

V.—*Marine Algæ (exclusive of the Diatomaceæ)*.

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THE total number of marine species of *Algæ* known to be indigenous to Kerguelen Island (excluding *Diatomaceæ*) is 71. The collections upon which this estimate is based are those made respectively by—

Dr. Hooker (Antarctic Expedition) in the winter of 1840 (May—July), chiefly at Christmas Harbour, comprising 39 species ;

Mr. Moseley (Challenger Expedition) in the summer of 1874 (January and February), chiefly at Christmas Harbour and the eastern coast as far as Betsy Cove, comprising 37 species ;

Dr. Kidder (American Transit of Venus Expedition) in the spring and first part of the summer of 1874–5 (Sept. to Jan.) near Molloy Point, towards the entrance of Royal Sound, comprising 22 species ;

And the Rev. A. E. Eaton (English Transit of Venus Expedition) in the spring and summer of 1874–5 (Oct. 11—Feb. 27), in the interior of Royal Sound (Observatory Bay) and in Swain's Bay, comprising 53 species.

The botanical results of the German Transit of Venus and Surveying Expedition, which was stationed for about two months at Betsy Cove, are not yet made known.

Mr. Eaton was at Observatory Bay during October, November, most of December, and the whole of February, during which time he made frequent use of the grapple. In Swain's Bay he collected *Algæ* on nine occasions between the 15th and the 30th of January inclusive. Of the 53 species in his collection 44 were obtained in Swain's Bay, and only 32 at Observatory Bay : 24 species (probably 27 or 28, *vide infra*) are common to both of the areas, 21 occurred (to Mr. Eaton) only in Swain's Bay, and 8 (from which 3 or 4 should be deducted, and added to the species common to both) were collected only in Observatory Bay. The preponderance of the Swain's Bay gatherings may partly be accounted for by the distance of Observatory Bay from the open sea. For Mr. Eaton noticed that in some very retired parts of Swain's Bay the components of the *Alga* flora and their state of growth were very similar to those prevailing at Observatory Bay. In advancing from the more sheltered to more open waters he observed considerable regularity maintained in the rate of change proceeding in the composition of the *Alga* flora ; so that it was possible, while collecting in one place, to conjecture beforehand with tolerable accuracy the number of additional species that would be found in other positions more exposed to the slight swell that enters the bay from the outer sea. And he was of opinion that if it had been possible to have visited the coast external

to the bay, 10 or 12 species would most likely have been added to the 53 in his collection. Judging from the number of species apparently indigenous to unsheltered situations which go to form the 18 that are not represented in his collection, this conjecture may have been not far from the mark.

But the advantages of situation afforded in Swain's Bay for the growth of various Algæ absent from the almost waveless shores of Observation Bay would have availed nothing, had it not been for the liberality and kindness of Captain Fairfax, R.N., in command of H.M.S. "Volage." Having invited Mr. Eaton to be his guest for three weeks, he conveyed him in his gig to almost every part of the bay that was accessible by boat in Kerguelen Island weather, and surrendered his cabins without reservation to the reception of buckets and specimens of all descriptions, excluding only seals and cetacea accommodated elsewhere.

The local distribution of the species round the coast may be ascertained roughly from a comparison of the constituents of the collections above mentioned. Of the 71 species, 14 are common to all of the collections, and 8 common to three out of the four, making together 22 species, which may be regarded as plants generally distributed round the island; 14 are common to Mr. Eaton's collection and one of the other three, and 1 species to Dr. Hooker's and Dr. Kidder's,—together making 15 local plants, mostly of frequent occurrence; 5 are common to Dr. Hooker's collection and Mr. Moseley's (gathered in Christmas Harbour), and 29 are in one of the collections only, making 34 scarce or rare species. Of the 29, there are in Dr. Hooker's collection 7 species, in Mr. Moseley's 4, in Dr. Kidder's 1, and in Mr. Eaton's 17.

As to their general geographical range, 20, or rather more than a quarter of them, are found in various parts of the shores of Europe, and some are cosmopolitan. The following 8, so far as is known, are peculiar to the island:—*Desmarestia chordalis*, *Sphacelaria corymbosa* and *S. affinis*, *Melobesia kerguelena*, *Nitophyllum fusco-rubrum*, *Epymenia variolosa*, *Ptilota Eatoni*, and *Callithamnion simile*.

The following are the numbers of the species after their respective families:—

Fucaceæ, 2.	Sphærococcoideæ, 8.
Sporochneæ, 4.	Gelidiaceæ, 1.
Laminariaceæ, 2.	Rhodymeniaceæ, 4.
Dictyotaceæ, 2.	Cryptonemiaceæ, 11.
Chordariaceæ, 3.	Ceramiaceæ, 7.
Ectocarpaceæ, 3.	Siphonaceæ, 3.
Rhodomelaceæ, 4.	Ulvaceæ, 5.
Laurenciaceæ, 2.	Confervaceæ, 7.
Corallinaceæ, 3.	

Of these 16 belong to the Olive, 40 to the Red, and 15 to the Green Series.

There are also included in the present paper, for convenience, 4 freshwater species:—*Bostrychia vaga*, *Vaucheria Dillwynii*, *Ulva cristata*, and *Prasiola fluviatilis*.

1. **D'Urvillea utilis**, *Bory*; *Flor. Antarct.* 454; *Dickie in Journ. Linn. Soc.* xv. 43, 198; *Farlow in Bull. U. S. Nat. Mus.* 3, 30.

On exposed rocks at and below half-tide level, not in very sheltered situations; abundant.—In the Southern ocean, between lat. 45° and 55° S., reaching to lat. 65° S. in the meridian of New Zealand (Hooker).

2. **D'Urvillea Harveyi**, *Hook. f. Flor. Antarct.* 456, t. clxv., clxvi.; *Dickie in Journ. Linn. Soc.* xv. 44, 198; *Farlow in Bull. U. S. Nat. Mus.* 3, 30.

In positions still more open than *D. utilis*. (Cape Horn and the Falklands.)

1. **Desmarestia Rossii**, *Hook. f. and Harv., Flor. Antarct.* 467, t. clxxii., clxxiii.; *Dickie in Journ. Linn. Soc.* xv. 44, 198.

Swain's Bay on rocks in 3 fathoms, at the end of an island about 2 miles within the entrance of the bay, exposed to a slight swell from the open sea; local and not common, *Eaton*. (Fuegia, Falkland Islands, Heard Island, *Moseley*.)

2. **Desmarestia chordalis**, *Hook. f. and Harv., Flor. Antarct.* 467; *Dickie in Journ. Linn. Soc.* xv. 44, 198.

