Gen. LXXXVI. MUCOR, *Mich.*

Flocci tubulosi, fertiles erecti, terminati sporangio membranaceo dehiscente (raro diffluente) includente *sporidia* discreta.

The species of this genus are developed upon all sorts of decaying substances. The vesicular heads, which do not collapse, as in *Ascophora*, distinguish the genus. Little is known of exotic forms. (Name from the Latin *mucor*; a generic name for Mould.)

1. **Mucor cervinoleucus** (Berk.); flocci simplices, deorsum candidi, sursum ochracei, sporis subcymbæformibus.

HAB. On the dung of some small animal, *Archer*.

Remarkable for its ochroleucous aspect. The *spores* are elliptic, with one side nearly straight, and are about $\frac{1}{3500}$ inch long. *Sporangia* tawny, globose.

Gen. LXXXVII. ENDOGONE, *Lk.*

Flocci fertiles, sporangiis terminati, in massam subglobosam compacti. *Sporidia* ignota.

The fructification of these curious truffle-like Moulds is not satisfactorily known. The vesicles are just like those of *Mucor*, but have not been observed to contain sporidia. (Name from ἔνδον, *within*, and γίγνομαι, *to be produced*.)

1. **Endogone australis** (Berk.): hemisphærica, alba, sporangiis magnis centralibus aggregatis.

HAB. On the ground, *Archer*.

Hemispherical, about 2 lines across, white. *Sporangia* confined to the centre, $\frac{1}{250}$ of an inch or more across, greenish, collected in little groups.—The pale colour, more branched threads, and central sporangia, distinguish this interesting species, of which there is only a single specimen in the collection.—PLATE CLXXXIII. Fig. 15, *a*, plant, *nat. size*; *b*, section of ditto; *c*, external threads; *d*, sporangia:—*magnified*.

NAT. ORD. VIII. ALGÆ.

By W. H. Harvey, M.D., F.R.S.

SERIES I. MELANOSPERMEÆ.

TRIBE I. *FUCACEÆ.*

Gen. I. SARGASSUM, *Ag.*

(J. Ag. Sp. Alg. i. p. 268. Hook. Fl. N. Zeal. ii. p. 211.)

1. **Sargassum Raoulii** (Hook. fil. et Harv. in Lond. Journ. Bot. iv. p. 523; J. Ag. Sp. Alg. i. p. 288; Kütz. Sp. Alg. p. 616; Hook. Fl. N. Zeal. ii. p. 212).—S. capillaceum, *H. f. et H. Lond. Journ.* vi. *p.* 414.

HAB. Port Arthur, *Lyall, J. D. H., W. H. H.* Georgetown, *Gunn, W. H. H.* Southport, *C. Stuart*.
DISTRIB. New Zealand.

2. **Sargassum biforme** (Sond. in Bot. Zeit. 1845, p. 51; J. Ag. Sp. Alg. i. p. 301).

HAB. Georgetown, *R. Gunn*.
DISTRIB. Western and southern shores of Australia.

3. **Sargassum paradoxum** (R. Br. in Turn. Hist. Fuc. t. 156; J. Ag. Sp. Alg. i. p. 302).

HAB. Georgetown, *R. Gunn.*

DISTRIB. Southern shores of Australia.

Gen. II. SEIROCOCCUS, *Grev.*

(Grev. Alg. Brit. Syn. p. 34; Endl. 3rd Suppl. p. 33; J. Ag. Sp. Alg. i. p. 260.)

1. **Seirococcus axillaris** (Grev.; J. Ag. l. c. p. 260).—Fucus axillaris, *Turn. Hist. t.* 146.

HAB. Georgetown, *Gunn, W. H. H., etc.*

DISTRIB. South coast of Australia: not found west of Cape Northumberland?

Gen. III. SCYTOTHALIA, *Grev.*

(Grev. Syn. p. 34; Endl. 3rd Suppl. p. 33; J. Ag. Sp. Alg. i. p. 257.)

1. **Scytothalia dorycarpa** (Grev.; J. Ag. Sp. Alg. i. p. 258).—Fucus dorycarpus, *Turn. Hist. t.* 143.

HAB. "Van Diemen's Land," *R. Brown, fide J. Ag.*

We have not seen any Tasmanian specimens, and suspect a mistake in the habitat. This plant is very abundant in Western Australia, but is not found, to our knowledge, to the east of Cape Northumberland.

Gen. IV. PHYLLOSPORA, *Ag.*

(Ag. Revis. Macrocyst. p. 311; Endl. 3rd Suppl. p. 32; J. Ag. Sp. Alg. i. p. 252.)

1. **Phyllospora comosa** (Ag. l. c. t. 28. f. 11; J. Ag. Sp. Alg. i. p. 253).—Fucus comosus, *Turn. Hist. t.* 142; *Labill. Pl. Nov. Holl. t.* 258.

HAB. Common on the seacoast.

DISTRIB. South coasts of New Holland. New Zealand.

Gen. V. SCABERIA, *Grev.*

(Grev. Syn. p. 36; J. Ag. Sp. Alg. i. p. 251.—*Castraltia*, Ach. Rich. Fl. N. Zeal. xi. p. 143; Dne. Arch. Mus. xi. p. 175. t. 5. f. 23, 24; Endl. 3rd Suppl. p. 30.)

1. **Scaberia Agardhii** (Grev.; J. Ag. Sp. Alg. l. c. p. 252).—Castraltia salicornoides, *A. Rich. N. Zeal.* xi. *p.* 143.

HAB. Georgetown, etc., *R. Gunn.*

DISTRIB. Western and southern shores of Australia. New Zealand.

By an oversight, this plant is omitted in Hook. Fl. N. Zeal.

Gen. VI. CYSTOPHORA, *J. Ag.*

(J. Ag. Symb. p. 3; Sp. Alg. i. p. 238; Hook. Fl. N. Zeal. ii. p. 214.—*Blossevillea*, Dne. in Arch. Mus. xi. p. 147; Hook. fil. et Harv. in Lond. Journ. vi. p. 414.)

1. **Cystophora monilifera** (J. Ag. Sp. Alg. i. p. 241; Fl. N. Zeal. ii. p. 214).—Blossevillea retroflexa, *Dne.; Harv. in Lond. Journ.* vi. *p.* 414. Fucus retroflexus, *Turn. Hist. t.* 155 (*not of Labill.*).

HAB. Georgetown, etc., *R. Gunn.*

DISTRIB. Western and southern coasts of New Holland. New Zealand.

2. **Cystophora retroflexa** (Labill. Nov. Holl. p. 113. t. 260; J. Ag. Sp. Alg. i. p. 242).—

Blossevillea retroflexa, *Kütz. Sp. Alg. p.* 629. B. caudata, *Hook. fil. et Harv. Lond. Journ.* vi. *p.* 414. Fucus retroflexus, *Labill. t.* 260.

Hab. Georgetown, etc.

Distrib. Western and southern coasts of New Holland. New Zealand.

3. **Cystophora torulosa** (R. Br.; J. Ag. Sp. Alg. i. p. 243; Hook. Fl. N. Zeal. ii. p. 214).—Blossevillea torulosa, *Dne.; Hook. fil. et Harv. Lond. Journ.* iv. *p.* 527. Fucus torulosus, *Turn. Hist. t.* 157.

Hab. Rocks on the coast, common.

Distrib. Western and southern shores of New Holland. New Zealand.

4. **Cystophora xiphocarpa** (Harv.); caule plano decomposite pinnato, pinnis distantibus a latere plano caulis egredientibus retrofractis inferioribus bipinnatis superioribus simpliciusculis, pinnulis basi nudis alterne aculeatis apice pinnatis, pinnulis ultimis gladiiformibus v. lanceolatis planis basi et apice acutis demum in receptacula applanata abeuntibus, vesiculis . . .—*Harv. Alg. Austr. Exsicc. n.* 9. (Tab. CLXXXV.)

Hab. Brown's River, *R. Gunn.* Port Arthur, in tidal rock-pools, *W. H. H.*

Stem 1–2 feet long, in smaller specimens compressed, in larger quite flat, flexuous, rather distantly pinnately branched, the lower branches decompound, the upper gradually simpler. *Branches* issuing from the flat side of the stem, retroflexed at their insertion, distichous, alternate, bipinnate or pinnate. *Pinnæ* (and pinnules of the larger branches) distant, naked in the lower half, zigzag, and armed with the spine-like bases of old ramuli; pinnulate in the upper half. *Ultimate pinnules* or leaf-like ramuli quite flat, lanceolate or sword-shaped, 1–2 inches long, 2–3 lines wide, coriaceous, acute. *Receptacles* flattened; no ripe ones seen. *Vesicles* unknown.

All our specimens grew in shallow water, and therefore probably represent a dwarf form of the species, which appears to be strikingly unlike any other described. The ultimate pinnules and receptacles are as broad as those of *Cystophora platylobium*, and usually longer; and our present plant differs essentially from that species in having refracted branches issuing from the *flat* side of the stem.—Plate CLXXXV. Fig. 1, the root and base of stem; 2, portion of the upper region of the stem and branches: both figures the *natural size*.

5. **Cystophora platylobium** (Mert.; J. Ag. Sp. Alg. i. p. 245).—C. Lyallii, *Hook. fil. et Harv. Fl. N. Zeal.* ii. *p.* 214. *t.* cviii.

Hab. Georgetown. Port Arthur, etc.

Distrib. Southern coasts of New Holland. New Zealand.

6. **Cystophora spartioides** (Turn.; J. Ag. Sp. Alg. i. p. 244).—Fucus spartioides, *Turn. Hist. t.* 232.

Hab. Georgetown, *R. Gunn.* Derwent, *Oldfield.*

Distrib. South shores of New Holland.

7. **Cystophora cephalornithos** (Labill.; J. Ag. Sp. Alg. i. p. 246).—Fucus cephalornithos, *Labill. Pl. N. Holl. t.* 261.

Hab. Georgetown, *R. Gunn.*

Distrib. South coasts of New Holland.

8. **Cystophora uvifera** (Ag.; J. Ag. Sp. Alg. i. p. 246).—Blossevillea uvifera, *Harv. Lond. Journ.* vi. *p.* 414.

Hab. Georgetown, *Gunn, W. H. H., etc.*

Distrib. South shores of New Holland.

9. **Cystophora paniculata** (Turn.; J. Ag. Sp. Alg. i. p. 248).—Fucus paniculatus, *Turn. Hist. t.* 176.

Hab. Georgetown, *R. Gunn, etc.*

Distrib. South shores of New Holland.

10. **Cystophora decipiens** (R. Br.; J. Ag. Sp. Alg. i. p. 249).—Fucus decipiens, *Turn. Hist. t.* 166.

Hab. Van Diemen's Land, *R. Brown.*

We have not seen this plant.

Gen. VII. CYSTOPHYLLUM, *J. Ag.*

(J. Ag. Sp. Alg. i. p. 228.—*Cystoseiræ* et *Sargassi* sp., Auct.)

1. **Cystophyllum muricatum** (Turn.; J. Ag. Sp. Alg. i. p. 231).—Fucus muricatus, *Turn. Hist. t.* 112.

Hab. Georgetown.

Distrib. West, south, and eastern shores of Australia. Persian Gulf. Coasts of Indian peninsula, *Wight.* Sincapore, *W. Griffith.*

Gen. VIII. XIPHOPHORA, *Mont.*

(Mont. Voy. Pôle Sud, p. 55. Hook. Fl. N. Zeal. ii. p. 215.—*Fucodii* sp., J. Ag. Sp. Alg. i. p. 202.)

1. **Xiphophora Billardieri** (Mont. Pôl. Sud, t. 7. f. 1; Hook. fil. et Harv., Fl. Ant. p. 176. t. 69. f. 3: spores).—Fucodium gladiatus, *J. Ag. Sp. Alg.* i. *p.* 202; *Harv. Phyc. Austr. t.* 53. Fucus gladiatus, *Labill. Pl. Nov. Holl. t.* 256; *Turn. Hist. t.* 240.

Hab. Port Arthur, abundant, *Dr. Jeannerett, Lyall, W. H. H., etc.*

Distrib. Auckland Islands and New Zealand. "Western Australia," *Mus. Paris.* Western Port, Victoria, *W. H. H.*

2. **Xiphophora chondrophylla** (Mont.).—Fucodium chondrophyllus, *J. Ag. Sp. Alg.* i. *p.* 203. Fucus chondrophyllus, *R. Br. in Turn. Hist. t.* 222.

Hab. Georgetown, *Gunn, W. H. H.*

Distrib. South coast of New Holland. New Zealand.

Gen. IX. HORMOSIRA, *Endl.*

(Endl. Gen. Pl. 3rd Suppl. p. 29; J. Ag. Sp. Alg. i. p. 197; Kütz. Sp. Alg. p. 586.—*Moniliformia*, Lamour. Dict. Class. vii. p. 71; Grev. Syn. p. xxxvi. *Monilia*, A. Rich.)

1. **Hormosira Banksii** (Turn.; J. Ag. Syst. Alg. i. p. 198).—Fucus Banksii, *Turn. Hist. t.* 1. H. Sieberi, *Bory, Coq. p.* 134; *J. Ag. l. c. p.* 199; *Hook. Fl. N. Zeal. p.* 215. H. Labillardieri, *Bory, Coq. p.* 133; *J. Ag. l. c. p.* 199; *Hook. Fl. N. Zeal. p.* 215. Fucus moniliformis, *Labill. Pl. Nov. Holl. t.* 262.

Hab. All round the coast.

Distrib. South and eastern coasts of New Holland. New Zealand.

Having had ample experience of the variations of this species, which we have observed *in situ*, in many places from King George's Sound to Western Port, at Sydney, and in New Zealand, as well as on the shores of Tasmania, we feel confident that the three forms here brought together, to which may be added *H. gracilis*

and *H. obconica* of Kützing, cannot be kept specifically distinct. The characters attributed to them by authors depend partly on age, but chiefly on differences in depth of water, and exposure. *H. Sieberi* commonly grows in tidal rock-pools, and *H. Banksii* and *Labillardieri* on stones about low water-mark, the latter occurring in deeper water than the former.

Gen. X. CARPOGLOSSUM, *Kütz.*

(Kütz. Phycol. p. 352; J. Ag. Sp. Alg. p. 192.—*Platythalia*, Sonder in Bot. Zeit. 1845, p. 51.)

1. **Carpoglossum confluens** (R. Br.; Kütz. Phyc. p. 353; J. Ag. Sp. Alg. i. p. 195).—Fucus confluens, *Turn. Hist. t.* 141; *Harv. in Lond. Journ. Bot.* vi. p. 413.

Hab. Port Arthur, *Lyall, W. H. H.* Common.

Distrib. South coast of New Holland. Port Phillip and Western Port, *W. H. H.*

Gen. XI. MYRIODESMA, *Dne.*

(Dne. Arch. Mus. ii. p. 148; Endl. 3rd Suppl. p. 29; J. Ag. Sp. Alg. i. p. 191.)

1. **Myriodesma integrifolium** (Harv.); caule basi terete sursum plus minus alato, costa evanescente, phyllodiis distichis decomposite pinnatifidis, laciniis enervibus linearibus obtusis margine integerrimis v. apicem versus minute denticulatis, scaphidiis numerosissimis sparsis. — *Harv. Alg. Exsicc. n.* 43. (Tab. CLXXXVI.)

Hab. Georgetown, *W. H. H.*

Distrib. Geelong and Western Port, Victoria.

Frond 1–2 feet long. *Stem* cylindrical, cartilagineo-coriaceous, branched near the base, its principal divisions becoming more and more compressed upwards, then winged, then passing into a lamina traversed by a slender midrib which gradually disappears toward the summit. These main divisions are distichously branched, and their branches repeatedly pinnatifid, with rounded axils, and are destitute of midrib except toward the base of the principal rachides. The laciniæ are 1–2 lines broad, linear, membranaceous, quite entire at the margin, or remotely denticulate, especially toward the apices. *Scaphidia* very numerous, densely scattered over the whole frond. *Colour* olivaceous or foxy.—Plate CLXXXVI. Fig. 1, the frond, *natural size;* 2, apex of a fertile lacinia; 3, section through the same and through spore-cavities; 4, a spore:—the latter figures *magnified.*

Gen. XII. SARCOPHYCUS, *Kütz.*

(Kütz. Phyc. p. 392; Sp. Alg. p. 587; J. Ag. Sp. Alg. i. p. 189.)

1. **Sarcophycus potatorum** (Labill.; Kütz. Sp. Alg. p. 587; J. Ag. Sp. Alg. i. p. 190).—Fucus potatorum, *Labill. Nov. Holl. p.* 112. *t.* 257; *Turn. Hist. t.* 242.

Hab. Western and northern coasts.

Distrib. South coasts of New Holland.

Gen. XIII. SPLACHNIDIUM, *Grev.*

(Grev. Syn. p. 36; J. Ag. Sp. Alg. i. p. 186; Kütz. Sp. Alg. p. 585.)

1. **Splachnidium rugosum** (Grev.; J. Ag. Sp. Alg. i. p. 186; Kütz. Sp. Alg. p. 585).—Fucus rugosus, *Linn. Mant. p.* 311; *Turn. Hist. t.* 185; *Harv. Phyc. Austr. t.* 14.

Hab. Tidal rocks, near low water-mark. Georgetown, *Gunn, W. H. H., etc.*

Distrib. South and east coasts of New Holland. New Zealand. Cape of Good Hope.

Gen. XIV. NOTHEIA, *Bail. et Harv.*

(Bail. et Harv. in Wilkes's Amer. Expl. Ex.; Harv. in Hook. Fl. N. Zeal. ii. p. 215.)

1. **Notheia anomala** (Bail. et Harv. l. c.; Harv. in Hook. Fl. N. Zeal. ii. p. 216. t. 109 *A*).

Hab. Parasitic on *Hormosira Banksii*, very common.

Distrib. South and east coasts of New Holland. New Zealand.

Tribe II. *SPOROCHNACEÆ.*

Gen. XV. SPOROCHNUS, *Ag.*

(Kütz. Phyc. p. 342; J. Ag. Sp. Alg. i. p. 173.—*Sporochni* sp., Auct.)

1. **Sporochnus comosus** (Ag. Syst. p. 259; J. Ag. Sp. Alg. i. p. 174; Kütz. Sp. p. 569).

Hab. Georgetown, *R. Gunn, W. H. H., etc.*

Distrib. Coasts of New Holland.

To this place we refer a species common at Georgetown, but which varies much in the relative lengths of the pedicel and receptacle. In the *normal* state, described by Agardh, the pedicel is four times shorter than the receptacle, and so we find it in some specimens. In others, and even on different branches of the same frond, we find pedicels half as long, as long as, or longer than their receptacle. Either, therefore, we must refer all to one head, or establish four or five new names on the specimens before us. This latter could be easily done had we but a few examples to decide from; but after examining some hundreds collected at King George's Sound and Georgetown, we are forced to unite all under one head. When this plant grows in shallow water, it is frequently bushy, the branches much divided; but when, as at Georgetown, it inhabits the deeper parts of the Tamar, in a rapid tideway, the primary branches are nearly simple, and lengthened to two feet or more. Some of our specimens answer to the description given of *Sp. Gærtneri*, a species of which we have seen no specimen.

2. **Sporochnus Herculeus** (J. Ag.); "fronde cylindracea ramis simpliciusculis virgata, receptaculis longissimis cylindraceis subclavatisque in pedicellum ipsis breviorem longe attenuatis." *J. Ag. Sp. Alg.* i. *p.* 175.

Hab. Georgetown, *Gunn, fide J. Agardh.*

This species, which is very imperfectly known to us, is founded by Professor J. Agardh on a specimen which we formerly inadvertently sent him for *S. radiciformis*, but nothing similar to which have we been able to find either in Mr. Gunn's extensive collection or in our own. Professor Agardh has obligingly returned a fragment to Dr. Harvey. This agrees with the diagnosis given, and certainly differs from any of the innumerable specimens of *S. comosus* which have come before us. The species must remain, therefore, for future elucidation.

3. **Sporochnus radiciformis** (R. Br.; J. Ag. Sp. Alg. i. p. 175; Harv. in Lond. Journ. vi. p. 415; Kütz. Sp. Alg. p. 568).

Hab. Georgetown, *Gunn, W. H. H., etc.*

Distrib. South and west coasts of New Holland.

4. **Sporochnus apodus** (Harv.); fronde setacea longissima decomposite ramosa, ramis filiformibus simpliciusculis receptaculis cylindraceis apice subacutis sessilibus horizontaliter patentibus.

Hab. Georgetown, *W. H. H.*

Of this remarkable plant we have, as yet, seen but a solitary specimen, but this is so strongly characterized that we must, for the present, hold it to be a species. It consists of part of a stem, 8–10 inches long, closely set

with branches 10–12–14 inches in length; stem and branches not thicker than hog's-bristle. Throughout the entire length of the branches innumerable receptacles stand out, like spines, at right-angles with the branch. They are perfectly sessile, about 1–2 lines in length, cylindrical, but tapering slightly to the subacute apex, so as sometimes to be nearly subulate. In the varieties of *S. comosus* the tapering is in the opposite direction—to the *base*.

Gen. XVI. BELLOTIA, *Harv.*

(Harv. in Tayl. Ann. Nat. Hist. 1855, p. 332.)

Frons filiformis, solida, umbellatim ramosa, apicibus ramorum fasciculato-comosis. *Receptaculum* in quoque ramo unicum, cylindraceum, mediam partem rami circumvestiens, e paranematibus simplicibus verticalibus dense stipatis constitutum. *Sporæ* ad paranemata lateraliter dispositæ, oblongæ, transversim striatæ.

1. **Bellotia Eriophorum** (Harv. An. Nat. Hist. (1855), xv. p. 332). (Tab. CLXXXVII.)

Hab. Georgetown, rare, *Henty, Gunn.* Derwent (a fragment), *Oldfield.*

Distrib. Port Phillip and Western Port, Victoria, *W. H. H.*

Root clothed with velvety fibres. *Stems* many from the same base, 1–2 feet long, twice as thick as hog's-bristle, terete, rigid, somewhat horny, twice or thrice umbellately compounded. *Umbels* of ten to twenty or thirty rays or more, from 3–4 or 5 inches apart; the bases of all the rays tomentose, the rest bare and quite smooth. *Apices* of all the branches crowned with a very dense spherical tuft of brown filaments, from $\frac{1}{3}$–$\frac{1}{4}$ of an inch in diameter. *Receptacle* cylindrical, developed round each branch in its middle or upper portion, and formed of very densely-packed, simple filaments (*paranemata*), vertically issuing from all sides of the branch, and whorled round it. This receptacle begins to be formed on the upper half of all the young branches above the middle, and extends, at first, nearly to the commencement of the apical tuft; but as the growth continues, the barren portion of the branch above the receptacle considerably elongates, and the receptacle, in a full-grown branch, is removed to nearly the middle region, where it forms a sausage-shaped swelling nearly two inches in length and thrice the diameter of the barren part of the branches. The *paranemata* are quite simple, articulated, cylindrical, their cells three or four times as long as broad, filled with pale-olive endochrome. *Spores* linear-oblong, sessile on both sides of the paranemata, alternate or secund. *Substance* of the stem and branches rigid; of the apical tufts soft, and when young somewhat gelatinous. A cross-cutting of the stem shows a firmly-cellular substance composed of minute polygonal cells, set in lines radiating from a central point.

The fertile portion of the branches varies considerably in length in different specimens. In some the receptacle is developed only in a minute degree, in others it extends nearly the full length of the branch. The generic name is bestowed in honour of Lieut. Bellot, of the French Navy, who was lost in one of the Searching Expeditions for Sir J. Franklin. It differs remarkably in ramification and habit from others of this order.—Plate CLXXXVII. Fig. 1, the plant, the *natural size;* 2, cross section through a receptacle; 3, spore-threads from the same:—both figures *magnified.*

Gen. XVII. CARPOMITRA, *Kütz.*

(Kütz. Phyc. Gen. p. 343; Sp. Alg. p. 569; J. Ag. Sp. Alg. i. p. 177.)

1. **Carpomitra Cabreræ** (Kütz. Phyc. p. 343; Harv. Phyc. Brit. t. 14; J. Ag. Sp. Alg. i. p. 177). —Fucus Cabreræ, *Clem.; Turn. Hist. Fuc. t.* 140.

Hab. Port Arthur, *W. H. H.*

Distrib. South and east coasts of New Holland. New Zealand. Coasts of Spain. South of England and Ireland.

2. **Carpomitra inermis** (Kütz. Phyc. p. 343; Harv. in Lond. Journ. Bot. vi. p. 415; J. Ag. Sp. Alg. i. p. 178).—Fucus inermis, *R. Br. in Turn. Hist. t.* 186.

Hab. Sent by *Mr. Gunn.*

Distrib. South coast of New Holland.

3. **Carpomitra siliquosa** (J. Ag. Sp. Alg. i. p. 178).

Hab. Tasmania, *Baume in Mus. Par.* (Unknown to us.)

Gen. XVIII. NEREIA, *Zanard.*

(Dub. et Solier. Mem. Cour. p. 57. t. 16. *Sporochni* sp., J. Ag. Sp. Alg. i. p. 175.)

1. **Nereia australis** (Harv.); fronde elata filiformi cartilaginea solida decomposite ramosissima, ramis ramulisque alternis sparsisve quoquoversum egredientibus junioribus apice comosis, ramis minoribus suberectis basi angustatis acutis, ramulis setaceis, axillis omnibus acutis, verrucis (receptaculis) elevato-conicis apice comosis demum nudis ex filis ramosis sporas oblongas gerentibus constitutis.—Stilophora? australis, *Harv. in Lond. Journ. Bot.* iii. *p.* 453; *J. Ag. Sp. Alg.* i. *p.* 86; *Harv. Alg. Exsic. Aust. n.* 66. (Tab. CLXXXVIII.)

Hab. Georgetown, *R. Gunn, W. H. H.*

Distrib. Port Phillip, Victoria.

Frond 1–2 feet long, excessively branched and bushy. *Stem* undivided, 1½ line in diameter below, attenuated to the thickness of a bristle above, cartilaginous, solid, with a densely cellular axis, set throughout with lateral branches, which issue irregularly, and are directed towards all sides. Each branch is a repetition of the stem on a smaller scale, and is again and again decompound. All the tips are acute, and crowned when young with a tuft of confervoid fibres. The smaller branches taper to the base, and are more or less furnished with minute setaceous ramuli, each crowned with filaments. The *wartlike receptacles* are densely scattered over the whole frond, and when young bears a tuft of filaments, as in *Sporochnus*.—Plate CLXXXVIII. Fig. 1, a frond, *nat. size*; 2, frustule of a branch, with two setaceous ramuli; 3, longitudinal semisection of a branch; 4, a wartlike receptacle; 5, spore-threads and spores from the same:—the latter figures variously *magnified.*

Tribe III. *LAMINARIACEÆ.*

Gen. XIX. MACROCYSTIS, *Ag.*

(Ag. in Act. Leop. xix. 1. p. 281. J. Ag. Sp. Alg. i. p. 153. Kütz. Sp. Alg. p. 582.)

1. **Macrocystis pyrifera** (Hook. fil. et Harv. Fl. Antarct. i. p. 177, ii. p. 461; Fl. N. Zeal. ii. p. 217).—Macrocystidis omnes sp., *J. Ag. Sp. Alg.* i. *pp.* 155–158 (*excl.* M. obtusa); *Kütz. Sp. Alg. pp.* 582–584. Fucus pyriferus, *Turn. t.* 110.

Hab. All round the coast.

Distrib. South coast of New Holland, New Zealand, west coast of North and South America, and specially in the great Southern Ocean.

Gen. XX. ECKLONIA, *Hornem.*

(Hornem. in Dansk. Vid. Skrift. iii. p. 370. J. Ag. Sp. Alg. i. p. 144. Kütz. Sp. Alg. p. 586. *Capea*, Mont. Ann. Sc. Nat. 1840.)

1. **Ecklonia radiata** (J. Ag. Sp. Alg. i. p. 146).—Capea radiata, *Endl. 3rd Suppl. p.* 27; *Kütz. Sp. Alg. p.* 578. Fucus radiatus, *Turn. Hist. t.* 134. Ecklonia exasperata, *J. Ag. l. c.* Capea biruncinata, *Mont. Canar. p.* 140. *t.* 7.

Hab. Sea-shores.

Distrib. Shores of New Holland, New Zealand, Chili, Cape of Good Hope, and Canary Islands.

The less or greater length of rachis, and the absence or presence of spines on the surface of the frond, characters which distinguish the *E. radiata* and *E. exasperata* of Agardh from each other, are certainly variable, and we think we have satisfactorily traced one form into the other. Nor is *E. Richardiana* a more satisfactory species.

Gen. XXI. CHORDA, *Stackh.*

(Lamour. Ess. p. 26. Lyngb. Hyd. Dan. p. 72. Grev. Alg. Brit. p. 46. Harv. Phyc. Brit. t. 107, 285. Kütz. Sp. Alg. p. 548. *Scytosiphon*, Endl. 3rd Suppl. p. 25. J. Ag. Sp. Alg. i. p. 125.)

1. **Chorda lomentaria** (Lyngb. Hyd. Dan. p. 74. t. 18; Harv. Phyc. Brit. t. 285).—Scytosiphon lomentarium, *J. Ag. Sp. Alg.* i. *p.* 126.

Hab. Georgetown, *Gunn, etc.* Southport, *C. Stuart.*

Distrib. Native of the Atlantic and Pacific, in the northern and southern temperate zones, and of the Antarctic Sea.

Gen. XXII. ADENOCYSTIS, *Hook. fil. et Harv.*

(Fl. Antarct. i. p. 179. J. Ag. Sp. Alg. i. p. 124. *Chordæ* sp., Kütz.)

1. **Adenocystis Lessonii** (Hook. fil. et Harv. Fl. Antarct. i. p. 179; J. Ag. Sp. Alg. i. p. 124).—Asperococcus Lessonii, *Bory, Coq. t.* 11. *f.* 2. Chorda Lessonii, *Kütz. Sp. Alg. p.* 549.

Hab. Tide-pools at Port Arthur, *W. H. H.*

Distrib. Antarctic shores, New Zealand.

Tribe IV. *DICTYOTACEÆ.*

Gen. XXIII. HALYSERIS, *Targion.*

(Targion. MS. Ag. Sp. i. p. 141. Grev. Alg. Brit. p. 63. Endl. 3rd Suppl. p. 24. Harv. Phyc. Brit. t. 19. Kütz. Phyc. p. 340. J. Ag. Sp. Alg. i. p. 114. Kütz. Sp. Alg. p. 561.)

1. **Halyseris Muelleri** (Sond.); stipite elongato ramoso, fronde dichotoma v. suppressione ramorum alterne ramosa, sinubus obtusiusculis, segmentis erectis latis linearibus integerrimis sæpe alterne divisis, lamina crassiuscula enervi, antheridiis sparsis.—*Harv. Alg. W. Austr. in Trans. R. I. A.* xxii. *p.* 535. H. polypodioides, *Harv. in Lond. Journ. Bot.* vi. *p.* 415.

Hab. Georgetown, etc., common.

Distrib. Abundant along the western and southern coasts of Australia.

Gen. XXIV. ZONARIA, *J. Ag.*

(J. Ag. Linnæa, xv. p. 444. Endl. 3rd Suppl. p. 25. J. Ag. Sp. Alg. i. p. 106. *Stypopodii* sp., et *Phycopteris*, Kütz. Sp. Alg. 563, 564.)

1. **Zonaria interrupta** (Ag.; J. Ag. Sp. Alg. i. p. 111).—Phycopteris interrupta, *Kütz. Sp. Alg. p.* 564. Fucus interruptus, *Turn. Hist. t.* 245.

Hab. Georgetown, *R. Gunn, etc.*

Gen. XXV. DICTYOTA, *Lamour.*

(J. Ag. Sp. Alg. i. p. 86. Kütz. Sp. Alg. p. 553. Harv. Phyc. Brit. t. 103.)

1. **Dictyota fastigiata** (Sond. Bot. Zeit. 1845, p. 50; J. Ag. Sp. Alg. i. p. 100).

Hab. Flinders' Island, *Milligan*.
Distrib. West and south coasts of Australia.

2. **Dictyota paniculata** (J. Ag. Symb. p. 5; Sp. Alg. i. p. 91; Kütz. Sp. Alg. p. 558).
Hab. Georgetown, etc.
Distrib. Coasts of Australia.

3. **Dictyota dichotoma** (Lamour.; J. Ag. Sp. Alg. i. p. 92; Kütz. Sp. Alg. p. 554 (also *D. vulgaris*, Kütz.); Harv. Phyc. Brit. t. 103).—Ulva dichotoma, *Eng. Bot. t.* 774.
Hab. Georgetown, etc.
Distrib. Cosmopolitan.

4. **Dictyota nervosa?** (Suhr, in Flora, 1834, ii. t. 1. f. 4; J. Ag. Sp. Alg. i. p. 95; Harv.! Alg. Austr. Exsic. n. 74).
Hab. Georgetown.
Distrib. Cape of Good Hope.

Gen. XXVI. STILOPHORA, *J. Ag.*

(J. Ag. Sp. Alg. i. p. 83. Endl. 3rd Suppl. p. 26. *Spermatochnus*, Kütz. Phyc. p. 334. Sp. Alg. p. 549.)

1. **Stilophora rhizodes** (J. Ag. Sp. Alg. i. p. 85; Harv. Phyc. Brit. t. 70).—Fucus rhizodes, *Turn. Hist. t.* 235.
Hab. Georgetown, in tidal pools, and on the mudflats.
Distrib. Atlantic coasts of Europe and North America.

2. **Stilophora Lyngbyæi** (J. Ag. Sp. Alg. i. p. 84; Harv. Phyc. Brit. t. 237).
Hab. Georgetown, in deep water.
Distrib. Shores of Europe, King George's Sound.

Gen. XXVII. ASPEROCOCCUS, *Lamour.*

(Lamour. Ess. p. 61. J. Ag. Sp. Alg. i. p. 74. *Encœlium* et *Haloglossum*, Kütz.)

1. **Asperococcus Turneri** (Hook. Br. Fl. ii. p. 277; Harv. Phyc. Brit. t. 11).—A. bulbosus, *Lamour. Ess. p.* 62; *Grev. Alg. Brit. p.* 51; *J. Ag. Sp. Alg.* i. *p.* 76.
Hab. Georgetown, etc., common.
Distrib. Atlantic Ocean, Mediterranean, coasts of New Holland, Cape of Good Hope, and Falkland Islands.

2. **Asperococcus sinuosus** (Bory; J. Ag. Sp. Alg. i. p. 75).—Encœlium sinuosum, *Kütz. Sp. Alg. p.* 552.

Tribe V. *CHORDARIACEÆ.*

Gen. XXVIII. LIEBMANNIA, *J. Ag.*

(J. Ag. Alg. Medit. p. 34. Endl. 3rd Suppl. p. 23. J. Ag. Sp. Alg. i. p. 60.)

1. **Liebmannia? australis** (Harv.); fronde subsimplici v. sæpius vage ramosa nunc ramosissima, ramis cylindraceis v. inæqualiter incrassatis carnoso-gelatinosis apice obtusis v. acutis, filis axillaribus densis, peripheriis elongatis dichotomis, articulis cylindraceis diametro 3–4-plo longioribus, sporis obovoideis.—*Harv. Alg. Exsic. n.* 88.

Var. β; fronde simpliciuscula intestinæformi.—*Harv. Alg. Exsic. n.* 89.

Hab. Georgetown, *R. Gunn, W. H. H.*

Distrib. South coasts of New Holland.

