

PLATE 105, FIG. 1.

CELLARIA RIGIDA (McG.).

[Genus CELLARIA (LAMX.) = SALICORNARIA (CUVIER). (Sub-kingd. Mollusca. Class Polyzoa. Order Infundibulata. Sub-order Cheilostomata. Fam. Salicornariidæ.)

Gen. Char.—Zoarium simple or branched, cylindrical, with the zoecia arranged around an imaginary axis.]

DESCRIPTION.—Polyzoary regularly dichotomously branched; branches cylindrical, slightly arcuate, usually enlarging upwards; zoecia mostly rhomboidal, pointed above and below; mouth in the upper half, lofty, slightly contracted towards the straight lower lip; operculum with, on each side, a cervicorn mark, and posteriorly a projecting, somewhat wedge-shaped process for the attachment of the oclucosor muscles. Avicularium very large, replacing a cell; mandible of great size, nearly semicircular. Ovarian cells rounded above, narrowed below; the pore semilunar at the extreme upper end of the cell, with the lower edge usually projecting and smooth or obscurely crenulate.

REFERENCES.—P. H. MacGillivray, Trans. Roy. Soc. Vict. 1884; *Salicornaria simplex*, Busk, Challenger Polyzoa, p. 88, pl. xxxiii., f. 8.

Port Phillip Heads, usually on Dictyopora.

This fine species forms tufts 1 to 3 inches high. The articulations are frequently rigid from calcification. The internodes are thick and usually slightly curved. The zoecia are nearly regularly rhomboidal; the ovarian ones broad and rounded above and narrowed below. The mouth is situated in the upper half, the lower lip corresponding to about the middle of the zoecium; deep in the interior are two sharp, stout, calcareous denticles from each of the upper and lower margins, directed vertically upwards and downwards. The operculum is very peculiar; it has a large cervicorn mark on each side, and the oclucosor muscles are attached to projecting, wedge-shaped processes. The avicularium is of great size, replacing a cell; the upper margin projects much forwards, and the mandible is very large, nearly semicircular, and directed upwards. The ovarian pores are mostly semilunar, situated close to the upper margin of the zoecium, and about the same width as the mouth; the lower edge projects upwards as a sort of lip, which is either smooth or very faintly crenulate.

In Decade V., pl. 49, I described a form of Cellaria as *C. fistulosa*, var. *australis*. Having subsequently, through the

kindness of Mr. Hincks and Mr. Waters, received European specimens of *C. fistulosa*, I was satisfied that they ought to rank as distinct species, and therefore proposed (Trans. Roy. Soc. Vict. 1884) to name it *C. australis*. In the Challenger Polyzoa Mr. Busk has described the same species as *Salicornaria clavata*, probably not having noticed that I had already changed the varietal into a specific name.

EXPLANATION OF FIGURES.

PLATE 105.—Fig. 1, specimen, natural size. Fig. 1a, portion of same, magnified, showing outline of zoœcia and an avicularium. Fig. 1b, group of zoœcia and an avicularium. Fig. 1c, single zoœcium, showing the intra-oral denticles. Fig. 1d, three zoœcia, two showing the ovarian pores.

PLATE 105, FIG. 2.

TUBUCELLARIA CEREOIDES (ELLIS AND SOLANDER).

[Genus TUBUCELLARIA (D'ORBIGNY). (Sub-king. Mollusca. Class Polyzoa. Order Infundibulata. Sub-order Cheilostomata. Fam. Tubucellariidae.)

Gen. Char.—Zoarium consisting of cylindrical internodes connected by corneous tubes; branches arising dichotomously or irregularly from the sides of the segment to which they are attached. Zoœcia prominent above, narrowed below, when young distinct, but when older indistinct; peristome produced into a short tube; frequently a small, circular, median pore in front; surface punctate.]

DESCRIPTION.—Zoarium consisting of cylindrical branches, each branch articulated by a corneous tube to the side of that from which it springs. Zoœcia indistinct; mouth circular; whole surface punctate.

REFERENCE.—P. H. MacGillivray, Trans. Roy. Soc. Vict. 1884.

Port Phillip Heads, Mr. J. Bracebridge Wilson.

Of this I have only seen two specimens, sent to me by Mr. J. B. Wilson; one three-quarters of an inch in length, the other smaller. The zoarium consists of cylinders branched exactly as in *Cellaria australis*, the branches arising from the sides of those from which they spring by flexible corneous tubes. The zoœcia are, on the surface, quite confluent, and mostly only distinguishable by their mouths. The whole surface is beautifully punctate, the punctations being caused by the reticulation of chains of small depressions or pores. There is usually a minute circular opening about the middle of each zoœcium.

EXPLANATION OF FIGURES.

PLATE 105.—Fig. 2, specimen, natural size. Fig. 2a, portion of same, magnified.

PLATE 105, FIGS. 3 AND 4.

URCEOLIPORA DENTATA (McG.).

[Genus URCEOLIPORA (McG.). (Sub-king. Mollusca. Class Polyzoa. Order Infundibulata. Sub-order Cheilostomata. Fam. Bifaxariidae.)

Gen. Char.—Zoarium continuous, irregularly branched. Zoœcia alternate, in two series, facing opposite ways, and each springing from the upper and posterior part of that immediately preceding; oral opening facing directly or obliquely upwards, entirely occupied by the operculum; a slight ridge on each side of the zoœcium, probably indicating a shallow anterior compartment.]

DESCRIPTION.—Zoœcia arranged in a double series facing opposite ways, alternate, elongated, sub-cylindrical, but narrowed below and projecting in front; mouth terminal, oblique, lower margin straight, upper semicircular, with usually five short, stiff spines. Oœcia large, smooth, imbedded in the front of the zoœcium above.

REFERENCE.—P. H. MacGillivray, Trans. Roy. Soc. Vict., Nov. 1884.

Port Phillip Heads, dredged by Mr. Wilson and myself.

Forms small tufts about an inch high. The zoœcia bear a marked resemblance to those of *Calwellia bicornis*, although there is not the same peculiar mode of connection. On the lower lip there is on each side a minute mark or pit, and immediately below a small median pore.

EXPLANATION OF FIGURES.

PLATE 105.—Fig. 3, specimen, natural size. Fig. 3*a*, portion of the same, magnified. Fig. 3*b*, two zoœcia, more highly magnified. Fig. 4, small portion of another specimen, mounted in balsam by Mr. Wilson, seen by transmitted light, showing two oœcia.

PLATE 105, FIGS. 5-7.

URCEOLIPORA NANA (McG.).

DESCRIPTION.—Zoœcia elongated, urceolate, mouth terminal, opening nearly vertically upwards, lower lip hollowed, with a projecting, sub-triangular process on each side, sometimes bearing a small avicularium. Oœcia with the surface minutely cribriform or marked with radiating beaded lines.