Swain's Bay, in 3 fathoms, with the preceding; very local, *Eaton*. Christmas Harbour, *Hooker, Moseley*. (Kerguelen Island only.)

A very graceful species. The fronds, upwards of 4 feet in length, are arranged in a manner similar to those of a fern, and cause the plant, as seen *in situ* from a boat, to bear a general resemblance in contour to such species as *Aspidium filix-mas*.

3. **Desmarestia aculeata**, *Lyngb.* Var. MEDIA, *Grev.*; *Hook. f. and Harv., Flor. Antarct.* 466; *Dickie in Journ. Linn. Soc.* xv. 44, 198.

Between tide-marks, Swain's Bay, *Eaton*. Cockburn Island (*Hooker*); and in North temperate and Arctic seas.)

4. **Desmarestia viridis**, *Lamx.*; D. VIRIDIS (and var. β . DISTANS), *Hook., Flor. Antarct.* ii. 466; *Dickie in Journ. Linn. Soc.* xv. 44, 198; *Farlow in Bull. U. S. Nat. Mus.* 3, 30.

Christmas Harbour, *Hooker, Moseley*. In 2 fathoms, Royal Sound and Swain's Bay; common, *Eaton*. (Marion Island; the Falklands; Cape Horn; American coast from New York northwards; Unalaska; Hunde Island; W. coast of Europe.)

1. **Macrocystis pyrifera**, *Ag.*; *Flor. Antarct.* 461, t. clxix., clxx.; *Dickie in Journ. Linn. Soc.* xv. 44, 198; *Farlow in Bull. U. S. Nat. Mus.* 3, 30.

Abundant along rocky portions of the coast. (Antarctic Sea, from lat. 40° to 60° S.; New Zealand; Indian Ocean; Marion Island; Chili; California.)

1. **Lessonia fuscescens**, *Bory.*; *Flor. Antarct.* 457, t. clxvii., clxviii. A., and clxxi. D.; *Dickie in Journ. Linn. Soc.* xv. 44.

In exposed situations; Christmas Harbour, rare, *Hooker* and *Moseley*. (Chili, Fuegia, Falkland Islands, Cockburn Island, Auckland and Campbell Islands.)

1. **Asperococcus sinuosus**, *Roth*; *Flor. Antarct.* ii. 468; *Dickie in Journ. Linn. Soc.* xv. 198.

Crevices of rocks between tide-marks, Observatory Bay (two very small specimens), *Eaton*. (Widely distributed from the latitude of Spain to the Falklands; Florida; California; Japan.)

1. **Dictyosiphon fasciculatus**, *Hook. f. and Harv. Flor. Antarct.* 178, 467, t. lxi. 1.

Christmas Harbour, *Hooker*. (Falkland and Auckland Islands.)

1. **Adenocystis Lessonii**, *Hook. f. and Harv. Flor. Antarct.* i. 179, 468, t. lxi. 2 (details); *Dickie in Journ. Linn. Soc.* 1876, xv. 44, 198; *Farlow in Bull. U. S. Nat. Mus.* 3, 30.

Between tide-marks, abundant; scarcer but more finely grown in shallow estuaries (there, occasionally, as much as 5 or 6 inches long); Christmas Harbour, Royal Sound, Swain's Bay, &c. (Cape Horn; Falklands; Cockburn Island; Auckland and Campbell Islands.)

1. **Scytosiphon lomentarium**, *Grev.*; *Flor. Antarct.* 468 (*Chorda*).

Christmas Harbour, *Hooker*. (Falkland and Auckland Islands, Pacific Ocean to Japan and S. America; the Atlantic from the Farøe Islands to Cadiz; Mediterranean.)

1. **Elachista flaccida**, *Aresch.*; *Dickie in Journ. Linn. Soc.* xv. 199.

On *Rhodymenia palmata* in very shallow water along the shore in Observatory Bay, *Eaton*. (Atlantic coasts of France and Britain; Baffin's Bay.)

1. **Ectocarpus geminatus**, *Hook. f. and Harv. Flor. Antarct.* 469; *Dickie in Journ. Linn. Soc.* xv. 44, 199.

Plentiful on *Desmarestia* at Christmas Harbour, *Moseley*. Very slender solitary young plants on Annelid tubes, at 5 fathoms; stronger and more bushy, with trichosporangia only (but these abundant), on *Mytilus* at 1 fathom, and in tide pools, Observatory Bay; frequent in Swain's Bay among *Cladophora flexuosa* in pools and shallow water, *Eaton*. (Falklands and Cape Horn.)

1. **Sphacellaria corymbosa**, *Dickie in Journ. of Bot.* v. 50 (1876), *et in Journ. Linn. Soc.* xv. 199. ? *S. funicularis*, *Mont.*; *Flor. Antarct.* 469; *Farlow in Bull. U. S. Nat. Mus.*, 3, 30; fronde estuposa, filis cæspitosis, ramis inferne paucis dichotomis superne subpinnatim decompositis, ramulis alternis corymbosis.

On shells of *Mytilus* and on Annelid tubes; Swain's and Observatory Bays, *Eaton*.

The specimens are 2 to 3 inches long, cæspitose, but without fruit. Dr. Hooker's plant obtained at the Falklands, and Dr. Kidder's from the vicinage of Molloy Point in Royal Sound, are probably the same as the preceding.

2. **Sphacellaria affinis**, *Dickie in Journ. of Bot.* v. 50 (1876), *et in Journ.*

Linn. Soc. xv. 199; filis dense cæspitosis erectis parce dichotomis, articulis diametro subæqualibus vel paulo longioribus, trichosporangiis solitariis obovatis breviter pedicellatis.

On shells of *Mytilus* in rather open situations; Swain's Bay, *Eaton*.

The specimens are about $\frac{1}{2}$ inch in height, and are similar in habit to the British *S. radicans*.

1. **Rhodomela Hookeriana**, *Ag.*; *Rhodomela Gaimardi Hook. f. and Harv. Flor. Antarct.* 481, t. clxxxiv. (*non Gaud.*); *Farlow in Bull. U. S. Nat. Mus.* 1876, 3, 30; *Dickie in Journ. Linn. Soc.* xv. 199.

Swain's and Observatory Bays, frequent, *Eaton*; near Molloy Point, one specimen, *Kidder*. (Falklands and Fuegia.)

1. **Polysiphonia abscissa**, *Hook. f. and Harv. Flor. Antarct.* 480, t. clxxxiii. 2; *Dickie in Journ. Linn. Soc.* xv. 199.

