This article was downloaded by: [McGill University Library]
On: 02 February 2015, At: 18:49
Publisher: Taylor & Francis
Informa Ltd Registered in England and Wales Registered Number:
1072954 Registered office: Mortimer House, 37-41 Mortimer Street,
London W1T 3JH, UK

Transactions of the Botanical Society of Edinburgh

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/tped18>

IV. Synopsis of the Canadian Species of Equisetum

George Lawson LL.D. ^a

^a Queen's University of Canada

Published online: 01 Dec 2010.

To cite this article: George Lawson LL.D. (1863) IV. Synopsis of the Canadian Species of Equisetum , Transactions of the Botanical Society of Edinburgh, 7:1-4, 558-564, DOI: [10.1080/03746606309467911](https://doi.org/10.1080/03746606309467911)

To link to this article: <http://dx.doi.org/10.1080/03746606309467911>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

especially in the crevices and protected portions of the bark on which it grows, with pale-green granules. Pilidia very small, scattered, thin, polished black; either growing upright or bent, and occasionally twisted like a ram's horn; very fragile and irregular in their outline, some of them swelling at the base, others dilated upwards, and some quite uniform. A few of them have slightly projecting rings, as if they had been checked in their growth, and then shot upwards again with a smaller diameter. Capitulum extremely small, and more highly polished than the pilidium, without a margin; no propagula have been detected.

Hab.—Upon the rugged bark of an old holly tree in the New Forest.

IV. *Synopsis of the Canadian Species of Equisetum.* By
GEORGE LAWSON, LL.D., Professor of Chemistry and Natural History in the Queen's University of Canada.

SECTION I. Stems annual, the sterile ones bearing verticils of soft green herbaceous branches; the fertile stems either evanescent and naked, or permanent and ultimately clothed with similar verticillate branches.

1. *E. SYLVATICUM*.—Stems with about twelve furrows, sheaths loose, more or less deeply divided into from six to twelve irregular membranous chestnut-brown teeth; branches in whorls, themselves branched, and gracefully recurved or drooping at the tips; sterile and fertile stems alike.

E. sylvaticum, Linn., and of British botanists; *Gray, Man.*, p. 586; *Torr. Fl. N. Y.*, ii. p. 481.

In moist swampy places in the woods, as Waterloo, near Kingston; swamps in the woods about Kingston-Mills; Toronto Cemetery; Trenton, C. W., &c. St Valentine, Montreal, C. E., *P. W. MacLagan, M.D.* Prescott, common, *B. Billings, jr.* Line of the Grand Trunk Railway between Trenton and Belleville, *J. Macoun.* Ramsay, C. W., *J. K. M'Morine, B.A.* Gaspé; also in a low field in rear of L'Orignal, on the Ottawa, *John Bell, B.A.* Osnabruck and

Prescott Junction, *Rev. E. M. Epstein, M.D.* Wet grounds opposite Gros Cap, *R. Bell, jr.* Island of Grand Manan, Bay of Fundy, *Jos. T. Rothrock.* This species, which is also found in the north of Asia, appears to be as general throughout Canada and other provinces of British N. America as it is in Britain. On the American Continent it extends as far south as Virginia, but no doubt decreases in frequency from Canada southward.

2. *E. UMBROSUM*.—Stems with about 20 furrows, scabrous, sheaths white, rigid, with regular ovate-lanceolate membranous teeth, branches simple, straight, of nearly uniform length in all the verticils, teeth at the joints of the branches white-tipped, fertile stems at first simple, with numerous approximate sheaths, pale.

E. umbrosum, Willd., Bab., Hook., &c. *E. pratense*, Ehrhart; *Gray's Man.*, p. 586. *E. Drummondii*, Hook., E.B.S., and *Br. Fl.*, ed. 1.; *Mack. Fl. Hiber.*; Francis.

Plentiful in moist woodlands about Toronto, as in the cemetery grounds, &c., where it was kindly pointed out to me by *Professor W. Hincks, F.L.S.*; also in the valley of the Trent, not far from Trenton. "Near Kingston," *Rev. Ephraim M. Epstein, M.D.* Metis, St Lawrence Gulf, *R. Bell, jr.*

The Canadian plant agrees in every respect with the Scotch one. This species appears to be rare in the United States, not going farther south than Michigan, and it is not included in Professor Torrey's exhaustive Flora of New York State.

