

Bryozoa from near Cape Horn.
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[Read 3rd November, 1904.]

(PLATES 28 & 29.)

THE specimens now described were brought back by the French Mission Scientifique du Cap Horn, in the 'Romanche,' but they do not appear to have been seen by Jullien when he wrote the description of the Bryozoa*, and it may be that a part of the material was not submitted to him.

The importance of any collection from S. America is now very great, when collections from the Antarctic have been made by several Expeditions, and must shortly be described, for comparisons have to be made with the fauna from South America, this being the nearest land to the Antarctic, and it has even been spoken of as Antarctic. As already explained in my report† on the Bryozoa collected by the 'Belgica,' it was for the purpose of making comparison with Antarctic Bryozoa that I went to Paris to study some collections in the Muséum d'Histoire Naturelle, including Jullien's collections; and I have to thank M. Gravier and Professor Joubin for allowing me to take away some pieces for study and illustration. Besides the species dealt with in the paper, most of which Jullien had probably not seen, there are some mentioned by him which had been previously described under other names, as:—

- Membranipora coronata*, Jull., is *M. incrustans*, Waters.
Andreela uncifera, Busk, is *Micropora uncifera*, Busk.
Lepralia collaris, Jull., is *Lepralia crassilabris*, Hincks.
Schizoporella rimosa, Jull., is *Schizoporella Ridleyi*, MacGill.
Exochella longirostris, Jull., is *Smittia tricuspis* (Hincks).
Aimulosa australis, Jull., is *Smittia marsupium*, MacGill.
Arachnopusia monoceros, Busk, is *Hiantopora monoceros* (Busk).
Osthimosia eveva, Jull., is *Osthimosia eatoniensis* (Busk).
Pedicellina australis, Jull., is *Barentsia discreta*, Busk.

The most interesting observation on structure is the occurrence of a thick membranous transverse wall or tabula at a

* "Bryozoaires," Mission Scientifique du Cap Horn, 1838.

† "Bryozoa," Expédition Antarctique Belge, 1904, p. 9.

moderate distance from the calcareous closure in *Entalophora regularis*, MacGill. At first the wall is entire, completely separating the upper and lower part of the zoöcial tube; at another stage it becomes funnel-shaped, and clearly the tentacles are then able to pass through it. This is one of the most important facts concerning the anatomy of the Cyclostomata that we have come across for a long time, and one requiring an examination in other Cyclostomata, for we are not yet able to explain its meaning, or its bearing on the calcareous "closures."

The present paper shows that the geographical distribution of several species is greater than had been previously supposed, and the following species were first described in the 'Challenger' reports:—

Membranipora falcifera, Busk, described from off the Argentine.

Cellaria variabilis, Busk, from Patagonia and Kerguelen Island.

Thalamoporella labiata, Busk, off the Argentine.

Cribrilina latimarginata, Busk, off the Argentine.

Huswellia auriculata, Busk, Tristan da Cunha and Cape of Good Hope.

Turritigera stellata, Busk, off the Argentine and Cape of Good Hope, also recently found in the Antarctic.

[Since this communication was read an important paper by Dr. L. Calvet, "Bryozoen," Hamburger Magalhaensische Sammelreise, 1904, has appeared, and I have added references without discussing any points raised.

I had decided to wait until Dr. Calvet's description of the Magellan collection was published, but when he was unable, through illness, to continue work for a time, it seemed better not to postpone the publication of mine any longer. Through Dr. Calvet's illness I was not aware that his paper had been completed and placed in the printer's hands.

My memoir on the Bryozoa collected in the Antarctic by the 'Belgica' was distributed very shortly after the completion of the description, though before the publication, of the Hamburg Magellan collection, and it has therefore happened that we have again, in some cases, both been dealing with the same species without either of us having the least wish to forestall the other.]

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CABEREA BORYI, Aud.

For synonyms see Miss Jelly's Catalogue, and

Caberea Boryi, Jullien, Mission Scient. du Cap Horn, p. 75, pl. 13. fig. 5; Waters, Journ., Linn. Soc. Zool. vol. xxvi. p. 9; [Calvet, Bryozoen, Hamb. Magalh. Sammelreise, p. 7].

Busk, in his 'Challenger' Report, p. 29, described a closely allied species as *C. Darwinii*, and said that, so far as he knew, *Caberea Boryi*, Aud., is confined to the Mediterranean and Atlantic. In my paper on Cellulariidae, mentioned above, I discussed these two species, and pointed out that *C. Boryi* occurs in New South Wales, Victoria, and New Zealand, and the specimens from the Cape Horn Expedition are *C. Boryi*, Aud., and not what I should call the variety *Darwinii*, Busk. The Cape Horn specimen is from No. 177, "entre l'île Navarin et l'île Hoste," 270 metres, +7°·7 C. [Smyth Channel, 8 fath.; Punta Arenas; Isla Picton, 4 fath.; South Georgia, Calvet.]

FLUSTRA OVOIDEA (Busk).

Carbasea ovoidea, Busk, Cat. Mar. Polyzoa, p. 52, pl. 50. figs. 5-7; Busk, Zool. Chall. Exp. vol. x. pt. xxx. p. 55, pl. 16. fig. 3.

Flustra ovoidea, Waters, Interzoecial Communication in Flustridae, Journ. R. Micr. Soc. 1896, p. 284, pl. 7. figs. 18, 19.

Carbasa ramosa, Jullien, Mission Scientifique du Cap Horn, p. 75, pl. 6. figs. 2, 3, 4.

[*Flustra ovoidea*, Calvet, Bryozoen, Hamb. Magalh. Sammel. p. 9.]

The size and shape of the zoecia, as well as the position of the operculum in Jullien's *Carbasa ramosa*, is identically the same as in *C. ovoidea*, Busk, collected by the 'Challenger,' and the thicker wall on the front near the proximal end occurs in the Cape Horn specimens, as described by Busk, when he says "membranous aperture occupying the upper two-thirds of the front." In the Cape Horn specimens there are 15-16 tentacles and 4-6 lateral rosette-plates, and numerous distal pores. I previously gave two lateral rosette-plates for *C. ovoidea*, Busk, but on examining more satisfactory material it seems that I had taken the half of the wall for the complete wall.

Although the zoarial shape is not identical in *C. ovoidea*, Busk, and *Flustra ramosa*, Jull., the differences are not very important, and there is no doubt as to their identity.

Hab. Straits of Magellan; Patagonia; Kerguelen (*Busk*). Exp. Cape Horn: Baie Orange, Dredge 81, 26 met. [Smyth Channel, Long Island, 8 fath., *Calvet*.]

MEMBRANIPORA FALCIFERA (*Busk*). (Pl. 28. figs. 14, 15.)

Foveolaria falcifera, Busk, Zool. Chall. Exp. vol. x. pt. xxx. p. 69, pl. 15. fig. 6.

Membranipora falcifera, Waters, Zool. Chall. Rep., Supp. vol. xxxi. pt. lxxix. p. 11.

This is apparently not uncommon, and grows on *Retepora*, *Aspidostoma*, &c., but no ovicells are found in any of the specimens from Cape Horn. There are large pores on the front of the zoecium. The opening of the avicularium is characteristic (fig. 15), there being a narrow opening in the rounded portion, which becomes wider in the part under the mandible.

Hab. 'Challenger' Station 320 (off the Argentine), 600 fathoms. Cape Horn, Station unknown.