Forma microcarpa; *P. microcarpa*, *Hook. f. and Harv.* 479, t. clxxxii. 3; *Harv. Ner. Aust.* 42.

On roots of *Macrocystis*, and on tubes of Annelides, in 1 to 5 fathoms, Observatory Bay, *Eaton*. (New Zealand; Tasmania; Fuegia).

There are two forms of this species, one of them smaller and more rigid than the other. The *P. microcarpa* of the Flora Antarctica represents one of them, *P. abscissa* the other.

2. **Polysiphonia anisogona**, *Hook. f. and Harv. Flor. Antarct.* 478, t. clxxxii. 2; *Dickie in Journ. Linn. Soc.* xv. 44.

Kerguelen Island, *Moseley*. (Falklands and Fuegia, *Hooker*.)

1. **Dasya Berkeleyi**, *Mont.*; *Dickie in Journ. Linn. Soc.* xv. 44, et 199 (var. β *Davisii*); *Farlow in Bull. U. S. Nat. Mus.* 3, 30. *Polysiphonia punicea*, *Hook. f. and Harv. Flor. Antarct.* i. 182; (*Heterosiphonia*) *Berkeleyi*? var. β *Davisii*, *idem*, 480.

Swain's Bay, on the seaward sides of islands, *Eaton*; Royal Sound, *Kidder*. (Auckland Islands, Marion Island, Falklands, Fuegia, Chilöe.)

Mr. Eaton's specimens belong to the var. β *Davisii*, having a habit and colour different from those of the typical plant. There are examples in different stages; but in all the ramuli are heterosiphonous.

1. **Bostrychia vaga**, *Hook. f. and Harv. Flor. Antarct.* 484, pl. clxxxvi. i. (*Stictosiphonia*).

Christmas Harbour, on rocks and stones above high water mark, and in damp places a considerable distance from the sea, abundant, *Hooker*.

1. **Delisea pulchra**, *Mont.*; *Flor. Antarct.* 484; *Dickie in Journ. Linn. Soc.* xv. 45.

Christmas Harbour, *Hooker*, *Moseley*. (Heard Island, S. Tasmania, W. and E. Australia.)

1. **Ptilonia magellanica**, *Mont.*; *Dickie in Journ. Linn. Soc.* xv. 45, 200;

Farlow in Bull. U. S. Nat. Mus. 1876, 3, 30. *Plocamium?* *magellanicum*, *Hook. f. and Harv. Flor. Antarct.* 474. *Thamnophora magellanica*, *Mont.*

Christmas Harbour, *Hooker, Moseley*. In tideways and on parts of islands open to a slight swell from the outer sea, not in sheltered waters; Swain's Bay, *Eaton*; Royal Sound, *Kidder*. (Falklands and Fuegia.)

1. **Melobesia antarctica**, *Ag.*; *Dickie in Journ. Linn. Soc.* xv. 200. *M. verrucata*, *Lamx*; *Dickie l. c.* 45. *M. verrucata*, var. *antarctica*, *Hook. and Harv. Flor. Antarct.* 482.

On *Ballia*, &c., Swain's Bay, *Eaton*; Christmas Harbour, *Hooker*. (Fuegia, Falklands, Tasmania, New Zealand, Auckland, Antarctic Seas.)

2. **Melobesia lichenoides**, *Ell. and Sol.*; *Dickie in Journ. Linn. Soc.* xv. 200.

Swain's Bay; common, *Eaton*. The only example preserved was grappled in about 2 fathoms in a tideway between two islands, incrusting two sponges (*Microciona atosanguinea*, *Bk.*, and *Halichondria incrustans*, *Jtn.*; both British species.) It is normal in habit, texture, and in the character of the keramidia, and is very luxuriant, measuring about 3 inches square. (St. Paul's Island, Norfolk Island, the Mediterranean, France, Britain, Baffin's Bay.)

3. **Melobesia kerguelena**, *Dickie in Journ. Bot.* v. 51, 1876, *et in Journ. Linn. Soc.* xv. 200; simplex, $2\frac{1}{2}$ poll. diam., dura, crassa, tantum in medio subtus adhærens, subconvexa, circumscriptione orbiculari, margine lævi parce undulata, keramidiis conspicuis numerosis plerumque in seriebus concentricis dispositis.

Swain's Bay in 2-3 fathoms, with the preceding, *Eaton*.

Mr. Eaton has an impression that this grows upon *Ballia* or *Ptilota*, but I should rather be disposed to suspect that it was attached to rocks. The description was taken from an almost complete specimen; there are fragments of others whose contour is less regular, probably through interference of external objects. All of them are in colour of a very pale buff or dull yellowish hue, varied with pale red tints.

1. **Delesseria Lyallii**, *Hook. f. and Harv. Flor. Antarct.* 471, t. clxxxvi; *Dickie in Journ. Linn. Soc.* xv. 45, 200; *Farlow in Bull. U. S. Nat. Mus.* 1876, 3, 30.

Christmas Harbour, *Hooker* (but not seen attached), *Moseley*. Observatory Bay (ill grown), and Swain's Bay (well grown), abundant, *Eaton*. (Marion Island, Falklands.)

Dr. Hooker obtaining only wrecked specimens at Christmas Harbour, was led to suppose that this species was a resident of the exposed coast. It is however common in the very sheltered waters of Observatory Bay, though it certainly does not thrive there; and it is abundant and luxuriant round the islands in Swain's Bay, in 3-5 fathoms.

2. **Delesseria Davisii**, *Hook. f. and Harv., Flor. Antarct.* 470, t. clxxv.; *Dickie in Journ. Linn. Soc.* xv. 45, 200.

Swain's Bay; normal on *Mytilus* in sheltered places at or just below low-water mark; varying in more open situations, *Eaton*. (Falklands and Fuegia, *Hooker*.)

3. **Delesseria quercifolia**, *Bory.*; *Flor. Antarct.* 471; *Dickie in Journ. Linn. Soc.* xv. 200.

Swain's Bay, frequent, *Eaton*. (Falklands and Fuegia, *Hooker*.)

4. **Delesseria crassinervia**, *Mont.*; *Flor. Antarct.* 471; *Dickie in Journ. Linn. Soc.* xv. 200.

Swain's Bay, near the surface of the water; Observatory Bay, only one ill-grown example, *Eaton*. (Fuegia, Falkland, Auckland and Campbell Islands.)

1. **Nitophyllum fusco-rubrum**, *Hook. f. and Harv., Flor. Antarct.* 472; *Dickie in Journ. Linn. Soc.* xv. 45, 200; *Farlow in Bull. U. S. Nat. Mus.* 1876, 3, 30.

