

Canada
Geological Survey
Victoria Memorial Museum

BULLETIN No. 1

XVI.-Hydroids from Nova Scotia.

By C. McLEANFRASER.

The material for this report was collected in distant localities, at times some distance apart. Much of it was collected by the writer in the neighbourhood of Canso, the extreme eastern point of the mainland, in the summer of **1902**, when the Marine Biological Laboratory was located temporarily at that place; the remainder was collected by Mr. John Macoun, in the neighbourhood of Barrington Passage at the extreme southern end of the peninsula, in the summer of **1910**.

At Canso, the numerous old wharves and piles afford good collecting ground within the harbour. There are numerous islands in the vicinity, but as their shore line consists usually of hard smooth granite, comparatively few species are to be found. In Chedabucto bay, by dredging in from **20** to **50** fathoms of water many fine specimens were found, but the bottom is so rough and rocky that dredging is rather a slow process, and conditions are very similar near by in the open Atlantic. A good opportunity was afforded for getting some fine specimens from the Codbanks. Cod fishing was carried on in about 45 to **50** fathoms with the trawl lines. Very often the trawl hooks brought stalked ascidians or pieces of rock to which were attached specimens of hydroids. Taking everything into consideration, therefore, the conditions gave variety enough to obtain some interesting specimens.

At Barrington Passage, the specimens were obtained from shallow water to a depth of 5 fathoms.

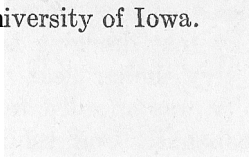
Of the 50 species reported, two are new, viz., *Campanularia magnifica* and *Cryptolaria triserialis*. Three others, *Campanularia granlandica*, *Lafoea symmetrica*, and *Halecium minutum* have not previously been reported from the east coast of North America.

My thanks are due to Professor Nutting for his assistance in this as well as other hydroid work I have done, and to my wife who has made the drawings.

SYSTEMATIC DISCUSSION.

No family or genus has been defined in this paper because, with the exception of the Genus *Cryptolaria*, they have been defined in my West Coast paper, and are here used with the same significance. With regard to the genus mentioned, there has been no disagreement among the authors who have used it. In the synonymy I have given the original reference for the species in each case, and besides this, when possible, some references to papers dealing with localities not very far distant. It is for that reason that Prof. Nutting's paper on the Woods Hole region appears so often, and also that of J. F. Whiteaves, although the latter gives no definitions and little synonymy.

Full descriptions of several of the species appear in two of **my** own papers that are still in manuscript, viz: "Some Beaufort Hydroids," being published by the U. S. Bureau of Fisheries, and "Some notes on New England Hydroids" being published in a **Bulletin** from the Laboratories of Natural History of the State University of Iowa.



CLAVIDAE

Genus CLAVA.

CLAVA LEPTOSTYLA Agassiz.

Clava leptostyla Agassiz, Cont. Nat. Hist. U. S., Vol. IV, 1862, p. 218.

Clava leptostyla Verrill, Invert. An. of Vineyard sound, 1874, p. 328.

Clava leptostyla Nutting, Hydroids of Woods Hole, 1901, p. 321.

Clava leptostyla Whiteaves, Marine Invertebrates of Eastern Canada, 1901, p. 18.

On piles of the wharves and on stones, at or near low water, not very abundant. Canso.

BOUGAINVILLIDAE

Genus BOUGAINVILLIA.

BOUGAINVILLIA CAROLINENSIS (McCrary).

Hippocrene carolinensis McCrary, Gymn. of Charleston har., 1857, p. 62.

Margelis carolinensis Agassiz, Cont. Nat. Hist. U. S., Vol. IV, 1862, p. 344.

Margelis carolinensis Verrill, Invert. An. of Vineyard sound, 1874, p. 733.

Bougainvillia carolinensis Nutting, Hydroids of Woods Hole, 1901, p. 330.

On rocks at low water, Grassy island, Canso. Not previously reported from Nova Scotia.

EUDENDRIAE.

Genus EUDENDRIUM.

EUDENDRIUM **DISPAR** Agassiz.

Eudendrium dispar Agassiz, Cont. Nat. Hist. U. S., Vol. IV, 1862, p. 285.

Eudendrium dispar Nutting, Hydroids of Woods Hole, 1901, p. 332.

Eudendrium dispar Whiteaves, Marine Invert. of Eastern Canada, 1901, p. 20.

Collected by Mr. John Macoun, in 5 fathoms, Barrington Passage.

EUDENDRIUM **RAMOSUM** (Linnaeus).

Tububaria ramosa Linnaeus, Systema Naturae, 1758, p. 804.

Eudendrium ramosum Hincks, British Hydroid Zoophytes, 1868, p. 82.

Eudendrium ramosum Nutting, Hydroids of Woods Hole, 1901, p. 332.

Eudendrium ramosum Whiteaves, Marine Invert. of Eastern Canada, 1901, p. 19.

One specimen on a Buccinum shell, dredged in 45 fathoms, Chedabucto bay, Canso.

EUDENDRIUM **TENUE** A. Agassiz.

Eudendrium tenue A. Agassiz, North American Acalephae, 1865, p. 160.

Eudendrium tenue Nutting, Hydroids of Woods Hole, 1901, p. 333.

Eudendrium tenue Whiteaves, Marine Invert. Eastern Can., 1901, p. 20.

Plentiful on mussel shells, near low water in the harbour, Canso.

HYDRACTINIDÆ.

Genus HYDRACTINIA.

HYDRACTINIA ECHINATA (Fleming).

Alcyonium echinatum Fleming, British Animals, 1828, p. 517.

Hydractinia, *echinata* Hincks, British Hydroid Zoophytes, 1868, p. 23.

Hydractinia, *polyclina* Agassiz, Cont. Nat. Hist. U. S., Vol. IV, 1862, p. 227.

Hydractinia, *polyclina* Nutting, Hydroids of Woods Hole, 1901, p. 335.

Hydractinia, *echinata* Whiteaves, Marine Invert. Eastern Can., 1901, p. 21.

