

## PLATE 94.

## OPERCULA OF SPECIES OF RETEPORA.

- FIG. 1, R. MONILIFERA.  
2, R. MONILIFERA, VAR. SINUATA.  
3, R. MONILIFERA, FORM MUNITA, VAR. LUNATA.  
4, R. MONILIFERA, FORM MUNITA, VAR. ACUTIROSTRIS.  
5, R. MONILIFERA, FORM UMBONATA.  
6, R. FORMOSA.  
7, R. AURANTIACA.  
8, R. PORCELLANA.  
9, R. PORCELLANA, VAR. LAXA.  
10, R. CARINATA.  
11, R. GRANULATA.  
12, R. SERRATA.  
13, R. PHŒNICEA.  
14, R. TESSELLATA.  
15, R. FISSA.  
16, R. AVICULARIS.

## PLATE 95, FIGS. 1-6.

## RETEPORA PORCELLANA (P. McG.).

DESCRIPTION.—Polyzoary massive, expanded, convoluted, or calyculate; fenestræ elongated; cells rhomboidal, separated by distinct raised lines, terminating superiorly opposite the lower part of the mouth; mouth arched above, straight or slightly hollowed below; lower lip entire, with (usually) an avicularium below it; a spine articulated on each side; operculum rounded, wider than high; an elliptical avicularium on the front of the cell, with a spatulate or linguiform mandible directed vertically or obliquely downwards; ovicell rounded, smooth, or with a few ridges, much immersed, when young with a broad, short, vertical opening, which, as growth advances, becomes filled in, and in some cases forms a slightly prominent ridge; dorsal surface obscurely granular or slightly areolated, traversed by numerous raised lines, and usually with one or more small oval avicularia on each part defined by those vibices.

REFERENCES.—P. H. MacGillivray, Tr. Roy. Soc. Viet., 1869 and 1882; *R. robusta*, Hincks, Ann. and Mag. Nat. Hist., May 1878.

## Port Phillip Heads.

Varies a good deal in appearance, according to age, old specimens being very massive, the fenestræ shorter and interspaces thicker than in younger individuals. The form of the lower lip varies. It is usually straight and entire, with a rounded avicularium immediately below. Sometimes there is a slight fissure in place of the avicularium, and occasionally there is a fissure towards one side, and on the wider part of the lip an avicularium. In young marginal cells there is no appearance of any sinus. Frequently the central part of the cell is depressed. A variety occurs which I have named *laxa*, presenting so marked a difference in its appearance that I was inclined to consider it as a distinct species. In it the fenestræ are very long, and are formed by the irregular division and anastomosis of broad branches from a main stem. The cells are usually longer, the separating raised margins not so prominent, and many of the oral spines, of which in the marginal cells there are frequently four or five, are very long and jointed, as in *R. monilifera*, but much more slender. An old dead specimen of this

variety has a very peculiar appearance, being divided into regular longitudinal ridges, the intervening hollows formed by the mouths and depressed centres of the cells.

## EXPLANATION OF FIGURES.

PLATE 95.—Figs. 1 and 2, specimens, natural size. Fig. 3, specimen of var. *laxa*, natural size. Fig. 4, small portion of fig. 1, magnified. Fig. 5, young marginal cells from another specimen. Figs. 5a, 5b, 5c, other cells from same specimen. Fig. 6, cells from var. *laxa*, fig. 3, magnified.

## PLATE 95, FIGS. 7-11.

## RETEPORA AVICULARIS (P. MCG.).

DESCRIPTION.—Polyzoary expanded, convoluted; fenestræ elongated, wider than the interspaces; cells elongated, separated by distinct margins; mouth arched above; lower lip with a central loop-shaped mark, frequently perforated below, on each side of which is a triangular projection pointing upwards; a long spine articulated on each side of the mouth; operculum rounded; numerous large avicularia, the rostrum elevated and with strong curved beak, the mandible triangular and pointed; ovicell rounded, prominent, smooth, and entire; dorsal surface smooth, vibicate, with scattered avicularia, with triangular mandibles.

REFERENCE.—P. H. MacGillivray, Tr. Roy. Soc. Viet., 1882.