Christmas Harbour, *Hooker*. Abundant in open water in Swain's Bay, not found in sheltered places, *Eaton*. There is a variety in the collection with coccidia. Mouth of Royal Sound, *Kidder*.

2. ? **Nitophyllum multinerve**, *Hook. f. and Harv., Flor. Antarct.* 473; *Dickie in Journ. Linn. Soc.* xv. 45.

Christmas Harbour (one specimen referred to this species with doubt, *Moseley*). (Falklands and Fuegia, *Hooker*.)

3. **Nitophyllum lividum**, *Hook. f. and Harv., Flor. Antarct.* 472, t. clxxix.; *Farlow in Bull. U. S. Nat. Mus.* 1876, 3, 30; *Dickie in Journ. Linn. Soc.* xv. 201.

In very sheltered water (one example only) at 6 to 10 fathoms, Swain's Bay, *Eaton*. Royal Sound, *Kidder*. (Falklands, *Hooker*.)

4. **Nitophyllum laciniatum**, *Hook. f. and Harv., in London Journ. of Bot.* iv. 256; *Dickie in Journ. Linn. Soc.* xv. 201. *N. Bonnemaïsoni* var. *laciniatum*, *Hook. f. and Harv. l. c.* 474.

Swain's Bay, frequent, in 3 to 5 fathoms, *Eaton*. (Falklands and Fuegia, *Hooker*.)

1. **Chætangium variolosum**, *Mont.*; *Dickie in Journ. Linn. Soc.* xv. 45, 201. *Notogenia variolosa*, *Mont.*; *Flor. Antarct.* 487.

Christmas Harbour, very abundant, *Hooker*, *Moseley*. Observatory and Swain's Bays, abundant between tide marks. (Fuegia, Falklands, Auckland Islands.)

1. **Plocamium Hookeri**, *Harv. in Flor. Antarct.* 474; *Dickie in Journ. Linn. Soc.* xv. 45, 201.

Christmas Harbour, *Hooker*, *Moseley*. Swain's Bay, local, at 2 to 3 fathoms, in situations open to a slight swell from the outer sea, *Eaton*. (Heard Islands, *Moseley*.)

1. **Rhodophyllis capensis**, *Kütz.*; *Dickie in Journ. Linn. Soc.* xv. 201.

Swain's and Observatory Bays, sparingly, on tubes of Annelides, in 3-5 fathoms, *Eaton*. (Table and Simon's Bays.)

The few specimens collected by Mr. Eaton are dwarf and very narrow. They all have the structure of the genus, and must, I think, be referred to the above species.

1. **Rhodymenia palmata**, *Linn.*; *Flor. Antarct.* 475; *Farlow in Bull. U. S. Nat. Mus.* 1876, 3, 30; *Dickie in Journ. Linn. Soc.* xv. 201.

Swain's Bay and Royal Sound, common in tide pools and shallow water; very luxuriant specimens. Also a dwarf form of olivaceous complexion, growing between tide marks, dry at low water, in Swain's Bay, *Eaton*. (Falkland Islands; Fuegia; Unalashka; Greenland; Newfoundland; Scandinavian, British, and French coasts.)

2. **Rhodymenia corallina**, *Grev.*; *Flor. Antarct.* 475; *Farlow in Bull. U. S. Nat. Mus.* 1876, 3, 30.

On roots of *Macrocystis*, Christmas Harbour, rare, *Hooker*; Royal Sound, *Kidder*.

1. **Phyllophora cuneifolia**, *Hook. f. and Harv.*, *Flor. Antarct.* 486; *Dickie in Journ. Linn. Soc.* xv. 201. *P. Brodiaei*, *Turn.?* *Flor. Antarct.* l. c.; *Dickie l. c.*

Christmas Harbour, rare, *Hooker*. Swain's Bay, rare, in very sheltered water, at 5-10 fathoms, *Eaton*. (Falkland Islands.)

Professor Agardh (loc. cit.) considers with the authors of this species that it is probably a form of *P. Brodiaei*.

1. **Ahnfeltia plicata**, *Huds.*; *Dickie in Journ. Linn. Soc.* xv. 46, 201. *Gigartina plicata*, *Hook. f. and Harv.*, *Flor. Antarct.* 487.

Local, between tide marks near Observatory Bay, *Eaton*; Christmas Harbour, abundant, *Hooker*. (Falkland Islands; temperate and colder seas in the northern hemisphere.)

1. **Callophyllis variegata**, *Bory.*; *Dickie in Journ. Linn. Soc.* xv. 46, 201; *Farlow in Bull. U. S. Nat. Mus.* 1876, 3, 31. *Rhodymenia variegata* (*in part*), *Hook. f. and Harv.* *Flor. Antarct.* 475.

Christmas Harbour, *Hooker*. Swain's and Observatory Bays, in sheltered situations, *Eaton*. Royal Sound, *Kidder*. (Auckland Islands; New Guinea; Falklands; Fuegia; Chili; Peru; California.)

Mr. Eaton's collection comprises different forms of this very variable species:— from Observatory Bay, on *Mytilus* in sheltered water, a variety with small marginal kalidia; from Swain's Bay var. β *atro-sanguinea*, also a narrow variety (?), torn at the apex and proliferous; and in addition var. γ on roots of *Macrocystis* in very sheltered water.

2. **Callophyllis dichotoma**, *Kütz.* *Rhodomenia dichotoma*, *Hook. f. and Harv., Flor. Antarct.* 186, t. lxxii. 1.

Swain's Bay, one specimen only, *Eaton.* (Marion Island, *Moseley*; Campbell Island, *Hooker.*)

The specimen obtained at Kerguelen Island by Mr. Eaton has the structure and kalidia of *Callophyllis*. The last are not marginal, and therefore it is not a form of *C. variegata*. [This species was not mentioned in Dr. Dickie's MS., nor in his list in the Linnæan Society's Journal; but the name and remarks were noted by him on the sheet containing the specimen in the collection, A. E. E.]

3. **Callophyllis tenera**, *J. Ag.; Dickie in Journ. Linn. Soc.* xv. 202.

Local in very sheltered water, Swain's Bay, *Eaton.* (South Shetlands.)

1. **Kallymenia dentata**, *Suhr.* (*Halymenia*), *Dickie in Journ. Linn. Soc.* xv. 46 (*vars. α and γ*), 202.

Swain's Bay; and (at 1 fathom, of inferior growth) Observatory Bay, *Eaton.* (Cape of Good Hope.)