CELLARIA AUSTRALIS, *MacGill*.

Cellaria fistulosa, var. *australis*, MacGill. Zool. of Vict. dec. v. p. 48; Hincks, Ann. Mag. Nat. Hist. ser. 5, vol. xiii. p. 368, pl. 14. fig. 4.

Cellaria australis, MacGill. Tr. Roy. Soc. Vict. vol. xxi. p. 93 (1884); Waters, Zool. Chall. Exp. vol. xxxi. pt. lxxix. p. 16, pl. 2. figs. 1, 4; MacGillivray, Tert. Polyzoa Vict. p. 29, pl. 3. fig. 19.

Salicornaria clavata, Busk, Zool. Chall. Exp. vol. x. pt. xxx. p. 88, pl. 12. fig. 8.

Hab. Victoria; New South Wales; Bass's Straits; Kerguelen Island. Cape Horn Expedition, Station unknown.

Fossil. Victoria.

CELLARIA VARIABILIS (*Busk*).

Salicornaria variabilis, Busk, Zool. Chall. Rep. vol. x. pt. xxx. p. 89, pl. 12. figs. 3 & 9, fig. 7 in text.

The ovicellular opening is at first round, and subsequently the proximal end becomes straight.

Hab. Off Patagonia and Kerguelen Island (*Busk*). Cape Horn Exp., Station unknown.

MICROPORA BREVISSIMA, *Waters*.

Micropora brevisima, Waters, Expéd. Antarct. Belge, Bryozoa, p. 40, pl. 2. figs. 7 a-c.

THALAMOPORELLA LABIATA (*Busk*). (Pl. 29. figs. 6-9.)

Vincularia labiata, Busk, Zool. Chall. Exp. vol. x. pt. xxx. fig. 73, and woodcut fig. 3.

Thalamoporella labiata, Waters, Zool. Chall. Exp. vol. xxxi. pt. lxxix. p. 13, pl. 1. fig. 23, pl. 2. figs. 12-15, 33.

Vincularia elegans, d'Orb., Voyage dans l'Amérique Méridionale, p. 21, pl. 9. figs. 25-28.

Vincularia ornata, Busk, Brit. Mar. Polyzoa, p. 96, pl. 65. fig. 2.

Before discussing the Cape Horn specimens it should be mentioned that d'Orbigny's specimen of *Vincularia elegans* in the Muséum d'Hist. Nat. Paris, is, on the whole, as figured by d'Orbigny, but in some zoecia a growth from each side forms a calcareous bridge over the opesium (see Pl. 29. fig. 9). The bridge is underneath the membrane to which the operculum is attached.

It seems to be by no means rare in the neighbourhood of Cape Horn, and while the bridge, just referred to, was not seen in any of the specimens collected by this Expedition, they otherwise entirely correspond with d'Orbigny's specimen, in which, however, the bridge is only found to a few zoecia. The opesial opening is slightly longer and wider than that of the 'Challenger' *T. labiata*, Busk, and in the Cape Horn specimens there are a few minute denticles or hooks growing on the border of the opesium;

but, again, it is only on a few zoëcia that these are found, and I may add that it has been necessary to draw the spines unduly large, as the figure is but slightly magnified. In the *Vincularia ornata*, Busk, these spines are mentioned as being a constant character. Unfortunately the *V. ornata* is not in the British Museum collection, for a specimen in the Busk collection was found to have been so named by mistake.

There are no signs of ovicells, and in the sections cut there were no ova. There are 26 tentacles in the Cape Horn specimen. The opesia opening of *T. gothica* (Busk), of the 'Challenger,' is wider than that of any *T. labiata* examined, but the two are evidently very closely allied. However, it does not seem that Busk was justified in considering the 'Challenger' specimens as being the same species as d'Orbigny's Cretaceous fossil *Vincularia gothica*, d'Orb., as these last are very much smaller, the length and width of the zoëcia in specimens from Meudon (kindly sent to me by M^{ons}. Canu) being about one-half, and the opesia are also much smaller. There is, however, in these fossil specimens a projection at each side of the opesium and one from the proximal edge. *Cellepora crustulenta*, Goldf., seems to me to be only an encrusting form of *Vincularia gothica*, d'Orb., as seen in a specimen from Moen, Denmark; and in both the erect and encrusting form there are onychocellaria but no small avicularia; whereas in *Thalamoporella gothica*, Busk, no onychocellaria have been seen, while there is a small avicularium.

The *Vincularia gothica*, d'Orb., is placed under *Floridina* by both Jullien and Canu, but I am by no means satisfied that there are sufficient grounds for separating *Floridina* from *Onychocella*, but whether we are right in placing the present form with *Thalamoporella* time will show. *T. Rozieri*, Aud., the type of the genus, has external ovicells. A specimen sent to me as *Onychocella (Vincularia) disparilis*, d'Orb., fossil from the Cretaceous of Moen, Denmark, has similar opesia to the recent *T. labiata*, B., and to one zoëcium there is a narrow bridge; the fossil has onychocellaria, and our further examination of *labiata* suggests its being very nearly allied to *Onychocella*.

The various specimens of *T. labiata*, Busk, show how more ample material may modify our ideas, for occasionally there may be a bridge and occasionally spines, and these have been noted by some authors, and species based on these characters.

Hab. Cape Horn and Falkland Islands, 160 metres (d'Orb.); Patagonia, as *ornata* (Busk); off the Argentine, 600 fathoms (*Chall.*). Cape Horn Exped., St. 170, Canal Franklin, June 27th, 1883, 95 metres; Murray Narrows, 200 metres; and Station unknown.

CRIBRILINA PATAGONICA, sp. nov. (Pl. 28. figs. 6, 7.)

Zoarium adnate upon *Aspidostoma giganteum*, Busk. The zoecia are elongate, ovate, distinct, convex; below the aperture there is an area with 5-7 radiating raised ribs, having between each a pore near to the border. The oral aperture has the lower edge straight, the distal end rounded, and the sides straight; the operculum has on each side a flange projecting inwards. Above the distal border of the oral aperture there is an elevated triangular avicularium directed laterally. The ovicell is large, globose, carinate. There are no vicarious avicularia in the pieces examined, but nevertheless it no doubt belongs to the *C. figularis* group, and in some respects is like *C. clithridiata*, Waters, but differs in the shape of the aperture of the ordinary zoecia, though the ovicelligerous aperture of *C. clithridiata* is not very dissimilar. The *C. patagonica* is much like the fossil *C. Ungerii*, Reuss, and in many particulars is very similar to the *Membraniporella magellanica*, shortly to be described by Calvet. Whether that species should be placed under *Membraniporella* is decidedly an open question. [It varies from the description of *M. magellanica* in having supra-oral avicularia directed laterally, and in the opercula having flanges. Further, I have not found the "interzoecial Höhlungen" mentioned by Calvet.]

Hab. Cape Horn Expedition, Station unknown.

CRIBRILINA LATIMARGINATA, Busk.

Cribrilina latimarginata, Busk, Zool. Chall. Exp. vol. x. pt. xxx. p. 131, pl. 22. fig. 10; Waters, op. cit. vol. xxxi. pt. lxxix. p. 22, pl. 1. figs. 11, 12, 18; [Calvet, Bryozoen, Hamb. Magalh. Sammelreise, p. 18].