Common on Littorina shells inhabited by hermit crabs and on small stones, at low water in the harbour, Canso.

CORYMORPHIDÆ.

Genus CORYMORPHA.

CORYMORPHA PENDULA Agassiz.

Corymorpha pendula Agassiz, Cont. Nat. Hist. U. S., Vol. IV, 1862, p. 227.

Corymorpha pendula Nutting, Hydroids of Woods Hole, 1901, p. 337.

Monocaulis glacialis Whiteaves, Marine Invert. Eastern Can., 1901, p. 21.

Two specimens dredged from muddy bottom at a depth of 50 fathoms, in the Atlantic at the entrance to Chedabucto bay, Canso.

TUBULARIDÆ.

Genus TUBULARIA.

TUBULARIA CROCEA (Agassiz).

Parypha crocea Agassiz, Cont. Nat. Hist. U. S., Vol. IV, 1862, p. 249.

Parypha crocea Verrill, Invert. An. Vineyard sound, 1874, p. 390.

Tubularia crocea Nutting, Hydroids of Woods Hole, 1901, p. 340.

Plentiful on mussel shells attached to piles and on rocks in shallow water, in the harbour, Canso.

TUBULARIA LARYNX Ellis and Solander.

Tubularialarynx E. and S., Nat. Hist. of Zoophytes, 1786, p. 31.

Tubularia larynx Nutting, Hydroids of Woods Hole, 1901, p. 338.

Tubularia larynx Whiteaves, Marine Invert. Eastern Can., 1901, p. 20.

Collected at a depth of 4 fathoms, by Mr. John Macoun, Barrington Passage.

TUBULARIA TENELLA (Agassiz).

Thamnocnidia tenella Agassia, Cont. Nat. Hist. U. S., 1862, p. 275.

Tubularia tenella Nutting, Hydroids of Woods Hole, 1901, p. 339.

Tubularia tenella Whiteaves, Marine Invert. Eastern Can., 1901, p. 20.

On mussel shells below low water mark, on exposed shores, Canso.

CAMPANULARIDÆ.

Genus CAMPANULARIA.

CAMPANULARIA AMPHORA (Agassiz).

Laomedea amphora Agassiz, Cont. Nat. Hist. U.S., IV, 1862, p. 311.

Campanularia amphora Nutting, Hydroids of Woods Hole, 1901, p. 347.

On mussel shells under Bart's wharf, and on rocky coast, Canso.

CAMPANULARIA FLEXUOSA (Hincks).

Laomedea flexuosa Hincks, Ann. and Mag. Nat. Hist., 3rd ser. VIII, 1861, p. 260.

Campanularia flexuosa Hincks, British Hydroid Zoophytes, 1868, p. 168.

Campanularia flexuosa Nutting, Hydroids of Woods Hole, 1901, p. 348.

Campanularia flexuosa Whiteaves, Marine Invert. Eastern Can., 1901, p. 22.

One of the most abundant hydroids on the coast, found growing everywhere at or near low water, on rocks, seaweeds, etc.

CAMPANULARIA GRÆNLANDICA Levinsen.

Campanularia grænlandica Levinsen, Meduser, Ctenophorer og Hydroider fra Grønlands Vestkyst, 1893, p. 26.

Several specimens of this fine species were found growing on *Sertularella tricuspidata* attached to the stalk of an ascidian, brought up by a trawl hook from a depth of 50 fathoms on the Canso Banks in the Atlantic, 7 or 8 miles east of Canso. This species has not been reported previously from the east coast of North America, south of Greenland.

CAMPANULARIA MAGNIFICA new species.

Plate XI, figs. 1-3:

Trophosome. Colonies consisting of solitary individuals growing from a stout stolon which is not annulated but may be slightly sinuous. The hydrothecae are very large, as much as 2.5mm. in length and with greatest width about 0.8mm. They are nearly tubular with a tendency to be slightly urceolate. The margin is slightly flaring, is crenulated with 10 or 12 elevations and depressions. A series of parallel lines pass down vertically from the margin for about one-third the length of the hydrotheca. The pedicels vary much in length but never exceed twice the length of the hydrotheca. They are annulated throughout.

Gonosome. The gonangia are very large also. The male and female are similar in size and shape, somewhat longer than the hydrothecae and also broader at the greatest diameter. The gonangium is supported on a very short pedicel, is almost oval in shape except that the distal end is drawn out into a long bottle-neck. The aperture is circular, occupying the whole of the distal end. A few corrugations, low and not very noticeable, are present on the broad proximal portion.

Distribution. Several specimens, in close company with *Halecium tenellum*, attached to a stalked ascidian, were brought up by a trawl hook from a depth of 50 fathoms on the Canso Banks.

The trophosome of this species bears a great resemblance to that of *Campanularia speciosa* Clark¹. Prof. Nutting had some of Clark's original specimens from Shumagin islands, Alaska, and by using those I was able to make a comparison of the two. The hydrotheca is more urceolate in *C. speciosa* than in *C. magnifica* and the stolon is distinctly annulated, but in other respects they are very similar; when the gonosome is present there is no difficulty as the obconical gonangium of *C. speciosa* bears little resemblance to the elongated gonangium of *C. magnifica*. I have made a drawing of *C. speciosa* from a Shumagin Island specimen, showing the hydrotheca and the gonangium to the same scale so that the two species may be compared (See Plate XI, fig. 4).

¹Clark, S. F. Alaskan Hydroids, 1876, p. 24.

CAMPANULARIA NEGLECTA (Alder).

Laomedea neglecta Alder, Cat. Zoopb. Northumberland and Durham, 1857, p. 33.

Campanularia neglecta Nutting, Hydroids of Woods Hole, 1901, p. 346.

Growing on *Obelia commissuralis* under the wharves, Canso.

CAMPANULARIA VERTICILLATA (Linnaeus).

Sertularia verticillata Linnaeus, Systema Naturae, 1758, p. 811.

Campanularia verticillata Nutting, Hydroids of Woods Hole, 1901, p. 347.

Campanularia verticillata Whiteaves, Marine Invert. Eastern Can., 1901, p. 22.

