

## Section IV.—A CATALOGUE OF THE MARINE FLORA OF WOODS HOLE AND VICINITY.

By BRADLEY MOORE DAVIS.

This list is based chiefly on the general field studies of the writer for some eight summers, while in charge of the department of botany of the Marine Biological Laboratory, and the special botanical operations of the biological survey of the Bureau of Fisheries for the summers of 1903, 1904, 1905, and 1907. A six weeks' sojourn at Woods Hole in April and May, 1907, extended materially the information relating to the spring algal flora and seasonal habits of a number of species. There are included also records and references of earlier collectors, W. G. Farlow, W. A. Setchell, W. J. V. Osterhout, C. P. Nott, and others, and the more recent observations of F. S. Collins and Miss Lillian J. MacRae. The records on the distribution of the algæ are known personally to the writer except where specific statement is made on the authority of another.

The regions covered by this list comprise: (1) The immediate waters of Woods Hole, (2) the deeper waters of Buzzards Bay, and (3) the deeper waters of Vineyard Sound from the westerly entrance to a line drawn between East Chop and Falmouth Heights. A few references to localities outside of the regions described above have been included for certain species of especial interest.

The dredging stations are given in two groups:

1. Buzzards Bay, divided by a line drawn from the west end of Naushon (Robinsons Hole) to Round Hill Point into (a) an upper and (b) a lower portion.

2. Vineyard Sound, divided into three regions, (a) the westerly portion from the entrance at Gay Head to a line drawn from the west end of Naushon (Robinsons Hole) to Kopeecon Point (Cape Higgon), (b) the narrow portion from this line to one connecting Nobska Point and West Chop, (c) the easterly portion from the latter line to one drawn between Falmouth Heights and East Chop. In both groups the stations that skirt the coast are collected and introduced by the word "Inshore." The inshore stations were dredged for the purpose of determining the conditions in relatively shallow water, from 1 to 5 fathoms in depth.

The inshore stations are almost wholly those designated by the lower numbers 1-167, and were chiefly dredged by the *Phalarope* and *Blue Wing* (summers of 1904, 1905, and 1907). The stations in the deeper regions of Buzzards Bay and Vineyard Sound have the high numbers 7521-7602 (Vineyard Sound, summer of 1903), 7610-7675 (Buzzards Bay, summer of 1904), and 7676-7783 (Vineyard Sound, summer of 1905); they were dredged chiefly from the *Fish Hawk*. Numbers followed by the word "bis"

refer to stations, selected from those of the corresponding number in Vineyard Sound, that were dredged in the following summer (1904). A few numbers followed by the date (1907) refer to selected stations dredged in the summer of that year. In addition to the numbered stations plotted upon the maps there are records for several special trips of the author on the *Genevieve* of the Marine Biological Laboratory and the *Blue Wing*. These were (1) off Devils Bridge, Gay Head, August 17, 1903 (*Blue Wing*), (2) Lobsterville Cove, Menemsha Bight, August 9, 1904 (*Blue Wing*), (3) Menemsha Bight, July 17, 1905 (*Genevieve*), and (4) cove west of Cuttyhunk Neck, July 27, 1905 (*Genevieve*). For detailed information on the situation of the stations, dates of dredgings, depths, character of the bottom, etc., the reader is referred to the "Description of dredging stations occupied during the present Survey," section I, p. 201-218.

The strong tidal currents of Vineyard Sound and Buzzards Bay carry large amounts of algal débris, which is widely distributed along the bottom, frequently in stations utterly foreign to the life habits of the species. The dréde very often brings up fragments of this algal drift, which can generally be recognized by their water-worn appearance and frayed ends. However, it is sometimes very difficult to be certain whether such fragments are algal drift or have been torn from their attachment by the dredge. We have endeavored to separate critically all clear evidence or probability of algal drift from the records of growth in situ. The former will appear at the ends of the lists of stations for certain species under the heading "Drifted fragments," and these records must be understood to mean that the species does not, so far as we know, grow at that station.

The species are arranged alphabetically in the genera, which are grouped in families following closely the classification presented in Engler and Prantl, "Die natürlichen Pflanzenfamilien." The assembling into orders differs in important particulars from the arrangement in the above treatment. Four classes are recognized, the Cyanophyceæ, Chlorophyceæ, Phæophyceæ, and Rhodophyceæ.

The list aims to include all specific references in literature and published sets of algæ to the occurrence of the species within the limits of the survey. In this list, only the author's name and date of publication appear, the full titles of the papers being given in the bibliography at the end of the catalogue. P. B.-A. stands for the *Phycotheca Boreali-Americana* of Collins, Holden, and Setchell; A. A. B. Ex. for the *Algæ Americanæ Boreales Exsiccatae* of Farlow, Anderson, and Eaton; A. A. D. Ex. for the *Algæ Aquæ Dulcis Exsiccatae* of Wittrock and Nordstedt. The authorities for the specific names are, with few exceptions, those given in the *Phycotheca Boreali-Americana* and in "Preliminary Lists of New England Plants: V. Marine Algæ" by Frank S. Collins (*Rhodora*, vol. II, p. 41-52, 1900).

We are greatly indebted to Mr. Collins for a number of determinations and for his kindly criticism of the manuscript.

## Division THALLOPHYTA.

## Subdivision ALGAE.

## CLASS CYANOPHYCEÆ.

## Order COCCOGONALES.

## Family CHROOCOCCACEÆ.

*Chroococcus turgidus* Nägeli.

Common, in salt marshes, on wet earth and rocks, mixed with *Calothrix*, *Lyngbya*, *Microcoleus*, *Vaucheria*, etc.

Woods Hole: Little Harbor, Penzance. Quisset salt marshes. Hadley Harbor.

Spring, summer, undoubtedly at other seasons.

*Glaucocapsa crepidinum* Thuret.

Abundant, on woodwork and rocks at high-water mark.

Woods Hole.

At all seasons.

*Polycystis elabens* Kützing.

Common, in salt marshes, forming slimy masses on decaying algæ and on *Zostera*, frequently mixed with *Lyngbya*, *Microcoleus*, etc.

Woods Hole: Penzance. Quisset. Hadley Harbor.

Summer.

Farlow, 1881, p. 28 (*Polycystis elabens* Kützing), Woods Hole.

## Family CHAMÆSIPHONACEÆ.

*Dermocarpa prasina* (Reinsch) Bornet & Thuret.

Common, on *Polysiphonia fastigiata*.

Woods Hole, off Juniper Point.

Spring, early summer.

On *Polysiphonia fastigiata*, which in turn grows on *Ascophyllum nodosum*.

*Hyella cæspitosa* Bornet & Flahault.

Abundant wherever old shells are found in quiet waters.

Woods Hole.

Spring, summer, undoubtedly at all seasons.

Boring into clam and other shells.

*Pleurocapsa fuliginosa* Hauck.

Common, on harbor walls and rocks near high-water mark, forming a dark stain.

Woods Hole.

At all seasons.

## Order HORMOGONALES.

## SUBORDER HOMOCYSTEÆ.

## Family OSCILLATORIACEÆ.

## SUBFAMILY VAGINARIÆÆ.

*Hydrocoleum glutinosum* (Agardh) Gomont.

Common, on *Zostera*.

Woods Hole.

Summer.

Farlow, 1881, p. 35, 36 (*Lyngbya nigrescens* var. *major* Farlow), Woods Hole; A. A. B. Ex., fas. 1, no. 47 (*Lyngbya nigrescens* var. *major* Farlow), Woods Hole (W. G. Farlow).

*Hydrocoleum lyngbyaceum* Kützing.

Occasional, on *Ascophyllum nodosum*.

Harbor of Woods Hole.

Summer.

P. B.-A., fas. v, no. 204 (*Hydrocoleum lyngbyaceum* var. *A*, Gomont), Woods Hole, August 14, 1894 (W. A. Setchell).

*Microcoleus chthonoplastes* (Flora Danica) Thuret.

Common, in salt marshes and brackish pools, mixed with *Lyngbya* and other algæ.

Woods Hole: Eel Pond, Penzance. Quisset. Hadley Harbor.

Summer, undoubtedly at other seasons.

Farlow, 1881, p. 33, 34 (*Microcoleus chthonoplastes* Thuret), Woods Hole; Farlow, 1881, p. 33 (*Oscillaria subtorulosa* Brebisson), Woods Hole; A. A. B. Ex., fas. v, no. 227, Woods Hole, August, 1877 (W. G. Farlow); P. B.-A., fas. IV, no. 153, Woods Hole, July 17, 1895 (W. J. V. Osterhout).

*Microcoleus tenerrimus* Couan.

Occasional, in salt marshes and brackish pools, mixed with *Microcoleus chthonoplastes*, *Lyngbya*, and other algæ.

Woods Hole: Penzance, Eel Pond.

Summer.

Found by F. S. Collins, summer of 1904.

## SUBFAMILY LYNGBYÆÆ.

*Lyngbya æstuarii* (Mertens) Liebman.

Common, salt marshes and brackish pools, on stones and mud between tide marks, also on wharves.

Woods Hole: Penzance, Eel Pond. Salt marshes of Quisset and Hadley Harbor, Summer, undoubtedly throughout the year.

*Lyngbya confervoides* Agardh.

Occasional, in salt marshes and pools.

Woods Hole: Penzance.

Summer.

Farlow, 1881, p. 35 (*Lyngbya luteo-fusca* J. Agardh), Woods Hole; A. A. B. Ex., fas. 1, no. 48 (*Lyngbya luteo-fusca* J. Agardh), Woods Hole (W. G. Farlow).

*Lyngbya Lagerheimii* (Möbius) Gomont.

In brackish waters.

Little Pond of Falmouth Heights.

Known only from specimen in herbarium of the Marine Biological Laboratory collected by W. A. Setchell and W. J. V. Osterhout.

*Lyngbya majuscula* (Dillwyn) Harvey.

Occasional, attached to *Zostera*, and sometimes found floating in large quantities in sheltered situations.

Woods Hole: Great Harbor. Vineyard Haven, Vineyard Sound east end of Naushon. Menemsha Bight.

Summer.

Farlow, 1873, p. 293, Woods Hole, Naushon, Edgartown; Farlow, 1875, p. 380, Woods Hole; A. A. B. Ex., fas. v, no. 228, Vineyard Haven, September, 1883 (W. G. Farlow); P. B.-A., fas. v, no. 202, Woods Hole, August 16, 1894 (W. A. Setchell).

*Lyngbya semiplena* (Agardh) J. Agardh.

Common, in salt marshes, brackish pools and ditches, mixed with *Microcoleus*, *Lyngbya*, etc. Woods Hole: Ditches of Penzance. Summer, undoubtedly at other seasons.

*Oscillatoria amphibia* Agardh.

Common, on woodwork of wharves, frequently mixed with *Oscillatoria latevirens*.

Woods Hole.

Summer, undoubtedly at other seasons.

Found by F. S. Collins, summer of 1904.

*Oscillatoria latevirens* Crouan.

Common, on woodwork of wharves, frequently mixed with *Oscillatoria amphibia*.

Woods Hole.

Summer, undoubtedly at other seasons.

Found by F. S. Collins, summer of 1904.

*Phormidium persicinum* (Reinke) Gomont.

Rare, appearing during the winter in a jar of salt water (G. M. Gray).

Woods Hole.

P. B.-A., fas. xxix, no. 1401, Woods Hole, May, 1907 (B. M. Davis).

*Spirulina subsalsa* Oersted.

Common in salt marshes and brackish pools, mixed with *Lyngbya*, *Microcoleus*, etc.

Woods Hole: Penzance. Quisset. Hadley Harbor.

Summer, probably at all seasons.

Farlow, 1881, p. 31 (*Spirulina tenuissima* Kützling), Woods Hole.

## SUBORDER HETEROCYSTEÆ.

## Family NOSTOCACEÆ.

*Anabaena torulosa* Lagerheim.

Abundant, on decaying algæ and *Zostera*, from whence it frequently rises and floats in quiet waters.

Woods Hole: *Zostera* patches in Eel Pond, Little Harbor, Ram Island. Similar situations Quisset Harbor, Hadley Harbor, Tarpaulin Cove.

Summer.

Farlow, 1876, p. 715 (*Sphærozyga Carmichaelli* Harvey), Woods Hole; Farlow, 1881, p. 30 (*Sphærozyga Carmichaelli* Harvey), Woods Hole.

*Microcæte grisea* Thuret.

Common, on pebbles and shells with *Isactis*.

Woods Hole: Eel Pond. West Falmouth (Collins).

Summer, undoubtedly at other seasons.

Collins, 1884, p. 130, old pecten shell, West Falmouth.

*Nodularia Harveyana* (Thwaites) Thuret.

Common, in brackish water mixed with *Lyngbya*, *Microcoleus*, etc.

Woods Hole: Eel Pond.

Summer.

Family STIGONEMACEÆ.

*Mastigocoleus testarum* Lagerheim.

Common, wherever old shells are found in quiet waters.

Woods Hole.

Boring into clam and other shells.

Spring, summer, undoubtedly at all seasons.

P. B.-A., fas. v, no. 213, Quisset, July, 1893 and 1895 (W. A. Setchell).

Family SCYTONEMACEÆ.

*Plectonema calothrichoides* Gomont.

Common, on woodwork of wharves.

Woods Hole: Eel Pond, wharves of Bureau of Fisheries.

Spring.

Family RIVULARIACEÆ.

*Amphithrix violacea* (Kützing), Bornet & Flahault.

Common, on shells of *Turritella*.

Woods Hole: Eel Pond.

Summer.

Found by F. S. Collins, summer of 1904.

*Brachytrichia Quoyi* (Agardh) Bornet & Flahault.

Common in its localities, attached to *Fucus*.

Woods Hole: Quisset Harbor. Hadley Harbor.

Hog Island Harbor (F. S. Collins).

Summer.

Farlow, 1876, p. 715 (*Rivularia nitida* (Agardh?),

Woods Hole; Farlow, 1881, p. 39 [*Hormactis*

*Quoyi* (Agardh) Bornet, in litt.], Woods Hole,

Falmouth; Collins, 1890, p. 175, Buzzards Bay

shore of Woods Hole, Quisset, and Hog Island

Harbors; A. A. B. Ex., fas. I, no. 45 (*Hormactis*

*Farlowii* Bornet), Woods Hole (W. G. Farlow);

A. A. D. Ex., fas. 25, no. 1197, Quamquisset

Harbor, August, 1891 (W. A. Setchell); P.

B.-A., fas. I, no. 8, Quamquisset Harbor, Fal-

mouth, August 1, 1890 (W. A. Setchell).

Probably introduced by ships that formerly brought guano to Woods Hole from islands in the Pacific.

*Calothrix æruginea* (Kützing) Thuret.

Common, on woodwork of wharves, frequently mixed with *Oscillatoria*.

Woods Hole.

Summer, undoubtedly at other seasons.

Found by F. S. Collins, summer of 1904.

*Calothrix confervicola* (Dillwyn) Agardh.

Common, on larger algae in quiet, shallow waters.

Dredged by the Survey in Vineyard Haven,

3 to 4 fathoms.

*Calothrix confervicola*—Continued.

Woods Hole: Great Harbor, Eel Pond, Little Harbor. Vineyard Haven: at station 72 on *Sphacelaria cirrhosa*.

Summer, undoubtedly at other seasons.

Farlow, 1873, p. 293, Woods Hole; Farlow, 1881, p. 36, Woods Hole; A. A. B. Ex., fas. v, no. 225, Woods Hole (W. G. Farlow); P. B.-A., fas. I, no. 9, Woods Hole, July 12, 1892 (W. A. Setchell).

*Calothrix crustacea* Thuret.

Common, on larger algae and rocks between tide marks.

Woods Hole: Great Harbor, Eel Pond, Little Harbor. Black Rock.

Summer, undoubtedly at other seasons.

Farlow, 1881, p. 36, Woods Hole; A. A. B. Ex., fas. I, no. 49, Woods Hole (W. G. Farlow).

*Calothrix fusco-violacea* Crouan.

Common, on old *Punctaria plantaginea*, *Zostera*, and larger algae.

Woods Hole: Grassy Ledge, Little Harbor.

Early summer.

Setchell, 1896, p. 87, Woods Hole, summer of 1896; P. B.-A., fas. v, no. 217, Woods Hole on *Punctaria plantaginea* (Roth) Greville (C. P. Nott).

*Calothrix parasitica* (Chauvin) Thuret.

Common, on *Nemalion multifidum*, occasionally on *Castagnea* and other loose tissue'd algae.

Woods Hole: Juniper Point, Grassy Ledge. Cuttyhunk.

Summer.

A. A. B. Ex., fas. v, no. 224, Woods Hole (W. G. Farlow); P. B.-A., fas. III, no. 111, Woods Hole, July 29, 1895 (C. P. Nott).

*Calothrix pulvinata* (Mertens) Agardh.

Common, forming patches resembling honeycomb on wharves and stones.

Woods Hole: Wharves and harbor walls.

Summer, undoubtedly at other seasons.

Farlow, 1881, p. 37, Woods Hole; A. A. B. Ex., fas. I, no. 50, Woods Hole (W. G. Farlow).

*Calothrix scopulorum* (Weber & Mohr) Agardh.

Common, forming patches on rocks and piles near high-water mark.

Woods Hole: Grassy Ledge. Tarpaulin Cove.

Piles of wharf at Gay Head.

Summer, undoubtedly at other seasons.

Farlow, 1881, p. 37, Woods Hole.

*Isactis plana* (Harvey) Thuret.

Common, on *Punctaria*, *Fucus*, *Ascophyllum*, rocks and old shells.

Woods Hole: Grassy Ledge. Along Buzzards Bay shore. Cuttyhunk (Setchell).

Summer, probably at all seasons.

A. A. B. Ex., fas. v, no. 222, Woods Hole (W. G. Farlow); P. B.-A., fas. iv, no. 156a, Cuttyhunk, August 3, 1894 (W. A. Setchell).

*Rivularia atra* Roth.

Common, on rocks, stones, and barnacles, between tide marks.

Woods Hole: Juniper Point, Grassy Ledge. Black Rock.

Summer, probably at all seasons.

*Rivularia atra*—Continued.

Farlow, 1873, p. 293, Woods Hole; A. A. B. Ex., fas. v, no. 221, Woods Hole in part (W. G. Farlow).

*Rivularia nitida* Agardh.

Common, on mud and roots of *Spartina* in salt marshes, between tide marks.

Quisset Harbor.

Summer, undoubtedly at other seasons.

Farlow, 1881, p. 38 (*Rivularia plicata* Carmichael), Woods Hole; P. B.-A., fas. vi, no. 260b, Quamquisset Harbor, Falmouth, July and August, 1891 (W. A. Setchell).

*Rivularia polyotis* (J. Agardh) Bornet & Flahault.

Cohasset Narrows (Farlow).

Farlow, 1881, p. 38, 39 (*Rivularia hospita* Thuret). Cohasset Narrows.

## CLASS CHLOROPHYCEÆ.

## Order PROTOCOCCALES.

## Family PALMELLACEÆ.

*Glæocystis zostericola* (Farlow) Collins.

Common, on *Zostera*, forming slimy patches mixed with other microscopic algæ.

Woods Hole: Eel Pond. Quisset Harbor (Setchell).

Summer.

Farlow, 1882, p. 67, 68 (*Glæocapsa zostericola* Farlow), Woods Hole, August, 1881; A. A. B. Ex., fas. v, no. 230, [*Glæocystis chrysophthalmia* (Montagne) Farlow], Woods Hole (W. G. Farlow); P. B.-A., fas. v, no. 219, 1896 [*Glæocystis chrysophthalmia* (Montagne) Farlow], Quisset, July, 1893 (W. A. Setchell).

## Order ULOTRICHALES.

## Family ULOTRICHACEÆ.

*Ulothrix flacca* (Dillwyn) Thuret.

Common, on woodwork of wharves, stones, *Fucus*, etc., above low water.

Woods Hole: Great Harbor, Grassy Ledge.

Summer, undoubtedly at other seasons.

*Ulothrix implexa* Kützing.

Occasional, on rocks, above low water.

Woods Hole: Grassy Ledge.

Spring and early summer.

## Family ULVACEÆ.

*Enteromorpha clathrata* (Roth) Greville.

Abundant, in quiet water and pools, attached to stones, *Zostera*, larger algæ, or floating in masses, frequently in brackish water. Dredged by the Survey, Vineyard Haven in 3 to 4 fathoms, over a shelly and muddy bottom.

Woods Hole: Eel Pond, ditches of Penzance.

Marshes of Quisset Harbor and Hadley Harbor. Vineyard Haven, station 72, few.

Summer, undoubtedly at other seasons.

Farlow, 1873, p. 292, Woods Hole.

P. B.-A., fas. D, no. LXXVIII, Eel Pond, Woods Hole, August 16, 1904 (F. S. Collins).

*Enteromorpha crinita* (Roth) J. Agardh.

Common, in pools and ditches of salt marshes.

Woods Hole: Pools of Penzance.

Summer.

*Enteromorpha erecta* (Lyngbye) J. Agardh.

Occasional.

Woods Hole (Holden).

Known only from specimens in the herbarium of the Marine Biological Laboratory, collected by Isaac Holden.

*Enteromorpha intestinalis* (Linnæus) Greville.

Abundant, in quiet waters, attached to woodwork of wharves, stones, shells, etc., between tide marks. Dredged once by the Survey off Marthas Vineyard (station 61) in 5 fathoms, over a sandy bottom.

Woods Hole: Eel Pond, Little Harbor, Grassy Ledge. Quisset Harbor. Hadley Harbor. Tarpaulin cove.

Vineyard Sound: Inshore—Marthas Vineyard, station 61, few.

Summer, undoubtedly at other seasons.

*Enteromorpha linza* (Linnæus) J. Agardh.  
Common, attached to stones and woodwork of wharves, near low-water mark and below.  
Woods Hole: Great Harbor, Little Harbor, Black Rock.  
Summer.

*Enteromorpha minima* Nägeli.  
Common, attached to rocks near high-tide mark.  
Woods Hole: Stone harbor walls, Grassy Ledge.  
Summer.

*Enteromorpha percursea* (Agardh) J. Agardh.  
Common, in pools and ditches, floating in large masses frequently mixed with other species of *Enteromorpha*.  
Woods Hole: Eel Pond, brackish pools and ditches of Penzance.  
Summer.

