1937

Studies on Fresh-Water Bryozoa. V, Some Additions to Canadian Fauna

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STUDIES ON FRESH-WATER BRYOZOA

V. Some Additions to Canadian Fauna[1]

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INTRODUCTION

The present paper adds a few species and varieties to the list of fresh-water Bryozoa which have been found previously in Canadian territory. Records by other workers exist for the Georgian Bay region, other parts of Ontario, Quebec and possibly a few other localities. Davenport (1904) gives a few records for the Canadian part of Lake Erie. White (1915) gives a brief resumé of previous finds and also adds considerably to the list. Huntsman (1913) and Geiser (1934) also cite a few localities. White mentions the following species as occurring in Canadian waters:

Paludicella articulata
Fredericella sultana
Plumatella emarginata
Plumatella repens
Plumatella fungosa
Plumatella appressa
Plumatella punctata
Pectinatella magnifica
Cristatella mucedo

Collections for the present study were made from the following Canadian islands in Lake Erie: Middle Sister, East Sister, Pelee, North Harbor, Middle and Hen and Chickens. The following species and forms were found on and around these islands:

Plumatella repens phase *alpha*
Plumatella repens phase *beta*
Plumatella repens var. *appressa*
Plumatella repens var. *emarginata*
Plumatella repens var. *furcifer*
Plumatella repens var. *jugalis*
Fredericella sultana
Paludicella articulata
Cristatella mucedo var. *idae*

[1]The opportunity for collecting was afforded by the Franz Theodore Stone Biological Laboratory of the Ohio State University, at Put-in-Bay, Ohio.

DISCUSSION OF FORMS

Plumatella repens phase **alpha** Allman 1843

The zooecia are adherent in their entire length. They are reddish-amber in color, translucent to transparent and branch very openly instead of becoming compact. A fuller discussion of this form is found in Study II of this series. It was collected between July 5 and August 28, 1933, from Big Chicken, Middle Sister and Middle Islands, from protected localities along the shore. New to Canada.

Plumatella repens phase **beta** Allman 1848

This form resembles phase *alpha* markedly in coloration, size, zooecial characters and general mode of branching. It differs in that the tubes are not entirely adherent, but that most of the tubes are bent upward at the distal portion of the zooecium. Some of the tubes are upright in a large part of their extent. The tentacles number about 50 to 55. Gradations between phases *alpha* and *beta* are not uncommon. Some colonies are so intermediate that it is impossible to allocate them to either form with absolute certainty.

Collections were made between June 27 and August 28 at the following islands: Pelee, East Sister, Middle Sister and Big Chick. This phase appeared in boulder-protected localities on the under side of stones. New to Canada.

Plumatella repens var. **appressa** (Kraepelin) 1887

1887. *Plumatella polymorpha* var. b, *appressa*. Kraepelin.
1904. *Plumatella polymorpha* var. b, *oppressa*. Davenport.
1915. *Plumatella appressa*. White.
1926. *Plumatella repens* (var. *appressa*)? Despax.
1927. *Plumatella fungosa* var. *appressa*. Abricossoff.

In this form vertical tubes are lacking or very rare. Zooecia are repent, thickly intertwined or pressed closely together on the substratum. The branching is angular. This feature is particularly apparent when a colony is viewed from the attached side. Kraepelin and White mention a clear longitudinal band or low keel as being frequently present. Those features did not appear in the Lake Erie specimens.

The colonies were collected between July 17 and August 28 from North Harbor, Hen and Chickens Islands. They were found on the under side of large stones in localities protected by rocks and boulders. White found it abundant in the Georgian Bay region.

Plumatella repens var. **emarginata** (Allman) 1844

1844. *Plumatella emarginata*. Allman.
1885. *Plumatella repens* (partim). Jullien.
1887. *Plumatella princeps* var. *emarginata* (partim). Kraepelin.
1894. *Plumatella repens* var. *emarginata*. Vangel.
1915. *Plumatella emarginata*. White.