On rocks brought from a depth of 50 fathoms, east in the Atlantic and in Chedabucto bay, Canso.

CAMPANULARIA VOLUBILIS (Linnaeus).

Xertularia volubilis Linnæus, Systema Naturae, 1767, p. 1311.

Campanularia volubilis Verrill, Invert. An. Vineyard sound, 1874, p. 408.

Campanularia volubilis Nutting, Hydroids of Woods Hole, 1901, p. 345.

Campanularia volubilis Whiteaves, Marine Invert. Eastern Can., 1901, p. 22.

On bryozoan, collected by Mr. John Macoun in 6 fathoms, Barrington Passage; on stalked ascidians and on *Sertularella tricuspidata* growing on these stalks, in 50 fathoms, Canso Banks.

Genus CLYTIA.

CLYTIA JOHNSTONI (Alder).

Campanularia johnstoni Alder, Cat. Zooph. Northumb. and Durham, 1857, p. 36.

Clytia bicophora Agassiz, Cont. Nat. Hist. U.S., IV, 1862, p. 304.

Clytia bicophora Nutting, Hydroids of Woods Hole, 1901, p. 343.

Clytia johnstoni Whiteaves, Marine Invert. Eastern Can., 1901, p. 24.

In shallow water, Barrington Passage; abundant on mussel shells and on *Obelia commissuralis* under wharves and elsewhere near low water in the harbour, Canso.

Genus EUCOPELLA.

EUCOPELLA CALICULATA (Mincks).

Campanularia caliculata Hincks, Ann. and Mag. Nat. Mist., 2nd ser. XI, 1853, p. 178.

Clytia poterium Agassiz, Cont. Nat. Hist. U.S., IV, 1862, p. 297.

Campanularia poterium Nutting, Hydroids of Woods Hole, 1901, p. 344.

Campanularia caliculata Whiteaves, Marine Invert. Eastern Can., 1901, p. 23.

Rather common on seaweed at about 20 fathoms, off the islands between Ghedabucto bay and the Atlantic, Canso.

Genus GONOTHYRÆA.

GONOTHYRÆA GRACILIS (Sars).

Laomedea gracilis Sars, Beretning om en zoologisk Reise i Lofoten og Finmarken, 1851, p. 18.

Gonothyræa gracilis Allman, Ann. and Mag. Nat. Hist., 3rd ser. XIII, 1864, p. 374.

Gonothyrtea gracilis Verrill, Broc. Am. Assn. Adv. Sc., 1874, p. 364.

On tangle of *Tubularia crocea*, in shallow water, Canso; in shallow water, Barrington Passage.

GONOTHYRÆA LOVENI (Allman).

Laomedea loveni Allman, Ann. and Mag. Nat. Hist., 3rd ser. IV, 1859, p. 138.

Gonothyrcea loveni Allman, Ann. and Mag., 3rd ser. XIII, 1864, p. 374.

Gonothyrcea loveni Nutting, Hydroids of Woods Hole, 1901, p. 352.

On red algae in 20 fathoms, Chedabucto bay, Canso.

Genus **OBELIA**.**OBELIA COMMISSURALIS** McCrady.

Obelia commissuralis McCrady, Gymno. Charleston har., 1858, p. 95.

Obelia commissuralis Nutting, Hydroids of Woods Hole, 1901, p. 350.

Obelia commissuralis Whiteaves, Marine Invert. Eastern Can., 1901, p. 23.

The commonest campanularian of the region; on rocks, piles, seaweeds, etc., at or below low water, Canso.

OBELIA DICHOTOMA (Linnaeus).

Xertularia dichotoma Linnzeus, Systema Naturae, 1758, p. 812.

Obelia dichotoma Nutting, Hydroids of Woods Hole, 1901, p. 350.

Obelia dichotoma Whiteaves, Marine Invert. Eastern Can., 1901, p. 23.

Common on Laminaria, at and below water, Canso.

OBELIA GENICULATA (Linnaeus).

Plate XII, figs. 1 and 2.

Sertularia geniculata Linnaeus, Systema Naturæ, 1767, p. 1312.

Obelia geniculata Nutting, Hydroids of Woods Hole, 1901, p. 350.

Obelia geniculata Whiteaves, Marine Invert. Eastern Can., 1901, p. 23.

In 3 fathoms, Barrington Passage; on laminaria and other seaweeds, on piles, etc., at low water, Canso.

Some abnormal specimens of this species were found growing on *Lemargus margilis*—a copepod, parasitic on a sunfish (*Mola mola*), caught in Chedabucto bay. In normal specimens, the hydrothecae appear in regular alternation to give the regular geniculate appearance of the stem. The gonophores appear in the axils, being regularly disposed but not in any way affecting the geniculation of the stem. In this case the gonophores take the place of the hydrothecae, making up a portion of the regular geniculate arrangement, and do not appear in the axils.

CAMPANULINIDÆ.

Genus CALYCELLA.

CALYCELLA SYRINGA (Linnæus).

Sertularia syringa Linnaeus, Systema Naturæ, 1767, p. 1311.

Calycella syringa Nutting, Hydroids of Woods Hole, 1901, p. 355.

Calycella syringa Whiteaves, Marine Invert. Eastern Can., 1901, p. 23.

In shallow water, Barrington Passage; abundant on *Sertularella tricuspidata* from 50 fathoms, Canso Banks.

Genus OPERCULARELLA.

OPERCULARELLA LACERATA (Johnston).

Campanularia lacerata Johnston, British Zoophytes, 1847, p. 111.

Opercularella lacerata Nutting, Hydroids of Woods Hole, 1901, p. 354.

On the rocks at low tide, Fox island, Chedabucto bay, Canso.

HALECIDÆ.

Genus HALECIUM.

HALECIUM BEANI (Johnston).

Toa beani Johnston, British Zoophytes, 1847, p. 120.

Halecium beani Nutting, Hydroids of Woods Hole, 1901, p. 358.

In 5 fathoms, Barrington Passage; in 50 fathoms, Canso Banks.

HALECIUM MINUTUM BROCH.

Plate XII, figs. 3, 4.

