stand, a stout octavo volume, full of wood-cuts, illustrative of the Natural Orders. Such a book was much needed by the botanical student, and few persons are so competent to the task as Dr. Lindley.

ALGÆ ANTARCTICÆ, *being characters and descriptions of the hitherto unpublished species of* ALGÆ, *discovered in Lord Auckland's Group, Campbell's Island, Kerguelen's Land, Falkland Islands, Cape Horn and other southern circumpolar regions, during the voyage of H.M. discovery ships "Erebus" and "Terror;" by* DR. J. D. HOOKER *and* W. H. HARVEY, ESQ. M.D.

MELANOSPERMEÆ or FUCOIDEÆ.

1. Durvillea *Harveyi*, Hook. fil.; radice e fibris crassis demum anastomosantibus constante, stipite perbrevi valido compresso in laminam subsolidam coriaceam apice laciniatam gradatim attenuato.

HAB. Hermite Isl., Cape Horn and the Falkland Islands.

A very distinct species, which may readily be recognised by the fibrous root, that of *D. utilis* being always scutate. The frond is of a much thinner texture (though covered with fructification) and never, even in its largest state, has been found incrassated or filled with transverse inflated cells; it often attains a length of six feet and upwards.

2. Desmarestia *chordalis*, nobis; fronde coriaceo-cartilaginea compressa anguste lineari tri-quadripinnata, pinnis pinnulisque longissimis oppositis distantibus apice longe nudis, pinnulis sæpe alternis elongatis inermibus chordiformibus.

HAB. Christmas Harbour, Kerguelen's Land.

This forms a verdant mass under the sea in 2-5 fathom water, growing on the rocks. The fronds are several feet in length, a line or a line and a half in diameter in the principal stems, and half a line in the pinnæ. The long whip-like naked apices of the branches are a very striking specific character.

3. Desmarestia *Rossii*, nobis; fronde coriaceo-cartila-

ginea compressa lineari bi-tripinnata circumscriptione anguste lanceolata, pinnis pinnulisque omnibus oppositis basi apiceque attenuatis acutis erectis v. ultimis appressis margine integerrimis.

HAB. Falkland Islands, abundantly, and Hermite Island, Cape Horn.

Fronds many feet in length, of a singularly narrow-lanceolate outline, bipinnate in the lower and upper part, triply pinnate in the middle. Stems 2-3 lines in diameter, branches 1 line, all remarkably tapering to the base and apex, and all inserted at a very acute angle, so as to be nearly erect. It most resembles a very narrow form of *D. ligulata*, but is of a much coarser and thicker texture. Besides these new species, *D. ligulata, media* and *viridis*, were found abundantly in the Antarctic Seas.

4. Dictyosiphon *fasciculatus*, nob. *in Flor. Antarct.* v. 1, p. 178, t. 69, f. 1.

HAB. Lord Auckland's Group.

STEREOCLADON, *Nov. Gen.*

Frons solida, olivacea, filiformis, ramosissima, e cellulis endochromate repletis longitudinaliter seriatis formata. *Sporidia* solitaria, sparsa, in frondis peripheria immersa, nigro-olivacea, elliptica.—Genus dubiæ affinitatis, vix in tribu *Dictyotearum* includendum.

5. Stereocladon *Lyallii*, nobis.

HAB. Cape Horn and the Falkland Islands.

Frons 5-6 uncias longa, setacea, decomposito-ramosissima, ramificatione valde irregulari. *Caulis* percurrens v. parce divisus, vix dichotome ramosus. *Rami* alterni, patentes, flexuosi, decompositi; ramuli omnes patentes, flexuosi v. squarrosi, multifidi; apices acuti. *Substantia* rigidula, chartæ laxe adhærens. *Color* olivaceus. *Sporidia* numerosissima, per frondis partem superiorem dense sparsa, immersa.

This remarkable plant resembles to the naked eye *Dictyo-*

siphon fæniculaceus, but the stem and branches are solid throughout, and the seeds are immersed endwise, in the substance of the branch.

6. Adenocystis *Lessonii*, nobis *in Flora Antarct.* v. 1, p. 179, t. 69, f. 2.

HAB. Cape Horn, Falklands, Kerguelen's Land, Lord Auckland's Group, Campbell's Islands, and in the sea at Cockburn Island.

7. Sphacelaria *obovata*, nobis; pusilla, stupâ nullâ, fronde circumscriptione obovata, caule tenui articulato basi longe nudo in parte superiore ramis elongatis crebris erecto-patentibus laxe pinnatis distichis ornato, apicibus sphacelatis.

HAB. St. Martin's Cove, Cape Horn, in deep water only.

Fronds 1-1½ inches high, very slender, articulate throughout. If our specimens be fully grown their outline is sufficient to characterise the species.

8. Mesogloia *linearis*, nobis; virescens, circumscriptione linearis, caule indiviso tenui, ramis abbreviatis flexuosis crebris alternis, ramulis subsecundis.

HAB. St. Martin's Cove, Cape Horn.

Fronds 4-6 inches long, ¼ line in diameter, pale olive green. Stem undivided, but densely covered throughout with short flexuous branches, which are from ½ inch to an inch long, and either naked or sparingly furnished with ramuli, which generally issue from their lower or outer margin in a secund manner. The filaments of the periphery are moniliform, and not much protruded beyond the gelatine.

RHODOSPERMEÆ OR FLORIDEÆ.

9. Delesseria *dichotoma*, nobis in *Flora Antarct.* v. 1, p. 184.

HAB. Lord Auckland's Group.

10. Ectocarpus *geminatus*, nobis; cæspite basi intricato olivaceo v. virescente, filis (majusculis) tenuibus ramosissimis apice liberis plumosis, ramis ramulisque patentibus oppositis v. quaternis ultimis brevibus, utriculis conicis

sessilibus oppositis basi sæpius ramulo brevi bracteæformi fulcratis.

Hab. Cape Horn and the Falkland Islands.

A beautiful species, 4-5 inches long, having the habit of *E. granulosus*, but amply distinguished by the constantly opposite, sessile, conical capsules, or utricles, very generally subtended by a minute ramulus half their own length. The main branches are frequently in fours; the ultimate very short ramuli, are constantly opposite, and issue at an angle of 75^0 or 80^0. Besides the present species, the European *E. tomentosus* and *E. siliculosus* are found at Cape Horn.

11. Delesseria *Davisii*, nobis ; caule cartilagineo alato, lamina profunde pinnatifida v. pinnata, laciniis v. pinnis distichis cultrato-lanceolatis obliquis costatis penninerviis (nervis alternis) demum inter nervos alterne v. secunde lacerato-laciniatis, lacinulis erecto-patentibus costatis.

Hab. St. Martin's Cove, Cape Horn.

Stem, or original leaf 5-6 inches long, winged or widely margined with a membranous frond, sending out numerous alternate distichous simple or forked midribbed branches. These are rarely found entire, being generally deeply cleft, especially along the outer margin, in an oblique direction from the margin to the midrib. Colour a fine rosy red, and substance delicately membranous. This species presents us with the characters of *D. alata* and *sanguinea* strangely combined, differing from the most luxuriant specimens of the former in colour and substance; and from the latter in the alternate disposition of the nervures, the division of the frond, &c.

12. Delesseria *Lyalii*, nobis ; folio lineari-oblongo obtuso costato penni-nervi nervis oppositis argute serrato, margine incrassato, e margine folia consimilia pedicellata pinnatim emittente, serraturis subulatis simplicibus vel latere inferiori dentatis, coccidiis in frondis pagina sparsis, soris linearibus inter nervos foliorum minorum majorumque sitis.

Hab. Kerguelen's Land, and Falkland Islands.

Primary leaf in the Kerguelen's Land specimens nine inches, in those from the Falklands 4-5 inches long, from an inch to an inch in width, rising from a cylindrical petiole or stem, oblong, round-topped, furnished with a strong midrib, and penninerved with opposite veins, having the substance of the frond thickened along the sharply serrated, but not sinuated margin. This primary leaf emits from the apices of the lateral nerves other leaves in all respects similar to itself, and all of them distinctly petiolate, and by no means rising (as in *D. sinuosa*) from sinuations of the margin, and these in their turn send out others which are at first obovate, and afterwards linear-oblong. The margin in all is sharply serrated rather than ciliate. In some very old specimens the membrane of the old leaf has perished, and there remains but a slightly winged midrib from which new leaves sprout proliferously in an irregular manner. Colour rather a dark blood red, inclining to purplish. This is so like *D. sinuosa*, that on a hasty inspection it might pass for the ciliated variety of that species. The colour and substance are very similar; but the margin of our plant is not sinuous, but proliferous, the new leaves not proceeding from deepened laciniations as they do in all the specimens of that species we possess, but being, from their origin, stalked and leaf-like. The margin of the frond also is sensibly thickened, the old leaf remains of its original form until it decays, and the situation of the fruit is different in the two species.