3. *E. ARVENSE*.—Sterile stem branched, with about 12 or 14 furrows, slightly scabrous, sheaths pale, with black (8-12) teeth, branches in whorls, simple, sharply 3 or 4 angled, the teeth at their joints green almost to the points. Fertile stem simple, sheaths few, remote, widened upwards with large teeth.

Rhizome creeping, perennial, covered with brown tomentum, throwing up, early in spring, numerous simple, fertile, annual stems, followed by sterile ones, also annual, which are more slender, and nearly simple at first, but soon become clothed with at first somewhat scattered, but ultimately regularly verticillate branches; sterile stem more or less pro-

cumbent, and with its branches dark sap-green, thick at the base, tapering upwards, and ending in a long slender point; branches in whorls from the base upwards, about sixteen in each whorl, but usually much fewer, simple, four-channeled, with rough angles (the branches very few and short at first, increasing in number and size with the growth of the stem); fertile stem (appearing before the other), thick and succulent, of a skin-brown colour, with four or five loose distant sheaths, which are deeply toothed, the teeth sharp, ribbed and darker, especially their edges.

E. arvense, Linn., and of British botanists; Pursh; *Gray's Man.*, p. 586; *Torr. Fl. N. Y.*, ii. p. 480.

Abundant in sandy soil at Little Cataraqui Creek, and in many places about Kingston and throughout the neighbouring townships. Abundant in the grounds around Queen's College and the Kingston Hospital, a troublesome weed on the walks of the Botanic Garden; Newboro-on-the-Rideau; Odessa; west end of Loborough Lake, Co. Frontenac; Cemetery Grounds and elsewhere about Toronto; Valley of the Trent, C. W., &c. Burlington Heights, Hamilton, C. W., *Judge Logie*. Priceville; Artemisia, C. W., *C. I. Cameron, B.A.* Malden, C. W.; Nicolet, Isle aux Noix, C. E., *P. W. MacLagan, M.D.* Prescott Common, *B. Billings, jr.* Belleville, C. W., common in wet meadows, *J. Macoun*. Ramsay, C. W., *J. K. M'Morine, B.A.* Montreal, *Professor Holmes*. Gaspé, C. E., and common about L'Orignal, *John Bell, B.A.* Lake Manitoba and Assiniboine River, *John C. Schültz, M.D.* On Anderson River and at Fort Good Hope, and near Roche Trampasleau, *Governor M'Tavish, H.B.C.*

We may have two forms,—one indigenous (which we certainly have), and one possibly introduced from Europe, which is common in cultivated grounds; but at present, I do not know any mark by which they may certainly be distinguished from each other. This species appears to be abundant throughout the colder parts of North America, Asia, and Europe. Yet abundant as it is with us in Canada, and common as it is said to be as a weed in the Northern United States, it does not appear in Professor Chapman's "Flora of the Southern States." Towards the passes of the Rocky Mountains, it constitutes, according to Torrey, a favourite and nutritious article of food for horses. In Hol-

land, it is regarded, in common with *E. palustre*, and indeed all the others, as hurtful to cattle, as inducing inflammatory disorders, loosening of the teeth, abortion, &c.

β. GRANULATUM.—Rhizome bearing at intervals large spherical pill-like nodules, stored with starch.

In the bed of the river Trent, near Trenton, C.W., 7th June 1862.

This is a remarkable form, differing in aspect from the ordinary states of *E. arvense*, and producing its fertile stems a month later.

4. *E. TELMATEJA.*—Sterile stem branched, with about thirty furrows, smooth, branches in whorls, simple, long and slender, minutely rough, each of the four ridges having a longitudinal furrow, and each of the four teeth, two denticulated ribs. Fertile stem simple, very robust, sheaths large, numerous, crowded, with about thirty large teeth.

E. Telmateja, Ehrhart, Bab., &c. *E. fluviatile*, Sm. *Eng. Fl.*, Lightf., Hook. and Arn., Wood, *Cl. Bk.*, p. 814; *E. eburneum*, Roth., *Gray's Man.*, p. 586; *E. majus*, Ray, Gerarde, &c.; *E. maximum*, Lam.