*Enteromorpha plumosa* Kützing.  
Common, in quiet waters, attached to *Zostera*.  
Woods Hole.  
Summer.  
Synonym: *Enteromorpha Hopkirkii* McCalla of Collins' (1900) list.

*Enteromorpha prolifera* (Flora Danica) J. Agardh.  
Common, in pools and ditches of salt marshes, in floating masses mixed with *Cladophora*, also on rocks. Dredged once by the Survey, Hog Island Harbor (station 135) in  $3\frac{3}{4}$  to 5 fathoms, over sand and gravel.  
Woods Hole: Ditches of Penzance. Black Rock Buzzards Bay: Inshore—Hog Island Harbor, station 135, few.  
Vineyard Sound: Inshore—Gay Head, stations 50 and 51, many on rocks.  
Summer.

*Ilea fulvescens* (Agardh) J. Agardh.  
Occasional, on stones at low-water mark.  
Woods Hole: Little Harbor (Setchell).  
July 31, 1895.  
Known only from specimens in the herbarium of the Marine Biological Laboratory collected by W. A. Setchell.

*Monostroma crepidinum* Farlow.  
Occasional, on piles of wharves between tide marks.  
Woods Hole: Government wharves Little Harbor (Farlow). Head of Vineyard Haven (Setchell).  
August (Farlow), August 14, 1892 (Setchell).  
Farlow, 1881, p. 42, Government wharf, Woods Hole; A. A. B. Ex., fas. IV, no. 174, Woods Hole (W. G. Farlow); P. B.-A., fas. V, no. 220, head of Vineyard Haven, August 14, 1892 (W. A. Setchell).

*Monostroma Grevillei* (Thuret) Wittrock.  
Abundant, on stones and larger algæ near low-water mark.  
Woods Hole: Little Harbor.  
Spring.

*Protoderma marinum* Reinke. (Taxonomic position uncertain.)  
Very common, on pebbles, especially in quiet waters, forming a green coating.  
Woods Hole. Quisset. Tarpaulin Cove.  
At all seasons.

*Ulva Lactuca* Linnæus. Sea-lettuce.  
Common, attached to rocks, wharves, and algæ, above and below low water.  
Woods Hole.  
Buzzards Bay: Drifted fragments, stations 7645, 84, 161, 165.  
Vineyard Sound: Drifted fragments, stations 49, 60.  
At all seasons.

*Ulva Lactuca* var. *latissima* (Linnæus) De Candolle.  
Common, floating in quiet, shallow water.  
Woods Hole: Little Harbor, Eel Pond, ditches on Penzance.  
Summer.  
P. B.-A., fas. D, no. LXXXVI, Eel Pond, Woods Hole, August 16, 1904 (F. S. Collins).

*Ulva Lactuca* var. *rigida* (Agardh) Le Jolis.  
Common, on rocks exposed to the action of waves, above low-water mark.  
Woods Hole: Harbor walls, Grassy Ledge, Juniper Point, Government wharves Little Harbor. Black Rock.  
Buzzards Bay: Drifted fragments, stations 7629, 113.  
Vineyard Sound: Gay Head, stations 50 and 51, many.  
At all seasons.

Family CHÆTOPHORACEÆ.

*Acrochaete repens* Pringsheim.  
Common, epiphytic in base and middle regions of *Chorda filum*, among the paraphyses and sporangia.  
Woods Hole.  
Summer.  
Collins, 1906a, p. 124, Woods Hole, September 1, 1905; P. B.-A., fas. XXVI, no. 1279, Woods Hole, September 1, 1905 (F. S. Collins).

*Bulbocoleon piliferum* Pringsheim.  
Common, on *Leathesia* and *Chordaria*.  
Woods Hole.  
Summer.  
Farlow, 1881, p. 57, Woods Hole.

*Endoderma perforans* Huber.

Probably common, growing in the tissue of faded and dead leaves of *Zostera*.

Mattapoisett (Collins).

September, 1906 (Collins).

P. B.-A., fas. XXXIII, no. 1625, Mattapoisett, September 9, 1906 (F. S. Collins).

*Endoderma viride* (Reinke) Lagerheim.

Occasional, growing in the cell wall of *Seirospora Griffithsiana*.

Falmouth (Collins).

September, 1883 (Collins).

Collins, 1906a, p. 123, 124, Falmouth, September, 1883.

*Pilinia Reinschii* (Wille) Collins.

Common, on shells of *Turritella*.

Woods Hole: Along Buzzards Bay (Collins).

*Pilinia Reinschii*—Continued.

Summer of 1905 (Collins).

Synonym, *Acroblaste Reinschii* Wille of Collins' (1900) list.

*Pringsheimia scutata* Reinke.

Occasional, on *Zostera* and larger algæ.

Waquoit Bay, Falmouth (Setchell).

July 21, 1890 (Setchell).

Specimen in herbarium of Marine Biological Laboratory, collected by W. A. Setchell.

*Tellamia contorta* Batters.

Common, forming a thin superficial coating on shells of living *Littorina palliata*.

Woods Hole.

Summer, undoubtedly at other seasons.

Found by F. S. Collins, summer of 1905.

## Order SIPHONOCADIALES.

## Family CLADOPHORACEÆ.

*Chatomorpha ærea* (Dillwyn) Kützing.

Occasional, on rocks.

Woods Hole: Off Juniper Point. Gay Head.

Summer, probably at all seasons.

Farlow, 1873, p. 293, Gay Head.

*Chatomorpha Linum* (Flora Danica) Kützing.

Common, unattached, in wiry masses over muddy or sandy bottoms in shallow water.

Dredged by the Survey in 5 fathoms, over mud.

Woods Hole: Off Juniper Point. Nobska. Gay Head.

Buzzards Bay: Inshore—Cuttyhunk, station 100, few; Nashawena, station 79, fragment.

Vineyard Sound: Inshore—Menemsha Bight July 17, 1905, haul 3, few.

Summer, probably at all seasons.

Farlow, 1873, p. 293 (*Chatomorpha sutoria* Berkeley), Gay Head; Farlow, 1873, p. 293 (*Chatomorpha litoria* Harvey), Gay Head; probably refers to *Chatomorpha Linum*.

*Chatomorpha melagonium* (Weber & Mohr) Kützing. [Chart 228.]

Common, on rocks and stones in fairly deep water off the exposed points of Gay Head and Cuttyhunk. Dredged by the Survey over sand, gravel, and stones in 4 to 9 fathoms. Frequently washed ashore at Gay Head and Cuttyhunk.

Vineyard Sound: Inshore—Cuttyhunk, stations 32, 33, and 34, few; Sow and Pigs 37, few; Gay Head 44, 45, 56, 57, 58, and 60, few; also off Devils Bridge August 17, 1903, hauls 3 and 4, many; Marthas Vineyard 65 and 74, few. Drifted fragments, 7719, 7721.

Summer, winter, undoubtedly all seasons.

*Chatomorpha melagonium*—Continued.

Farlow, 1873, p. 293 (*Chatomorpha Picquotiana* Montagne), Gay Head; Farlow, 1881, p. 47 [*Chatomorpha Picquotiana* (Montagne) Kützing], Gay Head.

*Cladophora albida* (Hudson) Kützing.

Common, on rocks below low water.

Woods Hole: Off Juniper Point.

Summer.

P. B.-A., fas. xxv, no. 1227, Juniper Point (Butlers Point), Woods Hole, August 14, 1904 (F. S. Collins).

*Cladophora albida* var. *refracta* (Wyatt) Thuret.

Common, on rocks, stones, and larger algæ below low water.

Woods Hole: Juniper Point, Buzzards Bay.

Buzzards Bay: Drifted fragments, station 7668.

Vineyard Sound: Gay Head, stations 50 and 51, many.

Summer.

*Cladophora arcta* (Dillwyn) Kützing.

Abundant, on wharves and stonework below low water.

Woods Hole: Wharves and harbor walls.

Spring, summer.

*Cladophora expansa* (Mertens) Kützing.

Common, in brackish ditches and pools.

Woods Hole: Salt marsh pools of Penzance.

Summer.

A. A. B. Ex., fas. v, no. 210, Woods Hole (W. G. Farlow).

*Cladophora flexuosa* (Griffiths) Harvey.

Common, attached to rocks below low water.

Woods Hole.

Summer.



*Cladophora flexuosa*—Continued.

Farlow, 1873, p. 293, Woods Hole Government wharf; Farlow, 1881, p. 54, Woods Hole; A. A. B. Ex., fas. v, no. 206, Woods Hole (W. G. Farlow).

*Cladophora fracta* (Flora Danica) Kützing.

Rare, in brackish water.

Woods Hole: Eel Pond Creek (Setchell).  
August, 1904 (Setchell).

Farlow, 1873, p. 293, Woods Hole; A. A. B. Ex., fas. v, no. 208, Falmouth, 1881 (W. G. Farlow); specimens in the herbarium of the Marine Biological Laboratory collected by W. A. Setchell.

*Cladophora glaucescens* (Griffiths) Harvey.

Common, attached to rocks and woodwork of wharves below low water.

Woods Hole: Harbor wharves, Juniper Point; Government wharf Little Harbor, Gut of Canso.

Summer.

A. A. B. Ex., fas. v, no. 205, Woods Hole, August, 1881 (W. G. Farlow).

*Cladophora gracilis* (Griffiths) Kützing.

Abundant, attached to wharves and stones below low-water mark, sometimes on *Zostera*.  
Dredged by the Survey over sand and gravel in 2 to 5½ fathoms.

Woods Hole: Harbor walls, basins of Bureau of Fisheries, Grassy Ledge, Juniper Point.

Buzzards Bay: Inshore—Cuttyhunk, station 104, few; Nashawena 79, few; Uncatena 117, few.

Vineyard Sound: Inshore—Tarpaulin Cove, station 17, few on *Zostera*; Robinsons Hole 20 and 21, few; Pasque 24 and 25, few. Drifted fragments, 7543 bis and 7570.

Summer.

Farlow, 1881, p. 55, Woods Hole; A. A. B. Ex., fas. v, no. 209, Falmouth, 1881 (W. G. Farlow).

*Cladophora hirta* Kützing.

Occasional, on rocks below low water.

Woods Hole: Juniper Point.

Summer.

*Cladophora lanosa* (Roth) Kützing.

Occasional, attached to larger algæ below low-water mark, floating in Vineyard Sound attached to *Ascophyllum nodosum* and goose barnacles (*Lepas*).

Woods Hole: Steamboat wharf, Grassy Ledge, Juniper Point.

At all seasons.

*Cladophora lanosa* var. *uncialis* (Flora Danica) Thuret.

Common, on stones and rocks, above and below low-water mark.

Woods Hole: Grassy Ledge (Miss MacRae).  
Vineyard Sound.

December, 1904, April and May, 1905 (Miss MacRae, Grassy Ledge). Summer (Vineyard Sound).

*Cladophora refracta* (Roth) Areschoug.

Abundant, attached to stones near low-water mark.

Woods Hole.

Summer.

A. A. B. Ex., fas. v, no. 207, Woods Hole, August, 1881 (W. G. Farlow).

*Cladophora Rudolphiana* (Agardh) Harvey.

Abundant, attached to stones and *Zostera*, below low-water mark.

Woods Hole: Little Harbor.

Summer.

Farlow, 1873, p. 292, Woods Hole; Farlow, 1881, p. 54, 55, Woods Hole.

*Cladophora rupestris* (Linnaeus) Kützing.

Occasional, attached to rocks below low-water mark.

Woods Hole: Nobska Point. Gay Head.

Early summer.

Farlow, 1873, p. 292, Gay Head, Vineyard Sound.

*Rhizoclonium Kernerii* Stockmayer.

Occasional.

Woods Hole (Setchell).

August, 1894.

Known only from specimen in herbarium of the Marine Biological Laboratory collected by W. A. Setchell.

*Rhizoclonium riparium* (Roth) Harvey.

Common, on sand and rocks between tide marks, woodwork of wharves.

Woods Hole: Grassy Ledge, Government wharf Little Harbor.

Summer.

Farlow, 1881, p. 49, Woods Hole; A. A. B. Ex., fas. v, no. 213, Woods Hole (W. G. Farlow).

*Rhizoclonium tortuosum* Kützing.

Occasional, growing over other algæ in quiet waters.

Woods Hole.

Summer.

Farlow, 1873, p. 293 (*Chaetomorpha tortuosa* Dillwyn), Woods Hole.

## Order SIPHONALES.

*Codiolum gregarium* A. Braun. (Taxonomic position uncertain.)

Common in its localities, attached to rocks and barnacles (*Balanus*).

Woods Hole: Outermost rocks of Grassy Ledge. Summer.

P. B.-A., fas. iv, no. 165, Woods Hole, July, 1895 (C. P. Nott).

## Family BRYOPSIDACEÆ.

*Bryopsis hypnoides* Lamouroux.

Occasional.

Woods Hole: Entrance of Eel Pond. Wharves, New Bedford (G. M. Gray). Mattapoissett (Collins).

Spring.

Collins, 1906a, p. 124, Mattapoissett, May, 1905. P. B.-A., fas. xxvi, no. 1286, Mattapoissett, May 28, 1905 (F. S. Collins).

*Bryopsis plumosa* (Hudson) Agardh.

Occasional, on stones and in sand, on woodwork of wharves.

Woods Hole: Grassy Ledge, entrance of Eel Pond, Gut of Canso, Government wharves Little Harbor.

Summer.

Farlow, 1873, p. 292, Woods Hole.

## Family DERBESACEÆ.

*Derbesia vaucheriaformis* (Harvey) J. Agardh.

Rare.

Woods Hole: Entrance to Eel Pond (Farlow), Edgartown (Jernegan).

May, 1876 (Farlow), December, 1895 (Jernegan). Farlow, 1881, p. 60, Woods Hole.

P. B.-A., fas. vii, no. 318, Edgartown, December, 1895 (M. W. Jernegan).

## Family VAUCHERACEÆ.

*Vaucheria litorea* Agardh.

Common, over gravel near low-water mark.

Woods Hole: Juniper Point.

Summer.

Farlow, 1876, p. 712 (*Vaucheria piloboloides* Thuret), Woods Hole (?); Farlow, 1881, p. 105, Woods Hole.

*Vaucheria Thuretii* Woronin.

Common, on mud between tide marks or below.

Dredged once by the Survey, in Cuttyhunk Harbor (station 104), 2¾ to 3 fathoms, over muddy sand.

Woods Hole: Eel Pond. Salt marshes Quissett and Penzance.

Buzzards Bay: Cuttyhunk Harbor, station 104, many.

Summer.

## Class PHÆOPHYCEÆ.

## Order PHAEOSPORALES.

## Family ECTOCARPACEÆ.

*Ascoclychus orbicularis* (J. Agardh) Magnus.

Occasional, on *Zostera*.

Woods Hole: Little Harbor (Setchell).

July 25, 1895 (Setchell).

P. B.-A., fas. iv, no. 173, Little Harbor, Woods Hole, July 25, 1895 (W. A. Setchell).

*Ectocarpus acidoides* Rosenvinge.

Abundant, on old *Laminaria*.

Woods Hole: Grassy Ledge, entrance to Eel Pond.

Spring.

*Ectocarpus confervoides* (Roth) Le Jolis.

Very common, attached to *Scytosiphon*, *Chordaria*, and other larger algæ, *Zostera*, and to woodwork of wharves. Dredged by the Survey in 3 to 6 fathoms at several scattered stations, over sandy and stony bottoms.

*Ectocarpus confervoides*—Continued.

Woods Hole: Great Harbor, Eel Pond, Grassy Ledge, Little Harbor.

Buzzards Bay: Inshore—Gull Island, station 116, many; Naushon 87, few. Drifted fragments, 105.

Vineyard Sound: Westerly portion—7735, few on *Rhodomela subfusca*. Inshore—Marthas Vineyard stations 64 and 67, many on *Zostera*; 69, few on *Zostera*; 73 and 75, very many on *Zostera*. Drifted fragments, 7706 and 7710 on *Chorda filum*.

Spring, summer, probably at all seasons.

*Ectocarpus elegans* Thuret.

Occasional, attached to larger algæ.

Edgartown, on muddy bottom attached to various algæ, at 2 meters depth (Jernegan).

December, 1896 (Jernegan).

P. B.-A., fas. vii, no. 320, Edgartown, December, 1896 (M. W. Jernegan).

*Ectocarpus fasciculatus* Harvey.

Common, attached to *Chordaria*, *Chorda*, *Laminaria*, and other larger algæ. Dredged by the Survey, 5 to 8 fathoms, over sandy and stony bottoms.

In the summer off exposed points as at Gay Head and Sow and Pigs, probably common in the winter and spring at Woods Hole.

Woods Hole: Grassy Ledge (MacRae). Nobska (Farlow).

Buzzards Bay: Lower portion—7656, many on *Chorda filum*.

Vineyard Sound: Inshore—Sow and Pigs station 37, few; Gay Head stations 50 and 51, many on algæ; also off Devils Bridge, August 17, 1903, haul 5, many on *Laminaria*.

Spring 1904 (MacRae), summer, probably at all seasons.

Farlow, 1873, p. 286, Gay Head, Nobska.

*Ectocarpus granulosus* (English Botany) Agardh.

Occasional, attached to *Sargassum* and other algæ.

Woods Hole: Grassy Ledge (MacRae).

Summer, December 30, 1904 (MacRae).

*Ectocarpus granulosus* var. *tenuis* Farlow.

Occasional.

Woods Hole. Gay Head (Farlow).

Farlow, 1873, p. 286 (*Ectocarpus Durkeei* Harvey), Gay Head; Farlow, 1876, p. 710 (*Ectocarpus Durkeei* Harvey), Woods Hole; Farlow, 1881, p. 70, Woods Hole.

*Ectocarpus lutosus* Harvey.

Occasional, attached to *Fucus*.

Woods Hole.

Summer.

Farlow, 1881, p. 72, Woods Hole.

*Ectocarpus Mitchellæ* Harvey.

Occasional, on woodwork, goose barnacles (*Lepas*) and on *Chorda*.

Floating in Vineyard Sound attached to timber and goose barnacles. Near Edgartown (Jernegan).

Summer, November, 1896 (Jernegan).

Farlow, 1876, p. 710; Farlow, 1879, p. 72, 73, Nantucket; Collins, 1891, p. 337, 338, near Edgartown (Jernegan); P. B.-A., fas. VII, no. 321, Edgartown, on *Chorda* attached to an old wreck, November, 1896 (Jernegan).

*Ectocarpus ovatus* Kjellman.

Occasional, on mussel shells (*Mytilus*).

Woods Hole: Grassy Ledge (MacRae). Edgartown (Colt).

*Ectocarpus ovatus*—Continued.

April 22, 1904 (MacRae); February, 1892 (Colt). Collins, 1896b, p. 459, Edgartown, February, 1892 (Colt).

*Ectocarpus penicillatus* J. Agardh.

Occasional, attached to larger algæ, and *Zostera*.

Woods Hole: Grassy Ledge (MacRae).

Spring, 1904 (MacRae).

*Ectocarpus siliculosus* (Dillwyn) Agardh.

Very common, attached to *Scytosiphon* and other algæ, *Zostera*, on stones, and woodwork of wharves. Dredged by the Survey in 3 to 5 fathoms, occasionally in deeper water (7 to 13 fathoms), over sandy and stony bottoms. In the summer common in the lower portions of Buzzards Bay and Vineyard Sound.

Woods Hole: Grassy Ledge, Little Harbor.

Buzzards Bay: Inshore—Cuttyhunk, station 100, very abundant; 101 and 102, few; 103, many; 104, very abundant; Pasque 82, few. Drifted fragments, 7657 and 7663.

Vineyard Sound: Westerly portion—7717 and 7728, few on *Polysiphonia nigrescens*. Narrow portion—7525 bis, 1 on *Sargassum*. Inshore—Robinsons Hole, station 21, few on algæ, Quicks Hole 29, many on *Zostera*; Cuttyhunk 38, many on algæ; Gay Head 50, 51, 44, and 45, few on algæ; also off Devils Bridge August 17, 1903, haul 3, few; 4, many on algæ; Menemsha Bight, August 9, 1904, very many on *Zostera*; Marthas Vineyard 63, few on stones. Spring, summer, probably at all seasons.

Farlow, 1873, p. 286 (*Ectocarpus viridis* Harvey), Woods Hole; P. B.-A., fas. VII, no. 319a, Edgartown, November, 1896 (M. W. Jernegan).

*Ectocarpus siliculosus* var. *hiemalis* (Crouan)

Kuckuck.

Common, on stones, woodwork, and algæ.

Woods Hole: Great Harbor, Grassy Ledge, Little Harbor. Edgartown (Jernegan).

Summer, December (Jernegan).

Farlow, 1881, p. 71 (*Ectocarpus confervoides* var. *hiemalis* Kjellman), Woods Hole (?); P. B.-A., fas. VIII, no. 372, Edgartown, December, 1896 (M. W. Jernegan).

*Ectocarpus tomentosus* (Hudson) Lyngbye.

Occasional, attached to *Fucus* and other algæ.

Woods Hole: Grassy Ledge (MacRae).

Summer, December 30, 1904 (MacRae).

*Pylaiella littoralis* (Linnæus) Kjellman.

Occasional, attached to wharves and larger algæ.

Woods Hole: Grassy Ledge, Eel Pond, Little Harbor. Gay Head.

Spring; summer.

*Sorocarpus uvæformis* Pringsheim.

Rare, on mussel shells (*Mytilus*).

Woods Hole: Grassy Ledge (MacRae). Marthas Vineyard (Colt).

Spring, 1904 (MacRae).

Collins, 1896b, p. 459, Marthas Vineyard, 1892 (Colt).

*Streblonema Chordariæ* (Farlow) De Toni.

Common, endophytic in *Mesogloia divaricata* and *Leathesia difformis*.

Woods Hole: Great Harbor, Grassy Ledge, Little Harbor.

Summer.

Farlow, 1881, p. 69, Woods Hole.

*Streblonema oligosporum* Strömfelt.

Occasional, endophytic in *Desmarestia viridis*.

Robinsons Hole (I. F. Lewis).

August, 1907.

Collins, 1908, p. 134, Robinsons Hole, August, 1907.

*Streblonema parasiticum* (Sauvageau) De Toni.