13. Nitophyllum *lividum*, nobis; fronde e stipite cartilagineo filiformi brevi late expansa basi vix venosa lividopurpurea tenerrima furcata v. dichotoma margine undulato, laciniis oblongis patentibus obtusis, soris minutissimis punctiformibus coccidiisque perplurimis per totam frondem sparsis.

Hab. Falkland Islands.

Stem cartilaginous, filiform, half an inch to an inch long, vanishing in a few faint nerves at the base of the widely spreading frond. Frond, save at the extreme base, perfectly veinless and delicately membranous, four inches long, six or

more wide, divided into a few broad, forked, obtuse segments which spread at wide angles. Colour a livid purple, resembling that of some *Porphyræ*, but not so glossy. The hue of this species is sufficient to distinguish it from all others, except *N. Gunnianum* of Tasmania, but the substance of that plant, the fruit of which is unknown, is very much thicker and less lubricous.

14. Nitophyllum *fusco-rubrum*, nobis; stipite elongato filiformi nunc dichotomè ramoso nudo, ramis in fronde flabelliformi crasso-membranacea fusco-rubra lobata v. sæpe longitudinaliter fissa exeuntibus, frondis basi cuneato-attenuata tenuiter venosa; margine plano subintegerrimo, apicibus làceratis?, soris minutissimis punctiformibus coccidiisque numerosissimis per totam frondem sparsis.

Hab. Kerguelen's Land.

The specimens of this plant are very much torn and battered, but sufficiently perfect to show that they belong to a new and distinct species. The stems are from one to three inches long, and either simple or irregularly branched; the branches terminating in fan-shaped fronds, cuneate and somewhat veiny at the base. They are of a thick substance, veinless above, and have a dull brownish-red colour, darker than that of any other species known to us. The sori of granules are exceedingly small, sometimes so much so, as to be reduced to nearly solitary sphærospores which are densely powdered over the whole frond. The nearest affinity of this species is with *N. ulvoideum*, Hook. (*N. Hilliæ*, Grev.) from which it abundantly differs in colour, in the very remarkable and often extensively branched stem, the much more numerous capsules, and so far as we can judge, in outline also.

15. Nitophyllum *crispatum*, nobis in Flora Antarct. v. p.

Hab. Auckland's Group and Campbell's Island.

16. Nitophyllum *Crozieri;* nobis nobis; fronde stipitata basi longe attenuato-cuneata tenerrima rosea enervosa lato-lanceolata v. ovato-lanceolata nunc integerrima nunc in laciniis pluribus lanceolatis longitudinaliter fissa, soris majusculis oblongis coccidiisque per frondem sparsis.

Hab. Cape Horn.

Frond 8-12 inches long or more, rising from a minute disc, with a cartilaginous filiform stem that becomes winged at about a quarter inch above the base, and thence is gradually lost upwards in the long narrow cuneate base of the frond, the traces of the stem gradually becoming fainter as the lamina widens, but not breaking up, as in some other species, into numerous veins. The normal form of the frond seems to be broadly lanceolate, gradually tapering to an acute point, and with an entire but wavy margin; sometimes however it is cleft from the apex downwards into a number of linear-lanceolate ribbon-like segments, which though they acquire proper margins, appear to originate in splitting or injury, more than from a natural division of the frond. This species is undoubtedly closely allied to N. *punctatum*, from which it is chiefly distinguishable by the long cuneate base of the frond passing into a filiform stem, and by the absence of dichotomous division, with wide axils.

17. Nitophyllum *multinerve*, nobis; fronde stipitata elliptica v. ovata subintegerrima v. lobata tenerrima rosea nervosa, nervis pluribus distinctis parce dichotomis subparallelis apicem versus frondis evanescentibus, soris. . . .?

Hab. Cape Horn and the Falkland Islands.

Stem from $\frac{1}{8}$ inch, as in most of our specimens, to nearly an inch long, simple, breaking up at the commencement of the frond, into numerous rib-like dichotomous veins, which are continued through the major part of the frond and vanish towards its apex. Frond delicately membranous, rose-coloured, ovate or elliptical, but probably much modified as the plant advances. Our specimens are all young, and perhaps we are injudicious in founding a species upon them. Their nervation is, however, very remarkable, and much resembles that of our *Delesseria dichotoma*, but the nerves are much fainter, less distinct from the lamina, and they vanish at a greater distance from the apex, nor is there any indication in the present plant of a disposition to form distinct leaves.

18. Nitophyllum *Smithii*, nobis; fronde stipitata basi cuneata flabelliformi lobata demum lacerata rubra membranacea nervosa, nervo basilari crasso centrali, lateralibus radiantibus tenuibus nunc obsoletis, omnibus sensim evanescentibus, soris minutis rotundatis in frondis laciniis marginem versus densissime sparsis.

Hab. Falkland Islands.

Fronds 4-7 inches long, narrow in proportion, stipitate; the stipes from half an inch to an inch long, filiform, becoming winged and passing into the cuneate base of the frond, but continuing upwards as a strong midrib for a considerable way, in some individuals for nearly three quarters the length of the frond. From this central vein a number of others radiate in an oblique or arching direction towards the several segments of the margin. These, in some specimens, are very strongly marked; in others they are much fainter, and in some scarcely obvious. The outline of the frond is also extremely variable, and sometimes it is so much lacerated or cloven into ribbons, that it is difficult to trace the original form.

19. Nitophyllum *laciniatum*, nobis; fronde stipitata flabelliformi infra crassa subvenosa supra tenui-membranacea rosea profunde digitatim lobata vel subdichotomo-pinnatifida, laciniis lato-cuneatis inciso-dentatis, dentibus latissimis oblongis truncato-obtusis, sinubus angustis, marginibus crispulis, soris parvis per frondem sparsis.

Hab. Cape Horn and the Falkland Islands.

Our specimens are mostly young and all but one (from Berkeley Sound) without fruit, and therefore doubts rest on the validity of this species which we cannot clear up. We feel confident, at least, that it is distinct from any of the Antarctic species known to us, but are not sure that it may not be referable to *N. Bonnemaisoni*, which occasionally is found nearly as much laciniated. Still our plant appears different from any state of *N. Bonnemaisoni* that we have seen, though it is not easy to express the differences in words. Stipes to ½ an inch long, terminating in the cuneate thickened base

of the frond, which is 4-5 inches long, and deeply cleft into 5-9 segments either radiating from a centre in a digitate manner, or springing like pinnules, from a lengthened rachis. Colour at the base brownish-red, becoming rosy upwards.

20. Plocamium* *Hookeri*, Harv.; fronde anguste lineari cartilaginea compresso-plana decomposito-ramosa disticha, ramis primariis subdichotomis patentibus, secundariis alternis flexuosis alternè folia et ramulos emittentibus, foliis planis aveniis obliquis obovato-lanceolatis obtusis basi attenuatis, nunc cultratis integerrimis v. margine exteriore crenatis, ramulis linearibus alternè et secundè pectinato-multifidis, stichidiis lateralibus densè fasciculatis brevibus digitatis laciniis obtusis simplicibus, coccidiis lateralibus sessilibus sparsis.

HAB. Christmas Harbour, Kerguelen's Land.