1. **Gigartina Radula**, *Esp.; Dickie in Journ. Linn. Soc.* xv. 46, 202; *Farlow in Bull. U. S. Nat. Mus.* 1876, 3, 30. *Iridæa Radula*, *Hook. f. and Harv., Flor. Antarct.* 485.

Christmas Harbour, *Hooker.* Swain's and Observatory Bays, abundant on rocks from low-water mark to 1 fathom or more, *Eaton.* (Cape of Good Hope; New Zealand; Auckland and Campbell Islands; California.)

The collection includes various forms of this species.

1. **Iridæa capensis**, *J. Ag.; Dickie in Journ. Linn. Soc.* xv. 46.

Kerguelen Island, *Moseley.* (Cape of Good Hope.)

2. **Iridæa laminarioides**, *Bory.; Dickie in Journ. Linn. Soc.* xv. 46.

Kerguelen Island, *Moseley.* (Auckland Islands, and the S.W. shores of Chili.)

Mr. Moseley's collection contains several specimens which belong, I think, to this species.

1. **Epymenia variolosa**, *Kütz.; Dickie in Journ. Linn. Soc.* xv. 45. *Rhodymenia variolosa*, *Hook. f. and Harv., Flor. Antarct.* 476, clxxx.; *Dickie l. c.; Farlow in Bull. U. S. Nat. Mus.* 3, 30.

Christmas Harbour, *Hooker.* Swain's Bay, local, *Eaton.* Royal Sound, *Kidder.*

1. **Halymenia latissima**, *Hook. f. and Harv., Flor. Antarct.* 189, t. lxxiii., 1, 2; *Dickie in Journ. Linn. Soc.* xv. 202.

Swain's and Observatory Bays; common on rocks at low-water mark, and on *Mytilus* at 1 fathom, *Eaton.* (Auckland and Campbell Islands, *Hooker.*)

1. **Ceramium rubrum**, *Ag.; Flor. Antarct.* 488; *Dickie in Journ. Linn. Soc.* xv. 46, 202. *C. rubrum* var. *secundatum*, *Lyngb.; Farlow in Bull. U. S. Nat. Mus.* 3, 31.

Christmas Harbour, very abundant, *Hooker*. Common in Swain's Bay, Royal Sound, and near Vulcan Cove, *Eaton*. (General in the colder seas of both hemispheres.)

2. **Ceramium diaphanum**, *J. Ag.*; *Flor. Antarct.* 488.

Christmas Harbour, abundant, *Hooker*. (Cape of Good Hope and Atlantic coasts of Europe.)

1. **Ptilota Eatoni**, *Dickie in Journ. of Bot.* v. 51, 1876; *et in Journ. Linn. Soc.* xv. 202.; rachide filiformi 5-6-pollicari, pinnis oppositis inæqualibus, unâ majore alternâ minore, pinnulis pinnarum longiorum apices versus pectinatis, reliquiis bases harum versus, cæterisque omnibus subulatis ex serie articulorum magnorum subsimplici structis, sphærosporis ad apices pinnularum subsolitariis, favellis terminalibus, ramis involucri 4-5 pectinatis conniventibus.

Swain's Bay, in 2 to 5 fathoms, on the side and end of a promontory and of an island about two miles from the entrance of the bay, exposed to the tide and a slight swell from the outer sea; very local. Usually parasitic upon *Ballia*, sometimes attached to *Mytilus*; *Eaton*.

This species resembles *P. Harveyi* in the character of the involucre, but differs from it in general habit, and in the structure of the larger and smaller pinnules. It is also dissimilar in colour, being dull purple.

PLATE V., Fig. iii. :—1, portion of frond of *nat. size*; 2, portion of stem with young branch; 3, apex of fully grown branch; 4, ditto with sphærospores; 5, sphærospores; all much *enlarged*.

1. **Ballia callitricha**, *Ag.*; *Dickie in Journ. Linn. Soc.* xv. 46, 202; *Farlow in Bull. U. S. Nat. Mus.* 1876, 3, 31. *Ballia Brunonis var. β Hombroniana*, *Hook. f. and Harv., Flor. Antarct.* 488.

On *Mytilus*, roots of *Macrocystis*, and Annelid tubes, from tide pools down to 6 fathoms; very common in Christmas Harbour, Swain's Bay, and Royal Sound. (Falklands; Marion Island; Australia; Tasmania; New Zealand; Auckland Islands.)

1. **Callithamnion simile**, *Hook. f. and Harv., Flor. Antarct.* 489; *Dickie in Journ. Linn. Soc.* xv. 202.

Christmas Harbour, rare, *Hooker*. On *Mytilus*, Annelid tubes, and roots of *Macrocystis*, in 1 to 5 fathoms, in Observatory and Swain's Bays; frequent, *Eaton*.

2. **Callithamnion Ptilota**, *Hook. f. and Harv., Flor. Antarct.* 489, t. clxxxix. 1; *Farlow. in Bull. U. S. Nat. Mus.* 3, 31.

Royal Sound, *Kidder*. (Crozetts, *Hooker*.)

3. **Callithamnion Rothii**, *Lyngb.*; *Dickie in Journ. Linn. Soc.* xv. 203.

In tide pools and at the extreme verge of low water, on *Mytilus*, in Swain's and Observatory Bays, local, *Eaton*. (Atlantic shores from Greenland to Africa; N.E. shores of the United States.)

I can see no essential difference between Mr. Eaton's specimens and the plant from the northern hemisphere. They agree in habit, and in the arrangement of the tetraspores. The articulations are a little longer than those of British examples.

1. **Codium adhærens**, *Ag.*; *Farlow in Bull. U. S. Nat. Mus.* 1876, 3, 31; *Dickie in Journ. Linn. Soc.* xv. 203.

On rocks in about 2 fathoms in Observatory Bay; frequent, *Eaton*. (Europe; Cape of Good Hope; Mauritius; Ceylon; Australia; Friendly and Loo-choo Islands.)

2. **Codium tomentosum**, *Stackh.*; *Flor. Antarct.* 491; *Dickie in Journ. Linn. Soc.* xv., 46.

Christmas Harbour, *Hooker*. (Tongabu; Banda Islands; and the colder seas of both hemispheres).

1. **Bryopsis plumosa**, *Grev.*; *Flor. Antarct.* 492; *Dickie in Journ. Linn. Soc.* xv. 203.

Dwarf or very young specimens on Annelid tubes in 5 fathoms, Observatory Bay, scarce, *Eaton*. (Greenland; widely distributed throughout both the temperate zones, and even in some of the warmer seas).

1. **Vaucheria Dillwynii**, *Ag.*; *Flor. Antarct.* ii. 492.