Frond 6 inches to a foot or more in height, from 2–4 lines in diameter, or sometimes upwards of half an inch across the swollen branches, very irregular in ramification, sometimes nearly simple, sometimes much branched. In the simpler varieties the branches are often much swollen. The substance is firmly carnoso-gelatinous and tough, and the colour a dark-brown, becoming blackish when dry. The axial filaments are very dense, those of the periphery remarkably slender, elongated, several times dichotomous, and perfectly cylindrical, their joints three or four times as long as broad. The *spores* are obovate, with a wide perisperm, and are borne near the bases of the peripheric filaments.—We are not sure whether this species be correctly referable to *Liebmannia*, where we place it on account of the dense axis.

Gen. XXIX. MESOGLOIA, *Ag.*

(J. Ag. Sp. Alg. i. p. 56. Kütz. Sp. Alg. p. 544. Harv. Phyc. Brit. t. 31, 82.)

1. **Mesogloia virescens** (Carm.; Harv. Phyc. Brit. t. 82; J. Ag. Sp. Alg. i. p. 56).

Hab. Georgetown, *R. Gunn.*

Distrib. Atlantic shores of Europe, Gulf of Mexico, south coast of New Holland, and at the Friendly Islands. (Vavau, *W. H. H.*)

Gen. XXX. CLADOSIPHON, *Kütz.*

(Kütz. Phyc. Gen. p. 329. t. 25. f. 1. J. Ag. Sp. Alg. i. p. 54. Kütz. Sp. Alg. p. 547.)

1. **Cladosiphon Chordaria** (Harv.); caule indiviso percurrente, ramis lateralibus longissimis quoquoversis simplicibus v. subdichotomis, ramulis paucis, axillis obtusis, filis peripheric is simplicibus brevissimis clavatis unicellularibus, sporis ellipticis.—*Harv. Alg. Exsic. n.* 95, 96; *Phyc. Austr. t.* 60.

Var. β. *Dictyosiphon;* fronde minori densius ramosa, ramis ramulis plus minus obsitis.—C. Dictyosiphon, *Harv. Alg. Exsic. n.* 97.

Hab. Georgetown.

Distrib. South coast of Australia.

Frond a foot or more in height, and as much in the expansion of the branches. *Stem* mostly simple, densely clothed throughout with long lateral branches which issue in all directions. *Branches* filiform, varying in diameter from the thickness of a hog's-bristle to a line; in the former case of equal diameter throughout, in the latter tapering at each end, simple and bare of ramuli, or once or twice forked, or, in var. β, furnished with numerous short patent ramuli. In young specimens the central cavity is narrow, in more advanced it gradually widens, the frond becoming somewhat inflated. The walls of the tube are composed of several rows of longitudinal filaments, densely aggregated into a firmly cellular flesh; the periphery is formed of minute, radiating, simple filaments, each formed of a single clavate cell, issuing from the cells of the outer row of those composing the tube-wall. *Elliptical spores* nestle among the filaments of the periphery.—The Georgetown specimens are of much greater diameter than those from Port Phillip, on which the species was founded. This seems to arise from an increase in diameter of the central tube. I cannot detect any difference in microscopic character, and therefore have brought them together, and also reduce to the same my *C. Dictyosiphon*, which, from its difference in habit, I had previously distributed as distinct.

2. **Cladosiphon nigricans** (Harv.); fronde filiformi longissima subsimplici v. parum ramosa, ramis lateralibus paucis vermiformibus elongatis nudis v. ramulos paucissimos ferentibus, tubo frondis demum amplo, filis peripheric is fasciculato-ramosis longiusculis articulatis, articulis diametro sesquilongioribus terminali globoso.—*Harv. Alg. Exsic. n.* 94.

Hab. Georgetown, *R. Gunn, W. H. H.* (Often on *Zostera.*)

Distrib. Western Port, Victoria, *W. H. H.*

Frond 1–2 feet long, simple, with a few lateral simple branches, each several inches or upwards of a foot in length, and either quite naked or furnished with a few distant lesser branches irregularly distributed. The walls of the frond are composed of three or four rows of longitudinal, closely agglutinated filaments. At first the cavity is small, but finally it widens. The peripheric filaments are subfasciculate, irregularly forked or laterally branched; their articulations are cylindrical, and longer than their diameter; the terminal cell is globose, and of larger diameter than the rest, so that each fibre is capitate.—After having been dried, the tube in some cases remains permanently collapsed, but in others it freely opens, a difference perhaps depending on maturity.

Gen. XXXI. LEATHESIA, *S. F. Gray.*

(Gray, Br. Pl. i. p. 301. Endl. 3rd Suppl. p. 23. Harv. Phyc. Brit. t. 176. J. Ag. Sp. Alg. i. p. 50. Kütz. Sp. Alg. p. 543.)

1. **Leathesia tuberiformis** (S. F. Gray, Br. Pl. i. p. 301; Harv. Phyc. Brit. t. 324).—L. marina, *Endl. 3rd Suppl. p.* 23; *Kütz. Sp. Alg. p.* 543; *J. Ag. Sp. Alg.* i. *p.* 52. Rivularia tuberiformis, *Eng. Bot. t.* 1956.

Hab. Rocks: at the mouth of the Tamar, etc.

Distrib. Atlantic shores of Europe and America, Cape of Good Hope, south coast of New Holland.

Gen. XXXII. MYRIONEMA, *Grev.*

(Grev. Crypt. Fl. t. 300. Endl. 3rd Suppl. p. 23. J. Ag. Sp. Alg. i. p. 47.)

1. **Myrionema Leclancherii** (Chauv.; Harv. Phyc. Brit. t. 41 A; J. Ag. Sp. Alg. i. p. 48).—Phyllactidium maculæforme?, *Kütz. Phyc. p.* 295.

Hab. On *Ulvæ:* at Georgetown; parasitic.

Distrib. Atlantic shores of Europe, etc.

Gen. XXXIII. CLADOSTEPHUS, *Ag.*

(J. Ag. Sp. Alg. i. p. 41. Harv. Phyc. Brit. t. 33. 138. Kütz. Sp. Alg. p. 468.)

1. **Cladostephus spongiosus** (Ag. Sp. p. 12; Harv. Phyc. Brit. t. 138; Hook. fil. Fl. Antarct. p. 163; J. Ag. Sp. Alg. i. p. 43).

Hab. Tasmania, *C. Stuart.*

Distrib. A native of Europe, North and South America, and of the south coasts of Australia, etc.

Tribe VI. *ECTOCARPACEÆ.*

Gen. XXXIV. SPHACELARIA, *Lyngb.*

(Lyngb. Hyd. Dan. p. 103. J. Ag. Sp. Alg. i. p. 29.)

1. **Sphacelaria paniculata** (Suhr; J. Ag. Sp. Alg. i. p. 36).—S. hordeacea, *Harv. in Hook. Ic. Pl. t.* 614. Stypocaulon paniculatum, hordeaceum, *et* virgatum, *Kütz.*

Hab. Coast rocks, common: Georgetown, Port Arthur.

Distrib. Coasts of New Holland and New Zealand, Cape of Good Hope.

Gen. XXXV. ECTOCARPUS, *Lyngb.*

(Lyngb. Hyd. Dan. p. 130. J. Ag. Sp. Alg. i. p. 14. Kütz. Sp. Alg. p. 449.)

1. **Ectocarpus siliculosus** (Lyngb.; J. Ag. Sp. Alg. i. p. 22; Kütz. Sp. Alg. p. 451; Harv. Phyc. Brit. t. 162).

HAB. Georgetown, etc.

DISTRIB. Northern and southern temperate zones.

2. **Ectocarpus fasciculatus** (Harv. Man. ed. 2. p. 59; Harv. Phyc. Brit. t. 273; Wyatt, Alg. Damn. n. 302; Kütz. Sp. Alg. i. p. 22).

HAB. On *Chorda lomentaria*, at Georgetown, *J. Penny*.

Our specimens agree pretty nearly with specimens from the British seas, but are not fully matured. They are however in fruit.

3. **Ectocarpus sordidus** (Harv.); fronde decumbente debili alias algas investiente vage et parce ramosa, ramis paucis flexuosis subsimplicibus nudisque hic illic ramulum horizontalem brevem ferentibus.

HAB. Georgetown, covering small *Algæ, Gunn*.

This resembles the British *E. crinitus*, to which it might without much violence be referred. It forms sprawling strata, investing the smaller *Algæ*, when growing in muddy places.

SERIES II. RHODOSPERMEÆ.

TRIBE I. *RHODOMELACEÆ.*

Gen. XXXVI. CLAUDEA, *Lamour.*

(Lamour. An. Mus. xx. p. 121. Endl. 3rd Suppl. p. 50. Kütz. Sp. Alg. p. 887.)

1. **Claudea elegans** (Lamour. Ess. t. 2. f. 2, 4; Kütz. Sp. Alg. p. 888; Harv. in Lond. Journ. Bot. iii. p. 408. t. 20; Harv. Ner. Austr. 15; Phyc. Austr. t. 1).—Fucus Claudei, *Turn. Hist. t.* 243.

HAB. In the Tamar, above Georgetown, especially at Point Rapid.

DISTRIB. Western Australia.

Gen. XXXVII. MARTENSIA, *Her.*

(Hering, Ann. Nat. Hist. viii. p. 92. Harv. Ner. Austr. p. 73. Kütz. Sp. Alg. p. 888.)

1. **Martensia,** sp.

HAB. In the Tamar, at Georgetown, *Gunn, Fereday*.

We regret that at present it is out of our power to determine this plant. Fragments of the fringe of a gigantic *Martensia*, much larger and more robust than any we have elsewhere seen, have been sent to us by Mr. Gunn, and similar fragments have been found by Mr. Fereday. No state of *M. elegans* that we have examined resembles these fragments, and they are still less like any of the other described species, except perhaps *M. australis*, Harv., from Swan River. The fringe, when perfect, must have been more than 6 inches in breadth; the individual meshes are nearly ¼ inch long, the walls of the meshes more than a line in breadth; and the exterior margin of the network fimbriato-laciniate. Until the membranous portion of the frond, and especially the base of the membrane, shall have been seen, it will be impossible satisfactorily to determine the species.

Gen. XXXVIII. POLYPHACUM, *Ag.*

(Ag. Syst. p. 274. Endl. 3rd. Suppl. p. 33. Harv. Ner. Austr. p. 17.—*Epiglossum*, Kütz. p. 878.)

1. **Polyphacum Smithiæ** (Harv. Ner. Austr. p. 17. t. 3).—Epiglossum Smithii, *Kütz. Sp. Alg. p.* 878.

HAB. Circular Head, *Mrs. Smith.*

DISTRIB. South coast of Australia, *W. H. H., F. Mueller, etc.*

Gen. XXXIX. ? THAMNOCLONIUM, *Kütz.*

(Kütz. Phyc. Gen. p. 392. Sp. Alg. p. 793.)

1. **Thamnoclonium hirsutum** (Kütz. Sp. Alg. p. 793).—Polyphacum dichotomum, *J. Ag.*

HAB. At the mouth of the Tamar, in deep water.

DISTRIB. Coast of New Holland.

Gen. XL. LENORMANDIA, *Sond.*

(Sond. Bot. Zeit. 1845, p. 54. Harv. Ner. Austr. p. 18. Kütz. Sp. Alg. p. 849.)

1. **Lenormandia marginata** (Hook. fil. et Harv. Ner. Austr. p. 19. t. 2; Kütz. Sp. Alg. p. 849).

HAB. Common in the Tamar, at Georgetown.

Gen. XLI. JEANNERETTIA, *Hook. fil. et Harv.*

(Harv. Ner. Austr. p. 20.)

1. **Jeannerettia lobata** (Harv. Ner. Austr. p. 20. t. 4).—Botryoglossum lobatum?, *Kütz. Sp. Alg. p.* 881; *Harv. Phyc. Austr. t.* 33.

HAB. Port Arthur, *Jeannerett.* In the Tamar, *R. Gunn, W. H. H., etc.*

DISTRIB. West and South Australia.

This plant scarcely differs generically from the following, with which it sufficiently agrees in habit. By Kützing it has been erroneously referred to *Botryoglossum*, from which it is widely separated by its fructification. The *ceramidia*, with which we were unacquainted when the genus was first described, resemble those of *Pollexfenia pedicellata.*

Gen. XLII. POLLEXFENIA, *Harv.*

(Harv. in Hook. Lond. Journ. Bot. iii. p. 431. Ner. Austr. p. 21.)

1. **Pollexfenia pedicellata** (Harv. in Hook. Lond. Journ. Bot. iii. p. 431; Ner. Aust. p. 22· t. 5; Kütz. Sp. Alg. p. 875).

HAB. Abundant at Georgetown, etc.

DISTRIB. West and south shores of Australia.

The colour of the figure in Ner. Austr. is much too bright. It should be of a sober brownish-red, or purplish.

Gen. XLIII. DICTYMENIA, *Grev.*

(Grev. Syn. p. 50. Endl. 3rd Suppl. p. 47. Harv. Ner. Austr. p. 28. Kütz. Sp. Alg. 847.)

1. **Dictymenia Harveyana** (Sond. in Linn. xxv. p. 697).—D. tridens, *Harv. Ner. Austr. p.* 28. *t.* 7 (*not of Grev.*).

Hab. Georgetown; plentiful.
Distrib. South coast of New Holland.

Gen. XLIV. ACANTHOPHORA, *Lx.*

(Lamour. Ess. p. 44. Grev. Syn. p. 54. Endl. 3rd Suppl. p. 47. Harv. Ner. Austr. p. 34. Kütz. Sp. Alg. p. 858.)

1. **Acanthophora Tasmanica** (Sond.); fronde cartilaginea ultrasetacea decomposite ramosissima, ramis primariis elongatis lateraliter ramosis, secundariis brevibus ramulis brevibus plus minus onustis, spinulis minutis quaquaversis pinnatifido-dentatis solitariis v. aggregatis nunc spinula subulata indivisa fulcratis.—*Sond. in Linn.* xxv. *p.* 699. Polysiphonia, *n. sp.?, Harv. Alg. Austr. Exsicc. No.* 165.

Hab. Georgetown, between tide-marks, on the flats, *R. Gunn, W. H. H., etc.*

Frond twice as thick as hog's-bristle, 6–8 inches long, much branched, the branches three to four times compounded in an alternate manner, spreading to all sides. Main branches 3–4 inches long, nearly bare below, in the upper part set with one or two series of short, simple, or little-divided branchlets. All the younger branches and ramuli are closely beset with patent spinulæ, half a line in length, spirally inserted, very patent and sharply inciso-dentate or pinnatifid. *Colour* a dark brown. *Substance* cartilaginous, rather soft, adhering to paper.

2. **Acanthophora arborea** (Harv.); fronde dendroidea incrassata decomposite ramosissima, ramis primariis elongatis versus apicem attenuatis lateraliter ramosissimis, ramis secundariis brevibus dichotomo-multifidis, ramulis brevissimis spinulosis, spinulis subulatis fasciculatis undique insertis imbricatis, ceramidiis subterminalibus pedunculatis ovatis.—A. Tasmanica, *Harv. Alg. Austr. Exsicc. n.* 140 (*not of Sonder*).

Hab. Rocks: at low water-mark, in the Tamar, above Georgetown, *W. H. H.*

Fronds 12–18 inches long, as thick as crowquill below, attenuated upwards, branched from a short way above the base, bushy and tree-like. Principal branches few, subsimple, resembling the main stem, and equal in thickness, erecto-patent, more or less clothed with lesser branches. The secondary branches are 1–2 inches long, slender as hog's-bristle, and much divided in an irregularly dichotomo-alternate manner, the ultimate ramuli being not more than two or three lines long. All the lesser divisions and ramuli are closely set with imbricated subulate spines directed to all sides. *Capsules* ovate, on longish stalks, near or at the end of the branches. *Colour* dark brownish-purple when fresh, black when dry.

Gen. XLV. RHODOMELA, *Ag.*

(Ag. Sp. Alg. i. p. 368. Grev. Syn. p. 51. Endl. 3rd Suppl. p. 47. Harv. Ner. Austr. p. 34.)

1. **Rhodomela periclados** (Sond.); cæspitosa, fronde subsimplici v. furcata, ramis paucis lateralibus simplicibus, ramulis aculeiformibus acutis brevibus demum fasciculato-multifidis undique insertis, cystocarpiis subglobosis sessilibus v. brevissime pedicellatis, tetrasporis in ramulis fasciculatis ultimis nidulantibus.—*Harv. Phyc. Austr. t.* 28. R. simpliciuscula, *Harv. Alg. Austr. Exsicc. n.* 136.

Hab. East coast, and Brown's River, *R. Gunn.* Southport, *C. Stuart.*
Distrib. Port Phillip, Victoria, *Mueller, W. H. H.*

Densely tufted. *Fronds* issuing from matted roots, 2–4 inches high, simple or once or twice forked, and occasionally furnished with one or two lateral simple branches. Branches sometimes nearly naked, but in well-grown specimens furnished through the whole length with spinelike ramuli, 1–2 lines long, which are at first subsimple, but afterwards, by development from their inner side, become fasciculato-multifid. *Colour* very dark brown, black when dry. *Substance* rather rigid, not strongly adhering to paper in drying. *Cystocarps* (on the Port Phillip spe-

cimens) roundish-ovate, with wide mouths, sessile on the ramuli, or near the tips of their lesser divisions. *Tetraspores* (on Tasmanian specimens) in an irregular double row in the ultimate ramuli.

Gen. XLVI. CHONDRIA, *Ag.*

(J. Ag. ref. Harv. in Ner. Bor. Amer. pt. 2. p. 19. Fl. N. Zeal. p. 223.)

1. **Chondria dasyphylla** (Ag. Sp. Alg. i. p. 350).—Laurencia dasyphylla, *Grev.; Harv. Phyc. Brit. t.* 152. Fucus dasyphyllus, *Turn. Hist. t.* 22, *etc.*

HAB. Common at Georgetown. Derwent, *Oldfield.*

The Tasmanian specimens are frequently of very large size, 3–4 feet long, and excessively branched. Such specimens grow in the deeper and more rapid parts of the Tamar channel.

2. **Chondria verticillata** (Harv.); fronde tereti succosa siccitate badia bis-terve umbellatim divisa, ramulis fasciculato-verticillatis saccatis oblongis obtusissimis basi-constrictis, tetrasporis in ramulis nidulantibus.—*Harv. in Trans. R. I. Acad.* xxii. *p.* 539; *Alg. Austr. Exsic. n.* 161.

HAB. Georgetown, rare, *R. Gunn, Rev. J. Fereday.*

3. **Chondria tenuissima** (Ag.).—Laurencia tenuissima, *Grev.; Harv. Phyc. Brit. t.* 198. Fucus tenuissimus, *Turn. Hist. t.* 100 (?)

HAB. Georgetown, *R. Gunn.*

4. **Chondria opuntioides** (Harv.); fronde inferne cartilaginea solidescente obsolete constricta dichotoma, superne di-trichotoma articulato-constricta membranacea succo aquoso repleta, ramulis ad genicula verticillatis articulatis, articulis ramorum puncto affixis (cito in aqua dulci sejunctis) ovali-oblongis basi et apice obtusissimis, cystocarpiis ovatis sessilibus.—Chylocladia opuntioides, *Harv. Trans. R. I. Acad.* xxii. *p.* 556. C. Tasmanica, *Lond. Journ.* iii. *p.* 444. Catenella major, *Sond. Pl. Preiss.* (*fide sp.!*) Rhabdonia Sonderi, *J. Ag.* (*not of Harv.*). (TAB. CLXXXIX.)

HAB. Georgetown, etc.; common.

DISTRIB. West and south coasts of Australia.

Fronds a foot to 18 inches high, and as much in expansion, tufted, excessively branched in a di-trichotomous manner. *Main stem* solid, cylindrical and continuous in its lower part, becoming more or less constricted upwards at intervals of about an inch, then becoming regularly articulato-constricted, hollow, succulent, and filled with watery juice, dichotomous or fasciculately branched; lesser divisions frequently trichotomous, strongly constricted, beset at the constrictions with more or less abundant, whorled, articulated, simple or dichotomous ramuli. *Articulations* elliptical or oblong, readily separating. When thrown into fresh-water, the whole frond rapidly breaks up the branches and ramuli falling off in single joints, leaving a bare stem, with a few of its principal divisions. *Cystocarps* ovate, sessile on the sides of the ramuli. *Tetraspores* of large size, imbedded in the ultimate ramuli. *Colour* a full red, rapidly given out in fresh-water. *Substance*, when quite fresh, cartilaginous, but very juicy, and soon becoming flaccid. In drying, it most closely adheres to paper.

I suppose this to be the *Chylocladia articulata* of Australian botanists, as it appears to be found commonly along the whole southern coast, and often assumes the habit of the true *C. articulata* of Europe, though differing greatly from that plant in substance, structure, and fructification. At first I referred the present species to *Chylocladia*, but the discovery of *cystocarps* and *tetraspores* on Tasmanian specimens compels its removal into *Chondria*, where it associates naturally with *C. clavata* and *C. verticillata*.—PLATE CLXXXIX. Fig. 1, a frond, the *natural size;* 2, ramulus, with tetraspores; 3, a tetraspore; 4, ramulus, with conceptacle; 5, spores from the same: the latter figures *magnified.*

5. **Chondria ?? bulbosa** (Harv.); fronde coccinea a basi ramosa, ramis primariis basi incrassato-

bulbosis bulbo oblongo solido sursum filiformibus alterne decompositis, secundariis ramulisque quaquaversis sparsis obtusis basi attenuatis.

HAB. East coast, *Gunn.* Derwent, *Oldfield.*

Frond 3–4 inches high, branched from the base. *Primary branches* numerous, each of them swelling at base into an oblong, solid bulb, from ½–¾ of an inch long and 1–2 lines in diameter. Beyond the bulb the branches are filiform, twice as thick as hog's-bristle, and alternately decompound, the lateral branches directed to all sides. *Secondary branches* virgate, simple, having a few scattered ramuli, which are obtuse at the apex and much attenuated to the insertion.

Dried specimens do not readily recover their form on being remoistened, and we are not quite certain as to the internal structure of the frond. There is some appearance of internal septa at short intervals, and this character, added to the form of the ramuli, has induced us to place this curious plant provisionally in *Chondria*. Until fruit shall have been found, its place in the system cannot be finally ascertained. The *habit* is that of a *Rhabdonia*.

6. **Chondria fusifolia** (Hook. fil. et Harv.).—Laurencia fusifolia, *Hook. fil. et Harv. in Lond. Journ.* vi. *p.* 401.

HAB. Sullivan's Cove, *Dr. Lyall.*

Gen. XLVII. RYTIPHLŒA, *Ag.*

(Ag. Sp. Alg. ii. p. 50. Harv. Ner. Austr. p. 31. Kütz. Sp. Alg. p. 844.)

1. **Rytiphlœa simplicifolia** (Harv.); fronde foliacea costata a costa repetite prolifera et demum spurie ramosissima, foliis linearibus planis v. subcanaliculatis costa tenui percursis opacis tenuissime transversim striatis obtusis basi in petiolo attenuatis, stichidiis linearibus involutis fasciculatis e costa enatis.—*Harv. Alg. Austr. Exsic. n.* 133.

HAB. Tasmania, rare, *R. Gunn.*

DISTRIB. South coast of Australia, rare, *W. H. H.*

Primary leaf from an inch to 3 or 4 inches long or more, from 1–2 lines wide, quite flat, and traversed by a slender midrib, from which numerous similar leaves, 1–3 inches long, are thrown out proliferously, without any definite order. These in like manner bear a third, and those a fourth series of similar leaves, until there results a bushy, much compounded frond, composed of simple leaflets. All the *leaflets* are linear, obtuse, tapering to the base into an imperfect petiole, and are of a closely-cellular substance, rather opaque, and very finely striate transversely. The *colour* is a dull deep-red. *Stichidia* tufted, linear, issuing from the midribs.

In habit this plant resembles a very narrow form of *Lenormandia spectabilis*, but is of much closer cellular substance, and the reticulations are not diagonal, as in all the species of *Lenormandia*. Perhaps it would range better in *Dictymenia* than in *Rytiphlœa*.

2. **Rytiphlœa australis** (Endl. 3rd Suppl. p. 48; Mont. Fl. Canar. p. 154, in not.).—R. australasica, *Harv. Ner. Austr. p.* 32; *Swan Riv. Alg. n.* 65. *p.* 538; *Alg. Exsic. Austr. n.* 134; *Phyc. Austr. t.* 27.

HAB. Southport, *C. Stuart.*

DISTRIB. Common on the western and southern coasts of Australia.

Gen. XLVIII. BOSTRYCHIA, *Mont.*

(Mont. Hist. Cub. Bot. p. 39. Harv. Phyc. Brit. t. 48. Ner. Austr. p. 58. Kütz. Sp. p. 839.)

1. **Bostrychia mixta** (Hook. fil. et Harv.; Lond. Journ. iv. p. 270; Harv. Ner. Austr. p. 70; Fl. N. Zeal. ii. p. 225; Harv. Alg. Exsic. n. 141).

HAB. On stones, above half-tide. Port Arthur, *W. H. H.*

Distrib. New Zealand and Cape of Good Hope.

2. **Bostrychia distans?** (Harv. in Fl. N. Zeal. ii. p. 226).

Hab. In the Derwent, at New Norfolk, *Gunn.* Rivers in New Zealand.

If this be not identical with the New Zealand species found in similar localities, it is at least nearly allied to it. Our specimens are not in good order.

3. **Bostrychia Harveyi** (Mont. Fl. Chil. Cell. ii. p. 307. t. 16. f. 4; Hook. Fl. N. Zeal. ii. p. 225).

Hab. Tasmania, *C. Stuart.*

Distrib. A native of Chiloe and of New Zealand. Closely allied to the *B. scorpioides* of Europe, but more slender.

Gen. XLIX. POLYZONIA, *Suhr.*

(Suhr in Flora, 1834, p. 739. Harv. Ner. Austr. p. 70. Kütz. Sp. Alg. p. 881.)

1. **Polyzonia incisa** (J. Ag. in Linn. xv. p. 24; Harv. Ner. Austr. p. 71).

Hab. Parasitical on various *Algæ.*

Gen. L. POLYSIPHONIA, *Grev.*

(Grev. Fl. Edin. p. 308. Harv. Ner. Austr. p. 37. Kütz. Sp. Alg. p. 802.)

Subgenus 1. OLIGOSIPHONIA, *J. Ag.*

1. **Polysiphonia Hookeri** (Harv. Ner. Aust. p. 40. t. 12).—P. acanthophora, *Harv. in Lond. Journ. Bot.* iii. *p.* 441.

Hab. Georgetown, abundant.

2. **Polysiphonia Mallardiæ** (Harv. Ner. Austr. p. 40. t. 13).

Hab. Georgetown. Coast of New Holland.

3. **Polysiphonia Hystrix** (Hook. fil. et Harv.; Harv. Ner. Austr. p. 41. t. 14).

Hab. Georgetown, etc. Coast of New Holland.

4. **Polysiphonia breviarticulata** (J. Ag. Alg. Medit. p. 135; Harv. in Ner. Bor. Amer. ii. p. 36. t. 16 *b.*; Trans. R. I. Acad. xxii. p. 539).

Hab. Piper's River, *R. Gunn.* Native of Europe and North America.

5. **Polysiphonia abscissa** (Hook. fil. et Harv.; Fl. N. Zeal. ii. p. 227).—P. abscissa and P. microcarpa, *Fl. Ant. et Harv. Ner. Austr.*

Hab. Georgetown, *R. Gunn, W. Archer.* Native of Antarctic Sea and New Zealand.

The Tasmanian specimens are larger and somewhat coarser and duller in colour than those from the Antarctic Sea, but the differences do not seem to warrant their specific separation. The species represents *P. formosa* and *P. urceolata* in the Southern Ocean, and is probably as variable as those forms are well known to be.

6. **Polysiphonia mollis** (Hook. fil. et Harv.; Harv. Ner. Austr. p. 43).

Hab. Georgetown, on *Zostera;* common. South coast of New Holland.

7. **Polysiphonia crassiuscula;** fuscescens, cartilagineo-succosa, siccitate subrigida, rugosa, fronde ultrasetacea sursum maxime attenuata pluries dichotoma, axillis patentibus, ramis minoribus irregulariter dichotomis nudis v. ramulis paucis lateralibus plus minus obsitis, axi tetrasiphonio, articulis superioribus diametro æqualibus v. sublongioribus ecorticatis, inferioribus diametro brevioribus plus minus dense corticatis.

Hab. East coast, *R. Gunn.*

Fronds 4–6 inches high, not densely tufted, repeatedly dichotomous from the base, the lower axils very patent; cartilaginous, and thickly coated with secondary cells in the lower part, softer and more pellucid above, and at the ends of the branches flaccid, much attenuated and pellucid. *Articulations* short in all parts of the frond, only equalling their diameter toward the ends of the young branches, four-tubed. The lower articulations are more or less obliterated, being covered externally with several rows of accessory cells. *Colour* a dingy reddish-brown when dry. *Substance* rigid, the tips only adhering to paper.

Our specimens are few, and not in first-rate order.

8. **Polysiphonia laxa;** fronde setacea elongata rigidiuscula rufescente angulatim flexuosa laxe ramosa, ramis primariis patentibus paucis elongatis varie divisis, secundariis brevibus divaricato-patentibus alternis v. sæpe secundis subsimplicibus v. lateraliter ramulosis, ramulis paucissimis setaceis, articulis tetrasiphoniis ecorticatis mediis diametro 3–4-plo superioribus duplo longioribus ultimis diametro æqualibus.

Hab. Tasmania, *R. Gunn.*

Frond upwards of a foot long, as thick as hog's-bristle, very laxly branched, the branches distant, zigzag-bent, throwing off branchlets at the angles; the principal branches several inches long, variously set with short lateral branches, which are often secund, subsimple, slightly branched, or having a few setaceous ramuli. All the ramification is remarkably patent. The *substance* is somewhat rigid, and the plant does not closely adhere to paper.

We have only seen a solitary specimen, which is very dissimilar in character to any Australian species known to us. It is attached to a fragment of *Zostera.*

9. **Polysiphonia succulenta;** fronde badia gelatinoso-cartilaginea ultrasetacea sensim attenuata apice flaccida dichotome ramosissima, ramis lateralibus irregulariter dichotomis v. multipartitis, ultimis in ramulos fasciculatos multifidos desinentibus, articulis ecorticatis tetrasiphoniis mediis diametro subtriplo longioribus superioribus brevioribus ultimis diametro æqualibus, tetrasporis in ramulis nidulantibus.

Hab. Georgetown, on *Zostera, R. Gunn.* (Oct. 1848.)

We have only seen a single specimen. It resembles a large and coarsely-grown *P. mollis*, but the frond is much more robust and succulent than in that species, and the habit more flabelliform, with dense fasciculato-multifid terminal ramuli. *Frond* 6 inches high, much branched from the base, the branches dichotomous. *Colour* when dry a rich dark-brown. *Substance* somewhat similar to that of *Griffithsia secundiflora.*

10. **Polysiphonia vagabunda** (Harv.); cæspitibus minutis globosis (natantibus) roseis siccitate fuscescentibus, frondibus pusillis intricatis vage ramosis, ramis elongatis horizontalibus v. divaricatis arcuatis, ramulis paucis sæpe secundis divaricatis, articulis tetrasiphoniis diametro æqualibus.—*Harv. Alg. Austr. Exsic. n.* 183.

Hab. Floating in the sea, at Eagle Hawk Neck, *W. H. H.*

This curious little species occurred in such immense quantity as to colour the sea for a considerable distance round the shore, each wave, as it rolled in, appearing as if thickened with *raspberry jam.* The mass, when examined, proved to be composed of innumerable minute, spherical tufts, each about two lines in diameter, composed of filaments intricately woven together, very irregularly branched, the branching remarkably divaricate. At an earlier stage, probably, the plant was attached, but when found it appeared in full life, and not a mere waif of the sea; and I was informed by a gentleman resident at the Neck that he had repeatedly noticed the waves, in that part of the bay, to be similarly filled with this little plant.

Subgenus 2. POLYSIPHONIA.

11. **Polysiphonia cancellata** (Harv. Lond. Journ. iii. p. 440; Harv. Ner. Austr. p. 51. t. 15).

HAB. On the larger *Algæ*, very common.

DISTRIB. West and south and east coasts of New Holland.

12. **Polysiphonia Frutex** (Harv. Lond. Journ. iii. p. 439; Ner. Austr. p. 52).

HAB. Georgetown, etc., common.

DISTRIB. South coast of New Holland.

13. **Polysiphonia fuscescens** (Harv. Lond. Journ. iii. p. 439; Ner. Austr. p. 52).

HAB. Georgetown, etc., common.

DISTRIB. South coast of New Holland.

14. **Polysiphonia versicolor** (Hook. fil. et Harv.; Lond. Journ. vi. p. 399; Harv. Ner. Austr. p. 48. t. 16).

HAB. Georgetown, etc.

DISTRIB. West and south coasts of New Holland.

15. **Polysiphonia monilifera** (Hook. fil. et Harv.; Lond. Journ. vi. p. 399; Harv. Ner. Austr. p. 49. t. 16).

HAB. At Georgetown, rare, *R. Gunn.*

16. **Polysiphonia ericoides** (Harv. Lond. Journ. vi. p. 400; Ner. Austr. p. 50).

HAB. Tasmania, *Rev. Mr. Ewing.* Port Arthur, *W. H. H.*

17. **Polysiphonia cladostephus** (Mont. Voy. Pôl. Sud, i. p. 132. t. 13. f. 4 A; Harv. Ner. Austr. p. 45; Fl. N. Zeal. ii. p. 232).—Pol. byssoclados, *Harv. Lond. Journ.* iii. *p.* 436. Cladostephus australis, *Ag. Syst. p.* 169. Griffithsia australis, *Ag. Sp. Alg.* ii. *p.* 135. Bindera cladostephus, *Dcne.*

HAB. Common, especially at Georgetown.

DISTRIB. All along the west and south coasts of New Holland. New Zealand. Auckland Islands, etc.

18. **Polysiphonia spinosissima** (Harv.); fuscescens, dense cæspitosa, fronde setacea fruticosa articulata sulcata decomposite ramosissima, ramis quaquaversis creberrimis patentibus pluries pinnatim compositis, ramulis spicæformibus squarrosis spiraliter insertis brevibus crebris, articulis septemsiphoniis, ramorum diametro sesquilongioribus, ramulorum brevissimis.—*Harv. Alg. Austr. Exsic. n.* 173.

HAB. Tasmania, *C. Stuart.*

DISTRIB. Coast of Victoria, at Port Fairy, *W. H. H.*

Tufts 2–3 inches high, very dense, many fronds growing from the same base. *Stems* about as thick as hog's-bristle, articulated to the base, and very densely beset with lateral, patent branches directed to all sides, so as to give a shrub-like aspect to the plant. The principal *branches* are again beset with a second, and occasionally a third set, directed to all sides, and closely alternating in insertion. All the branches are densely set with short, spinelike, divaricate or reflexed ramuli, about a line in length. The *articulations* have seven radiating tubes, and are short throughout the plant; those of the branches scarcely once and half as long as broad, and those of the ramuli much shorter than their breadth. The *colour* is a dark brown when dry, a pale brown when recent. The *substance* is soft, and soon decomposes in fresh-water. Frequently the whole plant is densely clothed with byssoid hairs.—The Tasmanian specimens entirely correspond with those from Victoria. Mr. Stuart does not give their exact habitat. Those from Port Fairy grew in a narrow tide-channel, or small creek, and not in the open sea.