Frond 8-10 inches long, not quite a line in diameter, plano-compressed, cartilaginous, very much branched in an irregular manner between dichotomous and pinnate; the main branches spreading widely. Lesser branches with a linear outline, alternate, flexuose, furnished throughout both with flattened nerveless leaves, and with decompound ramuli, the larger of which resemble the branches in bearing a second set of leaves and branchlets; the ultimate divisions being generally secund and pectinate, as in P. *coccineum*. The leaves, which are peculiar to this species and at once distinguish it from every other, are about $\frac{1}{2}$ an inch long, and from $1\frac{1}{2}$ to 3 lines broad, narrow-obovate or lanceolate in shape, obtuse, nerveless and generally quite entire, but sometimes their outer margin is slightly crenate. They are always more or

* *Plocamium Magellanicum*, H. and H. (*Thamnophora Magellanica*, Mont.) was found abundantly at Kerguelen's Land, the Falkland Islands, and Cape Horn. Most of our very numerous specimens are covered with *coccidia*, but not one solitary individual bears *stichidia*, which is the more remarkable because, in other species of the genus, this latter description of fruit is much most generally produced.

less oblique. The axils are all rounded. The stichidia densely tufted and laterally disposed on the ultimate ramuli. Colour a dark and rather dull red.

21. Rhodomenia *Hookeri*, Harv.; fronde stipitata carnoso-membranacea sanguinea v. atro-sanguineâ flabelliformi profundè fissâ, laciniis lineari-cuneatis di-trichotome-multifidis erecto-patentibus flabellatis, laciniis eroso-pinnatifidis pinnulis brevissimis quadratis apicibus truncato-obtusis fastigiatis, axillis rotundatis, coccidiis sphæricis ad apices (tunc acutos) congregatis, soris granulorum laxis in apicibus roseis dilatatis immersis.

Hab. Kerguelen's Land, the Falklands and Cape Horn; abundant.—A most protean species, of which the following varieties were collected:

α, *flabellata*; fronde stipitata rosea v. sanguinea flabellata, fere ad basin partita, laciniis distincte flabelliformibus, basi cuneatis repetite di-tri-vel palmatim-dichotomis, laciniis linearibus $\frac{1}{4}$-$\frac{1}{2}$ unciam latis, margine lacinulis brevissimis truncatis quadratis alternis ornato, axillis rotundatis.

Some specimens of this variety bear a striking likeness to R. *Lamberti*, but are of a different substance.

β, *atrosanguinea*; fronde substipitata atrosanguinea palmatifissa, laciniis lineari-cuneatis erectis subdichotomè vel alterne divisis margine proliferis, apice obtusis, axillis rotundatis.

At the Falklands, near Cape Pembroke.

Of a much darker colour than var. α, and nearly destitute of marginal tooth-like laciniæ. But the specimens have a sea beaten appearance, and there are some evidently connecting the two forms, although the extremes are so different that we had, at first, supposed them to belong to different species.

γ, *latissima*; fronde 10-12 uncias longa, laciniis parum divisis 1-4 uncias latis (!), apicibus truncatis.

This so little resembles the other states that had it not

been examined and compared whilst fresh, we should scarcely venture to refer it to the same species. It was found at Kerguelen's Land, accompanying *α*, *δ*.

δ, *lacerata*; inter *α* et *β*, media.

At Kerguelen's Land. The root is accompanied by fibres, and the frond is subsessile.

ε, *prolifera*; fronde 1½-2 uncias longa subdichotoma, laciniarum marginibus proliferis lacinulas numerosas angustissimas furcatas v. irregulariter ramulosas acutas emittentibus.

At Kerguelen's Land, on sea-weeds cast up.

ζ, *pulcherrima*; laciniis angustis decomposito-ramosis, pinnulis ultimis elongatis emarginatis.

Berkeley Sound, Falkland Islands.

This variety is remarkable for having few and but little divided principal segments, about ¼ inch wide, suddenly passing into narrow much divided minor segments not a line and sometimes not half a line in breadth. It bears no resem- to *β* or *γ*, but through *α* it is joined to them.

22. Rhodomenia? *variolosa*, nobis; fronde carnoso-membranacea sanguinea in laciniis pluribus lato-linearibus v. cuneatis elongatis furcatis v. dichotomis fere ad basin divisa, laciniis basi attenuatis erectis apice obtusis v. emarginatis, coccidiis superficiariis sessilibus v. pedicellatis densissime conspersis deciduis.

Hab. Kerguelen's Land.

Frond 7-8 inches long, divided nearly to the base into several segments, which vary from ⅓ an inch to an inch in breadth, taper to the base, are broader upwards and are either forked or twice or thrice dichotomous, with widely spreading angles. The margin is simple, or sparingly proliferous. Over the surface of the laciniæ, on one or both sides of the frond, papillæform bodies, containing granules, but not exactly similar in structure to the *coccidia* usual in the genus, are very densely scattered. They are fixed to the surface by a central point, and may very easily be detached with a slight touch, leaving behind them a minute puncture. These

form the most striking feature of the species, which otherwise resembles some of the aspects of R. *Hookeri*. In structure the frond has an affinity with that of R. *polycarpa*, but the fructification is abundantly different. Some of the specimens are very much smaller, being only two inches high, with segments a quarter inch broad.

22. Rhodomenia *dichotoma*, nobis *in Flor. Antarct.* v. 1.

HAB. Campbell's Island.

23. Phyllophora *cuneifolia*, nobis; fronde stipitata latocuneata v. flabelliformi integra v. emarginata, e disco v. apice frondes consimiles emittente.

HAB. Falkland Islands: rare.

Frond stipitate; stipes flattened, short, gradually expanding into the broadly wedge-shaped, or inversely deltoid frond, which is of a horny membranous substance and pinky red colour, about $1\frac{1}{4}$-2 inches long, an inch or $1\frac{1}{2}$ inches broad, either truncate and entire or obtusely emarginate, or sometimes erose. From the disc or apex of this primary frond, others exactly similar arise, and these in their turn produce others, so that the plant finally becomes an irregularly branched chain of fronds several inches in length. Fruit unknown. This may only be a very broad state of *Phyllophora Brodiæi* (*Fucus Brodiæi*, Turn. t. 72) a point which cannot be fully determined till the fruit be discovered. It is at least a very strongly marked variety, and coming from the Southern Ocean we deem it safest to give it a distinctive name.

24. Gracilaria? *obtusangula*, nobis; radice fibrosa, frondibus purpurascentibus cæspitosis è basi ramosissimis intricatis gracilibus subcylindricis subcompressis flexuosis flaccidis carnoso-membranaceis irregulariter dichotomis, axillis obtusis sæpissime latis, ramis decompositis sensim attenuatis, ramulis filiformibus v. subulatis acutis, ultimis sæpe secundis, fructu. . . .?

var. β. tenuior, ramis minus flexuosis nec intricatis, axillis patentibus vel divaricatis.

HAB. Cape Horn and the Falkland Islands.

Frond 4-6 inches high, $\frac{1}{4}$ line in diameter at base, filiform

or slightly compressed, tufted, rising from a mass of creeping fibres. Colour dull purplish, similar to that of *G. purpurascens*. This may possibly be Agardh's *Sphærococcus subulatus β nigrescens*, a point which cannot be determined without comparison with his specimens.

25. Gracilaria? *aggregata*, nobis; cæspitosa, nigrescens, è basi communi late scutata carnosa orta, frondibus filiformibus subcompressis cartilagineis vagè ramosis subdichotomis, axillis angustis, ramis erectis simplicibus vel furcatis omnibus filiformibus obtusis, apicibus subfastigiatis, fructu. . . . .?

Hab. Falkland Islands.

Frond 3-4 inches high, scarcely half a line in diameter, springing in dense tufts from a common fleshy scutate base, which is nearly an inch broad, irregularly branched; sometimes the lower half is simple, the upper part of the frond only being branched; sometimes it is nearly regularly dichotomous. The axils are obtuse, and all the divisions remarkably erect. The colour is blackish purple; the substance cartilaginous; and in drying it scarcely adheres to paper. The habit of this species has some resemblance to that of *Polyides rotundus*.

Acanthococcus, *Nov. Gen.*

Frons linearis, compressa, distiche ramosa, cartilagineo-carnosa, rosea. *Axis* solidus, densus, e cellulis minutissimis formatus, tubulis magnis pluriseriatis extus sensim minoribus circumdatus. *Peripheria* cellulosa, cellulis parvis reticulata. *Coccidia* globosa, aculeata, in apicibus ramulorum immersa, sporis numerosissimis repleta.

26. Acanthococcus *Antarcticus*, nobis.

Hab. Cape Horn and the Falkland Islands.

Frons 4-8 uncias alta, compressa, anguste linearis, basi semilineam vix ad lineam latitudine, sursum sensim angustata, distiche ramosissima. *Rami* patentes vel divaricati, nunc flabellatim multifidi, nunc pinnati et bipinnati; secundarii nunc breves subsimplices, nunc longissimi, ramosissimi.