REFERENCES.—P. H. MacGillivray, Trans. Roy. Soc. Vict. 1880; ? *Callymophora lucida*, Busk, Challenger Polyzoa, p. 84, pl. xxxii., fig. 8.

Port Phillip Heads.

This species forms small, dichotomously branched, rigid tufts, about half an inch high, growing on Retepora and other Polyzoa.

It differs from the last in its stouter habit, the mouth opening more directly upwards, the single sub-triangular process on each side, and the radiately marked or cribriform oœcia.

EXPLANATION OF FIGURES.

PLATE 105.—Fig. 5, specimen, natural size. Fig. 5*a*, portion of same, magnified. Fig. 5*b*, another portion, more highly magnified. Fig. 6, two cells and radiately marked oœcium (from dried specimen), viewed in front. Fig. 7, portion of a specimen mounted in balsam, showing cribriform oœcia and portions of loose epitheca.

These two species form a well-marked genus, for the second of which I proposed in 1880 the name *Urceolipora*. Mr. Busk, in the Challenger Polyzoa, having no doubt overlooked my previous description and figure, describes a form which is probably identical with *U. nana* as *Callymmophora lucida*, taking the name from the loose veil-like disposition of the epitheca. I have not had an opportunity of examining living or spirit-preserved specimens, but I believe that this will probably be found a characteristic feature. It is shown partly in figures 4 and 7, as well as in my original figure, which are taken from specimens beautifully mounted in balsam by Mr. J. B. Wilson; and shreds of the membrane can also be detected in some of my dried specimens.

I am indebted to Mr. MacGillivray for the descriptions and specimens of the Polyzoa on this plate.

FREDERICK McCoy.

PLATE 106, FIG. 1.

AMPHIBLESTRUM PUNCTIGERUM (HINCKS).

[Genus AMPHIBLESTRUM (GRAY). (Sub-king, Mollusca, Class Polyzoa, Order Infundibulata, Sub-order Cheilostomata, Fam. Membraniporidae.)

Gen. Char.—Zoarium encrusting. Zoëcia with the aperture occupying the whole front or with part of the zoëcium produced below; aperture partly filled in by an additional membranous or usually calcareous lamina.]

DESCRIPTION.—Zoëcia variously shaped, separated by raised smooth margins; aperture occupying the whole front, except a very narrow space below and at the sides which is filled in by a thin, calcareous, smooth or faintly granular membrane. Oëcia large, faintly granular, with a mitriform or quadrate portion in front separated by a narrow raised line.

REFERENCE.—Hincks, Ann. and Mag. Nat. Hist., July 1881.

Port Phillip Heads, on algæ.

This seems to be a rare species, as I have only seen two or three not very good specimens. The zoëcia are of a large size and very variable in shape. The raised margins are narrow and smooth. There is a very narrow calcareous membrane, sometimes scarcely distinguishable, on the lower part and extending up the sides. The mitriform or quadrate space on the front of the oëcium seems to be caused by a deficiency of the outer layer at this part.

EXPLANATION OF FIGURES.

PLATE 106.—Fig. 1, small portion of a specimen, showing the various shapes of the zoëcia, the irregularity in extent of the calcareous thickening of the membrane, and three oëcia.

I have followed Busk (in the Challenger Polyzoa) in considering those Membraniporæ with the membranous aperture partly filled by a thicker chitinous or calcareous lamina as a distinct genus, and have adopted his name derived from Gray. Gray, however, originally proposed the name for *M. membranacea*, which in my opinion ought to be taken as the type of the true Membraniporæ, the name having been first applied to it by Blainville. Gray, moreover, makes no reference to an additional thickening of the membranous front, which in fact does not exist in *M. membranacea*. Those species previously described in this work as Membraniporæ and which are referable to the present genus are *M. umbonata*, *cervicornis*, and *Rosselii*.

PLATE 106, FIG. 2.

AMPHIBLESTRUM FLEMINGII (BUSK).

DESCRIPTION.—Zoœcia large, variously shaped, surface granular; inner aperture large, obscurely trifoliate; a spine on each side. A sessile avicularium at the base of a zoœcium, with the mandible directed upwards or laterally. Oœcia large, prominent.

REFERENCES.—Busk, Cat. Mar. Pol. Brit. Mus., pt. ii., p. 58, pl. lxxxiv., figs. 3-5; Hincks, Brit. Mar. Polyzoa, p. 162, pl. xxi., figs. 1-3.

Port Phillip Heads, dredged by Mr. J. B. Wilson and myself.

I have only seen two small fragments of this species, but I have no doubt that it is identical with *M. Flemingii*, although differing in size and appearance of the oœcia from those of the only European specimen I have. In the Victorian specimens the zoœcium is generally produced below the margin, and it is in this part that the avicularium is situated. The mandible is usually pointed directly upwards, but it is occasionally transverse to the zoœcium. In the European form there are generally two avicularia at the base of a zoœcium. In my specimens most of the zoœcia are destitute of spines, and when present there is only one on each side. The oœcia are very large, some with a space marked off in front, but most without any differentiation.

EXPLANATION OF FIGURE.

PLATE 106.—Fig. 2, portion of specimen, magnified, showing ovicells and avicularia.

PLATE 106, FIG. 3.

AMPHIBLESTRUM PERMUNITUM (HINCKS).

DESCRIPTION.—Zoarium very calcareous. Zoœcia variously shaped, wider in the middle, separated by raised, crenulated margins; secondary aperture occupying nearly half of the front of the zoœcia, somewhat quadrate, but wider below; front of zoœcium below the secondary aperture porcellanous, finely tubercular and crenulated at the edge. Avicularia on special tracts at the base of smaller zoœcia; mandible falcate, with an expanded base, directed obliquely upwards. Oœcia small, prominent, finely granular, with a crescentic smooth band about the junction of the upper with the middle third.

REFERENCE.—*Membranipora permunita*, Hincks, Ann. and Mag. Nat. Hist., Feb. 1881.

Port Phillip Heads; Portland, Mr. Maplestone.

I had previously (Trans. Roy. Soc. Vict. 1868) described this as *M. falcata*, but as my description was taken from a single imperfect specimen, it was scarcely exact enough. I have therefore adopted the name subsequently given to it by Mr. Hincks, who described it from better specimens. The whole zoarium is very calcareous, the calcareous lamina of the membranous aperture being thick and granular. The avicularia are very peculiar. They are situated on special tracts at the base of small, imperfectly developed zoœcia intercalated among the others. The mandible is falciform, the concave edge thick, the other formed by a thin membrane; it expands at each side at the base, like the cross-piece of the handle of a sword. The oœcia are prominent, globose, and divided by a concentric smooth band, the part below which is finely granular, the part above being smooth, or with coarser granulations.