Occasional, endophytic in *Cystoclonium purpurascens*.

Woods Hole: Grassy Ledge (Collins).

September 2, 1905 (Collins).

Collins, 1906a, p. 125, Woods Hole.

## Family SPHACELARIACEÆ.

*Cladostephus spongiosus* (Lightfoot) Agardh.

Occasional, on stones in fairly deep water.

Vineyard Sound, washed ashore at Nobska.

Summer.

*Cladostephus verticillatus* (Lightfoot) Agardh. [Chart 229.]

Common, on stones in fairly deep water.

Dredged by the Survey in 2 to 13 fathoms, over sandy and stony bottoms. Scattered throughout Vineyard Sound.

Woods Hole: Off Nobska. Frequently washed ashore at Nobska, Gay Head, Cuttyhunk.

Vineyard Sound: Westerly portion—station 7717, many; 7598 and 7734, few. Narrow portion—7744, few; 7753, large plant; 7525 bis, few. Easterly portion—7760, 7771, 7779, one each. Inshore—Robinsons Hole 21, Marthas Vineyard 62, one; 69 and 73, few.

Summer.

Farlow, 1873, p. 286, Gay Head, No Mans Land.

*Sphacelaria cirrhosa* (Roth) Agardh.

Common, attached to *Fucus*, *Ascophyllum*, *Sargassum*, occasionally *Zostera*, and stones.

Dredged by the Survey in 3 to 8 fathoms, over

*Sphacelaria cirrhosa*—Continued.

sandy and stony bottoms. At scattered stations chiefly in the easterly portion of Vineyard Sound in and near Vineyard Haven.

Woods Hole: Juniper Point, Grassy Ledge. Weepecket Islands (Farlow). Black Rock.

Vineyard Sound: Easterly portion—7760 and 7772, many on *Sargassum*. Inshore—Marthas Vineyard station 76, few on stones; 73, few; 69, few on stones; 7761, many on *Sargassum*; Vineyard Haven 72, many on *Zostera*. Drifted fragments, 7749, 7751.

Summer.

Farlow, 1873, p. 286, Weepecket Islands.

*Sphacelaria radicans* (Dillwyn) Agardh.

Common, attached to stones, shells, and mud-covered rocks. Dredged by the Survey in 3 to 5 fathoms, over sandy, stony, and muddy bottoms. At scattered stations chiefly in and near Vineyard Haven.

Woods Hole: Little Harbor near Juniper Point. Black Rock.

Buzzards Bay: Inshore—Cuttyhunk, station 102, few on shells.

Vineyard Sound: Inshore—Marthas Vineyard, station 69, many; 73, few; Vineyard Haven 71, many; 72, few.

Summer.

Farlow, 1881, p. 76, Woods Hole.

## Family ENCOELIACEÆ.

*Asperococcus echinatus* (Mertens) Greville.

Rare, attached to rocks, *Ascophyllum* and *Fucus*.

Woods Hole: Grassy Ledge.

Spring, early summer, after which it goes out of season.

*Desmotrichum balticum* Kützting.

Common, on *Zostera*, occasionally on larger algae, and on rocks. Dredged by the Survey off Marthas Vineyard (station 67) on *Zostera*, in 4 fathoms, over sand.

Woods Hole: Grassy Ledge, Little Harbor.

Vineyard Sound: Inshore—Marthas Vineyard, station 67, few on *Zostera*.

Spring, summer.

Usually in company with *Desmotrichum undulatum*; much more delicate than the latter, being 1 to 3 cells broad.

*Desmotrichum undulatum* (J. Agardh) Reinke.

Common, on *Zostera*, occasionally on larger algae, and on rocks. Dredged by the Survey in 3 to 6 fathoms, on *Zostera*, over sandy and stony bottoms.

Woods Hole: Grassy Ledge, Eel Pond, Little Harbor.

*Desmotrichum undulatum*—Continued.

Vineyard Sound: Inshore—Quicks Hole, station 29, many; Gay Head 50 and 51, few; Marthas Vineyard 64, few; 67, many; 69, few. Spring, summer.

Farlow, 1873, p. 285 (*Punctaria tenuissima* Greville), Woods Hole.

*Phyllitis fascia* (Flora Danica) Kützing.

Common, on rocks near low-water mark. Dredged by the Survey in Robinsons Hole at 3½ fathoms, over gravel.

Woods Hole: Grassy Ledge, Juniper Point, Devils Foot Island, entrance to Eel Pond.

Vineyard Sound: Inshore—Robinsons Hole 22, few; Gay Head 50 and 51, on rocks near low-water mark.

Winter, spring, early summer, after which it goes out of season.

*Pogotrichum filiforme* Reinke.

Rare, on *Zostera*, in company with *Desmotrichum*, *Giraudia*, and various small species (Schuh). Woods Hole, October, 1899 (G. W. Gray). Oak Bluffs, January, 1895 (R. E. Schuh).

Autumn, winter.

Schuh, 1900b, p. 206, 207, Oak Bluffs (Cottage City), January, 1895.

*Punctaria latifolia* Greville.

Common, attached to *Zostera* and the larger algæ. Woods Hole: Grassy Ledge, Eel Pond, Little Harbor.

Spring, summer.

*Punctaria plantaginea* (Roth) Greville.

Common, attached to rocks and larger algæ.

Woods Hole: Grassy Ledge, Little Harbor, off Juniper Point.

Spring, summer.

Farlow, 1873, p. 285, Woods Hole; Farlow, 1881, p. 64, Woods Hole.

*Rhadinocladia Farlowii* Schuh.

Occasional, on *Zostera* and *Chorda*. Dredged by the Survey in Vineyard Haven in 4 fathoms on *Zostera*, over stony and muddy bottoms.

Vineyard Haven station 69, many on *Zostera*; 70 (few on *Zostera*).

Summer.

Schuh, 1900a, p. 111, 112, growing on *Chorda* and washed ashore at Vineyard Haven, August 27, 1892; Schuh, 1901, p. 218, a more complete description of the genus than the reference above.

*Scytosiphon lomentarius* (Lyngbye) J. Agardh.

Common, rocks and stones near low-water mark.

Woods Hole: Grassy Ledge, Little Harbor off Juniper Point, Devils Foot Island, Ram Island, Gut of Canso.

*Scytosiphon lomentarius*—Continued.

Vineyard Sound: Gay Head at stations 50 and 51, many.

Winter, spring, early summer, after which it goes out of season except in favorable situations.

## Family STRIARIACEÆ.

*Striaria attenuata* Greville.

Rare.

Woods Hole: Washed ashore Little Harbor and Nobska Beach. Edgartown (King).

Summer, January (King).

Farlow, 1882, p. 64, 66, material found by J. D. King at Edgartown in January, supposed by Mr. King to have grown at the mouth of Edgartown harbor.

## Family DESMARESTIACEÆ.

*Arthrocladia villosa* (Hudson) Duby. [Chart 230.]

Occasional, on stones and shells in fairly deep water. Dredged by the Survey in 4 to 13 fathoms, over sand and gravel bottoms. A scattered distribution in Buzzards Bay and Vineyard Sound.

Woods Hole: Washed ashore Little Harbor, Nobska Beach. Falmouth Heights (Collins). Robinsons Hole.

Buzzards Bay: Upper portion—7653, few. Inshore—Cuttyhunk 100, 101, and 103, few; cove west of Cuttyhunk Neck July 27, 1905, great quantities, Hog Island Point 134, two.

Vineyard Sound: Westerly portion—stations 7725, 7728 and 7729, few; 7734, many. Narrow portion—7732, few; 7733, many; 39, one. Easterly portion—7755, one. Inshore—Cuttyhunk 38, few; Gay Head 56, many; Menemsha Bight 53 and 54, many; Marthas Vineyard 65 and 73, few.

Summer.

Farlow, 1881, p. 183, Falmouth Heights (F. S. Collins); Hervey, 1882, p. 126, 127, Menemsha, East Falmouth; Peters, 1885, p. 62, Woods Hole; A. A. B. Ex., fas. v, no. 194, Falmouth, August, 1883 (G. W. Perry); P. B.-A., fas., D, no. xxx, cove west of Cuttyhunk Neck, July 27, 1905 (B. M. Davis and Miss L. J. MacRae).

*Desmarestia aculeata* (Linnæus) Lamouroux. [Chart 231.]

Common, off exposed shores on stones and over sand. Dredged by the Survey in 1½ to 14 fathoms, over sandy and stony bottoms. Confined almost entirely to the lower portion of Buzzards Bay and the westerly portion of Vineyard Sound.

*Desmarestia aculeata*—Continued.

Buzzards Bay: Upper portion—7653 and 7655, few. Lower portion—7656, 7657, 7662 and 7671, few. Inshore—Sow and Figs 111, many; Cuttyhunk 100, 102, and 103, few; cove west of Cuttyhunk Neck, July 27, 1905, many; Penikese 113, many; 114, few; Pasque 82, few; 83, many; Robinsons Hole 86, many. Drifted fragments, 7664, 7665, 81.

Vineyard Sound: Westerly portion—7718, many; 7719, 2 large plants; 7720, 2 large plants; 7730, few; 7701, 2 large plants; 7566, 7588, 7595, and 7596, few. Narrow portion—7739, many. Inshore—Robinsons Hole 20, many; 21, 22, and 23, few; Pasque 24, many; 26, few; Quicks Hole 27 and 29, many; Nashawena 30, few; Cuttyhunk 33, 34, and 38, many; Gay Head 46, 47, 48, and 56, few; 57, many; 59 and 60, few; 7731, several large plants; Marthas Vineyard 65, few. Drifted fragments, 7583, 7707, 7738.

Summer.

Farlow, 1873, p. 285, Woods Hole.

*Desmarestia viridis* (Flora Danica) Lamouroux.  
[Chart 232.]

Common, on stones and algæ below low-water mark. Dredged by the Survey in 2 to 15 fathoms, over sandy and stony bottoms. In the lower portion of Buzzards Bay chiefly, but rather generally distributed throughout Vineyard Sound.

Woods Hole: Grassy Ledge, entrance to Eel Pond.

Buzzards Bay: Upper portion—7653, many; 7654, few. Lower portion—7665, few. Inshore—Sow and Figs 111, few; Cuttyhunk 100, many; 101 and 102, few; Nashawena 78 and 80, few; Pasque 82, few. Drifted fragments, 7610, 7611, 7651 (1907), 79, 81.

Vineyard Sound: Westerly portion—7720, one on *Chondrus*; 7725, one; 7728 and 7730, few on *Polysiphonia nigrescens*; 7677, 7678, 7706, and 7707, few; 7710, one on *Phyllophora*; 7734, few. Narrow portion—7522 bis, one; 7524 bis, one; 7525 bis, many; 7543 bis, and 7549 bis, few. Inshore—Nonamesset 8, few; Naushon 6, few; 9, two; 10, 11, 12, 15, one each; Tarpaulin Cove 17, many; July 18, 1903, haul 2, one; Robinsons Hole 20, few; 22, many; 23, few; Pasque 24, one; Quicks Hole 27, few; Cuttyhunk 32 and 33, few; Gay Head 46, few; 57 and 58, many; 59, few; 7731, many; 7731 (1907) many; Menemsha Bight, July 15, 1905, hauls 1, one; 2, many; 3, few. Drifted fragments 7698.

Spring, summer.

## Family DICTYOSIPHONACEÆ.

*Dictyosiphon fœniculaceus* (Hudson) Greville.

Occasional, on *Chordaria*, *Scytosiphon* and larger algæ below low-water mark.

Woods Hole: On piles steamboat wharf, Eel Pond, Little Harbor. Naushon (Farlow).

Spring.

Farlow, 1873, p. 285, Naushon; Farlow, 1881, p. 66, Woods Hole.

*Dictyosiphon hippuroides* (Lyngbye) Areschoug.  
[Chart 233.]

Common, on stones and in sand below low-water mark. Dredged by the Survey in 3 to 10 fathoms, over sandy and stony bottoms. Scattered distribution in Buzzards Bay and Vineyard Sound.

Woods Hole: Grassy Ledge.

Buzzards Bay: Lower portion—7656, many. Inshore—Cuttyhunk 101, few; Penikese 113 and 114, few; Gull Island 115, few; Pasque 82, many; Quisset 129, few; Gunning Point 131, few.

Vineyard Sound: Westerly portion—7676, one; 7725, many; 7729, one; 7730, one. Easterly portion—7760, one. Inshore—Cuttyhunk 38, few; Devils Bridge Gay Head, August 17, 1903, hauls 3, few; 4, many; Marthas Vineyard 74, 75 and 7761, few; Vineyard Haven 7762, few. Summer.

To *Dictyosiphon hippuroides* we have referred the common species of the summer, which compares well with material and descriptions of this form. It is, however, a puzzling species which should be studied at other seasons of the year to make certain its affinities. It seems possible that this form may be a late seasonal condition of *Dictyosiphon fœniculaceus*, very common in this region in the spring.

## Family MYRIOTRICHACEÆ.

*Myriotrichia filiformis* Harvey.

Common, on *Scytosiphon* and *Sargassum*.

Woods Hole: Entrance to Eel Pond, Juniper Point.

Summer.

## Family ELACHISTACEÆ.

*Elachista fucicola* (Velley) Fries.

Abundant, attached to *Fucus* and *Ascophyllum*.

Woods Hole: Grassy Ledge, Juniper Point. Black Rock.

Buzzards Bay: Drifted fragments, 7617.

Vineyard Sound: Drifted fragments, 7523, 29.

Summer.

Farlow, 1873, p. 286, Woods Hole.

*Elachista stellaris* var. *Chordæ* Areschoug.

Occasional, on *Stilophora rhizodes*.

Falmouth (Collins).

September (Collins).

Collins, 1891, pp. 339, 340, on *Stilophora rhizodes*, Falmouth, in September.

*Giraudia sphaclarioides* Derbès & Solier.

Rare, on *Zostera*, intermingled with *Punctaria*, *Ectocarpus*, and various small species.

Vineyard Haven (Schuh) and Oak Bluffs (Cottage City, Schuh).

August, 1892, January, 1895.

Schuh, 1906b, p. 206, Vineyard Haven, August, 1892, Oak Bluffs (Cottage City), January, 1895.

## Family CHORDARIACEÆ.

*Castagnea virescens* (Carmichael) Thuret.

Occasional, on rocks, algæ, and *Zostera*, below low-water mark.

Woods Hole: Great Harbor, Little Harbor. Washed ashore at Nobska.

Spring, early summer.

Farlow, 1876, p. 708, Woods Hole; Farlow, 1881, pp. 85, 86, Woods Hole.

*Castagnea Zosteræ* (Mohr) Thuret.

Common, attached to *Zostera*.

Woods Hole: Grassy Ledge, Little Harbor.

Late summer.

Farlow, 1876, p. 708, Woods Hole; Farlow, 1881, p. 86, Woods Hole.

*Chordaria flagelliformis* (Flora Danica) Agardh.

Common, on stones, wharves, and larger algæ below low-water mark. Dredged by the Survey in 3 to 10 fathoms, over sandy, shelly, and gravelly bottoms. A scattered distribution in Buzzards Bay and Vineyard Sound.

Woods Hole: Grassy Ledge, Gut of Canso. Nobska. Black Rock.

Buzzards Bay: Upper portion—7653 and 7654, few. Lower portion—7656, many on stones; 7667, few on stones.

Vineyard Sound: Narrow portion—7524, one; 7525, few. Inshore—passage of Woods Hole 118, few on *Chondrus*; Quicks Hole 29, few; Gay Head 50 and 51, thick patches on rocks; Marthas Vineyard 52, 61, 68, 76, and 7761, few on stones. Drifted fragment, 60, one.

Spring, summer.

Farlow, 1873, p. 285, Nobska, Gay Head.

*Hecatonema maculans* (Collins) Sauvageau.

Occasional, on *Zostera*, *Rhodymenia palmata*.

Woods Hole: (Collins). No Mans Land.

Summer. May 2, 1905 (Collins).

*Leathesia difformis* (Linnæus) Areschoug.

Abundant, attached to larger algæ, *Ascophyllum*, *Fucus*, etc. Dredged by the Survey off Cuttyhunk and in Robinsons Hole, 2 to 5 fathoms over sandy and muddy bottoms.

Woods Hole: Grassy Ledge, Little Harbor.

Buzzards Bay: Inshore—100, few on *Phyllophora*.

Vineyard Sound: Inshore—Robinsons Hole 20, few on *Chondrus*; 29, few on stones. Drifted fragments, 7688, 83.

Summer.

Farlow, 1873, p. 286 (*Leathesia tuberiformis* S. F. Gray), Buzzards Bay; P. B.-A. fas. III, no. 130, Woods Hole, August 14, 1894 (W. A. Setchell).

*Mesogloia divaricata* (Agardh) Kützing.

Abundant in quiet water, attached to larger algæ and stones below low-water mark. Dredged by the Survey in 3 to 6 fathoms, over sandy and stony bottoms.

Woods Hole: Great Harbor, Grassy Ledge, Little Harbor. Black Rock.

Buzzards Bay: Inshore—near Gunning Point, station 130, many.

Vineyard Sound: Narrow portion—7548, few. Inshore—Marthas Vineyard 73, many. Drifted fragments, 7681, 7688, 161.

Summer.

Farlow, 1873, p. 286 (*Chordaria divaricata* Agardh), Woods Hole; A. A. B. Ex., fas. v, no. 198, Woods Hole (W. G. Farlow).

*Myriactis pulvinata* Kützing, var. *minor* Farlow.

Common, parasitic in the cryptostomata of *Sargassum Filipendula*.

Woods Hole: Entrance to Eel Pond, off Juniper Point.

Summer.

Farlow, 1881, pp. 81, 82, Woods Hole; P. B.-A., fas. v, no. 231, Woods Hole, August 13, 1895.

*Myrionema coronnæ* Sauvageau.

Common, on *Laminaria*.

Woods Hole: Grassy Ledge (Collins).

December 30, 1904 (Collins).

Collins, 1906b, p. 158, Woods Hole, on *Laminaria*.

*Myrionema vulgare* Thuret.

Common, on *Zostera*, *Rhodymenia palmata*.

Woods Hole. Washed ashore at Gay Head.

Spring, summer.

Farlow, 1876, p. 709 (*Myrionema strangulans* Greville), Woods Hole; Farlow, 1876, p. 709 (*Myrionema Leclancherii* Harvey), Gay Head; P. B.-A., fas. VI, no. 280 [*Myrionema Leclancherii* (Chauvin) Harvey], on *Rhodymenia palmata*, Gay Head, August 10, 1890 (W. A. Setchell).

## Family STILOPHORACEÆ.

*Stilophora rhizodes* (Turner) J. Agardh.

Occasional, attached to the base of *Zostera* below low-water mark. Dredged by the Survey in 2½ to 5 fathoms, over sandy and stony bottoms at stations 130 and 131 off the east shore in the upper portion of Buzzards Bay.

Washed ashore at Nobska, Waquoit (Farlow).

Buzzards Bay: Inshore—Gunning Point, 130 and 131 many on dark-colored dead *Zostera*.

Summer.

Farlow, 1873, p. 285, Waquoit.

## Family RALFSIACEÆ.

*Ralfsia clavata* (Carmichael) Farlow.

Abundant, on stones and shells at low-water mark. Dredged by the Survey in 3 to 12 fathoms, over sandy, shelly, and gravelly bottoms. Widely scattered at the inshore stations in Buzzards Bay and Vineyard Sound.

Woods Hole: Grassy Ledge, Eel Pond, Ram Island, Little Harbor. Buzzards Bay shore. Tarpaulin Cove.

Buzzards Bay: Lower portion—7671, few. Inshore—Cuttyhunk 102 and 103, few; Gull Island 115 and 116, many; Weepeckets 108, few; Uncatena 117, few on shells; Penzance 123, few; Quisset 128, many; Gunning Point 131, many; West Falmouth 132, many; 137, one; Hog Island Point 134, many; Sconticut Neck 163, few; Mishaum Point 167, many.

Vineyard Sound: Narrow portion—7524 bis, one. Easterly portion—7780, few. Inshore—Gay Head 56, few; 57, many; 58 and 59, few; also off Devils Bridge August 17, 1903, many; Menemsha Bight July 17, 1905, haul 3, few; Marthas Vineyard 52, 61, 62, and 63, few; 65, many; 66 and 68, few; 69, 73, 74, 76 and 77, many.

Summer.

Farlow, 1881, p. 88, Woods Hole.

*Ralfsia verrucosa* (Areschoug) J. Agardh.

Common, on stones near low-water mark.

Woods Hole: Grassy Ledge, Little Harbor. Tarpaulin Cove.

Summer.

## Family LAMINARIACEÆ.

*Agarum Turneri* Postels & Ruprecht.

Occasional.

Washed ashore at Gay Head.

Summer.

*Alaria esculenta* (Linnæus) Greville.

Occasionally washed ashore at Gay Head.

Summer.

*Chorda filum* (Linnæus) Stackhouse. [Chart 234.]

Common, on stones and shells below low-water mark. Dredged by the Survey in 2 to 14 fathoms, over sandy bottoms. A scattered distribution in Buzzards Bay and Vineyard Sound.

Woods Hole: Great Harbor, Grassy Ledge, entrance to Eel Pond, Little Harbor off Juniper Point. Black Rock.

Buzzards Bay: Lower portion—7656, one. Inshore—Cuttyhunk 100, 101, and 102, few; Gull Island 116, many; Naushon 91 and 96, few; Weepeckets 108, few; Gunning Point 131, few.

Vineyard Sound: Westerly portion—7571, 7567 and 7591, few. Narrow portion—7542 bis, one; 7551, 7557 and 7559, few. Inshore—Robinsons Hole 21, many; 22, few; Quicks Hole 29, many; Gay Head 50 and 51, patches in shallow water; 47 and 49, few; Menemsha Bight 53 and 54, few; Marthas Vineyard 73, few. Drifted fragments, 7573, 7676, 7688, 7706, 7710, 7730, 7731, 7733, 7754.

Summer.

*Chorda tomentosa* Lyngbye.

Common, on piles of wharves, stones, and shells below low-water mark.

Woods Hole: Piles of steamboat wharf, entrance to Eel Pond, Grassy Ledge.

Spring.

*Laminaria Agardhii* Kjellman. Kelp, devils apron. [Chart 235.]