## Port Phillip Heads.

This elegant species attains a size of only about an inch high. It is very light and fragile. The lower lip with its two small triangular denticles, and the loop-shaped mark extending downwards from between them, is very characteristic. This structure, with the rounded, entire, smooth ovicell, sufficiently distinguishes it from our other species.

## EXPLANATION OF FIGURES.

PLATE 95.—Figs. 7 and 8, specimens, natural size. Figs. 9 and 9a, portions of another specimen, magnified. Fig. 9b, outline of avicularium. Fig. 10, a single cell and ovicell. Fig. 11, dorsal surface, half as much magnified.

## PLATE 95, FIGS. 12-16.

## RETEPORA FISSA (P. McG.).

DESCRIPTION.—Polyzoary expanded, waved, or slightly convoluted; fenestræ oval; cells rhomboidal or elongated, separated by raised lines; mouth rounded above, lower lip hollowed, entire, or with a slight sinus and loop-shaped mark or groove about the centre; operculum rounded, broader than high; an avicularium near the middle of the cell, with the triangular mandible directed downwards, or downwards and outwards; ovicell large, rounded, prominent, with a vertical fissure, wider above, closed below; posterior surface with numerous slightly prominent vibices and a few small avicularia.

REFERENCE.—P. H. MacGillivray, Tr. Roy. Soc. Vict., 1869, 1882, and 1883; *R. marsupiata*?, Smith, Floridan Bryozoa.

This species, which is probably not uncommon, varies considerably. In young specimens the interspaces are slender, with from 1 to 3 or 4 rows of cells; the fenestræ being large and wide, giving to the whole a more open appearance. Older specimens are much more calcareous, the fenestræ comparatively smaller, and the polyzoary altogether more massive. In the most developed specimens the mouth has the lower lip nearly straight or hollowed, entire, or with an obscure sinus from which extends downwards a short groove. In more slender specimens the cells are longer and narrower; the upper part of the cell is curved forwards, the mouth nearly circular, and opening upwards. From the centre of the lower lip a shallow groove, with slightly raised edges, extends vertically downwards; immediately below this, or slightly to one side, is usually an avicularium, with a bluntly triangular mandible directed downwards and tilted somewhat forwards. The lower lip on either side of the groove is smooth or sometimes serrated. The edges of the groove occasionally meet to form a tube extending its whole length, or confined to the lower end. The avicularium on the front of the cell is frequently situated on an elevation which is sometimes of enormous size; the mandible is then much larger and more acutely pointed. Sometimes there are more than one avicularium on a cell.

The characteristic features are the loop-shaped mark or groove from the lower lip, the avicularium on the middle of the cell, and the permanent slit on the ovicell.

It is allied to the European *R. cellulosa*, which does not occur in my collection. The specimens referred to that species by Busk, Hincks, and others, probably belong to the present. I think also that Smith's Floridan *R. marsupiata* is identical with the more slender form of our species.

#### EXPLANATION OF FIGURES.

PLATE 95.—Figs. 12 and 13, specimens, natural size. Fig. 14, portion of fig. 12, magnified. Fig. 15, portion of the more slender form (= *marsupiata*, Sm. ?), magnified. Fig. 16, dorsal surface of another specimen of var. *marsupiata*, half as much magnified.

## PLATES 96-7.

## RETEPORA MONILIFERA (P. MCGIL.).

[Genus RETEPORA (IMPERATO). (Sub-kingd. Mollusca. Class Polyzoa. Order Infundibulata. Sub-order Cheilostomata. Fam. Escharidæ.)

*Gen. Char.*—Polyzoary stony, reticulated. Cells opening on one surface only, immersed, indistinct posteriorly. Posterior surfaces vibicate.]

**DESCRIPTION.**—Polyzoary foliaceous, variously convoluted; fenestræ oval, narrower than the interspaces; cells separated by narrow, raised lines, convex, smooth or granular; primary orifice arched above, straight below, or hollowed, or with a minute sinus; secondary orifice with a sinus in the lower lip, permanently open, or becoming closed, at one side of which is generally a small oval avicularium; operculum arched above, straight below; usually an elliptical avicularium on the front of the cell, and others of various forms on different parts of the polyzoary; ovicells prominent, rounded, or pyriform, with a beaded or granular band above the orifice from which extends upwards a similar vertical band; dorsal surface vibicate, granular.