I am able to add three new and interesting localities from specimens in the Paris Muséum d'Histoire Naturelle.

Hab. Off the Argentine, 600 fathoms (Busk). 178 a, Mus. d'Hist. Nat., on *Hornera (americana)*, d'Orb., collected by M. Petit-Thouars in the French 'Vénus' Expedition, off the Falkland Islands. On the specimen of *Fasciculipora ramosa* figured by d'Orbigny, No. 13735; Falkland Islands. Cape

Horn Expedition, D. 188, Sept. 14th, 1883, 135 metres, north of Falkland Islands. [East Patagonia, 80 fathoms, *Calvet*.]

MICROPORELLA HYADESI (*Jullien*). (Pl. 28. figs. 1-5.)

Fenestrula Hyadesi, Jullien, Mission Scientifique du Cap Horn, p. 44, pl. 4. fig. 7.; [*Calvet*, Bryozoen, Hamb. Magalh. Sammelreise, p. 21].

There are several pieces from Cape Horn from unknown stations; and also in the Muséum d'Histoire Naturelle in Paris there are several (Nos. 260 *a*, 261 *a*) collected from the Falkland Islands by M. du Petit-Thouars, in the French 'Expédition de la Vénus.'

The bilaminate zoarium is large, foliaceous, either contorted or with large flat pieces, out of which similar flat pieces grow at right angles, anastomosing and forming rectangular cavities. In the Falkland Island and the Cape Horn specimens there are ovicells, whereas Jullien's single small specimen contained none. The ovicell is much raised, globular, finely granular, and below it (proximally) there is a separate bridge over the aperture, being formed by a calcareous growth from the two sides meeting in the middle.

There are many cases of Bryozoa having a bridge below the aperture, but no other species has been described in which it seems to belong to the ovicell, in the same way as in this species. In some ovicells the distance between the bridge and the ovicell is slight, and then at first sight it might be taken for part of the ovicell.

The surface of the zoæcium is granular and perforate. The operculum has the proximal border notched to correspond with the crenulated border of the aperture. The mandible is slightly winged at both sides, somewhat resembling that of *Diporula hastigera*, B. The median pore is denticulate (fig. 2).

Hab. Lat. 53° 13' S., long. 68° 31' W., 97 met. (*Jullien*); off the Falkland Islands (*Mus. d'Hist. Nat.*); Station unknown. [East Patagonia, lat. 44° 32' S., long. 61° 25' W., "deep sea"; Cape Blanco, 80 fath., *Calvet*.]

SCHIZOPORELLA PATAGONICA, sp. nov. (Pl. 28. figs. 8-11.)

Zoarium adnate. Zoæcia ovate, convex, granulate, with an acute avicularium directed upwards on each side of the aperture. Above the oral aperture there are six spines, some of which are

flat, club-shaped, often dentate at the ends, other spines are very long and thin. The oral aperture has a very distinct sinus which expands at the lower border, the distal end of the aperture is round. The operculum is thicker at each side and is thinner down the centre, the opercular muscles are attached at some distance from the border.

Hab. Cape Horn Expedition, Station unknown. Growing on *Aspidostoma giganteum*, Busk.

HIPPOTHOA DIVARICATA, *Lamouroux*.

For the distribution of this cosmopolitan species see my "Bryozoa" in Expéd. Antarctique Belge, p. 53, pl. vii. fig. 3.

HIPPOTHOA DISTANS, *MacGill*.

This is also widely distributed. See op. cit. p. 54, pl. iii. figs. 8 a-g.

HASWELLIA AURICULATA, *Busk*.

Haswellia auriculata, Busk, Zool. Chall. Exp. vol. x. pt. xxx. p. 173, pl. 24. fig. 10; Waters, op. cit. vol. xxxi. pt. lxxix. p. 31, pl. 3. fig. 38; Jullien & Calvet, Bryozoaires prov. des campagnes de l'Hirondelle, p. 145, pl. 17. fig. 3.

Vincularia pentagona, d'Orbigny, Voyage dans l'Amérique Mérid. p. 21, pl. 10. figs. 4, 6.

? *Porina grandipora*, Waters, Quart. Journ. Geol. Soc. vol. xliii. p. 59, pl. 7. fig. 23.

Although this species was first described by d'Orbigny, the name given by Busk must be retained *, as the original description was insufficient, and I had no idea that *auriculata* and *pentagona* were identical until I saw d'Orbigny's specimens. The generic name *Haswellia* is used with reserve of any opinion as to its being permanently retained.

Hab. Tristan da Cunha, 75-150 fath.; Cape of Good Hope, 150 fath.; Falkland Islands, No. 13617, Mus. d'Hist. Nat. Paris (*d'Orb.*); Azores, 130 met. (*Jull. & Calv.*). Cape Horn Exp. C. H. 658, and dry pieces; Station unknown.

SMITIA SPINOSISSIMA, *Hincks*.

Specimens from Cape Horn have the small zoëcia with recumbent smooth ovicells, the wide plate or denticle in the oral aperture, and the pores round the border sometimes seen as

* [A decision which will not command universal assent.—SEC. L.S.]

tubes, just as in the *S. spinosissima* of Hincks. This group of *Smittia* is most difficult to determine, and this species approaches so closely to *S. Peachii* var. *octodentata*, Hincks, that I considered they were the same; but Hincks did not agree in this (see Ann. Mag. Nat. Hist. ser. 6, vol. ix. p. 327), and possibly the wide denticle is a sufficiently important character on which to base the separation.

Hab. Bass's Straits. Cape Horn Exped., Station unknown.

Fossil. New Zealand (*Waters*).

SMITTIA LANDSBOROVII, form PERSONATA, *Hincks*.

This species, which is fairly common from Cape Horn, and was described by Jullien as *S. monacha*, Jull., has been dealt with more fully in my "Bryozoa," Exp. Antarct. Belge, p. 63.

Hab. Bass's Straits; Victoria; New South Wales; Cape Verde Islands; Marion Islands. Cape Horn, Station unknown.

SMITTIA ALVAREZIANA (*d'Orbigny*).

Escharina alvareziana, d'Orb. Voyage dans l'Amérique Mérid. p. 14, pl. 6. figs. 1-4.

Reptescharellina alvareziana, d'Orb. Pal. Fr. Terr. Crét. p. 453.

Mucronella alvarezii, Jullien, Bull. Soc. Zool. de France, p. 5 (1881).

Mucronella alvareziana, Waters, "Tert. Bry. New Zeal." Quart. Journ. Geol. Soc. vol. xliii. p. 57, pl. 7. figs. 24, 25 (1887).

Lepralia alata, Busk, Brit. Mus. Cat. p. 71, pl. 79. fig. 3.

In the specimen found among the material collected by the Cape Horn Expedition there are 5 spines, and in the New Zealand fossil there are 5 or 6, whereas Jullien saw none, nor does d'Orbigny describe any. The two outer spines in *S. alvareziana* are rather larger than the others, and these may have dropped off in Busk's *L. alata*, which corresponds in other respects, but unfortunately it has been impossible to make direct comparison, as *L. alata* was not returned to the British Museum.

There is an umbo and denticle to some zoëcia, but there are others without either.

Hab. Bolivia and Peru (*d'Orb.*); Valparaiso (*Jull.*) on *Ostrea*; Cape Horn, 40 fath., as *alata* (*Busk*). Cape Horn Exp., Station unknown, on *Aspidostoma giganteum*, Busk.