EXPLANATION OF FIGURE.

PLATE 106.—Fig. 3, small portion of a specimen, magnified, showing an avicularium and two oœcia.

PLATE 106, FIG. 4.

PYRIPORA CRASSA (McG.).

[Genus PYRIPORA (D'ORBIGNY). (Sub-kingd. Mollusca. Class Polyzoa. Order Infundibulata. Sub-order Cheilostomata. Fam. Membraniporidae.)

Gen. Char.—Zoarium adherent. Zoœcia distinct, thick, calcareous, convex, not separated by raised lines, narrowed below, in branched single series or forming continuous expansions; a large oblique aperture in front, filled by a thin membrane.]

DESCRIPTION.—Zoœcia large, much attenuated downwards, surface not annulated; aperture large, its margin thickened, with a thick, lip-like projection from the lower border.

REFERENCE.—*Hippothoa crassa*, P. H. MacGillivray, Trans. Roy. Soc. Vict. 1868.

Queenscliff.

Differs from *P. catenularia* in the thick projection from the lower margin of the aperture, and from *P. polita* in the absence of the thick lateral masses.

EXPLANATION OF FIGURE.

PLATE 106.—Fig. 4, portion of a specimen, magnified.

Pyripora forms a very natural genus, and was first proposed by D'Orbigny, but its species have generally been included in *Hippothoa*, with which it has no real connection, or in *Membranipora*. The chief distinction from the other Membraniporidae consists in the zoecia being very calcareous, thick, convex, much narrowed below, and not separated by raised margins. The habit also is to run in irregular, branching series.

PLATE 106, FIG. 5.

PYRIPORA CATENULARIA (JAMESON).

DESCRIPTION.—Zoecia elongated, wide above, much narrowed below, arranged in linear or branching series, or occasionally aggregated; surface smooth or annulated; aperture oval or elliptical, occupying greater part of the expanded portion; margin flattened or bevelled, especially below.

REFERENCES.—*Hippothoa catenularia*, Busk, Cat. Mar. Pol. Brit. Mus., pt. i., p. 29, pl. xviii., figs. 1, 2; *Membranipora catenularia*, Hincks, Brit. Mar. Pol., p. 134, pl. xvii., figs. 1, 2.

Port Phillip Heads; Brighton.

I can detect no difference between this and the common European form. In my specimens the bevelled margin of the aperture is frequently granular.

EXPLANATION OF FIGURE.

PLATE 106.—Fig. 5, portion of a specimen in branching series, magnified.

PLATE 106, FIG. 6.

PYRIPORA POLITA (HINCKS).

DESCRIPTION.—Zoecia very porcellanous, usually close together, narrowed downwards; aperture occupying about a third or more of the front; below the aperture a rounded or oval protuberance and on each side an oval or elliptical mass; sometimes these convexities are not distinctly marked, and there is occasionally a thickened collar all round the aperture, and there are sometimes several transverse markings across the front of the zoecium.

REFERENCE.—*Membranipora polita*, Hincks, Ann. and Mag. Nat. Hist., Nov. 1880.

Queenscliff, on *Cymodocea antarctica*.

Very conspicuous from the highly porcellaneous character of the zoœcia with their polished convexities. At the growing extremity of one specimen the zoœcia spread irregularly in the manner of *P. catenularia*. I have little doubt that this is the species described by Lamouroux as *Cellipora alata*.

EXPLANATION OF FIGURE.

PLATE 106.—Fig. 6, small portion of specimen, magnified.



PLATE 106, FIG. 7.

ELECTRA FLAGELLUM (McG.).

[Genus ELECTRA (LAMX.). (Sub-king. Mollusca. Class Polyzoa. Order Infundibulata. Sub-order Cheilostomata. Fam. Membraniporidae.)

Gen. Char.—Zoarium encrusting or filiform and erect. Zoœcia elongated, narrowed below, closely adherent together; lower part convex without distinct raised margins, perforated by numerous small foramina; aperture occupying the whole width of the zoœcium above, deep, with thick raised margins; one or more very large whip-like spines (occasionally replaced by an avicularium) below the margin of the aperture and a variable number of small sharp spines on its circumference.]

DESCRIPTION.—Zoœcia arranged in regular transverse series, elongate-quadrate; aperture occupying the whole width of the zoœcium above, its edge very prominent and thus causing the corresponding parts of the zoœcia to be separated by much-raised margins; lower part of zoœcium convex, surface closely pitted and extending a little further up one side than the other; a stout conical spine superiorly on each side; an enormous whip-like spine below the aperture to one side, and one or occasionally two small spines on the margin on the other side.

REFERENCE.—*Membranipora flagellum*, P. H. MacGillivray, Trans. Roy. Soc. Vict., Dec. 1881.

Queenscliff, on stems of *Cymodocea antarctica*.

The only species with which this can be confounded is *E. pilosa*, from which it differs in the arrangement of the zoœcia in regular transverse series, in the lower part being produced more up one side of the aperture, and in the long spine being to one side. The oral opening is situated very deeply. The upper margin of the zoœcium forms a deep arched vault against the base of that above, and is surrounded by a continuation of the thickened rim of the aperture. All my specimens present the same arrangement, which is also slightly seen in some specimens of *E. pilosa*. It is possibly oœcial, and may consequently not be constant.

The present species, *Membranipora pilosa* and *E. verticillata*, constitute a well-marked generic group. In all three the zoëcium is of the same structure, the lower part, separated from its neighbours by a groove, is convex, covered with oval puncta or depressions. The aperture occupies the whole width of the upper part of the zoëcium, its margins thickened and those of contiguous zoëcia closely united. One large spine seems to be nearly constant (sometimes replaced by an avicularium) below the aperture, and there are other smaller spines on different parts of the margin. In *E. verticillata* the cells are trumpet-shaped, and the aperture consequently very oblique.

EXPLANATION OF FIGURES.

PLATE 106.—Figs. 7, 7a, portion magnified, the lower half the amplification of the upper.

PLATE 106, FIG. 8.

BATHYPORA PORCELLANA (McG.).

[Genus BATHYPORA (McG.). (Sub-kingd. Mollusca. Class Polyzoa. Order Infundibulata. Sub-order Cheilostomata. Fam. Membraniporidae.)

Gen. Char.—Zoarium encrusting. Zoëcia in longitudinal series, quadrate, separated by raised lines; lower part calcareous, convex, much projecting, smooth and imperforate; aperture occupying the whole width of the upper part, deep, membranous, with a narrow smooth lamina below.]

DESCRIPTION.—The zoëcia are quadrate, separated by narrow raised margins; the upper half is occupied by a membranous area, the membrane being situated at a considerable depth, with the flap-shaped mouth at the upper end; the lower half is prominent, smooth, white, calcareous, rising higher than the separating margin. The upper end of the zoëcium is in the form of a broad shallow arch hollowed out in the base of the prominent portion of that above.