Gen. LI. DASYA, *Ag.*

(Ag. Sp. Alg. ii. p. 116. Harv. Ner. Austr. p. 57. Fl. N. Zeal. ii. p. 232.)

1. **Dasya Gunniana** (Harv. Ner. Austr. p. 59. t. 17).—Pol. Gunniana, *Harv. in Lond. Journ. Bot.* iii. *p.* 437.

HAB. Georgetown, plentiful, *Gunn.*

DISTRIB. West and south coasts of Australia; common in Port Phillip.

2. **Dasya Lawrenciana** (Harv. Ner. Austr. p. 60. t. 18.)—Pol. **Lawrenciana**, *Harv. Lond. Journ.* iii. *p.* 438.

HAB. Georgetown, rare.

I have doubts whether this be more than an opaque variety of *D. Gunniana.*

3. **Dasya capillaris** (Hook. fil. et Harv.; Harv. Ner. Austr. t. 19).

HAB. Georgetown, on the wooden piles of the pier, etc., and on *Algæ.*

4. **Dasya naccarioides** (Harv. in Hook. Lond. Journ. iii. p. 432; Harv. Ner. Austr. p. 63. t. 22).

HAB. Abundantly at Georgetown.

DISTRIB. South coast of Australia.

5. **Dasya Tasmanica** (Sond.); "caule crasso elongato cartilagineo nudo alterne ramoso, ramis subelongatis iterum ramosis inarticulatis, ramulis divaricatis densissime ramellis roseis monosiphoniis vestitis, ramellis patentibus dichotomis, articulis diametro duplo triplove longioribus, terminali obtusissimo, ceramidiis ovato-subglobosis brevissime pedicellatis."—*Sond. in Linn.* xxv. *p.* 702.

HAB. Tasmania, *Stuart.* On the Flats, Georgetown, *R. Gunn.*

Frond 6–12 inches long, robust, decompound. *Branches* lateral, elongate, patent, set with one or two series of shorter branchlets and ramuli. The main stem and branches are denuded; the shorter branchlets and ramuli densely covered with dichotomo-multifid ramuli. The habit is very similar to that of *D. elongata*, but the ramelli are *obtuse*, not *acutely* pointed as in that species.—Our specimens are dull reddish-brown, and closely adhere to paper. We have not seen an authentic specimen of Sonder's plant.

6. **Dasya hapalathrix** (Harv.); caule longissimo (4–6-pedali) glabro repetite decomposite ramoso, ramis pluri-pedalibus cartilagineis virgatis crassis sursum attenuatis lateraliter ramosis, ramis minoribus bis terve compositis, ramulis ultimis setaceis ramelliferis, ramellis roseo-puniceis monosiphoniis mollissimis tenuissimis dichotomis attenuatis axillis acutis divisuris ultimis longissime filiformibus, articulis ramellorum diametro 3–6-plo longioribus, ceramidiis subsessilibus v. breve pedicellatis urceolatis ore prominulo, stichidiis minutis fusiformibus acutis.—*Harv. Alg. Exsic. Austr. n.* 201; *Phyc. Austr. t.* 88.

HAB. In the Tamar, at Point Rapid, *W. H. H.*

DISTRIB. Port Phillip Heads.

Frond sometimes 6 feet long, the branches 3 or 4 feet. *Stem* 1–2 lines in diameter at base, cartilaginous, attenuated upwards. *Branches* lateral, spirally inserted, many times compounded alternately, all the divisions virgate, tapering to the apex. The general circumscription of the larger branches is lanceolate, of the smaller, ovate-acuminate. The *ultimate ramuli* are setaceous, about ½ inch long, and are alone clothed with ramelli, which are of a bright, purplish, rose-red colour, well preserved in drying. The plant may be immersed in fresh-water without injury for a considerable time, a character by which it is readily known from those varieties of *D. villosa* which resemble it in habit. The *ramelli*, though exceedingly soft and flaccid, may be readily removed from paper, and open again in water with facility.

7. **Dasya villosa** (Harv. in Lond. Journ. iii. p. 433; Harv. Ner. Austr. p. 61. t. 20).

HAB. Georgetown, etc., common.

DISTRIB. West and south coasts of Australia, especially in Port Phillip.

An extremely variable plant in size and ramification, as well as in colour, being sometimes dark purplish-red, sometimes bright rosy-purple. It is the softest and most gelatinous of the Australian species, almost instantly decaying in fresh-water, and in this and other respects nearly resembles the northern *D. elegans.*

8. **Dasya Feredayæ** (Harv.); caule elato glabro opaco cartilagineo decomposite ramosissimo, ramis lateralibus virgatis gracilibus quaquaversis iterum et iterum alterne divisis, minoribus nunc virgatis simplicibus nunc ramosis attenuatis ramelliferis, ramellis roseis monosiphoniis undique insertis patentibus vel squarrosis ad apices densioribus dichotomo-multifidis axillis patentibus apice attenuatis, articulis ramellorum diametro 4–6-plo longioribus cylindraceis, ceramidiis . . .?—*Harv. Alg. Exsic. n.* 220.

Var. β; ramis ramulisque squarrosis.—*Harv. Alg. Exsic. n.* 221.

Hab. In the Tamar, at and above Georgetown, *Mrs. Fereday, etc.*

Frond 1–2 feet long or more, half a line to a line in diameter at base, set throughout with lateral branches spreading in all directions, the lower long, the upper gradually shorter. *Branches* virgate, three or four times alternately decompound, each set of branches more slender, generally straight and erecto-patent, sometimes squarrose and curved. All the larger branches are glabrous, the lesser ones but sparingly covered with ramelli, the penultimate ones alone thickly ramelliferous; but different specimens differ greatly in the density and copiousness of the ramelli. Every part of the frond is inarticulate, coated with small cells. The *ramelli* are patent, sometimes squarrose, many times dichotomous, attenuated to the points, and their articulations are 3–6 times as long as broad. The *colour* is rosy-red, well preserved in drying. The *substance* is firm, and the plant may be immersed for some time in fresh-water without injury.—I have not seen any fructification.

I first saw some fine specimens of this plant in the collection of Mrs. Fereday, of Georgetown, to whom the species is dedicated, and afterwards I collected it in considerable abundance in the Tamar. It has also been sent in Mr. Gunn's later collections.

9. **Dasya Haffiæ** (Harv.); caule elato villoso opaco cartilagineo decomposite plumoso-pinnato, ramis virgatis distichis subtripinnatis ramulisque patentibus densissime ramelliferis, ramellis roseis undique insertis squarroso-crispatis dichotomo-multifidis axillis patentibus apice acutis vix attenuatis, articulis ramellorum diametro sesqui-subduplo-longioribus, ceramidiis sæpe pinnulos ultimos terminantibus globosis ore porrecto densissime ramellis involucrato-vestitis, stichidiis minutis ovalibus mucronatis.—*Harv. Alg. Exsic. n.* 222.

Hab. Georgetown, rare, *R. Gunn.* Table Cape, *Miss Mackenzie.*

Distrib. First found at Western Port, Victoria, *W. H. H.*

Frond 12–18 inches high, and nearly as much in expansion, with a principal undivided or once-forked stem, closely set throughout with patent lateral branches, the lowest of which are longest. These branches are distichous, or nearly so, and are twice or thrice plumoso-pinnate, the pinnæ and pinnules all patent. The *pinnæ* are of unequal lengths, long and short intermixed; the smaller ones are either simple or once pinnate, the larger two or three times decompound. The *main branches* at first are densely ramellose, but become bare with age; all the lesser branches generally retain their villosity. The pinnæ and pinnulæ are densely clothed with curled, intricate, squarrose ramelli, many times dichotomous, not much tapering, but acute at the points, their articulations short. *Ceramidia* generally terminate the shortest of the ramuli, and are hidden in a dense nest of ramelli, which cover over even the walls of the ceramidium. *Stichidia* minute. *Colour* a rosy red, sometimes turning brown in drying. *Substance* soft, but not gelatinous.—The specific name is in honour of *Mrs. M'Haffie*, of Philip Island, Western Port. The specimens from Table Cape are much injured, and in part denuded of ramelli, and may possibly belong to a different but closely allied species.

10. **Dasya Muelleri** (Sond.); caule elato (pedali et ultra) crasso villis stipato subdichotomo, segmentis ramiferis, ramis secundariis longissimis (1–2-pedalibus) caule multo tenuioribus glabris corticatis simplicibus inferne sæpe denudatis superne pulcherrime plumoso-pinnatis, pinnis alternis crebris horizontalibus plus minus ecorticatis polysiphoniis iterum pinnulatis, pinnulis oligosiphoniis brevissimis ramelliferis, ramellis dichotomis attenuatis obtusis, articulis diametro 2–4-plo longioribus, ceramidiis magnis pedicellatis

inflato-ovatis, ore prominulo, stichidiis minutis oblongis acutis.—*Harv. Phyc. Austr. t.* 31. D. plumigera, *Harv. in Trans. R. I. Acad.* xxii. *p.* 543; *Harv. Alg. Exsic. Auct. n.* 208.

Hab. Georgetown.

Distrib. West and south coasts of Australia.

11. **Dasya Archeri** (Harv.); caule pusillo a basi in ramos numerosos diviso, ramis setaceis elongatis simplicibus pellucide articulatis polysiphoniis crebre pinnatis circumscriptione ovato-lanceolatis, pinnis distichis alternis ramello pectiniformi reflexo-squarroso suffultis simplicibus ramelliferis, ramellis sæpius alterne geminis divaricato-patentibus pectinato-multifidis (a latere interiore ramosis) mucronatis, articulis ramellorum diametro sesquilongioribus.

Hab. Georgetown, rare, *Archer, R. Gunn.*

Three to four inches high, divided from the base into numerous branches. *Branches* as thick as hog's-bristle, pellucidly articulate, often naked near the base, closely pinnated and feather-like beyond the middle. Some of the larger branches divide, and each division is then pinnate. *Pinnæ* $\frac{1}{2}$–$\frac{3}{4}$ inch long, distichous, patent, about a line apart, each subtended by a ramellus, which is pectinate on its inner face. *Ramelli* mostly in pairs alternately, robust, patent or strongly reflexed, pectinate, the teeth of the comb horizontal, little tapering, but suddenly mucronate at the apex. *Colour* rosy-red.—This looks almost like a small specimen of *D. Muelleri*, but differs in the nature of the ramelli, the greater transparency of the branches, the subtending ramellus to the pinnæ, etc. We have only seen three specimens.

12. **Dasya verticillata** (Harv. in Lond. Journ. Bot. iii. p. 434; Harv. Ner. Austr. p. 64. t. 24).

Hab. Georgetown, rare, *Gunn, W. H. H.*

13. **Dasya bolbochæte** (Harv. in Lond. Journ. Bot. iii. p. 434; Harv. Ner. Austr. p. 65. t. 25).

Hab. In the Tamar, above Georgetown, common.

Distrib. Found at Western Port, Victoria.

One of the strongest-growing and most bushy of the genus. The figure in Ner. Austr. only represents part of a small branch.

14. **Dasya hormoclados** (J. Ag. in Linnæa; Harv. Ner. Austr. p. 65. t. 26).—Dasya ceramioides, *Harv. Ner. Austr. p.* 66. *t.* 26.

Hab. Abundant in the Tamar, above and below Georgetown. Southport, *C. Stuart.*

Distrib. South coast of Australia.

After an examination of a very extensive suite of specimens, I am unable to fix a clear limit between *D. ceramioides* and *D. hormoclados*, here united together.

15. **Dasya pellucida** (Harv. Ner. Austr. p. 67. t. 27).

Hab. A single specimen at Georgetown, *R. Gunn.*

Distrib. Cape of Good Hope, Port Phillip.

The specimen agrees with those from Port Phillip, but is of a larger size than those from the Cape of Good Hope, on which the species was founded.

16. **Dasya crouanioides** (Sond.); "fronde continua tenuissima monosiphonia, ramis alternis patentibus, ramulis sensim minoribus, omnibus cum fronde primaria fasciculis ramellorum brevissimorum verticillatim sejunctorum vestitis, verticillis superioribus confluentibus, ramellis articulatis callithamnioideis divaricato-ramosissimis, articulis diametro subduplo longioribus."—*Sond. in Linn.* xxv. *p.* 703.

Hab. Tasmania, *Stuart.*

We know nothing of this plant, which is said closely to resemble *Crouania attenuata*. Can it be a *Crouania*, and not a *Dasya?* Perhaps *Crouania insignis*, Harv.?

Tribe II. *LAURENCIACEÆ.*

Gen. LII. ASPARAGOPSIS, *Mont.*

(Mont. Phyc. Can. xv. Endl. 3rd Suppl. p. 43. Harv. Ner. Austr. p. 88. Kütz. Sp. Alg. p. 802. J. Ag. Sp. Alg. ii. p. 774.—*Lictoria*, J. Ag. Alg. Medit. p. 116.)

1. **Asparagopsis armata** (Harv.); surculo ultrasetaceo parum ramoso repente caules plures emittente, caulibus erectis ramosis usque ad basin ramellis obsitis v. brevissime nudis, ramis secundariis consimilibus ad basin armatis ramulis subternis nudis retrorsum aculeatis, penicellis ramellorum subdistichis ambitu ovatis acutis, pinnellis oppositis, ceramidiis globosis pedunculo cylindraceo.—*Harv. in Trans. R. I. Acad.* xxii. *p.* 544. A. Delilei, *Harv. Ner. Austr. p.* 88 (*the figure, plate* 35, *not characteristic*).

Hab. Common everywhere.

Distrib. Abundant along the west, south, and east shores of Australia.

Gen. LIII. DELISEA, *Lamour.*

(Lamour. Dict. Sc. Nat. xiii. p. 41. Harv. Ner. Austr. p. 88. Kütz. Sp. Alg. p. 770. J. Ag. Sp. Alg. ii. p. 779.)

1. **Delisea elegans** (Mont.; Harv. Ner. Austr. p. 89. t. 34; Kütz. Sp. Alg. p. 770; J. Ag. Sp. Alg. ii. p. 781).—Bonnemaisonia elegans, *Ag. Syst. p.* 246.

Hab. Georgetown, common.

Distrib. South coast of New Holland.

2. **Delisea pulchra** (Mont.; Harv. Ner. Austr. p. 89; Kütz. Sp. Alg. p. 770; J. Ag. Sp. Alg. ii. p. 784).—Bowiesia pulchra, *Grev.*

Hab. Port Arthur, rare, *W. H. H.* South Port, *C. Stuart.*

Distrib. West Australia. New South Wales, common at Newcastle. Kerguelen's Land.

3. **Delisea hypnæoides** (Harv.); fronde filiformi gracili flaccida flexuosa decomposita ramosissima, ramis erecto-patentibus, primariis longissime virgatis, secundariis tertiariisque minoribus, omnibus distiche ciliatis, ciliis filiformi-subulatis distantibus alternis vel secundis, sæpe uno latere pectinatis, ceramidiis infra apices ramulorum in rachide sessilibus lateralibus ovatis, ore laterali.—*Harv. Alg. Austr. Exsic. n.* 248.

Hab. Georgetown, very rare, *Rev. I. Fereday.*

Distrib. Found at Western Port, Victoria, *W. H. H.*

Frond 2 feet long or more, very soft and flaccid, twice as thick as hog's-bristle, excessively branched in an alternate manner, the main branches long and virgate, the rest successively shorter. All parts are more or less flexuous, or gracefully bending. The *cilia* are longer, more filiform, more distant, and less regularly placed than in *D. elegans*, and in the lesser division a cilium is frequently lengthened to twice or thrice the ordinary length, and then pectinated on its inner face. The whole plant has more the aspect of a *Hypnea* than of a *Delisea*, but the fructification is exactly that of *D. elegans*.

Gen. LIV. PTILONIA, *J. Ag.*

(J. Ag. Sp. Alg. ii. p. 773.)

1. **Ptilonia australasica** (Harv.); fronde in parte inferiori costa crassa donata sursum costula

tenuissima percursa vel omnino ecostata lineari plana decomposite pinnata, pinnis pinnulisque alternis patentibus axillis rotundatis, ultimis oblongis obtusis simplicibus v. pauce dentatis, ceramidiis lateralibus, axillaribus vel terminalibus nunc fasciculatis globoso-inflatis longiuscule pedicellatis.—*Harv. Alg. Exsic. n.* 244. (Tab. CXC. *A.*)

Hab. Georgetown, rare, *R. Gunn, W. H. H.* Southport, *C. Stuart.*

Distrib. South coast of Australia.

Frond a foot or more in length, and as much in expansion, about a line or a line and a half in breadth in all parts, furnished for some inches above the base with a thick cartilaginous midrib, which is gradually dissipated upwards, the upper half of the frond being ribless, and quite flat, but traversed by a very slender, internal, medial vein, which is not always visible, though strongly marked in the broader and more luxuriant specimens. The *ramification* is distichous, and about thrice pinnate; the primary branches or pinnæ elongate, few and distant; the secondary 1–2 inches long, about half an inch asunder, and regularly alternating; the tertiary short, with one or two tooth-like incisions. All the *branches* and their divisions are remarkably patent, with rounded angles. The *apices* are blunt, and frequently as if truncate. The *ceramidia* are as large as mustard-seeds, globose, on stalks as long as, or longer than themselves, and are very irregularly distributed over the frond, being sometimes terminal, sometimes on the sides of the smaller ramuli, sometimes in the axils, and sometimes actually fasciculate on different parts. Their walls are very thick, and they contain a large tuft of clavato-pyriform spores. The colour of the frond is of a deep clear red, similar to that of many *Plocamia*.—Mr. Stuart's specimens from Southport are broader than that represented in our figure, and the frond is everywhere traversed by a slender medial vein, which we do not find obvious in the Georgetown plant. It is possible we may confound two species; but as their vein is less strongly marked in some individuals than in others from the same locality, we think perhaps it may exist in all, but from some fault in the drying may have been obliterated.—Plate CXC. *A.* Fig. 1, *Ptilonia australasica, nat. size;* 2, a fragment, with a pedicellate ceramidium; 3, tuft of spores from the same; 4, some spores separated:—the latter figures more or less highly *magnified.*

Gen. LV. CLADHYMENIA, *Harv.*

(Hook. and Harv. Alg. N. Zeal. in Lond. Journ. Bot. iv. p. 54. Harv. Ner. Austr. p. 87. Kütz. Sp. Alg. p. 879. J. Ag. Sp. Alg. ii. p. 771.)

1. **Cladhymenia conferta.**—Dictymenia conferta, *Harv. Ner. Austr. p.* 29. *t.* 8. Delesseria conferta, *Ag. Sp. Alg.* i. *p.* 177. Fucus confertus, *R. Br. in Turn. Hist. t.* 184.

Var. *β. foliifera;* ramis folia lanceolata tenui-membranacea ex margine apicibusque emittentibus.

Hab. Georgetown, *R. Gunn, W. H. H.* Var. *β.* Southport, *C. Stuart.*

Distrib. South coasts of New Holland.

During my recent visit to Australia, I ascertained the tetrasporic fruit of this plant, and am thereby compelled to remove it from *Dictymenia* to the present genus. The tetraspores form marginal sori, continued for some distance along the edge of the frond. Var. *β* is a remarkable variety, resembling at first sight some states of *Delesseria hypoglossum.* It is connected with the common form by specimens of intermediate character.

Gen. LVI. LAURENCIA, *Lamour.*

(Lamour. Ess. p. 42. Grev. Alg. Brit. p. 108. Harv. Ner. Austr. p. 81. J. Ag. Sp. Alg. ii. p. 740.)

1. **Laurencia Forsteri** (Grev.; Harv. Ner. Austr. p. 85; J. Ag. Sp. Alg. ii. p. 744).—Fucus Forsteri, *Turn. Hist. t.* 77.

Hab. On *Zostera,* etc., common.

Distrib. All along the coasts of New Holland.

2. **Laurencia filiformis** (Mont. Pôl. Sud, p. 125; Harv. Ner. Austr. p. 84; J. Ag. Sp. Alg. ii. p. 745).—Chondria filiformis, *Ag. Sp. Alg.*

HAB. Tasmania, according to *Montagne.*

DISTRIB. West coast of New Holland.

We are not acquainted with this plant.

3. **Laurencia obtusa** (Lamour.; Grev. Alg. Brit. p. 111; Harv. Phyc. Brit. t. 148; J. Ag. Sp. Alg. ii. p. 750).—Fucus obtusus, *Turn. Hist. t.* 21; *Eng. Bot. t.* 1201.

HAB. Georgetown.

DISTRIB. Atlantic shores of Europe and America. Tropical seas.

4. **Laurencia Tasmanica** (Hook. fil. et Harv. in Harv. Ner. Austr. p. 84).—L. papillosa, *Harv. in Lond. Journ. Bot.* vi. *p.* 401 (*excl. syn.*).

HAB. Plentiful at Georgetown.

5. **Laurencia botryoides** (Gaill.; Harv. Ner. Austr. p. 82).—Fucus botryoides, *Turn. Hist. t.* 178.

HAB. Georgetown, *Gunn.* Derwent, *Ewing, Oldfield.* Southport, *Stuart.*

6. **Laurencia elata** (Harv. in Hook. Lond. Journ. Bot. vi. p. 401; Harv. Ner. Austr. p. 81. t. 33; Kütz. Sp. Alg. p. 856; J. Ag. Sp. Alg. ii. p. 766).

HAB. Georgetown and Port Arthur.

DISTRIB. All along the coasts of New Holland.

Gen. LVII. CHAMPIA, *Ag.*

(Harv. Ner. Bor. Amer. ii. p. 75.—*Champiæ* et *Lomentariæ* sp., Auct.)

1. **Champia Tasmanica** (Harv. in Hook. Lond. Journ. Bot. iii. p. 407. t. 19; Harv. Ner. Austr. p. 78; J. Ag. Sp. Alg. ii. p. 370).

HAB. Georgetown, *Gunn, W. H. H., etc.* Derwent, *Oldfield.*

2. **Champia affinis** (Harv.).—Chylocladonia affinis, *Hook. et Harv. Lond. Journ. Bot.* vi. *p.* 402; *Harv. Ner. Austr. p.* 79. *t.* 29. Lomentaria affinis, *Kütz. Sp. Alg. p.* 863; *J. Ag. Sp. Alg.* ii. *p.* 730.

HAB. Common at Georgetown and elsewhere.

DISTRIB. Shores of New Holland and New Zealand.

3. **Champia obsoleta** (Harv.); fronde pyramidali paniculatim ramosa, caule subsimplici intestiniformi obsoletissime constricta v. subcontinua, ramis lateralibus quaquaversis oppositis vel verticillatis crebre ramosis, ramulis decompositis, articulis ramulorum vix conspicuis diametro sesquilongioribus, ceramidiis ovatis sessilibus.—*Harv. Alg. Exsic. n.* 252.

HAB. Georgetown. Southport, *C. Stuart.*

DISTRIB. Port Fairy, Victoria, *W. H. H.*

Perhaps only a variety of *C. affinis*, but the habit is somewhat different, and the articulations difficult to be seen in any part of the frond, owing to the thickness of the outer walls. The plant grows on tidal rocks, in shallower water than *L. affinis*, and is generally, from exposure to sunlight, of a dull livid-green, tipped with purple.

4. **Champia parvula** (Harv. Ner. Bor. Amer. pt. 2. p. 76).—Chylocladia parvula, *Grev.; Harv. Phyc. Brit. t.* 210; *Ner. Austr. p.* 80. Lomentaria parvula, *J. Ag. Sp. Alg.* ii. *p.* 729.

HAB. Georgetown.

DISTRIB. Northern Atlantic and Mediterranean. Coasts of New Holland and New Zealand.

TRIBE 3. *WRANGELIACEÆ.*

Gen. LVIII. WRANGELIA, *Ag.*

(Ag. Sp. Alg. ii. p. 136. Endl. 3rd Suppl. p. 35. Kütz. Sp. Alg. 664. J. Ag. Sp. Alg. ii. p. 703.)

1. **Wrangelia plumosa** (Harv. Lond. Journ. Bot. iii. p. 450; Kütz. Sp. Alg. 664; J. Ag. Sp. Alg. ii. p. 706).

HAB. Tidal rocks, in rock-pools, very abundant.

DISTRIB. Port Phillip and Western Port, etc., *W. H. H.*

2. **Wrangelia nobilis** (Hook. fil. et Harv. in Lond. Journ. Bot. iii. p. 411; Kütz. Sp. Alg. p. 665; J. Ag. Sp. Alg. ii. p. 709). Griffithsia (Halurus) radiciformis, *Hook. fil. et Harv. l. c.; Kütz. Sp. Alg. p.* 663; *J. Ag. Sp. Alg.* ii. *p.* 91 (*the winter and fructiferous state*).

HAB. Common at and above Georgetown.

The summer and winter states of this beautiful species are so dissimilar that, when first we received specimens from Mr. Gunn, we described them under two different genera, founding our *W. nobilis* on the summer form, and our *Griffithsia radiciformis* on the winter one, and in this error we have been followed by Agardh and Kützing. Extended observations on the living plant, and the possession of multitudes of specimens in every intermediate stage, have now demonstrated to us the identity of the supposed two species, and the discovery of both kinds of fruit confirms the position in *Wrangelia* of the united forms. In the young or summer state all the younger parts of the frond are clothed with very delicate rosy-red ramelli, two lines in length, which give a feathery character to the branches. The tomentum on the branches at this season is also close-pressed and silky. At a later stage the rosy ramelli become much less abundant, and at length are confined to the tips of the smaller ramuli, while the tomentum of the branches becomes more shaggy and uneven. Finally, the rosy ramuli altogether fall off, and the plant puts on the form described as *Griffithsia* (*Halurus*) *radiciformis*, being then in texture, substance, and general aspect extremely unlike the delicately pencilled and feathered young plant. It is at this stage of growth that the fruit of both kinds is produced. The *cystocarps*, exactly similar in structure to those of other *Wrangeliæ*, are borne on longish pedicels issuing from the older branches. The *tetraspores* are densely aggregated in grape-like clusters, surrounded by involucral ramuli, and are borne on little pedicels rising from the branches.

3. **Wrangelia Jeannerettii** (Hook. fil. et Harv. in Lond. Journ. Bot. vi. p. 411; J. Ag. Sp. Alg. ii. p. 709).

HAB. Port Arthur, *Jeannerett.*

We are not in a position to throw any more light on this species.

4. **Wrangelia crassa** (Hook. fil. et Harv. in Lond. Journ. Bot. vi. p. 410; J. Ag. Sp. Alg. ii. p. 706).

HAB. Georgetown, *R. Gunn, W. H. H.*

DISTRIB. Port Phillip, *W. H. H.*

5. **Wrangelia protensa** (Harv.); fronde gelatinosa elata articulata ecorticata inferne plus minus stuposa decomposite ramosissima, ramis virgatis longe protensis alterne v. opposite ramosis, ramis minoribus ramulisque simplicibus attenuatis ad genicula opposita v. verticillatim ramellosis, ramellis erecto-appressis strictis vix attenuatis obtusis basi pinnulatis, rachide longe excurrente, tetrasporis ad latera pinnularum sessilibus globosis, articulis ramorum longissimis, ramellorum diametro 4–6-plo longioribus.—*Harv. Alg. Austr. Exsic. n.* 263.

HAB. Georgetown, *R. Gunn.*

DISTRIB. Port Phillip, *W. H. H.*

Fronds 6–12 inches long, excessively and densely branched, the principal branches long and virgate, several times compound, the ultimate branches an inch or two in length, simple, attenuated. All the branches and their divisions are very erect. The older parts of the frond, though pellucidly articulate and ecorticate, become shaggy with stupose filaments, which issue from the dissepiments, and are deflected downwards like rootlets. Every articulation of the branches and ramuli bears a pair of opposite ramelli, which are very erect or appressed, simple or branched from the base, often pinnulated in the lower part, but always with a long excurrent point. *Tetraspores* are scattered on the pinnulæ of the ramelli. *Cystocarps* unknown. *Substance* gelatinous and soft. *Colour* a rosy-red.

6. **Wrangelia mucronata** (Harv.); dense cæspitosa, frondibus roseis rigidiusculis capillaribus dichotome ramosissimis ecorticatis articulatis ad genicula verticillatim ramellosis, ramellis subternis furcatis v. trifurcatis cellula terminali minuta subulata acute mucronatis, tetrasporis in cymis subapicalibus dispositis, articulis ramorum longissimis, ramellorum diametro 6–8-plo longioribus. (Tab. CXCI. *B.*)

Hab. Tasmania, *R. Gunn.* (Very rare?)

Fronds 6–8 inches long, densely tufted, capillary, of nearly the same diameter throughout, pellucidly articulate, excessively branched in a more or less regularly dichotomous manner. Every dissepiment bears a whorl of mostly three ramelli, about a line in length, and two or three lines distant. These are generally forked, or often trifid, each arm of the fork being composed of one long cell, tipped by a minute, thorn-like terminal cell. The *tetraspores* are borne in little cymes, formed out of the ramelli, near the ends of the branches. The *colour* is a deep rosy-red. The *substance* is membranous, and the plant only imperfectly adheres to paper in drying.—This appears to be a very distinct species, allied to *W. myriophylloides*, but abundantly different.—Plate CXCI. *B.* Fig. 1, a tuft, *nat. size;* 2, frustule of a branch, with whorled ramelli; 3, a ramellus; 4, a fertile ramellus, with tetraspores; 5, tetraspore:—the latter figures *magnified.*

7. **Wrangelia setigera** (Harv.); fronde crassiuscula cartilaginea corticata decomposite ramosissima, ramis elongatis pluries alterne decompositis erecto-patentibus, ramulis plus minus articulatis ad genicula verticillatim ramellosis, ramellis setaceis simplicissimis patentibus cylindraceis obtusis, articulis ramorum diametro æqualibus ramellorum subtriplo longioribus, cystocarpiis secus ramos sparsis pedicellatis, tetrasporis ad latera ramellorum sessilibus.—Spyridia filamentosa, β verticillata, *Harv. in Lond. Journ.* iii. *p.* 449. Spyridia Tasmanica, *Kütz. Sp. Alg.! p.* 666; *J. Ag. Sp. Alg.* ii. *p.* 342! (Tab. CXCI. *A.*)

Hab. Georgetown, *R. Gunn, W. H. H.*

Distrib. Port Phillip, *W. H. H.*

Frond 12–18 inches long, much branched and bushy. In external habit it strongly resembles *Spyridia filamentosa*, for a variety of which plant we once held it. The *cystocarpic* fruit, now first ascertained, is however that of a *Wrangelia;* with no other recorded species of which genus has the present species much affinity.—Plate CXCI. *A.* Fig. 1, a frond, the *natural size;* 2, frustule of a branch, with tetrasporiferous ramelli; 3, a ramellus with tetraspores; 4, frustule of a branch with a cystocarp; 5, spores and paranemata from the same; 6, a paranema:—the latter figures *magnified.*

Tribe IV. *CORALLINEÆ.*

Gen. LIX. AMPHIROA, *Lx.*

(Lamour. Cor. Flex. p. 294. Harv. Ner. Austr. p. 95. J. Ag. Sp. Alg. ii. 529.)

1. **Amphiroa charoides** (Lamour.; Harv. Ner. Austr. p. 96. t. 39; J. Ag. Sp. Alg. ii. p. 539).

Hab. Sea-shores, common.

Distrib. Australia.

2. **Amphiroa stelligera** (Lamarck; Harv. Ner. Austr. p. 96; J. Ag. Sp. Alg. ii. p. 539).

Hab. Common on *Amphibolis antarctica*.

Distrib. Australia.

3. **Amphiroa Wardii** (Harv. Ner. Austr. p. 99. t. 38).—Arthrocardia Wardii, *Aresch. in J. Ag. Sp. Alg.* ii. *p.* 551.

Hab. Five-mile Bluff, near Georgetown, *R. Gunn*.

Distrib. South and east coasts of Australia.

4. **Amphiroa (Cheilosporum) elegans** (Hook. fil. et Harv. Ner. Austr. p. 101. t. 38; J. Ag. Sp. Alg. ii. p. 546).

Hab. Five-mile Bluff, *Gunn*.

Distrib. Native of New Zealand and New South Wales.

Gen. LX. CORALLINA, *Linn.*

(Lamour. Cor. Flex. p. 275. Harv. Ner. Austr. p. 103. J. Ag. Sp. Alg. ii. p. 560.)

1. **Corallina officinalis** (Linn.; Harv. Ner. Austr. p. 104; Harv. Phyc. Brit. t. 222; J. Ag. Sp. Alg. ii. p. 562).

Hab. At Five-mile Bluff, and at Brown's River, *R. Gunn*.

Distrib. Native of the Northern and Southern Oceans.

Gen. LXI. JANIA, *Lamour.*

(Lamour. Cor. Flex. p. 266. Harv. Ner. Austr. p. 104. J. Ag. Sp. Alg. ii. 553.)

1. **Jania Cuvieri** (Dcne.; Harv. Ner. Austr. p. 105; J. Ag. Sp. Alg. ii. p. 572).

Hab. Rocky sea-shores.

Distrib. Native of New Holland and New Zealand.

2. **Jania micrarthrodia** (Lamour.; Harv. Ner. Austr. p. 107; J. Ag. Sp. Alg. ii. p. 555).—J. tenuissima, *Sond. Harv. Ner. Austr. t.* 40.

Hab. On *Algæ*, in tide-pools, common.

Distrib. Australia generally.

Gen. LXII. MASTOPHORA, *Dcne.*

(Dcne. An. Sc. Nat. 1842, vol. ii. p. 126. Harv. Ner. Austr. p. 108. J. Ag. Sp. Alg. ii. p. 525.)

1. **Mastophora canaliculata** (Harv.); fronde bi-triunciali flabelliformi fastigiata multipartita, segmentis digitato-multifidis, laciniis linearibus subtus canaliculatis lævibus rubris supra convexis transversim zonatis, apicibus parum dilatatis obtusis margine plano, ceramidiis infra apices dense aggregatis.—Mastophora, *n. sp.?, Harv. Alg. Aust. Exsic. n.* 443.

Hab. Tasmania, *C. Stuart*.

Distrib. Coast of Victoria, at Port Fairy, *W. H. H.*

Fronds 2–3 inches high, flabelliform and fastigiate, deeply cut into innumerable narrow-linear laciniæ, about a line or a line and a half in width, flat and somewhat midribbed in the lower portion of the frond, convex above and channelled on the lower surface in the upper portion. Principal segments 4 or 5, flabellato-digitate, multifid, their divisions irregularly di-, tri-, or polychotomous. *Apices* not much expanded, blunt, with a flat margin. Colour

of both surfaces a deep dull-red. *Conceptacles* hemispherical, several closely clustered together near the tops of the branches.

This appears to be a distinctly-marked species.

Gen. LXIII. MELOBESIA, *Lamour.*

(Lamour. Cor. Flex. p. 313. Harv. Ner. Austr. p. 109.—*Melobesia* et *Lithothamnion*, Auct. Aresch. in J. Ag. Sp. Alg. ii. p. 519.)

Several *forms* (we can hardly call them *species*) referable to this group occur on the rocky coasts, but they have not yet been carefully collected. The minute kinds, *M. membranacea*, *M. farinosa*, *M. verrucata*, *M. pustulata*, and *M. Patena*, are parasitical on several *Algæ*, on *Zostera*, etc.

Tribe V. *SPHÆROCOCCOIDEÆ.*

Gen. LXIV. DELESSERIA, *Lamour.*

(Grev. Alg. Brit. p. 71. Harv. Ner. Austr. p. 114. J. Ag. Sp. Alg. ii. p. 677.—*Hemineura*, Harv. Ner. Austr. p. 116. Fl. N. Zeal. p. 240.)