Halecium minutum Broch, Nordmeer gesammelten Hydroiden, 1903, p. 4.

On ascidian stalks from 50 fathoms, on the Canso Banks.

Since Broch first described this species there has been no further report of it where the diagnosis was certain. Broch,

himself, in his paper on Arctic Hydroids¹ mentions a species that he takes to be the same but he is not sure as he did not find the gonosome. Later Kramp² for the same reason could not be sure of the specimens he found. All of these specimens were found in the Arctic or Subarctic regions. There was not such trouble in the case of the specimens found at Canso as the gonophores were numerous. When they are present they are so large and conspicuous that they must be observed before the trophosome is. The trophosome bears so much resemblance to that of *H. tenellum* that they are hard to distinguish from each other. When the gonosome is present such a mistake could not be made as the gonangium of *H. minutum* may be as much as 3 mm. in long diameter and not far from that in short diameter. The thickness is not so great, so that altogether its shape somewhat resembles the shell of a bivalve. The arrangement of the teeth or spines around the margin at the distal end gives it a unique appearance among the gonangia of the Halecidæ. The gonangium of *H. muricatum* most nearly resembles it, but is not more than one-fourth of the size and it is spiny on the flat surfaces as well as on the margin; while that of *H. minutum* has but few spines on the margin and none on the flat surfaces.

The figures show the relatively small stem and the very large gonangium.

HALECIUM MURICATUM (Ellis and Solander).

Sertularia muricatum E. and S., Nat. Hist. Zooph., 1786, p. 59.

Halecium muricatum HINCKS, British Hydroid Zoophytes, 1868, p. 223.

Halecium muricatum WHITEAVES, Marine Invert. Eastern Can., 1901, p. 25.

On ascidian stalks from 50 fathoms on the Canso Banks. A few specimens, well supplied with gonangia, were collected.

HALECIUM TENELLUM Wincks.

Halecium tenellum HINCKS, Ann. and Mag. Nat. Hist., 3rd ser. VIII, 1861, p. 252.

¹Die Hydroiden der Arktischen Meere, 1909, p. 153

²Report on the Hydroids of the Denmark Expedition, 1911, p. 370.

Malecium tenellum NUTTING, Hydroids of Woods Hole, 1901, p. 357.

Common on ascidian stems in 50 fathoms of the Canso Banks.

LAFCEIDÆ.

Genus CRYPTOLARIA.

CRYPTOLARIA TRISERIALIS new species.

Plate XIII, figs. 1 and 2.

Trophosome. Stem fascicled, very coarse. No complete colony was obtained. The largest fragment was 4 cm. long and 0.8 mm. in diameter. There were several large branches given off from the main stem. On the stem the hydrothecae are not numerous; they appear singly or in opposite or sub-opposite pairs, each with about the distal half free. On the branches, where they are free from fasciculation, the hydrothecae are nearer together, arranged in three series, two making such a wide angle with each other that they are not far from being in the same plane, and the other intermediate between them on the larger side. The hydrothem of the first two series appear in pairs, those of the other alternate with these pairs. They are large, from 1.5 to 2 mm. in length and 0.35 mm. in diameter. The proximal half is in contact with the branch, the distal half curves regularly outward.

Gonosome. Unknown,

Distribution. Dredged in 20 fathoms off Durell island, Chedabucto bay, Canso.

In some respects this species resembles *Cryptolaria borealis* Levinsen¹. His description is rather meagre, but as his colonies were only from 4.5 to 20 mm. long, the species must be a much smaller one than that herein described. On the non-fascicled branches, the hydrothecae are arranged in four series, giving a cruciform arrangement, while in this species there are but three series. These differences alone seem sufficient to indicate that the Canso specimens are of a different species to those found in Davis strait.

¹Meduser, Ctenophorer og Hydroider fra Grønlands Vestkyat, 1893, p. 31.

Genus FILELLUM.

FILELLUM EXPANSUM Levinsen.

Filellum expansum LEVINSEN, Hydroider fra Grœnlands Vestkyst, 1893, p. 30.

Common in shallow water, growing on other hydroids, Barrington Passage and Canso.

This species seems very common all the way down the coast as far as Beaufort, N.C. A description of the species containing an original description of the coppinia mass has been given in a paper, "Notes on New England Hydroids" mentioned in the introduction of this paper.

FILELLUM SERPENS (Hassall).

Campanularia serpens HASSALL, Trans. Micro. Soc., 111, 1852, p. 163.

Reticularia serpens VERRILL, Checklist, 1879, p. 79.

On *Sertularella polyzonias* from 50 fathoms, Canso Banks.

Genus GRAMMARIA

GRAMMARIA ABIETINA (Sars).

Campanularia abietina SARS, Nyt Mag. for Naturvidensk, bd. 6, 1851, p. 139.

Grammaria robusta STIMPSON, Marine Invert. of Grand Manan, 1854, p. 9.

Grammaria abietina WHITEAVES, Marine Invert. Eastern Can., 1901, p. 28.

Dredged from rocky bottom in 20 fathoms, near the shore in Chedabucto bay, Canso.

Genus LAFŒA.

LAFŒA DUMOSA (Fleming).

Sertularia dumosa FLEMING, Edin. Phil. Jour., Pl., 1828, p. 83.

Lafœa dumosa NUTTING, Hydroids of Woods Hole, 1901, p. 355.

Lafœa dumosa WHITEAVES, Marine Invert. Eastern Can., 1901, p. 24.

Dredged from rocky bottom in 20 fathoms, Chedabucto bay, Canso.

LAFŒA FRUTICOSA Sars.

Lafœa fruticosa Sars, Norske Nydroider, 1862, p. 30.

Lafœa fruticosa VERRILL, Checklist, 1879, p. 17.

Dredged from rocky bottom in 20 fathoms, Chedabucto bay, Canso.

LAFŒA GRACILLIMA (Alder).

Campanularia gracillima ALDER, Trans. Tynes. Nat. Field Club, 1857, p. 39.

Lafœa gracillima NUTTING, Hydroids of Woods Hole, 1901, p. 356.

Lafœa gracillima WHITEAVES, Marine Invert. Eastern Can., 1901, p. 24.