Ramuli per totam frondem sparsi, apicem versus crebriores, erecti et erecto-patentes, subulati, 1-3 lineas longi, alterni vel sæpius secundi, simplices vel parum divisi. *Coccidia* solitaria, globosa, spinis 4-6 magnis subulatis armata, in apicibus ramulorum immersa, sporis numerosissimis minutis repleta. *Tetrasporæ* ignotæ. *Color* intensè ruber, siccitate obscurior. *Substantia* firma, cartilagineo-carnosa. Chartæ adhæret.

We cannot satisfactorily include this plant under any established genus. It belongs unquestionably to the *Delesserieæ*, and will stand near *Plocamium*, from which it differs in the structure of the frond, as well as in the fructification. The densely cellular axis, surrounded by large empty cellules or tubes, is quite unlike *Plocamium*. Outwardly there is a close resemblance between our plant and *Heringia rostrata*, J. Ag. (*Gelidium*? *rostratum*, Griff. *Fucus alatus*, α, *angustissimus*, Turn.), but besides the difference in fructification, the structure of that plant is uniformly dense, without a trace of large cellules or tubes. Again, our plant may be compared with *Microcladia*, to which it approaches in habit, and to a certain extent, the spinous *coccidia* may be considered analogous to the involucrated *favellæ* of that genus; but in *Microcladia* the axis, far from being the densest part of the frond, is tubular.

27. Iridæa *dichotoma*, nobis; stipite brevi cartilagineo mox cuneato furcato vel pluries dichotomo sensim in frondem membranaceam ample cuneatam vel obovatam desinente, segmentis frondis vel simplicissimis integris vel furcatis vel dichotomis, ad marginem denticulatis vel grosse dentatis vel lobatis vel frondes novas emittentibus, substantia tenui nitente lubrica demum fructibus immersis numerosissimis verrucosa.

Hab. Falkland Islands.

Notwithstanding the repeatedly branching, sometimes excessively dichotomous frond and other characters above noticed, we are not sure whether there be any exact limits definable between this *form* and I. *micans*, which, like most

species of this difficult genus, varies extremely in all its characters.

28. Iridæa *micans*, Bory.

β. *ciliolata*, nobis; stipite brevi cartilagineo cuneato ciliato-dentato mox in frondem ovato-lanceolatam simplicem desinente, fronde latissima basi ovata apice obtusa v. acuta v. emarginato-bifida membranacea vel cartilagineo-membranacea rubra plana, nitente lævi margine vix undulata.

Hab. St. Martin's Cove, Cape Horn.

Fronds 6-12 inches long, 3-6 broad. This is a distinct looking form, but we fear not entitled to rank as a species. The common state of *I. micans* was found in plenty at the Falkland Islands, and accompanying the present individuals.

29. Gigartina *divaricata*, nobis *in Flor. Antarct.* v. 1.

Hab. Campbell's Island.

30. Chondrus *tuberculosus*, nobis *in Flor. Antarct.* v. 1.

Hab. Lord Auckland's Group.

31. Halymenia *latissima*, nobis *in Flor. Antarct.* v. 1.

Hab. Lord Auckland's Group and Campbell's Island.

32. Dumontia *cornuta*, nobis *in Flor. Antarct.* v. 1.

Hab. Campbell's Island.

33. Rhodomela? *comosa*, nobis; ramosissima atro-rubescens, caule cylindraceo frondem percurrente ramis alternis crebris onusto, ramis elongatis pluries alterne divisis erecto-patentibus sensim attenuatis basi subangustatis cylindraceis, ramulis ultimis setaceis acutis abbreviatis vagis, capsulis ovatis breve pedicellatis.

var. β. *fibrillifera*; fronde tenuiori laxius ramosa, apicibus fibrilliferis.

Hab. Both varieties common at the Falkland Islands.

Stem cylindrical, 6-9 inches long, in var. α from a line to nearly a line in diameter at base, in var. β very slender, either undivided, or branching from the base into 3-4 principal stems, which are throughout their length thickly set with minor branches, again and again similarly divided. All

parts of the frond are opaque and seemingly inarticulate; but a section of the stem shows an articulated axis similar to that of many *Polysiphonia*, a central tube being surrounded by about seven others with a thick external stratum of smaller cellules. The capsules (or *keramidia*) are abundantly produced on our specimens. Colour dark reddish brown. Substance flaccid and closely adhering to paper.

34. Rhodomela *patula*, nobis; fronde cylindracea brunnea cellulis irregularibus notata vagè bipinnatim ramosa, ramis alternis elongatis horizontalibus vel suberecto-patentibus, minoribus elongatis patentibus subsimplicibus attenuatis nudis.

Hab. Falkland Islands.

Frond 4-6 inches long, $\frac{1}{2}$ a line in diameter at the base. Stem undivided, set with alternate patent branches 4-6 inches long, which in our specimens bear a second series. Colour blackish or dark brown. Substance membranaceous. The axis of the frond exhibits four large tubes surrounding a central one, with an external stratum of small cellules.

35. Rhodomela *Gaimardi?* (Ag.) fronde cylindracea flabellatim ramosissima, stipite simplici filiformi, ramis primariis divaricatis, secundariis bipinnato-multifidis patentibus, laciniis alternis, ramulis brevibus setaceis simplicibus et furcatis vel quadrifidis sæpe secundis per totam frondem sparsis.

Hab. Falkland Islands and Cape Horn.

Frond as thick as a bristle, 4-6 inches high, simple at the base, above divided into 3-4 flabelliform portions. Primary branches subdichotomous or irregular, divaricate, again and again bifariously branched; secondary and tertiary branches long, subsimple and filiform, laxly set with short ramuli. Ramuli 2-3 lines long, frequently secund, very slender, colour dark. Structure similar to that of the last species, from which the present is, possibly, not distinct. We refer to Agardh's synonym with much doubt, as he pointedly describes his plant "fronde *compressa*," whereas ours is clearly cylindrical. Nothing more nearly resembling *R. Gaimardi* than the pre-

sent, has come under our observation, and we think it possible that Agardh may have been deceived by a badly dried specimen in the compression attributed to the frond.

36. Polysiphonia *anisogona*, nobis; atro-rubescens, flaccida, madefacta fragillima, frondibus cæspitosis setaceis articulatis equalibus vix attenuatis irregulariter ramosissimis, ramis ramulisque alternis v. subdichotomis erectis v. appressis, axillis angustissimis, articulis variis, inferioribus diametro sextuplo, superioribus duplo-triplove longioribus, ultimis sesquilongioribus v. quadratis, omnibus striis sex notatis, e tubulis 12 radiantibus tenuibus endochromaticis formatis, keramidia. . . . . ?

Hab. Cape Horn and the Falkland Islands.

Tufts extremely dense, 4-5 inches high, intricate. Articulations unequal in length, the lower ones very long, the upper very short, all marked with six straight or spiral striæ, being composed of twelve slender coloured tubes surrounding a central cavity. Colour dark red. The impossibility of removing without breaking the specimens of this plant from the paper on which they have been dried renders our account of the ramification imperfect, but we have no hesitation in pronouncing it a distinct species. In many respects it accords with the British *Pol. atro-rubescens*, but the substance is very much more frail and tender.

37. Polysiphonia *microcarpa*, nobis; atro-rubescens cæspitosa, frondibus tenuibus membranaceis flaccidis tenacibus oligosiphoniis equalibus vix attenuatis irregulariter repetite dichotomis, ramis ramulisque erecto-patentibus crebre divisis, articulis bistriatis e tubulis quatuor formatis, iis ramorum majorum diametro multiplo, minorum 3-4-plo, ramulorum $1\frac{1}{2}$ duplove longioribus, keramidiis pusillis ovatis breve pedicellatis.

Hab. Hermite Island, Cape Horn.

Filaments 3-4 inches long, capillary, flaccid, but not fragile, densely tufted and branched in an irregularly dichotomous manner from the base, of nearly equal diameter throughout. Keramidia very small. Colour dark red. This nearly re-

sembles *P. formosa*, Suhr, but differs in the form and size of the capsules.