The most conspicuous feature of this variety is the emarginate orifice which connects with the keeled furrow. The tubes are long, cylindrical and keeled. They range in color from a very dark brown to a sandy

color, with lighter tips. Tentacles number from 40 to 54. The polypidom is adherent in the greater part of its length. Its branching is open, antler-like and dichotomous.

Statoblasts, in spite of their great variability, have been used as criteria for the identification of species to such an extent that they can not be disregarded. The majority of the free statoblasts of *emarginata* are elongate, less than twice as long as broad but more than 1½ times as long. The annulus covers almost the whole of the upper surface, leaving a small exposed central capsule area.

The distribution of this form is very wide, in North America, Europe, Asia and Africa. Davenport (1904), Osler ? (1883), Huntsman (1913) and White (1915) reported it from various localities in Canada. In the 1932–33 collections it was found on or around East Sister, Middle Sister, Middle, Pelee, Hen and Chickens Islands. The best specimens came from protected localities or pond habitats.

Plumatella repens var. **furcifer** Jullien 1885

Only a few colonies of this form were found—at Pelee Island, on August 22. The habitat was a protected shore locality where coarse rubble, mud and sand were present. This form is more luxuriant ordinarily in pond habitats.

Variety *furcifer* is easily recognized wherever encountered by the transparent, bifurcated, longitudinal area which is present on most of the zooecia, although it sometimes is not very conspicuous. The ectocyst varies from a reddish-brown color to transparency, and, is not very rigid. The orifice is emarginate. Tentacles number about 50. The tubes are entirely adherent. The branching is open. New to North America.

Plumatella repens var. **jugalis** (Allman) 1850

The zooecia are entirely adherent and provided with a keel. The colony is geminate and the branching is very open. Tentacles number about 40. No other variety except *flabellum* possesses the geminate character whereby two portions of the colony are connected basally, by a tube. *Flabellum* can be easily distinguished from *jugalis* in its extremely luxuriant branching and flabellate character. The variety *jugalis* was found in only one Canadian locality—in an old canal on Pelee Island on June 21. New to North America.

Fredericella sultana (Blumenbach) 1777

1777. *Tubularia sultana.* Blumenbach.
1836. *Plumatella sultana.* Dumortier.
1887. *Fredericella sultana.* Kraepelin.

This species resembles the Plumatellas very closely. It branches antler-like, with long cylindrical tubes either recumbent, erect or a combination of both. The branching is very open, even in "bushy" colonies. No free statoblasts are found. The attached stoblasts show various markings. In young statoblasts the unattached surface is more or less smooth while in old statoblasts the surface is roughened. The shape of these reproductive bodies is variable—some of them may be reniform, some oval, others almost quadrangular and still others almost

circular. The average length of the Erie specimens was 0.366 mm. and the average breadth was 0.199 mm.

Abricossoff recognized several varieties of *F. sultana.* However, these varieties should be more carefully and fully described and illustrated.