Common, on wharves, stones, and shells below low-water mark. Dredged by the Survey in 2 to 17 fathoms, over sandy, shelly, and stony bottoms. Chiefly in the lower portion of Buzzards Bay, but widely distributed through Vineyard Sound.

Woods Hole: Great Harbor, entrance to Eel Pond, off Grassy Ledge in ship channel. Wharf at Gay Head.

Buzzards Bay: Upper portion—7653 and 7654, few. Lower portion—7656 and 7657, many; 7660, one; 7662, two; 7663, few. Inshore—Cuttyhunk 101 and 104, few; Gull Island 115 and 116, few. Drifted fragments, 7617, 7619, 7637, 7638, 7672, (1907), 78, 79, 80, 82, 99.

Vineyard Sound: Westerly portion—7581 (1907), one; 7582, 7583, 7584, 7588, 7589, 7592, 7593, 7595 and 7599, few; 7677, 7702, 7703, 7706, one each; 7718, very many; 7719, one; 7728, few. Narrow portion—7524 bis, one; 7525 bis, many; 7532 bis, 7533 bis, 7536, 7541, one each; 7557, few; 7732, one; 7739, few; 7740, few; 7749, few. Easterly portion—7755, one; 7767, few; 7775, one; 7776, one. Inshore—Woods Hole



*Laminaria Agardhii*—Continued.

passage 121, many; Tarpaulin Cove July 18, 1903, haul 1 and 3, few; Robinsons Hole 22, few; Pasque 24, many; 26, few; Quicks Hole 28, one; Cuttyhunk 32, 33, and 34, few; 38, many; Gay Head 50 and 51, few, 44, 45, 46, 47, 49, 57, 59, and 60, few; 7731, one; also off Devils Bridge, August 17, 1903, haul 5, many; Menemsha Bight July 17, 1905, hauls 1, 2, and 3, few; Marthas Vineyard 65, one; 7761, one. Drifted fragments, 7530, 7572, 7585, 7589, 7676, 7710, 7720, 7736, 7753, 7760, 7762, 7766, 7780.

At all seasons.

Farlow, 1873, p. 285 (*Laminaria saccharina* Lamouroux), Gay Head, Woods Hole; P. B.-A., fas. D, no. LXXXII (*Laminaria Agardhii* forma *normalis* Setchell), Woods Hole, May, 1905 (Miss L. J. MacRae).

*Laminaria Agardhii* var. *vittata* Setchell. [Chart 236.]

Common, attached to stones, wharves, etc., below low-water mark. Dredged in 2 to 17 fathoms, over sandy, shelly, and stony bottoms. Largely restricted to the lower portion of Buzzards Bay and the westerly portion of Vineyard Sound.

Woods Hole: Great Harbor steamboat wharves.

Buzzards Bay: Lower portion—7664, one; 7665, two; 7666, 7667, and 7671, few; 7670, many. Inshore—Sow and Pigs 111, many; Cuttyhunk 100, few; 112, many; cove west of Cuttyhunk Neck July 27, 1905, many. Drifted fragments, 7669.

Vineyard Sound: Westerly portion—7582, 1 on *Phyllophora*; 7583, few; 7679, 7680, 7681, one each; 7701, 7704, and 7706, few; 7707, one; 7719, one; 7720, few on *Chondrus*; 7723 and 7724, few. Narrow portion—7551, few; 7549, one. Inshore—Robinsons Hole 21, many; Pasque

*Laminaria Agardhii* var. *vittata*—Continued.

24, many; 26, few; Quicks Hole 27 many; Nashawena 30, few; Cuttyhunk 32, 33, 34, and 38, few; Sow and Pigs 36 and 37, few; Gay Head 44, 45, and 47, few; 57, many; 59 and 60, few; 7731, many; Marthas Vineyard 65, many. Drifted fragments, 7554, 7686, 7688, 7709. Spring, summer, probably at all seasons.

*Laminaria digitata* (Linnæus) Lamouroux. Kelp, devil's apron. [Chart 237.]

Occasional, attached to stones and rocks off exposed points. Dredged by the Survey off Gay Head in 3 to 13 fathoms, over sandy and stony bottoms.

Wharf at Gay Head.

Buzzards Bay: Drifted fragment, 7639.

Vineyard Sound: Westerly portion—7593, few; 7722, one. Inshore—Gay Head 44, 48, 50, and 51, few; also off Devils Bridge August 17, 1903, haul 5, many.

Summer, probably at all seasons.

Farlow, 1873, p. 285, Gay Head; Farlow, 1881, p. 94, Gay Head; Setchell, 1900, p. 144 (*Laminaria digitata* forma *typica* Foslie), Gay Head.

Family TILOPTERIDACEÆ.

*Haplospora globosa* Kjellman.

Rare.

Edgartown (King).

January (King).

Collins, 1899, p. 126, found at Edgartown by J. D. King.

*Scaphospora Kingii* Farlow.

Rare.

Washed ashore Edgartown (King).

January, 1882 (King).

Farlow, 1882, p. 67, found at Edgartown, January, 1882, by J. D. King.

Order CYCLOSPORALES.

Family FUCACEÆ.

*Ascophyllum nodosum* (Linnæus) Le Jolis. Rockweed.

Common, attached to rocks near low-water mark. Woods Hole: Great Harbor, Grassy Ledge, Ram Island, Juniper Point, Little Harbor. Buzzards Bay shore. Black Rock.

Buzzards Bay: Drifted fragments, 7615, 7617, 7620, 7622, 7629, 7630, 7634, 7635, 7639, 7652, 7663, 7670, 7672, 78, 80, 82, 131, 146, 148, 151.

Vineyard Sound: Drifted fragments, 7537, 7550 bis, 7551, 7570, 7576, 7599, 7720, 7759, 1, 26.

At all seasons, fruiting during May.

*Fucus evanescens* Agardh.

Common, attached to rocks.

Woods Hole: Harbor walls, entrance to Eel Pond, Red Ledge, Gut of Canso. Gay Head.

Vineyard Sound: Drifted fragment, 7731.

Spring, early summer.

*Fucus platycarpus* Thuret.

Occasional, attached to rocks.

Woods Hole: Entrance to Eel Pond.

Summer.

*Fucus vesiculosus* Linnæus. Rockweed.

Abundant, on stones, harbor walls, and wharves.

*Fucus vesiculosus*—Continued.

Woods Hole: Great Harbor, Grassy Ledge, Ram Island, Devils Foot Island, Juniper Point, Little Harbor. Gay Head 50 and 51 (large form without bladders). Black Rock.

Buzzards Bay: Drifted fragments, 7629, 7636, 7651 (1907), 82.

Vineyard Sound: Drifted fragments, 7523, 7525 bis, 7588, 7728, 7730, 7749, 29.

At all seasons.

*Fucus vesiculosus* var. *laterifructus* Greville.

Common, on stones between tide marks.

Woods Hole: Devils Foot Island.

At all seasons.

*Fucus vesiculosus* forma *limicola* Collins.

Common, on muddy shores and flats near high-water mark.

Woods Hole: Little Harbor, Devils Foot Island, Ram Island. Mattapoisett (Collins).

Spring, summer.

P. B.-A., fas. xxiii, no. 1133, Mattapoisett, September 14, 1902 (F. S. Collins).

*Fucus vesiculosus* var. *sphaerocarpus* Farlow.

Occasional, on flat rocks well above low-tide mark.

Woods Hole. Gay Head at stations 50 and 51, on flat rocks. Black Rock.

Spring, summer.

*Fucus vesiculosus* var. *spiralis* Farlow.

Occasional, above low-water mark, frequently unattached over muddy or grassy bottom.

Woods Hole: Little Harbor.

Spring, summer.

*Sargassum bacciferum* (Turner) J. Agardh.

Occasional, floating in Vineyard Sound.

Summer.

This plant is believed to come from the Gulf Stream, being carried into the waters of Vineyard Sound after heavy storms.

*Sargassum Filipendula* Agardh. [Chart 238.]

Common, attached to rocks and stones below low-water mark. Dredged by the Survey in 2½ to 15 fathoms, over sandy, shelly, and stony bottoms. Common in the upper portion

*Sargassum Filipendula*—Continued.

of Buzzards Bay along the easterly shore, and widely distributed throughout the narrow and easterly portion of Vineyard Sound.

Woods Hole: Entrance to Eel Pond, off Juniper Point. Hadley Harbor. Black Rock.

Buzzards Bay: Upper portion—7630 (1907), few, 7632, one; 7639 and 7654, few. Lower portion—7657, few. Inshore—Gull Island 116, few; Uncatena 117, many; Penzance 123, many; Quisset 128 and 129, few; 130, many; Gunning Point 131, many on sulphur sponges; West Falmouth 132, one; Hog Island Point 134, many; Hog Island Harbor 135, few; North Falmouth 136, few; 137, many; 138, two; Nyes Neck 141, many; Cataumet Harbor 142, few; Scraggy Neck 145, many; Bassetts Island 146, few; Wings Neck 147 and 148, few. Drifted fragments, 7621 (1907), 7626, 7627, 7628, 7629, 7633, 7634, 7636, 7638, 7661, 150, 151, 152, 159, 165.

Vineyard Sound: Narrow portion—7525 bis and 7533 bis, few; 7537, one; 7554, 7555 and 7557, few; 7740, two; 7742, 7744, 7749, 7750, 7753, one each. Easterly portion—7755, one; 7760, few; 7761 (1907), few; 7763, 7764, 7766, and 7767, few; 7772, 7775, 7776, 7778, one each; 7780, 7781 and 7783, few. Inshore—passage of Woods Hole 121, few; Nonamesset 1, one; 8, one; Menemsha Bight July 17, 1905, haul 1, one; Marthas Vineyard 73 and 77, few; Vineyard Haven 7761, many; 7762, few. Drifted fragments, 7523, 7532, 7546, 7550 bis, 7581, 7599, 7701, 7728, 7729, 7730, 7733, 7751, 7759, 7782, 118.

At all seasons, but most luxuriant in the summer when it fruits abundantly.

Farlow, 1873, p. 283, 284, (*Sargassum vulgare* Agardh), Woods Hole; Farlow, 1875, p. 353 (*Sargassum vulgare*), Woods Hole; P. B.-A., fas. D, no. xcvi, Juniper Point (Butlers Point), Woods Hole, August 15, 1904 (F. S. Collins).

*Sargassum Filipendula* var. *subdentatum* J. Agardh

Occasional, attached to stones below low-water mark.

Woods Hole.

Summer.

## CLASS RHODOPHYCEÆ.

## Order BANGIALES.

## Family BANGIACEÆ.

*Bangia fusco-purpurea* (Dillwyn) Lyngbye.

Common, attached to stones and woodwork of wharves between tide marks.

Woods Hole: Harbor walls and wharves, Grassy ledge on rocks along ship channel, Little Harbor on Government wharves, Juniper Point.

Spring, summer.

Farlow, 1873, p. 292, Woods Hole; P. B.-A., fas. II, no. 87, Juniper Point (Butlers Point), Woods Hole, July, 1893 (W. A. Setchell).

*Erythrotrichia ceramicola* (Lyngbye) Areschoug.

Common, on *Zostera* in company with *Chantransia virgatula*, occasional on *Desmarestia viridis*.

Woods Hole: Grassy Ledge, Eel Pond, Little Harbor. Robinsons Hole (I. F. Lewis).

Spring, summer.

*Erythrotrichia ceramicola*—Continued.

Farlow, 1876, p. 707, Buzzards Bay; Collins, 1908, p. 134; Robinsons Hole, August, 1907.

*Porphyra laciniata* (Lightfoot) Agardh.

Common, attached to stones and woodwork of wharves near low-water mark.

Woods Hole: Entrance to Eel Pond, Bureau of Fisheries wharves, harbor walls, Grassy Ledge. At all seasons.

Farlow, 1873, p. 292 (*Porphyra vulgaris* Agardh), Woods Hole.

*Porphyra leucosticta* Thuret.

Common, on *Zostera* and larger algæ.

Woods Hole: Great Harbor, Little Harbor. Oak Bluffs (Cottage City, King).

Spring.

Collins, 1884, pp. 131, 132, Oak Bluffs (Cottage City, J. D. King).

## Order NEMALIONALES.

## Family NEMALIONACEÆ.

*Acrochatium Dasyæ* Collins.

Occasional, on *Dasya elegans*.

Woods Hole (Collins).

September 2, 1905 (Collins).

Collins, 1906c, p. 191, Woods Hole, September 2, 1905, on *Dasya elegans*. P. B.-A., fas. XXVII, no. 1342, Woods Hole, September 2, 1905 (F. S. Collins).

*Acrochatium Daviesii* (Dillwyn) Nägeli.

Occasional, on *Desmarestia viridis*.

Robinsons Hole (I. F. Lewis).

August, 1907.

Collins, 1908, p. 134, Robinsons Hole, August, 1907.

Synonym, *Chantransia Daviesii* (Dillwyn) Thuret, P. B.-A., fas. XVIII, no. 880.

*Acrochatium minimum* Collins.

Occasional, on *Desmarestia viridis*.

Robinsons Hole (I. F. Lewis).

August, 1907.

Collins, 1908, p. 133, Robinsons Hole, August, 1907.

*Acrochatium secundatum* (Lyngbye) Nägeli.

Common, attached to *Zostera*, *Ceramium rubrum*, *Porphyra laciniata*, etc.

Woods Hole: Grassy Ledge, Juniper Point.

Summer, winter, probably at all seasons.

Synonym, *Chantransia secundata* (Lyngbye) Thuret, P. B.-A., fas. XXII, no. 1088, not no. 236.

*Acrochatium virgatulum* (Harvey) Bornet

Abundant, fringing *Zostera*, and occasionally on *Ceramium rubrum*.

Woods Hole: Eel Pond, Grassy Ledge, Little Harbor.

Summer, probably at other seasons.

Synonym, *Trentepohlia virgatula* var. *secundata* (Farlow, 1881, p. 109).

*Chantransia efflorescens* var. *Thuretii* Bornet.

Occasional, attached to *Ceramium rubrum* and *Cystoclonium purpurascens*.

Woods Hole: Off Juniper Point at a depth of from 1 to 3 meters (Nott). Gay Head (Farlow).

Summer, July, 1895 (Nott).

Farlow, 1876, p. 705 (*Chantransia Daviesii* Thuret), Gay Head; Farlow, 1881, p. 109 (*Trentepohlia Daviesii*, Harvey), Gay Head, on *Cystoclonium purpurascens*; Collins, 1896a, p. 5 (*Chantransia corymbifera* Thuret), Woods Hole, on *Ceramium rubrum* and *Cystoclonium purpurascens* (C. P. Nott); P. B.-A., fas. IV, no. 192 (*Chantransia corymbifera* Thuret), Woods Hole, July 15 to 20, 1895 (C. P. Nott).

*Nemalion multifidum* (Weber & Mohr) J. Agardh.

Common, attached to rocks between tide marks.

Woods Hole: Juniper Point, Grassy Ledge. Cuttyhunk. Penikese. Gay Head. Black Rock.

Summer, probably at other seasons.

*Nemalion multifidum*—Continued.

P. B.-A., fas. IV, no. 193b, Juniper Point (Butlers Point), Woods Hole, July, 1895 (Mrs. R. A. Esten).

## Family CHÆTANGIACEÆ.

*Scinaia furcellata* (Turner) Bivona.

Occasional, attached to stones and shells below low-water mark. Dredged by the Survey off Gay Head and Cuttyhunk in 1½ to 9 fathoms, over sandy and stony bottoms.

Woods Hole: Dredged in the Hole in previous years. Washed ashore at Nobska and Gay Head.

Buzzards Bay: Inshore—Cuttyhunk, station 103, one; cove west of Cuttyhunk Neck July 27, 1905, few.

Vineyard Sound: Inshore—Robinsons Hole, station 21, many; Gay Head 57, few.

*Scinaia furcellata*—Continued.

Summer.

Farlow, 1873, p. 290, Gay Head; Farlow, 1875, p. 367, Gay Head; Farlow, 1876, p. 699, Gay Head; Farlow, 1881, p. 118, Devils Bridge off Gay Head on shells of *Mytilus*; P. B.-A., fas. IV, no. 194, floating off Cuttyhunk, August 13, 1895 (C. P. Nott).

## Family GELIDIACEÆ.

*Gelidium crinale* (Turner) J. Agardh.

Occasional, attached to rocks and stones near low-water mark.

Woods Hole: Along the shore of Buzzards Bay. Black Rock.

Summer.

Farlow, 1876, p. 697 (*Gelidium corneum* var. *crinale*), Woods Hole; Farlow, 1881, p. 158, Woods Hole.

## Order CERAMIALES.

## Family CERAMIACEÆ.

*Antithamnion americanum* (Harvey) Farlow.

Occasional, on wharves and larger algæ.

Woods Hole: Harbor wharves (MacRae).

Washed ashore at Nobska.

Spring, 1904 (MacRae). Summer.

*Antithamnion cruciatum* (Agardh) Nägeli. [Chart 239.]

Common, attached to stones, larger algæ, and *Zostera*, below low-water mark. Dredged by the Survey in 3 to 15 fathoms, over sandy, shelly, and stony bottoms, frequently attached *Phyllophora*, *Chondrus*, and *Polyides*. Generally distributed inshore along the Elizabeth Islands and Marthas Vineyard, and in the easterly portion of Vineyard Sound. Black Rock.

Buzzards Bay: Lower portion—7671, few. Inshore—Sow and Pigs 111, many; Cuttyhunk 112, many; 100, 101 and 102, few; Penikese 113, many; Gull Island 116, few; Nashawena 78, 79, 80, and 81, few; Pasque 82, many; 84, few; Naushon 86, many; 87 and 90, few; 91, many; Weepeckets 108, few on shells: Nyes Neck 140, few on sulphur sponges.

Vineyard Sound: Westerly portion—7566, 7571, 7690, and 7720, few; 7724, many; 7730, few; 7734, few on *Cladostephus*; 7735, many. Narrow portion—7521 bis, 7522 bis, 7523 bis, 7533 bis, and 7541 bis, few; 7543 bis, many on *Diopatra* tubes; 7554 bis, many; 7732, 7744, and 7745, few. Easterly portion—7757, few on shells; 7760, few; 7764, many; 7765 and 7766, few; 7768, many on *Chondrus*; 7770, many on

*Antithamnion cruciatum*—Continued.

*Phyllophora*; 7771, few; 7772, many on *Chondrus*; 7773, many; 7774, few; 7775, many on *Phyllophora*; 7779 and 7780, few. Inshore—Great Ledge, Woods Hole 4, few; Nonamesset 1, many; 2 and 3, few; 8, many; Naushon 9, 10, 11, 12, 6 and 7, few; 14, one; 16, many attached to *Phyllophora*; Tarpaulin Cove 17, many on *Zostera*; Robinsons Hole 22 and 23, many on *Phyllophora*; Pasque 25, many; Gay Head 56, few; Menemsha Bight July 17, 1905, haul 1, many; Marthas Vineyard 52, 61, and 62, few; 63 and 64, many; 65, few; 69, many; 70 and 73, few; 74, many; 77, few. Drifted fragments, 7751.

Summer.

Farlow, 1873, p. 292 (*Callithamnion cruciatum* Agardh), Weepecket; Farlow, 1881, p. 122 (*Callithamnion cruciatum* Agardh), Woods Hole, Vineyard Sound.

*Antithamnion cruciatum* var. *radicans* J. Agardh.

Occasional, on piles of wharves.

Woods Hole: Piles of Government wharf in Little Harbor (Setchell).

July 17, 1890 (Setchell).

Collins, 1899, p. 125, Woods Hole (W. A. Setchell).

*Antithamnion plumula* (Ellis) Thuret.

Occasional, attached to stones, shells, and larger algæ below low-water mark. Dredged by the Survey in 2 to 9 fathoms (once in 12½ fathoms), over sandy and stony bottoms. A scattered distribution in the lower portion of Buzzards Bay and westerly portion of Vineyard Sound.

*Antithamnion plumula*—Continued.

Buzzards Bay: Inshore—Cuttyhunk 103, few; Pasque 84, few attached to shells. Drifted fragments, 7624.

Vineyard Sound: Westerly portion—7678, one. Inshore—Tarpaulin Cove 17, on *Zostera*; Gay Head 57 and 58, few on larger algæ; Menemsha Bight, July 17, 1905, hauls 1 and 2, few.

Summer.

Farlow, 1873, p. 292 (*Callithamnion Plumula* Lyngbye), Devils Back Gay Head; Farlow, 1875, p. 376 (*Callithamnion Plumula* Lyngbye) Gay Head; Farlow, 1876, p. 704 (*Callithamnion Plumula* Lyngbye), Gay Head; Farlow, 1881, p. 124 (*Callithamnion Plumula* Lyngbye), Gay Head; Farlow, 1882, p. 68 (*Callithamnion Plumula* Lyngbye), Gay Head, an antheridial plant collected in September.

*Antithamnion Pylaisæi* (Montagne) Kjellman.

Rare, on wharves and algæ below low-water mark.

Woods Hole (Farlow).

Farlow, 1881, p. 123 (*Callithamnion Pylaisæi* Montagne), Woods Hole.

*Callithamnion Baileyi* Harvey.

Common, on rocks, stones, wharves, larger algæ, and *Zostera*. Dredged by the Survey in 3 to 13 fathoms, frequently attached to *Desmarestia*, *Chondrus*, *Phyllophora*, and *Cystoclonium*, over sandy and stony bottoms. A scattered distribution inshore along the Elizabeth Islands, Gay Head, and in the easterly portion of Vineyard Sound.

Woods Hole: Steamboat wharves, Grassy Ledge, Government wharves Little Harbor, Juniper Point. Black Rock.

Buzzards Bay: Upper portion—7653, few on *Desmarestia*. Lower portion—7656, many on *Desmarestia*. Inshore—Pasque 82, many; 90 and 91, few on *Phyllophora*; Weepeckets 108, few on *Phyllophora*.

Vineyard Sound: Narrow portion—7523, few on *Cystoclonium*; 7547 bis, two; 7739 (1907), few. Easterly portion—7768 and 7772, many on *Phyllophora*; 7778, one. Inshore—Nonamesset 1, few; Tarpaulin Cove 17, few; July 18, 1903, hauls 1, 3, and 4, few; Pasque 24 and 25, many on *Phyllophora*; 26, few on *Phyllophora*; Quicks Hole 27, many on *Desmarestia*; Gay Head 50 and 51, many on *Chondrus*. Drifted fragments, 7755.