1. **Delesseria Lyallii** (Hook. fil. et Harv.; Fl. Ant. ii. p. 471. t. 176; J. Ag. Sp. Alg. ii. p. 693; Harv. Ner. Austr. p. 114).

Hab. In the Tamar, especially at Point Rapid.

Distrib. Falkland Islands and Kerguelen's Land.

2. **Delesseria Tasmanica** (F. Muell.); fronde costata foliis a costa prorumpentibus ramosa, foliolis lineari-oblongis basi et apice obtusis venis pellucidis a costa pinnatim abeuntibus notatis, cystocarpiis sorisque tetrasporarum in sporophyllis propriis a costa exeuntibus evolutis. (Tab. CXC. *B.*)

Hab. In the Tamar, at and above Georgetown. Also at Port Arthur.

Primary fronds 1–2 inches long, half an inch wide, very obtuse at each end, membranous, entire, traversed by a strong, cylindrical midrib, the membrane marked with pellucid striæ running obliquely from the midrib to the margin. By continuous hypophyllous branching, the compound frond at length becomes 6–8 or 12 inches long, and as much in expansion, and is excessively branched and bushy, consisting of oblong, obtuse leaves similar to that of the primary frond. The leaves are frequently opposite. *Colour* a full carmine-lake. *Substance* membranaceous, resisting the action of fresh-water. Both cystocarps and tetraspores are borne in minute accessory frondlets that spring from the midribs of the larger leaves.

A handsome and well-marked species. It most resembles luxuriant specimens of *D. ruscifolia*, but differs essentially from that species by the very different evolution of the fructification. The frond is also of a much firmer substance, and adheres less strongly to paper.—Plate CXC. *B.* Fig. 1, a frond, the *natural size;* 2, spore-leaf, with tetraspores; 3, a tetraspore; 4, spore-leaf with conceptacle; 5, section of conceptacle:—the latter figures *magnified.*

3. **Delesseria crassinervia** (Mont. Pôl. Sud, p. 164. t. 8. f. 1; Harv. Ner. Austr. p. 115; J. Ag. Sp. Alg. ii. p. 694).

Hab. Sullivan's Cove, *Dr. Lyall.*

Distrib. Antarctic Coasts and New Zealand.

4. **Delesseria? Leprieurii** (Mont. An. Sc. Nat. ii. Ser. xiii. p. 196. t. 5. f. 1; Harv. Ner. Austr. p. 116; J. Ag. Sp. Alg. ii. p. 682; Harv. Ner. Bor. Amer. ii. p. 98. t. 22 *C*).

Hab. Abundant on tidal rocks near the mouth of the Tamar.

Distrib. South coast of New Holland. New Zealand. Demerara. Estuaries of North American Rivers. Bonin Islands, near Japan, in *fresh-water* rivulets.

5. **Delesseria endiviæfolia** (Hook. fil. et Harv. Lond. Journ. vi. p. 403; J. Ag. Sp. Alg. ii. p. 697; Harv. Ner. Austr. p. 115).

Hab. Georgetown.

Distrib. South coasts of New Holland.

6. **Delesseria (Hemineura) frondosa** (Hook. fil. et Harv. Lond. Journ. vi. p. 403; Harv. Ner. Austr. p. 116. t. 45; J. Ag. Sp. Alg. ii. p. 689).

Hab. Abundant in the Tamar, etc.

Distrib. South coasts of New Holland.

A most variable species, putting on a thousand different forms in different localities. Sometimes the frond is broadly-ovate, little divided, and merely crenate-lobed round the margin; sometimes the margin is excessively crisped, and deeply cut into innumerable crowded lobes. Sometimes the frond is narrow-linear, pinnatifid or bipinnatifid. The margin is sometimes quite entire, sometimes sharply serrate. Size, substance, and colour, are equally variable.

Gen. LXV. NITOPHYLLUM, *Grev.*

(Grev. Alg. Brit. p. 77. Harv. Ner. Austr. p. 118. J. Ag. Sp. Alg. ii. p. 651.)

1. **Nitophyllum crispum** (Kütz. Sp. Alg. p. 868; J. Ag. Sp. Alg. ii. p. 662).—N. punctatum, *Harv. in Lond. Journ. and Ner. Austr. p.* 118.

Hab. Very abundant at and above Georgetown.

Distrib. Coast of Victoria, rather rare.

2. **Nitophyllum stipitatum;** stipite anguste cuneato elongato costato in frondem roseam subpalmatifidam abeunte, costis in basi segmentorum mox evanescentibus, segmentis latocuneatis profunde incisis v. semipartitis medio incrassatis, margine simplici, soris orbicularibus per totam frondem sparsis.

Hab. East coast, *R. Gunn, Esq.*

Stipes nearly an inch high, strongly ribbed, narrow, cuneate, widening into the base of a subpalmate frond, 2–4 inches in expansion. *Segments* of the frond costate at base, broadly cuneate, irregularly cleft. *Sori* scattered over the whole surface.

3. **Nitophyllum Gunnianum** (Harv. Lond. Journ. vi. p. 403; Harv. Ner. Austr. p. 120. t. 47; J. Ag. Sp. Alg. ii. p. 663).

Hab. Georgetown, common.

Distrib. Heads of Port Phillip.

The figure in Ner. Austr. is very incorrectly coloured. The frond, when fresh, is of a full, but rather dull-red colour. If dried without previous steeping in fresh-water, it becomes very dark and brown.

4. **Nitophyllum affine** (Harv. Lond. Journ. iii. p. 447; J. Ag. Sp. Alg. ii. p. 657; Harv. Ner. Austr. p. 119).

Hab. Georgetown.

Distrib. Coast of Victoria.

5. **Nitophyllum multipartitum** (Hook. fil. et Harv. Lond. Journ. vi. p. 404; Harv. Ner. Austr. p. 121; J. Ag. Sp. Alg. ii. p. 664).

Hab. Georgetown. Brown's River, etc.

Distrib. Coast of Victoria.

6. **Nitophyllum multinerve** (Hook. fil. et Harv. Lond. Journ. iv. p. 255; Fl. Antarct. i. p. 473; Harv. Ner. Austr. p. 119; J. Ag. Sp. Alg. ii. p. 666).

Hab. Derwent, *Mr. Oldfield.* Southport, *C. Stuart.*

Distrib. Antarctic shores and New Zealand.

Gen. LXVI. GRACILARIA, *Grev.*

(Grev. Alg. Brit. p. 121. J. Ag. Sp. Alg. ii. p. 584.—*Plocaria*, Endl. 3rd Suppl. p. 50.)

1. **Gracilaria confervoides** (Grev. Alg. Brit. p. 123; Harv. Phyc. Brit. t. 65; J. Ag. Sp. Alg. ii. p. 587).—Fucus confervoides, *Turn. Hist. t.* 84; *E. Bot. t.* 1668.

Hab. Georgetown. A depauperated variety in the rivulet of brackish water.

Distrib. Cosmopolitan.

Gen. LXVII. MELANTHALIA, *Mont.*

(Mont. An. Sc. Nat. 1843. Kütz. Sp. Alg. p. 784. J. Ag. Sp. Alg. ii. p. 611.)

1. **Melanthalia obtusata** (J. Ag. Sp. Alg. ii. p. 614; Harv. Phyc. Austr. t. 25).—M. Billardieri, *Mont. Kütz. Sp. Alg.* 784. Fucus obtusatus, *Labill. Nov. Holl. t.* 255; *Turn. Hist. t.* 145. *β.* intermedia, *Harv. Phyc. Austr. t.* 25. *f.* 2. M. abscissa, *Hook. and Harv. in Lond. Journ.* iv. *p.* 548 (*excl. syn.*).

Hab. Northern coast, and islands in Bass's Straits. *β.* Port Arthur, *Dr. Jeannerett.* Southport, *C. Stuart.*

Distrib. South coast of Australia.

Gen. LXVIII. DICRANEMA, *Sond.*

(Sond. in Bot. Zeit. 1845, p. 56. J. Ag. Sp. Alg. ii. p. 633.)

1. **Dicranema Grevillii** (Sond. in Bot. Zeit. 1845, p. 56; J. Ag. Sp. Alg. ii. p. 634).—Gracilaria pumila, *Grev. in Ed. Journ.* iii. *p.* 338, *cum ic.*

Hab. Flinders' Island, *Dr. Milligan.*

2. **Dicranema? furcellatum** (Hook. fil. et Harv. in Lond. Journ. vi. p. 405; J. Ag. Sp. Alg. ii. 635).

Hab. Port Arthur, *Dr. Jeannerett, Rev. Mr. Ewing, W. H. H.* Tasmania, *C. Stuart.*

Until the fruit of this plant shall have been found, the genus must remain doubtful. The habit is that of a *Dicranema*, but the structure of the frond does not exactly accord with that of the other species.

Gen. LXIX. PHACELOCARPUS, *Endl. et Dies.*

(Endl. et Dies. Bot. Zeit. 1845, p. 290. J. Ag. Sp. Alg. ii. p. 646.—*Ctenodus*, Kütz. Phyc. Gen. p. 407.)

1. **Phacelocarpus Labillardieri** (J. Ag. Sp. Alg. ii. p. 648).—Ctenodus Labillardieri, *Kütz. Phyc. Gen. p.* 407. *t.* 58. *f.* 2; *Hook. fil. et Harv. Lond. Journ.* iv. 549. Fucus Labillardieri, *Turn. Hist. t.* 137.

Hab. Sea-shores, common.

Distrib. West, south, and east coasts of Australia. New Zealand.

2. **Phacelocarpus complanatus** (Harv.); fronde angusta plano-compressa immerse v. obsolete costata decomposita, ramis ramulisque pectinatim pinnatisectis, lacinulis subulatis distichis, nematheciis minutis hemisphæricis infra apices lacinularum sessilibus.—*Harv. Alg. Austr. Exsicc. n.* 306.

Hab. Southport, *C. Stuart.*

Distrib. Coast of Victoria.

More slender than *P. Labillardieri*, with flatter, less distinctly-ribbed branches, and readily known, when in fruit, by the position of the *nemathecia*, which are sessile near the tips of the marginal pectinate teeth or lacinulæ. The Tasmanian specimens are not so broad as those from Victoria, and are more deeply inciso-pectinate, but they perfectly agree in the more important characters of the fructification.

Tribe VI. *SQUAMARIEÆ.*

Gen. LXX. PEYSSONNELIA, *Dcne.*

(Dcne. Pl. Arab. p. 168. Endl. 3rd Suppl. p. 38. Kütz. Phyc. p. 384. J. Ag. Sp. Alg. ii. p. 499.)

1. **Peyssonnelia rubra** (J. Ag. Sp. Alg. ii. p. 502).—Zonaria rubra, *Grev. in Lin. Trans.* 15. ii. *p.* 340. P. orbicularis, *Kütz. Phyc. p.* 385.

Hab. On stones: at Georgetown.

Distrib. Mediterranean. Pacific Ocean.

I have ventured to refer the Van Diemen's Land specimens to *P. rubra*, a species of the Mediterranean, from which perhaps a more accurate examination of authentic specimens would separate them. The general habit of our Tasmanian species is that of *P. rubra*, but the size is greater, and the substance less thin and delicate. I also found this plant at Rottnest Island, W. Australia, and in Port Jackson, and have received it from the coast of Victoria, from Dr. Curdie. It is very distinct from *P. australis*, Sond., and *P. Novæ-Hollandiæ*, Kütz.

2. **Peyssonnelia australis** (Sond.); "frondibus aggregatis basi adnatis estipitatis coriaceis coccineo-purpureis (demum virescentibus) integris vel obtuse sublobatis obsolete zonatis subtus pallidis radiculis tenuissimis tomentosis versus marginem glabris, verrucis fructiferis sparsis (non zonatim dispositis) purpureis."—*Sond. in Linn.* xxv. *p.* 685; *Harv. Alg. Austr. Exsicc. n.* 328! *Harv. Phyc. Austr. t.* 81.

Hab. Tasmania, *C. Stuart.*

Distrib. Native of the coast of Victoria, *F. Mueller, W. H. H.*

Fronds 4 inches long and 5 inches wide, thick and coriaceous, flabelliform, either undivided or cut into two or three shallow lobes, emitting from the under-surface, toward the base, several scattered, stout roots, and densely clothed over the greater part of the inferior surface with a pale-brown or fulvous tomentum. A broad, glabrous margin extends round the frond beneath the apices of the lobes. The upper surface is smooth, and marked with concentric zones; the margin thin, and frequently revolute. The *colour* is a deep blood-red, darker toward the base. The *substance* of the frond is singularly thick and leathery.

Tribe VII. *GELIDIACEÆ.*

Gen. LXXI. GELIDIUM, *Lamour.*

(J. Ag. Sp. Alg. vol. ii. p. 466. Fl. N. Zeal. ii. p. 243.)

1. **Gelidium corneum** (Lamour; Harv. Phyc. Brit. t. 53; J. Ag. Sp. Alg. ii. p. 469; Kütz. Sp. Alg. p. 764).—Fucus corneus, *Turn. Hist. t.* 257.

Hab. On tidal rocks.

Distrib. Cosmopolitan.

We have not seen any specimens of the ordinary form, but the varieties *cæspitosa* and *crinalis* are common on stones between tide-marks, at Port Arthur, and probably in other suitable localities.

2. **Gelidium asperum** (Grev.; Kütz. Sp. Alg. p. 475; J. Ag. Sp. Alg. ii. p. 475).

Hab. Georgetown, *Gunn*.

Distrib. South coast of Australia.

3. **Gelidium glandulæfolium** (Hook. fil. et Harv. in Lond. Journ. vi. p. 406; J. Ag. Sp. Alg. ii. p. 474; Kütz. Sp. Alg. 766; Phyc. Austr. t. 18).

Hab. At Circular Head, *Mrs. Smith*. Georgetown, *W. H. H.*

Distrib. South coast of Australia.

Gen. LXXII. NIZYMENIA, *Sond.*

(Sond. in Linn. xxvi. p. 520.)

1. **N. australis** (Sond. l. c.).

Hab. Southport, *C. Stuart*.

Distrib. Wilson's Promontory, *Dr. Mueller*. Port Phillip Heads, *W. H. H.*

Root a large, expanded, fleshy disc. *Stems* many from the same base, 4–6 inches high, about 1½ line in breadth, compressed and thickened below, flattening upwards, much branched in an irregularly pinnate, twice or thrice decompound order. *Pinnæ* and *pinnulæ* patent, opposite or scattered, linear, obtuse, much constricted at their insertion as if stalked; the smaller ones resembling leaflets. *Apices* either rounded and very obtuse, or minutely notched. *Margin* quite entire and flat. *Colour* a fine clear red, becoming brighter in fresh-water. *Substance* rigid when dry, tough, coriaceo-corneous. *Structure* very dense; the medullary structure composed of closely-interlaced filaments occupying three-fourths of the breadth; the intermediate cells rather small.—In distributing my Australian *Algæ*, several specimens of this plant were inadvertently sent out under *n.* 385, as "*Areschougia conferta*." The plant originally so named by me is different, and a true *Areschougia*. The present plant bears a striking external resemblance to it, but is broader, more regularly pinnate, and destitute of costa, and the internal structure quite different. I have not seen the fruit, which is described by Sonder in the memoir above quoted.

Gen. LXXIII. HYPNEA, *Lamour.*

(J. Ag. Sp. Alg. ii. p. 438. Kütz. Sp. Alg. p. 758.)

1. **Hypnea seticulosa** (J. Ag. Sp. Alg. ii. p. 446).—H. charoides, *Sond. Hook. fil. et Harv. Alg. Tasm. Lond. Journ.* vi. *p.* 406.

Hab. Georgetown, *R. Gunn, W. H. H., etc.*

Distrib. Coasts of Australia, Japan, China, and the Pacific Islands.

2. **Hypnea episcopalis** (Hook. fil. et Harv. Lond. Journ. vi. p. 406; J. Ag. Sp. Alg. ii. p. 443).

Hab. Georgetown and Port Arthur.

Distrib. West and south coasts of Australia.

3. **Hypnea planicaulis** (Harv.); fronde latolineari plana subdistiche ramosissima decomposite pinnata, ramis majoribus applanatis seticulosis crebre bi-tripinnatis, pinnis pinnulisque gracilibus patentibus subulatis acutis nunc apice incrassatis cirrhoso-hamatis, cystocarpiis globosis inflatis ad latera pinnularum sessilibus.—*Harv. Alg. Exsic. n.* 342.

Hab. Georgetown.

Distrib. South coast of New Holland.

Fronds densely tufted, 8–12 inches high, and as much in expansion, excessively decompound in a pretty regularly distichous pinnate order. *Main stem* quite flat, one to two lines in breadth, having several lateral similar

branches, which like it are densely bristled with short, spinelike ramuli. The *main branches* are three or four times pinnate; the *pinnæ* 1–2 inches long, compressed, ¼–½ line in diameter, tapering to the apex, and closely set with subulate pinnulæ, which are often again pinnulate. As in all the genus, some of the pinnulæ are lengthened out into cirrhous branches, thickened and hooked at the end. The *colour* is a full-red, becoming bright-scarlet on steeping in fresh-water. The *substance* is soft, and the plant adheres firmly to paper in drying. The *cystocarps* are globose, of large size, and scattered on the pinnules.

This appears to us to be a strongly-marked species, readily distinguished by its flattened stem. It is more abundant at Western Port and on the coast of Victoria than in Tasmania.

Gen. LXXIV. SOLIERIA, *J. Ag.*

(J. Ag. Alg. Medit. p. 156. Endl. 3rd Suppl. p. 53. Kütz. Sp. Alg. p. 748. J. Ag. Sp. Alg. ii. p. 721.)

1. **Solieria australis** (Harv.); fronde dendroidea (1–2-pedali) robusta decomposite ramosissima, ramis alternis sparsisve approximatis pluries alterne compositis, ramulis ultimis linearibus acutis basi attenuatis, cystocarpiis in ramulis semi-immersis.—*Harv. in Trans. R. I. Acad.* xxii. *p.* 552; *Harv. Alg. Exsic. n.* 346.

Hab. Georgetown.

Distrib. Western Australia.

Much larger in all its parts and more branching than *S. chordalis*, with less tapering branches, and a firmer and more fleshy substance. The Georgetown specimens are still larger than those from Western Australia.

Tribe VIII. *CHÆTANGIEÆ.*

Gen. LXXV. CHÆTANGIUM, *Kütz.*

(Kütz. Phyc. Gen. p. 392. Sp. Alg. p. 792. J. Ag. Sp. Alg. ii. p. 458. *Nothogenia*, Mont. An. Sc. Nat. 1843, p. 303.)

1. **Chætangium? (Nothogenia?) flabellatum** (Harv.); fronde cartilagineo-cornea lucida rubra angustissime lineari compressa regulariter dichotoma fastigiata, segmentis patentibus flabellatim expansis pluries furcatis, apicibus obtusis.

Hab. Port Arthur, *W. H. H.* Tasmania, *C. Stuart.*

Root scutate. *Fronds* densely tufted, 2–3 inches high, fastigiate, many times dichotomous, the lower forkings distant, the upper closely approximated; the *ultimate segments* sometimes short, sometimes lengthened out and filiform, always obtuse. The *frond* is strongly compressed, almost flattened, but very narrow, not more than ½ line in breadth. The *colour* is rather a bright purplish-red, and the surface somewhat shining. The *substance* is very similar to that of *Gelidium corneum* or *cartilagineum*. No fruit seen, and the genus therefore doubtful.—The internal structure of the frond is very similar to that of *Chætangium variolosum*, which also agrees with our plant in ramification; but our plant is much narrower, of a brighter colour, and more horny substance.

2. **Chætangium? Lingula** (Harv.); fronde pusilla simplici vel semel furcata plana lanceolata cartilagineo-cornea siccitate rigida basi et apice attenuata obtusa, strato interiore filorum laxiore, peripherico densissimo, cystocarpiis numerosis per frondem sparsis.

Hab. On rocks: Brown's River, *Gunn.*

Fronds tufted, an inch or two high, about two lines broad, flat, lanceolate, either quite simple or once forked, very rigid when dry, tapering to each end, the apex blunt. The interior stratum of the frond is much more lax than in other species of the genus, and the exterior stratum more dense. The structure of the cystocarp is that of *Chætangium*.—Our specimens are covered with fruit, and therefore, we suppose, full-grown.

Gen. LXXVI. ACROTYLUS, *J. Ag.*

(J. Ag. Sp. Alg. vol. ii. p. 192.)

1. **Acrotylus australis** (J. Ag. Sp. Alg. ii. p. 193; Harv. Alg. Exsic. n. 330; Phyc. Austr. t. 99).
HAB. Tasmania, *C. Stuart.*

This plant has got the cystocarpic fruit of a *Chætangium*, to which genus the present is closely allied in habit, but has a somewhat different cellular arrangement. The two genera might be united without much violence.

TRIBE IX. *HELMINTHOCLADIEÆ.*

Gen. LXXVII. SCINAIA, *Bivona.*

(J. Ag. Sp. Alg. ii. p. 420.—*Ginannia*, Mont. Harv. Phyc. Brit. t. 69.)

1. **Scinaia furcellata** (Bivon.; J. Ag. Sp. Alg. ii. p. 422).—Ginannia furcellata, *Mont.; Harv. Phyc. Brit. t.* 69; *Lond. Journ.* vi. *p.* 407. Ulva furcellata, *E. Bot. t.* 1881.
HAB. Georgetown, rare, *R. Gunn.* Derwent, *Oldfield.*
DISTRIB. Native of temperate and subtropical seas, north and south.

Gen. LXXVIII. LIAGORA, *Lamour.*

(Lamour. Polyp. Flex. p. 235. Endl. 3rd. Suppl. p. 22. Kütz. Sp. Alg. 537. J. Ag. Sp. Alg. ii. p. 424.)

1. **Liagora viscida** (Ag. Sp. Alg. i. p. 395; J. Ag. Sp. Alg. ii. p. 425).—Fucus viscidus?, *Turn. Hist. t.* 119 (*excl. syn.*).
HAB. Georgetown, common.
DISTRIB. Mediterranean Sea. Also in the tropical oceans, east and west.

Gen. LXXIX. GALAXAURA, *Lamour.*

(Lamour. Polyp. Flex. p. 259. Kütz. Sp. Alg. p. 529.)

1. **Galaxaura obtusata** (Lamour. Pol. Flex. p. 262; Kütz. Sp. Alg. p. 529).
HAB. Tasmania, *Herb. Greville.*
DISTRIB. Tropical and subtropical seas.

TRIBE X. *RHODYMENIACEÆ.*

Gen. LXXX. PLOCAMIUM, *Lamour.*

(Harv. Ner. Austr. p. 121. J. Ag. Sp. Alg. ii. p. 392.—*Thamnophora*, Ag.)

1. **Plocamium coccineum** (Lyngb. Hyd. Dan. 39. t. 9; Harv. Phyc. Brit. t. 44; Fl. Antarct. i. p. 186, and ii. p. 474; Fl. N. Zeal. ii. p. 245; J. Ag. Sp. Alg. ii. p. 395).—Fucus coccineus, *Turn. Hist. t.* 59; *E. Bot. t.* 1242.
Var. β. *flexuosum*, Harv. Ner. Austr. p. 124. t. 43.
HAB. Sea-shores. β. In the Tamar, above Georgetown.
DISTRIB. The common form is cosmopolitan.

Our var. β, called by Tasmanian collectors "*the lace-pattern*," is a very remarkable and beautiful form of the species, not found anywhere else that we are aware of than at Georgetown. It forms large globose tufts, the fronds lying one on another like the leaves of a book. The branching is pretty regularly dichotomous and fastigiate, the

branches elegantly flexuous throughout, and closely fringed with very slender, pectinate ramuli. No fruit has been seen. The aspect of this variety is very peculiar, but we can detect no character sufficient to distinguish it from *P. coccineum*, the ordinary form of which species is common on the coast.

2. **Plocamium angustum** (J. Ag.; Harv. Ner. Austr. p. 122; Kütz. Sp. Alg. p. 885; J. Ag. Sp. Alg. ii. p. 402).

Hab. Sea-shores, common.

Distrib. Australia and New Zealand.

3. **Plocamium costatum** (J. Ag.; Harv. Ner. Austr. p. 122; Kütz. Sp. Alg. p. 886; J. Ag. Sp. Alg. ii. p. 403).

Hab. Mouth of the Tamar.

Distrib. Australia and New Zealand.

4. **Plocamium procerum** (J. Ag.; Harv. Ner. Austr. p. 122; Kütz. Sp. Alg. 886; J. Ag. Sp. Alg. ii. p. 400).

Hab. Georgetown and Port Arthur.

Distrib. Australia.

Gen. LXXXI. HYMENOCLADIA, *J. Ag.*

(J. Ag. Sp. Alg. ii. p. 772.)

1. **Hymenocladia Usnea** (J. Ag. Sp. Alg. ii. p. 772).—Fucus Usnea, *Br. in Turn. Hist. t.* 225.

Hab. Kent Island, *R. Brown.* Flinders' Island, *Milligan.*

Distrib. South shores of Australia.

Gen. LXXXII. RHODOPHYLLIS, *Kütz.*

(Kütz. Sp. Alg. p. 786. J. Ag. Sp. Alg. ii. p. 387.—*Stictophyllum*, Kütz.)

1. **Rhodophyllis Gunnii** (Harv. in Fl. N. Zeal. ii. p. 247).—Cladhymenia? Gunnii, *Harv. Lond. Journ. Bot.* iv. *p.* 540; *Ner. Austr. p.* 87. *t.* 32.—Callophyllis Gunnii, *Kütz. Sp. Alg. p.* 746. Euthora Gunnii, *J. Ag. Sp. Alg.* ii. *p.* 386.

Hab. Abundant at Georgetown.

Distrib. New Holland and New Zealand.

2. **Rhodophyllis membranacea** (Harv. in Fl. N. Zeal. ii. p. 247. t. 117).—Halymenia? membranacea, *Harv. Lond. Journ. Bot.* iv. *p.* 448. Rhodymenia membranacea, *Harv. l. c.* vi. *p.* 405. Stictophyllum membranaceum, *Kütz. Sp. Alg. p.* 874. Euthora membranacea, *J. Ag. Sp. Alg.* ii. *p.* 385. Rhodymenia fimbriata, *Hook. fil. et Harv. in Lond. Journ. Bot.* vi. *p.* 405.

Hab. Georgetown, abundant.

Distrib. New Holland and New Zealand.

A very variable species, to which we now reduce our *R. fimbriata*, founded on a very broad, delicately fringed form, extremely different in aspect from the ordinary form, as figured in the Flora of New Zealand. Having had the opportunity of collecting this plant abundantly in its various localities, we have succeeded in uniting together many forms, which, if seen in isolated specimens, would pass for so many species. Sometimes the frond is not more than a line wide, and very much divided; sometimes it is nearly an inch in breadth, and but little branched. Some of the wider forms approach *R. Gunnii*, but are to be distinguished by the more ragged habit, and the ciliiferous or foliiferous margin, and acute points of all the lesser segments, etc.

3. **Rhodophyllis multipartita** (Harv.); fronde membranacea lineari decomposite dichotoma vix

fastigiata, axillis rotundatis, ramis patentibus dichotomo-multifidis, minoribus subalterne furcatis, margine integerrimo, apicibus angustatis subacutis, cystocarpiis marginalibus, tetrasporis in segmentis ultimis dispersis.—*Harv. Alg. Exsic. n.* 370.

Hab. Port Arthur, *Lyall, W. H. H.* East coast, *R. Gunn.* Southport, *C. Stuart.*

Distrib. Port Fairy, Victoria.

Frond 12 inches or more in length, and as much in the expansion of the branches, membranaceous, 1–2 lines in breadth in most of the branches and lesser divisions, excessively divided in a partly pinnated, partly dichotomous manner. The order of branching is primarily dichotomous, but by frequent suppression of one of the furcations the branches appear pinnated, with dichotomo-multifid lesser branches. All the *axils* are remarkably rounded. The *frond* in most places preserves a uniform breadth, but in some specimens it is twice as broad as in others. The *margin* is always free from lobes or cilia, and quite entire and flat. The *apices* are not remarkably acute. The *colour* is a very full, deep dark-red. *Cystocarps* are borne plentifully on the margin of the smaller laciniæ, and *tetraspores* scattered through the substance of the ultimate divisions. The habit is not unlike that of some narrow specimens of *Gracilaria multipartita.*

Gen. LXXXIII. STENOGRAMME, *Harv.*

(Harv. Beech. Voy. p. 408. Phyc. Brit. t. 157. Kütz. Sp. Alg. p. 873. J. Ag. Sp. Alg. ii. p. 390.)

1. **Stenogramme interrupta** (Mont.; Harv. Phyc. Brit. t. 157; Kütz. Sp. Alg. p. 873; J. Ag. Sp. Alg. ii. p. 391).—S. Californica, *Harv. in Beechey, p.* 409. Delesseria interrupta, *Ag. Syst. p.* 250.

Hab. Georgetown, not common.

Distrib. New Zealand, Spain, south of England and Ireland, Keys of Florida, and California.

Gen. LXXXIV. RHODYMENIA, *Grev.*

(Grev. Alg. Brit. p. 84. J. Ag. Sp. Alg. ii. p. 375.)

1. **Rhodymenia corallina** (Grev.; J. Ag. Sp. Alg. ii. p. 379).—Sphærococcus corallinus, *Bory, Voy. Coq. p.* 175. *t.* 16.

Hab. Georgetown, *R. Gunn.*

Distrib. New Zealand, and west coast of South America.

2. **Rhodymenia (Acropeltis) phyllophora** (Hook. fil. et Harv. in Lond. Journ. Bot. vi. p. 407).

Hab. Port Arthur, *Jeannerett.* Tasmania, *C. Stuart.*

3. **Rhodymenia polymorpha** (Harv.); stipite brevi mox in basi frondis explanato, fronde dilute rubra latissima oblongo-ovata polymorpha nunc subsimplici margine foliifera, nunc in lacinias plures lanceolatas fissa, laciniis nunc simplicibus nunc margine foliiferis v. varie inciso-partitis, cystocarpiis numerosissimis per totam frondem dispersis.—*Harv. Alg. Exsic. n.* 383.

Hab. Georgetown.

Distrib. New Holland.

Frond 1 or 2 feet long, its divisions 2–4 inches wide, membranaceous, very variable in form and division. Sometimes the frond is broadly ovate, and either simple or but once cleft; sometimes it is divided into numerous lanceolate segments, or the principal segments throw off marginal lobes. The *margin* is frequently erose, and the membrane in age pierced with irregular holes. The *colour* varies from a dull purplish-red to a pale brownish-red. *Conceptacles* are very numerous, prominent, and scattered on the whole surface.—It is nearly allied to *R. sanguinea* of New Zealand, and to *R. pertusa* of Western North America. The habit of some specimens is that of an *Iridæa.*

4. **Rhodymenia cuneata** (Harv.); stipite brevi mox in basi frondis desinente, fronde lato-cuneata

subpalmatifida dilute rubra membranacea, margine simplici, cystocarpiis numerosissimis per totam frondem sparsis.

HAB. East coast, *R. Gunn.*

Fronds tufted, on a short filiform stipes, broadly cuneate, 4–6 inches long and 3–4 wide, vertically cleft in a subpalmate manner, the margin flat and without lobes. *Substance* membranaceous, thin. *Colour* a fugacious red, changing to greenish. *Cystocarps* very numerous.—We have seen but few specimens, hardly sufficient to establish the species, and yet we do not know to what other species to refer them. They do not accord with any state of *R. polymorpha*, and yet they approach that species, especially in the fructified specimens. In external habit there is a near resemblance to some forms of *R. palmata*, but the structure and colour are different.

TRIBE XI. *CRYPTONEMIACEÆ.*

Gen. LXXXV. DASYPHLŒA, *Mont.*

(Mont. Prod. Phyc. Ant. p. 8. Voy. Pôl. Sud, p. 100. Kütz. Sp. Alg. 757. J. Ag. Sp. Alg. ii. p. 215.)

1. **Dasyphlœa Tasmanica** (Hook. fil. et Harv. Lond. Journ. Bot. vi. p. 406; J. Ag. Sp. Alg. ii. p. 216; Harv. Phyc. Austr. t. 115).

HAB. Georgetown, rare, *Mrs. Smith.*

DISTRIB. South coast of Australia, *Curdie, W. H. H.*

Gen. LXXXVI. GULSONIA, *Harv.*

(Harv. in Ann. Nat. Hist. xv. p. 334.)

Frons gelatinoso-membranacea, teres, nodoso-annulata, decomposite ramosa, ex tubo centrali amplo articulato monosiphonio filis anastomosantibus longitudinalibus laxe circumdato, et filis horizontalibus excurrentibus dichotomis fastigiatis muco hyalino firmiori inclusis constituta. *Fructus* . . .

1. **Gulsonia annulata** (Harv. l. c. p. 334). (TAB. CXCIII. *A.*)

HAB. Georgetown, rare, *W. H. H.*

DISTRIB. Western Port, Victoria.

Fronds densely tufted, 6–8 inches long, decompoundly much branched; the branches and their divisions and ramuli irregularly scattered, all tapering to the base and apex, and all annularly constricted at short intervals; the nodes swollen and deeply coloured; the internodes pale, like very narrow transverse rings. A cross section shows a very large central tube, surrounded by a narrow stratum of longitudinal filaments, from which radiate toward the circumference dichotomous, callithamnoid, fastigiate filaments, whose branches are separated by pellucid jelly of firm consistence, a layer of which also forms a pellucid envelope of the branch. A longitudinal section shows that the central tube is septate, the septa at intervals of 7 or 8 diameters apart, and that the longitudinal filaments anastomose into a laxly netted, filamentous sheath, enclosing the central tube. The filaments of the periphery are thrown off irregularly from the outer face of the sheath. *Colour* a fine pinky-red, given out in fresh-water. *Substance* very soft.—Until the fruit shall be discovered, the position of this genus must be doubtful. At present I am disposed to think it allied to *Catenella*. It may also be compared with *Gloiopeltis*, *Endocladia*, and *Gattya*.—PLATE CXCIII. *A.* Fig. 1, a frond, *nat. size;* 2, transverse semisection; 3, peripheric filaments; 4, longitudinal section:—the latter figures *magnified.*

Gen. LXXXVII. ARESCHOUGIA, *Harv.*

(Harv. in Trans. R. I. Acad. xxii. p. 554.)

Frons linearis, compressa, immerse costata, distiche ramosissima, e filo centrali articulato et stratis

tribus cellularum constituta; *stratum medullare* e filis articulatis longitudinalibus anastomosantibus laxe intertextis, *intermedium* cellulis rotundis majusculis pluriseriatis, *corticale* cellulis minimis verticalibus formatum. *Cystocarpia* fronde immersa, inter fila strati intermedii suspensa, reticulo filorum velata, carpostomio demum aperta, fila sporifera a placenta centrali emissa continentia; *sporæ* subrotundæ, seriatæ.

1. **Areschougia Laurencia** (Harv. l. c. p. 554).—Thamnocarpus? Laurencia, *Hook. fil. et Harv. Lond. Journ. Bot.* vi. *p.* 409.

Hab. Georgetown, abundant. Southport, *C. Stuart.*

Distrib. West and south coasts of Australia.

This plant has the habit of a *Rhabdonia*, but is more firm in texture, and essentially differs in structure by having a central articulated filament or axis, of larger diameter than that of the longitudinal filaments composing the medullary stratum.

2. **Areschougia Stuartii** (Harv.); fronde plano-compressa dense ramosa decomposito-pinnata, pinnis basi et apice angustatis, pinnulis fere lanceolatis utrinque acutis erecto-patentibus cystocarpia immersa gerentibus.