Fossil. New Zealand.

SMITTIA LEBRUNI, sp. nov. (Pl. 28. figs. 13 & 13 a, b, c).

The zoarium forms large foliaceous masses with a bilaminated

growth, having the same form as *Microporella Hyadesi*, Jull.; and both resemble *Lepralia foliacea*, Ell. & Sol., in zoarial growth.

The zoecia are elongate, ovate, very slightly convex, with pores over the surface, the pores near the border frequently being the largest. The peristome usually meets in front, forming a large pore below, there is a wide denticle in the oral aperture, and below the distal border there is a crenulated arched shelf. Near to the oral aperture there is a spatulate avicularium, which, however, is sometimes replaced by one having a large wide avicularian chamber, giving the zoecium a very inflated appearance. The mandibles of these avicularia are wide, with the distal arc rather less than a half-circle.

The ovicell is slightly raised and perforated. There are two distal rosette-plates, and three large lateral ones to each lateral wall.

This is in some respects similar to *Smittia antarctica*, Waters, but is quite distinct.

Although I have rarely given personal names, on account of the difficulty they frequently occasion to naturalists of other countries, yet I have made an exception, and named this after the collector, as names of most of the other members of the staff were used by Jullien.

Hab. Station unknown, and St. 32, lat. 53° 73' S., long. 68° 31' W., 97 met., +6°6 Cent.

SMITTIA sp.

There is a small specimen which corresponds with *S. marmorea*, Hincks, but there are no ovicells, and there are several spines round the oral aperture. The small triangular avicularium below the aperture is often directed diagonally downwards.

CELLARINELLA DUBIA, *Waters.*

Cellarinella dubia, Waters, Expéd. Antarct. Belge, Bryozoa, p. 58, pl. 8. figs. 12 a, b, and fig. 2 in text.

The Cape Horn specimens were referred to in my Antarctic Report.

Hab. Antarctic (*W.*); Patagonia; Tierra del Fuego; Straits of Magellan.

Expéd. Cape Horn: Station 4, lat. 50° 52' S., long. 67° 36' W., 140 met., 5°·7 Cent.; Entre l'île Navarin et l'île Hoste, 270 met., 7°·71 Cent.

LAGENIPOBA ROTA (*MacGillivray*).

Cellepora rota, MacGillivray, Trans. Roy. Soc. Vict. vol. xxi. (1885) p. 116; Prod. Zool. Vict. dec. xv. p. 184, pl. 148. fig. 3.

It is very doubtful whether this should not be called *Lagenipora Costazii*, Aud., for though the operculum is somewhat longer and thicker, it is of the same type as that of the Mediterranean *L. Costazii*. MacGillivray certainly seems to have made a slip when describing *C. Costazii** from Victoria, for his species has a small central avicularium below the mouth, and has not, as a rule, the pair of long elevated avicularia. *L. rota*, on the other hand, has the pair of avicularia, and very closely resembles the European *L. Costazii*. Some authors have been misled by the mistake now pointed out.

Hab. Victoria (*MacGillivray*). Cape Horn Exp., Station unknown.

LAGENIPOBA LUCIDA, form NITENS, *MacGillivray*. (Pl. 29. figs. 15-18.)

Lagenipora nitens, MacGillivray, Trans. Roy. Soc. Vict. vol. xxiii. (1887) p. 180, pl. 1. fig. 1; MacGillivray, Prod. Zool. Vict. dec. xvi. p. 209, pl. 156. fig. 3.

Zoarium pisiform. The differences from typical *L. lucida*, Hincks, are but very slight; but as the present form more nearly corresponds to MacGillivray's figure than is the case in most specimens of *L. lucida*, attention is called to the fact. It, however, has 10 tentacles, whereas the *L. lucida* from Madeira has 12, and the mandibles of the vicarious avicularia differ somewhat from those from Madeira, as the sides are straighter. The avicularian tube is usually median, but is sometimes diagonal as figured by MacGillivray. The ovicells are globular, with a very small area.

Lagenipora lucida is widely distributed.

Hab. Victoria. Cape Horn, Station unknown.

CELLEPORA PETIOLATA, sp. nov. (Pl. 29. figs. 19, 20.)

The zoarium starts from a very small stalk, then spreads out, forming a club-shaped colony.

The zoecia are perforate, having a few large pores, porcellanous, with a long rostrum supporting at the end a triangular

* Prod. Zool. Vict. dec. xv. p. 185, pl. 148. figs. 5, 6. *Multescharella globulosa*, d'Orb. Pal. Fr. vol. v. p. 458. Specimen 13691, Algiers, in d'Orbigny's Coll. in the Mus. d'Hist. Nat. Paris, is *Lagenopora Costazii*, Aud.

avicularium, and the narrow acute mandibles have a long characteristic lucida. The zoëcia resemble those of *Cellepora hastigera**, Busk, but the shape of the operculum shows that they are quite distinct. The operculum is very thin, which is unusual in *Cellepora*, and the shape of the proximal edge shows that it fitted into a wide sinus, which cannot be usually seen in the zoëcia on account of being concealed by the calcareous growth. There are 13-14 tentacles.

I have already referred to this species when describing *Orthopora compacta*†, Waters, and mentioned how the zoarial growth of the two species corresponds, so that at first I was misled into believing them to be the same species; but the shape of the operculum proved that they were quite different, and *O. compacta* has 24 tentacles, whereas the present species has only 13 or 14.

Though the name *Cellepora* is here used, it is recognised that many species now called *Cellepora* may have to be removed elsewhere.

Hab. Cape Horn Exped., Station No. 32; lat. 53° 13' S., long. 68° 31' W.; 97 met., +6°6 Cent.

TURRITIGERA STELLATA, Busk.

Turritigera stellata, Busk, Zool. Chall. Exp. vol. x. pt. xxx. p. 130, pl. 24. fig. 1; Waters, op. cit. vol. xxxi. pt. lxxix. p. 22, pl. 1. figs. 22, 25; Waters, Expéd. Antarctique Belge, Bryozoa, p. 76, pl. 5. figs. 3 a-c, pl. 8. fig. 13.

Among the Cape Horn material there is a small and worn fragment, which, however, was just sufficient to show the specific characters.

Hab. Off the Argentine, 600 fath. (*Busk*); Cape of Good Hope, 150 fath. (*Busk*); various Antarctic Stations, 435-569 metres (*Waters*). Cape Horn Exp., Station unknown.

RETEPORA MAGELLENSIS, Busk.

Retepora magellensis, Busk, Zool. Chall. Exp. vol. x. pt. xxx. p. 126, pl. 36. fig. 20; Waters, op. cit. vol. xxxi. pt. lxxix. p. 22, pl. 3. fig. 5.

As I have previously pointed out, Busk's description of *R. magellensis* requires correction, as in the 'Challenger' and other specimens there are distinct vibices and also semicircular avicularia on the dorsal surface. Probably this is the *R. cellu-*

* Zool. Chall. Exp. vol. x. pt. xxx. p. 192, pl. 29. fig. 1.

† Expéd. Antarct. Belge, Bryozoa, p. 76.

Iosa of Ridley, and the figure 7 of pl. 123 of Busk's Brit. Mus. Catalogue, which, however, is not referred to in the text. There are 14 tentacles.