On rock brought up by trawl hook from 50 fathoms, Canso Banks.

LAFŒA SYMMETRICA Bonnevie.

Lafœa symmetrica BONNEVIE, Den Norske Nordhavs Expedition, 1899, p. 64.

Lafœa symmetrica BILLARD, Exped. Sc. du "Travailleur" et du "Talisman," 1907, p. 176.

Dredged from rocky bottom in 20 fathoms, Chedabucto bay, Canso.

This species has been reported only from Norway by Bonnevie and from Cape Spartel by Billard. Jäderholm makes it synonymous with *Lafœa grandis*,¹ but I think there is not good basis for so doing. Specimens of *L. grandis* found in the Vancouver Island region have much larger hydrothecæ than these from Canso and apparently that is true of the specimens reported from Iceland by Wincks when he gave the original description of *L. grandis*.²

LAFŒA PYGMÆA (Alder).

Lafœa pygmæa HINCKS, British Hydroid Zoophytes, 1868, p. 205.

Hebella pygmæa NUTTING, Hydroids of Woods Hole, 1901, p. 353.

Lafœa pygmæa BROCH, Nordmeer gesammelten Hydroiden, 1903, p. 5.

¹Northern and Arctic Invertebrates, 1909, p. 72.

²Ann. and Mag. Nat. Hist., 4th ser. XIII, 1874, p. 148.

On a bryozoan (*Menipea ternata*) dredged in 25 fathoms in Chedabucto bay, Canso.

This species has been placed in the genus *Hebella* by some authors, but it has no hydrothecal diaphragm and hence cannot be placed there. Since Broch found and described the coppinia mass there is still better evidence that the species should be placed with *Lafœa* rather than with *Hebella* as the gonangia, of *Hebella* are not massed.

SERTULARIDÆ.

Genus ABIETINARIA.

ABIETINARIA ABIETINA (Linnaeus).

Sertularia abietina LINNÆUS, Systema Naturæ, 1758, p. 808.

Sertularella abietina NUTTING, Hydroids of Woods Hole, 1901, p. 361.

Sertularia abietina WHITEAVES, Marine Invert. Eastern Can., 1901, p. 25.

Abietinaria abietina NUTTING, American Hydroids, Part II, 1904, p. 114.

On rock from 50 fathoms, Canso Banks.

Genus DIPHASIA.

DIPHASIA FALLAX (Johnston).

Sertularia fallax JOHNSTON, British Zoophytes, 6847, p. 73.

Diphasia fallax NUTTING, Hydroids of Woods Hole, 1901, p.

Diphasia fallax WHITEAVES, Marine Invert. Eastern Can.,

Diphasia fallax NUTTING, American Hydroids, Part PI, 1904,

Dredged in 4 fathoms,

LINNÆUS, Systema Naturæ, 1758, p. 807.

Diphasia rosacea NUTTING, Hydroids of Woods Hole, 1901, p. 361.

Diphasia rosacea WHITEAVES, Marine Invert. Eastern Can., 1901. p. 26.

Diphasia rosacea NUTTING, Amer. Hydroids, Part II, 1904, p. 107.

Very abundant in the material from Barrington Passage.

Genus HYDRALLMANIA

HYDRALLMANIA FALCATA (Linnæus).

Sertularia falcata LINNÆUS, Systema Naturae, 1758, p. 810.

Hydrallmania falcata NUTTING, Hydroids of Woods Hole, 1901, p. 364.

Hydrallmania falcata WHITEAVES, Marine Invert. Eastern Can., 1901, p. 27.

Hydrallmania falcata NUTTING, Amer. Hydroids, Part II, 1904, p. 124.

Common in material from Barrington Passage.

Genus SELAGINOPSIS.

SELAGINOPSIS MIRABILIS (Verrill).

Diphasia mirabilis Verrill, Amer. Jour. Sei. and Arts, 1872, p. 9.

Diphasia mirabilis Whiteaves, Marine Invert. Eastern Can., 1901, p. 26.

Selaginopsis mirabilis Nutting, Amer. Hydroids, Part II, 1904, p. 128.

On rock from 50 fathoms, Canso Banks.

Genus SERTULARELLA.

SERTULARELLA CONICA Allman.

Sertularella conica Allman, Hydroids of the Gulf Stream, 1877, p. 21.

Xertularella conica Nutting, Amer. Hydroids, Part II, 1904, p. 79.

Sertularella conica Fraser, West Coast Hydroids, 1911, p. 68.

A few young colonies were found growing on *Xertularella tricuspidata* from an ascidian stalk in 50 fathoms on the Canso Banks.

SERTULARELLA POLYXONIAS (Linnaeus).

Sertularella polyxonias Nutting, Amer. Hydroids, Part 11, **1904, p. 90.**

Sertularia polyxonias Linnæus, Systema Naturæ, **1758, p. 813.**

Sertularella polyxonias Nutting, Hydroids of Woods Hole, **1901, p. 362.**

Sertularella polyxonias Whiteaves, Marine Invert. Eastern Can., **1901, p. 25.**

Dredged in rocky bottom in **10-20** fathoms, Ghedabucto bay, Canso.

SERTULARELLA TRICUSPIDATA (Alder).

Sertularia tricuspidata Alder, Ann. and Mag. Nat. Hist., **2nd ser. XVIII, 1856, p. 356.**

Sertularella tricuspidata Nutting, Hydroids of Woods Hole, **1901, p. 362.**

Sertularella tricuspidata Whiteaves, Marine Invert. Eastern Can., **1901, p. 26.**

Xertularella tricuspidata Nutting, Amer. Hydroids, Part II, **1904, p. 71.**

Common on rocks and ascidian stems in **50** fathoms, Canso Banks.

Genus **SERTULARIA**.**SERTULARIA PUMILA** Linnæus.

Sertularia pumila Linnaeus, Systema Naturæ, **1758, p. 807.**

Xertularia pumila Nutting, Hydroids of Woods Hole, **1901, p. 359.**

Sertularia pumila Whiteaves, Marine Invert. Eastern Canada, **1901, p. 25.**

Sertularia pumila Nutting, Amer. Hydroids, Part II, **1904, p. 51.**

Very abundant everywhere, on piles, stones, seaweeds, etc., near the surface of the water, Canso.