Hab. Southport, *C. Stuart.*

Frond distichously much branched in a subpinnate manner, and repeatedly compound, 3–6 inches long, and as much in the expansion of the branches; the branches and pinnæ close together, erecto-patent, narrow-linear, nearly flat, with an evident immersed costa tapering to the base and apex, the lesser ones with an acute point, and nearly lanceolate in form. The lower part of the stem and larger branches is thickened. *Colour* a bright-red, becoming scarlet in fresh-water. *Cystocarps* minute, immersed in the substance of the lanceolate leaves, one or two in each lamina. The *medullary stratum* of the frond is very lax.—Nearly related to *A. australis*, but narrower, more densely branched, with a much laxer internal structure, the filaments composing the medullary stratum being few, and standing far apart from each other. It has more the habit of *A. conferta*, but its structure is even more different. From all forms of *A. Laurencia* it may be known by its flatness.

Gen. LXXXVIII. RHABDONIA, *Harv.*

(Harv. in Lond. Journ. Bot. vi. p. 408. Kütz. Sp. Alg. 723. J. Ag. Sp. Alg. ii. p. 353.)

1. **Rhabdonia coccinea** (Harv. Lond. Journ. Bot. vi. p. 408; Kütz. Sp. Alg. p. 723; J. Ag. Sp. Alg. ii. p. 354; Harv. Phyc. Austr. t. 54).—Chrysymenia coccinea, *Harv. Lond. Journ. Bot.* iii. *p.* 448.

Hab. Georgetown, *Gunn.*

Distrib. Port Phillip.

2. **Rhabdonia nigrescens** (Hook. fil. et Harv. Lond. Journ. Bot. vi. p. 409; J. Ag. Sp. Alg. ii. p. 354).

Hab. Georgetown, *Gunn.*

Distrib. South coast of New Holland.

I fear I have led my friend Sonder into error by distributing to him a wrongly marked specimen of one or other of these nearly allied, but, as I still think, distinct species. *C. coccinea* is of a much softer substance, and becomes of a brilliant crimson colour when steeped in fresh-water. *C. nigrescens* is rigid, very imperfectly adheres to paper, and is always of a dull, dark, brownish-red colour, even after exposure to fresh-water. I have collected both species abundantly, and can always distinguish them when growing. *C. coccinea* has a more evident stem, and its branching is somewhat pyramidal: *C. nigrescens* is bushy, branched from the base.

Gen. LXXXIX. ERYTHROCLONIUM, *Sond.*

(Sond. in Linnæa, xxv. p. 691.)

1. **Erythroclonium Muelleri** (Sond. l. c. p. 692).—Rhabdonia? verticillata, *Harv. in Herb. T.C.D.*

Hab. Georgetown, *W. H. H.*

Distrib. South coast of New Holland.

The Georgetown specimens are very much larger than those from New Holland, but do not appear specifically different.

Gen. XC. GLOIOSACCION, *Harv.* (nov. gen.)

Frons sacciformis, succo gelatinoso repleta, membranacea, ex stratis fere tribus conflata; *stratum medullare* cellulis maximis gelatinosis cito ruptis, *intermedium* cellulis rotundato-angulatis coloratis, *corticale* cellulis minimis in fila verticalia ordinatis. *Fruct.*: 1, *favellidia* globosa in strato intermedio immersa, nucleolis pluribus demum confluentibus composita; 2, *tetrasporæ* . . .?

1. **Gloiosaccion Brownii** (Harv. Phyc. Austr. t. 83).—Halosaccion firmum *et* H. hydrophora, *Harv. Alg. Austr. Exsic. n.* 419, 420 (*nec aliorum*). Fucus allantoides, *R. Br. MSS.? in Turn. Hist.* iv. *p.* 105.

Var. *α. membranaceum*; fronde sanguinea, membranacea.—*Harv. Alg. Exsic. n.* 419.

Var. *β. coriacea*; fronde livido-purpurea, coriacea.—*Harv. l. c. n.* 420.

Hab. Var. *α.* Georgetown, *W. H. H.*

Distrib. Both vars. at Fremantle, West Australia. Var. *α.* Port Phillip.

I formerly mistook this plant for *Halosaccion*, a genus founded on *Fucus saccatus*, Turn., to which externally it bears the closest resemblance. The substance, structure, and contents are however very different. I now suppose it may be the plant alluded to by Turner, in his remarks under *F. saccatus*, as having been brought from Australia by Mr. Brown, and characterized by being filled with pellucid jelly.

Gen. XCI. GYMNOGONGRUS, *Mart.*

(Mart. Bras. p. 27. J. Ag. Sp. Alg. ii. p. 313.—*Tylocarpus, Oncotylus, etc.*, Kütz.)

1. **Gymnogongrus fastigiatus** (Harv.); fronde pusilla filiformi vel parum compressa dichotome ramosissima fastigiata flabelliformi, ramis ramulisque densis apice attenuatis subacutis, axillis obtusis, cystocarpiis infra apices ramulorum nodoso-incrassatis immersis circumcirca prominentibus.

Hab. Granite rocks at half-tide: Forester's River, *Gunn.*

Fronds forming dense pulvinate tufts, from 1–1½ inch high, about as thick as hog's-bristle, filiform or subcompressed, rising with a simple stipes for half an inch, then forked, and afterwards many times dichotomous, the upper divisions being close together. All the branches are suberect, but the axils are rounded, though narrow. The ultimate ramuli taper slightly to the point, and are all of one height. *Cystocarps* either solitary or two or three in succession, immersed in the terminal ramuli.—In habit and size this species resembles *G. densus* and *G. pygmæus*.

2. **Gymnogongrus furcellatus** (?) (Ag.; J. Ag. Sp. Alg. ii. p. 318).—Sphærococcus furcellatus, *Kütz. Sp. Alg. p.* 737.

Hab. Southport, *C. Stuart.*

Distrib. New Zealand. Pacific coasts of South America.

The specimens are not very satisfactory. They are more slender than the ordinary form, and less compressed, but scarcely specifically different.

Gen. XCII. MYCHODEA, *Harv.*

(Harv. Lond. Journ. vi. p. 407. Kütz. Sp. Alg. p. 723.—*Cystoclonii* sp., J. Ag. Sp. Alg. ii. p. 306.)

1. **Mychodea carnosa** (Hook. fil. et Harv. Lond. Journ. vi. p. 408; Kütz. Sp. Alg. p. 723).—Cystoclonium carnosum, *J. Ag.* ii. *p.* 309.

Hab. Georgetown.

Distrib. South coast of New Holland.

2. **Mychodea membranacea** (Hook. fil. et Harv. Lond. Journ. vi. p. 408; Kütz. Sp. Alg. p. 723).—Cystoclonium membranaceum, *J. Ag.* ii. *p.* 309.

Hab. Georgetown.

Distrib. South coast of New Holland.

3. **Mychodea terminalis** (Harv.); fronde tereti carnoso-membranacea decomposite ramosissima, ramis patentibus alternis sparsisve multifidis v. subdichotome divisis flexuosis, axillis rotundatis, ramulis subulatis simplicibus v. divisis, cystocarpiis ramulos (fere omnes) terminantibus.—*Harv. Alg. Exsic. n.* 413.

Hab. Above Georgetown, in the Tamar, *Gunn, W. H. H.*

I formerly confounded this species with *M. membranacea*, and have perhaps distributed it sometimes under that name. Except when in fruit, it is not always easy to distinguish between them without close examination. The position of the cystocarps affords however a satisfactory character, as in *M. membranacea* they are sessile along the sides of the larger and smaller branches. It is a more slender and diffusely branched plant, with less of a primary stem than *M. membranacea.*

4. **Mychodea disticha** (Harv.); fronde lato-lineari ancipiti carnoso-cartilaginea distiche ramosa, nunc subdichotoma, nunc caule subindiviso ramis lateralibus alternis v. oppositis, ramis simplicibus v. iterum compositis ligulatis basi constrictis obtusis, ramulis minutis creberrimis marginalibus nunc longioribus ligulatis, cystocarpiis in ramulis immersis.—*Harv. Alg. Exsic. Aust. n.* 416. (Tab. CXCII. *A.*)

Hab. East coast, *Gunn.*

Frond 10–12 inches high, about a line in breadth, strongly compressed and two-edged, distichously branched, the main stem either twice or thrice forked, or nearly simple, and set with numerous long, strap-shaped, simple or slightly divided branches, which are patent or suberect, constricted at their insertion, and slightly narrowed to the point. The *branches* and their minor divisions are closely fringed with short compressed ramuli, 2–4 lines long, occasionally intermixed with others of greater length. *Cystocarps* are imbedded in the tips of the ramuli. *Colour*, when dry, very dark. *Substance* rigid, very imperfectly adhering to paper.—In habit this plant more resembles *Prionitis*, but the structure of both frond and cystocarp is that of *Mychodea.*—Plate CXCII. *A.* Fig. 1, a frond, *nat. size;* 2, ramulus, with cystocarp; 3, section of cystocarp; 4, section of frond:—the latter figures *magnified.*

5. **Mychodea hamata** (Harv.); fronde carnoso-membranacea compressa siccitate rugulosa cæspitosa a basi ramosissima, ramis dichotome multifidis basi et apice attenuatis nunc nudis nunc ramulis lateralibus plus minus onustis, axillis omnibus rotundatis, ramulis lateralibus patentibus v. divaricatis sæpissime reflexo-hamatis acutis, cystocarpiis ad latera ramorum sessilibus cornutis.—*Harv. Alg. Exsic. Austr. n.* 415.

Hab. Georgetown and Port Arthur.

Distrib. South coast of New Holland.

This forms large, loosely interwoven, globose tufts, on stones and *Algæ*, near low-water mark, at the mouth of the Tamar. The tufts spring from matted, branching root-fronds. The erect fronds are 6–8 inches long, angularly compressed, about a line in diameter, rather succulent when recent, shrinking in drying, and becoming furrowed;

they taper to the base and apex, and are pretty regularly dichotomous, with more or less intermixture of lateral branches. The axils are all rounded, the apices attenuated and acute. Sometimes there are few or no lateral ramuli; in other specimens they are numerous, and frequently strongly hooked backwards, or converted into clasping tendrils. The *cystocarps* are sessile on the branches, and mostly tipped with a strong subulate horn. The *colour* is a dark brown-red. The *substance* is firm, and the plant imperfectly adheres to paper in drying.

Gen. XCIII. POLYCŒLIA, *J. Ag.*

(J. Ag. Sp. Alg. ii. p. 305.)

1. **Polycœlia fastigiata** (Harv.); fronde gelatinoso-membranacea tenui subflabelliformi dichotome fissa v. multipartita, laciniis cuneatis apice attenuatis fastigiatis, cystocarpiis per totam frondem sparsis.—Callophyllis fastigiata, *Harv. Alg. Exsic. n.* 407. (Tab. CXCII. *B.*)

Hab. At the mouth of the Tamar, *W. H. H.*

Fronds 6–8 inches long, and as much in the expansion of the laciniæ, foliaceous, deeply divided in a dichotomous manner, sometimes rather irregularly multifid, the segments cuneate, from half an inch to an inch in breadth, the terminal laciniæ gradually narrower, the apices subacute and fastigiate. *Colour* a rather pale rose-red, occasionally deeper. *Substance* very soft, somewhat gelatinous on the surface. The plant closely adheres to paper. The *cystocarps*, which are densely scattered over the frond, resemble those of a *Callophyllis* in structure.—The structure of the frond agrees with Agardh's description of that of his *Polycœlia laciniata*, a plant from Western Australia, unknown to me, but which perhaps may be specifically as well as generically identical with what is now described. Not having seen a specimen of the West Australian plant, I think it best, for the present, to give a name to the Tasmanian. I recently distributed it as a *Callophyllis*, having placed it, without examination, in that genus from its strong external resemblance to *C. discigera*.—Plate CXCII. *B.* Fig. 1, a frond, *nat. size*; 2, section through frond and imbedded cystocarp; 3, a tetraspore:—the latter figures *magnified*.

Gen. XCIV. CALLOPHYLLIS, *Kütz.*

(Kütz. Phyc. Gen. p. 400. Sp. Alg. p. 744. J. Ag. Sp. Alg. ii. p. 296.—*Rhodymeniæ* sp., Auct.)

1. **Callophyllis Lamberti** (Hook. fil. et Harv. Lond. Journ. Bot. vi. p. 405; J. Ag. Sp. Alg. ii. p. 300).—Chondrococcus Lamberti, *Kütz. Sp. Alg. p.* 752 (*in part*). Rhodocladia Lamberti, *Sond.* Fucus Lamberti, *Turn. Hist. t.* 237.

Hab. Georgetown.

Distrib. South coast of New Holland.

2. **Callophyllis coccinea** (Harv. in Lond. Journ. vi. p. 405; Kütz. Sp. Alg. p. 746; J. Ag. Sp. Alg. ii. p. 301).—Sphærococcus australis, *Harv. Lond. Journ.* iii. *p.* 445.

Hab. Georgetown, abundant.

Distrib. Common on the south coast of New Holland.

Gen. XCV. KALLYMENIA, *J. Ag.*

(J. Ag. Alg. Medit. p. 98. Harv. Phyc. Brit. t. 13. J. Ag. Sp. Alg. ii. p. 284.)

1. **Kallymenia cribrosa** (Harv.); stipite brevi in frondem maximam simplicem v. bipartitam rotundato-reniformem ampliato, lamina basi cordata gelatinoso-membranacea foraminibus circularibus crebris pertusa, cystocarpiis sparsis.—*Harv. in Trans. R. I. Acad.* xxii. *p.* 555; *Phyc. Austr. t.* 73.

Hab. East coast, very rare, *Gunn.* Georgetown, *Fereday.*

Distrib. Western Australia. Port Phillip Heads.

A beautiful species, elegantly perforated like an *Agarum*. I first found it in Western Australia, and afterwards collected it in greater plenty at Port Phillip Heads. It appears to be of very rare occurrence in Tasmania. (Local name, "The Holy Coat.")

2. **Kallymenia Tasmanica** (Harv. MSS.).

Hab. Georgetown, *W. H. H.*

Fragments of a *Kallymenia* of large size, resembling *K. Harveyana*, are not uncommon at Georgetown, but I have as yet seen no specimen sufficiently perfect to enable me to characterize the species. One of my specimens is 18 inches broad, about 12 inches long, broadly foliaceous, lobed and lacerate at the margin; another, of somewhat smaller size, is deeply laciniate, and divided into numerous narrow lobes and segments. There seems to be no very definite outline. There is a short stipes, soon widening into the cuneate base of the frond. The *colour* is a deep crimson. The *substance* is soft, and the plant adheres firmly to paper.

Gen. XCVI. GIGARTINA, *Lamour.*

(J. Ag. Sp. Alg. ii. p. 260. Harv. Ner. Bor. Amer. ii. p. 174.)

1. **Gigartina livida** (Grev.; Hook. et Harv. Lond. Journ. vi. p. 407; J. Ag. Sp. Alg. ii. p. 270.) —Fucus lividus, *Turn. Hist. t.* 254.

Hab. Sandy Cove, *Dr. Lyall* and *Dr. Hooker.*

2. **Gigartina pinnata** (J. Ag. Sp. Alg. ii. p. 270; Harv. Phyc. Austr. t. 68).

Hab. Georgetown, *W. H. H.*

Distrib. Port Phillip Heads.

A very fine species, sometimes 18 inches long, three or four times pinnate.

3. **Gigartina flabellata** (J. Ag. Sp. Alg. ii. p. 265).

Hab. Georgetown.

Distrib. South coast of Australia.

4. **Gigartina chondroides** (Hook. fil. et Harv.); livida, fronde stipitata apice flabellatim ramosa disticha cartilaginea, ramis plano-compressis linearibus basi cuneatis pluries dichotomis patentibus fastigiatis, axillis latissime rotundatis, apicibus obtusis.—*Hook. fil. et Harv. in Lond. Journ.* vi. *p.* 407.

Hab. Sandy Bay, *Dr. Lyall.*

I have no specimen of this plant, which was described some years ago from a specimen in Herb. Hooker, which I have not recently seen. It may possibly be referable to *G. flabellata.*

5. **Gigartina ancistroclada** (Mont. Pôl. Sud, p. 121. t. 7. f. 4; Kütz. Sp. Alg. p. 751; J. Ag. Sp. Alg. ii. p. 272).

Hab. Brown's River, *Gunn.*

Distrib. New Zealand.

6. **Gigartina brachiata** (Harv.); fronde ancipiti lineari decomposite ramosissima, ramis distichis patentibus v. divaricatis flexuosis pluries laxe v. densius pinnatis, pinnis simplicibus v. iterum pinnatis patentissimis, ramulis subulatis horizontalibus, cystocarpiis sessilibus.—*Harv. Alg. Austr. Exsic.* 397.

Hab. On stones, near low-water mark, opposite Georgetown, *W. H. H.*

Fronds 3–4 inches high, scarcely a line in diameter, strongly compressed, two-edged, excessively branched in a repeatedly, but very irregularly, pinnate manner; all the branches and their divisions distichous, and very patent or divaricate. In young specimens the *ramuli* are strictly subulate, but in older examples they are frequently fili-

form. The *substance* is firmly cartilaginous, and the plant very imperfectly adheres to paper. *Colour* a livid brownish-purple.—The imperfect specimens referred to *G. acicularis* in Hook. Lond. Journ. vi. p. 407, probably belong to this species, which is most nearly related to *G. Teedii*.

7. **Gigartina? lanceolata** (Harv.); fronde e stipite brevi vix canaliculato oriente plana carnosa lanceolata v. obovata simplici v. in frondes plures consimiles partita, margine nuda v. sæpius plus minus pinnato-ciliata, ciliis subulatis horizontalibus.

HAB. Georgetown, *Gunn*.

The specimens are not mature, and without fruit. It is possible, therefore, either that our plant may be an *Iridæa*, or some form of the protean *G. radula*. The *fronds* are about 6 inches long, an inch or inch and half in width, tapering much to the base, and either obtuse or acute at the apex. The margin in many is copiously furnished with horizontal fringing processes 2 or 3 lines long, and about $\frac{1}{4}$ line in breadth: other specimens are quite bare. We have seen one or two instances of cilia rising from the disc, showing affinity with *G. radula*. The structure of the frond is that of *Gigartina*.

Gen. XCVII. IRIDÆA, *Bory*.

(Bory, Coq. p. 103 (excl. sp.). J. Ag. Sp. Alg. ii. p. 250. Harv. Ner. Bor. Amer. ii. p. 178.)

1. **Iridæa micans?** (Bory, Coq. p. 110. t. 13 et 13 bis. J. Ag. Sp. Alg. ii. p. 254).

HAB. Sandy Cove, *Dr. Lyall*.

DISTRIB. Falkland Islands. Chili. Cape Horn. New Zealand.

Imperfect scraps, possibly referable to this species.

2. **Iridæa foliifera** (Harv.); fronde fusco-rubra membranacea ovata v. ovato-lanceolata basi cuneata et in stipitem attenuata a margine foliifera, foliolis lanceolatis subpetiolatis, soris tetrasporarum punctiformibus per totam frondem sparsis.

HAB. Georgetown, *Gunn*.

I am exceedingly unwilling to propose a new species in this troublesome genus, particularly on imperfect specimens, yet I can hardly overlook the present plant altogether, and I know not any species of *Iridæa* with which it can be associated. In habit it so much resembles some specimens of *Rhodymenia polymorpha* that, without testing it microscopically, it might easily be passed over for that species. The colour is a rather full red, somewhat brownish or purplish; the surface, when dry, slightly lustrous. The outline of the frond, as in all the genus, is very variable, its most striking peculiarity being the marginal leafy lobes. *Sori* very numerous, immersed in the substance.—We possess fragmentary specimens of other Tasmanian *Iridææ*, too imperfect for description.

3. **Iridæa polycarpa** (Harv.); fronde intense rubra longissima lanceolata v. ovato-lanceolata simplici integerrima, margine incrassato, basi cuneata et in stipitem filiformem tenuem vix canaliculatum attenuata, cystocarpiis numerosissimis per totam frondem sparsis.

HAB. Tasmania, *C. Stuart*.

Perhaps this may be the cystocarpic state of the preceding, but our numerous specimens are all quite simple, without lateral foliations. The *colour* is a deep blood-red. The *substance* is thin, much thinner than in *I. laminarioides*, to which the frond approaches in form. The *cystocarps* are of large size, and very densely scattered over the surface; they are nearly spherical, and prominent on both surfaces of the frond. The *frond* is from 1–3 feet in length, and from $1\frac{1}{2}$–6 inches in width.

Gen. XCVIII. EPYMENIA, *Kütz*.

(Kütz. Sp. Alg. p. 787. J. Ag. Sp. Alg. ii. p. 219.)

1. **Epymenia membranacea** (Harv.); fronde stipitata flabellatim expansa repetite dichotoma

membranacea, segmentis inferne semicostatis cuneatis, superioribus linearibus apice obtusis v. subacutis, cystocarpiis in sporophyllis subbinis.—*Harv. Phyc. Austr. t.* 89.

HAB. Georgetown, *W. H. H.* Southport, *C. Stuart.*

A smaller and much thinner and more membranous plant than *E. obtusa*, which in all other respects it nearly resembles. The apices are perhaps less obtuse. There are commonly two cystocarps on each fertile leaflet in the only fruiting specimen seen.

Gen. XCIX. CHRYSYMENIA, *J. Ag.*

(J. Ag. Alg. Medit. p. 105. Sp. Alg. ii. p. 209. Harv. Ner. Bor. Amer. ii. p. 187.)

1. **Chrysymenia obovata** (Sond. Alg. Preiss. p. 29; Harv. Ner. Austr. p. 77; Harv. Phyc. Austr. t. 10).—Rhabdonia? globifera, *J. Ag. Sp. Alg.* ii. *p.* 355??

HAB. Stones at low-water mark, above Georgetown.

DISTRIB. West and south coasts of Australia.

I am at a loss to discover why Professor Agardh should have placed this plant in *Rhabdonia*, supposing that we are speaking of the same species. To me it seems nearly allied, not merely in habit but in structure, to *Ch. uvaria*.

Gen. C. CHYLOCLADIA, *Grev., J. Ag.*

(J. Ag. Sp. Alg. ii. p. 360. Harv. Ner. Bor. Amer. ii. p. 185.)

1. **Chylocladia clavellosa** (Grev.; Harv. Man. p. 71; Phyc. Brit. t. 114; J. Ag. Sp. Alg. ii. p. 366).—Fucus clavellosus, *Turn. Hist. t.* 30; *E. Bot. t.* 1203.

HAB. Georgetown, rare, *Gunn, W. Archer.* Sullivan's Cove, *Dr. Lyall.*

DISTRIB. Coasts of Europe from Norway to Spain. Falkland Islands.

Gen. CI. HALYMENIA, *Ag.*

(J. Ag. Sp. Alg. ii. p. 197. Harv. Ner. Bor. Amer. ii. p. 192.)

1. **Halymenia? saccata** (Harv.); fronde rosea tereti (?) saccata succo repleta pinnatim v. bipinnatim composita, pinnis pinnulisque suboppositis simplicibus saccatis basi constrictis apice obtusis, tetrasporis sparsis, cystocarpiis in ramis immersis infra stratum periphericum suspensis.

HAB. At Georgetown, *Archer.*

Frond a foot long, and as much in the expansion of the branches, bipinnate, some of the pinnulæ furnished with a third series of pinnules. The *main branches* are nearly half an inch or sometimes more in diameter, the pinnulæ 2–3 lines; both are simple, saccate, much constricted at their insertion, and tapering upwards to a blunt point. *Cystocarps* suspended in a network under the exterior layer, which is composed of moniliform filaments, formed of minute coloured cells. *Colour* rosy-red. *Substance* delicately membranaceous. It most closely adheres to paper in drying, and appears to have been filled, when fresh, with abundance of loose gelatine.

This bears so close a resemblance to *Chrysymenia Enteromorpha*, Harv. Ner. Bor. Amer. ii. p. 187, and also to the *Bindera splachnoides* of Western Australia, that, without microscopic examination of the structure of the frond, or by the fruit, these three plants cannot well be distinguished!

Gen. CII. NEMASTOMA, *J. Ag.*

(J. Ag. Alg. Medit. p. 89. Sp. Alg. ii. p. 162. *Gymnophlœa*, Kütz.

1. **Nemastoma Feredayæ** (Harv.); stipite tereti ramosa (v. simplici), ramis in basi cuneata frondis cito deliquescentibus, fronde flabelliformi compresso-plana rosea repetite dichotoma, segmentis sensim

angustatis, terminalibus attenuatis filiformibus acutis, margine nunc simplici nunc processibus proliferis subpinnatis onusto.—*Harv. Alg. Exsic. n.* 430.

Var. *β. prolifera;* segmentis majoribus e margine frondes pinnatas emittentibus. (Tab. CXCV. *A.*)

Hab. Georgetown, *Mrs. Fereday, W. H. H., etc.*

Stipes an inch or more long, terete, subsolid, twice or thrice forked; each branch passing into the cuneate base of a flattened or compressed, much divided, dichotomous, flabelliform frond. The lower segments are about ¼ inch wide, the upper about a line, and the terminal ones not a quarter of a line in breadth. Sometimes the branching is perfectly regular and dichotomous. In other specimens the lower, and sometimes the upper segments, throw out from their margin very numerous secondary fronds, which are more or less regularly dichotomous. Thus the general frond becomes densely and intricately branched. The *colour* is a deep rosy-red. The *substance* soft and lubricous, and the plant closely adheres to paper in drying. It belongs to the section of the genus called *Gymnophlœa*, and may range next to *N. dichotoma.*—Plate CXCV. *A.* Fig. 1, a frond, the *nat. size;* 2, section, *magnified.*

2. **Nemastoma? densa** (Harv.); fronde fuscescente teretiuscula dichotome v. vage ramosa, ramis primariis crassis parum divisis, secundariis filiformibus gracilibus quaquaversis creberrimis dichotome multifidis ramos primarios omnino vestientibus, divisuris omnibus divaricato-patentibus axillisque rotundatis, ramulis ultimis setaceis obtusis.—*Harv. Alg. Exsic. n.* 431.

Hab. Georgetown, on the mudflats, *Gunn, W. H. H.*

Fronds 6–8 inches long, excessively dense and bushy. The *main frond* is upwards of a line in diameter, and sparingly branched in a dichotomous or irregular manner; its divisions very patent, and somewhat flexuous. This frond throws out, throughout its whole length, and directed to every side, a vast number of slender, many times dichotomous, filiform, divaricating branches, so that the general frond becomes excessively bushy. The lesser branches are greatly more slender than their primaries, and their terminal laciniæ are not thicker than hog's-bristle. Every axil is very wide, and every ramulus squarroso-patent. The *colour* is a dull reddish-brown. The *substance* soft and gelatinous. The filaments of the periphery are nearly free, and their cells cylindrical.—I am by no means assured of the genus to which this plant properly belongs; and perhaps it would be better placed in *Nemaleon*, or in the neighbourhood of that genus.

Gen. CIII. HOREA, *Harv.*

(Harv. in Trans. R. I. Acad. vol. xxii.)

Frons carnoso-membranacea, plano-compressa v. subteres, e stratis tribus cellularum composita; *stratum medullare* e cellulis maximis inanibus demum sæpe ruptis; *intermedium* cellulis pluriseriatis minoribus coloratis; *corticale* filis moniliformibus verticalibus dichotomis muco cohibitis formatum. *Favellæ* intra pericarpium proprium apice spinis coronatum poro pertusum ad placentam basalem affixæ, filis arachnoideis laxe circumdatæ, sporas conglobatas angulares foventes. *Tetrasporæ* sparsæ, cruciatim divisæ.

1. **Horea speciosa** (Harv.); fronde lato-lineari applanata decomposite pinnata, ramis elongatis ambitu lanceolatis sub-bipinnatis, pinnis pinnulisque oppositis patentibus, pinnulis linearibus obtusis nunc apice cirrhoso-hamatis, cystocarpiis sæpius marginalibus (paucis) apice spinoso-coronatis.—*Harv. Alg. Exsic. n.* 439.—(Tab. CXCIV. *A.*)

Hab. Mouth of the Tamar, rare, *W. H. H.*

Distrib. Also found at Western Port, Victoria, *W. H. H.*

Frond 12–16 inches long, and as much in the expansion of the branches; three or four times pinnate, every division being distichous. The *principal branches* are nearly half an inch in width, and so strongly compressed as

to be called flat; the *lesser branches* are about a quarter of an inch wide, and the ramuli about a line. The *ramification* is pretty regularly pinnate, the pinnæ and pinnules being close together and nearly opposite, all patent, but gently curving upwards. The *colour* is a pale red. The *substance* soft and gelatinous, soon decomposing in fresh-water. The *cystocarps* are few, scattered along the edges of the branches and ramuli.—PLATE CXCIV. *A.* Fig. 1, a branch, the *nat. size;* 2, section of the frond; 3, a cystocarp:—the latter figures *magnified.*

2. **Horea polycarpa** (Harv.); fronde applanata basi cuneata decomposite dichotoma et vage laciniata, laciniis cuneato-linearibus repetite furcatis sensim attenuatis plus minus papillosis apice subacutis, cystocarpiis stellato-echinatis numerosissimis per totam frondem densissime sparsis.—*Harv. Alg. Austr. Exsic. n.* 438.—(TAB. CXCIV. *B.*)

HAB. East coast, *Gunn.*

DISTRIB. Shores of Victoria, *W. H. H.*

Frond sessile, foliaceous, 6–8 inches long, cuneate at base, divided in an irregularly dichotomous manner into innumerable segments, which are from a quarter of an inch to nearly an inch broad, linear-cuneate, repeatedly forked or irregularly laciniate, all the minor divisions suberect, the axils narrow, and rather acute. In specimens that bear tetraspores, every part of the frond is generally densely papillate, with linear processes half a line to a line or more in length. In those that bear cystocarps, these generally take the place of the papillæ, the whole disc and margin being thickly studded with them. The *cystocarps* are crowned by four or five longish spines. The *tetraspores* are abundantly scattered through all parts of the cortical layer in such specimens as produce them. The *colour* is a pale rosy-red, soon fading into greenish. The substance very soft and lubricous, soon decomposing in fresh-water. In drying, the plant adheres firmly to paper.—PLATE CXCIV. *B.* Fig. 1, a plant with cystocarps; 2, a plant with tetraspores, both of the *nat. size;* 3, fragment with four cystocarps; 4, section of a cystocarp; 5, tetraspores:—the latter figures *magnified.*

TRIBE XII. *SPYRIDIACEÆ.*

Gen. CIV. SPYRIDIA, *Harv.*

(Harv. in Hook. Br. Fl. ii. p. 336. Phyc. Brit. t. 46. J. Ag. Sp. Alg. ii. 338. Kütz. Sp. Alg. 665.)

1. **Spyridia filamentosa** (Harv. Phyc. Brit. t. 46; J. Ag. Sp. Alg. ii. p. 340).—Ceramium filamentosum, *Ag.* Conferva Griffithsiana, *E. Bot. t.* 2312.

HAB. Georgetown, common.

DISTRIB. Native of the warmer temperate parts of the Atlantic and Pacific Oceans, and in tropical seas, reaching its most northern limit on the south coast of England.

The plant noticed in Hook. Lond. Journ. vol. iii. p. 449, as var. *β verticillata*, and on which Kützing has founded his *S. Tasmanica*, belongs to *Wrangelia*, and will be found described above, under the name *W. setigera*. *Spyridia? pellucida*, Lond. Journ. l. c., is *Callithamnion mucronatum*, J. Ag.

TRIBE XIII. *CERAMIACEÆ.*

Gen. CV. CENTROCERAS, *Kütz.*

(Kütz. Linnæa, 1841, p. 741. Sp. Alg. p. 688. J. Ag. Sp. Alg. ii. 147.)

1. **Centroceras clavulatum** (Mont. Fl. Alg. p. 140; J. Ag. Sp. Alg. ii. p. 148; Harv. Ner. Bor. Amer. part ii. p. 211. t. 33. f. C).—Ceramium clavulatum, *Ag.*

We have not seen Van Diemen's Land specimens, but as this plant is very common on the opposite shores of

Bass's Straits, and along the whole coasts of Australia, it probably occurs on the rocky shores of Tasmania. Native of tropical and subtropical seas.

Gen. CVI. CERAMIUM, *Roth.*

(J. Ag. Sp. Alg. ii. p. 113. Harv. Phyc. Brit. t. 181, etc.)

1. **Ceramium rubrum** (Ag.; J. Ag. Sp. Alg. ii. p. 127; Kütz. Sp. Alg. p. 685; Harv. Phyc. Brit. t. 181).—Conferva rubra, *E. Bot. t.* 1166.

Hab. On the larger and smaller *Algæ*, common.

Distrib. Cosmopolitan.

2. **Ceramium diaphanum** (Roth; J. Ag. Sp. Alg. ii. p. 125; Harv. Phyc. Brit. t. 193).—Conf. diaphana, *Dillw. Conf. t.* 38; *E. Bot. t.* 1742.

Hab. Georgetown, *Gunn.*

Distrib. Cosmopolitan.

3. **Ceramium ramulosum** (Hook. fil. et Harv. Lond. Journ. vi. p. 410; J. Ag. Sp. Alg. ii. p. 121).

Hab. Georgetown, *Gunn.*

The Tasmanian specimens formerly referred to *C. nodosum* and *C. Deslongchampsii*, seem rather to belong to the present species, which is nearly related to the former.

4. **Ceramium gracillimum** (Kütz.; Harv. Phyc. Brit. t. 206; J. Ag. Sp. Alg. ii. p. 118).

Hab. Georgetown, on *Zostera*, etc., *W. H. H.*

Distrib. Europe. North America.

5. **Ceramium puberulum** (Sond.).—Cer. monile, *Hook. fil. et Harv. Lond. Journ.* vi. *p.* 410; *J. Ag. Sp. Alg.* ii. *p.* 132. Celeceras monile, *Kütz. Sp. Alg. p.* 684.

Hab. Georgetown, common.

Distrib. Western Australia.

Gen. CVII. HALOPLEGMA, *Mont.*

(Mont. An. Sc. Nat. 1842. Endl. 3rd Suppl. p. 36. J. Ag. Sp. Alg. ii. p. 110.)

1. **Haloplegma Preissii** (Sond. Alg. Preiss. p. 24; Kütz. Sp. Alg. 672; J. Ag. Sp. Alg. ii. p. 111).—Rhodoplexia Preissii, *Harv. in Hook. Ic. Pl. t.* 613.

Var. *β. flabelliforme;* fronde tenuiori latiori parum lobata flabelliformi.

Hab. Mouth of the Tamar, not uncommon. Flinders' Island, *Dr. Milligan.* Var. *β.* In the Tamar, above Georgetown, on rocky shores at low-water.

Distrib. West and south coasts of Australia.

Our var. *β*, which is common on shores, under Mr. Lawrence's place, a short distance above Georgetown, differs from the usual state of the species in being much thinner and more translucent, the lobes fewer and much broader, and in the colour, which is more purple. The microscopic characters of the two plants are, however, identical, and various intermediate states occur towards the mouth of the River Tamar.

Gen. CVIII. CROUANIA, *J. Ag.*

(J. Ag. Alg. Medit. p. 83. Endl. 3rd Suppl. p. 36. Harv. Phyc. Brit. t. 106. J. Ag. Sp. Alg. ii. p. 104.)

1. **Crouania attenuata,** var. *australis* (Harv. Alg. Austr. Exsic. n. 485; J. Ag. Sp. Alg. ii. p. 105; Harv. Phyc. Brit. t. 106).