**REFERENCES.**—MacGillivray, Tr. Roy. Soc. Vict. 1859 and 1883; Hincks, Ann. and Mag. Nat. Hist., May 1878.

This abundant species presents several forms so marked that it may be doubtful whether they ought not to be considered as species. In all, however, the mouth has essentially the same structure, a fissure in the lower lip of the peristome with a small avicularium at one angle of the opening. This fissure is sometimes closed by the complete or partial coalescence of the opposite sides leaving only a loop-shaped mark, or the lower end remaining perforated by a round foramen. The angle supporting the oral avicularium is frequently much produced forwards. The other avicularia are extremely various. There is generally an elliptical one on the front of the cell, and forms with semilunar mandibles are common. On the inner edge of many of the fenestræ one or more are found with long narrow mandibles closing in a rostrum which has a sharp tooth on each side towards the point. These open horizontally inwards. In all, the ovicell is prominent and marked by a beaded line immediately above the orifice from the middle of which a branch extends vertically upwards. In *sinuata* the upper part of the vertical line frequently projects considerably forwards, in

*munita* it occasionally ends in a sharp spine, while in *umbonata* it ends at the base of a large sharp umbo. All intermediate forms may be observed. The general form of the operculum is similar, although somewhat modified in the different forms. In the typical form it is thinner, and constantly presents a peculiar dendroid marking, which also occasionally occurs in *sinuata*, but not in the others. The peculiar large, jointed spines seem to be confined to the typical form (including var. *sinuata*) and *umbonata*; at least I have not seen them in the *munita* form.

The different varieties may be all grouped under three Forms or Sub-species :—

### FORM MONILIFERA (P. MCG.).

#### PLATE 96, FIG. 1-3.

DESCRIPTION.—Polyzoary expanded, foliaceous, closely plicated, usually much broader than high; fenestræ rounded or elliptical, much narrower than the interspaces; mouth at first with the lower margin entire or with a slight notch; as growth advances, the peristome of the lower lip is much produced, retaining a narrow notch, at one angle of which a small avicularium is situated; ovicells prominent, the beaded line broad, the extension upwards slightly clavate, and extending nearly to the upper edge.

Port Phillip Heads; Portland, Mr. Maplestone; Warrnambool, Mr. Watts.

This common form is confined to shallow water. On the framework of the wooden pier at Queenscliff it forms large masses, almost dry at low tide. The mode of growth is characteristic. The polyzoary is closely plicated, forming numerous, narrow calycles and cavities, expanding widely from its attachment and, sometimes, either from a single zoarium or the confluence of several, forming masses 6-9 inches wide and 2-4 or 5 high. In the youngest marginal cells the shape of the mouth varies, the lower edge being straight, hollowed, with a small central sinus, or with a deep lateral one. As growth advances a narrow central sinus is formed in the peristome. On one angle of this a small avicularium is usually developed. Occasionally this angle is much produced forwards, bearing the avicularium on its summit. Sometimes the angles of the sinus coalesce, leaving a rounded foramen, and occasionally this

also is obliterated. There is usually an elliptical avicularium on the front of the cell, towards the upper part, either vertical or oblique, sometimes nearly central, but oftener to one side. In some specimens numerous other avicularia are found, often on calcareous elevations. The mandibles are of various forms, pointed, spatulate, or semilunar, one of the last frequently situated above a fenestra. The beaded line of the ovicell is thick, the vertical part extending to its summit, where its clavate extremity is occasionally slightly elevated. Small oval or elliptical avicularia are scattered irregularly over the back, sometimes with triangular mandibles, and occasionally one of the latter of a larger size is found at the base of a fenestra.

In young cells there are frequently two long, hollow, jointed spines attached at the upper margin of the mouth. In older cells, and occasionally in younger ones, there is an enormous spine on one side articulated to an elevation of the peristome. These spines are of peculiar structure (first pointed out by Hincks), consisting of segments narrower at the base, expanding upwards, and each segment fitting into the one below, somewhat like the joints of an *Equisetum*.