Genus THUIARIA.

THUIARIA ARGENTEA (Linnaeus).

Sertularia argentea Linnæus, Systema Naturae, 1758, p. 809.

Thuiaria argentea Nutting, Hydroids of Woods Hole, 1901, p. 363.

Thuiaria argentea Whiteaves, Marine Invert. Eastern Can., 1901, p. 27.

Thuiaria argentea Nutting, Amer. Hydroids, Part II, 1904, p. 71.

Dredged in 5 fathoms, Barrington Passage; on rocks in 50 fathoms, Canso Banks.

THUIARIA LONCHITIS (Ellis and Solander).

Thuiaria Eonchitis Nutting, Amer. Hydroids, Part II, 1904, p. 66.

Thuiaria lonchitis E. and S., Nat. Hist. Zoophytes, 1786, p. 42.
On rock from 50 fathoms, Canso Banks.

LIST OF PAPERS CITED.

Agassia, A.

1865. North American Acalephæ. Illustrated Catalogue of the Museum of Comparative Zoology at Harvard College, No. II. Cambridge.

Agassiz, L.

1862. Contributions to the natural history of the United States, vol. IV. Boston.

Alder, J.

1856. A notice of some new genera and species of British Hydroid Zoophytes. Annals and Magazine of Natural History, 2nd ser. vol. XVIII, pp. 356-357.

1857. A catalogue of the zoophytes of Northumberland and Durham. Transactions of the Tyneside Naturalists' Field Club, Newcastle-on-Tyne, vol. 111.

Allman, G. J.

1859. Notes on the hydroid zoophytes. *Annals and Magazine of Natural History*, 3rd ser. vol. IV, pp. 137-144.
1864. On the construction and limitation among the Hydroida. *Annals and Magazine of Natural History*, 3rd ser. vol. XIII, pp. 345-380.
1877. Report on the Hydroida collected during the exploration of the Gulf Stream by L. F. de Pourtales, assistant, U. S. Coast Survey. *Memoirs of the Museum of Comparative Zoology at Harvard College*, vol. V, No. 2. Cambridge.

Billard, A.

1907. Hydroides in *Expeditiones Scientifiques du "Travailleur" et du "Talisman,"* tome VIII.

Bonnevie, K.

1899. *Den Norske Nordhavs-expedition, 1876-1878, XXVI. Zoologi. Hydroida*, Christiania.

Broch, H.

1903. Die von dem Norwegischen Fischereidampfer "Michael Sars" in den Jahren 1900-1902, in dem Nordmeer gesammelten Hydroiden. *Bergens Museum Aarbog*, No. 9. Christiania. pp. 1-14.
1909. Die Hydroiden der Arktischen Meere. *Fauna Arctica*, bd. V. Christiania.

Clark, S. F.

1876. Report of the hydroids collected on the coast of Alaska and the Aleutian islands by W. H. Dall, U.S. Coast Survey and party, 1871-1874. *Proceedings of the Academy of Natural Sciences of Philadelphia*. pp. 209-238.

Ellis, J. and Solander, D.

1786. The natural history of many curious and uncommon zoophytes, collected from various parts of the globe by the late John Ellis, Esq., London.

Fleming, J.

1828. A history of British animals. Edinburgh.

Fraser, C. M.

1911. The hydroids of the west coast of North America. Bulletin from the laboratories of natural history of the State University of Iowa.

Hassall, A.

1852. Description of three species of marine zoophytes. Transactions of the Microscopical Society.

Hincks, T.

1853. Further notes on British zoophytes with description of new species. Annals and Magazine of Natural History, 2nd. ser. vol. XI, pp. 178-185.

1861. A catalogue of the zoophytes of South Devon and South Cornwall. Annals and Magazine of Natural History, 3rd. ser. vol. VIII, pp. 251-262.

1868. A history of the British hydroid zoophytes. London.

1874. On deep water hydroida from Iceland. Annals and Magazine of Natural History, 4th ser. vol. XIII, pp. 146-153.

Jäderholm, E.

1909. Northern and Arctic Invertebrates in the collection of the Swedish State Museum, bd. IV. Hydroiden.

Johnston, G.

1847. A history of the British zoophytes, 2nd edition. London.

Kramp, P.

1911. Report on the hydroids collected by the Denmark expedition to Northeast Greenland, bd. V. No. 7. pp. 341-396.

Levinsen, G. M. R.

1893. Meduser, Ctenophores og Hydroider fra Grønlands Vestkyst tælligemed Bemærkninger om Hydroidernes

Systematik. Saertryk af Videnskabelige Meddelelser fra der naturhistoriske Forening, 1892.

Linnæus, C.

1758. *Systema Naturae*, 10th edition.

1767. *Systema Naturae*, 12th edition.

McCrary, J

1858. Gymniophthalmata of Charleston harbour. Proceedings of the Elliot Society of Charleston, S.C., for 1857. pp. 1-119.

Nutting, C. C.

1901. The hydroids of the Woods Hole region. Bulletin of the U.S. Fish Commission for 1899, pp. 325-386.

1904. American Hydroids—Part II. The Sertularidæ. Smithsonian Institution. Special bulletin.

Sars, M.

1851. Beretning om en zoologisk Reise i Lofoten of Finmarken. *Nyt Magazin for Naturvidensk*, bd. VI. Kristiania.

1862. Bemaerkninger over fire norske Hydroider Saerskilt aftrykt at Videnskabelige-SelskabetsForhandlinger. .

Stimpson, W.

1854. Synopsis of the marine invertebrates of Grand Manan.—*Smithsonian Contributions to Knowledge*. vol. VI, No. 5.

Verrill, A. E.

1872. Radiata from the coast of North Carolina. *American Journal of Science and Arts*, 3rd ser. vol. V.

1874. Explorations of Casco bay by the U. S. Fish Commission in 1873. *Proceedings of the American Association for the Advancement of Science*, 1873.

