

display. The fact seems to be that this electrical phenomenon,—for as such it must be classed—only becomes apparent under certain conditions of the atmosphere, which are brought about by a rapid withdrawal of heat. A few thermometrical readings, coincident with Auroral observations, may be quoted in proof of this position. For convenience, these are all taken from recent months:—

1870.	January 1.	Temp. 3 p. m. 33° 9; Midnight 22° 1.	Fall in 9 hours 11° 8
	“ 7.	“ 1 p. m. 44° 5; 8th, 6 a. m. 17° 2.	“ 17 “ 27° 3
	“ 26.	“ 1 a. m. 48° 6; 11, p. m. 35° 9.	“ 22 “ 12° 7
	“ 28.	“ 2 p. m. 30° 5; 29th, 7½ a. m. 14° 4.	“ 19½ “ 16° 1
	“ 30.	“ 9 p. m. 27° 6; Midnight 20° 5.	“ 3 “ 7° 1
	Febr'y 1.	“ 2 p. m. 31° 6; “ 19° 5.	“ 10 “ 12° 1
	“ 11.	“ 3 p. m. 28° 8; “ 17° 5.	“ 9 “ 11° 3
	March 1.	“ 3½ p. m. 42° 2; “ 32° 5.	“ 8½ “ 9° 7
	“ 5.	“ 2½ p. m. 30° 7; 6th, 7½ a. m. 10° 3.	“ 17 “ 20° 4
	“ 19.	“ 3 p. m. 35° 7; 11, p. m. 24° 9.	“ 8 “ 10° 8
	“ 20.	“ 4½ p. m. 40° 6; Midnight 29° 2'.	“ 7½ “ 11° 4
	“ 23.	“ 3 p. m. 39° 7; 10 p. m. 31° 2.	“ 7 “ 8° 5
	“ 25.	“ 3 p. m. 36° 5; 9 p. m. 28° 9.	“ 6 “ 7° 6
	“ 30.	“ 2½ p. m. 52° 4; Midnight 33° 2.	“ 9½ “ 19° 2
	“ 31.	“ 2½ p. m. 52° 0; “ 27° 1.	“ 9½ “ 24° 9

A marked decrease in temperature is noted on each of these fifteen occasions accompanying the Aurora Borealis.

ART. XI. ON THE LAMINARIACEÆ OF THE DOMINION OF CANADA AND ADJACENT PARTS OF BRITISH AMERICA. BY GEORGE LAWSON, Ph. D., LL. D., *Professor of Chemistry and Mineralogy, Dalhousie College and University, Halifax, N. S.*

(Read January 10, 1870.)

ALARIA ESCULENTA, Grev.—On rocks about low water mark, extending south to Cape Cod. Found also on the N. W. Coast, according to Harvey. *Fucus esculentus* of Turner. To this species Harvey refers the *Laminaria musæfolia* and *L. linearis* of De la Pylaie's Flora of Newfoundland.

A. PYLAII, Grev.—On rocks near low water mark, Newfoundland, De la Pylaie. Distinguished from the preceding by the form of the pinnæ, which are obovate-spathulate, not linear nor cuneate. *Laminaria Pylaii*, Bory.

LAMINARIA FASCIA, Ag.—A very small and delicate plant, only a few inches in length, found in Halifax harbour. First on rocks and stones near low water mark, by Professor Harvey, who refers to this species the *L. cæspitosa* and *debilis* of Bishop Agardh. Authentic specimens of *L. debilis* from Professor Kutzing of Nordhausen are exhibited. From its minute size this plant is apt to be overlooked as a young state of other species. It is widely distributed, occurring not only at Halifax and on the New York coast, but also on the Atlantic and Mediterranean shores of Europe, and at the Falkland Islands in the South Atlantic.

L. LOREA, Bory.—Shores of Newfoundland, Despreaux, an obscure species, not recently found. Kutzing appears to regard it as a variety of *L. saccharina*. *L. teniata*, Post. & Ruprecht, according to Agardh.

L. DERMATODEA, De la Pylaie. *Phyllitis dermatodea*, Kutz. On rocks at and below low water mark. Newfoundland, Pylaie.

L. SACCHARINA, Lamour. *Fucus saccharinus*, Linn.—At and below low water mark. Harvey gives it as common on rocky shores from Greenland to New York, and cast up from deeper water on the New Jersey coast, but it is by no means so abundant as *L. longicruris*. I have a specimen collected by Dr. Rea at Montreal Island.

L. LAMOUREUXII, Bory, which grows in Boston harbour, is doubtfully distinct from *saccharina*, and has not been carefully studied.

L. LONGICRURIS, Pylaie. Below low water mark, abundant along the shores of Halifax harbour, as at Point Pleasant, and around the wharves at the city. This is the species whose large fronds are so conspicuous, floating in the water around the city wharves, at ebb tide. It abounds from Greenland to Cape Cod. Pylaie notices its occurrence in Newfoundland, where it is no doubt equally common. It occurs likewise in Europe, but is rare there, and has quite a northern range, for it scarcely extends beyond the limits of the Arctic Sea, whence ragged worn fragments are occasionally drifted upon the northern coasts of Scotland and Ireland. Its reported occurrence in the Bahama Islands is possibly a mistake.

Mr. Gossip has informed me of a case in which poisonous effects of a marked character were experienced after eating the common

Laminaria longicruris at Halifax. I have eaten the young plant in small quantity without any inconvenience, but no doubt the poisonous properties will be stronger in the old stems. It is possibly due to the presence of iodine, the compounds of which affect some individuals as irritant poisons.

I have found the long tubular stipes of this species very suitable as gas tubing in fitting up chemical apparatus. It will also be found an excellent insulator for electric cables, if protected from the action of water.

L. TRILAMINATA, Harvey.—Found floating near Narragansett Pier, R. I., by Mr. Olney; is possibly an abnormal form of *L. saccharina*.

L. DIGITATA, Lam. *Fucus digitatus*, Linn.—On rocks at and below low water mark, common as far south as Cape Cod. Dr. Harvey's impression that possibly more than one species is confounded under the name *digitata*, should induce observers to examine the various forms with much care.

AGARUM TURNERI, Post. & Rupr.—The species of *Agarum* differ notably from *Laminaria* in the flat frond being pierced throughout with holes, hence the common name "Sea Colander" by which they are known. This species grows below low water mark, and is thrown up in quantity by southern gales at Point Pleasant. It extends from Greenland to Cape Cod, and has likewise been collected on the coast of Russian America, but is unknown on the European shores.

A. PERTUSUM, Mertens. Newfoundland, Pylaie. This plant is distinguished by its less regularly shaped and smaller and fewer perforations. It is probably only an extreme form of *A. Turneri*, which varies much in these respects.

CHORDA FILUM, Stack.—The frond is of great length, attached by a small disc, and very slender at the base, thickening towards the middle and again attenuating; it is often so long that when taken out of the water it resembles a fishing line. Occurs between tide marks, and extends into deep water; abundant in Bedford Basin.

C. LOMENTARIA, Lyngbye.—Extends from our coasts south to Charleston, S. C.

Kutzing regards it as a remarkable variety of *C. filum*.