VII

THE SEAWEEDS OF CANSO.

BEING A CONTRIBUTION TO THE STUDY OF EASTERN NOVA SCOTIA ALGÆ

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The month of August spent by me at the Marine Biological Station during its second season at Canso (1902) was almost entirely devoted to the determination of the Marine Algæ.

The region was such as to permit the gathering of species having the most varied habitat, deep-water forms being occasionally dredged in great abundance, while *Laminariæ* and *Fuci*, with their associates, grew nearly everywhere below and between tide marks. Tide pools of varying range and size were also easily accessible, and the quieter coves and the wharves yielded other forms. My available time, indeed, proved quite too short for a complete investigation of this portion of the flora of the district.

The clear water frequently made it possible to see large patches of algæ growing upon the bottom at depths of about ten fathoms. The results obtained by dredging in these and somewhat deeper places indicated that the bulk of this was composed of *Ptilota pectinata*, acting as host, however, to many hydroids and other small animals, besides several species of red algæ. Of the latter, *Delesseria alata* was much the most frequent, though the plant seen thus in greatest quantity upon any single occasion was *Euthora cristata angustata*. *Rhodophyllis dichotoma* was also obtained several times, and four species of *Callithamnion* occurred, of which *C. Pylaisæi* and *C. Americanum* were the most plentiful. A small form of this genus, also one each of *Ceramium* and *Polysiphonia*, were often found upon the larger algæ and upon hydroids. These were always sterile, and could not be identified. On the stouter portions of *Polysiphonia* two microscopic encrusting species also grew, one *Erythrotrichia ceramicola*, the other may be the European *Actinococcus*.

Odonthalia dentata and *Rhodomela subfusca* were each dredged on a single occasion only.

In deep places under wharves beautiful specimens of *Delesseria sinuosa* could be gathered, and it also was frequently found in the dredge. The corallines were also abundant, and six species of *Polysiphonia* were collected, of which *P. urceolata*, often fruiting, was the most plentiful. The determination of *P. Olneyi* rests upon a few sterile filaments, and may be inaccurate.

But perhaps the most striking fact regarding the red algæ was the comparative scarcity of some of the best known and most widely distributed genera. *Ceramium* was represented by a few filaments; *Chondrus* and *Rhodymenia* were seen but rarely, *Gigartina* only once.

The *Phæophyceæ* constitute much the greater part of the littoral flora, and while not quite equalling the *Floridææ* in the total number of species found, far surpass them in individuals.

Among the *Fuci* were *F. evanescens* and *F. filiformis*, the former washed ashore near the laboratory, the latter gathered in tide pools on Cranberry. *F. serratus*, which rivals *F. vesiculosus* in abundance at Pictou, and which has recently been found on the Cape Breton coast, was carefully watched for, and apparently does not occur.

Chorda filum, everywhere plentiful, grew in great luxuriance in Grassy Cove, the fronds usually exceeding twenty feet in length. *Agarum Turneri* was found in several

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localities, *Alaria esculenta* on Cranberry rock only. *Desmarestia viridis* was common both in dredged material and cast up on the shore, *Chordaria flagelliformis* somewhat less so, while *Desmarestia aculeata* was rather rare. *Castagnea virescens* was but once obtained, but the filaments, when examined microscopically, were found to be densely crowded with spores, and very beautiful.

Elachista fucicola was extremely common throughout the month; *Leathesia difformis*, always scarcer, became rare after the first fortnight. A single imperfect specimen of *Chaetopterus plumosa* occurred in plankton.

Ectocarpus was represented by six species and varieties, including *E. Chordariae* and *E. reptans*, the former growing upon *Obelia*, the latter upon *Chorda*. The organism, however, which usually composed the brownish tufts upon the piles of the wharves, was not one of these, but a diatom, *Navicula mollis*, numerous individuals of which were inclosed within tubes of mucilage, thus forming a false filament.

The *Chlorophyceæ* were less carefully studied, and the list is believed to be somewhat incomplete. Six species of *Cladophora* were determined, obtained chiefly from tide pools. A few filaments only were seen of *Chaetomorpha Picquotiana*, though upon one occasion a considerable quantity was found of a plant, which, rather resembling *Cladophora* in general appearance, seemed never to branch, and answered well to the description of *Chaetomorpha longiarticulata*. The filaments were much more slender and less wiry than those of the other species of this genus, and it was probably a *Rhizoclonium*.

The blue-green algæ listed were found as detached filaments, while examining higher forms, no special effort being made to collect them.

It will be noticed that while *Ptilota*, *Euthora*, and *Delesseria sinuosa*, usually considered amongst the most beautiful red algæ of north-eastern America, are common, *Chondrus* and *Rhodomenia*, the more useful genera of this group, are unusually scarce. On the other hand, nearly all the brown algæ of commercial importance may be had in considerable quantities.