REFERENCE.—*Membranipora porcellana*, P. H. MacGillivray, Trans. Roy. Soc. Vict., Nov. 1884.

Portland, Mr. Maplestone.

EXPLANATION OF FIGURES.

PLATE 106.—Fig. 8, portion of specimen, magnified. Fig. 8a, small group of zoëcia, more highly magnified.

PLATE 106, FIG. 9.

BIFLUSTRA PAPULIFERA (McG.).

[Genus BIFLUSTRA (D'ORBIGNY). (Sub-king. Mollusca. Class Polyzoa. Order Infundibulata. Sub-order Cheilostomata. Fam. Membraniporidae.)

Gen. Char.—Zoarium encrusting or erect, foliaceous or cellular, uni- or bi-laminar; zoecia depressed, elongated, separated by much raised, highly calcified, usually crenulated margins; aperture partially filled in below and occasionally on the sides by a calcareous usually granulated lamina, which generally slopes downwards from the margin.]

DESCRIPTION.—Zoarium encrusting. Zoecia arranged in more or less regular, contiguous lines, narrowed below, oval; aperture very slightly filled in below; margin thickened, strongly crenulated, the lower part raised into a rounded prominence.

REFERENCE.—*Membranipora papulifera*, P. H. MacGillivray, Trans. Roy. Soc. Vict., Dec. 1881.

Port Phillip Heads, Mr. J. Bracebridge Wilson.

EXPLANATION OF FIGURE.

PLATE 106.—Fig. 9, group of zoecia, magnified.

PLATE 106, FIG. 10.

BIFLUSTRA BIMAMILLATA (McG.).

DESCRIPTION.—Zoarium encrusting. Zoecia elongated; aperture elliptical, the edge formed by a thickened, crenulated rim; the lower part of the aperture occupied by a large plate or denticle sloping backwards and usually with a fissure or notch on one side; front of the zoecium formed by a calcareous granulated lamina sloping inwards to the aperture; at the lower part of the zoecium are two rounded prominences or mamillæ, or occasionally only a single transversely elongated mass.

REFERENCE.—*Membranipora bimamillata*, P. H. MacGillivray, Trans. Roy. Soc. Vict., Nov. 1884.

The broad smooth plate at the lower part of the aperture is evidently of the same nature as the serrated denticle of *B. delicatula*.

EXPLANATION OF FIGURE.

PLATE 106.—Fig. 10, portion of specimen, magnified.

The descriptions and type specimens illustrated by this plate are from Mr. MacGillivray.

FREDERICK MCCOY.

PLATE 107, FIG. 1.

CATENICELLOPSIS PUSILLA (J. B. WILSON).

[Genus CATENICELLOPSIS (J. B. WILSON). (Sub-kingd. Mollusca. Class Polyzoa. Order Infundibulata. Sub-order Cheilostomata. Fam. Catenicellidæ).

Gen. Char.—Polyzoary phytoid, erect, consisting of (usually) dichotomously divided, uniserial branches; cells all facing the same way, arising by short, corneous tubes from the upper and back part, or from the sides of other cells; cells at a bifurcation geminate, or a simple cell giving rise to the first of a series from its side; a small avicularium on either side superiorly.]

DESCRIPTION.—Cells ovoid; mouth lofty, arched above, straight below; a pair of long, blunt, hollow processes above the mouth, and another pair, shorter and thicker, opposite its lower part, with usually a minute avicularium at their bases externally; front with a rounded foramen below the mouth; surface smooth or minutely papillose; back smooth; ovicell immersed at the base of the upper of a group of three coalescent cells.

REFERENCE.—J. Bracebridge Wilson, Tr. Mic. Soc. Vict. 1880.

Spring Creek, near Geelong, Mr. J. B. Wilson.

This species forms small glassy tufts, growing on other polyzoa and algæ. The cells are ovoid, slightly curved forwards. The mouth is lofty and slopes backwards. Above and behind the mouth is, on each side, a long, blunt, digitiform process, and more anteriorly, opposite its lower half, is a shorter, thicker, and usually curved, similar process, which frequently has a small avicularium on its outer aspect. On the front of the cell is a round or oval opening raised on a slight elevation. The cells usually extend in linear series from the upper and back part of those preceding; but they frequently originate by short, corneous tubes from their sides. The branches arise from the cells of a geminate pair, from the sides of single cells in a series, dichotomously from a single terminal cell, or in three series from a geminate pair. The ovicell is immersed in the base of the upper of a tricellate group, which is either terminal or at a bifurcation. It is covered with tubercles or raised pores.

EXPLANATION OF FIGURES.

PLATE 107.—Fig. 1, specimen, natural size. Fig. 1a, small portion, magnified, showing tricellate group and ovicell. Fig. 1b, posterior view of the same. Fig. 1c, small portion, showing the origin of cells and branches from the sides of other cells.

PLATE 107, FIG. 2.

CATENICELLOPSIS DELICATULA (J. B. WILSON).

DESCRIPTION.—Cells elongated; mouth arched above, hollowed, slightly bulging below; on each side a broad avicularian process, directed outwards and forwards, extending from the summit of the cell to opposite the lower lip, and with a deep excavation lodging an avicularium; surface smooth; a short narrow, sub-lateral vitta on each side; posterior surface finely sulcate; ovicell globular, sub-immersed in the base of the upper of two coalescent cells.

REFERENCE.—J. Bracebridge Wilson, Tr. Mic. Soc. Vict. 1880.

Spring Creek, Mr. J. B. Wilson. Port Phillip Heads.

This, like the last, occurs in small, glassy, parasitic tufts. The cells are elongated, and have on each side a small sub-lateral vitta. There is also on each side a broad, lateral process, directed considerably forwards, the outer part of which has a deep cup containing an avicularium. The ovicell is cemented to the base of the upper of two coalescent cells, the lower of which has, in the place of the usual avicularian process, a stout, blunt, digitiform prolongation.

EXPLANATION OF FIGURES.

PLATE 107.—Fig. 2, specimen, natural size. Fig. 2a, small portion, magnified, showing ovicell and origin of three branches from a geminate pair.

I am doubtful whether *Catenicellopsis* ought to be separated from *Catenicella*. The character on which the genus has been founded is the frequent origin of the cells and branches from the sides of the cells, and not always from the summits of the cells of geminate pairs, as seems invariably to occur in the true *Catenicellæ*.

PLATE 107, FIG. 3.

CALPIDIUM PONDEROSUM (GOLDSTEIN SP.).