Shores of the great lakes and northward. Professor Asa Gray, in *Man. Bot.*

5. *E. LIMOSUM.*—Stem simple or branched, with 12–20 furrows, sheaths close, with short and narrow rigid acute teeth, branches when present in whorls, simple, upright, pale green like the stem. The sterile and fertile stems are alike. The plant varies much in aspect, being sometimes quite simple and reed-like, but usually much branched, especially in the upper part.

E. limosum of British botanists, *Gray's Man.*, p. 586; *Torr. Fl. N. Y.*, ii. p. 481; *E. uliginosum*, Mühl., Willd., *Pursh, Fl. Am. Sept.*, ed. 2, ii. p. 651.

In shallow quiet waters, as in creeks, lagunes, and bays, along the margins of lakes, as Upper Beverley Lake, at Delta, in great quantity; near Odessa, west end of Loberough Lake, in Hinchinbrook, and on the Humber, near Toronto; Conway's Creek, Prescott, rather rare, *B. Billings, jr.* Belœil, C. E., Malden, C. W., *P. W. MacLagan, M.D.*

Wet Meadow, above Belleville, rather rare, *J. Macoun*. Ramsay, C. W., *J. K. M'Morine*, B.A. Montreal, *Professor Holmes*. River shore, Point aux Chenes, on the Ottawa, *John Bell*, B.A. Ottawa, *Rev. E. M. Epstein*, M.D. Otter Tail Lake and River, and other places on the route between St Paul's and Red River Settlement, *J. C. Schültz*, M.D. Near Oaklands, Hamilton, *Judge Logie*.

Our Canadian plant is the typical form, *E. limosum*, Fr. ; *E. fluviatile*, Fr., has not been observed in Canada. Professor Woods states, that the stems of this species are greedily devoured by cattle. Dr Schültz informed me, that during his journeys between Canada and the Red River Settlement, his horses, on being released at nightly rest, eagerly sought for swampy grounds where *Equisetum limosum* was growing, and devoured its rough herbage with avidity.

SECTION II. Stems perennial, silicious, not verticillately branched.

6. *E. HYEMALE*. — Stem simple, robust, glaucous, with 14-20 slender furrows, ridges broad, rough, sheaths close, whitish, with a black band at top and bottom, their teeth slender, dark, caducous.

E. hyemale, Linn., and of British botanists ; *Gray's Manual*, p. 587 ; *Torr. Fl. N. Y.*, ii. p. 482.

Cataraqui Cemetery, Waterloo, near Kingston ; Grenadier Pond on the Humber, and in the Cemetery and elsewhere about Toronto ; Prince's Island, Hamilton, *Judge Logie*. Niagara and Detroit Rivers, *P. W. Maclagan*, M.D. Mirwin's woods, &c., Prescott, common, *B. Billings, jr.* Grand Trunk Railway, near Belleville, rare, *J. Macoun*. Ramsay, *J. K. M'Morine*, B.A. Two-Heart River and Ke-we-naw Point, Lake Superior, *R. Bell, jr.* ; Gaspé and L'Orignal, *John Bell*, B.A. Otter Tail Lake and River, *John C. Schültz*, M.D.

This species varies considerably in size, aspect, and roughness ; probably some of our Canadian forms should have to be referred to *E. lævigatum* or *E. robustum*, were these good species. The large proportion of silica in the epidermis of the stems renders them suitable for scouring and polishing

furniture, for which purposes they are used in Britain, under the name of "Dutch rush."

I doubt not this plant might be employed with great advantage for the purpose of retaining the drift sand-hills and barriers along many parts of the shores of Lake Ontario, which too frequently yield to the action of the waves. Mr G. Francis observes, in his *History of British Ferns*,—"It is surprising that this plant, so valuable in a general as well as a commercial point of view, is not cultivated along our sandy coasts (in Britain), where it would grow luxuriantly and rapidly, forming a strong embankment, and yielding a considerable profit. The Dutch are well acquainted with the value of its long and matted roots in restraining the wasting effects of the ocean, which would soon undermine their dykes, were it not for the *Equisetum hyemale*, which is planted upon them. At the proper season it is cut down, and exported to other countries, where its naked flinty stems are used for polishing domestic utensils, furniture, marble," &c.