Summer.

16269°—Bull. 31, pt 2—13—18

*Callithamnion Baileyi* var. *laxum* Farlow.

Common, with the typical form, on stones, larger algæ, and *Zostera*.

Woods Hole.

Summer.

Farlow, 1875, p. 376 (*Callithamnion Dietziæ* Hooper), Woods Hole; Farlow, 1893, p. 107, 108, (*Callithamnion Dietziæ* Hooper), Woods Hole.

*Callithamnion byssoideum* Arnott.

Common, attached to *Zostera*, and larger algæ. Dredged by the Survey in 3 to 6 fathoms, over sandy and stony bottoms. A scattered distribution along the easterly shore of the upper portion of Buzzards Bay.

Woods Hole: Grassy Ledge, Little Harbor. Weepecket (Farlow).

Buzzards Bay: Inshore—Quisset 129 and 130, many on dark-colored dead *Zostera*; West Falmouth 133, one; North Falmouth 137, many.

Summer.

Farlow, 1873, p. 292, Woods Hole, Weepecket.

*Callithamnion corymbosum* (English Botany) Agardh.

Occasional, attached to *Zostera*, and larger algæ. Dredged by the Survey in 2 to 4 fathoms, over sandy and stony bottoms at three widely separated stations.

Woods Hole: Grassy Ledge, Little Harbor. Gay Head and Weepecket (Farlow).

Buzzards Bay: Wings Neck, station 150, few on *Agardhiella*.

Vineyard Sound: Inshore—Marthas Vineyard 69, few; Vineyard Haven 70, few on *Zostera*, and larger algæ.

Summer.

Farlow, 1873, p. 292, Woods Hole, Gay Head, Weepecket; Farlow, 1881, pp. 128, 129, Woods Hole.

*Callithamnion roseum* (Roth) Harvey.

Common, on stones, shells, *Zostera*, and larger algæ. Dredged by the Survey in 3 to 13 fathoms, frequently attached to *Zostera*, *Phyllophora*, *Chondrus*, and *Sargassum*, over sandy, shelly, and stony bottoms. A scattered distribution inshore along the Elizabeth Islands and Marthas Vineyard, abundant in the easterly portion of Vineyard Sound.

Woods Hole: Grassy Ledge, dredged in the Hole in previous years. Black Rock. Washed ashore at Nobska, Cuttyhunk, and other points.

Buzzards Bay: Inshore—Cuttyhunk 101, 102, and 103, few; Gull Island 116, few; Pasque 83, few; Naushon 87, few; Weepeckets 108, few; Scraggy Neck 145, few.

*Callithamnion roseum*—Continued.

Vineyard Sound: Westerly portion—7725, few. Narrow portion—7521 bis, few on stones; 7744, few on *Phyllophora*; 7754, few. Easterly portion—7756, few; 7759, few; 7764, many; 7766, few; 7767, abundant on *Chondrus* and *Sargassum*; 7768, few; 7769, many on *Chondrus* and *Phyllophora*; 7770, many on *Phyllophora*; 7771, many unattached; 7772, many; 7773, few; 7774, many on *Phyllophora*; 7775, many; 7776, many on mussel shells; 7778, few; 7779, few; 7780, few; 7781, few; 7782, few. Inshore—Naushon 16, many; Gay Head 57, few on stones and rocks; Menemsha Bight, July 17, 1905, haul 2, few; Marthas Vineyard 61, few; 63, very many; 65, few; 69, many on larger algæ and *Zostera*; 76, few on larger algæ; 7761, many.

Summer.

Farlow, 1881, p. 125, 126, Woods Hole.

*Callithamnion tetragonum* (Withering) Agardh.

Occasional, on stones and algæ near low-water mark. Dredged by the Survey in 5 to 13½ fathoms, over sandy and stony bottoms, at three stations in the easterly portion of Vineyard Sound.

Woods Hole: Grassy Ledge. Robinsons Hole.

Vineyard Sound: Easterly portion—7764, many; 7765 and 7766, few.

Summer.

Farlow, 1873, p. 291, Woods Hole, Marthas Vineyard.

*Ceramium botryocarpum* Griffiths.

Occasional.

Penikese (Esten), probably along the shores of the Elizabeth Islands.

July 25, 1896.

Known from specimen in the herbarium of the Marine Biological Laboratory collected by Mrs. R. A. Esten.

*Ceramium capri-cornu* (Reinsch) Farlow.

Rare.

Cuttyhunk.

Summer.

*Ceramium fastigiatum* Harvey.

Common, on *Zostera*, and larger algæ. Dredged by the Survey in 2 to 7 fathoms, attached to *Zostera*, *Phyllophora*, etc., occasionally on stones, over sandy and stony bottoms. A widely scattered distribution at inshore stations in both Buzzards Bay and Vineyard Sound.

Woods Hole: Grassy Ledge. Weepecket (Farlow). Black Rock.

*Ceramium fastigiatum*—Continued.

Buzzards Bay: Inshore—Naushon 87, one; 90, few on *Phyllophora*; Quisset 130, many; Gunning Point 131, many; North Falmouth 136 and 137, many on *Zostera*; 138, few, 139, one; Nyes Neck 141, many. Drifted fragments, 7615, 7626.

Vineyard Sound: Narrow portion—7542, one; 7548, few. Inshore—Tarpaulin Cove July 18, 1903, haul 1, few; Robinsons Hole 20, many on stones, Cuttyhunk 33, 34, and 38, few; Gay Head 44, few on rocks and stones.

Summer.

Farlow, 1873, p. 291, Woods Hole, Weepecket.

*Ceramium pedicellatum* J. Agardh.

Occasional.

No Mans Land, probably along the shores of the Elizabeth Islands.

Summer, July 20, 1904.

*Ceramium rubrum* (Hudson) Agardh. [Chart 240.]

Very common, on stones, woodwork of wharves, *Zostera*, and larger algæ. Dredged by the Survey in 1 to 19 fathoms, attached to stones, *Zostera*, and larger algæ such as *Chorda*, *Chondrus*, and *Phyllophora*, over sandy, shelly, and stony bottoms. Distribution very general throughout Vineyard Sound and scattered in the lower portion of Buzzards Bay.

Woods Hole: Great Harbor, Grassy Ledge, entrance to Eel Pond, Little Harbor. Black Rock. Alongshore, Penikese, Cuttyhunk, Gay Head, Tarpaulin Cove.

Buzzards Bay: Lower portion—7656, many on *Chorda*; 7665 and 7670, few on stones. Inshore—Cuttyhunk 100 and 104, few on *Phyllophora*; Nashawena 79, few; Pasque 82, few. Drifted fragments 86.

Vineyard Sound: Westerly portion—7571, few on *Chorda*; 7575, few; 7576, few on *Champia*; 7583, 7589, 7593, 7676, and 7680, few; 7701, one; 7704, one; 7710, 7717, and 7719, few; 7721, many on *Chondrus*; 7722, many; 7734, few. Narrow portion—7524, 7525, 7538, and 7541 bis, few; 7542 bis, many on *Chorda*; 7548, few; 7551, many on *Chorda*; 7551 (1907), few; 7554, few; 7557, many on *Chorda*; 7559, 7560, 7565 bis, 7732, 7733, and 7739, few; 7746, one, 7749, one. Easterly portion—7755, many; 7761 (1907), many. Inshore—passage of Woods Hole 118, few; Great Ledge Woods Hole 4, 1 on stone; Tarpaulin Cove July 18, 1903, hauls 1 and 3, few; haul 4, few; Robinsons Hole 20, few; 21 and 22, many; Sow and Pigs 37, few, Gay Head 50 and 51, many on *Chondrus*; 44, 45, 46,

*Ceramium rubrum*—Continued.

47 and 48, few on *Chondrus* and larger algæ; 57, many; 59, few; 7731, many on larger algæ; 7731 (1907), few; also off Devils Bridge August 17, 1903, hauls 3 and 4, many on larger algæ; Menemsha Bight, July 17, 1905, haul 2, few; Marthas Vineyard 55, few on algæ; 64 few on stones; 73, few on algæ. Drifted fragments, 7537, 7546, 7588, 7547 bis, 7678, 7682, 7699, 7706, 7751, 7754.

At all seasons.

*Ceramium strictum* (Kützing) Harvey.

Common, on *Zostera*, larger algæ, and sometimes on stones. Dredged by the Survey in 2 to 15½ fathoms, over sandy, shelly, and stony bottoms. A scattered distribution, chiefly in the easterly portion of Vineyard Sound.

Woods Hole: Grassy Ledge, Little Harbor, off Juniper Point, frequently washed ashore in Little Harbor. Black Rock.

Vineyard Sound: Narrow portion—7746, one. Easterly portion—7763, one; 7764, few. Inshore—Robinsons Hole 20, few on stones; Marthas Vineyard 61, many on *Zostera*; Vineyard Haven 70, few on stones. Drifted fragments, 49.

Summer.

Farlow, 1873, p. 291 (*Ceramium diaphanum* Roth), Woods Hole, Weepecket; this reference is probably to *Ceramium strictum*; Farlow, 1881, p. 136, Little Harbor Woods Hole.

*Ceramium tenuissimum* (Lyngbye) J. Agardh.

Common, on *Zostera*, larger algæ, and occasionally on stones. Dredged by the Survey in 3 to 15 fathoms, over sandy and stony bottoms. Common at inshore stations along Marthas Vineyard, but distribution scattered along the Elizabeth Islands and easterly shore of Buzzards Bay.

Woods Hole: Grassy Ledge, Little Harbor, off Juniper Point. Black Rock.

Buzzards Bay: Upper portion—7652, few on *Zostera*. Inshore—Hog Island Point 134, few; Bassetts Island 146, many; Wings Neck 147, few. Drifted fragments, 138, 141.

Vineyard Sound: Westerly portion—7724, 7725, and 7726, many; 7730, few. Narrow portion—7530 bis and 7541 bis, few; 7542 bis, many on *Chorda*; 7554 bis, many; 7559 and 7565 bis, few. Easterly portion—7777, many on *Zostera*; 7781, few; 7783, many. Inshore—Sow and Pigs 35, few; Menemsha Bight 53 and 54, few on algæ; Marthas Vineyard 61 and 62, few; 67, many on

*Ceramium tenuissimum*—Continued.

*Zostera*; 69, 73, 74, 75, and 76, many on *Zostera* and larger algæ; 77, few; Vineyard Haven 70, few on *Zostera*.

Summer.

Farlow, 1873, p. 291 [*Ceramium arachnoideum* (?) Agardh], Woods Hole.

*Griffithsia Bornetiana* Farlow. [Chart 241.]

Common, on larger algæ below low-water mark.

Dredged by the Survey in 2 to 15 fathoms (most plentiful between 3 and 6 fathoms), frequently attached to *Phyllophora* and *Chondrus*, over sandy and stony bottoms. Distribution scattered inshore along the east side of Buzzards Bay and in the easterly portion of Vineyard Sound.

Woods Hole: Juniper Point. Nobska. Tarpaulin Cove. Weepecket Islands (Farlow).

Buzzards Bay: Inshore—Gull Island 116, many on *Phyllophora*; Naushon 87, few; Uncatena 117, many on *Phyllophora*; Weepeckets 108, many on *Phyllophora*; Penzance 123, many, and 124, few, on *Phyllophora* and *Chondrus*; Quisset 128, many on *Phyllophora*; 129 and 130, many; Gunning Point 131, many; Hog Island Point 134, many; Hog Island Harbor 135, few; North Falmouth 137, few; Nyes Neck 141, many; Cataumet Harbor 142, many. Drifted fragments, 7626, 7627, 126, 127, 138.

Vineyard Sound: Narrow portion—7533 bis, few on stones; 7749, one; 7754, one. Easterly portion—7755, few; 7778, one; 7782, one. Inshore—passage of Woods Hole 122, few; Nonamesset 8, one; Marthas Vineyard 52, few; 7761, one. Drifted fragments, 7537.

Summer.

Farlow, 1873, p. 291 (*Griffithsia corallina* Agardh), Buzzards Bay, Woods Hole, Weepecket Islands; A. A. B. Ex., fas. 11, no. 88, Woods Hole in part (W. G. Farlow); P. B.-A., fas. vi, no. 295, Little Harbor Woods Hole, July 20, 1893 (W. A. Setchell).

*Griffithsia tenuis* Agardh. [Chart 242.]

Common, on stones and over sand in sheltered waters. Dredged by the Survey in 2 to 4 fathoms, loosely attached over sandy and muddy bottoms. Distribution restricted to the extreme upper portion of Buzzards Bay.

Buzzards Bay: Upper portion—7632, 1 on stone. Inshore—Wings Neck 150, many loosely attached on sandy bottom; Tobys Island 152, few; Monument Beach 153, few.

Summer.

*Pleonosporium Borreri* (English Botany) Nägeli.

Common, on wharves and larger algæ below low-water mark. Dredged by the Survey in 1 to 6½ fathoms, over sandy, stony, and muddy bottoms. A scattered distribution, chiefly in the lower portion of Buzzards Bay and westerly portion of Vineyard Sound.

Woods Hole: Great Harbor (occasional).

Buzzards Bay: Lower portion, 7675, few.

Vineyard Sound: Inshore—Naushon 7, one; Pasque 24 and 25, many on *Phyllophora*; 26, few on *Phyllophora*; Cuttyhunk 33, many on *Phyllophora*; 38, few; Gay Head 50 and 51 few, at base of larger algæ.

Summer.

Farlow, 1873, p. 291 (*Callithamnion Borreri* Agardh), Woods Hole; Farlow, 1881, p. 124, 125 (*Callithamnion Borreri* Agardh), Woods Hole; A. A. B. Ex., fas. v, no. 193 (*Callithamnion Borreri* Agardh), Woods Hole (W. G. Farlow).

*Plumaria elegans* (Bonnemaison) Schmitz. [Chart 243.]

Common, on rocks and algæ below low-water mark off exposed points and reefs. Dredged by the Survey in 3 to 17 fathoms, frequently attached to *Chondrus* and *Phyllophora*, over sandy and stony bottoms. Distribution restricted to the vicinity of Gay Head and Sow and Pigs.

Off reefs of Devils Bridge, Gay Head and Sow and Pigs. Attached to large rocks at and below low-water mark on west side of Penikese. Between Gay Head and No Mans Land (Farlow).

Vineyard Sound: Westerly portion—7584, few; 7719, few on old *Phyllophora*; 7720, many; 7728, few. Inshore—Sow and Pigs 36, few, and 37, many, on *Chondrus* and *Phyllophora*; Gay Head 44, few; 57, 58, and 59, many on *Chondrus* and *Phyllophora*; also off Devils Bridge August 17, 1903, hauls 3 and 4, many on rocks and larger algæ, such as *Chondrus* and *Phyllophora*.

Summer, probably at all seasons.

Farlow, 1873, p. 282, 291 (*Ptilota elegans* Bonnemaison), between Gay Head and No Mans Land; Farlow, 1881, p. 133 (*Ptilota elegans* Bonnemaison), Gay Head.

*Rhodochorton membranaceum* Magnus.

Occasional, on Bryozoa, sertularian hydroids, and shells. Dredged by the Survey at station 65 in 3½ to 6 fathoms, over gravel.

Vineyard Sound: Inshore—Marthas Vineyard 65 (many on *Crisia eburnea*).

Summer.

*Rhodochorton Rothii* (English Botany) Nägeli.

Occasional, attached to rocks between tide marks.

Woods Hole: Juniper Point.

Summer.

*Seirospora Griffithsiana* Harvey.

Common, on stones, shells, *Zostera*, and larger algæ below low-water mark. Dredged by the Survey in 3 to 10½ fathoms, over sandy, shelly, and stony bottoms. A scattered distribution in both Bay and Sound.

Woods Hole: Grassy Ledge. Frequently washed ashore in abundance at exposed points.

Buzzards Bay: Lower portion—7660, few on stones. Inshore—Cuttyhunk 104, few; Gull Island 116, few; Pasque 84, one; Naushon 90, one; Quisset 130, few.

Vineyard Sound: Westerly portion—7728, many; 7729, few. Inshore—passage of Woods Hole 122, one; Nonamesset 2, one; 8, few on larger algæ; Tarpaulin Cove July 18, 1903, haul 1, many on *Zostera*; Gay Head 49, few on larger algæ; Menemsha Bight July 17, 1905, hauls 1, 2 and 3, few; Marthas Vineyard 52, many on larger algæ.

Summer.

Farlow, 1873, p. 292 (*Callithamnion seirospermum* Griffiths), Menemsha, Gay Head; Farlow, 1882, p. 68 (*Callithamnion versicolor*), Woods Hole; P. B.-A., fas. viii, no. 391, Edgartown, July 31, 1897 (M. W. Jernegan).

*Spermothamnion Turneri* (Mertens) Areschoug. [Chart 244.]

Common, on larger algæ. Dredged by the Survey in 1 to 17 fathoms, frequently attached to *Chondrus*, *Phyllophora*, *Polyides*, and *Sargassum*, over sandy, shelly, stony, and muddy bottoms. Widely distributed in Vineyard Sound and inshore along the Elizabeth Islands in Buzzards Bay.

Woods Hole: Frequently washed ashore at Nobska and in Little Harbor.

Buzzards Bay: Inshore—Cuttyhunk 100, many on *Chondrus*; 102, few on *Chondrus*; 112, many; Penikese 113, many; Gull Island 116, many; 115, few; Pasque 82, few; Naushon 90, few, and 96, many, on *Phyllophora*.

Vineyard Sound: Westerly portion—7585, 7588, 7589 and 7598, few; 7717 and 7719, few on *Phyllophora*. Narrow portion—7521 bis, few, and 7525 bis, many, on *Phyllophora*; 7524, 7526 (1907), few; 7530 bis, few, and 7533 bis, many, on *Phyllophora*; 7537, 7542, 7548, 7551, 7553, and 7560, few; 7562, few on *Chondrus*; 7739, few on *Phyllophora* and *Chondrus*; 7741, few; 7749, many on *Phyllophora* and *Sargassum*;



*Spermothamnion Turneri*—Continued.

7751, few on *Polyides*; 7752 and 7754, few on *Phyllophora*. Easterly portion—7755, on base of *Sargassum*; 7759, 7760, and 7763, few; 7764, many; 7770, 7772 and 7775, many on *Phyllophora*; 7771, many unattached; 7774 and 7777, few; 7779, few on *Chondrus*; 7780, 7781, and 7782, few. Inshore—Robinsons Hole 20, many; Quicks Hole 27 and 28, few, and 29, many, on *Phyllophora*; Nashawena 30, many on *Phyllophora*; Cuttyhunk 32, 33, 34, and 38, many on *Phyllophora* and *Chondrus*; Sow and Pigs 35, few on algae; Gay Head 44, 45, and 46, many, and 47 and 49, few, on *Chondrus* and *Phyllophora*; 50 and 51, many on *Chondrus*; 56, 57, and 58, many, and 59, few, on *Chondrus* and *Phyllophora*; also Devils Bridge August 17, 1903, hauls 3 and 4, many on *Phyllophora* and *Plumaria*; Marthas Vineyard 55, few, and 64, 65, 66, 67, and 68, many, on *Chondrus*, *Phyllophora*, and *Zostera*; 61 and 63, many, and 62, few, on *Chondrus* and other algae; 69, many on *Phyllophora*; 74, many, and 75, 76, and 77, few, on larger algae; 7761, many; Vineyard Haven 72, many on *Phyllophora*; 7762, few. Drifted fragments, 7758, 13.

Summer, winter, undoubtedly at all seasons.

Farlow, 1873, p. 292 (*Callithamnion Turneri* Agardh), Vineyard Sound; P. B.-A., fas. iv, no. 197, floating off Gay Head and Cuttyhunk, August, 1895. (C. P. Nott.)

*Spyridia filamentosa* (Wulfen) Harvey. [Chart 245.]

Common, on stones and shells, *Zostera*, and larger algae. Dredged by the Survey in 3 to 15 fathoms (most plentiful in from 4 to 10 fathoms), over sandy, shelly, stony, and muddy bottoms. Widely distributed inshore along

*Spyridia filamentosa*—Continued.

the east side of Buzzards Bay and along Marthas Vineyard; scattered throughout Vineyard Sound and inshore along the Elizabeth Islands. Woods Hole: Grassy Ledge, Juniper Point. Weepecket (Farlow). Black Rock. Frequently washed ashore at Nobska.

Buzzards Bay: Lower portion—7656, few at base of *Laminaria*; 7671, many; 7675, few on *Zostera*. Inshore—Cuttyhunk 103, 2 on *Phyllophora*; Gull Island 116, few; Naushon 90, 2 on *Phyllophora*; Uncatena 117, few; Quisset 129, few; 130, many on pebbles; West Falmouth 132, many, and 133, few, on pebbles; North Falmouth 136 and 137, many on pebbles, 138, few; Hog Island Point 134, few on pebbles; Cataumet Harbor 142, few; Scraggy Neck 145, few; Bassetts Island 146, few; Wings Neck 147, few; Cromeset Neck 158, many. Drifted fragments, 7636, 150, 151, 152, 153.

Vineyard Sound: Westerly portion—7571, 7572, and 7588, few; 7720, 1 on *Chondrus*; 7724, many; 7725, many entangled with other algae; 7726, many entangled with *Polysiphonia nigrescens*; 7735, many. Narrow portion—7530 bis, few; 7533 bis, 1 on stone; 7542, 7559, 7562 and 7741, few; 7749, one. Easterly portion—7759 and 7760, few; 7763, few on shells; 7763 (1907), few; 7776 and 7783, many. Inshore—Menemsha Bight 53 and 54, many on stones; also July 17, 1905, haul 1, few; Marthas Vineyard 52, many on stones; 55, 61, 64, 68, 69, 73, and 76, few on stones; 67, many on stones; Vineyard Haven 7762, few.

Summer.

Farlow, 1873, p. 291, Woods Hole, Weepecket; A. A. B. Ex., fas. iv, no. 151, Woods Hole (W. G. Farlow); P. B.-A., fas. viii, no. 393, Edgartown, July 17, 1897 (M. W. Jernegan).