1879. Preliminary checklist of the marine invertebrata of the Atlantic coast from Cape Cod to the Gulf of St. Lawrence.

Verrill, A. E. and Smith, S. I.

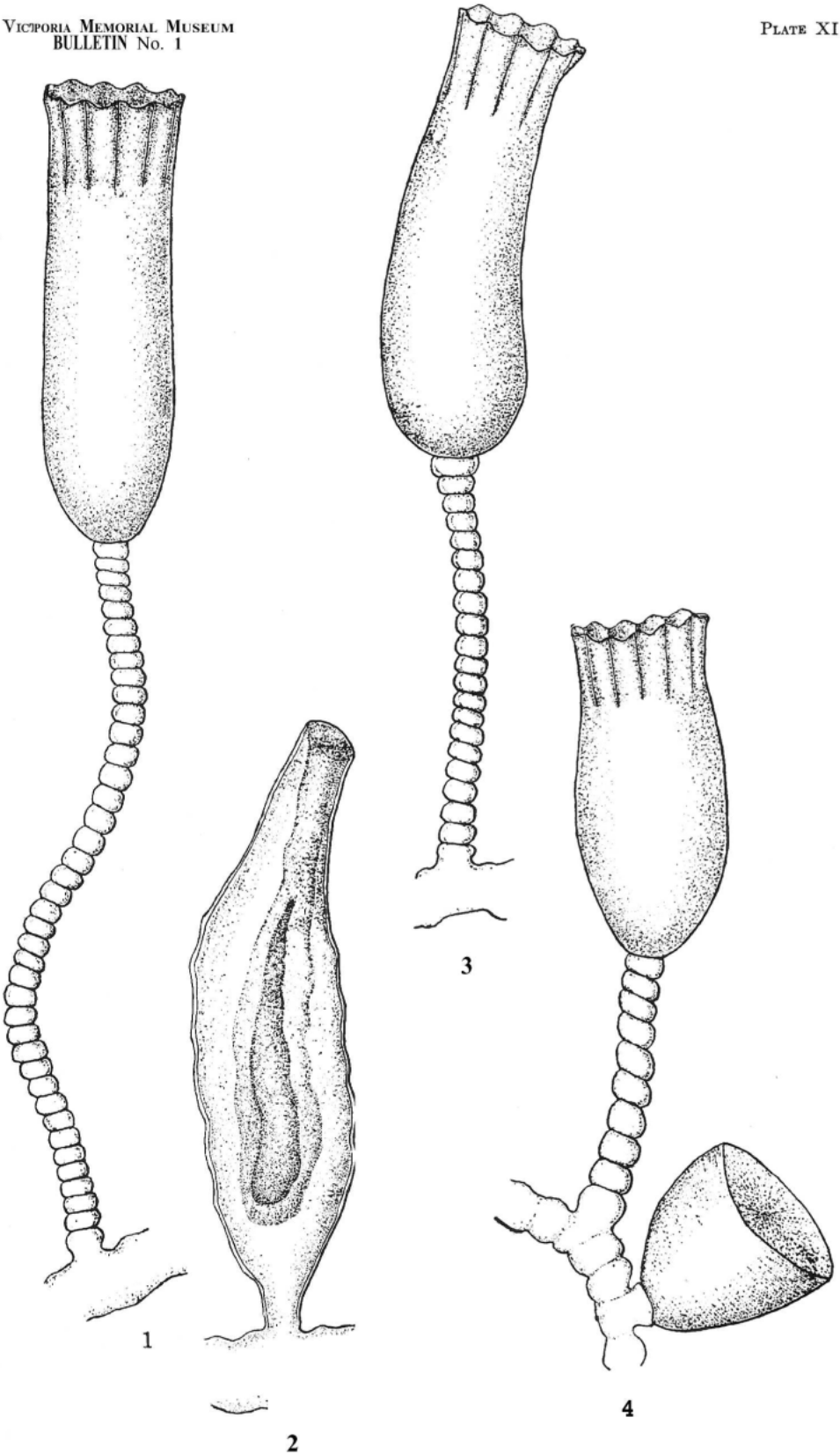
1874. Report of the invertebrate animals of Vineyard sound and adjacent waters. Report of the U.S. Commissioner of Fisheries for 1871-1872.

Whiteaves, J. F.

1901. Catalogue of the marine invertebrates of Eastern Canada. Geological Survey, Canada.

EXPLANATION OF PLATE XI.