Hab. Off Argentine, 600 fath.; Falkland Islands (*Busk*). Cape Horn Expedition, Station 4, lat. 50° 52' S., long. 67° 36' W., 140 met., +5°·7 Cent.; and Station unknown.

RETEPOBA SPATULIFERA, sp. nov. (Pl. 29. figs. 4, 5.)

The specimen from Station No. 4 has narrow strap-shaped branches, which anastomose irregularly; but other specimens, with very similar zoecia, have the zoarium regularly reticulate. On the anterior surface, below the aperture, there is a round avicularium close to the oral slit, also there are round avicularia on the front of the zoecium, usually one or two to each zoecium. The pair of oral spines are articulated, and usually, in the specimen from Station 4, become very wide towards the end, having the same shape as the club-shaped spines of *Microporella spatulifera*, Smitt, as figured in my paper* on "Bryozoa from Franz-Josef Land," and the specific name is chosen on account of this similarity.

The ovicell, which is but slightly raised, has a fissure down the middle. I am not aware that the ovicell of typical *R. magellensis*, Busk, has been described; but it occurs with a fissure in specimens from the Straits of Magellan shortly to be described by Calvet †. In *R. spatulifera* the dorsal surface is divided by vibices, has numerous small openings and round avicularia. There are 13-14 tentacles.

This is very similar to *R. magellensis*, Busk, in most particulars, but in the specimen from Station 4 differs in the shape of the branches and in their irregularly anastomosing; though in the specimen from Station 167 the zoarium is reticulate, as in *B. magellensis*, and the articulate spine is more delicate, being seldom club-shaped.

Hab. Cape Horn Expedition: Station 4, lat. 50° 52' S., long. 67° 36' W., 140 met., +5°·7 Cent.; Station 167, Ile Grevy, 65 met., +3°·0 Cent.

ASPIDOSTOMA GIGANTEUM (*Busk*). (Pl. 29. figs. 1-3.)

Aspidostoma giganteum, Busk, Zool. Chall. Exp. vol. x. pt. xxx. p. 161, pl. 33. fig. 3; Waters, op. cit. vol. xxxi. pt. lxxix. p. 28, pl. 1. figs. 16-

* Journ. Linn. Soc., Zool. vol. xxviii. pl. 12. fig. 6. † See above, p. 231.

18, pl. 3. figs. 20, 21; Ortmann, "Invertebrate Fossils from Patagonia," Amer. Journ. of Sci. ser. 4, vol. x. p. 368 (1890).

Eschara gigantea, Busk, Brit. Mus. Cat. p. 91, pl. 119. fig. 3; Jullien, Mission Scientifique du Cap Horn, p. 77, pl. 6. figs. 5, 6.

Aspidostoma crassum, Hincks, Ann. Mag. Nat. Hist. ser. 5, vol. vii. p. 160, pl. 10. fig. 6 (1881); MacGillivray, Tert. Polyzoa of Victoria, p. 102, pl. 13. fig. 12.

Steganoporella patula, Waters, Quart. Journ. Geol. Soc. vol. xxxvii. p. 265, pl. 9. fig. 31 (1882).

Micropora cavata, Waters, Quart. Journ. Geol. Soc. vol. xxxix. p. 435.

Specimens from Cape Horn are sometimes broadly foliaceous, sometimes reticulate with the fenestræ large, attaining to 20 mm. by 10 mm.; all seem to be bilaminar.

The operculum forms a thick sac, and has a projecting knob at each proximal corner (as figured in my 'Challenger' Supp. Rep. pl. iii. fig. 21), to which are attached muscles. At the proximal edge of the oral aperture there is a lamina rising at right angles to the operculum, and proximally to the lamina there is a hollow space into which the "elongate callosity" of Hincks may project as a mucro. A hollow space of this kind occurs in several genera of Bryozoa, and the zoæcium is contracted thereby. The loop-shaped openings at each side are for the knobs of the opercula, and are in no way similar to the opesiules of *Micropora*, &c. through which a muscle passes.

The zoæcia are connected distally through long tubes, which frequently have a dividing disk in the middle (Pl. 29. fig. 2), and sometimes the tubes bifurcate. The number of these tubes is usually 8, representing as many rosette-plates, and there are about 6-9 lateral rosette-plates*.

* The name "origella" given by Jullien "à tous les bourgeons de l'endocyste, depuis l'état rudimentaire jusqu'au moment où le bourgeon dévient un zoïde quelconque" (Miss. Scient. du Cap Horn, p. 12), has never seemed to me to be required. There are growing and vital tissues in different forms, from which sometimes new zoæcia are formed, or which pass through the pore-tubes to the surface. The growing tissue, when new zoæcia are being formed, is, from time to time, separated by disks at intervals and in different ways, according to the species. These are the rosette-plates, or septules of Jullien, and their form and other peculiarities furnish useful characters.

Jullien ('Bryozoaires provenant des campagnes de l'Hirondelle,' Jullien & Calvet, p. 18) says that I have stated the rosette-plates to be the equivalent of his "origelles." This is a misunderstanding of what I said, which was that the rosette-plates represent the origella, by showing to us, not only in living, but also in fossil and dried specimens, the position of the origella. The rosette-

There are 20-23 tentacles, but the state of preservation of the piece I prepared was not favourable for further detailed examination.

The "pent-house projection" above the aperture is not, as a rule, well marked, but a small projection can be made out on most zoecia. The large reticulation recalls *Petralia undata*, MacGill., which, from a specimen in the Paris Museum, seems to be the species named *Retepora ambigua* by Lamarck.

Loop-shaped openings at the lower corner of the oral aperture may be formed in two ways: firstly, as in the present case, for opercular projections; secondly, as in *Rhagasostoma*, where the operculum has a straight lower edge and is carried by the covering membrane over the opesia opening.

Aspidostoma airensis, Maplestone, has been found fossil in Victoria.

Hab. Patagonia; Falkland Islands; Tristan da Cunha, 110-150 fath. (*Busk*). Cape Horn Expedition, Station unknown; and between Falkland Islands and the Straits of Magellan, 100-200 metres. [Straits of Magellan, *Calvet*.]

Fossil. Victoria (*Waters & MacGill.*); South Australia (*Waters*); Santa Cruz and Santa Julian, Patagonian formation, as Miocene (*Ortmann*)*.

ADEONELLA LICHENOIDES (*Lamarck*). (Pl. 28. fig. 12.)

Eschara lichenoides, Lamk. Anim. sans Vert. vol. ii. p. 176 (1816); Milne-Edwards, 'Sur les Eschares,' p. 31, pl. 2. fig. 3 (1836).

Adeona punctulata, Jullien, Miss. Sc. du Cap Horn, p. 86, pl. 4. fig. 6 (1888).

Adeonella atlantica, Busk, Zool. Chall. Exp. vol. x. pt. 30, p. 186, pl. 20. fig. 7, pl. 21. figs. 1, 1 b (1884); Waters, op. cit. vol. xxxi. pt. 79, p. 33, pl. 2. figs. 20, 37.

plates, by serving as the sign of the way in which this tissue has grown, are of great importance.