## Order RHODOMELALES.

## Family RHODOMELACEÆ.

*Chondria dasyphylla* (Woodward) Agardh.

Common, on rocks and larger algae, sometimes *Zostera*, in shallow water below low-tide mark. Dredged by the Survey in 4 to 10 fathoms, over sandy and stony bottoms. Restricted chiefly to the easterly portion of Vineyard Sound.

Woods Hole: Grassy Ledge, Juniper Point, Buzzards Bay shore. Tarpaulin Cove.

Buzzards Bay: Drifted fragment, 151.

Vineyard Sound: Easterly portion—7755, one; 7774, one; 7777, 7781, and 7782, few; 7783, one. Inshore—Marthas Vineyard 61, 1 on stone; 73, few on pebbles.

*Chondria dasyphylla*—Continued.

Summer.

Farlow, 1873, p. 286 (*Chondria littoralis* Agardh), Woods Hole; Farlow, 1875, p. 359 (*Chondria littoralis*), Woods Hole; A. A. B. Ex., fas. v, no. 186, Woods Hole in part (W. G. Farlow); P. B.-A., fas. iii, no. 142, Buzzards Bay, Woods Hole, August 7, 1894 (W. A. Setchell).

*Chondria sedifolia* Harvey.

Occasional, on stones, *Zostera*, and larger algae below low-water mark.

Woods Hole: Little Harbor off Juniper Point.

Summer.

Farlow, 1873, p. 286 (*Chondria dasyphylla* var. *sedifolia*), Woods Hole.

*Chondria tenuissima* (Goodenough & Woodward) Agardh.

Very common, on rocks and larger algæ below low-water mark. Dredged by the Survey at station 73, in 2½ to 5 fathoms, over a stony bottom.

Woods Hole: Grassy Ledge, Juniper Point, Buzzards Bay shore. Nobska. Tarpaulin Cove. Black Rock.

Vineyard Sound: Inshore—Marthas Vineyard 73, few on stones.

Summer.

*Chondria tenuissima* var. *Baileyana* (Harvey) J. Agardh.

Common, on stones and larger algæ below low-water mark.

Woods Hole: Grassy Ledge, Little Harbor off Juniper Point.

Summer.

Farlow, 1873, p. 286 (*Chondria Baileyana* Harvey), Woods Hole; A. A. B. Ex., fas. v, no. 187, Woods Hole (W. G. Farlow).

*Dasya elegans* (Martens) Agardh.

Common, in quiet waters on *Zostera*, larger algæ, and occasionally stones. Dredged by the Survey in 2 to 13 fathoms, over sandy and stony bottoms. A wide and scattered distribution in both Bay and Sound.

Woods Hole: Grassy Ledge, Little Harbor. Black Rock.

Buzzards Bay: Upper portion—7632, 1 on stone. Lower portion—7674 and 7675, few on *Zostera*; 7656, one, and 7666, one, on stones. Inshore—Gunning Point 130, one; Great Hill 154, 1 on stone. Drifted fragments, 7626, 7653.

Vineyard Sound: Westerly portion—7734, few. Narrow portion—7733, few; 7751, one; 7753, few. Easterly portion—7755, 7768, and 7770, few; 7775, many; 7777, 7778, 7779, 7780, 7781, 7782 and 7783, few. Inshore—passage of Woods Hole 122, one; Robinsons Hole 21, few on stones; Marthas Vineyard 55, few on algæ; 61, many, and 69, few, on *Zostera*; 73, 75, and 76, many on *Zostera*. Drifted fragments, 7556 bis, 7717, 7749, 7759.

Summer.

*Polysiphonia atrorubescens* (Dillwyn) Greville.

Occasional, on stones in fairly deep water. Dredged by the Survey in 2 to 8 fathoms, over sandy and stony bottoms. A scattered distribution at inshore stations off the Elizabeth Islands in the lower portion of Buzzards Bay and off Marthas Vineyard in the westerly portion of Vineyard Sound.

*Polysiphonia atrorubescens*—Continued.

Washed ashore on exposed points as at Gay Head, Cuttyhunk, and No Mans Land.

Buzzards Bay: Inshore—Sow and Pigs 111, few; Pasque 82, few. Drifted fragments, 7622.

Vineyard Sound: Inshore—Gay Head 56, many on stones; Menemsha Bight July 17, 1905, haul 2, few.

Summer.

Farlow, 1873, p. 287, Gay Head, Menemsha Bight; Farlow, 1881, p. 174, Gay Head.

*Polysiphonia elongata* (Hudson) Harvey. [Chart 246.]

Common, on stones and rocks in fairly deep water. Dredged by the Survey in 2 to 17 fathoms (most plentiful from 5 to 13 fathoms), over sandy, shelly, and stony bottoms. Widely distributed throughout Vineyard Sound and the lower portion of Buzzards Bay.

Washed ashore on exposed points as at Nobska, Cuttyhunk, and Gay Head.

Buzzards Bay: Lower portion—7656, one; 7662 (1907) and 7665, few; 7675, one. Inshore—Sow and Pigs 111, many; Cuttyhunk 100 and 102, few; 101, many; cove west of Cuttyhunk Neck 27, 1905, many; Penikese 114, few.

Vineyard Sound: Westerly portion—7581 (1907), few; 7678, three; 7685, many; 7686, one; 7698, one; 7701, many; 7702, 7706, 7709, one each; 7717, few; 7723, many; 7724, one; 7725, few; 7726, many; 7727, one; 7728 and 7730, few; 7734, many. Narrow portion—7557, 7733, one; and 7739, few; 7751, 7752, 7754, one each. Easterly portion—7760 and 7766, few; 7772, 7780, few on *Phyllophora*. Inshore—Robinsons Hole 23, one; Quicks Hole 29, one; Cuttyhunk 33 and 34, many; 38, few; Gay Head 44 and 45, many; 46, 47, 48 and 49, few; 56 and 59, many; 60, few; 7731, many; 7731 (1907), few; also off Devils Bridge August 17, 1903, hauls 1 and 2, few; Menemsha Bight July 17, 1905, hauls 2 and 3, many; Marthas Vineyard 55, 64, 65, 68 and 73, few; Vineyard Haven 7762, few. Drifted fragment, 78.

Summer.

Farlow, 1873, p. 287, Gay Head, Menemsha Bight; Farlow, 1881, p. 172, Woods Hole, Gay Head; A. A. B. Ex., fas. v, no. 182, Gay Head, (W. G. Farlow); P. B.-A., fas. 1, no. 44, Gay Head, August 22, 1892 (W. J. V. Osterhout).

*Polysiphonia fastigiata* (Roth) Greville.

Occasional, attached to *Ascophyllum nodosum*.

Woods Hole: Grassy Ledge, Juniper Point, Buzzards Bay shore. Nobska. Black Rock.

Spring, early summer.

Farlow, 1873, p. 287, Woods Hole.

*Polysiphonia fibrillosa* (Dillwyn) Greville.

Common, on rocks and larger algae at and below low-tide mark. Dredged by the Survey in 2 to 11 fathoms, over sandy, and stony bottoms. At several scattered stations chiefly in Vineyard Sound.

Woods Hole: Grassy Ledge, Juniper Point. Nobska. Black Rock.

Buzzards Bay: Inshore—Cuttyhunk 104, one. Drifted fragments, 7610, 82.

Vineyard Sound: Easterly portion—7759, few. Inshore—Robinsons Hole 20, few; Quicks Hole 29, few; Menemsha Bight July 17, 1905, haul 2, few. Drifted fragments, 13.

Summer.

Farlow, 1876, p. 693, Woods Hole; Farlow, 1881, pp. 172, 173, Woods Hole; A. A. B. Ex., fas. v, no. 181, Woods Hole (W. G. Farlow); P. B.-A., fas. xxv, no. 1244, Juniper Point (Butlers Point), Woods Hole, August, 1904 (B. M. Davis and Miss L. J. MacRae).

*Polysiphonia Harveyi* Bailey.

Common, on *Zostera* in quiet waters. Dredged by the Survey in 5 to 10 fathoms, over sandy, shelly, stony, and muddy bottoms. At a few scattered stations in Buzzards Bay and the easterly portion of Vineyard Sound.

Woods Hole: Eel Pond, Little Harbor.

Buzzards Bay: Lower portion—7663, many on *Zostera*. Inshore—Uncatena 117, few on *Zostera*. Drifted fragments, 150, 151 and 158 on *Zostera*.

Vineyard Sound: Easterly portion—7778, 7779, 7780 and 7781, few on *Zostera*; 7782, one; 7783, few on *Zostera*. Inshore—Vineyard Haven 72, few on *Zostera*.

Summer.

Farlow, 1873, p. 287, Woods Hole; A. A. B. Ex., fas. iv, no. 133, Woods Hole (W. G. Farlow),

*Polysiphonia nigrescens* (Dillwyn) Greville. [Chart 247.]

Common, in fairly deep water on stones and shells and over muddy bottom. Dredged by the Survey in 1 to 15 fathoms (most plentiful in 5 to 10 fathoms), over sandy, shelly, stony, and muddy bottoms. Very widely distributed in both Bay and Sound.

Woods Hole: Entrance to Eel Pond. Black Rock.

Buzzards Bay: Upper portion—7610, 7615, 7636, 7637, 7638 and 7639, few; 7648, many; 7649, few; 7654 and 7655, many. Lower portion—7656,

*Polysiphonia nigrescens*—Continued.

few; 7659, many; 7664, 7666, 7668 and 7672, few. Inshore—Sow and Pigs 111, few; Cuttyhunk 102 and 112, few; Penikese 113 and 114, few; Gull Island 115, many; Nashawena 80 and 81, few; Pasque 82, few; 83, many; 84, few; Naushon 86, 90 and 91, few; Weepecket 108, 109, and 110, few; Penzance 122, one; Sconticut Neck 163 and 164, few; Mishaum Point 167, few. Drifted fragments, 7614, 7618, 7626, 7645, 7650, 100.

Vineyard Sound: Westerly portion—7581 (1907), few; 7717, few; 7718, one; 7724 and 7725, many; 7726, few; 7728, 7729, 7730 and 7734, many. Narrow portion—7523 bis, one; 7549 (1907), few; 7551 (1907), few; 7751, one; 7752, many. Easterly portion—7760, one; 7763 (1907), few. Inshore—Nonamesset 1, one; Naushon 5, 6, and 7, few; 9, one; 11, one; Tarpaulin Cove 18, many; 19, one; Robinsons Hole 20 and 22, few; Nashawena 31, two; Cuttyhunk 33, few; 34, many; Gay Head 47, few; 49, many; 50 and 51, few; 59, few; 60, many; 7581 bis, few; 7731, many, 7731 (1907), few; Menemsha Bight 53 and 54, many; also July 17, 1905 hauls 1, 2, and 3, many; Marthas Vineyard 52, many; 55, 62, 76 and 77, few; 7761, few. Drifted fragments, 7532 bis, 7533 bis, 7775, 14, 15.

Spring, summer.

Farlow, 1873, p. 287, Woods Hole, Gay Head.

*Polysiphonia nigrescens* var. *fucoides* Harvey.

Occasional, in fairly deep water on stones and over mud. Dredged by the Survey in 5 to 5½ fathoms, over gravel and mud at station 33.

Weepecket and No Mans Land (Farlow).

Vineyard Sound: Inshore—Cuttyhunk 33 (few). Summer.

Farlow, 1873, p. 287, Weepecket (on *Fucus*), No Mans Land (10 fathoms).

*Polysiphonia Olneyi* Harvey.

Common, on *Zostera* in quiet waters. Dredged by the Survey at stations 73 and 127, in 2 to 5 fathoms, over sandy, stony, and muddy bottoms.

Woods Hole: Eel Pond, Little Harbor. Quisset Harbor.

Buzzards Bay: Inshore—Quisset Harbor 127, few on *Zostera*. Drifted fragments, 123.

Vineyard Sound: Inshore—Marthas Vineyard 73, many on *Chorda filum*.

Summer.

Farlow, 1873, p. 287, Woods Hole.

*Polysiphonia urceolata* (Lightfoot) Greville.

Common, on stones and wharves in the spring. Dredged by the Survey in 2 to 19 fathoms, over sandy, stony, and muddy bottoms. Probably widely distributed in both Bay and Sound in the spring, but in the summer only found in the lower portion of Buzzards Bay and westerly portion of Vineyard Sound.

Woods Hole: Wharves and harbor walls, entrance to Eel Pond, Grassy Ledge, Little Harbor.

Buzzards Bay: Lower portion—7670, few; 7673, one; and 7675, 1 on stone. Inshore—Sow and Pigs 111, few; Gull Island 115, few on stones. Drifted fragments, 83, 84.

Vineyard Sound: Inshore—Cuttyhunk 32, 1 on stone.

Spring, passing out of season in early summer.

Farlow, 1873, p. 286, Woods Hole, Government wharf.

*Polysiphonia variegata* (Agardh) Zanardini. [Chart 248.]

Common, on stones, *Zostera*, and larger algæ, frequently growing unattached over sand and mud. Dredged by the Survey in 3 to 6 fathoms, over sandy, shelly, stony, and muddy bottoms. In the upper portion of Buzzards Bay, at inshore stations, chiefly along the easterly shore.

Woods Hole: Wharves and harbor walls, Little Harbor, over sand and mud in quiet water. Weepecket (Farlow). Black Rock.

Buzzards Bay: Upper portion—7632, one; Inshore—Naushon 91, one; Weepecket 108, few; Penzance 123, few; West Falmouth 133, one; Hog Island Point 134, many; Hog Island Harbor 135, few; North Falmouth 136, few; 137, many; 138, one; Nyes Neck 139, one; 140, one; 141, few; Scraggy Neck 145, many; Bassetts Island 146, few; Wings Neck 147, few.

Vineyard Sound: Drifted fragments, 7554 bis. Summer.

Farlow, 1873, p. 287, Woods Hole, Weepecket Islands; P. B.-A., fas. v, no. 245a, Woods Hole, August 15, 1895 (W. A. Setchell).

*Polysiphonia vestita* J. Agardh.

Rare.

Marthas Vineyard (Jernegan).

Collins, 1896b, p. 462, Marthas Vineyard (M. W. Jernegan).

*Polysiphonia violacea* (Roth) Greville.

Common, on stones and larger algæ below low-water mark. Dredged by the Survey in 1 to 13 fathoms, over sandy and stony bottoms. A scattered distribution in both Bay and Sound. Woods Hole: Wharves and harbor walls, entrance to Eel Pond, Grassy Ledge, Juniper Point, Gut of Canso. Black Rock.

Buzzards Bay: Lower portion—7664, one very dark in color, on stone. Inshore—Nashawena 79, few; Pasque 82, few; West Falmouth 129 and 130, few; North Falmouth 136, 137, few.

Vineyard Sound: Westerly portion—7681, 7704, 7721, one each. Narrow portion—7523 bis, 1 on stone. Easterly portion—7780, one. Inshore—Gay Head 50 and 51, few on rocks, 45, one; 48, few; Marthas Vineyard 64, few.

Summer.

Farlow, 1873, p. 287, Gay Head, Menemsha.

*Rhodomela Rochei* Harvey.

Common, on stones, *Phyllophora* and other large algæ below low-water mark. Dredged by the Survey in 3 to 8 fathoms, over sandy and stony bottoms. Probably widely distributed in the spring in both Bay and Sound, but in the summer only found at scattered stations.

Woods Hole: Washed ashore at Nobska and at other points.

Buzzards Bay: Inshore—Gull Island 115, few; Pasque 82, few; Naushon 89, one; Weepeckets 105, 108, and 109, few; passage of Woods Hole 122, few; Penzance 123, few; Quisset 128, many on *Phyllophora*; Hog Island Point 134, many; Hog Island Harbor 135, few; North Falmouth 136, few; 137, many; Nyes Neck 141, many on *Phyllophora*; Mishaum Point 167, 1 large plant.

Vineyard Sound: Inshore—Gay Head 7731 (1907), one.

Spring, passing out of season in the summer. The plants dredged were chiefly old basal portions.

Farlow, 1881, p. 169, Woods Hole; P. B.-A., fas. XXVI, no. 1296, Woods Hole, April 23, 1905 (F. S. Collins).

*Rhodomela subfusca* (Woodward) Agardh.

Occasional, on stones and over sand and mud, below low-water mark. Dredged by the Survey in 3 to 12 fathoms, over sandy, stony, and muddy bottoms. Probably widely distributed in the spring in both Bay and Sound, but in the summer only found at scattered stations.

*Rhodomela subfusca*—Continued.

Woods Hole: Washed ashore at Nobska and along the Buzzards Bay shore. Wharf at Gay Head. Black Rock.

Buzzards Bay: Upper portion—7639, one; 7652, one. Lower portion—7656, one; 7667, one. Inshore—Pasque 83, one; Naushon 91, one; 96, few. Drifted fragments 7626.

Vineyard Sound: Westerly portion—7735, one. Narrow portion—7554 bis, one. Inshore—Quicks Hole 29, 2 on stones; Gay Head 56, few on stones; Marthas Vineyard 61, 1 on a stone. Drifted fragments, 20.

*Rhodomela subfusca*—Continued.

Spring, passing out of season in the summer, the plants dredged being well past their prime.

Farlow, 1873, p. 286, Gay Head, Vineyard Sound; Farlow, 1881, p. 163, Woods Hole; A. A. B. Ex., fas. v, no. 184, Gay Head (W. G. Farlow).

*Rhodomela virgata* Kjellman.

Rare.

Marthas Vineyard (Jernegan).

Collins, 1896b, p. 461, 462, Marthas Vineyard (M. W. Jernegan).

Order GIGARTINALES.

Family GIGARTINACEÆ.

*Actinococcus aggregatus* Schmitz.

Occasional, epiphytic on *Gymnogongrus Grifithsia*.

Back River near Monument Beach (A. W. Evans).

July 27, 1896 (Evans).

Specimen in herbarium of Bureau of Fisheries.

*Actinococcus pellæiformis* Schmitz.

Rare, epiphytic on *Gymnogongrus norvegicus*.

Dredged by the Survey in 7 fathoms off Gay Head at station 56, over sand and gravel.

Vineyard Sound: Gay Head 56, few on *Gymnogongrus norvegicus*.

Summer.

*Actinococcus subcutaneus* (Lyngbye) Schmitz.

Common, epiphytic on *Phyllophora Brodiai*.

Dredged by the Survey in 4 to 15 fathoms, over sandy and stony bottoms. Distribution scattered in Vineyard Sound, but may be expected in both Bay and Sound wherever *Phyllophora Brodiai* occurs.

Vineyard Sound: Westerly portion—7583 and 7595, few. Narrow portion—7521 bis, many; 7522 bis, few; 7524 bis, few; 7525 bis, many. Inshore—Nonamesset 8, few; Naushon 9 and 10, few; Cuttyhunk 32, 33, and 34, many; Marthas Vineyard 61, 62, and 63, many.

Summer.

*Ahnfeldtia plicata* (Turner) Fries. [Chart 249.]

Common, on stones and loose over the bottom in fairly deep water. Dredged by the Survey in 1 to 14 fathoms (most plentiful in 7 to 13 fathoms), over sandy, shelly, and stony bottoms. Distribution chiefly in lower portion of Buzzards Bay and westerly portion of Vineyard Sound, and also off East and West Chop.

Woods Hole: Near Devils Foot Island. Nobska, Cuttyhunk. Black Rock.

*Ahnfeldtia plicata*—Continued.

Buzzards Bay: Lower portion—7638, few; 7656, few. Inshore—Sow and Pigs 111, few; Cuttyhunk 112, few; Gull Island 116, many. Drifted fragments, 79, 82.

Vineyard Sound: Westerly portion—7593, 7598, and 7599, few; 7718, one; 7720, few; 7721, one; 7724 and 7725, few. Narrow portion—7524 bis and 7525 bis, few. Easterly portion—7760, one. Inshore—Robinsons Hole 21 and 22, few; Sow and Pigs 36, few; Gay Head 50 and 51, considerable; 44 and 46, few; 47, many; 48, few; 49, considerable; 60, few; also off Devils Bridge August 17, 1903, hauls 1 and 2, few; Marthas Vineyard 55, few; 69, two.

Spring, summer, probably at all seasons.

Farlow, 1873, p. 290, Gay Head.

*Chondrus crispus* (Linnaeus) Stackhouse. Irish moss. [Chart 250.]

Very common, on stones and rocks at low-water mark and below. Dredged by the Survey in 1 to 19 fathoms (most plentiful in 4 to 12 fathoms), over sandy, shelly, and stony bottoms. Widely distributed throughout Vineyard Sound and in the lower portion of Buzzards Bay; less plentiful in the upper portion of the Bay.

Woods Hole: Wharves and harbor walls, Grassy Ledge, Juniper Point, Buzzards Bay shore. Nobska. Tarpaulin Cove. Black Rock.

Buzzards Bay: Upper portion—7610, few. Lower portion—7656 and 7659, many; 7663, 7665, few; 7668, one; 7670, few; 7672, one; 7673, one. Inshore—Sow and Pigs 111, many; Cuttyhunk 100 and 112, many; 102, few; Gull Island 116, many; Nashawena 79 and 80, few; Naushon 87, few; Weepeckets 108, few; Penzance 123, many; Gunning Point 130, one. Drifted fragments, 7652.

*Chondrus crispus*—Continued.

Vineyard Sound: Westerly portion—7566, 7581 (1907), 7582, 7583, 7584, 7585, 7589, 7591, and 7596, few. Narrow portion—7521 (1907), many; 7523 bis, 7524 bis, and 7525 bis, few; 7533 bis, many; 7536, one; 7537, one; 7542 bis, few; 7546, one; 7553, 7554, 7554 bis, 7560, 7561, 7562, 7732, 7739, and 7746, few; 7749, many. Easterly portion—7759, few; 7760, one; 7763 (1907), few; 7764, very many; 7765, few; 7766, many; 7767, few; 7768, many; 7769, 7770, 7771, 7772 and 7777, few; 7779 and 7781, few; Inshore—passage of Woods Hole 118, few; 121, many; Great Ledge, Woods Hole 4, few; Nonamesset 1 and 2, many; 3 and 8, few; Naushon 5, one; Robinsons Hole 20, 21, 22, and 23, many; Pasque 24, few; 25 and 26, many; Quicks Hole 29, few; Nashawena 30 and 31, few; Cuttyhunk 32 and 34, many; 38, few; Sow and Pigs 35 and 36, few; Gay Head 50 and 51, very abundant; 44, 45, 46, 47, 48, 49, 56, 57, and 58, many; 59, 60, 7581 bis, and 7731 bis, few; also Devils Bridge August 17, 1903, hauls 3 and 4, many; Menemsha Bight August 9, 1904, few; Marthas Vineyard 62, 63, and 64, few; 67, many; 68, few, 76, few; 7761 (1907), few. Drifted fragments, 7570, 7701, 7774, 13, 14, 15.