On the ground amongst Penguin rookeries, Christmas Harbour, *Hooker*.

1. **Ulva latissima**, *Linn.*; *Flor. Antarct.* 499; *Dickie in Journ. Linn. Soc.* xv. 47, 203; *Farlow in Bull. U. S. Nat. Mus.*, 1876, 3, 31.

Christmas Harbour, very common, *Hooker*. Royal Sound; Swain's Bay, *Eaton*. (Widely distributed in both hemispheres.)

2. **Ulva** (?) **cristata**, *Hook. f. and Harv.*; *Flor. Antarct.* 499.

In moist clefts of rocks overhanging Christmas Harbour, growing with *Trypethallus* [*Palmodictyon*, Ktz.] *anastomosans*, *Hooker*.

1. **Porphyra laciniata**, *Ag.*; *Flor. Antarct.* 500; *Dickie in Journ. Linn. Soc.* xv. 46, 203.

Christmas Harbour, very abundant, *Hooker*. Common in shallow water, Observatory Bay. (Temperate and colder seas of both hemispheres.)

2. **Porphyra vulgaris**, *Ag.*; *Flor. Antarct.* ii. 500; *Dickie in Journ. Linn. Soc.* xv. 46.

Christmas Harbour, very abundant, *Hooker*. (Widely distributed in the northern and southern hemispheres.)

1. **Enteromorpha compressa**, *Link.*; *Flor. Antarct.* 500; *Dickie in Journ. Linn. Soc.* xv. 46, 203.

Very abundant on rocks and in tide-pools; Christmas Harbour, *Hooker*; Royal Sound and Swain's Bay, *Eaton*. (Cosmopolitan.)

2. **Enteromorpha intestinalis**, *Link.*; *Flor. Antarct.* 500.

Christmas Harbour, *Hooker*. (Cosmopolitan.)

1. **Prasiola fluviatilis**, *Sommerfeldt, Supplem. Fl. Lapp.* 1826 (*teste Dickie in Arctic Manual*, 1876.) P. Sauteri, *Meneghini MS., Kütz. Sp. Alg.* 1849, p. 473; *Dickie in Journ. Linn. Soc.* xv. 203.

On wet rocks in the bed of a streamlet descending from a patch of snow, about 400 feet above the sea, on the pyramidal hill on the W. side of Swain's Bay. (European Alps to 9,300 ft.; Spitsbergen; streams of W. Greenland.)

1. **Cladophora rupestris**, *Linn.*; *Flor. Antarct.* 495; *Dickie in Journ. Linn. Soc.* xv. 47.

Christmas Harbour, on rocks, *Hooker*. (General between the arctic circle and the Mediterranean; only at Kerguelen Island in the southern hemisphere).

2. **Cladophora arcta**, *Ktz.*; *Flor. Antarct.* 495; *Dickie in Journ. Linn. Soc.* xv. 47, 203. C. Hookeriana, *Ktz. Sp. Alg.*, p. 418.

Very abundant on *Mytilus* at low-water mark, and in shallow water, Observatory Bay, *Eaton*. (Falkland Islands; Fuegia; German and N. Atlantic Oceans; Greenland.)

3. **Cladophora simpliciuscula**, *Hook. f. and Harv. Flor. Ant.* 496, t. excii. 4, 1-3; *Dickie in Journ. Linn. Soc.* xv. 203.

One very small specimen, probably very young, too imperfect to be identified with absolute certainty, but which I think may be referred to this species, was obtained on an Annelid tube in Observatory Bay at 5 fathoms, *Eaton*. (Falklands and Fuegia, *Hooker*.)

4. **Cladophora flexuosa**, *Griff*; *Dickie in Journ. Linn. Soc.* xv. 203.

In tide-pools and at 5 fathoms in Observatory and Swain's Bays, specimens from the deeper water are poor, *Eaton*. (Shores of Europe; Massachusetts Bay.)

1. **Rhizoclonium riparium**, *Roth.*; *Cladophora riparia*, *Hook. f. and Harv. Flor. Antarct.* 495.

Christmas Harbour, *Hooker*. (Cumberland Sound; British coasts, &c.)

2. **Rhizoclonium ambiguum**, *Ktz.*; *Conferva ambigua*, *Hook. f. and Harv. Flor. Antarct.* 494, t. exci. 1.

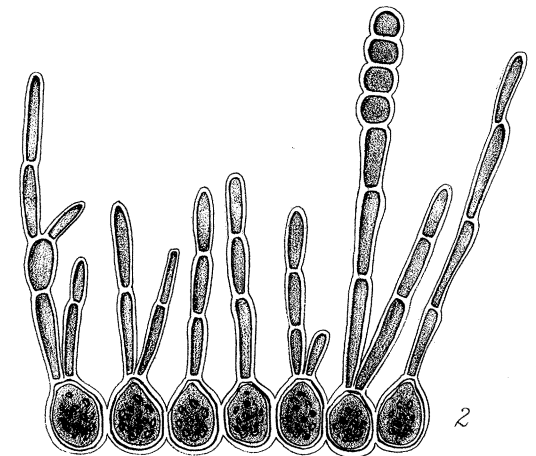
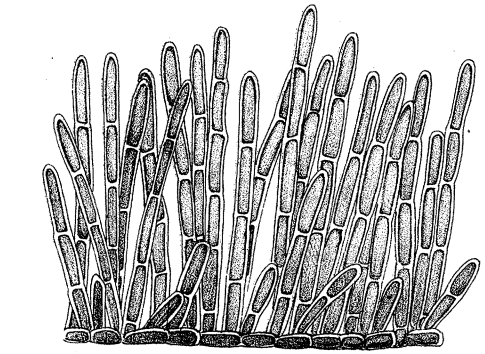
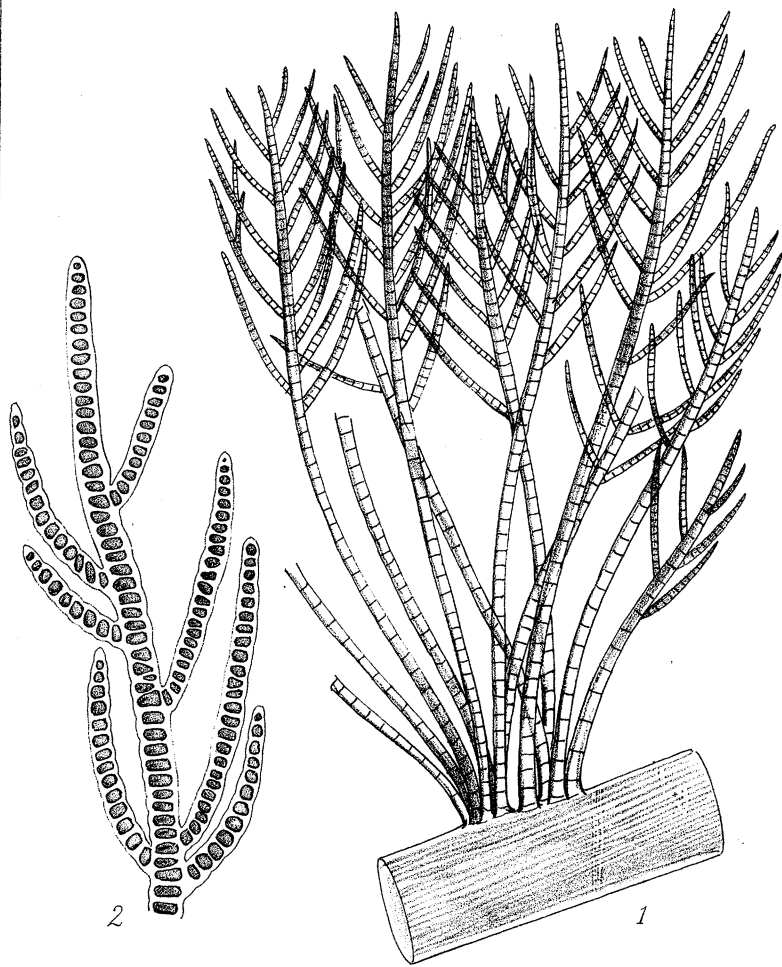
Christmas Harbour, in the sea, *Hooker*.