38. Polysiphonia *abscissa*, nobis; coccinea, frondibus tenuibus membranaceo-gelatinosis flaccidis tenacibus oligosiphoniis, caule primario parum diviso, divisuris frondem percurrentibus, ramis secundariis alternis multifidis circumscriptione obovatis, minoribus alternis erectis subdichotome divisis, ramulis apice multifidis fastigiatis (quasi abscissis) fibrilliferis, articulis ramorum diametro 4-6 plo, ramulorum 2-3 plo longioribus bistriatis, keramidiis pusillis ovatis breve pedicellatis.

Hab. Cape Horn.

Filaments 3-4 inches long, purplish rose-coloured or nearly crimson, with a principal stem and branches. The ramuli remarkably fastigiate. Nearly related to P. *microcarpa*, but the branching is more regular and the colour different.

39. Polysiphonia *tenuistriata*, nobis; rubescens articulata multistriata, frondibus gracillimis tenuissimis flaccidis elongatis, caule subsimplici flexuoso, ramis distantibus decompositis circumscriptione ovatis, ramificatione irregulariter dichotoma, ramis ramulisque sensim attenuatis apice fibrillosis, axillis erecto-patentibus acutis, articulis ramorum diametro multuplo, ramulorum 2-3 plo longioribus sexstriatis, e tubulis duodecim tenuissimis radiantibus coloratis formatis, ad genicula incrassatis.

Hab. Cape Horn, in deep water.

4-6 inches long, capillary, subsolitary (not tufted?), growing on the larger Algæ. Allied to *P. anisogona*, but much more slender, and not fragile when moistened after having been dried: besides the differences in ramification.

40. Polysiphonia *flabelliformis*, nobis; pusilla setacea badia rigidula, fronde brevi basi simplici stipiteformi apice flabellatim ramosa, ramis irregulariter dichotomis multifidis apice subfastigiatis, ramulis ultimis erectis longè simplicibus, axillis angustis, articulis multistriatis, inferioribus diametro multuplo superioribus sesquilongioribus.

Hab. On *Macrocystis pyrifera*, off the Crozets.

Frond an inch high, solitary, rigid, as thick as a hog's bristle, simple at base, and rising with a stipes, distichously branched above in a flabellate manner; the outline circular. Branches multifid, irregularly dichotomous, fastigiate, ramuli erect. Joints of the stem very long, 6-8 times their diameter, of the branches 2-3 times, and of the ramuli one and half as long as broad, all marked with numerous narrow striæ. Colour dingy brown, scarcely rufescent. It imperfectly adheres to paper. Of this very distinct species we have seen but a single specimen.

41. Polysiphonia *Davisii*, nobis; punicea, caule articulato basi ultrasetaceo sensim attenuato frondem percurrente subindiviso per totam longitudinem ramis alternis decompositis ornato, ramis erecto-patentibus sub-bipinnatim divisis, ramulis ultimis brevissimis crebre alternis erectis furcatis vel rarò bifurcatis axillis angustis, articulis omnibus brevissimis, ramorum diametro equantibus, ramulorum brevioribus, e tubulis octo (duobus lateralibus majoribus) tubum centralem amplum cingentibus formatis.

Hab. Cape Horn.

This is a handsome plant, though perhaps too closely related to *P. punicea*, Mont. which was found abundantly at Kerguelen's Land, the Falklands, and Cape Horn. Our present plant has a different aspect, from having a more regular primary ramification, with more erect, denser and less divided ramuli. As far as we are able to judge by an imperfect specimen, *Heterosiphonia Berkeleyi*, Mont. is also a nearly allied form; and if the genus *Heterosiphonia* is to be retained, the present plant, with *P. panicea*, and probably some others, should be referred to it.

42. Polysiphonia (*Heterosiphonia*) *pectinata*, nobis; setacea rigida, fronde purpurea distichè decomposito-pinnata, ramis alternis articulatis tri-striatis pectinato-pinnatis, ramulis (vel pinnulis) simplicibus alternis brevibus subulatis monosiphoniis (!) articulatis, articulis diametro sesquilongioribus.

Hab. Cape Horn, very rare.

Frond 2-3 inches long, setaceous, rigid, distichously branch-

ed, decompound in a repeatedly pinnate manner, with much of the habit of *Bonnemaisonia asparagoides*. Stem subsimple, jointed, tristriate, compressed or angular, beset throughout with alternate patent branches; which are in like manner furnished with a second series. All the branches are regularly pectinated, with alternate patent subulate *single-tubed* (!) short ramuli. The joints throughout the whole frond are short. Those of the stem are formed of four unequal tubes, the two lateral ones largest, surrounding a central cavity, exactly as in *Heterosiphonia*, Mont.; those of the ramuli have the structure of the joints of *Callithamnion*. The colour is a beautiful purplish rose-red.

43. Polysiphonia *botryocarpa*, nobis in *Flor. Antarct.* v. 1. p. 181 to 70.

Hab. Lord Auckland's group.

44. Polysiphonia *Lyallii*, nobis in *Flor. Antarct.* v. 1, p. 182 to 74, f. 1.

Hab. Lord Auckland's group.

45. Polysiphonia *dumosa*, nobis in *Flor. Antarct.* v. 1, p. 182 to 75, f. 1.

Hab. Campbell's Island.

46. Polysiphonia *rudis*, nobis in *Flor. Antarct.* v. 1, p. 183 to 74, f. 2.

Hab. Lord Auckland's group.

47. Polysiphonia *ceratoclada*, Mont.

Var. *β. secundata*, nobis in *Flor. Antarct.* v. 1, p. 183.

Hab. Lord Auckland's group.

*Bostrychia, *Mont.*

(*Stictosiphonia*, Harv. MSS.)

Frons purpurea, filiformis, cylindrica, ramosa, tubulosa, extus stictis quadratis notata, intus diaphragmatibus septata. *Peripheria* e cellulis coloratis quadratis tubum centralem

* M. Montagne, in proposing this genus, assigns to it the following character:

"Frons violacea, continua, filiformis, cylindracea, distichè pinnatim vel vagè ramosa *intus filis elongatis coloratis farcta*, ramellis ultimis articulis secunde versis convolutis. Fructus: 1°. stichidia siliquæ-

cavum radiatim cingentibus formata. *Keramidia*..... *Stichidia* lanceolata ramulos terminantia, tetrasporas pluriseriatas includentia.—Algæ pusillæ cæspitosæ e filis repentibus ortæ, rupes marinas *Antillanas, Antarcticas* et *Austro-Atlanticas*, vix demersas, vel ad limitem pleni maris æstus sitas, incolentes.

A very natural little group, which occupies in the Southern Ocean the same position with respect to high-water mark that *Lichina* and *Catenella* do in the Northern.

48. Bostrychia *Hookeri*, Harv.; caulibus indivisis apice involutis, ramis lateralibus abbreviatis alternis subquadrifariis erecto-patentibus, inferioribus subulatis simplicibus furcatisve, superioribus alternè multifidis, ramulis subulatis acutis erectis, axillis angustis acutis, stictis subtriseriatis, stichidiis lanceolatis acutis ramulos minores terminantibus.

Hab. Cape Horn and the Falkland Islands.

Fronds 1-1½ inches high, densely tufted, blackish-purple, rigid. Stem generally undivided, furnished with lateral short branches throughout its length. Branches sometimes all about a line long, and but slightly divided; sometimes the lowest are of this length and character, the upper 2-4 lines long, and repeatedly branched. All the ramuli are subulate and erect, or erecto-patent. The tips of the stem and main branches are generally strongly involute. Under the microscope the branches and ramuli appear beautifully marked with three rows of dark purple dot-like cells.

49. Bostrychia *fastigiata*, nobis; caulibus multifidis fastigiatis apicibus involutis, ramis æquilongis curvatis, ramulis

formia seriem duplicem sphærosporarum includentia; 2°. conceptacula pedicellata sporis clavatis erectis referta."—*Hist. Nat. de Cuba.*

We are unable to find the "fila elongata colorata," filling the axis. On the contrary, in the species now described, as well as in *B. radicans*, Mont., the axis is a tube, interrupted at intervals by membranous diaphragms. The structure is indeed very similar to that of *Polysiphonia*, from which this genus differs in having the cellules of the periphery very short, while those constituting the axis are lengthened.

alternis subulatis furcatis vel alterne multifidis, axillis acutis, stictis 3-4-vel pluriseriatis.

Hab. Cape Horn.