Beania magellanica, Busk, has the zoecia distant but connected by tubes, and this shows us how the rosette-plates are formed: processes of the ectocyst grow at any of the six positions where connecting-tubes may occur and contain growing tissue; they spread out and join with their neighbours, and at an early stage rosette-plates are formed. An exact drawing of an actual specimen is given in my paper "On the Bryozoa of the Bay of Naples," 1879, *Ann. Mag. Nat. Hist.* ser. 5, vol. iii. pl. xii. fig. 1.

[* Canu, in his paper just published on "Les Bryozoaires du Patagonien," *Mém. Soc. Géol. de France*, vol. xii. p. 14, calls this *A. Ortmanni*, Canu.]

The present form certainly seems to be the *Adeonella lichenoides* of Milne-Edwards, who presumably examined the specimens described by Lamarck. It, however, is not the *A. lichenoides* of Busk's 'Marine Polyzoa,' to which he subsequently, in the 'Challenger' Report, p. 180, gave the name *tuberculata**, which will probably be found to be superfluous. The *Eschara lichenoides* of Heller is no doubt *Schizoporella serratimargo*, Hincks, also described by Neviani as *S. sulcata*. Neviani now calls it *Schizotheca serratimargo*, Hincks. (*Schizotheca serratimargo*, Hincks, *rett. di nomen.*, Boll. Soc. Geol. Ital. vol. xxiii. p. 270, 1904.)

The spirit-specimen from the Cape Horn Expedition, D. 174, "S.E. de l'Ile de Scott," has few pores over the surface, a round median pore, and an avicularium by the side. Milne-Edwards did not speak of the surface pores, and only calls the surface "lissé"; however, in other cases where there are pores he did not mention them. At the side of the branches of the Cape Horn specimens the ordinary zoecia are replaced by large avicularia with triangular mandibles, and this is a character of the species. There are 14 tentacles.

Hab. Indian Ocean (*M.-Edwards*); Tristan da Cunha, 75, 110 fath. (*Busk*); Tierra del Fuego (*Busk*). Cape Horn Exped., Station 174, S.E. de l'Ile de Scott; and Station unknown.

* In 1864, Reuss described and figured an *Adeonella* from the Mayence Basin as *Eschara tetrastoma* (Sitzungsab. k. Ak. Wissensch. Wien, vol. 50. p. (9), pl. ii. fig. 2), and the same year Stoliczka figured some much worn fossils from Orakei Bay, New Zealand, as *Flustrella clavata*, Stol. I examined a few very small foliaceous fragments from Ourdies Creek, S.W. Victoria, which I figured as *Microporella clavata*, Stol., but some better preserved branching specimens were described as *M. yarraensis*, Waters (Q. J. Geol. Soc. vol. xxxvii. p. 331, pl. xv. figs. 27, 28). MacGillivray, who has since had ample material, says that *clavata* and *yarraensis* are synonyms, the species being very variable. This is somewhat surprising, as besides having a different zoecial growth, the zoecial characters seen appeared sufficient to justify separation; however, as MacGillivray was a very careful observer, we must presume that he was correct (see Tert. Polyzoa Viet. p. 70, pl. ix. figs. 15, 18). About the same time MacGillivray described a recent specimen as *Adeonellopsis parvipuncta*, and here we find the outside or lateral zoecia with an elongate denticulate pore, while the ovicelliferous zoecia have an area with several round denticulate pores. This, to a large extent, explains the difficulty there has been in the determination of the fossils, for the different structure of the two sets of zoecia has only recently been understood, though first described by Milne-Edwards. The *A. lichenoides*, Busk, of the Brit. Mus. Cat., is therefore *A. clavata*, Stol.=*A. yarraensis*, Waters=*A. parvipuncta*, MacGill.=*A. tuberculata*, Busk=?*A. tetrastoma*, Reuss.

DIASTOPORA CONCINNA, *MacGillivray*.

Tubulipora concinna, MacGill. Trans. Roy. Soc. Vict. vol. xxi. (1885) p. 94, pl. 1. fig. 10.

Growing on *Aspidostoma giganteum*, Busk, the zoaria are at first flabelliform, and then become circular in older stages.

The zoecial tubes are small, free, projecting, perforated all over, and no closures with tubules are seen. The ovicell is a small round inflation, with the ovicellular tube turned back towards the centre of the zoarium, but without a funnel in the specimens examined, whereas in what I have considered to be *D. latomarginata*, d'Orb., from Capri it is very marked.

The divisional lines between the zoecia are very distinct, and the internal diameter of the zoecia is about 0.06 mm.

Probably this is what has sometimes been called *D. latomarginata*, d'Orb., though the ovicells usually spread more laterally in *D. latomarginata*, and there are tubules to the closures, and it may therefore be better to suspend judgment as to the identity of the two.

Hab. Victoria; New South Wales. Cape Horn, Station unknown.

ENTALOPHORA PROBOSCIDEA (*M.-Edwards*).

For synonyms see Miss Jelly's Catalogue, and

Entalophora proboscidea, Waters, Expéd. Antarct. Belge, Bryozoa, p. 91, pl. 9. figs. 4 a, b.

There are only a few small pieces of this cosmopolitan species from Station unknown.

ENTALOPHORA REGULARIS (*MacGillivray*). (Pl. 29. figs. 10-14.)

Pustulopora regularis, MacGill. Descr. of new Polyzoa, pt. iv., Trans. Roy. Soc. Vict. 1882, vol. xix. p. 292, pl. 1. fig. 3; Busk, Zool. Chall. Exp. vol. xvii. pt. 50, p. 21, pl. 4. fig. 2.

Sections of decalcified material have been cut, showing in nearly all zoecia thick membranous transverse walls, situated distally to the polypide, and not more than one has been found in any zoecium. At first these walls or tabulæ are slightly curved, but later various forms are assumed, and the wall then rises up in the middle, so that sometimes a closed chamber is formed; in others there is an opening, and then apparently the tentacles can pass through, though the aperture is not very large.

In many zoëcia the central projection of the wall is funnel-shaped, and this may be prolonged beyond the thick portion into a delicate small transparent tube (fig. 13, *tb.*). When this was first seen it was thought to be an accidental appearance, but being found in other zoëcia it is clearly normal.

When the transverse wall forms a pouting projection (fig. 12), then the tentacular sheath is attached to the lower part of the projection (fig. 12, *ts.*), and there is a similar thin membrane, like the tentacular sheath, arising from the point of junction of the thick transverse wall with the zoëcial wall, and this again is attached lower down to the tentacular sheath (see figs. 12, 14, *tb.*). There is living tissue both below and above the transverse wall, and the structure is seen to be in the main similar to what I described as the closures of *Heteropora claviformis**, Waters, but the transverse walls and the calcareous closures are not identical, though related.

The diaphragm closing the tentacular sheath is near to the above-mentioned transverse wall (fig. 14, *dp.*), and this last is not close to the calcareous closure, the distance apart usually being about twice the diameter of the zoëcial tube. There are 12 tentacles; but no ovaria were seen in the specimen, while there are a few young testes.

Although I do not find as thick a wall in any other species of Cyclostomata examined, yet there is a membrane; and in *Hornera lichenoides*, Pont., from the Arctic, it is sometimes fairly thick, and there is beyond the wall a conical projection lined with large cells. In *Diastopora obelia*, Johnst., there is a transverse membrane, and the structure is somewhat similar in *Lichenopora*. Having obtained the key, we may hope shortly to understand the mechanism more thoroughly, and possibly the study of this structure may throw much light upon Palæozoic and other fossil Bryozoa in which the tabulæ are common.