Prof. Farlow very kindly named for me some species about which I was in doubt, and to him and to all of the gentlemen with whom I had the privilege of working at the station, my most grateful thanks are due for assistance and helpful suggestions.

The following is a detailed list of the species observed:—

SCHIZOPHYTA.

SCHIZOPHYCEÆ (CYANOPHYCEÆ).

Hormogoneæ.

Oscillatoriaceæ.

Spirulina sp.

Oscillatoria subuliformis Harv.

O. subtorulosa (Bréb.) Farlow.

O. sp.

Nostocaceæ.

Sphærozyga Carmichaelii Harv.

Rivulariaceæ.

Calothrix confervicola Ag.

C. crustacea (Schousb.) Born. Thur.

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CHLOROPHYCEÆ.

CONFEROIDEÆ.

Ulvaceæ.

- Ulvæ Lactuca L.
- U. Lactuca latissima (L.) DC.
- Enteromorpha intestinalis (L.) Link.
- E. Linza (L.) J. G. Agardh.
- E. Hopkirkii McCalla.

Ulothrichaceæ.

- Ulothrix, sp.

Cladophoraceæ.

- Chaetomorpha Picquotiana (Mont.) Kütz.
- Rhizoclonium sp.
- Cladophora arcta (Dillw.) Kütz.
- C. rupestris (L.) Kütz.
- C. refracta (Roth) Aresch.
- C. glaucescens (Griff.) Harv.
- C. lætevirens (Dillw.) Harv.
- C. gracilis (Griff.) Kütz.

PHÆOPHYCEÆ.

PHÆOSPOREÆ.

Ectocarpaceæ.

- Ectocarpus Chordariæ Farlow.
- E. reptans Crouan.
- E. confervoides (Roth) Le Jolis.
- E. siliculosus (Dillw.) Lyngb.
- E. fasciculatus Harv.
- E. littoralis robustus Farlow.

Sphacelariaceæ.

- Chaetopteris plumosa (Lyngb.) Kütz.

Enceliaceæ.

- Scytosiphon lomentarius Ag.

Desmarestiaceæ.

- Desmarestia aculeata Lamx.
- D. viridis Lamx.

Elachistaceæ.

- Elachista fucicola Fries.

Chordariaceæ.

- Leathesia difformis (L.) Aresch.
- Chordaria flagelliformis Ag.
- Castagnea virescens (Carm.) Thuret.

Ralfsiaceæ.

- Ralfsia verrucosa Aresch.

Laminariaceæ.

- Chorda filum, L.
- Laminaria longicruris De la Pyl.
- L. saccharina (L.) Lamx.
- L. saccharina phyllitis Le Jol.
- L. digitata (Turn.) Lamx.
- Agarum Turneri (Post & Rupr.).
- Alaria esculenta (Lyngb.) Grev.

PHÆOPHYCEÆ—Continued.

CYCLOSPOREÆ.

Fucaceæ.

Ascophyllum nodosum Le Jolis.

Fucus vesiculosus L.

F. evanescens Ag.

F. filiformis Gmelin.

RHODOPHYCEÆ.

BANGIALES.

Bangiaceæ.

Erythrotrichia ceramicola (Lyngb.) Aresch.

FLORIDEÆ.

GIGARTINALES.

Gigartinaceæ.

Ahnfeldtia plicata Fries.

Gigartina mamillosa Ag.

Chondrus crispus (L.) Stack.

Rhodophyllidaceæ.

Rhodophyllis dichotoma Lepch.

Euthora cristata (L.) J. A. G.

RHODYMENIALES.

Delesseriaceæ.

Delesseria sinuosa Lamx.

D. alata Lamx.

Rhodymeniaceæ.

Rhodymenia palmata (L.) Grev.

Rhodomelaceæ.

Odonthalia dentata Lyngb.

Rhodomela subfusca Ag.

Polysiphonia urceolata (Dillw.) Grev.

P. Olneyi Harv.

P. violacea flexicaulis Harv.

P. variegata Ag.

P. atrorubescens Grev.

P. nigrescens affinis Ag.

Ceramiaceæ.

Spermothamnion Turneri variabile Harv.?

Callithamnion floccosum Ag.

C. Pylaisæi Mont.

C. Americanum Harv.

C. corymbosum (Engl. Bot.) Lyngb.

Ptilota pectinata (Gunn.) Kjellm.

Ceramium rubrum proliferum Ag.

CRYPTONEMIALES.

Squamariaceæ.

Actinococcus, sp.?

Corallinaceæ.

Corallina officinalis L.

Lithothamnion Lenormandi (Aresch.) Fosl.

Phymatolithon sp.