Hab. At Table Cape, *Miss Mackenzie.*

DISTRIB. Native of Mediterranean, and coasts of France and England. Western Australia, at King George's Sound.

The specimens are rather coarser and less gelatinous than those from the south coast of England, but closely resemble some that we have received from the Mediterranean.

2. **Crouania insignis** (Harv.); fronde robusta elata (pedali et ultra) cartilaginea decomposite ramosissima, ramis alternis repetite alterne divisis creberrime nodulosis, ramulis cylindraceis vestitis acutis vix attenuatis.—*Harv. Alg. Exsic. Austr. n.* 488.—(TAB. CXCIII. *B.*)

HAB. Georgetown, *W. H. H.* Brown's River, *Gunn.*

DISTRIB. South coast of New Holland.

Frond 12 or 14 inches long, more than half a line in diameter, tapering toward the apex, excessively branched. *Branches* alternate, 8–10 inches long, erecto-patent, two or three times similarly compounded, the ultimate ramuli less than an inch in length. All the older parts of the frond are closely nodulose, the whorls of peripheric filaments being partially separated, though not so much so as to uncover the axial filament. The smaller branches and ramuli are uniformly clothed with filaments, and therefore cylindrical. The peripheric filaments are not gelatinous, thick, very much branched, the branching dichotomous and divaricate; their apices are blunt. *Tetraspores* triangularly divided, solitary on the ramuli. *Favellæ* hidden among the ramellæ of abortive branchlets, formed out of a whole or a half ramellus, reniform, containing very numerous spores. *Colour* a deep brownish-red. *Substance* soft, but firm. It closely adheres to paper in drying.—PLATE CXCIII. *B.* Fig. 1, a branch, the *natural size;* 2, apex of a ramulus; 3, ramellus with a favella; 4, spores; 5, ramellus with tetraspores; 6, a tetraspore:—the latter figures *magnified.*

Gen. CIX. PTILOTA, *Ag.*

(Ag. Sp. Alg. i. p. 384. Endl. 3rd Suppl. p. 36. J. Ag. Sp. Alg. ii. p. 92.)

1. **Ptilota articulata** (J. Ag. Sp. Alg. ii. p. 100; Hook. fil. et Harv. Lond. Journ. iii. p. 409).

HAB. Georgetown, very common.

DISTRIB. South coast of Australia.

2. **Ptilota Jeannerettii** (Harv. Alg. Exsic. n. 479).—Thamnocarpus Ptilota, *Hook. fil. et Harv. Lond. Journ.* vi. *p.* 409.

HAB. Port Arthur, *Dr. Jeannerett.* Eagle Hawkneck, *J. D. H.* Southport, *C. Stuart.*

DISTRIB. South coast of New Holland, *D. Curdie, W. H. H.*

3. **Ptilota Rhodocallis** (Harv. Alg. Austr. Exsic. n. 478; Phyc. Austr. t. 44).—Rhodocallis elegans, *Kütz. Sp. Alg. p.* 670.

HAB. Southport, *C. Stuart.*

DISTRIB. Coast of Victoria, at Port Fairy.

A beautiful species, of a brilliant deep-red colour, which becomes a flaming scarlet in fresh-water. The general habit resembles that of *Phacelocarpus Labillardieri.*

Gen. CX. THAMNOCARPUS, *Harv.*

1. **Thamnocarpus Gunnianus** (Harv. in Hook. Ic. Pl. t. 662; Lond. Journ. vi. p. 409).

HAB. Port Arthur (?), *Gunn* (more probably at Circular Head). Southport, *C. Stuart.*

DISTRIB. Also found, but without fruit, in Western Australia, *W. H. H.*

We have no new facts to state respecting this curious and little-known plant, except that on Mr. Stuart's specimen we find *antheridia,* similar to those of a *Callithamnion,* occupying the place of *tetraspores.*

Gen. CXI. GRIFFITHSIA, *Ag.*

(Ag. Sp. Alg. ii. p. 126. J. Ag. Sp. Alg. ii. p. 75. Kütz. Sp. Alg. p. 659.)

1. **Griffithsia corallina** (Ag. Syst. p. 145; J. Ag. Sp. Alg. ii. p. 79; Harv. Phyc. Brit. t. 214). —G. flabelliformis, *Harv. Lond. Journ.* iii. *p.* 450.

Hab. In the Tamar, common.

Distrib. Native of northern hemisphere.

2. **Griffithsia antarctica** (Hook. fil. et Harv. Fl. Ant. ii. p. 488; J. Ag. Sp. Alg. ii. p. 87; Fl. N. Zeal. ii. p. 258).

Hab. Brown's River, *Gunn.* Georgetown (a variety?), *W. H. H.*

Distrib. Falkland Islands, Cape Horn, and New Zealand.

3. **Griffithsia monilis** (Harv.); fronde basi radicante cæspitosa dichotoma fastigiata crassissima, segmentis erecto-patentibus, articulis diametro sesquilongioribus globoso-inflatis siccitate collapsis et ovalibus ad genicula maxime constrictis, fertilibus conformibus, involucris tetrasporarum circa genicula verticillatis.—*Harv. in Trans. R. I. Acad.* xxii. *p.* 559. (Tab. CXCV. *B.*)

Hab. Parasitical on *Algæ*, at Georgetown, *Gunn.*

Distrib. West and south coasts of New Holland.

A beautiful little species, whose branches resemble strings of ruby-coloured beads. The colour is very quickly discharged.—Plate CXCV. *B.* Fig. 1, fronds, *nat. size;* 2, tip of a branch, bearing favellæ; 3, a tip, bearing sorus of tetraspores; 4, tetraspores from the same:—the latter figures *magnified.*

4. **Griffithsia setacea** (Ag.; J. Ag. Sp. Alg. ii. p. 84; Kütz. Sp. Alg. p. 660; Harv. Phyc. Brit. t. 184).

Hab. Georgetown, common.

Distrib. Native of northern hemisphere.

All the specimens we have seen are barren; the species therefore cannot be ascertained with certainty.

5. **Griffithsia? gracilis** (Harv.); frondibus capillaribus sursum attenuatis arachnoideis dichotomis fastigiatis, ramulis minoribus sæpe secundis, axillis patentibus, articulis cylindraceis diametro multiplo-longioribus, apicibus obtusis.

Hab. Georgetown, *W. H. H.*

Fronds 2–3 inches high, very slender, and much attenuated to the apex, pretty regularly dichotomous and fastigiate, forming flabelliform tufts. *Articulations* very long, cylindrical. *Colour* a bright rosy-red, instantly given out in fresh-water. *Substance* soft.—Very few specimens have yet been seen, and these without fructification. The species therefore wants further confirmation.

Gen. CXII. BALLIA, *Harv.*

(Harv. in Hook. Lond. Journ. ii. p. 191. J. Ag. Sp. Alg. ii. p. 74. Kütz. Sp. Alg. 663.)

1. **Ballia callitricha** (Mont. Voy. Pôl. Sud, p. 94; Kütz. Sp. Alg. p. 663; J. Ag. Sp. Alg. ii. p. 75; Fl. N. Zeal. ii. p. 257).—B. Brunonis, *Harv. Lond. Journ.* ii. *p.* 191. *t.* 9. B. Hombroniana, *Mont. Pôl. Sud, t.* 12. *f.* 1. Sphacelaria callitricha, *Ag. Sp. Alg.* ii. *p.* 23; *Ic. Alg. Eur. t.* 6.

Hab. Various parts of the coast.

Distrib. All through the Southern Ocean.

2. **Ballia Robertiana** (Harv.); ramis minoribus rachidibusque pinnularum cylindraceis (nec ad genicula constrictis) distiche plumulatis, plumulis incurvis oblongis oppositis inter se alterne inæqualibus,

una pusilla pinnata vel vage multifida pinnulis inflexis, altera elongata bipinnata basi ramulis incurvis vage divisis fructiferis stipata, pinnis ambitu ovatis, pinnulis oppositis incurvis creberrimis.—*Harv. in Ann. Nat. Hist.* xv. *p.* 332; *Phyc. Austr. t.* 36.

Hab. Southport, *C. Stuart.*

Distrib. Coast of Victoria, at Port Fairy.

3. **Ballia scoparia** (Harv. Alg. Exsic. Austr. n. 502).—Callithamnion scoparium, *Hook. fil. et Harv. Fl. Ant.* ii. *p.* 490. *t.* 189. *f.* 3; *J. Ag. Sp. Alg.* ii. *p.* 35.

Hab. Mouth of the Tamar, and at Port Arthur.

Distrib. Antarctic Ocean.

Gen. CXIII. CORYNESPORA, *J. Ag.*

(J. Ag. Sp. Alg. ii. p. 69.)

1. **Corynespora arachnoidea** (Harv.); fronde tenuissima arachnoidea (2–3-unciali) e basi dichotome decomposita ramis lateralibus pluries furcatis obsita, axillis acutis, ramulis ad genicula subcontractis, apicibus cylindraceis attenuatis obtusis, articulis longissimis, tetrasporis ovalibus grumosis pedicellatis.

Hab. Georgetown, *W. H. H.*

Two to three inches high, densely tufted. *Filaments* excessively slender, nearly of one diameter throughout, except in the ultimate divisions, many times dichotomous, the lateral dichotomies not always regular, and then as if set with alternate dichotomous branches. The *articulations* in all parts of the plant are of great length. The *colour* is rose-red. *Tetraspores?* (or *spores*) pedicellate, oval, containing a granular mass, not divided into sporules. —It is difficult to examine this plant after having been once dried, as it will not bear remoistening with fresh-water, and adheres so strongly to paper that it is impossible to separate it without breaking.

Gen. CXIV. CALLITHAMNION, *Lyngb.*

(Lyngb. Hyd. Dan. p. 122. J. Ag. Sp. Alg. ii. p. 5. Harv. Phyc. Brit. etc.)

1. **Callithamnion comosum** (Harv. Lond. Journ. Bot. iii. p. 451).

Hab. In the Tamar, above Georgetown, abundant.

2. **Callithamnion Plumula** (Ag.; Harv. Phyc. Brit. t. 242; J. Ag. Sp. Alg. ii. p. 29).—Conferva Plumula, *Ellis; Dillw. Conf. t.* 50.

Hab. Georgetown, rare, *Gunn, W. H. H., Archer.*

Distrib. Europe.

In the Tasmanian specimens the ramuli are more squarrose than usual, and in the older parts of the frond finally become, through excessive branching, densely fasciculate.

3. **Callithamnion cruciatum?** (Ag.; J. Ag. Sp. Alg. ii. p. 28; Harv. Phyc. Brit. t. 164; Kütz. Sp. Alg. p. 649; Harv. Alg. Exsic. n. 545).

Hab. Georgetown, very rare, *Gunn, W. H. H.*

Distrib. Europe.

The Tasmanian specimens differ from the European chiefly in the ramification of the opposite plumules, the ramuli being very generally alternate, not opposite, and sometimes forked, and the rachis being angularly bent, and not straight. The apices are quite blunt. Possibly it would be better to consider the present form as a distinct but *representative* species. It must however be allowed that its European representative varies greatly in the composition of its plumules.—I formerly, by mistake, communicated to Professor Agardh a poor specimen of the follow-

ing species, under the name "*cruciatum*," having been misled by external resemblance. The species are abundantly distinct, the following being one of large size, originally described by me as "*Spyridia pellucida.*"

4. **Callithamnion mucronatum** (J. Ag.); fronde elata (pedali et ultra) ultra setacea sursum longe filis stuposis quasi hirsuta et corticata decomposite ramosissima, ramis setaceis pellucide articulatis virgatis alterne ramosis erecto-patentibus strictis ad genicula pinnatis, pinnis oppositis simplicibus subulatis versus apicem densissimis acute mucronatis, favellis ramulos terminantibus.—*J. Ag. Sp. Alg.* ii. *p.* 29; *Harv. Alg. Exsic. n.* 546. Spyridia? pellucida, *Harv. in Lond. Journ. Bot.* iii. *p.* 449.

Hab. At and above Georgetown, common.

Distrib. Western Port, Victoria.

Root a mass of matted fibres, often an inch in diameter. *Stems* many from the same base, a foot or more in length, twice as thick as hog's-bristle, and appearing still thicker from the stupose filaments which densely cover them for more than half their length. These principal stems are sparingly divided, but emit throughout their length a profusion of closely-placed setaceous branches, 4–6 inches long, and once, twice, or thrice alternately compounded, the ultimate divisions being from half an inch to an inch in length. All the axils are acute, and the branches and ramuli erecto-patent. The branches and ramuli are pellucidly articulate, and each node bears a pair of minute, subulate, mucronate pinnules, 1–2 lines long, and generally simple, sometimes very erect and close-pressed, sometimes more patent. *Colour* a deep rose-red. *Substance* somewhat cartilaginous, rather rigid.—By right the specific name "*pellucidum*," published in 1844, ought to be retained; but I waive priority in favour of the more appropriate one conferred in 1851 by Professor Agardh, who had however a miserably imperfect specimen to describe from. The species varies much in size, and somewhat in other respects, but is strongly marked by its mucronate, subulate pinnules.

5. **Callithamnion Turneri,** var. *repens* (J. Ag. Sp. Alg. ii. p. 23; Harv. Phyc. Brit. t. 179; Harv. Alg. Exsic. n. 521.)—Conferva repens, *Dillw.*

Hab. On *Xiphophora*, at Port Arthur, *W. H. H.*

Distrib. Europe.

6. **Callithamnion flaccidum** (Hook. fil. et Harv. Lond. Journ. Bot. iv. p. 273; Fl. Antarct. ii. t. 188. f. 1; Kütz. Sp. Alg. p. 648; J. Ag. Sp. Alg. ii. p. 31).

Hab. Tasmania, *Gunn.*

Distrib. Antarctic Ocean.

The specimens are not in good order.

7. **Callithamnion latissimum** (Harv. Lond. Journ. Bot. iii. p. 452; J. Ag. Sp. Alg. ii. p. 50).—Phlebothamnion latissimum, *Kütz. Sp. Alg. p.* 656.

Hab. Abundant in the Tamar.

8. **Callithamnion angustatum** (Hook. fil. et Harv. in Lond. Journ. Bot. vi. p. 412; J. Ag. Sp. Alg. ii. p. 64).

Hab. Georgetown, rare, *Gunn, W. H. H.*

9. **Callithamnion violaceum** (Harv.); cæspitosa, purpurea, frondibus capillaribus basi in funiculis intertextis sursum longe filis radicantibus stuposis pellucide articulatis decomposito-pinnatis, ramis quoquoversum egredientibus basi pinnatis apice bipinnatis, plumulis simpliciter pinnatis, pinnulis patentibus filiformibus elongatis, articulis ramorum diametro sextuplo ramulorum triplo longioribus, tetrasporis ad pinnulas sessilibus subsolitariis globosis.—*Harv. Alg. Exsic. n.* 517.

Hab. On the woodwork of the jetty at Georgetown, *W. H. H.*

A small species, 2–3 inches high, not unlike the northern *C. roseum*, but differing in several respects. The principal branches are bundled together into ropes, and then closely interwoven by root-like fibres, which issue from the nodes, and proceed downwards along the stem, forming an accessory stupose stratum. The branches are alternately pinnate below, and bipinnate above, all the pinnules remarkably patent and elongate. *Tetraspores* are thinly scattered on the inner faces of the pinnules.

10. **Callithamnion conspicuum** (Harv.); fronde elata incrassata per totam longitudinem stuposo-corticata et hirsuta decomposite ramosa, ramis conformibus alternis attenuatis repetite alterne divisis, ramulis solum ecorticatis articulatis dense ramellosis, ramellis quaquaversis alterne pinnatis, pinnis incurvis, articulis pinnularum diametro triplo longioribus, tetrasporis ad latera pinnularum sessilibus solitariis.—C. tingens, *Harv. Alg. Exsic. n.* 508. Spongoclonium conspicuum, *Sond.! in Linn.* xxvi. *p.* 515.

Hab. Georgetown.

Distrib. South coast of Australia.

Frond 12–18 inches long, the main stem generally undivided, 1 or 2 lines in diameter, set throughout its whole length with closely placed lateral branches directed to all sides. *Branches*, like the stem, thickly corticated and shaggy with stupose filaments, ½–1 line in diameter, 6–8 inches long, repeatedly compounded with alternate lateral branches and branchlets. The ultimate divisions, which are from half an inch to an inch in length, are alone visibly articulate, and are thickly clothed with short, pinnulate, incurved, articulate ramelli, on which the tetraspores are borne. *Colour* a fine carmine, which is quickly given out in fresh-water, staining the paper on which the plant may be dried. *Substance* very tender, rapidly decaying.—The habit of this species is peculiar, and perhaps, with *C. plumigerum* and *C. superbiens*, it might form a separate genus, characterized by the peculiarly inarticulate and hirsute stem. But there are many intermediate links with species of more ordinary characters. The diameter attained by the stem is greater than in any other known species.*

11. **Callithamnion laricinum** (Harv.); fronde cartilaginea setacea (1–5-unciali) fere ad apices ramorum corticata glabra quoquoversum ramosa ambitu pyramidali, ramis alternis patentibus superne sensim brevioribus ramulis dichotomo-multifidis undique obsessis, ramulis pluries dichotomis, segmentis patentibus, ultimis brevissimis spinæformibus, favellis geminis oblongis simplicibus v. furcatis, tetrasporis globosis ad latera ramulorum sparsis.—*Harv. in Trans. R. I. Acad.* xxii. *p.* 562.

Hab. On *Zostera*, etc. Port Arthur, *W. H. H.*

Distrib. West and south coasts of Australia.

12. **Callithamnion dispar** (Harv.); fronde pellucide articulata capillari plus minus pinnatim ramosa disticha, ramis primariis paucis inæqualibus virgatis bipinnatis, pinnis oppositis patentibus inæqualibus una abbreviata altera elongata pinnulata, pinnulis oppositis æqualibus horizontalibus crassis multifidis mucronatis, articulis ramorum diametro duplo pinnarum sesquilongioribus, pinnularum diametro æqualibus, tetrasporis ad latera pinnularum sessilibus.—*Harv. Alg. Exsic. n.* 509.

Hab. East coast; parasitic on *Mychodea disticha, Gunn.*

Distrib. Port Fairy, Victoria, *W. H. H.*

Fronds solitary or few together, 1–2 inches high, with a simple stem set with lateral branches, a few of which are long and virgate, the rest reduced to a line or two in length. All the branches and their divisions and ramuli are opposite. The lesser divisions are regularly pinnated, the pinnæ long and short alternately at either side of the

* Since this was written, I have ascertained that my *C. tingens* is the same as Sonder's *Spongoclonium conspicuum*, which name will be adopted if the plant be removed from *Callithamnion*. Another synonym is my *Lasiothalia hirsuta*, in Trans. R. I. Acad. xxii. p. 558, founded on a very imperfect and battered scrap of what I afterwards called *Callithamnion tingens* when more perfect specimens were collected.

branch. The *ramuli* are very robust, sparingly or copiously divided, the tips of their divisions mucronate. *Substance* rather rigid. *Colour* a deep red.

13. **Callithamnion elongatum** (Harv.); frondibus fusco-purpureis dense cæspitosis basi intertextis longissimis setaceis e basi pellucide articulatis dichotome compositis et ramis alternis obsitis, ramis minoribus secunde alterne v. dichotome ramosis versus apicem ramulos crebre dichotomos ferentibus, articulis superioribus diametro 4–5-plo longioribus, inferioribus longioribus, tetrasporis triangule divisis ad genicula ramulorum fasciculatis breve pedicellatis, favellis versus apices ramulorum solitariis.—*Harv. Alg. Austr. Exsic. n.* 534.

Hab. Georgetown, not uncommon.

Distrib. South coast of Australia.

Fronds in large bundled tufts, often upwards of a foot in length, setaceous, not much attenuated upwards, the principal stems towards the base twisted round each other into ropes, which strengthen the tuft. The whole branching is on a dichotomous type, but by suppression, it is very irregular, a compound of the alternate, secund, and dichotomous. The penultimate divisions throw off from their sides short, multifid, or regularly dichotomous ramuli, which bear fructification of both kinds, on different individuals. The *favellæ* are usually solitary; the *tetraspores* several together, tufted or somewhat whorled round the nodes of the ramuli. *Colour* a dark brownish-purple, sometimes rather brighter. *Substance* somewhat gelatinous, but firm, like that of *Griffithsia setacea*.

14. **Callithamnion Griffithsioides** (Sond.); cæspitosum, coccineum, frondibus basi intertextis setaceis pellucide articulatis dichotomis fastigiatis, ramis pluries furcatis, axillis acutis versus apicem ramulos minutos multifidos ferentibus, ramulis crebre ramulosis fere corymbosis fructiferis, tetrasporis prope apices ramulorum fasciculatis pedicellatis, articulis cylindraceis diametro 6–8-plo longioribus.—C. Griffithsiæ, *Harv. Alg. Austr. Exsic. n.* 535.

Hab. Georgetown, rare, *Gunn.*

Distrib. Port Phillip, *D. Mueller, W. H. H.*

Tufts dense, 4–5 inches long, fastigiate, bright-crimson, in habit resembling those of *Griffithsia setacea*. The branching is pretty regularly dichotomous, the forks rather distant, and the branches and their divisions consequently naked, except at the extremity, where the branch (of fertile specimens) ends in a minute, corymbose, multifid ramulus that bears the tetraspores.—The species is nearly related to the preceding, but I think distinct.

15. **Callithamnion fastigiatum** (Harv.); fronde pellucide articulata (1–2-unciali) sursum attenuata decomposita dichotome fastigiata, ramis repetite furcatis erecto-patentibus, ramulis ultimis ad genicula minute spinulosis v. gemmiferis, articulis omnibus diametro sub-4-plo longioribus, favellis subbinis nudis ad axillas ramorum, tetrasporis cruciatim divisis ad genicula ramulorum sessilibus sæpe oppositis nunc solitariis nunc 2–3-fasciculatis.

Hab. Georgetown, *Gunn.*

Frond very slender, 1–2 inches high, flabelliform and nearly regularly dichotomous and fastigiate, rose-red. The nodes of the upper or ultimate ramuli are generally furnished with minute, bud-like or somewhat spinous processes, which perhaps afterwards develope into tetraspores. The *tetraspores* are oval, and cruciately divided.—In habit this somewhat resembles *Ceramium fastigiatum*, but in softness of substance, ramification, etc., it has more the character of a very slender *Griffithsia*.

16. **Callithamnion botryocarpum** (Harv.); nanum, penicillato-cæspitosum, fronde minuta (1–2 lineas alta) e basi ramosissima, ramis alternis v. secundis patentibus flexuosis nunc subsquarrosis, articulis diametro 4-plo longioribus, tetrasporis magnis triangule divisis in glomerula ad axillas ramorum densissime

aggregatis, antheridiis botryoideis e quoque fere articulo ramorum sæpe evolutis.—*Harv. in Trans. R. I. Acad.* xxii. *p.* 563.

Hab. Parasitic on *Algæ*. Piper's River, *Gunn*.

Distrib. King George's Sound, on *Chorda lomentaria, W. H. H.*

Allied to the British *C. Daviesii*, *C. virgatulum*, etc.

17. **Callithamnion? paradoxum** (Harv.); fronde spongiosa quaquaversum ramosa in totum e filis radicantibus densissime intertextis conflata ambitu pyramidali, ramis lateralibus densissime tomentosis simplicibus v. iterum lateraliter compositis, ramulis (quasi villum ramorum) brevibus pinnatis, pinnis alternis paucis longissimis flexuosis obtusis, articulis pinnularum diametro subtriplo longioribus, tetrasporis ad latera pinnularum sessilibus solitariis.

Hab. Brown's River, *Gunn*.

Spongy frond 6–8 inches long, with a pyramidal outline, alternately branched, the branches simple or again laterally compounded, spreading to all sides. There does not appear to be any central filament or axis (possibly it may have perished), but the branches are composed of slender rooting filaments, densely woven together into a spongy rope (much as in *Ectocarpus tomentosus*), and these throw off a periphery of subhorizontal, pinnate ramuli, 1–2 lines long, which give the surface of the compound frond a shaggy or woolly appearance. These ramuli are once pinnated, the pinnæ few, curved, and alternating on the short rachis. *Tetraspores* are borne on the sides of the pinnæ, as in others of the genus.—As yet I have seen but few specimens of this anomalous plant, and these not in good order; but I have no hesitation in admitting it, whether to this genus or not, as a distinctly marked species.

Series III. CHLOROSPERMEÆ.

Tribe I. *SIPHONEÆ.*

Gen. CXV. CAULERPA, *Lamour.*

(Lamour. An. Mus. xx. p. 282. Ag. Sp. Alg. i. p. 433. Kütz. Sp. Alg. p. 495.)

1. **Caulerpa hypnoides** (Ag. Sp. Alg. i. p. 443; Sond. Pl. Preis. ii. p. 150; Kütz. Sp. Alg. p. 497).—Fucus hypnoides, *Turn. t.* 173.

Hab. Georgetown, not uncommon.

Distrib. Australia and New Zealand.

2. **Caulerpa obscura** (Sond. Pl. Preis. ii. p. 150; Kütz. Sp. Alg. p. 497).

Hab. Tasmania, *Gunn*. (A single specimen.)

Distrib. Found all along the coast of Australia, from Swan River to Western Port, Victoria.

The *ramenta*, described by Sonder as "*quadrifarious*," are not constantly so. In the more luxuriant specimens they are generally distichous. I have not seen specimens of Greville's *C. superba* from Bass's Straits, but the figure given is not unlike some of the laxer states of *C. obscura*.

3. **Caulerpa furcifolia** (Hook. fil. et Harv. Lond. Journ. vi. p. 416; Fl. N. Zeal. ii. p. 260. t. 121 *B*).

Hab. Common at Georgetown.

Distrib. Australia.

4. **Caulerpa Brownii** (Endl.; Hook. fil. et Harv. Fl. N. Zeal. ii. p. 260. t. 121 *A*).

Hab. Port Arthur.

Distrib. New Holland and New Zealand.

5. **Caulerpa Harveyi** (Muell.); surculo et parte inferiori caulis nudo nitente, caule vage ramoso, ramis paucis elongatis simplicibus densissime foliosis, ramentis (foliis) sæpius quinquefariis raro quadrifariis longissimis filiformibus patentibus apice obtuse mucronulatis.—*Harv. Phyc. Austr. t.* 95.

Var. β. *crispata*; minor, ramentis crispatis squarrosis v. inflexis.

Hab. Fragments sent by *Mr. Gunn.*

Distrib. Native of the south coast of New Holland.

Surculus branching, 1 or 2 lines in diameter, with a smooth and shining yellow epidermis. *Stem* 1–2 feet high, bare of leaves for some two to four inches above the base; from thence to the apex closely set with five or rarely four vertical or slightly spiral ranks of patent, filiform leaves or ramenta. Sometimes the stem is quite simple, but commonly it bears a few lateral, leafy branches, in all respects similar to the leafy portion of the stem. *Branches* long and virgate, patent, irregularly inserted. *Leaves* (or ramenta) nearly an inch long, as thick as hog's-bristle, subacute and somewhat mucronate, of a deep-green colour, becoming olivaceous when dry; the apices, where the younger leaves are densely crowded together, frequently orange.—Dried specimens give no clear idea of the living plant, as it is impossible to preserve in drying the regular *ranks* in which the leaves are set, and in which they stand parallel to each other. Our var. β is a dwarf form, growing in tide-pools. It is always of a pale-green colour, and its *ramenta* more or less curled, or rolled in upon the axis.

6. **Caulerpa sedoides** (Ag. Sp. Alg. i. p. 438; Endl. 3rd Suppl. p. 16; Kütz. Sp. Alg. p. 498).—Caulerpa geminata, *Harv.* Fucus sedoides, *Turn. Hist. t.* 172.

Hab. On crevices of tidal rocks: Five-mile Bluff, etc., *Gunn.*

Distrib. Native of tropical and subtropical seas.

Sometimes the ramenta are perfectly distichous, in which state I formerly mistook it for a new species, which I called *C. geminata.* I have since traced the two forms into one. Some others of the genus vary in a similar way, distichous and tetrastichous ramenta being sometimes found on the same root.

7. **Caulerpa simpliciuscula** (Ag. Sp. Alg. i. p. 439; Kütz. Sp. Alg. p. 499).—Fucus simpliciusculus, *Brown; Turn. Hist. t.* 175.

Hab. Georgetown, etc., *Gunn, W. H. H.*

Distrib. West and south coasts of New Holland.

8. **Caulerpa scalpelliformis** (Ag. Sp. Alg. i. p. 437; Kütz. Sp. Alg. p. 496).—Fucus scalpelliformis, *R. Br. Turn. Hist. t.* 174.

Hab. Dredged in the Tamar, *Mr. Charles Henty.*

Distrib. West and south-west coasts of New Holland.

I saw specimens of this species, which is found all along the south coast of New Holland, with Mr. Henty, who had dredged them below Georgetown. It has not been sent by Mr. Gunn, and appears to be rare.

9. **Caulerpa cactoides** (Ag. Sp. Alg. i. p. 439; Harv. Phyc. Austr. t. 26).—C. corynephora, *Mont. Voy. Pôl. Sud, p.* 18. *t.* 6. *f.* 3; *Sylloge Sp. Crypt. p.* 452. *n.* 1600. Fucus cactoides, *R. Br. in Turn. Hist. t.* 171.

Hab. Southport, *C. Stuart.*

Distrib. Western and southern coast of New Holland; Isle of Toud.

Mr. Stuart's specimen is smaller than the usual Australian form, such as we are acquainted with, from Western Australia and from Victoria, but it is fully as large as the specimen figured by Montagne. Turner's *Fucus cactoides* is intended for the larger variety of this species, but it incorrectly represents the club-shaped ramuli as being quadrifarious. They are always strictly distichous in our numerous specimens from several localities.

Gen. CXVI. CODIUM, *Stack.*

(Stack. Ner. Brit. p. 24. Ag. Sp. Alg. i. p. 451. Kütz. Sp. Alg. p. 500.)

1. **Codium tomentosum** (Ag. Sp. Alg. i. p. 451; Kütz. Sp. Alg. p. 500; Harv. Phyc. Brit. t. 93).—Fucus tomentosus, *Turn. Hist. t.* 135; *E. Bot. t.* 712.

Hab. Georgetown and seacoast generally, common.

Distrib. Found throughout the northern, tropical, and southern oceans.

Gen. CXVII. DICTYOSPHÆRIA, *Dcne.*

(Dcne. in Nouv. An. Sc. Nat. xvii. p. 328.)

1. **Dictyosphæria sericea** (Harv.); fronde umbilicata medifixa varie lacera (nunquam vesicata) sericea, vesiculis minimis globoso-polyhedris.—*Harv. in Trans. R. I. Acad.* xxii. *p.* 565. (Tab. CXCVI. *A.*)

I venture to introduce this plant as *probably* occurring on the outer coasts of Tasmania. It is found abundantly on rocks near low-water mark, in crevices, on the west and south coasts of New Holland, at least as far as Western Port, Victoria.—Plate CXCVI. *A.* Fig. 1, plant, *nat. size;* 2, portion of frond, *magnified.*

Tribe II. *BATRACHOSPERMEÆ.*

Gen. CXVIII. BATRACHOSPERMUM, *Roth.*

(Roth, Fl. Germ. iii. p. 480. Ag. Syst. p. 23. Endl. 3rd Suppl. p. 22. Kütz. Sp. Alg. p. 535.)

1. **Batrachospermum atrum** (Harv. Man. ed. 1. p. 120; Hass. Br. Fresh-water Alg. p. 114. t. 16. f. 12).—B. moniliforme, *var.* detersum, *Ag.; Kütz. Sp. Alg. p.* 535. Conferva atra, *Dillw. t.* 11; *E. Bot. t.* 690.

Hab. Pools in a rivulet, near Launceston, *Gunn* (*n.* 1826).

Distrib. Native of fresh-water streams in Europe.

2. **Batrachospermum moniliforme** (Roth, Ag. Syst. p. 53; Kütz. Sp. Alg. p. 535).—Conferva gelatinosa, *Dillw. t.* 32.

Hab. Mountain stream, near Cheshunt, *W. H. H.*

Distrib. Native of Europe and America.

3. **Batrachospermum vagum** (Ag. Syst. p. 52; Kütz. Sp. Alg. p. 536).

Hab. In the Cataract River, Launceston, *W. H. H.*

Distrib. Native of Europe and America.

Tribe III. *CONFERVEÆ.*

Gen. CXIX. CLADOPHORA, *Kütz.*

(Kütz. Phyc. Gen. p. 269. Kütz. Sp. Alg. p. 387. Harv. Phyc. Brit., etc.)

1. **Cladophora Feredayi** (Harv.); longiuscule stipitata, lætevirens, siccitate vitreo-nitens, rigidiuscula, filis longissimis setaceis angulatim flexuosis decomposite di-trichotomis et alterne ramosis, ramis nunc discretis nunc intertextis flexuosis pluries divisis, ramulis ultimis dense fasciculatis, articulis ramorum longissime cylindraceis diametro 20–30-plo longioribus, ramulorum ad genicula contractis diametro 5–6-plo longioribus.—*Harv. Alg. Austr. Exsic. n.* 584; *Phyc. Austr. t.* 47.

Hab. Georgetown, in deep water, *Rev. I. Fereday, Gunn, W. H. H., etc.*

Stipes 1–2 inches long, cylindrical, consisting of a single cell. Above this stipes the filament is prolonged to 12 or 20 inches, preserving the diameter of hog's-bristle, and becoming excessively branched in a manner partly trichotomous, partly dichotomous, and partly irregular. The *branches* are much bent, and often tangled together, and repeatedly forked; their penultimate segments are long and filiform, flexuous, and furnished at the angles with a tuft of short, densely crowded ramuli. In some specimens the branches are bare of ramuli. The *substance* is rigid and crisp, not collapsing when removed from the water. The *colour* is a full grass-green.

2. **Cladophora Bainesii** (F. Muell. et Harv.); longiuscule stipitata, flavo-viridis, siccitate vitreo-nitens, mollissima, filis basi setaceis mox capillaribus sursum maxime attenuatis elongatis di-trichotomis ramosissimis, ramis trichotomo-multifidis ramulis lateralibus polychotomis onustis, ramulis ultimis longe filiformibus apice acutis mucronatis, articulis ramorum longissime cylindraceis diametro 20–30-plo longioribus ad genicula constrictis, ramulorum diametro 6–10-plo longioribus.—*Harv. Alg. Exsic. n.* 579; *Phyc. Austr. t.* 112.

Hab. Georgetown.

Distrib. Port Phillip, *Baines, W. H. H., etc.*

Stipes as in the last species, to which this is allied in several respects, but is a much more slender, softer, and brighter-coloured plant, attenuated at its extremities to an extreme fineness. Both belong to the section of the European *C. pellucida*, and have nearly similar ramification. The present species grows 6–12 inches long, and closely adheres to paper in drying. It is very glossy in a dried state.

3. **Cladophora gracilis** (Griff. in Wyatt's Alg. Danm. n. 97; Harv. Man. ed. 1. p. 137; Harv. Phyc. Brit. t. 18; Fl. N. Zeal. ii. p. 263).

Hab. Georgetown, *Gunn.*

Distrib. Europe and New Zealand.

4. **Cladophora gracillima** (Harv.); cæspitosa, flavo-viridis, mollissima, siccitate sericea, filis 6–12-uncialibus tenuissimis decomposito-ramosissimis, ramis ramulisque repetite alternis v. secundis pluries compositis, ramulis sæpe alterne secundis, articulis ramorum diametro 5–6-plo longioribus, ramulorum subbrevioribus, apicibus obtusis.—*Harv. Alg. Exsic. n.* 588.