[Genus CALPIDIUM (BUSK). (Sub-kingd. Mollusca. Class Polyzoa. Order Infundibulata. Sub-order Cheilostomata. Fam. Catenicellidæ.)

Gen. Char.—Polyzoary phytoid, erect, branched; branches consisting of series of cells all facing the same way, connected by corneous tubes; each internode consisting of a single cell, or of a median primary cell and a lateral, on one or both sides, united side to side; mouth contracted about the lower third, its upper margin very prominent and projecting; an avicularium on each upper angle of an internode.]

DESCRIPTION.—Polyzoary consisting of long, straggling branches; each internode containing a single cell, or two laterally coalescent; cells elongated, narrow, with five fenestræ on the front of each; an avicularium at each upper angle of the internodes; posterior surface with a vertical band, and two lateral pairs springing from it; ovicell large, galeate, terminal.

REFERENCE.—*Catenicella ponderosa*, Goldstein, Tr. Mic. Soc. Vict. 1880.

Port Phillip Heads.

Forms tufts of considerable size. The branches are much more slender and straggling than in the next. Each internode usually consists of only a single cell, but very frequently there is also a coalescent one on the side. It is to be expected that a second lateral cell sometimes occurs, but I have not observed it in any of the specimens examined. The cells are long, and narrower than in *C. ornatum*. On the back, in the single-celled internodes, there is a vertical, thickened band, with a pair of similar bands extending from its lower part obliquely upwards and outwards to the edge, and another short pair going horizontally outwards from the upper part. The arrangement of the bands in the double-celled internodes varies. The ovicell is large, galeate, on the summit of a terminal cell. The cell on which it is situated is narrower and smaller than the others, and has the fenestræ more elongated. The posterior surface has some slightly elevated bands. The

external envelope is very calcareous and brittle, easily separating in fragments or as a shell from the internal parts, and then giving the appearance described and figured by Goldstein.

EXPLANATION OF FIGURES.

PLATE 107 —Fig. 3, branch, natural size. Fig. 3*a*, portion, magnified, showing single- and double-celled internodes. Fig. 3*b*, back view of a portion of the same. Fig. 3*c*, small portion, more highly magnified, to show the form of the mouth.

The type specimens and descriptions of the species on this plate have been contributed by my friend Mr. MacGillivray.

FREDERICK MCCOY.

PLATE 108, FIG. 1.

CALPIDIUM ORNATUM (BUSK).

DESCRIPTION.—Polyzoary consisting of broad, closely set branches; internodes of three, or occasionally of two, laterally coalescent cells; cells very large, with five large fenestræ on each; posterior surface with a central, thickened band, corresponding to the middle of the median cell, and two pairs of transverse bands going at right angles from this, the upper again dividing.

REFERENCE.—Busk, Brit. Mus. Cat. Mar. Pol., p. 15, Pl. XII. and XIII.

Port Phillip Heads, seemingly very rare.

The only specimen I have, which I dredged in about 15 fathoms, forms a thick tuft, about 3 inches high. The branches are broad, closely set, flat, almost penniform in arrangement. The internodes, which are broad and urn-shaped, usually consist of three coalescent cells, but occasionally one lateral is wanting. At each upper angle, whether the internode consists of two or three cells, is a large avicularium. Almost the whole front of each cell is occupied by 5 fenestræ, separated by raised bands. The posterior surface is marked by a vertical, thickened band, corresponding to the central line of the median or primary cell; from this two pairs of bands are given off at right angles, the upper of which again gives off another branch, which ascends vertically and then turns horizontally outwards.

The ovicell, for specimens of which I am indebted to Mr. J. B. Wilson, very much resembles that of *Catenicella plagiostoma*. It is terminal, of great size, equalling in width the preceding tricellular internode, with the summit of the middle cell of which it is connected by a short tube. It is obscurely triangular in outline, with the apex produced into a simple, sharp, or bifid process. On the front is a prominent vertical ridge. The opening is very wide, looking downwards and slightly forwards; the margin is thickened, especially anteriorly, where it forms a broad collar. A specimen, which is unfortunately somewhat damaged, mounted in balsam, shows a shallow operculum with its

base supported by two calcareous processes rising vertically from the thickened posterior margin of the mouth.

It is at once distinguished from the last by its much larger size, more massive appearance, the usually tricellate internodes, and the different sculpture on the back.

EXPLANATION OF FIGURES.

PLATE 108.—Fig. 1, portion of branch, natural size. Fig. 1a, front view of two internodes, magnified. Fig. 1b, portion of branch in outline, to show internodes of two and of three cells. Fig. 1c, back of single internode.

The genus *Culpidium* was founded by Busk to contain *C. ornatum*, the character being that "it is distinguishable by the anomalous circumstance that each cell is furnished with two or more, usually with three distinct keyhole-shaped mouths, and is doubtless inhabited by three distinct individuals." The genus is a very marked and natural one, but the real distinction is not in the number but in the structure of the mouths. The mouth is lofty, contracted about the junction of the middle with the lower third; above this the margin is very prominent, and projects as a hood or collar, slightly hollowed in the centre above, from which point (in the median or primary cells) a narrow ridge runs upwards. Each internode consists of a primary cell, either single, or with an additional cell added on one or both sides. The cells of a series, except at a bifurcation, always arise from the summit of a primary cell. At a bifurcation in *C. ornatum* one branch springs from the primary cell, the other from one of the laterals, which has also a vertical ridge above the aperture; while in *C. ponderosum* both cells at a bifurcation have a similar ridge. In continuous series, where the internodes are double-celled, the secondary cell seems to be always developed on the same side. At each upper angle of the internode, whether consisting of 1, 2, or 3 cells, there is a considerable avicularium.

Catenicella aurita and *C. geminata* have the mouth of a similar shape, but destitute of the raised margin. They ought, I think, to be separated as a distinct genus.

PLATE 108, FIG. 2.

CHLIDONIA DÆDALA (WYV. THOMSON).

[Genus CHLIDONIA (SAVIGNY). (Sub-kingd. Mollusca. Class Polyzoa. Order Infundibulata. Sub-order Cheilostomata. Fam. Chlidioidæ.)

Gen. Char.—Polyzoary phytoid, erect, rising from a creeping stolon; cells in single series, rising from the joints of an articulated, non-celliferous stem, all opening the same way.]