At all seasons.

Farlow, 1873, p. 290, Gay Head, Woods Hole.

*Gymnogongrus Griffithsia* (Turner) Martius.

Occasional, on stones.

Back River near Monument Beach (A. W. Evans).

July 27, 1896. (Evans.)

Specimen in herbarium of Bureau of Fisheries.

*Gymnogongrus norvegicus* (Turner) J. Agardh.

Rare. Dredged by the Survey off Gay Head at station 56 in 7 fathoms; attached to stones over a sandy bottom.

Vineyard Sound: Westerly portion—Gay Head 56, few on stones.

Summer.

*Phyllophora Brodiaei* (Turner) J. Agardh. [Chart, 251.]

Common, on stones well below low-water mark, frequently growing in sand and mud. Dredged by the Survey in 1½ to 15 fathoms (most plentiful in 4 to 10 fathoms), over sandy, shelly, and stony bottoms, occasionally over mud. Very widely distributed throughout both the Bay and Sound.

Buzzards Bay: Upper portion—7610, 7611, 7613, 7614, 7615, 7617, 7618, 7627, and 7654, few. Lower portion—7656, many; 7663, 7672, and

*Phyllophora Brodiaei*—Continued.

7673, few. Inshore—Sow and Pigs 111, many; Cuttyhunk 100, 101, and 103, few; 112, many; cove west of Cuttyhunk Neck July 27, 1905, many; Penikese 113, many; 114, few; Gull Island 115, few; 116, many; Nashawena 80, few; Pasque 82, 83, and 85, few; Naushon 86 and 91, many; Uncatena 117, many; Weepeckets 108, few; 109, one; 110, few; Penzance 122, one; Scraggy Neck 144, many; 145 and 147, few. Drifted fragments, 7621, 7622, 7629.

Vineyard Sound: Westerly portion—7583, 7584, 7591, 7595, 7596, and 7598, few. Narrow portion—7521 bis, many; 7522 bis, few; 7523 and 7524, many; 7524 bis and 7525, few; 7525 bis, many; 7526 (1907), many; 7530, one; 7532, one; 7533 bis, many; 7534, few; 7535, one; 7536, one; 7536 bis, 7537, 7541, 7542 (1907), 7547, 7547 bis, 7548 and 7739, few; 7744, one; 7749, few. Easterly portion—7763 (1907) and 7766, few. Inshore—Great Ledge 4, few; Nonamesset, 1 many; 2, 3, and 8, few; Naushon 5, 7, 9, and 10, few; 12, one; 16, many; Robinsons Hole 20, 21, and 22, many; Quicks Hole 27, many; Nashawena 30 and 31, many; Cuttyhunk 32, 33, and 34, many; 38, few; Sow and Pigs 35, few; 36, many; 37, few; Gay Head 44, few; 45, many, 46, 47, 48, and 49, few; 56, 57, and 58, many; 59, few; also off Devils Bridge August 17, 1903, hauls 1 and 2, few; 3 and 4, many; Menemsha Bight July 17, 1905, haul 2, few; Marthas Vineyard 52 and 55, few; 61 and 62, few; 63, many; 65 and 66, few; 69, many; 71, many; 73, 74, 76, and 77, few. Drifted fragments, 7582, 7588.

Summer, winter, undoubtedly at all seasons.

Farlow, 1873, p. 290, Gay Head; Farlow, 1881, p. 145, Woods Hole.

*Phyllophora Brodiaei* var. *catenata* (Lyngbye) Are-schoug.

Occasional. Dredged by the Survey off Nobska at station 7521 (1907) in 8 to 10 fathoms, over coarse sand.

Vineyard Sound: Narrow portion—7521 (1907), many.

August 9, 1907.

*Phyllophora membranifolia* (Goodenough & Woodward) J. Agardh. [Chart 252.]

Common, on stones, well below low-water mark, frequently growing over sand. Dredged by the Survey in 3 to 17 fathoms (most plentiful in 4 to 10 fathoms), over sandy, shelly, stony, and muddy bottoms. Very widely distributed throughout both the Bay and Sound.

*Phyllophora membanifolia*—Continued.

Buzzards Bay: Upper portion—7610 (1907), 7621 (1907), 7630, 7630 (1907), 7631 and 7632, few; 7635, many; 7639 (1907), few. Lower portion—7657, few; 7659, many; 7660, few; 7662, many on holdfasts of *Laminaria*; 7663 (1907), 7664, 7666, 7672 (1907), and 7675; few. Inshore—Sow and Pigs 111, many; Cuttyhunk 100, many; 102 and 103, few; 112, many; Penikese, 113 many; Gull Island 115, few, 116, many; Nashawena 79 and 81, few; Pasque 82, 83, 84, and 85, few; Naushon 86 and 87, many; 89, one; 90, one; 91, many; 92, few; 96, many; Uncatena 117, many; Weepeckets 108, many; 109, one; 110, few; Penzance 123, many; 124, few; Quisset 126, few; 128, many; 130, few; Hog Island Point 134, many; Hog Island Harbor 135, few; North Falmouth 137, many; Nyes Neck 140, one; 141, many; Scoticut Neck 163, few; off Apponaganset Bay 165, few; Mishaum Point 167, few. Drifted fragments, 7618, 7633, 7634, 7651, 78.

Vineyard Sound: Westerly portion—7706, one; 7710, few; 7719, one; 7722, one; 7725, few; 7729, few. Narrow portion—7521 bis, many; 7523 bis, few; 7524 bis, few; 7525 bis, very many; 7530 bis, few; 7531 bis and 7533 bis, many; 7542 bis, 7543 (1907) and 7549 (1907), few; 7739 and 7740, many; 7741, few; 7742, many; 7743, two; 7744, many; 7745, few; 7749, many; 7752, few; 7754, one. Easterly portion—7755, one; 7759, 7760, 7764, 7765, 7766, 7768, and 7769, few; 7770, many; 7772 and 7774, few; 7775, many; 7780, one; 7782, few; 7783, one. Inshore—Robinsons Hole 22 and 23, many; Pasque 24, 25, and 26, many; Nashawena 30, many; Cuttyhunk 33, many; Gay Head 56, 57, and 58, many; 60, few; Marthas Vineyard 64, 65 and 66, few; 67, many; 68, few; 69, many; 74 and 77, few; 7761, many; Vineyard Haven 7762, few. Drifted fragments, 7682, 7779, 13.

Summer, winter, undoubtedly at all seasons. Farlow, 1873, p. 290, Gay Head.

*Sterrocilax decipiens* Schmitz. (Taxonomic position uncertain).

Occasional, parasitic on *Ahnfeldtia plicata*. Woods Hole. Washed ashore at Nobska. Spring, summer.

## Family RHODOPHYLLIDACEÆ.

*Agardhiella tenera* (J. Agardh) Schmitz. [Chart 253.]

Common, on stones and shells in fairly deep water. Dredged by the Survey in 2 to 15 fathoms (most plentiful in 4 to 10 fathoms), over sandy, shelly, stony, and muddy bottoms. Very widely distributed throughout both Bay and Sound.

Woods Hole: Entrance to Eel Pond, off Grassy Ledge in ship channel. Black Rock.

Buzzards Bay: Upper portion—7615, 2 on sulphur sponges; 7632, one; 7645, one; 7648, many on shells; 7649 and 7650, few. Lower portion—7661, one. Inshore—Cuttyhunk 100 and 103, few; Penikese 113, few; Gull Island 116, few; Uncatena 117, many; Weepeckets 108, few; Penzance 123 and 124, few; Quisset 128, few; 129 and 130, many; West Falmouth 132, many; 133, few; Hog Island Point 134, many; Hog Island Harbor 135, few; North Falmouth 136 and 137, many; Nyes Neck 141, many; Cataumet Harbor 142, many; Scraggy Neck 145, many; Bassetts Island 146, very many on shells, Wings Neck 147, many; 148, three; 150, few; Great Hill 154, few; Cromeset Neck 158, many; Wareham River 155, 156, and 157, few; Scoticut Neck 163 and 164, few; Mishaum Point 167, few. Drifted fragments 7612, 7614, 7616, 7646.

Vineyard Sound: Westerly portion—7728, one; 7730 and 7734, few; 7735, one. Narrow portion—7525 bis, many; 7533, one; 7533 bis, few on sulphur sponges and stones; 7535, one; 7536, one; 7537 and 7540, few; 7541, one; 7541 bis and 7542, few; 7543 bis, one; 7553, few; 7559, one; 7562 and 7733, few; 7744, 7751, 7753, 7754, one each. Easterly portion—7755, one; 7758, one; 7760, 7763, 7763 (1907), 7764 and 7765, few; 7766, few on shells; 7766 (1907), 7771, 7772, 7775 and 7777, few; 7778, many on stones and shells; 7779, 7780, 7781, 7782, and 7783, few. Inshore—passage of Woods Hole 121, many; Nonamesset 1, two; 8, many; Naushon 7, two; 9, three; Tarpaulin Cove 17, few; also July 18, 1903, haul 2, few; Quicks Hole 28, two; Nashawena 30, two; Cuttyhunk 33 and 38, few; Menemsha Bight 53 and 54, many; August 9, 1904, few; July 17, 1905, haul 1, many; Marthas Vineyard 52, many; 55, few; 61, 62, 65, and 68, few; 69, many; 73

*Agardhiella tenera*—Continued.

and 74, few; 77, many; 7761, many; Vineyard Haven 70, 71, 72 and 7762, many. Drifted fragments, 7548.

Summer, undoubtedly at other seasons.

Farlow, 1873, p. 289 (*Solieria chordalis* J. Agardh), Woods Hole; A. A. B. Ex., fas. iv, no. 143, (*Rhabdonia tenera* J. Agardh), Woods Hole (W. G. Farlow).

*Cystoclonium purpurascens* (Hudson) Kützing.  
[Chart 254.]

Common, attached to stones in fairly deep water. Dredged by the Survey in 2½ to 13 fathoms (most plentiful in 4 to 10 fathoms), over sandy, shelly, and stony bottoms, occasionally over mud. A scattered distribution through Vineyard Sound and in the lower portion chiefly of Buzzards Bay.

Woods Hole: Entrance to Eel Pond, Grassy Ledge, Juniper Point. Nobska.

Buzzards Bay: Upper portion—7653 and 7654, few. Lower portion—7656, 7659, and 7680, few. Inshore—Cuttyhunk 104, one. Drifted fragments, 7616.

Vineyard Sound: Westerly portion—7720, one; 7729, few. Narrow portion—7524 bis, two; 7525 bis, 7542 (1907) and 7549 (1907), few. Easterly portion—7760, one. Inshore—passage of Woods Hole 118, few; Nonamesset 8, many; Robinsons Hole 20 and 22, many; Pasque 25, many; Quicks Hole 29, few; Nashawena 30, one; Cuttyhunk 33 and 34, many; Gay Head 44, 49, 56, 57, 58, and 59, many; 60, few; Marthas Vineyard 52, 62, and 63, few.

Summer.

Farlow, 1873, p. 290, Gay Head, Woods Hole.

*Cystoclonium purpurascens* var. *cirrhosum* Harvey.  
[Chart 255.]

Common, on stones and larger algæ in fairly deep water. Dredged by the Survey in 1 to 17 fathoms (most plentiful in 4 to 12 fathoms), over

*Cystoclonium purpurascens* var. *cirrhosum*—Con.

sandy, shelly, and stony bottoms, occasionally over mud. Distribution chiefly in the lower portion of Buzzards Bay and westerly portion of Vineyard Sound.

Buzzards Bay: Upper portion—7639 and 7653, few. Lower portion—7651 (1907), 7656, 7659, 7662 (1907), 7663, 7664, 7666, 7672, and 7673, few. Inshore—Sow and Pigs 111, many; Cuttyhunk 100, many; 102, few; 112, many on *Phyllophora*; Cove west of Cuttyhunk Neck July 27, 1905, many; Penikese 113, many; Gull Island 115, few; 116, many; Nashawena 80, few; Pasque 82 and 85, few; 83, many; Naushon 86, many. Drifted fragments, 7665.

Vineyard Sound: Westerly portion—7581 (1907), 7585, 7601, 7676, and 7678, few; 7686, one; 7692 and 7693, few; 7703, 1 on *Rhodymenia*; 7706, one; 7707, many; 7717, few; 7718, many; 7719, one; 7722, one; 7730, many. Narrow portion—7523, few; 7534, one; 7740, one; 39, few. Inshore—Nonamesset 1, one; 8, few; Robinsons Hole 20 and 22, many; Pasque 24 and 25, many; Quicks Hole 27, few; Cuttyhunk 32, 33, and 34, many; Sow and Pigs 35, one; 36 and 37, few; Gay Head 50 and 51, considerable on bottom; 44, 45, 46, 47, 48, 49, 56, 58, and 59, many; 60, 7581 (1907) and 7731, few; 7731 (1907), many; also Devils Bridge August 17, 1903, haul 1, few; hauls 2, 3, and 4, many; Menemsha Bight 53 and 54, few; August 9, 1904, few; July 17, 1905, haul 2, many; Marthas Vineyard 52 and 63, few. Drifted fragments, 7572, 7677, 7700.

Summer.

*Euthora cristata* (Linnæus) J. Agardh.

Rare, on stones in 8 to 10 fathoms off Gay Head (Farlow).

August and September 1, 1873 (Farlow).

Farlow, 1876, p. 698, dredged off Gay Head; Farlow, 1881, p. 153, 154, Gay Head in 8 or 10 fathoms.

## Order RHODYMENIALES.

## Family SPHEROCOCCACEÆ.

*Gracilaria confervoides* (Linnæus) Greville.

Occasional, on muddy shores.

Mattapoisett (Collins).

September 14, 1902 (Collins).

Collins, 1903, p. 232, Mattapoisett; P. B.-A., fas. XXI, no. 1041, in dense tufts, floating, Mattapoisett, September 14, 1902 (F. S. Collins).

*Gracilaria multipartita* (Clementi) Agardh.

Occasional, on stones, sandy and muddy bottoms. Dredged by the Survey in 2 to 14 fathoms (most plentiful in 4 to 10 fathoms), over sandy and stony bottoms. Distribution chiefly at inshore stations in the narrow portion of Vineyard Sound.

Woods Hole: Entrance to Eel Pond. Hadley Harbor (W. G. Farlow).



*Gracilaria multipartita*—Continued.

Buzzards Bay: Inshore—Pasque 84, one; Quisset Harbor 127, one.

Vineyard Sound: Narrow portion—7554 bis, one. Easterly portion—7766, one. Inshore—passage of Woods Hole 121, many; Great Ledge, Woods Hole 4, few; Nonamesset 1, few; 2, many; 3, few; 8, many; Naushon 5, 9, and 10, few; 12, one; Devils Bridge, Gay Head August 17, 1905, hauls 3 and 4, few; Marthas Vineyard 61, 62, 63, and 68, few.

Summer.

Farlow, 1873, p. 289, Woods Hole, Hadley Harbor.

*Gracilaria multipartita* var. *angustissima* Harvey.

Occasional, on sandy and muddy bottoms.

Woods Hole: Entrance to Eel Pond, Little Harbor.

Summer.

*Hypnea musciformis* (Wulfen) Lamouroux.

Occasional, in fairly deep water.

Woods Hole: Off Juniper Point on rocky bottom at a depth of 3 to 4 fathoms (Nott). Black Rock. Frequently washed ashore in Little Harbor, at Nobska, and along the Falmouth shore.

Summer.

Farlow, 1873, pp. 283, 289, Woods Hole, Nobska, Falmouth shore; Farlow, 1875, p. 366, Woods Hole; Farlow, 1876, p. 697, Woods Hole; A. A. B. Ex., fas. iv, no. 144, Woods Hole (W. G. Farlow); P. B.-A., fas. iv, no. 196, off Juniper Point (Butlers Point), Woods Hole, August 26, 1895 (C. P. Nott).

Family RHODYMENIACEÆ.

*Champia parvula* (Agardh) Harvey. [Chart 256.]

Common on stones, *Zostera*, and larger algæ, frequently lying loosely on the bottom. Dredged by the Survey in 1 to 19 fathoms (most plentiful in 4 to 12 fathoms), over sandy, shelly, stony, and muddy bottoms. Very widely distributed throughout both Bay and Sound.

Woods Hole: Grassy Ledge, Juniper Point. Nobska. Tarpaulin Cove. Black Rock.

Buzzards Bay: Upper portion—7610 (1907), many; 7648, few on algæ; 7651 (1907), few; 7653 and 7654, many on algæ; 7630 (1907), few. Lower portion—7656 and 7657, few; 7661, many; 7662 and 7663, many; 7664, few; 7668, one; 7670, one; 7671, few; 7672, one. Inshore—Cuttyhunk 100, few; Gull Island 116, many; Naushon 96, one; Uncatena 117, many on *Phyllophora*; Wee-peckets 109, one; Penzance 123, many; Quisset 128, many on *Phyllophora*; 129, few; 130, many;

*Champia parvula*—Continued.

Gunning Point 131, many; Hog Island Point 134, many; Hog Island Harbor 135, many; North Falmouth 136 and 137, many; 138, one; 139, one; Nyes Neck 141, few; Cataumet Harbor 142, few; Scraggy Neck 144, one; Wings Neck 148, few; 150, one; Cromeset Neck 158, few; off Apponanset Bay 165, few. Drifted fragments, 7627, 7658, 166.

Vineyard Sound: Westerly portion—7566, 7567, 7568, 7569, and 7571, few; 7572, many; 7574, 7575, 7576, 7578, 7588, and 7676, few; 7703, one; 7724, many; 7725, few; 7728, 7729, and 7734, few. Narrow portion—7521, one; 7521 (1907), few; 7523 bis, one; 7525, 7525 bis, 7526 (1907), and 7533 bis, few; 7534, one; 7541, one; 7541 bis, 7542, 7542 (1907), 7543 (1907), 7546 and 7547, few; 7549 bis, one; 7549 (1907), many; 7551, 7551 (1907), 7553, 7554, 7554 bis, 7557, 7559, 7560, 7562, and 7565 bis, few; 7732 and 7733, many; 7739, few on *Phyllophora*; 7741, few; 7745, many; 7746, few; 7749, many; 7752, many on *Phyllophora*; 7753, few; 7754, many. Easterly portion—7756, 7757, 7758, 7759, 7760, 7763, and 7763 (1907), few; 7764, many; 7765, 7766, 7767, 7769, 7770, and 7771, few; 7772, one; 7774 one; 7775, many on *Phyllophora*; 7776, many; 7777, 7778, 7779, 7780, 7780 (1907), 7781, 7782, 7783, and 7783 (1907), few. Inshore—passage of Woods Hole 122, few; Nonamesset 1, one; 8, one; Naushon 6, one; Tarpaulin Cove July 18, 1903, haul 1, few; Robinsons Hole 20, 21, and 22, few; Cuttyhunk 38, few; Gay Head 50 and 51, few on bottom; 44, 46, and 47, few; 49, many; also off Devils Bridge August 17, 1903, hauls 1 and 2, few; Menemsha Bight July 17, 1905, haul 3, few; Marthas Vineyard 61, 62, 63, and 64, few; 67 and 68, many on *Zostera* and large algæ; 73, many; 74, 75, 76, and 77, few; 7761, many; Vineyard Haven 70, 71, and 72, many, some on *Crepidula* shells; 7762, many. Drifted fragments, 7530, 7677, 7736.

Summer.

P. B.-A., fas. vi, no. 290, Little Harbor, Woods Hole, July, 1893 (W. A. Setchell); P. B.-A., fas. xii, no. 592, Edgartown, August, 1897 (M. W. Jernegan).

*Lomentaria rosea* (Harvey) Thuret. [Chart 257.]

Occasional, on stones, shells, and larger algæ in deep water off exposed points. Dredged by the Survey in 4 to 13 fathoms, over sandy, shelly, and stony bottoms. Distribution restricted in the summer to the westerly portion of Vineyard Sound, chiefly off Gay Head and Sow and Pigs.

*Lomentaria rosea*—Continued.

Vineyard Sound: Westerly portion—7593, few; 7708, one; 7709, one. Inshore—Sow and Pigs 37, few on *Phyllophora*; Gay Head 45, few on *Phyllophora* and other algæ; 56, few; 57 and 58, many; 59, few.

Summer.

Farlow, 1873, p. 291 (*Chylocladia rosea* Harvey), Devils Back, Gay Head, 8 to 10 fathoms; Farlow, 1875, p. 371 (*Chylocladia rosea* Harvey), Gay Head; Farlow, 1876, p. 698, Gay Head; Farlow, 1881, p. 155, Gay Head; A. A. B. Ex., fas. 1, no 17, Gay Head (W. G. Farlow); P. B.-A., fas. xxv, no. 1241, off Gay Head in 7 to 12 fathoms, August 15, 1904 (B. M. Davis and Miss L. J. MacRae).

*Lomentaria uncinata* Meneghini. (Chart 258.)

Common, on stones, wharves, frequently growing loosely over sand, below low-tide mark and in fairly deep water. Dredged by the Survey in 1½ to 15 fathoms (most plentiful in 4 to 10 fathoms), over sandy, shelly, and stony bottoms. Distribution scattered in the upper portion of Buzzards Bay and the narrow and easterly portions of Vineyard Sound.

Woods Hole: Entrance to Eel Pond, Grassy Ledge, Little Harbor. Weepecket (Farlow), Black Rock.

Buzzards Bay: Upper portion—7632 and 7653, few. Lower portion—7671 and 7675, few. Inshore—Gull Island 116, few; Weepecket 108, few; Gunning Point 131, many; West Falmouth 132, few; 133, one; Hog Island Point 134, many; Hog Island Harbor 135, few; North Falmouth 136, few; 137, many; 138, one; Nyes Neck 141, few; Scraggy Neck 144, few; 145, many; Bassett's Island 146, many; Wings Neck 147 and 148, few; 150, many; off Aucoot Cove 160, few; Mishaum Point 167, few. Drifted fragments, 7628.