1. **Chætomorpha Linum**, *Ktz.*; *Conferva Linum*, *Roth.*; *Flor. Antarct.* 493.

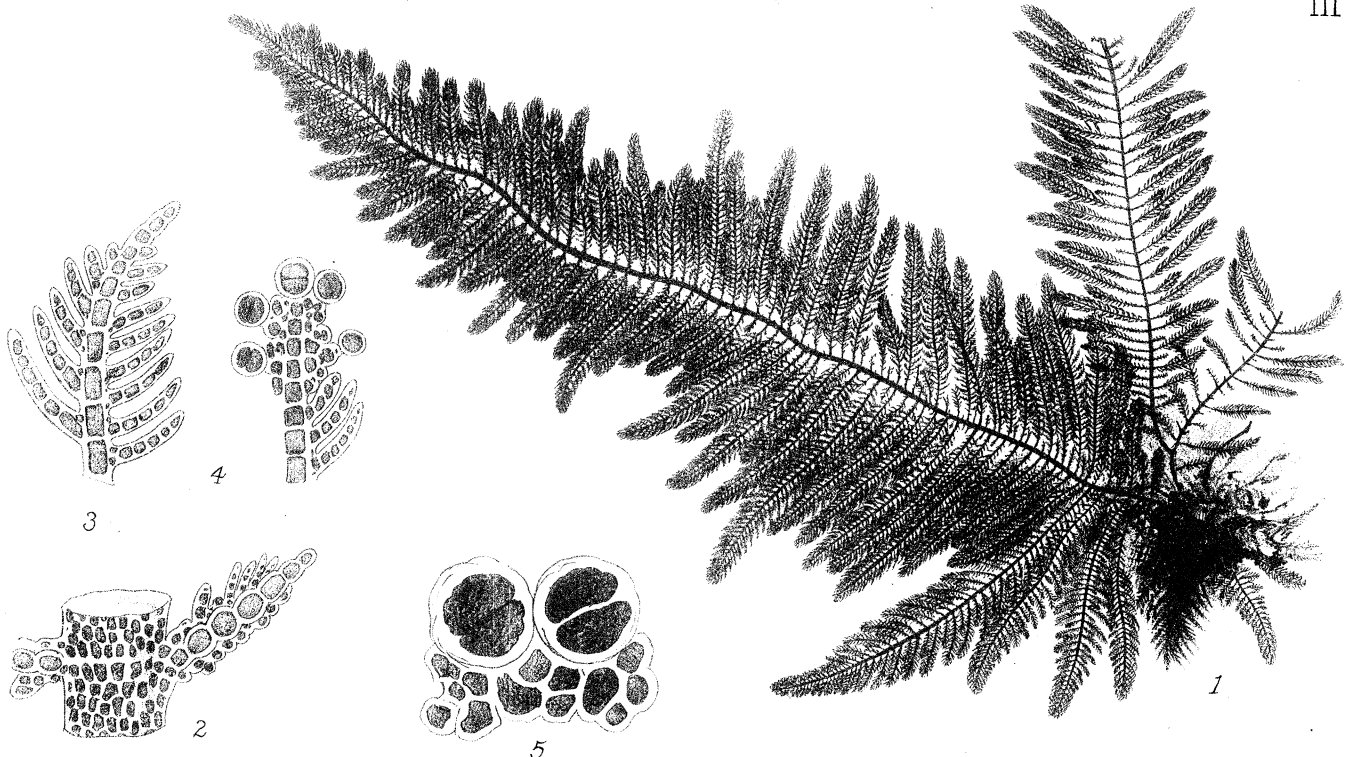
Christmas Harbour, on rocks near high-water mark, *Hooker*.