This thick wall stains much more deeply than the other tissues, showing that it is not usually chitinous.

Hab. Victoria (*MacGill.*); Bass's Straits, 38 fath. (*Busk*). Cape Horn Expedition: Station 170, Canal Franklin, 95 metres, +7°0 Cent.; Station 183, "10 milles au S.E. de la Fosse Sloggett," 816 met., +4°9 Cent.

* "Bryozoa," Expédition Antarctique Belge, 1904, p. 98, pl. 7. fig. 8.

IDMONEA MILNEANA, *d'Orbigny*.

Idmonea Milneana, d'Orb. Voyage dans l'Amér. Mérid. p. 20, pl. 9. figs. 17-21.

For synonyms see Miss Jelly's Catalogue, and add MacGill. Tert. Polyzoa of Victoria, p. 124, pl. 17. figs. 1, 2 (1895).

The specimens from Cape Horn have very long radical processes, given off from various parts of the dorsal surface; and the habit is so similar to that of *I. interjuncta*, MacGill., that at first it was taken for that species, but measurements of the zoœcial tubes (about 0·2 mm.) showed it to be *I. Milneana*. In d'Orbigny's specimen 13743, from the Falkland Islands, there is an ovicell near to a bifurcation, which does not extend over many zoœcia.

Hab. Falkland Islands, from considerable depths (*d'Orb.*); Tierra del Fuego and Patagonia, 30 fath.; Chonos Archipelago (*Darwin*); Azores, 450 fath. (*Busk*); Queensland (*Hasw.*); New South Wales; New Zealand (*Waters*); Kerguelen, 75-150 fath. (*Busk*); Queen Charlotte Islands (*Hincks*); Fiji; Mediterranean, as *I. notomale*, Busk. Cape Horn Expedition. [Smyth Channel, Long Island, 8 fath.; Punta Arenas (*Calvet*).]

Fossil. Tertiaries of New Zealand; do. of Mt. Gambier, Curdies Creek, Bairnsdale (Australia). European Tertiaries, Bartonian to Pliocene.

IDMONEA ATLANTICA, *Forbes*.

The zoœcial tubes are about 0·14 mm. internal diameter, and the series are 0·5-0·6 mm. apart.

This I have referred to in my memoir on the Antarctic Bryozoa, p. 91, and have given the distribution as Arctic, British, Mediterranean, N. Atlantic, Kerguelen, Cape of Good Hope, Tristan da Cunha, Antarctic, and Cape Horn, station unknown.

There is one small piece of *Idmonea* with rather larger zoœcia and the series further apart.

HORNERA ANTARCTICA, *Waters*.

Hornera antarctica, Waters, Expéd. Antarct. Belge, Bryozoa, p. 93, pl. 9. figs. 1 a-l.

There are a few small pieces of this *Hornera*, which is closely allied to *H. lichenooides*. It was found in the Antarctic at depths varying from 480-569 metres.

LICHENOPORA FIMBRIATA (*Busk*).

This species was described by Jullien as *Disporella spinulosa*, Jull., see my "Bryozoa," Expéd. Antarct. Belge, p. 96, pl. 8. fig. 20.

DISCOTUBIGERA ? LINEATA (*MacGillivray*).

Diastopora lineata, MacGill. Trans. Roy. Soc. Vict. vol. xxi. (1885) p. 96, pl. 3. fig. 1.

Livipora lineata, MacGill. Trans. Roy. Soc. Vict. vol. xxiii. (1887) p. 182.

Discotubigera lineata, Waters, Ann. Mag. Nat. Hist. ser. 5, vol. xx. p. 260, pl. 6. fig. 24; Journ. Linn. Soc., Zool. vol. xx. p. 284, pl. 15. fig. 5.

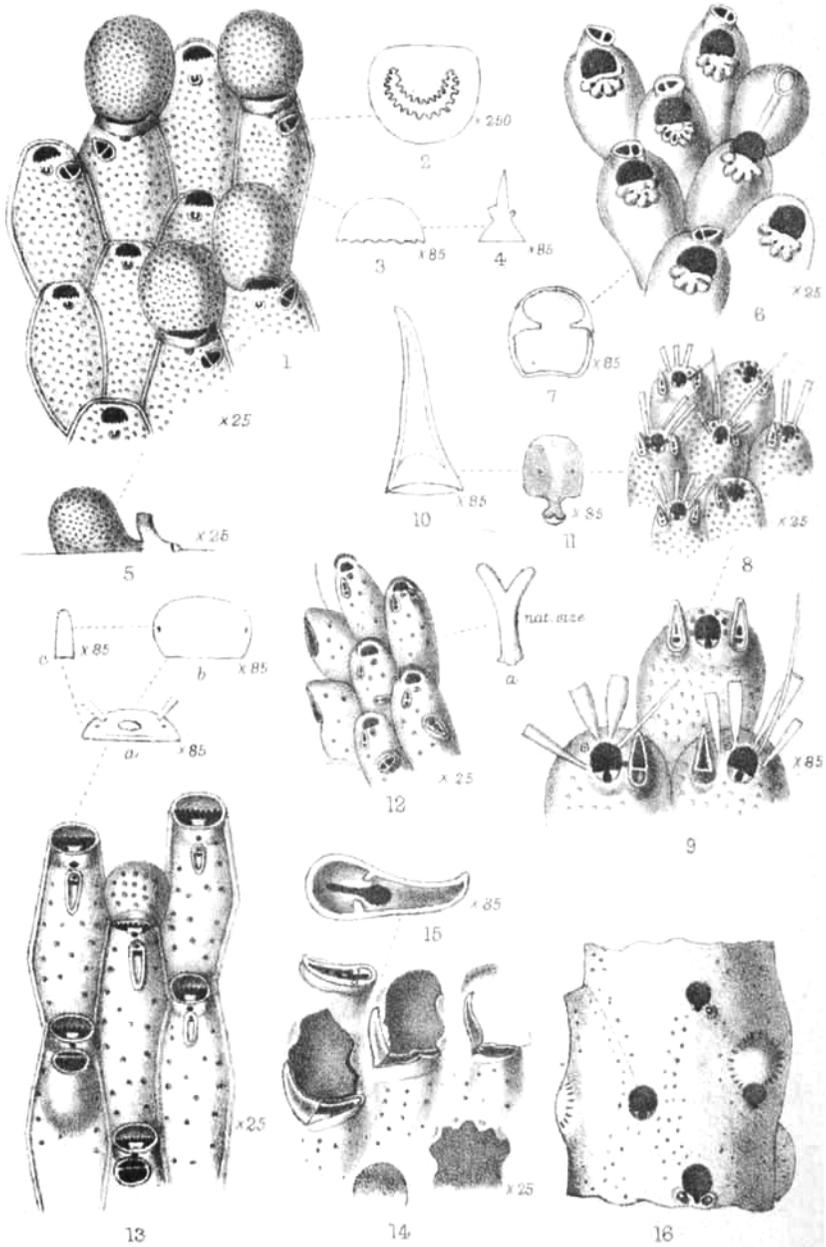
There is only one specimen in the Cape Horn material, and it was growing on *Aspidostoma giganteum*, Busk.

Hab. Victoria (*MacGill.*); New South Wales (*Waters*). Cape Horn, Station unknown.

EXPLANATION OF THE PLATES.

PLATE 28.