Vineyard Sound: Westerly portion—7734 and 7735, few. Narrow portion—7537 and 7548, few; 7551, one; 7557 and 7733, few; 7751, one. Easterly portion—7757, one; 7759, few; 7760, many; 7763, 7764, 7766, 7777, 7778, 7781, and 7782, few. Inshore—passage of Woods Hole 118, few; Robinsons Hole 21 and 22, few; Pasque 24, one; Marthas Vineyard 61 and 64, few; 69, many; 76, few on larger algæ; 7761, many; Vineyard Haven 70, 71, and 72, many; 7762, many.

Summer.

Farlow, 1873, p. 290 (*Chylocladia Baileyana* Harvey), Woods Hole, Buzzards Bay, Weepecket.

*Rhodymenia palmata* (Linnæus) Greville. Dulse.  
[Chart 259.]

Common, on stones and larger algæ in fairly deep water off exposed points. Dredged by the Survey in 1 to 19 fathoms (most plentiful in 4 to 12 fathoms), over sandy, shelly, and stony bottoms. Distribution chiefly in the lower portion of Buzzards Bay and westerly portion of Vineyard Sound.

Wharf at Gay Head.

Buzzards Bay: Upper portion—7653, few; 7656, one. Lower portion—7664, 7665, 7666, 7667, 7670, and 7671, few. Inshore—Sow and Pigs 111, few on mussel shells; Cuttyhunk 112, few on mussel shells. Drifted fragments, 7654, 104.

Vineyard Sound: Westerly portion—7567, 7569, 7578, 7582, 7584, 7585, 7588, and 7591, few; 7593, few on *Laminaria*; 7595, 7701, 7703, and 7708, few; 7718, many on *Desmarestia*; 7719, one; 7720, 1 on *Chondrus*; 7723, few; 7724, one; 7728 and 7729, few. Narrow portion—7530 bis, few. Easterly portion—7755, one. Inshore—Robinsons Hole 21 and 22, many; Pasque 25 and 26, few; Quickest Hole 27, many; Sow and Pigs 36, few; Gay Head 50 and 51, few; 44, few; 45, 46, and 47, many; 48, few; 59, many; 60, few; 7731 (1907), few; also off Devils Bridge, August 17, 1903, hauls 3 and 4, many; Marthas Vineyard 52, few; 7761, one. Drifted fragments, 7551, 7717, 15.

Spring, summer, undoubtedly at all seasons.

Farlow, 1873, p. 290, Gay Head, Woods Hole.

## Family DELESSERIACEÆ.

*Delesseria sinuosa* (Goodenough & Woodward) Lamouroux. [Chart 260.]

Occasional, on larger algæ and sometimes stones, in fairly deep water off exposed points. Dredged by the Survey in 1½ to 17 fathoms (most plentiful in 4 to 12 fathoms), over sandy, shelly, and stony bottoms. Distribution practically restricted to the lower portion of Buzzards Bay and westerly portion of Vineyard Sound.

Buzzards Bay: Lower portion—7664, few. Inshore—Sow and Pigs 111, few; Cuttyhunk 100, few on *Phyllophora*; Penikese 113, few.

Vineyard Sound: Westerly portion—7582, 7591, 7593, and 7595, few; 7690, 7692, and 7693, few; 7701, many; 7703, few; 7709, one; 7719, many on *Phyllophora*; 7720, many; 7721, 2 on *Phyllophora*. Narrow portion—39, few. Inshore—Cuttyhunk 32 and 33, many on *Phyllophora*;

*Delesseria sinuosa*—Continued.

34, few on *Phyllophora*; Sow and Pigs 35 and 36, considerable; Gay Head 45, many; 46, few; 56, 57, and 58, many; 7731, one; also off Devils Bridge August 17, 1903, haul 1, few; hauls 2 and 3, many.

Summer, probably at other seasons.

Farlow, 1873, p. 289, Gay Head, No Mans Land.

*Grinnellia americana* (Agardh) Harvey. [Chart 261.]

Common, on stones, shells, and wharves below low-water mark. Dredged by the Survey in 2 to 19 fathoms (most plentiful in 4 to 12 fathoms), over sandy, shelly, stony, and muddy bottoms. Very widely distributed throughout both the Bay and Sound.

Woods Hole: Government wharves Little Harbor. Black Rock.

Buzzards Bay: Upper portion—7615, 2 on sulphur sponges; 7621, many; 7624 and 7625, few; 7628 and 7629, many; 7630, 7632, 7634, 7635, and 7639, few; 7648, many; 7649 and 7653, few; Lower portion—7660 and 7661, few; 7663, many; 7670, one; 7671, many; 7675, few. Inshore—Cove west of Cuttyhunk Neck July 27, 1905, many; Penikese 114, few; Gull Island 116, many; Nashawena 80, many on *Crepidula* shells; Pasque 84, many; 85, few; Naushon 90, few on *Phyllophora*; Uncatena 117, few on *Phyllophora*; Weepeckets 108, many on *Phyllophora*; Penzance 123, many; 124, one; Quisset 126, one; 130, few; Gunning Point 131, few; West Falmouth 132 and 133, few; Hog Island Point 134, many; Hog Island Harbor 135, few; North Falmouth 136, many; 137, few; Scraggy Neck 144, few; Bassetts Island 146, few; Wings Neck 147, few; 148, many; 150,

*Grinnellia americana*—Continued.

two; Great Hill 154, few; Cromeset Neck 158, many; Wareham River 155 and 156, few; Sconticut Neck 163 and 164, few; Mishaum Point 167, few. Drifted fragments, 7620, 7645, 7647, 145.

Vineyard Sound: Westerly portion—7575, 7576, and 7589, few 7724, one; 7725, few; 7727, one; 7729, few; 7730, one; 7734 and 7735, many; 7736, one. Narrow portion—7521, one; 7521 (1907), and 7525 bis, few; 7527, few on sulphur sponges; 7531 bis and 7536, few; 7537, 7539, 7540, one each; 7541, few; 7542, many; 7546 and 7547, few; 7549, one; 7551, 7553, 7554, 7556 bis, 7557, 7559, 7560, 7562 and 7732, few; 7733, very many; 7737, one; 7741, one; 7753, few. Easterly portion—7755, few; 7756, one; 7758, one; 7759, 7760, 7763, 7764, 7766, 7767, 7768, 7771, 7772, 7774, and 7775, few; 7776, one; 7777, 7778, 7779, 7780, 7781, 7782, and 7783, few. Inshore—passage of Woods Hole 122, few; Great Ledge, Woods Hole 4, two; Nonamesset 1, 2, and 3, few; 8, many; Naushon 5 and 7, many; 9, few; Tarpaulin Cove 17, few; also July 18, 1903, haul, 1 few; Pasque 25, few; Cuttyhunk 33, few; Gay Head 49, one; 56, many; 7581, one; also off Devils Bridge August 17, 1903, haul 3, few, haul 4, many; Menemsha Bight 53 and 54, few; Marthas Vineyard 55 and 61, few; 63, many; 64, few; 65, many; 66 and 67, few; 77, many; 7761, few; Vineyard Haven 70 and 71, many; 72, few; 7762, many on shells. Drifted fragments 7544, 7548, 7561.

Summer.

Farlow, 1873, p. 288, Woods Hole, Edgartown, Buzzards Bay; A. A. B. Ex., fas. II, no. 64, Woods Hole (W. G. Farlow).

Order CRYPTONEMIALES.

Family GLOIOSIPHONACEÆ.

*Gloiosiphonia capillaris* (Hudson) Carmichael.

Occasional.

Mattapoisett (F. S. Collins).

May 30, 1905 (Collins).

Family NEMASTOMACEÆ.

*Nemastoma Bairdii* Farlow.

Rare. Known only from a single specimen washed ashore at Gay Head in August, 1871 (Farlow).

Farlow, 1873, p. 290 (*Nemalion multifidum* J. Agardh), "a specimen bearing tetraspores picked up at Gay Head"; Farlow, 1875, p. 372 (*Nemastoma* ? *Bairdii* n. sp.), Gay Head; Farlow, 1876, p. 702 (? *Nemastoma Bairdii* Farlow), Gay Head; Farlow, 1881, p. 142 (*Nemastoma* ? *Bairdii* Farlow), Gay Head.

Family RHIZOPHYLLIDACEÆ.

*Polyides rotundus* (Gmelin) Greville. [Chart 262.]

Common, on stones in fairly deep water. Dredged by the Survey in 1½ to 15 fathoms (most plentiful in 4 to 10 fathoms), over sandy, shelly, and stony bottoms, occasionally over mud. A scattered distribution in both Bay and Sound, but not present in the extreme upper portions of Buzzards Bay.

Buzzards Bay: Lower portion—7659, many; 7660 and 7666, few. Inshore—Cuttyhunk 100 and 101, few; Penikese 113, many; 114, few; Gull Island 115, few; 116, many; Nashawena 78, 79, and 81, few; Pasque 82, few; 83, many; 84 and 85, few; Naushon 86 and 91, many; Weepeckets 108, few; 109, one; Hog Island Point 134, one. Drifted fragments 7613, 7652.

*Polydides rotundus*—Continued.

Vineyard Sound: Westerly portion—7701, one; 7717, few. Narrow portion—7526 (1907), few; 7532 bis, one; 7533 bis, few; 7536, one; 7541 bis, few; 7548, one; 7560, few; 7749, one; 7751, one; 7752, many. Easterly portion—7759, 7766 and 7581 (1907), few. Inshore—Nonamesset 1 and 3, few; Pasque 24, many; 25, few; Nashawena 30 and 31, many; Cuttyhunk 32, 33, and 34, many; 38, few; Gay Head 44, few; 46, 47, and 48, many; 56, 57, 58 and 60, few; 7581 (1907), few; also off Devils Bridge August 17, 1903, hauls 1 and 2, few; Marthas Vineyard 55, 62, 68, 69, 73, 74, and 77, few; 7761, one.

Summer.

Farlow, 1873, p. 290, Gay Head.

## Family SQUAMARIACEÆ.

*Rhododermis Georgii* (Batters) Collins. (Taxonomic position uncertain).

Abundant, on *Zostera* in company with *Myriomena vulgare*, *Hecatonema maculans*, etc.

Woods Hole: Little Harbor (Collins).

April 23, 1905 (Collins).

Collins, 1906b, p. 160, Woods Hole.

P. B.-A., fas. xxvi, no. 1299, Woods Hole, April 23, 1905 (F. S. Collins).

## Family CORALLINACEÆ.

*Corallina officinalis* Linnæus. [Chart 263.]

Common, on stones and rocks below low-tide mark and in fairly deep waters. Dredged by the Survey in 2 to 13½ fathoms (most plentiful in 4 to 10 fathoms), over sandy, shelly, and stony bottoms. Distribution chiefly in the lower portion of Buzzards Bay and westerly portion of Vineyard Sound.

Woods Hole: Juniper Point, Buzzards Bay shore. Nobska. Black Rock.

Buzzards Bay: Lower portion—7663, many. Inshore—Sow and Pigs 111, many; Cuttyhunk 100, 101, and 112, few; Penikese 113, few; Gull Island 116, many; Weepecket 108, few. Drifted fragments, 82, 83, 99.

Vineyard Sound: Westerly portion—7566, 7583, and 7596, few. Narrow portion—7531 bis, many. Inshore—Robinsons Hole 20, two; 21, few; Quicks Hole 29, few; Nashawena 30, many; Cuttyhunk 32, 34, and 38, many; Sow and Pigs 35, few; 36, many; 37, few; Gay Head 44 and 45, few; 47, many; 48, few; 56 and 57, many; 58 and 60, few; 7581, few; also off Devils Bridge August 17, 1903, hauls 1 and 2, few; Marthas Vineyard 52 and 63 few. Drifted fragments, 39, 7726.

Summer, winter, undoubtedly at all seasons.

Farlow, 1873, p. 288, Woods Hole, Gay Head.

*Hildenbrandia prototypus* Nardo. (Taxonomic position uncertain.) [Chart 264.]

Common, on stones and rocks near low-tide mark and in fairly deep water. Dredged by the Survey in 1½ to 14 fathoms (most plentiful in 4 to 10 fathoms), over sandy, shelly, and stony bottoms. A scattered distribution in both Bay and Sound, chiefly at inshore stations.

Woods Hole: Grassy Ledge, Juniper Point, Buzzards Bay shore. Nobska. Tarpaulin Cove. Black Rock.

Buzzards Bay: Inshore—Sow and Pigs 111, many; Cuttyhunk 102, few; Gull Island 116, many; Pasque 82, few; Naushon 91, few; Hog Island Point 134, many; Cataumet Harbor 142, few.

Vineyard Sound: Narrow portion—7533 bis, few; 7544 bis, 7546 bis, and 7547 bis, many; 7747, few. Easterly portion—7757, 7759, 7760, 7766, 7777, 7778, and 7780, few. Inshore—Robinsons Hole 21 and 22, many; Quicks Hole 28, few; Gay Head 58 and 59, many; also off Devils Bridge August 17, 1903, hauls 3 and 4, many; Menemsha Bight July 17, 1905, haul 1, one; haul 3, few; Marthas Vineyard 62 and 63, few; 65, many; 66, few; 69, many; 73, many; 74 and 77, few; Vineyard Haven 70, few.

Summer, undoubtedly at all seasons.

Farlow, 1873, p. 290 (*Hildenbrandia rubra* Meneghini), Woods Hole.

*Lithothamnion polymorphum* (Linnæus) Areschoug. [Chart 265.]

Common, on stones and shells in fairly deep water. Dredged by the Survey in 2 to 15 fathoms (most plentiful in 4 to 10 fathoms), over sandy, shelly, and stony bottoms. A scattered distribution in both Bay and Sound.

Buzzards Bay: Upper portion—7621, one. Lower portion—7659, few. Inshore—Sow and Pigs 111, many; Gull Island 116, many; Nashawena 81, one; Pasque 85, one; Weepeckets 108, few; Penzance 123, many; Quisset 128, many; West Falmouth 132, many; Hog Island Point 134, many; Mishaum Point 167, many.

Vineyard Sound: Narrow portion—7524 bis, 7525 bis, 7533 bis, many; 7534, few; 7534 bis and 7535 bis, many; 7539 and 7539 bis, few; 7544 bis, many; 7752, few. Easterly portion—7757, few; 7760, many; 7763 (1907), 7764, 7766, 7767, 7769, 7772, and 7778, few. Inshore—Nonamesset 3, few; Naushon 5, one; Robinsons Hole 21, many; Quicks Hole 28, one; Sow and Pigs 35, few; Gay Head 57, 58, 59, and 60, many; Marthas Vineyard 52, few on shells; 62, 63, 65, 66, 69, 73, 74, and 77, few; Vineyard Haven 70 few.

Summer, winter, undoubtedly at all seasons.

*Melobesia farinosa* Lamouroux.

Common, on *Fucus vesiculosus*, *Chondrus*, *Phyllophora*, and *Zostera*, at low-tide mark and in fairly deep water. Dredged by the Survey in 3½ to 11½ fathoms, over sandy and stony bottoms. A scattered distribution at inshore stations along Marthas Vineyard.

Woods Hole: Juniper Point. Nobska. Gay Head.

Vineyard Sound: Inshore, Gay Head 57 and 58, many on *Chondrus* and *Phyllophora*; Marthas Vineyard 69, 75, and 76 many on *Zostera*.

Summer.

Farlow, 1881, p. 180, 181, Woods Hole; P. B.-A., fas. iv, no. 200, Woods Hole, August 13, 1895 (W. A. Setchell and W. J. V. Osterhout).

*Melobesia Lejolisii* Rosanoff.

Very common, on *Zostera* both in shallow and fairly deep water. Dredged by the Survey in 2 to 12½ fathoms, over sandy, stony, and muddy bottoms. A scattered distribution in Vineyard Sound where *Zostera* is found, undoubtedly also present along the shore of Buzzards Bay.

Woods Hole: Grassy Ledge, Eel Pond, Little Harbor. Quisset Harbor. Tarpaulin Cove.

Vineyard Sound: Westerly portion—7728 and 7729, many. Narrow portion—7525 bis, many. Easterly portion—7777 and 7779, many; 7780 and 7782, few. Inshore—Great Ledge, Woods Hole, 4, many; Quicks Hole 29, many; Menemsha Bight, August 9, 1904, abundant; Marthas Vineyard 61, 62, and 63, many; 64, few; 67, 69, 73, 75, and 76, many; 77, few; Vineyard Haven 70 and 72, few. Drifted fragments, 7543 bis, 7565 bis, 7737, 57, 59.

Summer.

Farlow, 1881, p. 180, Woods Hole.

*Melobesia membranacea* (Esper) Lamouroux.

Occasional, on *Chondrus* and *Phyllophora* in fairly deep water. Dredged by the Survey in

*Melobesia membranacea*—Continued.

3½ to 10 fathoms, over sandy and stony bottoms. Distribution chiefly in the lower portion of Buzzards Bay and westerly portion of Vineyard Sound.

Buzzards Bay: Lower portion—7672, many on *Chondrus*. Inshore—Sow and Pigs 111, many on *Chondrus* and *Phyllophora*; Cuttyhunk 100, many on *Phyllophora*; 103, few.

Vineyard Sound: Narrow portion—7739, few on *Phyllophora*. Inshore—Gay Head 56, 57, and 58, many on *Chondrus* and *Phyllophora*; Marthas Vineyard 63 and 65, few on *Phyllophora*.

Summer.

*Melobesia pustulata* Lamouroux.

Common, on *Ascophyllum*, *Chondrus*, and *Phyllophora*, at low-tide mark and in fairly deep water. Dredged by the Survey in 1½ to 14 fathoms, over sandy, shelly, and stony bottoms. Distribution chiefly off Cuttyhunk, Sow and Pigs, and Gay Head, but also in the easterly portion of Vineyard Sound.

Woods Hole: Little Harbor. Tarpaulin Cove. Weepecket (Farlow).

Buzzards Bay: Inshore—Cuttyhunk 112, many. Vineyard Sound: Westerly portion—7582, many on *Chondrus*. Easterly portion—7764 and 7765, few; 7768 and 7770, many on *Chondrus*. Inshore—Cuttyhunk 32, 34, and 38, many on *Chondrus*; Sow and Pigs 36, many on *Chondrus*; Gay Head 44, few; 45, 46, 47, and 49, many on *Chondrus* and *Phyllophora*; 57, few on *Chondrus* and *Phyllophora*; also off Devils Bridge, August 17, 1903, hauls 3 and 4, many on *Chondrus*.

Summer.

Farlow, 1873, p. 288, Woods Hole, Gay Head, Weepecket; P. B.-A., fas. vi, no. 300, Little Harbor, Woods Hole, July 31, 1895 (W. A. Setchell).

DISTRIBUTION OF *ZOSTERA MARINA* IN THE DEEPER WATERS OF BUZZARDS BAY AND VINEYARD SOUND.

*Zostera marina* Linnæus. Eelgrass. [Chart 266.]

Abundant, in quiet shallow waters along the shore. Dredged by the Survey in 2 to 13 fathoms, over sandy, stony, and muddy bottoms. Distribution in the deeper waters chiefly at inshore stations along Marthas Vineyard, but scattered in other portions of Vineyard Sound, and also in Buzzards Bay.

Woods Hole: Shallow water of Great and Little Harbors, Eel Pond, Grassy Ledge, Ram Island, Devils Foot Island. Hadley Harbor. Quisset Harbor. Tarpaulin Cove. Menemsha Bight. Cuttyhunk Harbor.

Buzzards Bay: Lower portion—7663, much; 7674 and 7675, few. Inshore—Cuttyhunk Harbor 104, much; Uncatena 117, few; West Falmouth 136 and 137, few. Drifted fragments, 7633, 7651 (1907), 7653, 7657, 7458, 79, 105, 150, 151, 152, 153, 156, 158, 161.

Vineyard Sound: Westerly portion—7728 and 7729, few. Narrow portion—7525 bis, few. Easterly portion—7777, 7778, 7779, 7780 and 7781, much; 7782 and 7783, few. Inshore—Great Ledge, Woods Hole 4, few; Tarpaulin Cove 17, few; also July 18, 1903, haul 1, much; Quicks Hole 29, few; Marthas Vineyard 61, 62, and 63, much; 64, few; 65, much; 66, few; 67, much; 68, 69, 70, 72, 73, 74, 75, 76, and 77, few. Menemsha Bight August 9, 1904, much. Drifted fragments 7543bis, 7546, 7547, 7548, 7551, 7557, 7562, 7565bis, 7588, 7731, 7733, 7737, 7740, 7775, 57, 59.

Summer, the creeping stems living throughout the winter.

#### MARINE ALGÆ WHICH MAY BE EXPECTED IN THE WATERS OF WOODS HOLE AND VICINITY.

There is given below a list of marine algæ which have been reported sufficiently near to the region covered by this survey, and under sufficiently similar life conditions, to indicate that they are likely to be found sooner or later in the waters of Woods Hole or vicinity.

#### CYANOPHYCEÆ:

*Dermocarpa violacea* Crouan.

*Lyngbya lutea* (Agardh) Gomont.

*Lyngbya subtilis* Holden.

*Nodularia spumigena* var. *litorea* (Kützling) Bornet & Thuret.

*Plectonema terebrans* Bornet & Flahault.

*Rivularia Biasoletiana* Meneghini.

*Spirulina Meneghiniana* Zanardini.

#### CHLOROPHYCEÆ:

*Chlorocystis Cohnii* (Wright) Reinhart.

*Enteromorpha marginata* J. Agardh.

*Entoderma Wittrockii* (Wille) Lagerheim.

*Monostroma latissimum* (Kützling) Wittrock.

*Urospora penicilliformis* (Roth) Areschoug.

#### PHÆOPHYCEÆ:

*Ectocarpus dasycarpus* Kuckuck.

*Halothrix lumbricalis* (Kützling) Reinke.

*Myriotrichia claviformis* Harvey.

*Rhadinocladia cylindrica* Schuh.

#### RHODOPHYCEÆ:

*Bangia ciliaris* Carmichael.

*Melobesia Corallinae* Crouan.

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