I

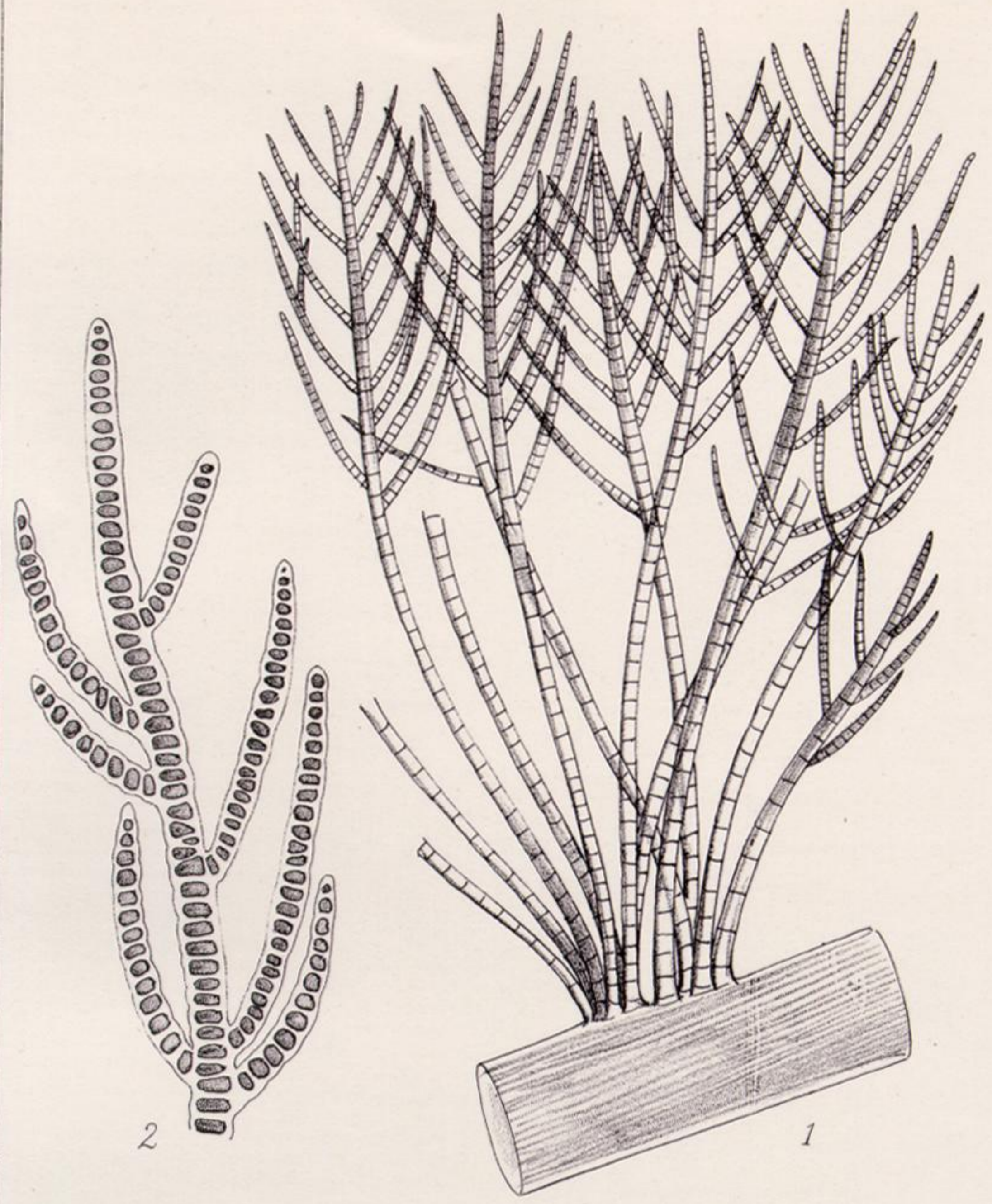
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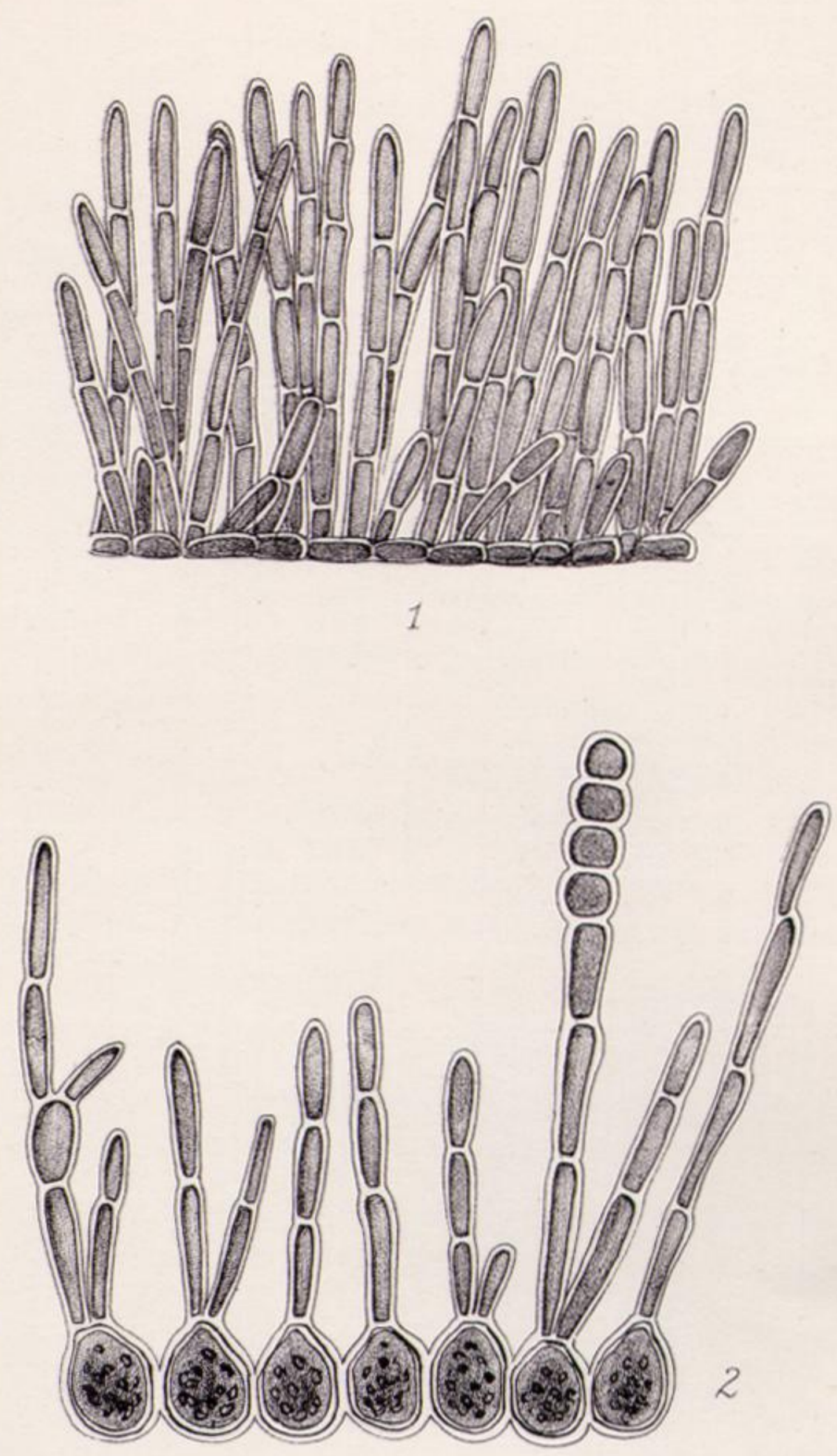
III



I



II



III