A marked variety, which I have named *sinuata*, is usually found surrounding the stems of black algæ, and attains a size of about 2 inches by 1 to  $1\frac{1}{2}$ . In this the polyzoary is much thicker and denser. The sinus in the lower lip is much wider and deeper, and the oral avicularium is larger. The jointed spines, which are commonly present, are of great size; the first joint is very long, the succeeding ones much shorter. The ovicells are broader, and the vertical beaded line is frequently elevated towards its upper extremity. The avicularia are usually very numerous, and are frequently raised on calcareous eminences. They vary much in shape, and the mandibles are often broadly spatulate. The back is densely granular, the vibices little prominent, and the avicularia very few.

## FORM MUNITA (HINCKS).

PLATE 96, FIGS. 4-8.

DESCRIPTION.—Polyzoary expanded, foliaceous, convoluted to form large cavernous or calyculate masses; cells separated by narrow raised lines, surface granular; peristome expanded forwards, with a loop-shaped mark in the centre of the lower lip, closed or perforated below, on one side of which is an avicularium. Small oval avicularia on the front of the cells, and various others scattered in different parts. A very large avicularium, with either a semilunar or a very long, triangular, pointed mandible, above the upper angle of each fenestra; ovicells with the beaded line narrow; posterior surface granular; vibices well marked; elliptical avicularia more abundant about the edges of the fenestræ.

The largest specimen I have measures  $2\frac{1}{2}$  by 3 inches; but as all my others are incomplete, it probably attains a considerably greater size. The convolutions of the polyzoary form large cavities, and are not closely plicated as in the form *monilifera*. The peristome is usually much elevated forwards, with a loop-shaped mark, or occasionally a fissure, on one angle of which is a small avicularium. This avicularium is frequently, however, absent. It is also sometimes very much elevated on a production of the peristome. There is occasionally a thin spine at each side of the mouth above, but I have never seen the large jointed spines found in the other forms.

Two varieties are distinguishable. In the one, *lunata*, the supra-fenestral avicularium has the mandible semilunar and very large, and the loop of the peristome is usually imperforate. In the other, *acutirostris*, which is also usually altogether stouter, the same avicularium has an enormous, pointed mandible; and the peristome is occasionally perforated. Occasionally both forms of large avicularia occur on the same specimen.

## FORM UMBONATA (P. MCG.).

PLATE 97, FIGS. 1-3.

DESCRIPTION.—Polyzoary foliaceous, expanded, or convoluted; fenestræ elliptical, narrower than the interspaces; cells quadrate or ovate, separated by much raised margins; surface granular, glassy; mouth sloping obliquely backwards; in young cells lower lip nearly straight or hollowed, entire, thin; in older with a loop-shaped notch, at one angle of which is an avicularium; this notch frequently bridged over, leaving a small foramen, also sometimes obliterated, in the latter case the lip being thickened, and at its junction with the lateral margins projecting slightly, giving origin to slender, jointed spines; in many of the older cells these spines are very thick and telescopic in appearance, and frequently confined to one side; avicularia very varied, frequently a semilunar one above a fenestra, and also often one with a long, narrow mandible closing in a bidentate rostrum, opening horizontally inwards on the edge of a fenestra; ovicell prominent, the vertical band ending in the base of a sharp, smooth, umbonate process; posterior surface strongly vibicate, with numerous, small, round avicularia, especially about the edges of the fenestræ.

Port Phillip Heads, 15 fathoms.

This form, which is of comparatively small size, is distinguished by the much-raised margins of the cells and the peculiar umbonate process on the ovicell. These characters are usually so marked that it might seem necessary to constitute a distinct species. In some cases, however, the umbonate process scarcely exists, and the vertical band is little more raised than in *sinuata*. Young cells of *munita* also frequently have the margins much raised.

## EXPLANATION OF FIGURES.

PLATE 96.—Fig. 1, specimen *R. monilifera*, normal form, natural size. Fig. 2, young marginal cells, from a similar specimen, magnified. Fig. 2a, other cells from the same specimen. Fig. 2b, older portion, showing ovicells and avicularia. Fig. 3, portion of var. *sinuata*, showing large sinus, oral avicularia, and spines. Fig. 4, specimen of *R. monilifera*, form *munita*, natural size. Fig. 5, young cells of var. *lunata*. Fig. 5a, another portion of the same specimen, showing a large avicularium. Fig. 5b, single cell and avicularium of same specimen. Fig. 6, small portion of another specimen, showing ovicells. Fig. 7, small portion of var. *acutirostris*, to show large avicularium and structure of the mouth. Fig. 8, small portion of another specimen, showing both semicircular and long-pointed avicularia.