DESCRIPTION.—The stem of each colony rises by a corneous tube from a disk on the dilatation of a creeping, anastomising stolon. It consists of a series of long, calcareous cylinders connected by corneous tubes. The upper internode divides into two, each division originating a branch extending in a curved direction outwards, upwards, and forwards. These are divided into calcareous internodes connected by corneous tubes, as in the primary stem. A certain number (2–7 or 8) of the internodes give origin superiorly to the first cells of an erect series. The lateral branch ends in a simple or divided tendril-like filament, jointed in the same manner. The cells are arranged in erect, linear series, each connected to the upper part of the preceding by a short, corneous tube. The number varies from 1 to 5 or 6 in each series, being greatest in those nearest the bifurcation of the central stem. The ultimate cell of each series usually gives rise at its summit to a tendril-like prolongation of similar structure to the extremities of the lateral branches. The cells are wide above, narrowed below, laterally compressed, and very much bulging posteriorly. The anterior surface is flattened, the greater part occupied by a thinner, depressed area separated by distinct margins. The large mouth, situated at the upper part, is rounded above and straight below. Below the mouth there is usually a small, round foramen. Some of the cells are much larger, but not otherwise different, and are probably ovicelliferous.

It is a very minute species growing on other polyzoa, chiefly *Bicellaria*. When extended, the whole has a very beautiful appearance, resembling a two-branched candelabrum.

It was made the type of a new genus by Wyville Thomson (Dubl. Nat. Hist. Rev. 1858), and described as *Cothurnicella dædala*. It is, however, exceedingly closely allied to the Mediterranean *Eucratea cordieri*, and will probably prove to be a luxuriant form of that species. As, however, the only specimen I have of the latter is not in a very good state of preservation, I am unable to decide positively. Waters's description (Ann. and Mag. Nat. Hist., Feb. 1879), the only one with which I am acquainted, would precisely apply to our species.

D'Orbigny (Paléontologie Française, and V. Bryozoaires, p. 40) first defines *Chlidonia*, referring to the name as given by Savigny

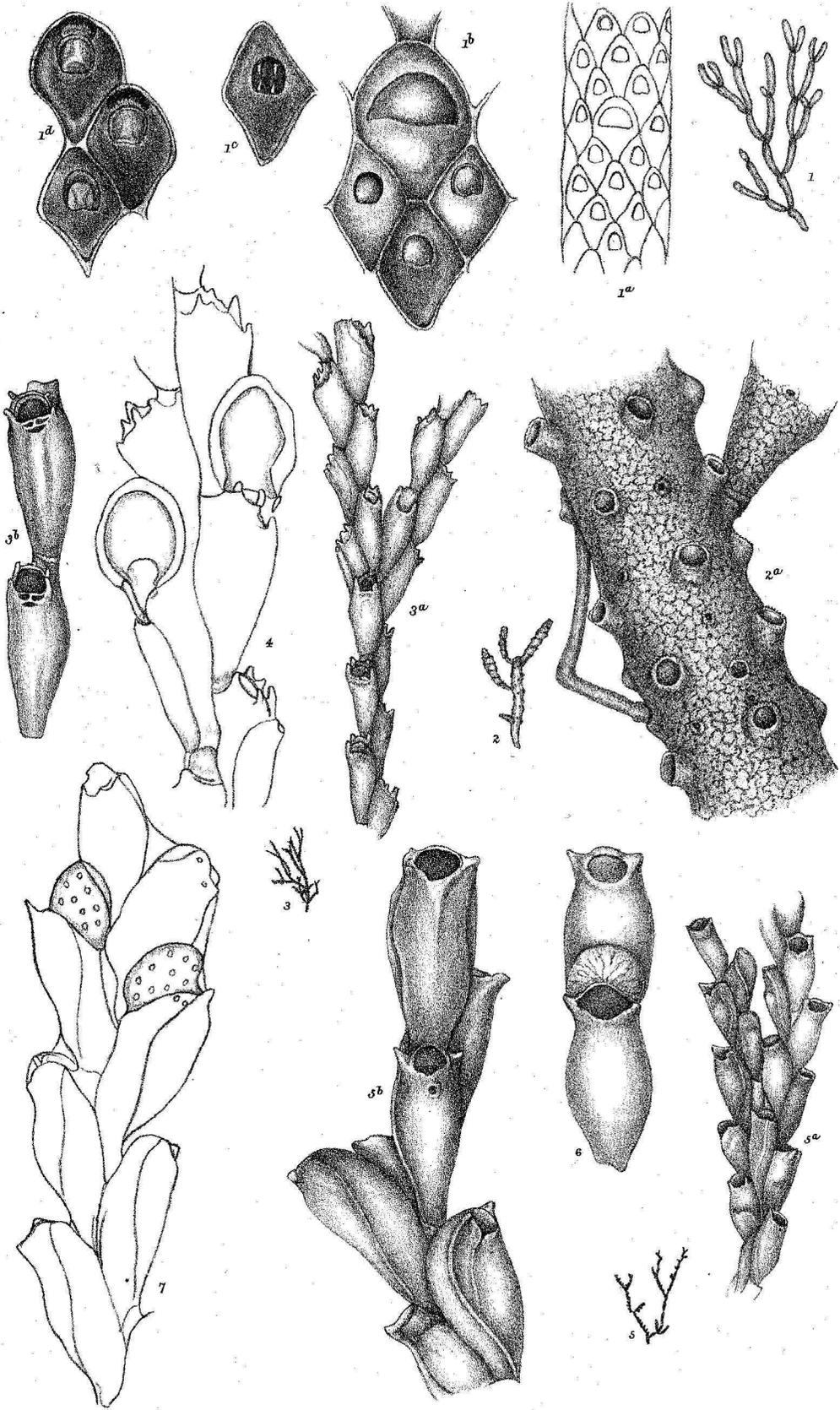
on one of his plates, and to Audouin's explanation of the plate as *Eucratea cordieri*. As priority seems to be with Savigny's name, and *Eucratea* has by different authors been made to include other species generically distinct (*Scruparia chelata*, *Alysidium Lafontii*, *Crisidia cornuta*), it is, I think, better to follow D'Orbigny.

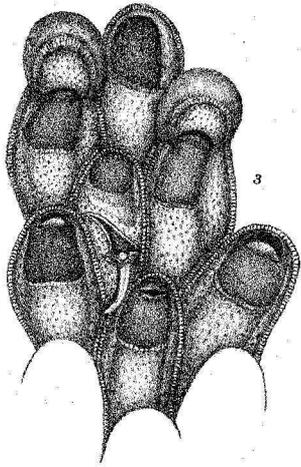
EXPLANATION OF FIGURES.

PLATE 108.—Fig. 2, specimen, natural size. Fig. 2a, specimen, magnified. Fig. 2b, lateral half of another specimen, more highly magnified.

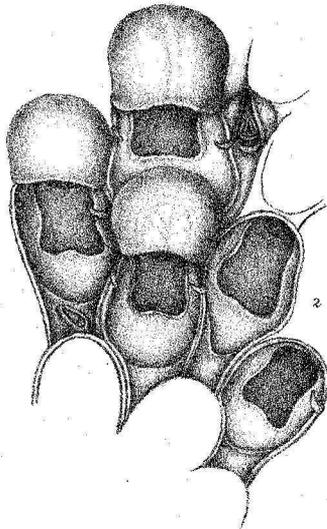
The specimens and descriptions of these two curious forms are from Mr. MacGillivray.