Hab. Georgetown, *W. H. H.*

Allied to *C. gracilis*, but much more slender, softer, and more silky.

5. **Cladophora ferruginea** (Harv.); cæspite (ferrugineo) brevi unciali globoso v. stellatim patente fastigiato spongioso, filis intertextis radicantibus parum ramosis, ramis ramulisque erectis strictis, articulis diametro 3–4-plo longioribus.

Hab. On *Hormosira Banksii*, at Safety Cove, Port Arthur, *W. H. H.*

This has the habit of *C. uncialis*, to which it is nearly allied. All our specimens are stained, apparently with ferruginous matter, so that till placed under a lens they may be taken to belong to an *Ectocarpus*.

6. **Cladophora Stuartii** (Harv.); filis capillaribus tenuibus rigidiusculis siccitate eleganter variegatis e basi ramosis, ramis longissimis filiformibus indivisis simplicibus vel ramos secundarios similes emittentibus, ramulis brevibus patentibus sparsis alternis secundisve, articulis ad genicula contractis ramorum diametro triplo ramulorum subduplo longioribus.

Hab. Tasmania, *C. Stuart.*

Tufts 4–6 inches long, pale-green. *Filaments* divided near the base into many long, simple or subsimple, thread-like branches, which are more or less beset with short patent ramuli of five or six joints. Sometimes the branches are quite simple; sometimes the larger branches bear a second series of similar ones. When dried, the plant imperfectly adheres to paper, and is elegantly variegated with green and white when viewed with a pocket-

lens. This appearance is caused by the dispersion of the endochrome towards the dissepiments in the process of drying. The *articulations* are very uniform in all parts of the filament, those of the principal branches being thrice as long as broad, of the ramuli shorter. The *endochrome* does not recover its form on moistening after having been dried.

Gen. CXVI. CONFERVA, *Ag.*

1. **Conferva (Chætomorpha) Darwinii** (Kütz. Sp. Alg. p. 380).—Conf. clavata, *var.* Darwinii, *Hook. fil. et Harv. Fl. Ant.* ii. *p.* 493. *t.* 192. *f.* 1. (Tab. CXCVI. *C.*)

Hab. On *Algæ* and rock-pools.

Distrib. Common on the shores of Australia and New Zealand.

Plate CXCVI. *C.* Fig. 1, plant, *nat. size;* 2, terminal articulations, *magnified.*

2. **Conferva coliformis** (Mont. Voy. Pôl. Sud, p. 5).—Chætomorpha coliformis, *Kütz. Sp. Alg. p.* 380; *Tab. Phyc. t.* 62. *f.* 2.

Hab. Southport, *C. Stuart.*

3. **Conferva valida** (Hook. fil. et Harv. in Lond. Journ. vi. p. 416; Kütz. Sp. Alg. p. 379).

Hab. Georgetown, etc., common.

We have received specimens of several fresh-water *Confervæ* from Mr. Gunn; unfortunately not in a state fit for examination and description.

Gen. CXVII. TYNDARIDEA, *Bory.*

1. **Tyndaridea cruciata** (Harv. Man. Br. Alg. p. 141 ?).—Zygnema cruciatum, *Ag. Syst. p.* 77; *Kütz. Sp. Alg. p.* 445. T. cruciata? *and* T. latescens, *Hassall?*

Hab. In the South Esk River, *Gunn.*

We have also a specimen of another species of this genus, and more than one of *Zygnema* (*Spirogyra*), which we cannot determine from dried specimens.

Tribe IV. *ULVACEÆ.*

Gen. CXVIII. PORPHYRA, *Ag.*

(Ag. Syst. xxxii. Endl. 3rd Suppl. p. 19. Harv. Phyc. Brit. t. 92, t. 211. Kütz. Sp. p. 691.)

1. **Porphyra laciniata** (Ag. Syst. p. 190; Ag. Ic. Eur. t. 26, 27; Harv. Phyc. Brit. t. 92; Kütz. Sp. Alg. p. 692).

Hab. Rocky seacoasts. Generally diffused.

Gen. CXIX. ENTEROMORPHA, *Link.*

(Link in Hor. Phys. p. 5. Harv. Phyc. Brit.—*Solenia*, Ag. Syst. xxxii.)

1. **Enteromorpha compressa** (Grev. Alg. Brit. p. 180. t. 18; Harv. Phyc. Brit. t. 335; Kütz. Sp. Alg. p. 480).

Hab. Seashores and tidal rivers, everywhere. Also on woodwork and ships' bottoms. Generally diffused.

2. **Enteromorpha intestinalis** (Link, Hor. Phys. p. 5; Grev. Alg. Brit. p. 179; E. Bot. Suppl. t. 2756; Harv. Phyc. Brit. t. 154).

Hab. In similar places to the preceding; often in ditches of brackish water. Generally diffused.

Gen. CXX. ULVA, *Ag.*

(Ag. Syst. xxxii. Grev. Alg. Brit. p. 171.—*Ulva*, *Phycoseris*, and *Crasiola*, Kütz.)

1. **Ulva latissima** (Lin. Fl. Suec. p. 433; Ag. Sp. Alg. i. p. 407; Harv. Phyc. Brit. t. 171; Kütz. Sp. Alg. p. 474).

Hab. In the Tamar, Derwent, etc.; and probably all along the coast. Generally diffused.

Gen. CXXI. ŒDOGONIUM, *Link.*

(Kütz. Sp. Alg. p. 364.—*Vesiculifera*, Hass. Br. Fr. W. Alg. p. 195.—*Tiresias*, Bory.)

1. **Œdogonium monile** (Berk. et Harv.); filis basifixis brevibus tenuissimis strictiusculis, articulis cylindraceis hyalinis diametro 6–8-plo longioribus, sporidiis seriatis globosis terminalibus v. in medio fili moniliformiter intumescentibus demum sanguineis.—(Tab. CXCVI. *B.*)

Hab. In fresh-water, parasitical on water-plants, *Gunn.*

Filaments ½ inch to 1 inch long, about $\frac{1}{1000}$ inch in diameter, covering the leaves and stems of water-plants with a thick, villous, pale-green coating. The *articulations* are cylindrical, either colourless or tinted with a pale green, and containing a few medial granules, dispersed in drying. The *sporidia* are globose, 4–5 times the diameter of the filament, and formed in moniliform strings of 4–8 each, either at the end or in the middle of the filament; the generating cell is conoidal, full of yellow-green endochrome; the sporidia are at first green, afterwards of a deep blood-red, resembling strings of rubies.—A very beautiful species, perhaps referable to Kützing's genus *Allogonium*.—Plate CXCVI. *B.* Fig. 1, the plant, *nat. size;* 2, some filaments, *highly magnified.*

Gen. CXXII. TETRASPORA, *Link.*

(Ag. Sp. Alg. p. 414. Kütz. Sp. Alg. p. 225.)

1. **Tetraspora intricata** (Berk. et Harv.); fronde decomposito-laciniata, laciniis angustissimis ramosis, ultimis capillaribus intricatis, gonidiis quaternis, maculis ramulorum subuniseriatis.

Hab. In St. Patrick's River, 1830, *Gunn.*

The single specimen seen having been dried on paper, and very imperfectly displayed, it is impossible to do more than guess at its proper form. It seems to be cut up indefinitely into threadlike segments, the lesser ones containing often but a single row of quaternate gonidia. Mr. Berkeley remarks that it is related to the other *Tetrasporæ* much as *Monormia* is to the Nostocs. It approaches also to *Trypothallus*. We regret that the state of the specimen forbids its being satisfactorily described or figured. The gonidia are $\frac{1}{1000}$ inch in diameter.

Tribe V. *OSCILLATORIEÆ.*

Gen. CXXIII. RIVULARIA, *Roth.*

(Ag. Syst. p. xix. Harv. Man. and Phyc. Brit.—*Physactis*, etc., Kütz.)

1. **Rivularia nitida** (Ag. Syst. p. 25; Wyatt, Alg. Danm. n. 50; Harv. Phyc. Brit. t. 68).—Physactis bullata, spiralis, et lobata, etc., *Kütz. Sp. Alg. p.* 332.

Hab. Mouth of the Tamar, *Gunn, W. H. H., etc.* Found also at Port Phillip, *W. H. H.*, and native of the coasts of Europe.

The Georgetown specimens are of large size, as usual in plants of that locality, but have all the usual characters of the species.

Gen. CXXIV. BANGIA, *Lyngb.*

(Lyngb. Hyd. Dan. p. 82. Ag. Syst. p. 25. Harv. Phyc. Brit., etc.)

1. **Bangia pulchella** (Harv.); filis brevibus basifixis simplicibus erectis cylindraceis violaceo-roseis

articulatis, articulis diametro brevioribus multistriatis, striis longitudinalibus angustis (demum in sporidia mutatis?).

HAB. Parasite on *Zostera*. Georgetown, *Gunn*.

Forming a bright, rosy-purple fringe, 2–3 lines long, on the leaves of *Zostera*. Externally it resembles *B. ciliaris*, but the microscopic character is different.

Gen. CXXV. LYNGBYA, *Ag.*

(Ag. Syst. p. 25. Kütz. Sp. Alg. p. 279. Harv. Phyc. Brit., etc.)

1. **Lyngbya ferruginea** (Ag. Syst. p. 73; Harv. Man. ed. 2. p. 226; Harv. Phyc. Brit. t. 311).

HAB. Georgetown, *W. H. H.* Native of Europe, in the sea and brackish water.

Gen. CXXVI. CALOTHRIX, *Ag.*

(Ag. Syst. p. 24. Kütz. Sp. Alg. p. 311. Harv. Phyc. Brit., etc.)

1. **Calothrix infestans** (Harv.); parasitica, æruginosa, filis primo decumbentibus alias Algas investientibus, dein ascendenti-erectis brevibus flexuosis obtusis simplicibus v. appositione ramulosis, striis endochromatis creberrimis.

HAB. Parasite on *Cladostephus ferrugineus*, at Port Arthur, *W. H. H.*

Gen. CXXVII. OSCILLATORIA, *Vauch.*

1. **Oscillatoria sp.**

HAB. In brackish water: at Georgetown, *Gunn*.

Probably referable to *O. spiralis*, Carm., or some allied species, but we confess ourselves unable to recognize the specific characters attributed to the multitudinous book-species of this genus already published, and are unwilling to add new names to the list. The specimens are not in very good order. No doubt many other "*species*" exist in Van Diemen's Land.

TRIBE VI. *NOSTOCHINÆ.*

Gen. CXXVIII. PROTOCOCCUS, *Ag. Syst. p.* 17.

1. **Protococcus monas** (Ag. Ic. Alg. Eur. t. 11; Kütz. Sp. Alg. p. 200).

HAB. On a damp wall near Launceston, *Gunn*.

This agrees very well with Agardh's figure above quoted.

NAT. ORD. IX. LICHENES.*

By the Rev. Churchill Babington, B.D., F.L.S., and W. Mitten, Esq., A.L.S.

SUBORDER I. GYMNOCARPI.

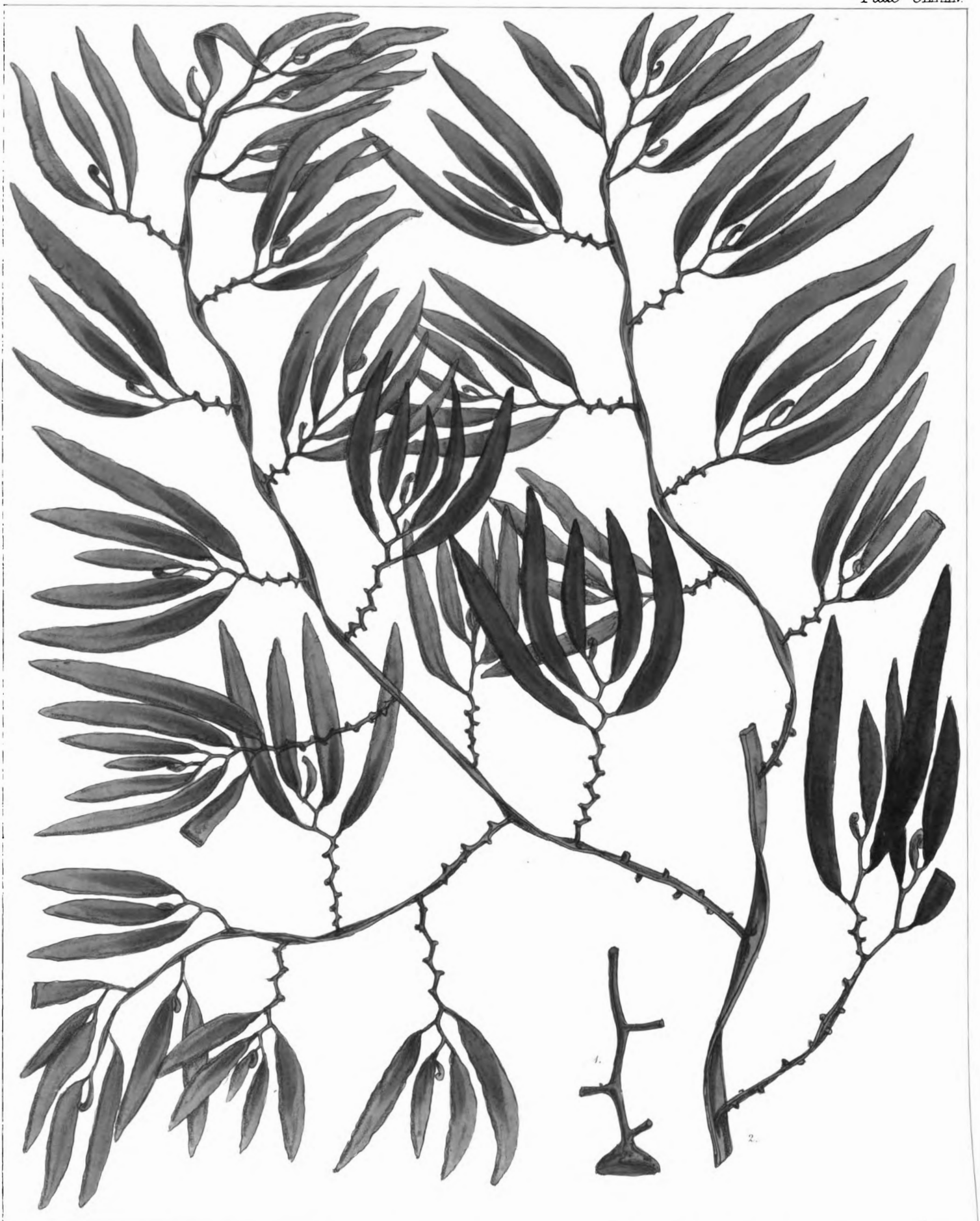
TRIBE I. *PARMELIACEÆ.*

Gen. I. USNEA, *Ach. et Auctt.*

1. **Usnea barbata** (Fries, Lich. Eur. p. 18; Bab. in Hook. Fl. N. Zeal. part 2. pp. 268, 269).

HAB. Abundant everywhere, and infinitely variable.

* The following Lichens are for the most part found in New Zealand as well as in Tasmania. Reference is accordingly made to the New Zealand Flora for the synonymy under the species here enumerated, when the plant occurs there also. In that work various remarks on the species, especially on the geographical distribution, will be found, which will not be repeated in this enumeration. The crustaceous Lichens are described by Mr. Mitten.—*C. B.*



W H H del et lith

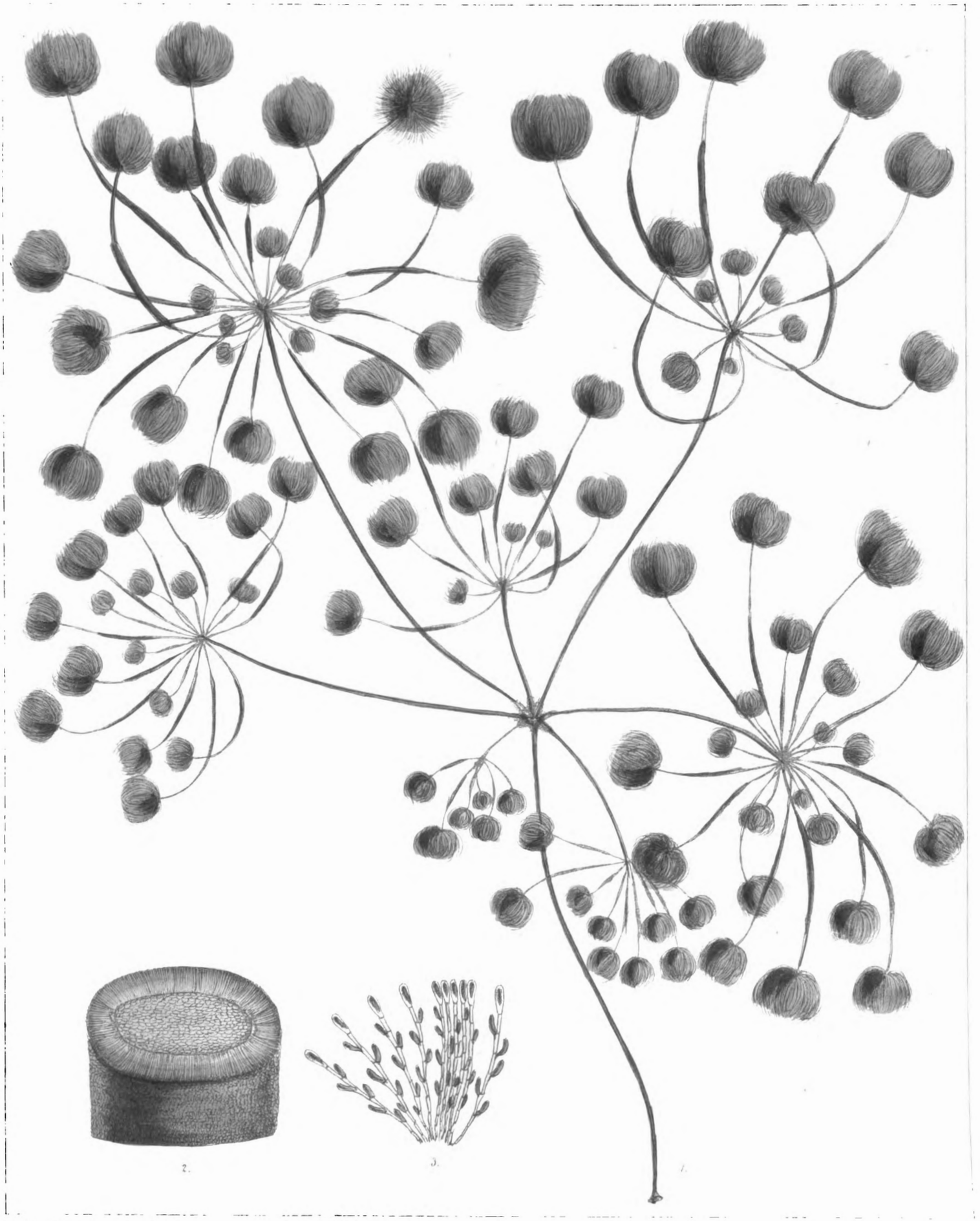
Vincent Brooks Imp.

Cystophora xiphocarpa, *Harv.*

W.H.H. del. et lith.

Vincent Brooks Imp.

Myriodesma integrifolia *Harv.*

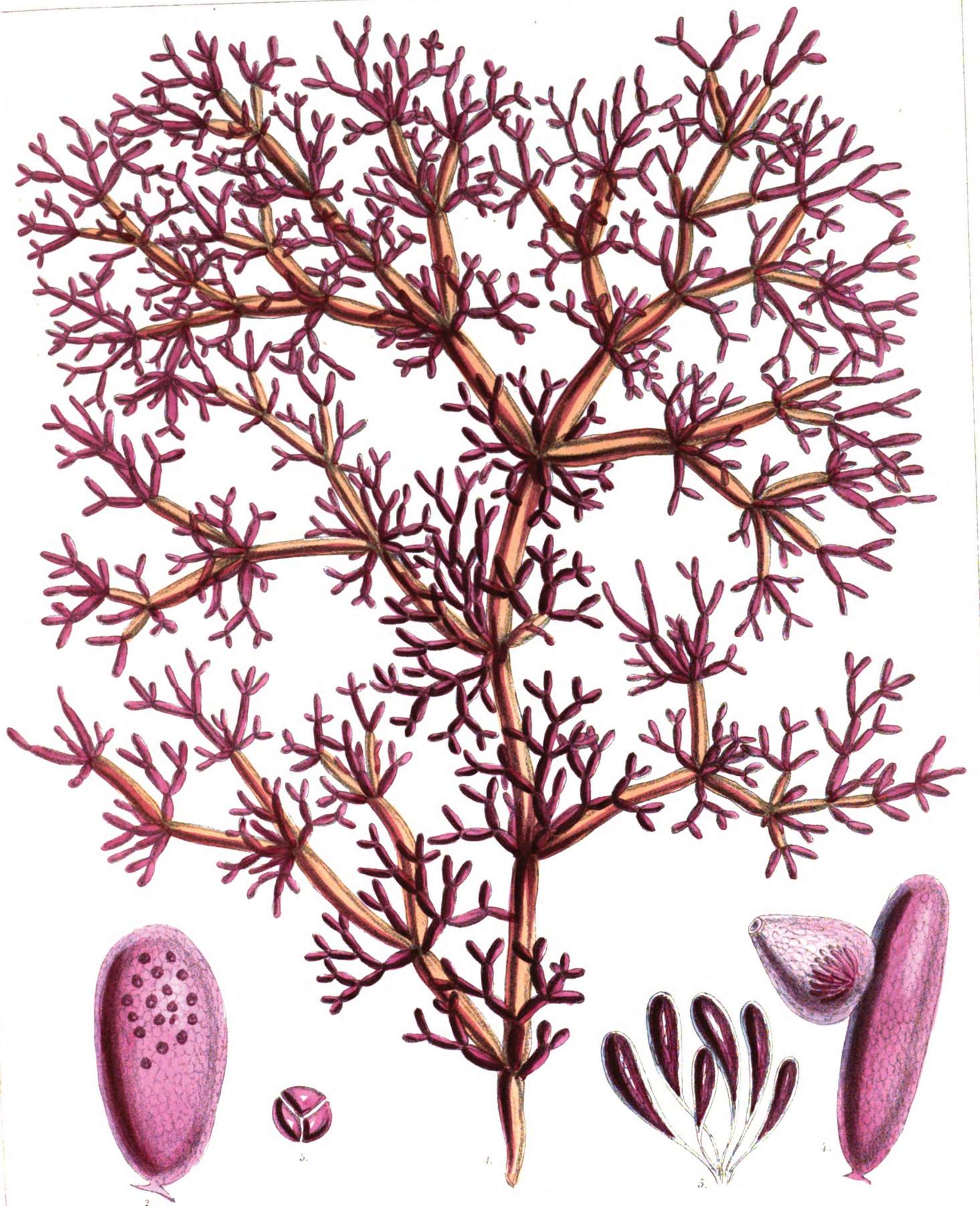


W.H.H. del. et lith.

Vincent Brooks Imp.

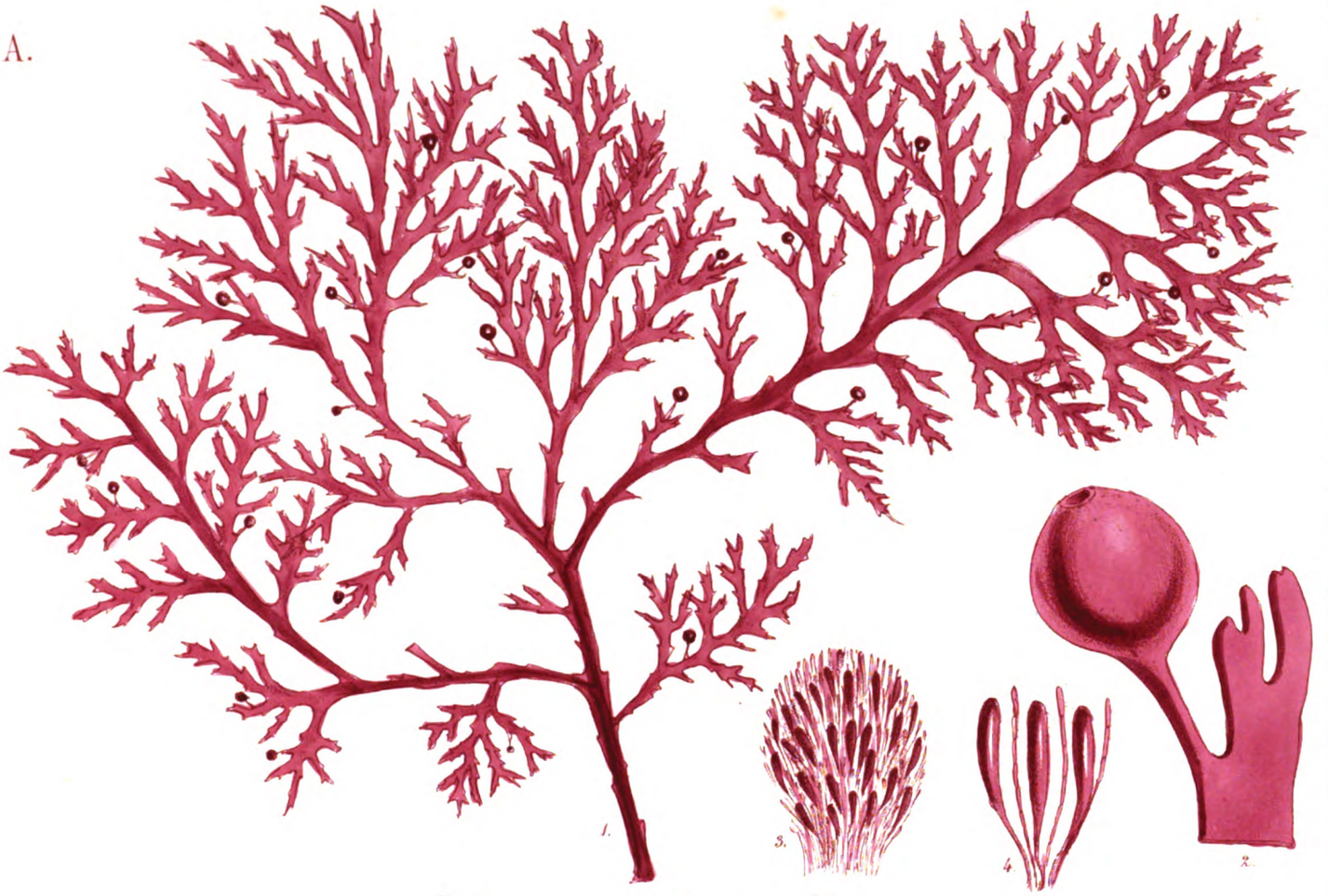
Bolletia cinnabarina, *Harv.*

Nereia filamentosa, *Harv.*



Chondria opuntioides, *Harv.*

A.



Ptilonia australasica, *Harv.*

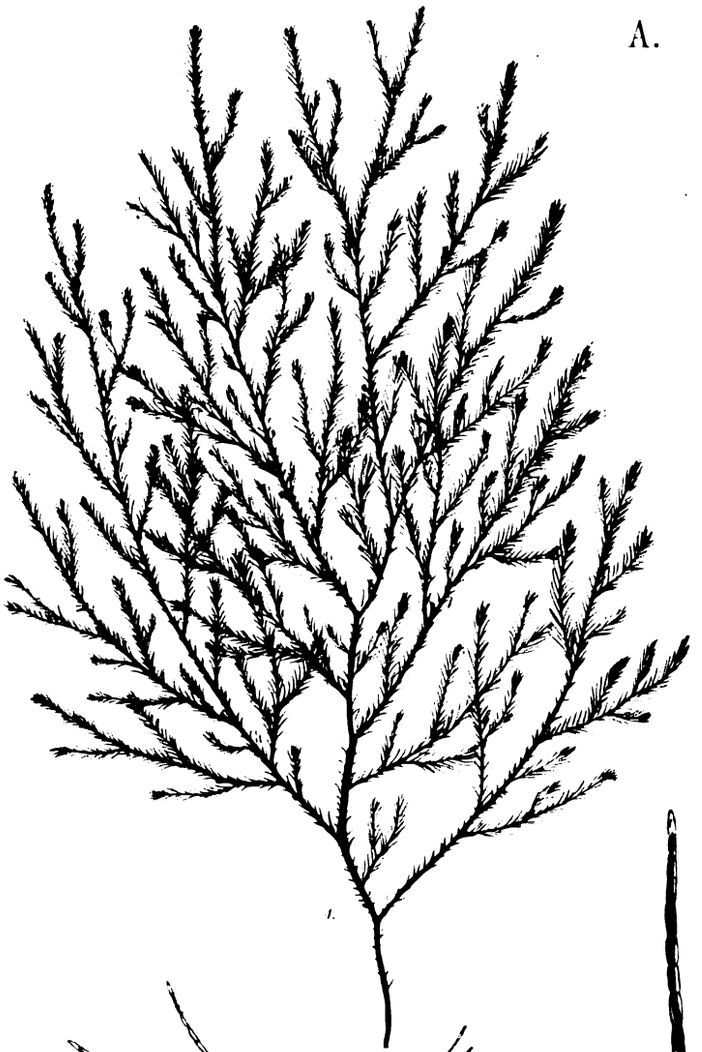
B.

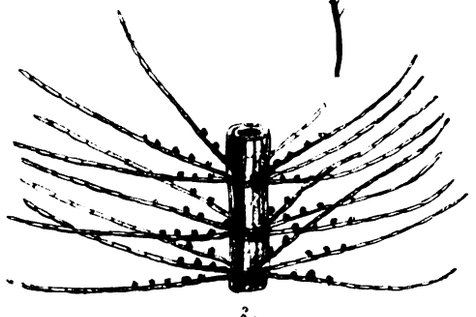
Delesseria Tasmanica, *F.Muell.*

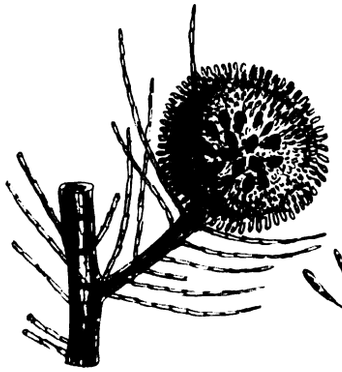
W.H.H del et lith

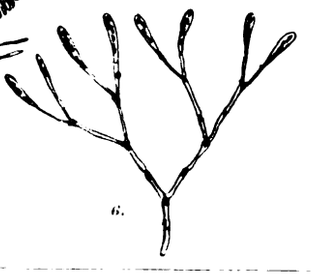
Vincent Brooks Imp.

A.

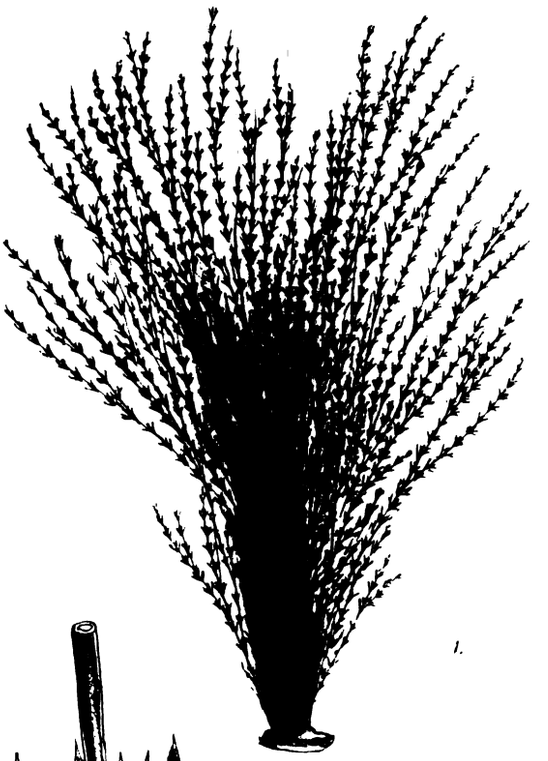


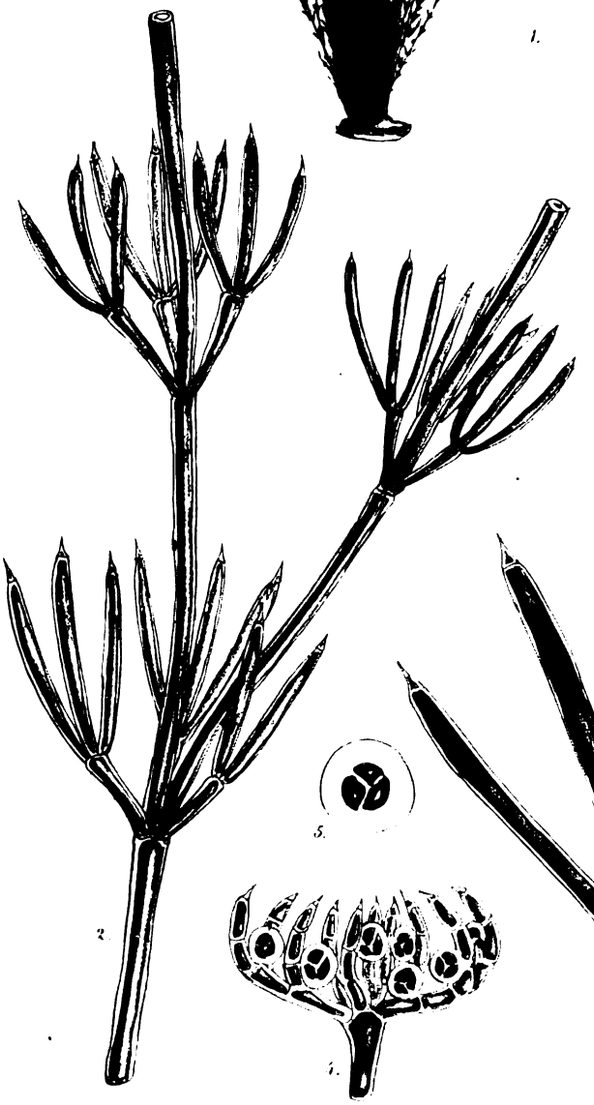






B.