PLATE 97.—Fig. 1, specimen of *R. monilifera*, form *umbonata*, natural size. Fig. 2, small portion, magnified. Fig. 2a, ovicell, partly in profile, to show prominence of umbo. Fig. 3, young cells. Fig. 3a, two cells of same specimen, showing the long, jointed spines.

## PLATE 97, FIGS. 4-6.

## RETEPORA FORMOSA (P. McG.).

DESCRIPTION.—Polyzoary expanded, foliaceous, convoluted so as to form large funnel-shaped compartments; fenestræ rounded or oval, narrower than the interspaces; cells elongated, expanded above, separated by distinct raised lines; surface minutely granular; mouth sloping backwards, narrowed below, the thickened lateral margin uniting at an acute angle with the raised cell-margin; the lower lip straight, with a minute sinus; operculum higher than broad, slightly contracted below; usually an elliptical avicularium on the front of the cell; ovicell large, prominent, with a small beaded band on each side above the aperture meeting at an angle in the middle, and extending vertically upwards to end in a slightly clavate extremity; dorsal surface strongly vibicate, granular, and with numerous elliptical or rounded avicularia close to the edges of the fenestræ.

REFERENCE.—P. H. MacGillivray, Tr. Roy. Soc. Vict., 1883.

Port Phillip Heads, 10-18 fathoms.

This beautiful species in appearance and size precisely resembles the *munita* form of *R. monilifera*. It is, however, at once distinguished by the form of the mouth, which slopes backwards and is wide above and contracted below. The lower lip is straight, and has usually a minute rounded sinus, and is destitute of oral avicularium. The slightly thickened sides of the mouth unite at an acute angle with the elevated margins of the cells. The operculum is also of a very characteristic shape, in correspondence with the form of the mouth. Besides the avicularium on the front of the cells and those on the back of the polyzoary, there is frequently one with a long pointed mandible opening horizontally inwards on the edge of the fenestræ. An avicularium with a semilunar mandible is also occasionally found above a fenestra in front.

## EXPLANATION OF FIGURES.

PLATE 97.—Fig. 4, specimen, natural size. Fig. 5, portion of a specimen, showing the ovicells. Fig. 5*a*, dorsal surface, half as much magnified. Fig. 6, small portion of another specimen.

## PLATE 97, FIG. 7.

## RETEPORA CARINATA (P. McG.).

DESCRIPTION.—Polyzoary expanded; fenestræ elongated, narrower than the interspaces; cells ovate, broad, separated by narrow raised margins; mouth (primary) with the lower lip entire, or (secondary) with a deep sinus at one side and a large avicularium towards the base of the prominent peristome; operculum rounded above, hollowed below, broader than high; on the inner margin of the fenestræ several avicularia with long, pointed mandibles directed vertically from before backwards; ovicell subimmersed, pyriform, with a vertical, sharp ridge slightly bulbous at its upper extremity; dorsal surface granular, traversed by slightly raised vibices, and with a few rounded avicularia about the edges of the fenestræ.

REFERENCE.—P. H. MacGillivray, Tr. Roy. Soc. Vict., 1883.

The only specimen I have seen of this very distinct species was dredged at Port Phillip Heads. It is perfect, and forms a waved, somewhat fan-shaped expansion,  $\frac{7}{8}$ ths of an inch wide by about  $\frac{3}{4}$ ths deep. The cells are mostly broad, prominent, tubercular, and glistening. The mouth is broad, arched above, and in the youngest seems to be entire and straight below or slightly convex. The peristome is rapidly developed on the lower lip, projecting as a plate with a deep notch at the angle of the mouth on one side, and receding gradually from this to nearly the level of the opposite angle, but without any notch on that side. The margin is frequently finely serrated. There is a considerable prominent avicularium below the lower lip, with the broad mandible directed upwards, usually inclined to the angle formed by the sinus. There are also other round or elliptical avicularia scattered in various parts, and numerous avicularia with long narrow mandibles, closing in bidentate rostra, close to the edges of the fenestræ. Similar avicularia occur in some other species; but in these, so far as I have seen, they always open horizontally inwards, while in the present they are directed across the edge of the fenestræ. The vertical slit, the closure of which gives rise to the vertical ridge on the ovicell, is still in some instances slightly open towards the upper extremity.