Fronds ½ an inch high, fastigiate, divided from the base into many main branches, red-purple. Stem scarcely any; branches long, curved, set with simple or multifid ramuli, much incurved at the tips. Perhaps this is only a variety of the last mentioned species, differing chiefly in having an abbreviated stem, with longer and consequently more divided branches, and a duller colour.

50. Bostrichia *vaga*, nobis; caulibus flexuosis vage subdichotomo-ramosis, ramis paucis simplicibus arcuatis longissimis nudis, apicibus incurvis, ramulis nullis, axillis patentibus, stictis minutis multi-seriatis, stichidiis longissime pedunculatis lanceolatis acutis.

Hab. Kerguelen's Land.

Fronds ½ an inch to an inch in height, densely tufted, very flexuose, irregularly branched. Colour blackish-purple. Stictæ small, disposed in several, 6-8, rows. Very distinct in its ramifications.

51. Bostrychia *mixta*,* nobis; caulibus pinnatis, pinnis patentibus simplicibus vel furcatis, vel alterne ramosis, ramulis subulatis patente divaricatis, apicibus strictis vel vix involutis, axillis latis.

Hab. New Zealand, on rocks near high-water mark; mixed with *Gelidium corneum, var. crinale*, *Caloglossa Hookeri*, and *Polysiphonia confinis* (n. sp. ined.).

Tufts widely spreading, intricate. Fronds ½ inch high, simple, pinnate; the pinnæ spreading, simple, or more or less branched, sometimes bipinnate, distant, alternate, acute; the apices straight or the young ones involute. Colour blackish-purple. Substance rigid. Stictæ in three rows.

* We introduce this species here, though geographically out of place, for the sake of contrasting its characters with the allied species. Specimens found at the Cape of Good Hope by myself, and distributed under the MS. name of *Stictosiphonia Capensis*, very nearly accord with the New Zealand plant.—J. D. H.

Allied to S. *Hookeri*, but smaller, and with more patent ramification.

52. Ptilota *Harveyi*, Hook. fil.; caule compresso cartilagineo anguste lineari inarticulato furcato vel inordinate ramoso, ramis distichis pinnatim decomposito-ramosis, majoribus et minoribus costa articulata percursis pectinato-pinnulatis, pinnulis creberrimis abbreviatis simplicibus articulatis monosiphoniis subulatis oppositis, articulis pinnularum quadratis, favellis ad apices ramulorum sitis, ramulis pinnatis involucratis sphærosporis ad apices pinnularum aggregatis nudis brève pedicellatis.

var. β. *pectinata*; pinnulis subdistantibus.

Hab. Cape Horn and the Falkland Islands, abundant.—var. β. Cape Horn.

Frond 8-12 inches long and nearly as broad in the spreading of the branches. Stem filiform, ½ a line in diameter, nearly of equal breadth throughout, irregularly forked, dichotomous, or very much branched in a manner between dichotomous and pinnate; the lesser branches more regularly pinnate or bipinnate; every part of the frond, but especially the younger portions, beautifully pectinated with opposite jointed ramuli, of a line in length. These ramuli are simple, and single-tubed, like those of a *Callithamnion*. The var. β only differs from the common form in having the ramuli more distant. The species to which this is most nearly allied is undoubtedly *P. plumosa* of the Northern Hemisphere, whose variety β (which Kutzing has erected into a species, *P. elegans*, Kg.) bears articulated ramuli. Our plant is, however, much larger than this variety, more rigid, and the ramuli are of much greater diameter. Compared together under the microscope, they are seen to be abundantly different.

53. Callithamnion *simile*, nobis; fronde subsolitaria rigidiuscula ramosissima, ramis alternis v. subdichotomis articulatis aveniis, ramulis brevissimis oppositis distichis horizontalibus crassis sursum pectinatis è quoque ramorum articulo porrectis, pinnulis robustis simplicibus v. ramosis, arti-

culis ramorum diametro sesqui-subduplo longioribus, ramulorum diametrum subequantibus.

Hab. Christmas Harbour, Kerguelen's Land, rare.

Fronds 2-5 inches long, slender, rather rigid, much and distichously branched; all the branches jointed, and of equal breadth throughout. Ramuli ½ line long, issuing in opposite pairs from the middle of every joint throughout the length of the frond, pectinated on their upper face with secondary ramuli, thick, subacute, and very patent. Colour brownish red. This so closely resembles *C. Plumula*, that it is difficult by mere words to discriminate them; yet on comparing them together on the table of the microscope, they are obviously not the same. Our *C. simile* is a much coarser, more rigid plant; its ramuli are more robust in proportion to the diameter of the joint, and the joints are shorter. We are the more disposed to keep it specifically distinct from *C. Plumula*, with which we were at first inclined to unite it, because specimens clearly referable to that species were found at Cape Horn; so that the differences above noticed do not appear to originate in difference of local circumstances.

54. Callithamnion *Ptilota*, nobis; fronde (parvula) rigida setacea pinnatim ramosissima, ramis vix distichis venoso-striatis subopacis, secundariis opposite pinnulatis, pinnulis simplicibus patentibus subulatis e quoque ramorum geniculo ortis, articulis diametro duplo longioribus.

Hab. Off the Crozets, on *Macrocystis pyrifera*.

Frond 1-2 inches high, solitary, as thick as a hog's bristle, much branched in a pinnate manner, but not strictly distichous. Secondary branches closely pinnate. Pinnulæ opposite, subulate, simple, issuing from every joint. Colour brownish-red. Substance rigid and scarcely adhering to paper. Only a single specimen of this very distinct species was met with.

55. Callithamnion *ternifolium*, nobis; pusillum vage dichotomum, ramis pellucide articulatis, ramulis sæpissime ternis e quoque ramorum geniculo enatis brevibus tenuibus sim-

plicibus subulatis erecto-patentibus, articulis ramorum diametro 4-5-plo, ramulorum subduplo longioribus; favellis magnis bilobis ad apices ramorum sitis.

HAB. Cape Horn, in deep water.

Parasitic, half an inch long, vaguely branched, rose red, flaccid and membranous. Ramuli issuing from every joint, usually three, rarely two or four, slender, short and simple-joints of the stems very long. Favellæ large.

56. Callithamnion *flaccidum*, nobis; fronde gracillima membranacea flaccida rosea decomposite ramosa, ramis primariis secundariisque oppositis! vel alternis! elongatis patentibus distichis, ramulis ultimis brevibus simplicibus oppositis vel secundis patentibus apice incurvis; articulis ramorum primariorum diametro multoties, secundariorum 6-10-plo, ramulorum sesqui-longioribus pellucide roseis aveniis.

var. β. *alternifolium*; ramis ramulisque alternis vel secundis, rarissime hic illic oppositis.

HAB. Cape Horn, in deep water; both varieties.

Frond 2-3 inches long, very slender, membranous and flaccid, of a beautiful rose colour, much branched, the branches lateral and distichous. In var. α, branches and ramuli are almost invariably opposite; while in β. they are as regularly alternate or secund, the inner ramuli of the branches being abortive, those along the outer edge only developed. In other respects the two varieties are identical. This species is allied to C. *Turneri*, but is a much larger and more branching plant.

57. Callithamnion *scoparium*, nobis; caule basi crasso inarticulato filis intertextis flexuosis stuposis vestito flabellatim ramoso, ramis primariis cauli similibus, secundariis articulatis pellucidis tenuibus strictis pinnatis et bipinnatis creberrimis quadrifariis, e primariorum apicibus fasciculatim enatis apice fastigiatis, articulis diametro 2-3 plo longioribus.

var. β. *ramulosum*; pinnis apice ramulis secundis ornatis.

Hab. Falkland Islands; β. Cape Horn.

Fronds 2-3 inches high, bushy. Stems thick, inarticulate, densely clothed with flexuous woolly fibres, only slightly divided. Branches resembling the stem, throughout their length densely shaggy, with slender crowded quadrifarious straight branchlets. These secondary branches are articulate, irregularly divided, either pinnate, or having secund or subdichotomous divisions; but in all cases they are straight, and erect, the ramuli mostly appressed. The tips are either acute or obtuse, and simple or furnished with short pectinate secund ramuli. Colour dark purple. Substance rigid. To the naked eye this resembles C. *tetricum* and C. *crinitum*, but the microscope shows it to be abundantly different. It has much the habit of *Sphacelaria scoparia*, as alluded to in the trivial name.