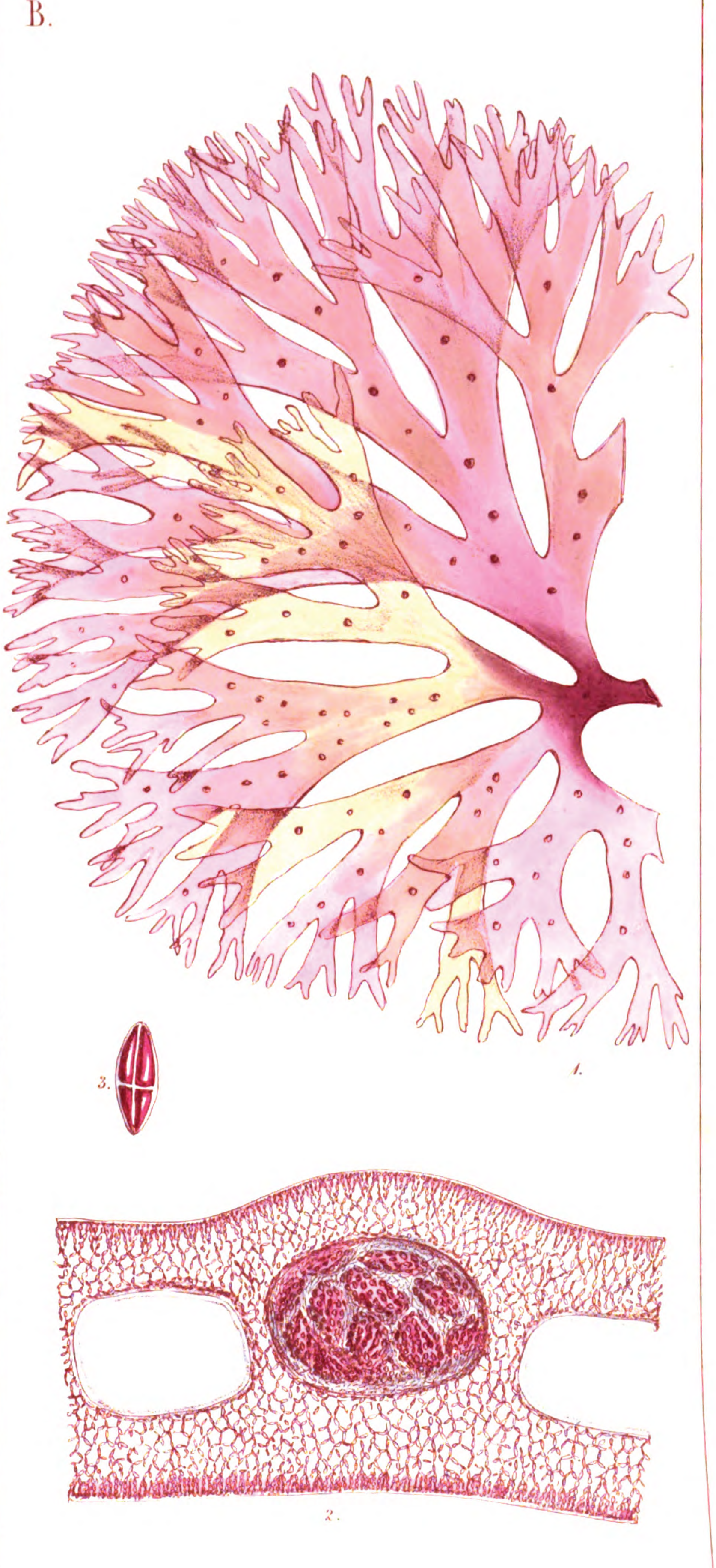
W.H.H. del. et lith.

Wrangelia setigera, *Harv.*

Wrangelia mucronata, *Harv.*

A.

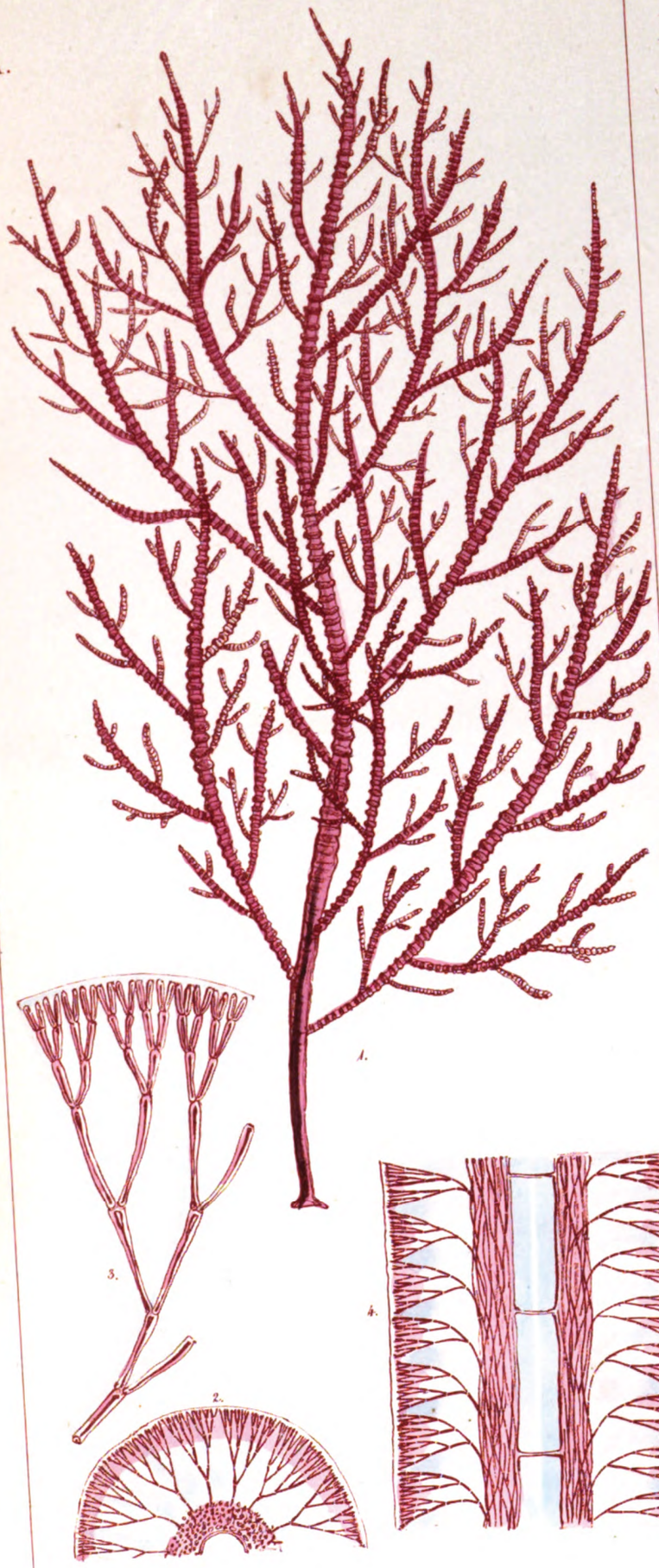
B.



W.H.H. del et lith. Vincent Brooks Imp.

Mychodea disticha, Harv. Polycoelia fastigiata, Harv.

A.



B.

WHH. del et lith.

Vincent Brooks Imp.

Gulsonia annulata, *Harv.*

Crouania insignis, *Harv.*

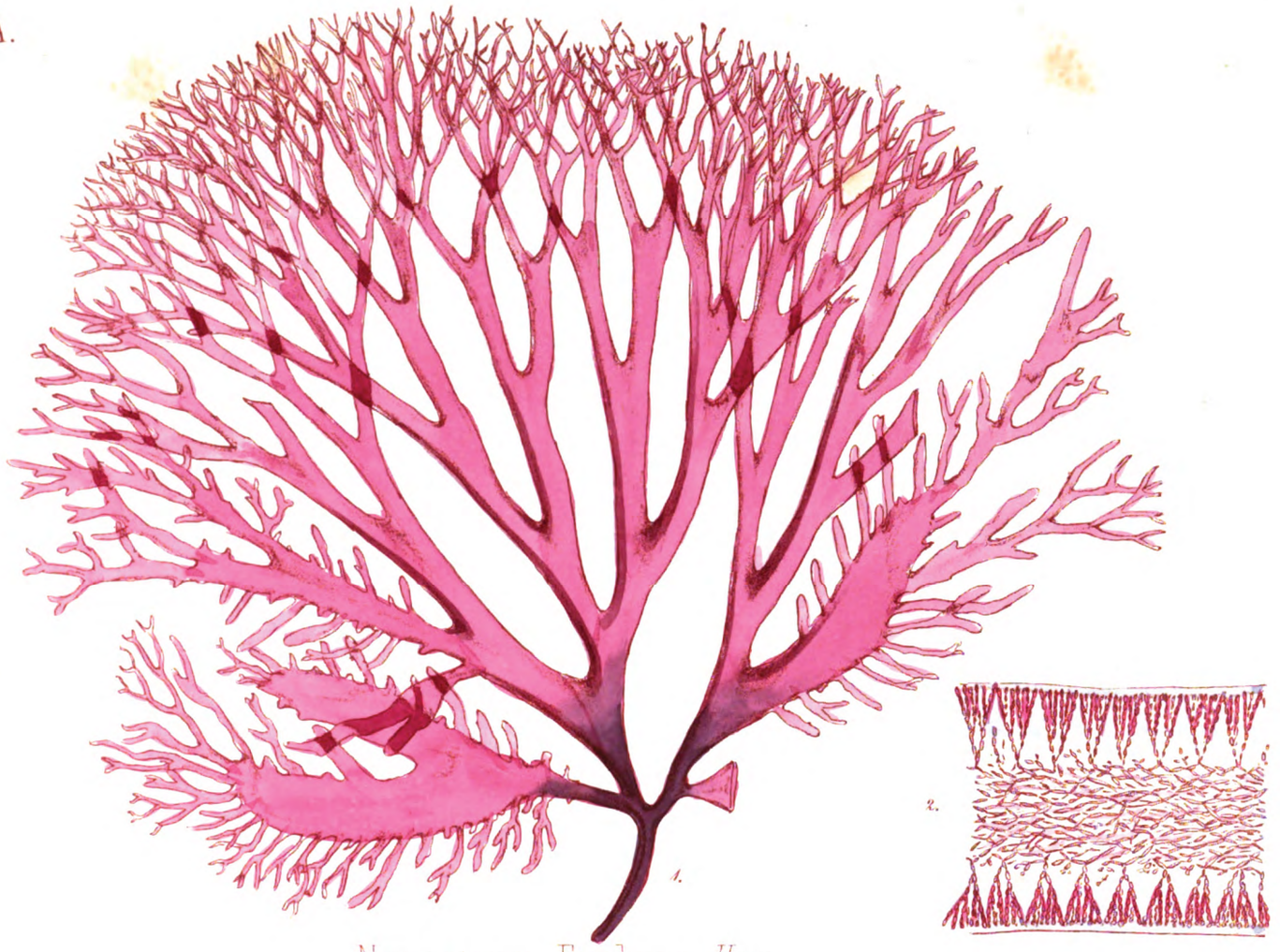
W.H.H. del. et lith

Vincent Brooke Imp

Horea speciosa, *Harv*

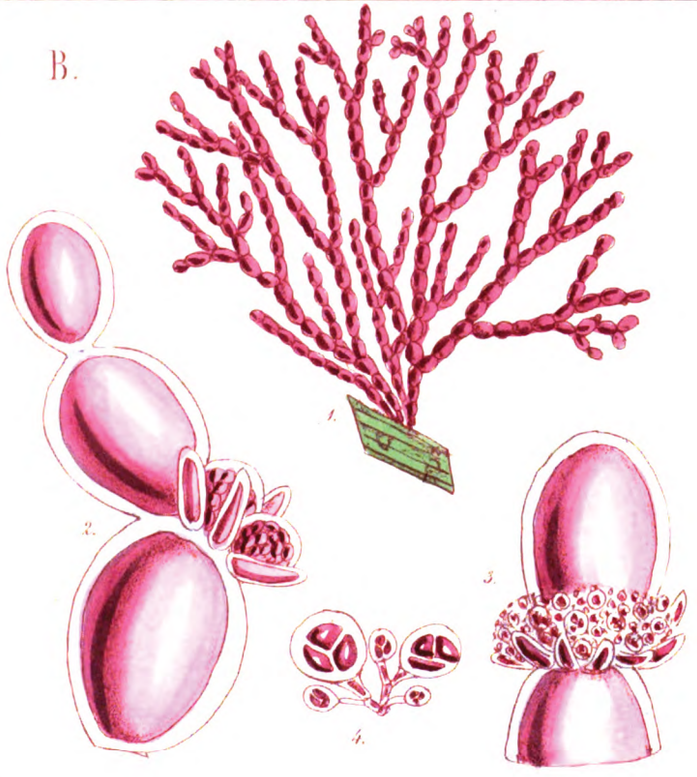
Horea polycarpa, *Harv*

A.



Nemastoma Feredayæ, *Harv.*

B.

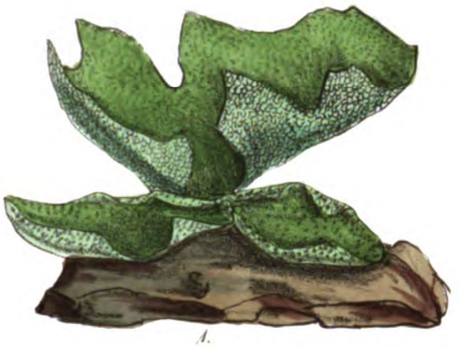


Griffithsia monilis, *Harv.*

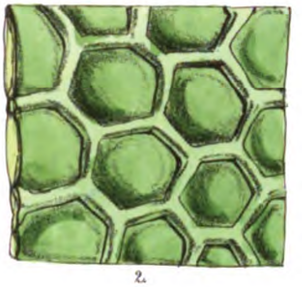
C.

Bangia pulchella, *Harv.*

A.



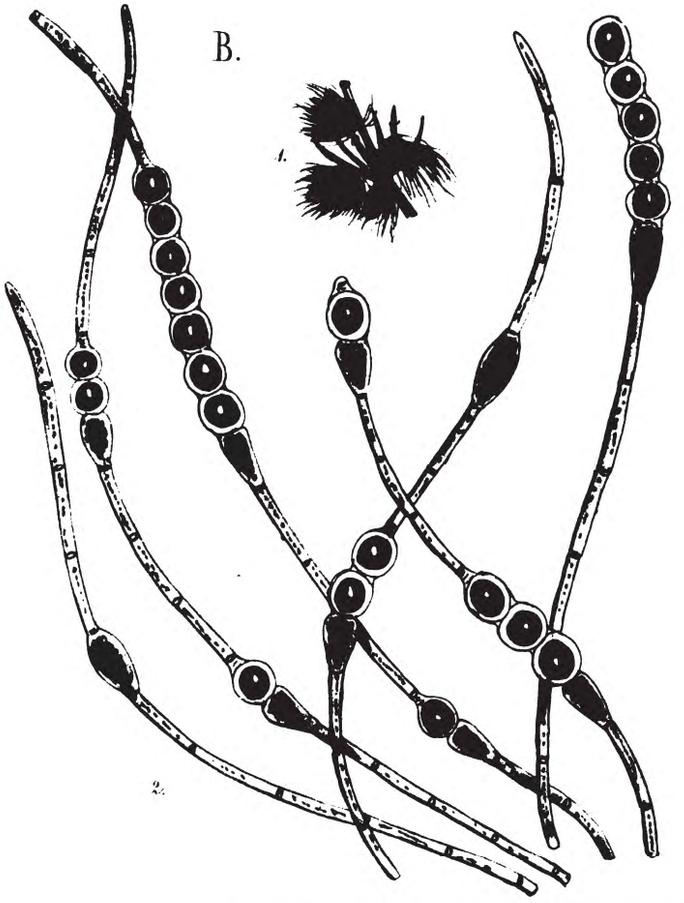
1.



2.

Dictyosphæria sericea, *Harv.*

B.

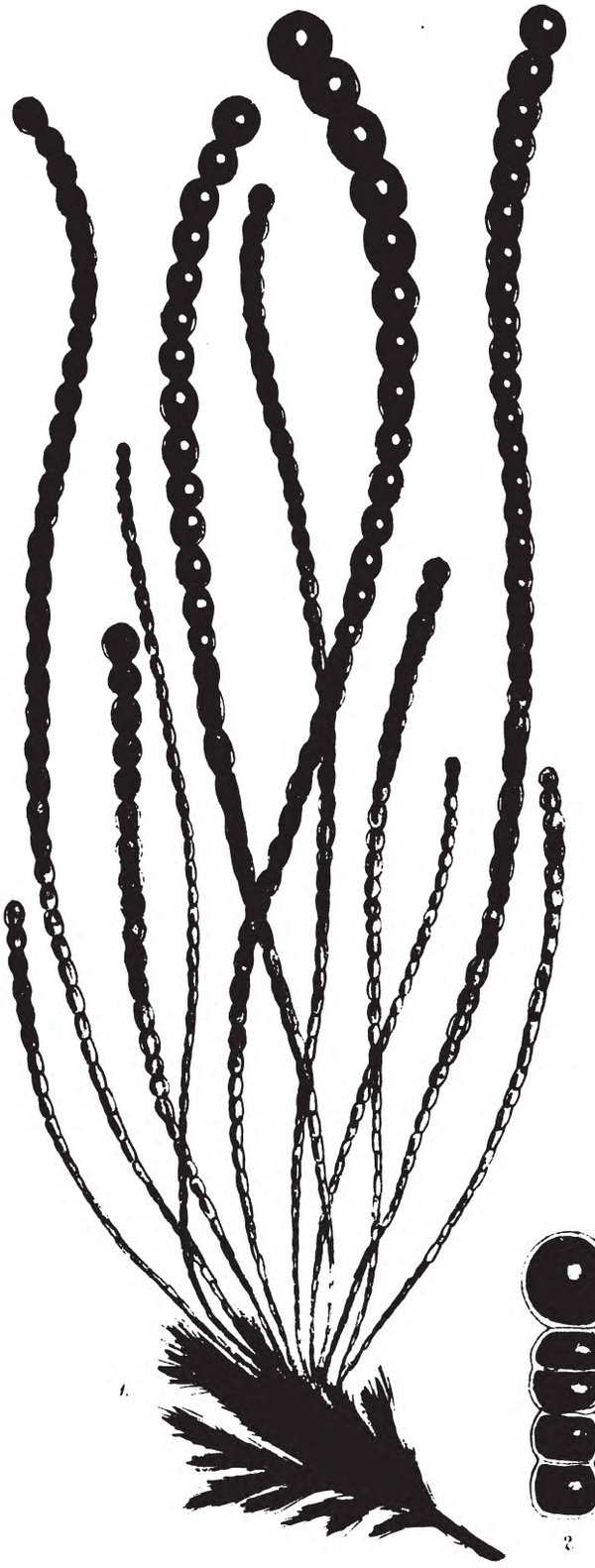


1.

2.

Edogonium monile, *Berk & Harv.*

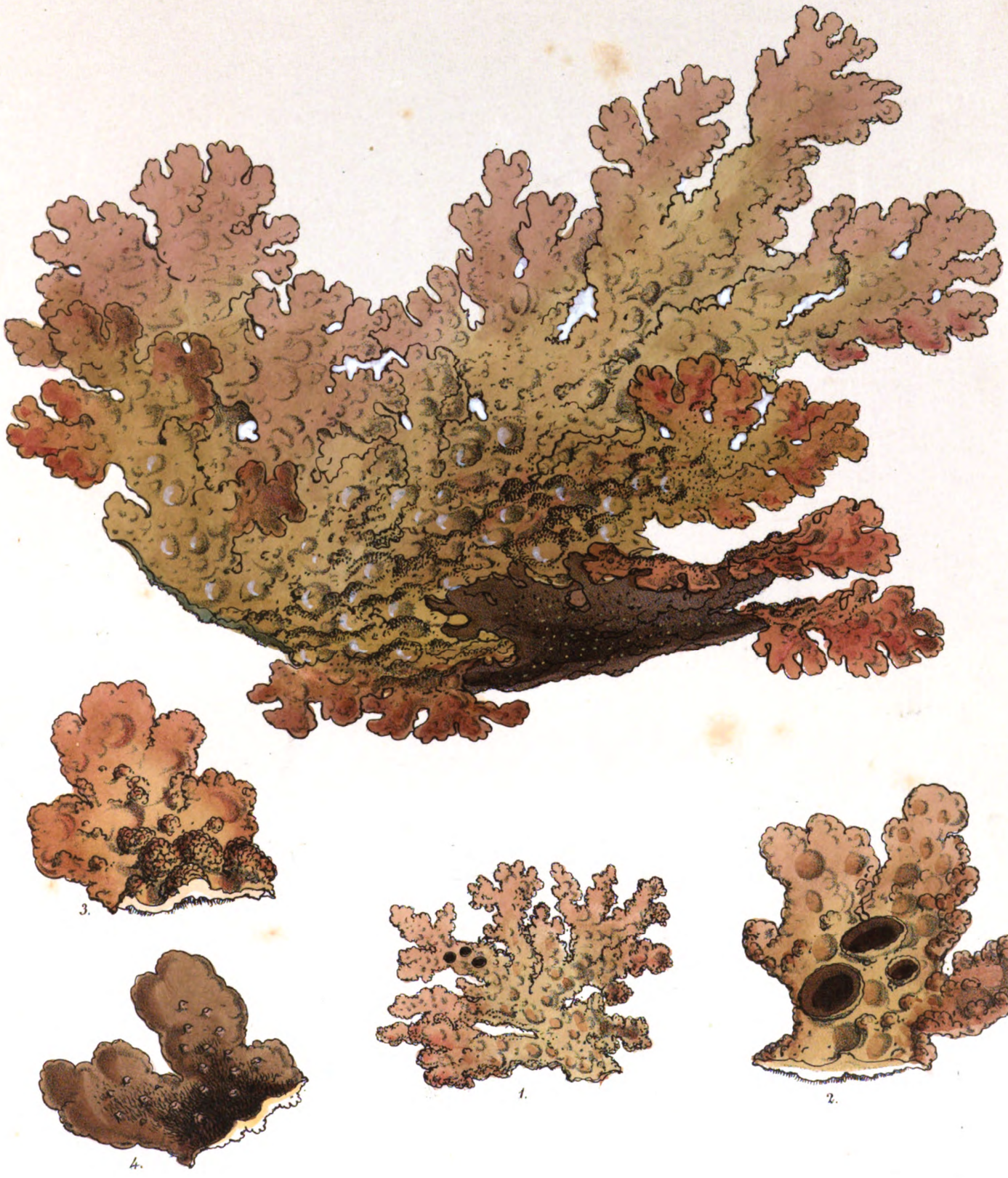
C.



1.

2.

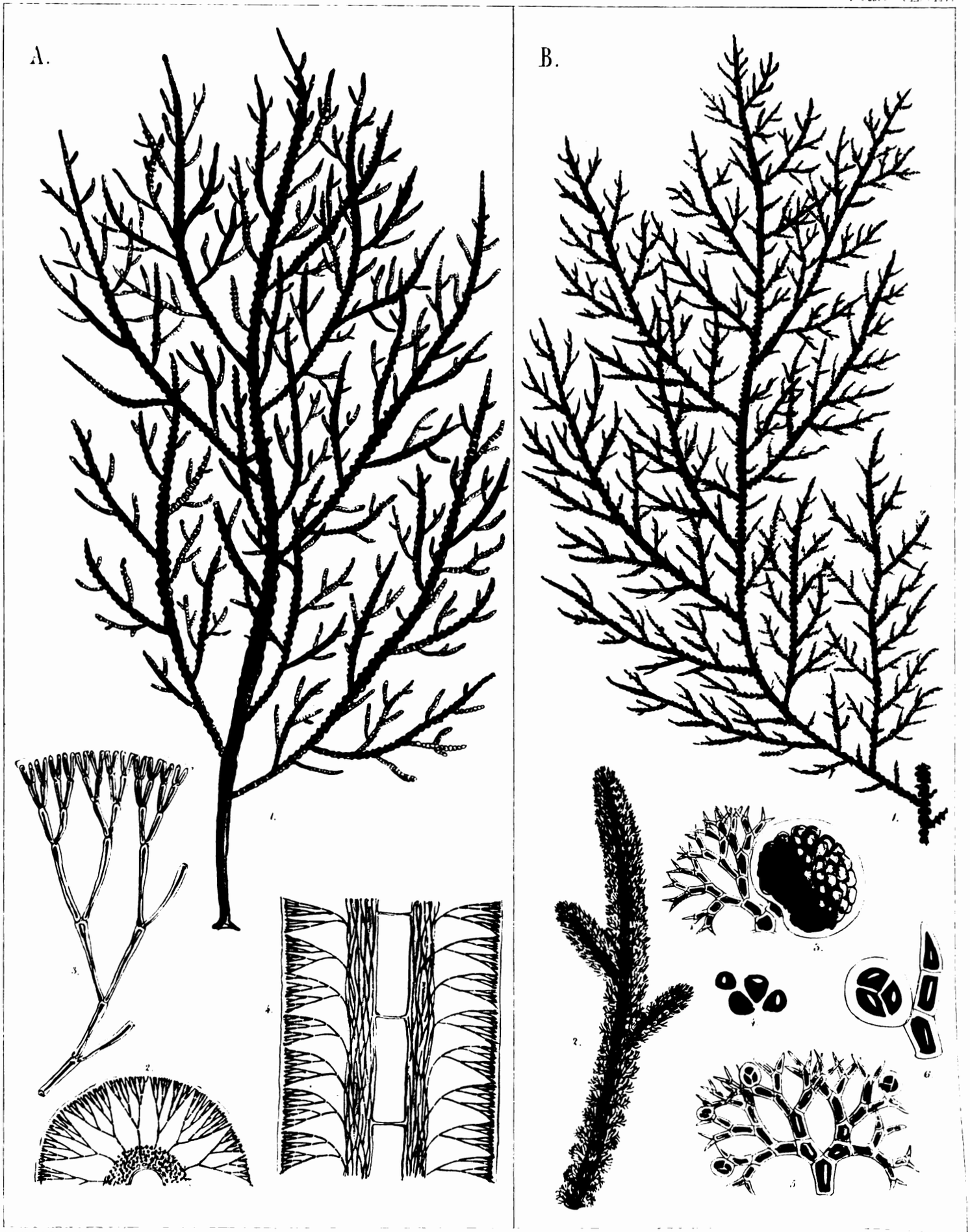
Conferva Darwinii, *Hf. & H.*



W. Fitch, del. et lith.

Vincent Brooks, Imp.

Sticta granulata, *Bab.*

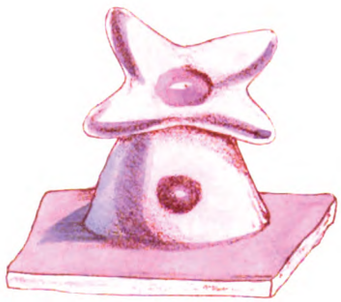


Gulsonia annulata, *Harv.*

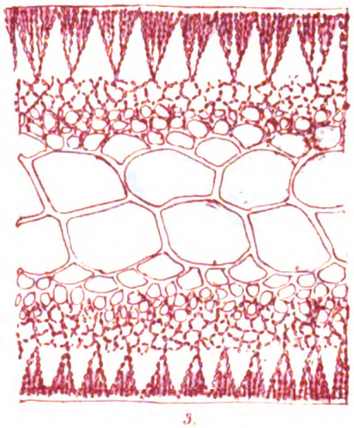
Crouania insignis, *Harv.*

A.

1.



2.



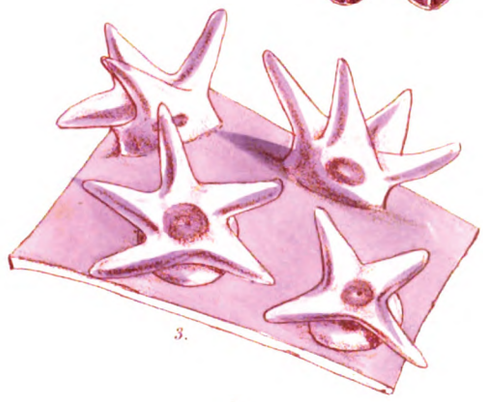
3.

B.

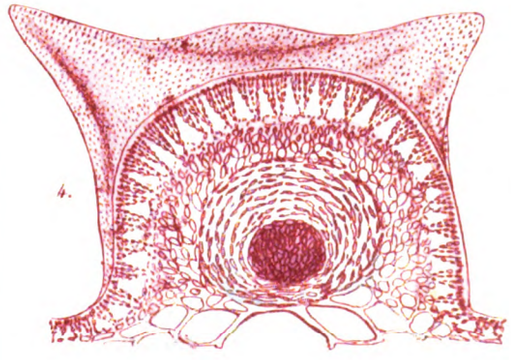
4.

2.

5.



3.



4.

W H H del. et lith

Vincent Brooks Imp

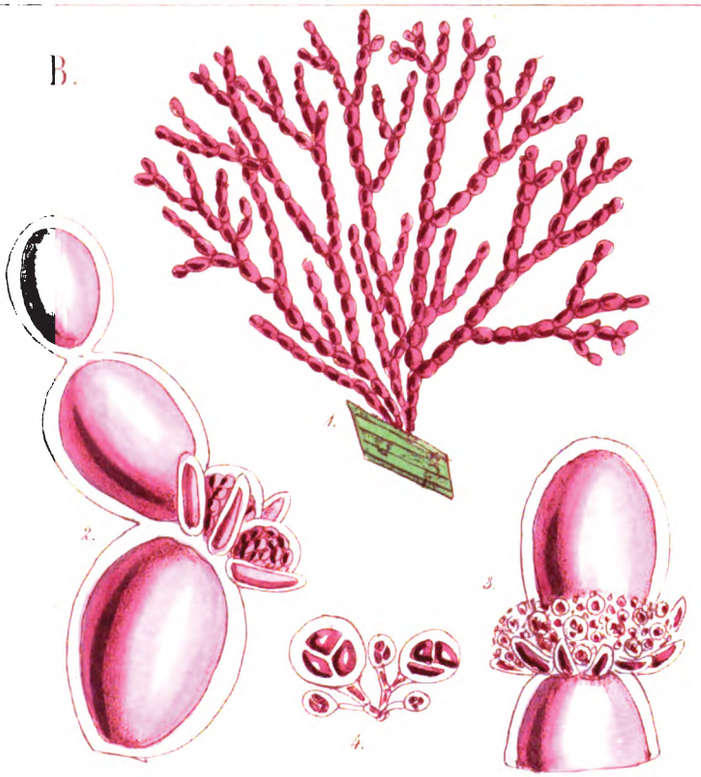
Horea speciosa, *Harv*

Horea polycarpa, *Harv*

A.

Nemastoma Feredayæ, *Harv.*

B.

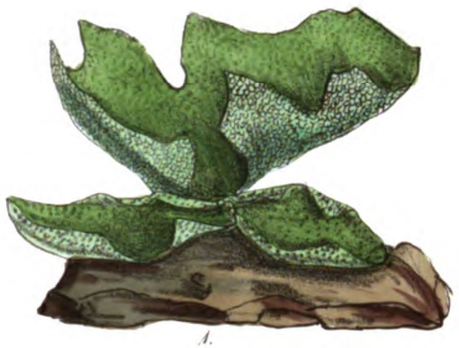


Griffithsia monilis, *Harv.*

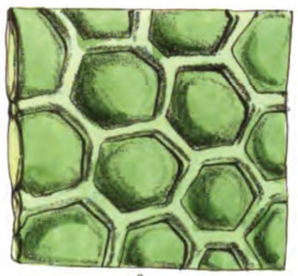
C.

Bangia pulchella, *Harv.*

A.



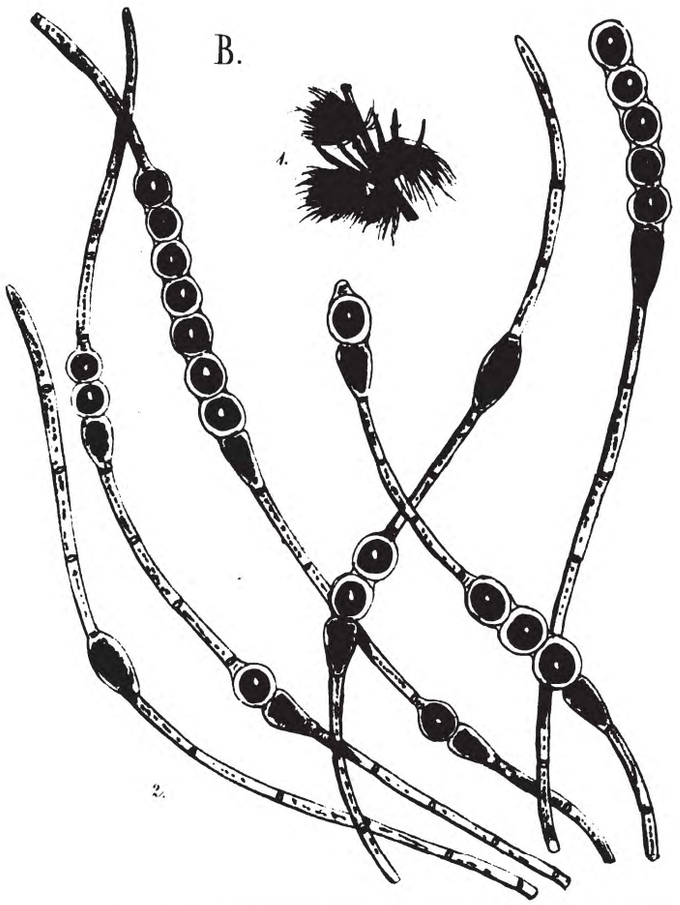
1.



2.

Dictyosphæria sericea, *Harv.*

B.

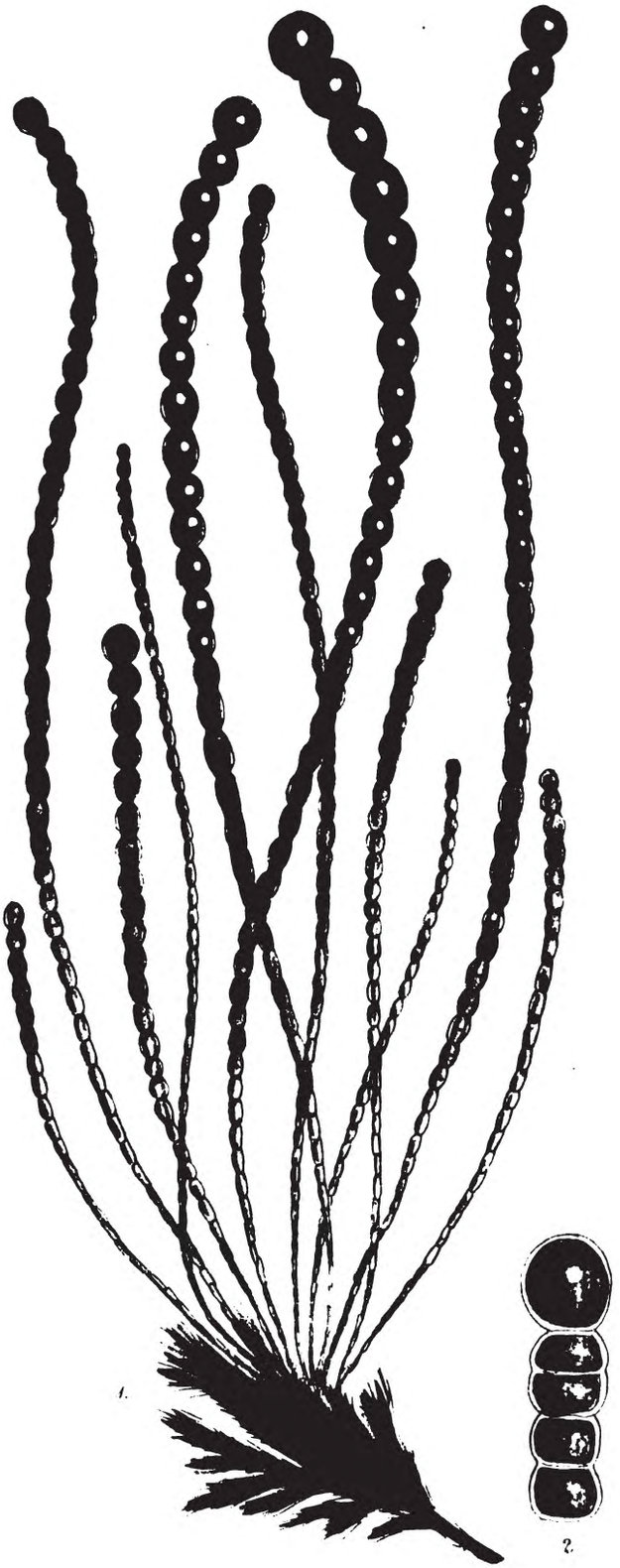


1.

2.

Edogonium monile, *Berk & Harv.*

C.



1.

2.

Conferva Darwinii, *Hf & H.*