## EXPLANATION OF FIGURES.

PLATE 97.—Fig. 7, specimen, natural size. Fig. 7a, portion magnified. Fig. 7b, portion of dorsal surface, half as much enlarged.

PLATE 98, FIGS. 1-5.

## RETEPORA PHŒNICEA (BUSK).

DESCRIPTION.—Polyzoary expanded, foliaceous, convoluted; fenestræ small, rounded, or elliptical, narrower than the interspaces; cells enlarged upwards, separated by narrow, raised lines; surface smooth or perforated by a few large foramina; mouth rounded, projecting forwards, in youngest cells with a fringe of short spinous processes or serratures and a sinus below, in older with an entire or slightly serrated margin, and usually a minute rounded sinus on the lower lip; operculum broad, rounded, with the muscular impressions small, round, and at a distance from the margin; a broad avicularium with sharply triangular mandible below the mouth; ovicell rounded, sub-immersed, the lower part with a broad mesial plate curving downwards and backwards; posterior surface nearly smooth or sub-granular, with numerous prominent vibices and a few minute avicularia.

REFERENCES.—Busk, Brit. Mus. Cat., Mar. Polyzoa; Hincks, Ann. and Mag. Nat. Hist., May 1878.

Port Phillip Heads; Portland, Mr. Maplestone; King's Island, Mr. McGowan.

This species forms small, convoluted masses of a beautiful vivid red colour. The finest specimen I have seen is that figured. The cells, which are separated by narrow raised lines, are smooth or sub-granular, and have usually several rounded foramina towards the margins. These are commonly arranged in two pairs, one on the upper part near the mouth, the other towards the base. In a young specimen,  $\frac{1}{8}$ th of an inch in diameter, for which I am indebted to Mr. Wilson, the cells have the mouth nearly circular with a thick fringe of short processes, longest above, but not developed into distinct spines, connected by an intermediate calcareous expansion. In old cells the peristome is smooth and little prominent, or projects more and is obscurely serrated; there is also usually, but not always, a small rounded sinus in the lower lip. In most cells there is a large avicularium below the mouth, with a broad, sharply triangular mandible directed upwards. The ovicells are very conspicuous. They are white, sub-immersed, and at the lower part have a broad mesial plate which curves downwards and backwards, leaving a rounded notch on each side. Their

surface is frequently marked by narrow raised lines which in many cases seem to mark the lateral boundaries of the incurved plate. The dorsal surface is sub-granular, with numerous, sharply-raised vibices. The avicularia are very sparse, small, and with triangular mandibles. They are mostly situated close to the margins of the fenestræ. The operculum differs from that of all the other Victorian Retepores in having the ocluser muscles attached to small round impressions at a distance from the margins.

## EXPLANATION OF FIGURES.

PLATE 98.—Fig. 1, specimen, natural size. Fig. 2, group of young marginal cells, from another, very small, growing specimen, magnified. Fig. 3, small group, showing partially developed ovicells. Fig. 4, group with fully formed ovicells. Fig. 5, portion of the back of the polyzoary, magnified half the dimensions of the other enlarged views.

## PLATE 98, FIGS. 6-7.

## RETEPORA AURANTIACA (P. McG.).

DESCRIPTION.—Polyzoary expanded, foliaceous, convoluted; fenestræ elliptical or oval, about the same width as the interspaces; cells quadrate, separated by narrow raised margins; mouth rounded above, straight below, with a deep narrow sinus, on one side of which is a rounded avicularium; a long, jointed spine articulated on each side of the mouth; operculum large, much wider than high, hollowed at the sides inferiorly; usually a round avicularium on the front of the cell; ovicell large, pyriform, with a vertical, narrow fissure, wider above, and with thickened margins; dorsal surface strongly vibicate, granular, and with numerous small, rounded avicularia, especially abundant near the fenestræ.

