois, col. Nichols, no. 1496.
- H. ochraceum* Turn.  
Pictou Co., col. MacKay; Truro, col. Macoun. He found it "abundant  
in brooks in Cape Breton."
- H. scorpioides* L.  
Ingonish Mts., col. Nichols, no. 792.

## CALLIERGON.

- H. stramineum* Dicks.  
Baddeck, 1898, col. Macoun; Herring Cove, Hfx., col. M. S. B., no. 332;  
Musquodoboit. In bogs.
- H. cordifolium* Hedw.  
Pictou, col. MacKay; Baddeck, 1898, col. Macoun. Frequent, in boggy  
places.
- H. giganteum* Schp.  
French River and Aspy Bay, col. Nichols, no. 1815.

*H. cuspidatum* L.

Louisbourg, Aug. 1898, col. Macoun; Mt. Uniacke, col. M. S. B., no. 383, det. H. Dupret.

*H. Schreberi* Willd.

Pictou Co., col. MacKay; Barrasois, col. Nichols, no. 0989. Very common, grows in profusion everywhere, but rarely fruits.

*Hylocomium splendens* B. & S.

Pictou, col. MacKay; Barrasois, col. Nichols, no. 0987a. Common everywhere, and one of the most beautiful of mosses; rarely found fruiting.

*H. umbratum* B. & S.

Pictou Co., col. MacKay; Margaree, Baddeck, col. Macoun. Subalpine plant, rather rare.

*H. brevirostre* B. & S.

Pictou Co., col. MacKay; Hfx. Co., col. J. Moser; Grand Narrows, col. Macoun. Robust, in large cushions; subalpine, but more frequent than the last.

*H. loreum* B. & S.

Aspy Bay, col. MacKay; Pirate's Cove, col. Macoun. Subalpine, beautiful, in deep ravines.

*H. squarrosum* B. & S.

Pictou Co., col. MacKay; Margaree, 1898, col. Macoun. Frequent in damp grassy spots.

*H. calvescens* Wils.

Truro, col. Macoun, "fruiting, on rocks."

*H. triquetrum* B. & S.

Pictou Co., col. MacKay; Barrasois, col. Nichols, no. 94. Frequent, a large coarse moss; has been used for packing china.