7. *E. VARIEGATUM*.—Stems simple, from a branched base, dull green, with 4–10 furrows, rough sheaths, green below, black above, each tooth tipped with a deciduous bristle.

E. variegatum, Weber and Mohr, and of British botanists; "*Hook. Fl. B. Amer.*, ii. p. 270;" *Gray's Man.*, p. 587; *Torr. Fl. N. Y.*, ii. p. 482.

Gaspé, *John Bell, B.A.* Wet sandy places among rocks, near Niagara Falls, *Dr Kinnicutt*, in *Torr. Fl. N. Y.*

8. *E. SCIRPOIDES*.—Stems slender, thread-like and curled, in dense tufts, bright green, with 4 furrows, rough on the ridges, with pointed tubercles, sheaths shining, blackish.

E. scirpoides, Michx., "*Fl. Bor. Amer.*, ii. p. 281;" *Gray Man.*, p. 587; Blytt., *Norges Fl.*, p. 6; *E. reptans*, Wahlenberg, Hornem.; *E. variegatum scirpoides*, Hartm.; *E. variegatum*, "*Torr. Comp.*, p. 390," and of Beck, not of European authors. *E. variegatum* var. *minus*, "*Hook. Fl. B. Amer.*, ii. p. 270."

On moist wooded declivities in a ravine near Toronto; valley of the Trent along the base of the hill near Trenton; Farmersville, in wet woods. Prescott, common, *B. Billings*,

jr. Belleville, in cedar swamps, *J. Macoun*. Ramsay, *J. K. M'Morine, B.A.* Woods back of L'Original, C. W., and L'Anse aux Cousins, Gaspé, C. E., *John Bell, B.A.* Unlike the preceding species, this one grows usually in rich vegetable mould, on shaded or springy banks or declivities, or on hillocks in swamps; in fact, in situations that would induce in *E. variegatum* an excessive development, such as we see in the large Irish forms of that species. *E. variegatum*, β . *arenarium*, which comes nearest to *scirpoides*, grows always on exposed sand dunes.

This species, although not British, grows in Norway, and probably other parts of northern Europe. There it seems to be alpine; with us it grows in warm shaded valleys on the plains, reminding us that the presence of shade or moisture, rather than the absence of heat, determines the range of some northern plants.

β . MINOR.—Stems mostly procumbent, very slender and short, glaucous.

In shady stony soil on the shore of the Dartmouth River, near the Falls, about ten miles above Gaspé Basin, C. E., 19th June 1862, *John Bell, B.A.*

V. *Register of Plants in Flower in the Open Air at the Royal Botanic Garden (4th List).* By MR JAMES M'NAB, Curator.

The following shrubs and trees were in flower on the 20th day of April 1863, and they have not been enumerated in any of the previous lists laid before the Society at the above date:—

<i>Pyrus Malus</i>	<i>Lonicera Xylosteum</i>	<i>Berberis Jamesoni</i>
<i>Prunus Padus</i>	<i>Cydonia japonica</i>	<i>Viburnum vestitum</i>
<i>Syringa vulgaris</i>	<i>Buxus sempervirens</i>	<i>Weigela rosea</i>
— <i>persica</i>	<i>Ilex Aquifolium</i>	<i>Pittosporum Tobira</i>
<i>Cratægus præcox</i>	<i>Euonymus europæus</i>	<i>Genista elongata</i> and
<i>Sambucus racemosa</i>	<i>Acer Pseudo-platanus</i>	<i>Wistaria sinensis</i> —
<i>Forsythia viridissima</i>	— <i>rubrum</i>	(wall)
<i>Medicago arborea</i>	— <i>platanoides</i>	<i>Caragana frutescens</i>
<i>Kalmia glauca</i>	<i>Azalea pontica</i>	<i>Ulmus montana</i>
<i>Fagus sylvatica</i>	<i>Daphne pontica</i>	<i>Fraxinus excelsior</i>
<i>Alnus glutinosa</i>	<i>Ribes aureum</i>	Double flowering
— <i>cordifolia</i>	— <i>speciosum</i>	cherry
<i>Viscum album mas</i>		

Mr M'Nab placed on the table specimens of horse-chestnut from the open air in full flower.