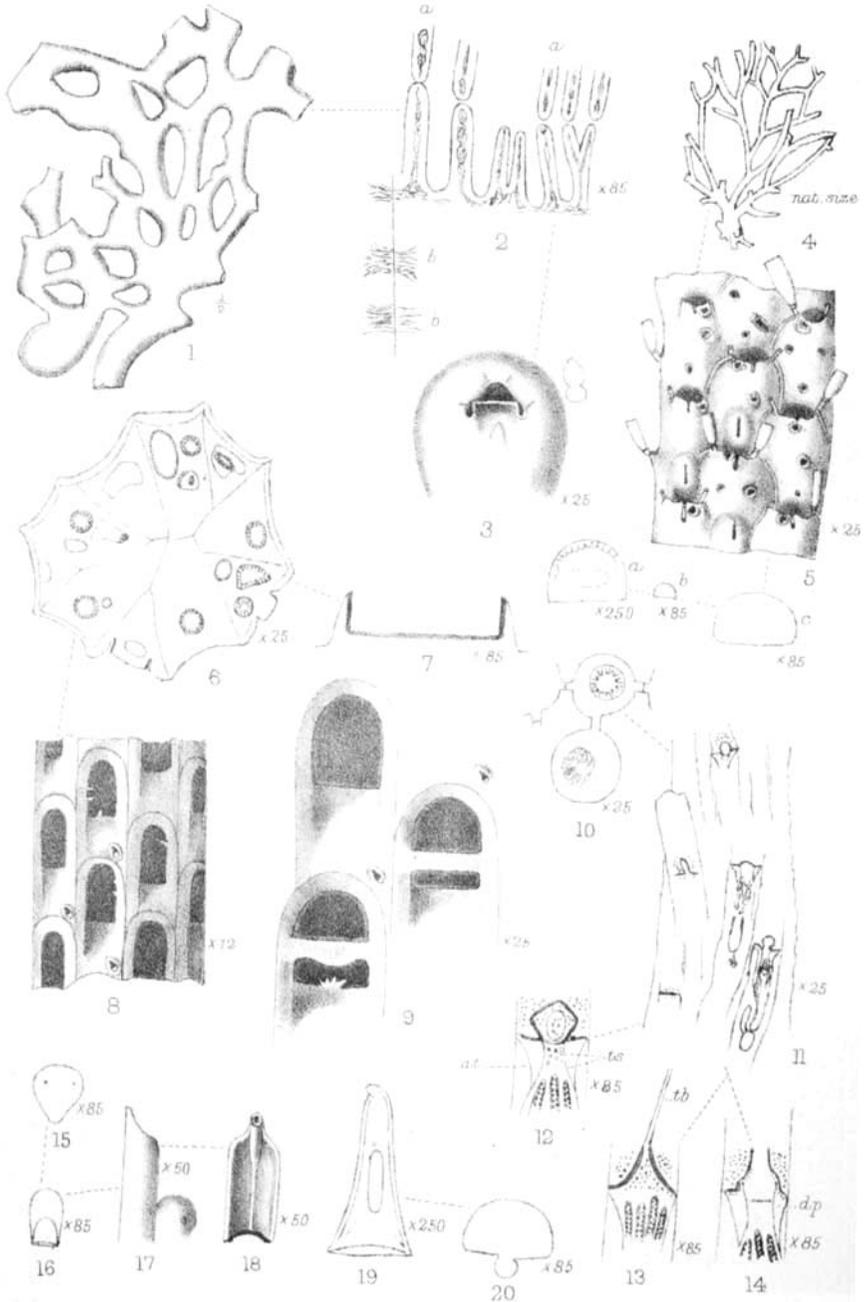
- Fig. 1. *Microporella Hyadesi*, Jull. Showing the ovicell and the bridge below it. From the Falkland Islands, 261 a, Mus. d'Hist. Nat. Paris. $\times 25$.
2. *Microporella Hyadesi*, Jull. Median pore, $\times 250$.
3. " " Operculum, $\times 85$.
4. " " Mandible, $\times 85$.
5. " " Ovicell seen from the side, and also the bridge, $\times 25$.
6. *Cribrilina patagonica*, sp. nov. Cape Horn Exp., Station unknown. $\times 25$.
7. " " Operculum, $\times 85$.
8. *Schizoporella patagonica*, sp. nov. Station unknown. $\times 25$.
9. " " $\times 85$.
10. " " Mandible, $\times 85$.
11. " " Operculum, $\times 85$.
12. *Adeonella lichenioides*, M. Edw., $\times 25$. a, natural size. From Station unknown, Cape Horn Exped.
13. *Smittia Lebruni*, sp. nov. Station unknown. $\times 25$. a, large mandible, $\times 85$; b, operculum, $\times 85$; c, mandible, $\times 85$.
14. *Membranipora falcifera* (Busk), $\times 25$. Station unknown.
15. " " Avicularium, $\times 85$.
16. *Cellurinnella dubia*, Waters. Station 4, Exp. Cape Horn.



A.W. Waters del.
A.T. Hollick lith.

West Newman imp. London.

CAPE HORN BRYOZOA.



A.W. Waters del.
A.T. Hollick lith.

West, Newman imp London.

CAPE HORN BRYOZOA.

PLATE 29.

- Fig. 1. *Aspidostoma giganteum*, Busk. Showing reticulate growth, half natural size. From sketch made in Paris in order to show the growth approximately. Station unknown.
2. *Aspidostoma giganteum*, Busk. *a*, distal connections; *b*, lateral connections through the rosette-plates. $\times 85$.
 3. *Aspidostoma giganteum*, Busk. Zoecium showing the lamina below the aperture, and small lateral projections at each side. $\times 25$.
 4. *Retepora spatulifera*, sp. nov. Natural size. From Station 4.
 5. " " $\times 25$. *a*, mandible, $\times 250$; *b*, do., $\times 85$; *c*, operculum, $\times 85$.
 6. *Thalamoporella labiata*, Busk. Decalcified section, $\times 25$.
 7. " " Section of operculum, $\times 85$.
 8. " " $\times 12$. From Cape Horn Exped.
 9. " " Specimen in Mus. d'Hist. Nat. Paris, named and figured by d'Orbigny as *Vincularia elegans*, d'Orb., No. 13616. $\times 25$.
 10. *Entalophora regularis*, MacGill. Transverse section, showing connection through tubes divided by a disk, $\times 25$.
 11. *Entalophora regularis*, MacGill. Longitudinal decalcified section, showing thick membranous transverse walls, $\times 25$.
 12. *Entalophora regularis*, MacGill. The thick membrane projects in the middle, but is not closed below. *ts.*, tentacular sheath; *at.*, tissue attached to the tentacular sheaths and to the zoecial wall.
 13. *Entalophora regularis*, MacGill. There is a thin (*tb.*) tube arising from the transverse membrane. $\times 85$.
 14. *Entalophora regularis*, MacGill. *dp.*, diaphragm.
 15. *Lagenipora lucida*, form *nitens*, MacGill. Operculum, $\times 85$.
 16. " " " Mandible, $\times 85$.
 17. " " End of zoecium showing ovicell, $\times 50$.
 18. " " End of zoecium seen from the inside, $\times 50$.
 19. *Cellepora petiolata*, sp. nov. Mandible, $\times 250$.
 20. " " Operculum, $\times 85$.
-