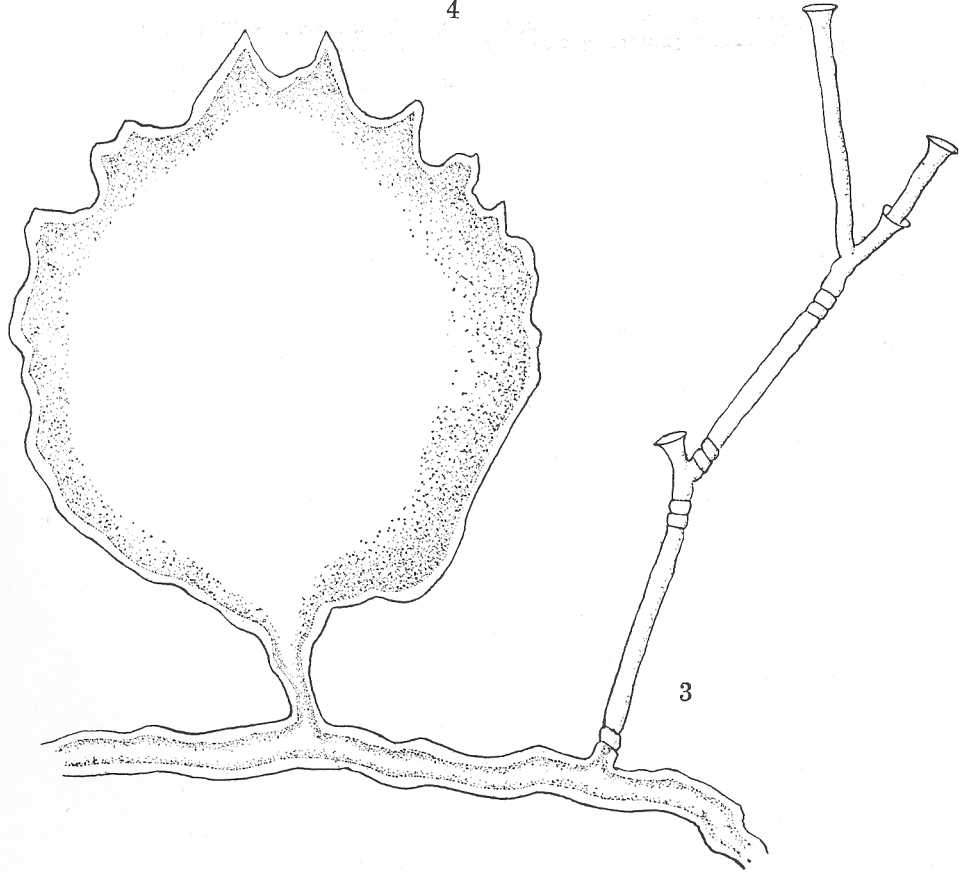
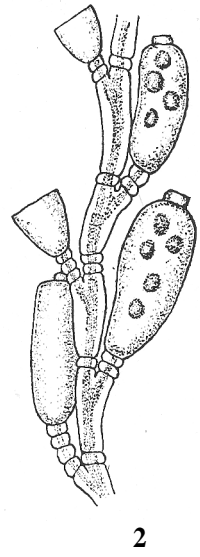
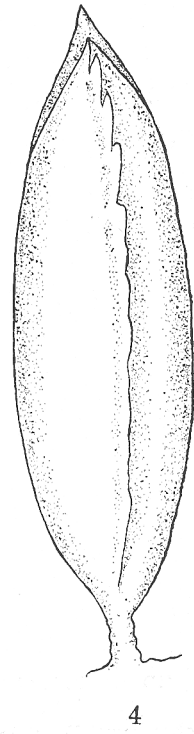
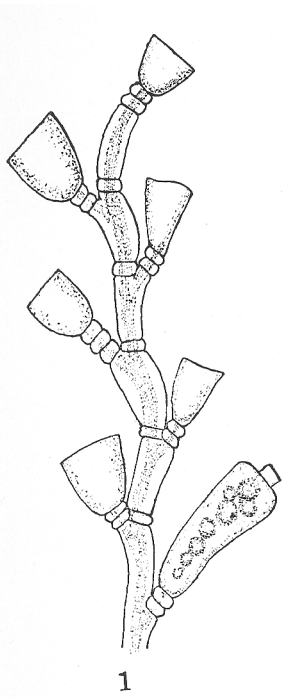
- Figs. 1 and 2. *Campanularia magnifica*. Hydrothecae.
Fig. 3. Gonophore.
Fig. 4. *Campanularia speciosa*. Hydrotheca and gonangium.
Magnification about 20 diameters.



Hydroids of Nova Scotia. *Clara A. Fraser, del. After C.M.F.*

EXPLANATION OF PLATE XII.

Figs. 1 and 2. *Obelia geniculata*. Colony showing abnormal position of the gonangia.
" 3 and 4. *Halecium minutum*. Portion of colony showing trophosome and gonangium.
Magnification about 20 diameters.

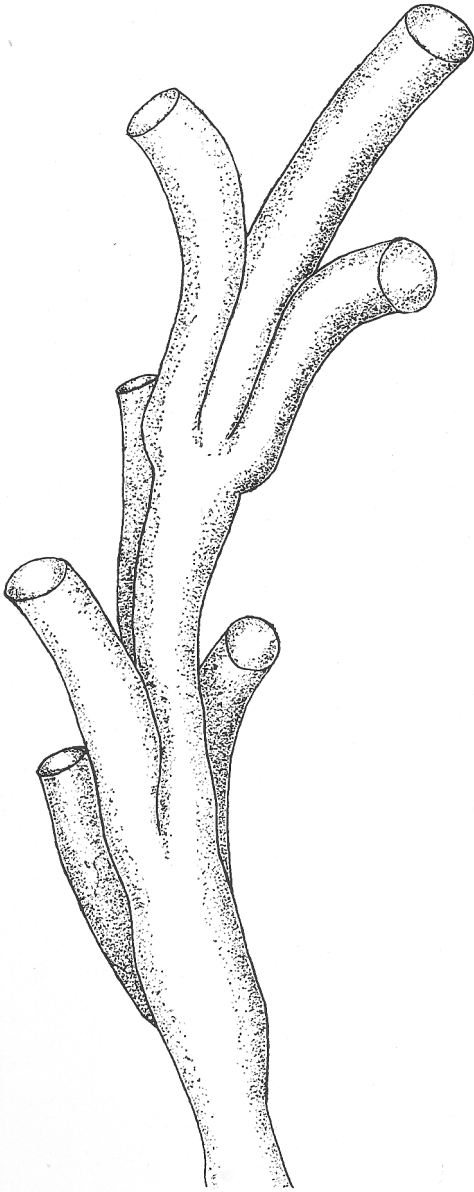


Clara A. Fraser, del. After C.M.F.

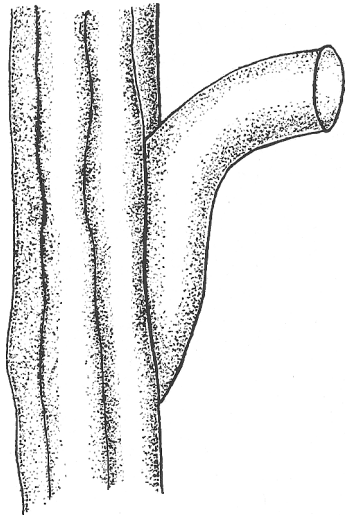
Hydroids of Nova Scotia.

EXPLANATION OF PLATE XIII.

- Fig. 1.** *Cryptolaria triserialis*. Non-fascicled portion of a branch.
2. Portion of main stem.
Magnification about 20 diameters.



1



2

Clara A. Fraser, del. After C. M. F.
Hydroids of Nova Scotia.