58. Callithamnion *Gaudichaudii*, Ag.? fronde fruticosa ramosissima, caulibus primariis crassis inarticulatis opacis striatis quadrifariis decompositis sensim attenuatis, ramis inarticulatis striatis ramulis plumosis quadrifariis densissime obsitis, ramulis (vel plumulis) brevibus roseo-pellucidis articulatis pinnatis et bipinnatis, pinnulis patentibus inferioribus simplicibus elongatis subulatis superioribus furcatis vel iterum pinnulatis, articulis diametro subduplo longioribus.

var. β. caulibus longioribus laxius ramosis basi nudis, ramulis gelatinosis minus crebris. Cal. Gaudichaudii *Ag. Sp. Alg.* vol. ii, p. 173?

Hab. Cape Horn and the Falkland Islands; β. Falklands.

Root scutate. Fronds 2-3 inches (in var. β. 4-5) high, shrubby, and much branched. Stem thicker than a hog's bristle, divided from the base into numerous branches, which spread every way. These are densely clothed with secondary branches, which again are covered in every part and all round with minute pinnated ramuli or plumules, from ½ line to a line in length. Favellæ large, 2-3-lobed, lobes many-seeded. Colour blackish purple, rosy purple under the glass. Substance of the branches cartilaginous, of the

ramuli tender and adhering to paper. This species comes very near C. *Arbuscula* and C. *Brodiæi*, between which it almost seems intermediate. It has the large size and robust habit of the former, but much longer and more compound plumules; and it is much stouter than C. *Brodiæi*, with more opaque stems. Var. *β.* is perhaps only an advanced state of the plant, being gathered in the same locality and three months later in the season. It chiefly differs in being of a more tender gelatinous substance, and in having the branches less densely clothed with ramuli, and most of them naked at the base. Its outward character is something that of C. *tetragonum*. We cannot be sure whether this be Agardh's C. *Gaudichaudii*, having seen no specimens of his plant, and his description being too brief to enable us perfectly to determine the matter; but no other plant among our Falkland Island collection so nearly coincides with his words. He had probably only a single specimen to describe from, and we have a large suite of all sizes and ages.

59. Callithamnion *gracile*, nobis, in *Fl. Antarct.* v. 1, p. 191.

Hab. Campbell's Island.

60. Callithamnion *hirtum*, nobis, in *Fl. Antarct.* v. 1, p. 192.

Hab. Lord Auckland's group.

61. Callithamnion *micropterum*, nobis, in *Fl. Antarct.* v. 1, p. 192.

Hab. Lord Auckland's group.

62. Ectocarpus *geminatus*, nobis; cæspite basi intricato olivaceo v. virescente, filis (majusculis) tenuibus ramosissimis apice liberis plumosis, ramis ramulisque patentibus oppositis v. quaternis, ultimis brevibus, utriculis conicis sessilibus oppositis basi sæpius ramulo brevi bracteæformi fulcratis.

Hab. Cape Horn and the Falkland Islands.

A beautiful species, 4-5 inches long, having the habit of E. *granulosus*, but amply distinguished by the constantly opposite, sessile, conical capsules or utriculi, which are very generally subtended by a minute ramulus half their own length. The main branches are frequently in fours; the

ultimate ramuli, which are very short, are constantly opposite, and issue at an angle of 75° or 80°. Besides the present species, the European E. *tomentosus* and E. *siliculosus* are found at Cape Horn.

(*To be continued.*)

On Six Species of JUNGERMANNIÆ, *new to Britain, by* THOMAS TAYLOR, M.D.

Of the numerous discoveries of the late Mr. Thomas Drummond, the addition of the following six species of Jungermanniæ to the British list is a singular proof of the acuteness and sagacity with which he investigated nature. The species were all observed in the Highlands of Scotland; and when we consider that such are the classical localities to which continental as well as British botanists have directed their attention, from the times of Dickson and of Don to the present hour, we must be surprised to find that no other individual has noticed the species alluded to, found more than ten years by Mr. Drummond. They occur among other cryptogamic discoveries of the same individual in the extensive and most valuable collection of Sir William Hooker.

1. J. (Scapania) *uliginosa*, Nees. *Synops. Hepat.* p. 67.
   Highlands of Scotland.

Whatever difficulty there may be in clearly distinguishing *Scapania nemorosa*, Nees. from *Scapania undulata*, Nees., which it must be confessed, the characters given in the *Synopsis Hepaticarum* have scarcely removed, the present is sufficiently distinct from either, by the constantly entire leaves and by the far less ratio of their smaller to their greater lobes, as well as by its more aquatic habitat.

2. J. (Scapania) *subalpina*, Nees.; β. undulifolia. *Synops. Hep.* p. 64.
   Highlands of Scotland.

Having been so fortunate as to witness the fructification, we may add to the specific character given in the Synopsis: "Calyce perichætio multo longiore, ex angusta basi obovato,

I find here and there a thread containing a single spiral filament, or itself breaking up into a flat spiral and twisted fillet. In that species too the flocci are in general much more undulated and sometimes even curled. There can be no doubt but that this, like other *Podaxineæ*, belongs to the division of sporophorous Fungi; but a proper comparison and correct appreciation of the different parts cannot be made without the examination of specimens in a much earlier stage of growth than any which have hitherto been submitted to the mycologist.—M.J.B.

Plate X., fig. 1, *P. Pistillaris nat. size*; f. 2. The same cut through vertically nat. size; fig. 3, flocci highly magnified; fig. 4, flocci and spores, highly magnified.

ALGÆ ANTARCTICÆ, *being characters and descriptions of the hitherto unpublished species of* ALGÆ, *discovered in Lord Auckland's Group, Campbell's Island, Kerguelen's Land, Falkland Islands, Cape Horn and other southern circumpolar regions, during the voyage of H.M. discovery ships "Erebus" and "Terror;" by* DR. J. D. HOOKER *and* W. H. HARVEY, ESQ. M.D.

(*Continued from p.* 276.)

CHLOROSPERMEÆ ANTARCTICÆ.

CLADOTHELE. *Hook. fil. et Harv.*

(Genus novum Siphonearum.)

Frons cylindrica, filiformis, viridis, solida, ramosa, extus papillosa. *Axis* cellulosa, densa, e cellulis magnis hyalinis vacuis, cellulam centralem radiatim cingentibus, formata. *Peripheria* cellulosa, cellulis coloratis (viridibus) pluriseriatis. *Utriculi* papillæformes, totam superficiem vestientes.—Alga *marina* Falklandica, *irregulariter ramosa, sordide viridis, ecorticata.*

63. Cladothele *Decaisnei*. Hook. fil. et Harv.

HAB. In the sea, at Berkeley Sound, Falkland Islands.

Radix fibrosa? *Frondes* 4-6 unc. altæ, cæspitosæ, filiformes, seta porcina crassiores, cylindraceæ, flexuosæ, plus minusve ramosæ, ramificatione valde irregulari. *Rami primarii* elongati, sæpe simplices, ramulis longis simplicibus sæpissime secundis curvatis v. incurvis vix attenuatis laxe donati. *Substantia* tenax. *Color* sordide viridis, siccitate cinerascens. Chartæ laxe adhæret.

A very curious plant, certainly related to *Codium*, especially to *C. simpliciusculum*, by the structure of the papillæ that cover the surface, and from which we have derived the generic name, but with an axis of very different structure from that of *Codium* or of any other siphoneous genus. It indeed more closely resembles that of *Polysiphonia*. In the specific name we wish to pay a deserved compliment to our friend M. Decaisne, who has thrown so much light on the affinities of the corallinoid *Algæ*, related to *Siphoneæ*.

64. Conferva *Falklandica*, Hook. fil. et Harv.; filis densissime cæspitosis flaccidis læte virentibus flexuosis intricate ramosissimis, ramis secundariis longissimis subsimplicibus undulatis flexuosis, ramulis patentibus distantibus brevibus secundis, articulis granuliferis diametro 3-5plo longioribus.

Hab. On muddy rocks, St. Salvador's Bay and Berkeley Sound, Falklands.

Tufts 6-10 inches long, densely matted, composed of branching, interwoven, very flexuous slender filaments, bundled together like locks of hair. The most striking characters of the species are, the wavy branches, and the great length and simplicity of the lesser branches, furnished more or less with short, patent, secund ramuli.