FREDERICK MCCOY.

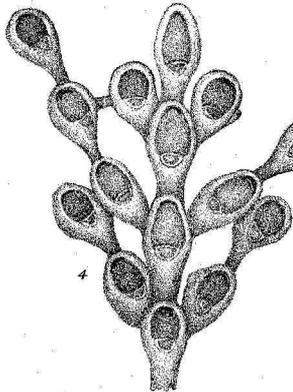
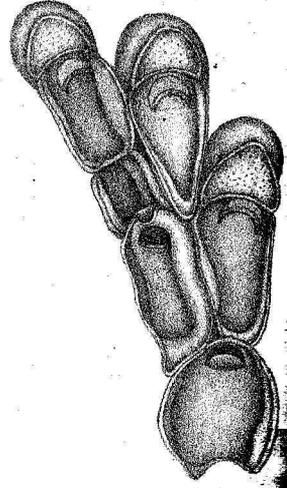




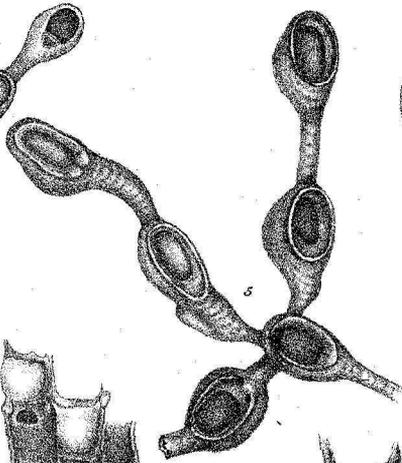
1



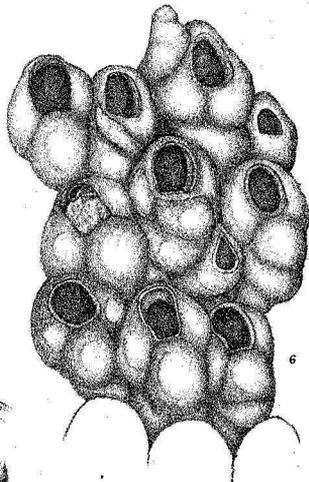
2



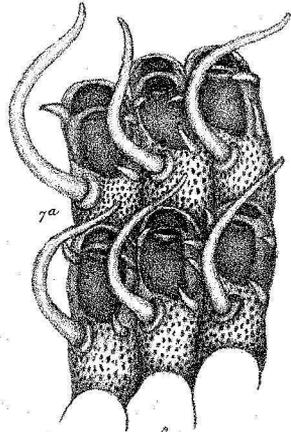
4



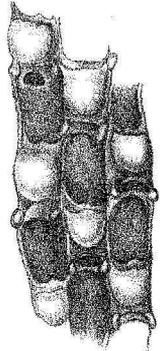
5



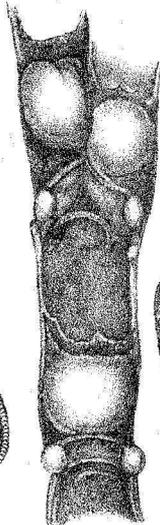
6



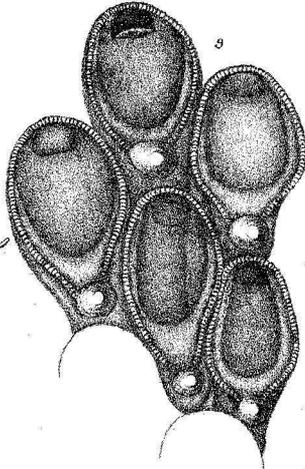
7a



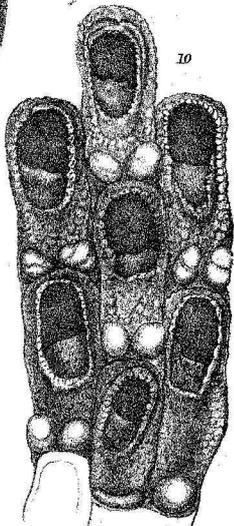