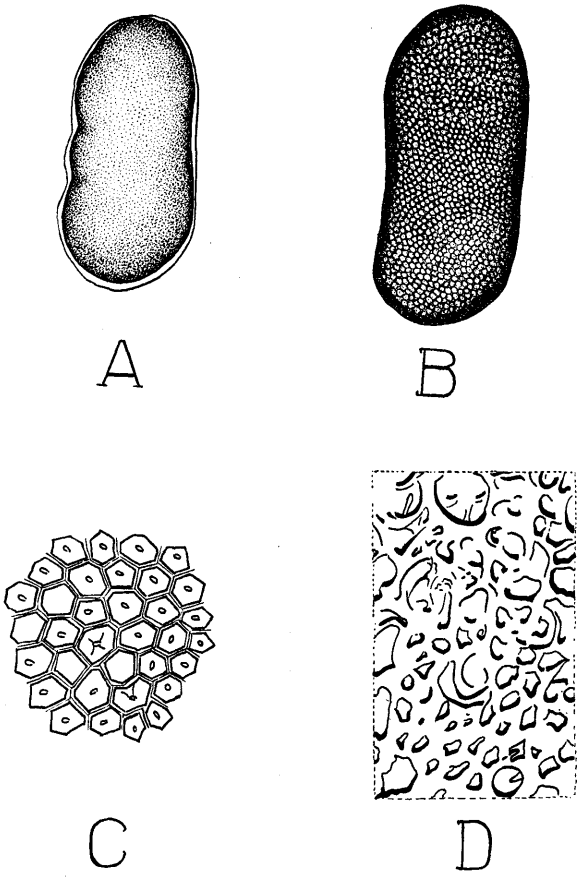

FIG. 1. *A.*—A young statoblast of *Fredericella sultana.* The unattached surface is quite smooth. Dimensions 0.4176 mm. long, 0.1914 mm. wide. *B.*—An older statoblast of *F. sultana. C.*—An enlarged drawing of the surface of *B. D.*—A portion of the roughened surface of an old statoblast of *F. sultana.* The magnification is the same as in *C.* All figures were made with the aid of a camera lucida.

Fredericella sultana has been recorded from a number of localities in North America, Europe, Asia, Australia and South America. White found it in the Georgian Bay region while Huntsman recorded it from Bond Lake in the Toronto district. In Lake Erie it was present in collections from Pelee, North Harbor, Middle, Middle Sister, East Sister, Hen and Chickens.

Paludicella articulata (Ehrenberg) 1831

1831. *Alcyonella articulata.* Ehrenberg.
1836. *Paludicella articulata.* Gervais.
1856. *Paludicella Ehrenbergi.* Allman.
1887. *Paludicella Ehrenbergii.* Kraepelin.

This species is very readily recognized when seen in the collections. Its zooceia are club-shaped, elongate and very slender. They are almost 2 mm. long. The circular lophophore bears 16 to 18 tentacles. The lateral buds may be repent or erect. The tubular orifice is squared at the tip and is placed distally with respect to the enlarged portion of the body. The Erie individuals varied considerably both in length and width of zooecia. This species is very common in the southwestern part of the Lake. It is rather surprising that neither Davenport nor Landacre listed its occurrence in the Lake—unless of course it may have been introduced there later. It occurred at Hen, Middle, Southeast Chicken, Northwest Chicken, Big Chicken, East Sister, Middle Sister, North Harbor and Pelee Islands. Collections of this form were made between June 21 and August 30.

Cristatella mucedo var. **idae** (Leidy) 1858

1858. *Cristatella Idae.* Leidy.
1887. *Cristatella mucedo* var. *Idae.* Kraepelin.
1908. *Cristatella mucedo.* Loppens.

The Lake Erie variety agreed in a number of features with Kraepelin's *Idae.* The colonies were ribbon-like and had three marginal rows of polypides. Tentacula numbered between 70 and 74. Very few statoblasts were found, but, those which were available, had approximately 24 hooks on one side and 45 on the other. The diameter of one statoblast was 1.075 mm.

The question as to the validity of the varieties *idae* and *genuina* was referred to in Study II and will not be discussed here. Variety *idae* has not been recorded from Lake Erie by either Davenport or Landacre. The writer has found it in only three Canadian localities: Big Chick, East Sister and Middle Sister Islands. Davenport records Reighard's findings of the variety *genuina* at Long Point, Canada. New to Canada.

SUMMARY

1. At least nine species and varieties of fresh-water Bryozoa have been recorded from Canada by earlier workers.
2. The present study discusses nine species, varieties and phases, which were collected on and around several islands in the southwestern part of Lake Erie (Canadian territory), during the summers of 1932 and 1933.
3. Of these nine forms of the present study two were new for North America:
   (a) *Plumatella repens* var. *jugalis*
   (b) *Plumatella repens* var. *furcifer*

4. Three forms, subdivisions of previously recorded species, have also been added to the list:
   (a) *Plumatella repens* phase *alpha*
   (b) *Plumatella repens* phase *beta*
   (c) *Cristatella mucedo* var. *idae*

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