65. Conferva *incompta*, Hook. fil. et Harv.; filis intricatis incomptis atro-viridibus opacis rigidis setaceis tortuosis vix ramosis, ramis nunc longe nudis, nunc ramulis brevibus pectinatis circinato-inflexis ornatis, ramulis ultimis secundis v. alternis patentissimis obbtusis approximatis remotisve, articulis diametro 3-4plo longioribus.

Hab. St. Martin's Cove, Cape Horn.

Forms entangled, stratified tufts. Filaments much interwoven, twice as thick as those of *C. simpliciuscula*, very irregularly divided; the branches flexuous, and often naked, but here and there set with comb-shaped, involute ramuli, something in the manner of *C. flexuosa*. Colour dark and dull. Substance very rigid, when dry, and not adhering in the least to paper.

66. Conferva, *simpliciuscula*, Hook. fil. et Harv.; filis intricatis incomptis atroviridibus opacis rigidiusculis flexuosis capillaribus irregulariter subramosis, ramis valde remotis longissimis simplicibus, ramulis perpaucis patentissimis filiformibus simplicibus sæpe secundis, articulis diametro 2-3plo longioribus sacculo endochromatis donatis.

Hab. On sea-weeds, stones, and shells, Falklands and Cape Horn.

Forms entangled, dirty green tufts, without gloss. Filaments an inch or two in length, very distantly and irregularly branched, with a few distant ramuli. Allied to *C. riparia*, but more robust; also to *C. flagelliformis*, Suhr. but the habit is very different. It does not adhere to paper.

67. Conferva *ambigua*. Hook. fil. et Harv.; filis capillaribus rigidulis nigro-viridibus longis fluctuantibus basi adnatis? intertextis simplicibus v. hic illic spurie? ramosis et radicantibus, nunc processibus lateralibus anastomosantibus diametro 2-3plo longioribus opacis sacculo endochromatis repletis.

Hab. In the sea, Christmas Harbour, Kerguelen's Land.

Filaments 4-5 inches long, interwoven at base into a dense stratum, above which the long apices float freely in the water.

68. Conferva *angulata*, Hook. fil. et Harv.; fluitans vel reptans, filis simplicibus tenuissimis brevibus strictiusculis hic illic incrassatis et angulatis, ad angulum radiculam vel ramulum abnormalem emittentibus, articulis diametro 4-5plo longioribus coloratis, endochromate siccitate contrahente.

Hab. Fresh water, Kerguelen's Land.

Near *C. bombycina*, but distinguishable by its greater straightness and rigidity, the angular curves, incrassations and radicles. The incrassations are scarcely of the character of the inflations in Mr. Hassall's genus "*Vesiculifera*."

69. Conferva *Sandvicensis*, Ag? filis tenuissimis simplicibus longissimis in funiculos flavo-virides implicatos intertextis, articulis diametro duplo longioribus.—*Ag. Syst. p.* 92.

Hab. Falklands, in rills of fresh water.

Rope-like bundles 12-14 inches long. Filaments exceedingly slender, not more than one-third the diameter of those of *C. rivularis*, of which this species has very much the habit. Agardh's character of his *C. Sandvicensis* agrees so well with our specimens that we think it probable our plants may prove the same.

70. Draparnaldia? *pusilla*, Hook. fil. et Harv.; filis pusillis densissime cæspitosis gelatinosis vage ramosiusculis flexuosis, ramulis perpaucis simplicibus brevibus, articulis coloratis luteo-viridibus.

Hab. Falkland Islands, on the roots of an umbelliferous plant in fresh water.

Filaments a quarter of an inch long, investing the roots on which they grow with a yellow, green down. The genus is somewhat doubtful; but we think it, at least, strongly allied to *D. tenuis*, Ag. which it resembles in miniature, but the ramuli seem deficient in the setaceous apices.

71. Lyngbya *fragilis*, Hook. et Harv.; filis minutis fragilibus flavo-viridibus tortuosis implexis tenuissimis in stratum tenue lutescens cohærentibus, striis densissimis.

Hab. Falkland Islands, on a dead rabbit.

Threads about half the diameter of those of *L. muralis*, and exceedingly fragile. Stratum thin, somewhat shining, yellow green.

72. Calothrix *olivacea*, Hook. fil. et Harv.; cæspite majusculo intense olivaceo erecto, filis sub lente luteo-glaucis flexuosis in funiculos crispatos tenaces cohærentibus, per totam longitudinem sæpius connexis, nunc apice liberis plumosis, endochromate denso opaco vix striato.

HAB. Kerguelen's Land, in alpine rivulets.

Tufts extensively spreading, about ½ an inch high, of a very dark, blackish olive colour. Threads much thicker than those of *C. distorta*, very flexuous, cohering often for their whole length in crisped bundles. Colour, under the glass, glaucous, with a golden tint.—A very pretty species.

73. Oscillatoria *purpurea*, Hook. fil. et Harv.; strato gelatinoso tenaci siccitate translucente purpureo, filis violaceis omnium tenuissimis dense intertextis curvatis longe radiantibus, striis inconspicuis.

HAB. Kerguelen's Land, in rivulets among the hills, 3,700 feet.

Covers mosses and water plants, with a gelatinous, purple pellicle, more transparent than common in the genus. In a dry state the filaments, which, under the highest power of the microscope are seen as thin lines, are of a fine purple colour, and fringe the stratum to nearly ¼ inch depth.

74. Sphærozyga *tenax*, Hook. fil. et Harv.; strato fluctuante definito gelatinoso lobato tenaci æruginoso, filis densissime intertextis flexuosis sub lente glauco-viridibus moniliformibus hic illic articulo majori elliptico interruptis.

HAB. Falkland Islands, in fresh water.

With a gelatinous stratum, nearly as firm as that of *Nostoc cæruleum*, this presents all the essential characters of *Sphærozyga*; to the naked eye it resembles an *Oscillatoria*. It is a species of large size.

75. Ulva *tesellata*, Hook. fil, et Harv.; fronde (mediocri) siccitate rigidiuscula tenuissima membranacea foliacea fusco-viridi expansa in lacinias plures undulato-crispas fissa tesserato-areolata, areolis quadratis lineis hyalinis circumscriptis, granulis magnis quaternis.

HAB. Kerguelen's Land, on rocks in the sea.

Frond 1-2 inches high, dull green, leafy. Structure very similar to that of *U. crispa*, but the habit and habitat is that of *U. latissima*. Some of our specimens are profusely covered with sphærical bodies, immersed in the frond, and resembling the capsules of a *Nitophyllum*, which probably are incrassa-

tions, caused by the puncture of some minute animal. They appear to be hollow, but their walls are greatly thicker than the rest of the frond. Under the microscope, this species has the character of a fine piece of mosaic pavement.

76. Palmella? *anastomosans*, Hook. fil. et Harv.; viridis incrustans furfuraceo-rugosa carnoso-membranacea e cellulis hyalinis in fila anastomosantia foliaque clathrata coagulatis composita, granulis binis oblongis viridibus.

HAB. Kerguelen's Land, on rocks in crevices.

It is difficult to say whether this species should be referred to *Palmella* or to *Ulva*. It has a firmer and more membranous substance than most *Palmellæ*, and a thicker frond than any *Ulva* with which we are acquainted. Yet the frond seems composed of a single stratum of cellules, and therefore perhaps it might be admitted into *Ulva*, where it would stand near *U. furfuracea*.

DECADES OF FUNGI; *by the* REV. M. J. BERKELEY, M.A. F.L.S.

(*Continued from p.* 73.)

DEC. VIII.—X. AUSTRALIAN AND NORTH AMERICAN FUNGI.

(TABS. XI. and XII. FIG. 1—5).

71. Sphæria (Concrescentes) *elevata*, n. sp.; elongata emergens rimosiuscula; peritheciis subsparsis globosis mediis collum conicum vix excedentibus ligno immersis; ostiolo punctiformi; sporidiis curvatis opacis mediis.—*Drumm.* n. 225 (in part).

On dead wood.

Forming elongated, raised, irregular black or greyish spots, ½ a line thick, ½-1 inch long. Perithecia globose, middle-sized, with a conical neck, immersed in the wood, scattered, covered with a thin, black stroma; ostiola punctiform, not very visible externally. Asci clavate, containing an indefinite