8



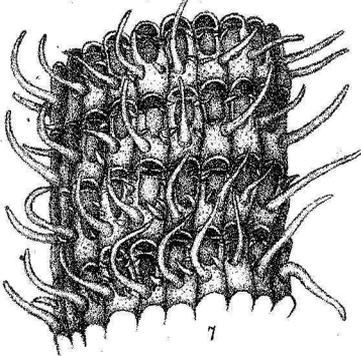
8a



9

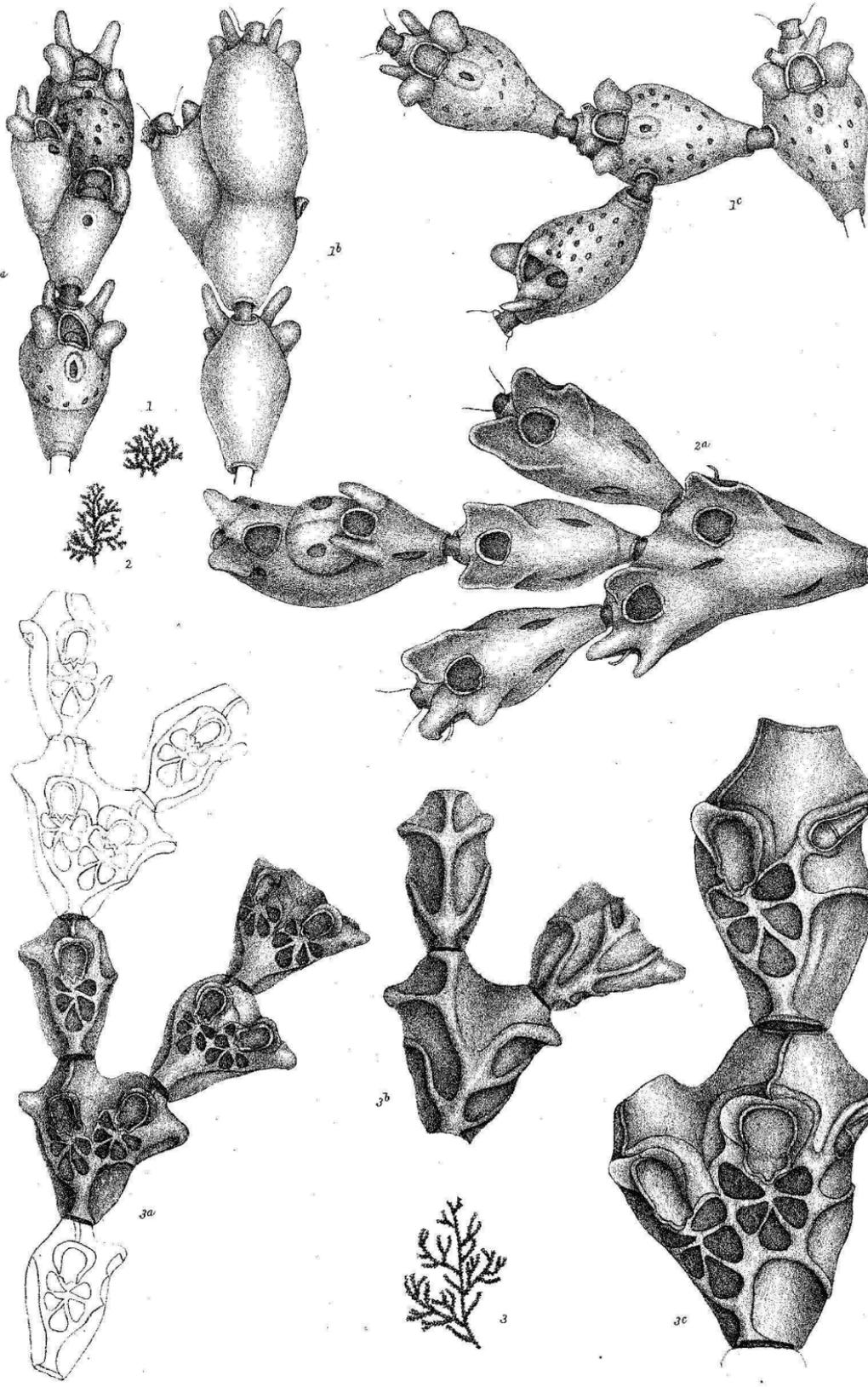


10

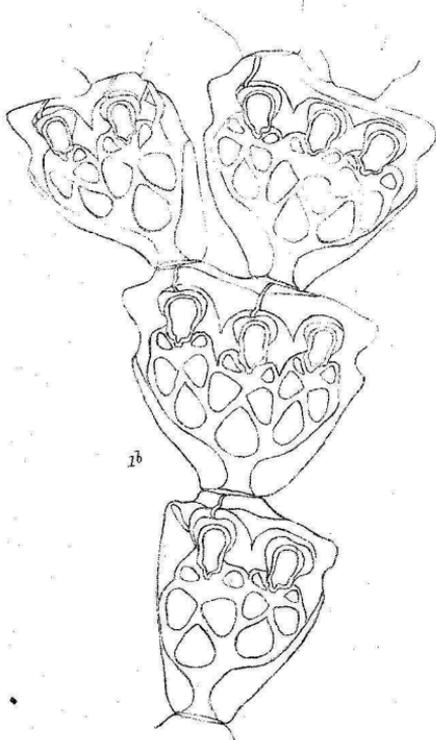


11

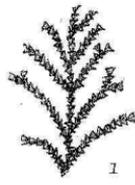
(Polyzoa)



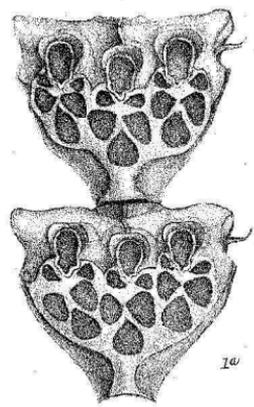
(Polyzoa)



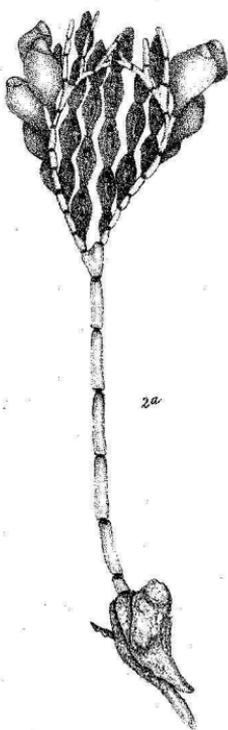
1b



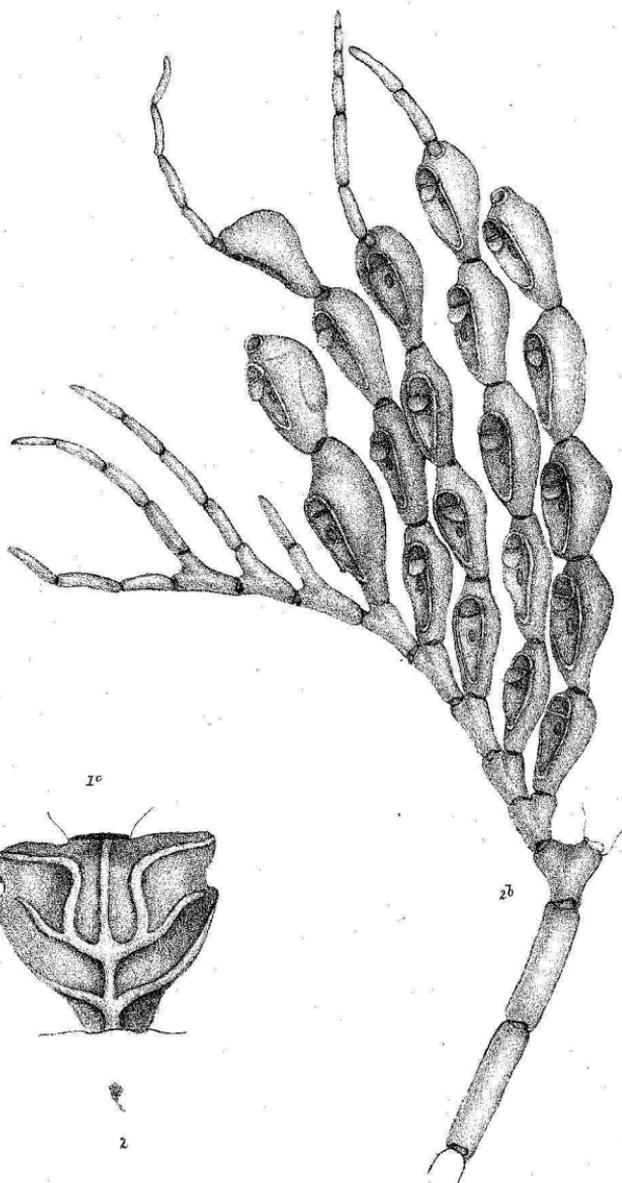
1



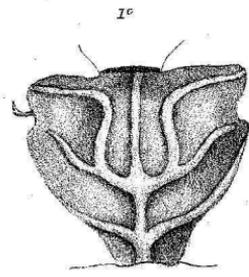
1a



2a



2b



1c

2