REFERENCE.—P. H. MacGillivray, Trans. Roy. Soc. Vict., 1882.

## Port Phillip Heads.

The largest complete specimen I have seen is three inches wide by about two in the other diameters. The base of attachment is about an inch long. The avicularium on the front of the cell is by no means constant. The ovicells are abundant, and have a very distinctive appearance; with growth the vertical slit is sometimes filled in, leaving a slightly prominent ridge. It is an exceedingly handsome species of a beautiful orange colour.

## EXPLANATION OF FIGURES.

PLATE 98.—Fig. 6, specimen, natural size. Fig. 7, cells near the margin, magnified. Fig. 7a, another portion of the same, showing the ovicells. Fig. 7b, portion of the dorsal surface, magnified to half the dimensions of the others.

## PLATE 99, FIGS. 1-3.

## RETEPORA GRANULATA (P. MCG.).

DESCRIPTION.—Polyzoary massive, convoluted; fenestræ rounded, small, much narrower than the interspaces; cells elongated, separated by narrow, raised lines; mouth arched above, straight below, lower lip with a narrow vertical sinus, on one side of which is a rounded avicularium; operculum much wider than high; surface of cells granular or tuberculate; numerous small oval avicularia scattered over the cells, and a few larger situated on rounded elevations; ovicell large, rounded, granular; dorsal surface granular, vibicate, with small, scattered, rounded avicularia.

REFERENCES.—P. H. MacGillivray, Tr. Roy. Soc. Vict., 1869 and 1882; Hincks, Ann. and Mag. Nat. Hist., May 1878.

## Port Phillip Heads.

This is the most massive of our Australian species, and attains a large size, the specimen figured measuring four inches high by the same width. It is of a brownish colour. In addition to the usual granulations over the surface, in many cases there is a row forming small processes on the upper margin of the mouth. The young ovicell is fissured, the fissure becoming filled in as calcification advances. In some specimens there are numerous rounded avicularia scattered over the cells and ovicells, occasionally raised on small elevations. There are also other large avicularia with triangular mandibles on large mound-like elevations.

## EXPLANATION OF FIGURES.

PLATE 99.—Fig. 1, specimen, natural size. Fig. 2, portion of another specimen, magnified. Fig. 3, portion to show the dorsal surface, magnified half as much.

## PLATE 99, FIGS. 4-8.

## RETEPORA TESSELLATA (HINCKS).

DESCRIPTION.—Polyzoary small, foliaceous, convoluted; fenestræ elongated, usually narrower than the interspaces; cells oval or rhomboidal, separated by narrow, raised lines; mouth higher than broad, with a projecting angle on each side, where the raised cell-margin originates, caused by abrupt sloping backwards; lower lip deeply concave, entire, or with a minute rounded sinus; operculum with a broad groove down the centre; an avicularium on the front of the cell, with a long narrow mandible; ovicell rounded, sub-immersed, excavated below; dorsal surface smooth

or minutely tubercular, divided by numerous raised lines into irregular spaces, in each of which is usually situated a long narrow avicularium similar to those on the front of the cells.

REFERENCE.—Hincks, Ann. and Mag. Nat. Hist., May 1878.

### Port Phillip Heads, 12-15 fathoms.

The best specimens I have of this species are of small size, one measuring 1 by  $\frac{3}{4}$  inch, and another  $\frac{7}{8}$  by  $\frac{3}{8}$ . The fenestræ are large, much elongated, usually rather narrower than the interspaces. The cells are oval or irregularly rhomboidal; they are separated by narrow raised lines which unite with the slightly thickened lateral margins of the mouth at about the middle, forming a conspicuous angle on each side. The mouth is higher than wide, the lower lip hollowed, slightly thickened, entire, or with a small rounded sinus. Immediately above the junction of the separating lines of the cells the mouth recedes, and the angle here formed frequently gives rise to a jointed spine. In young, growing cells the mouth is nearly round, with a fringe-like upper edge to which are articulated several long, slender spines. A similar border and spines are also frequently present in the marginal cells of older parts. On the front of the cell is an avicularium, frequently situated on an eminence, with a long pointed mandible directed transversely, obliquely, or vertically downwards. The ovicell is rounded, deeply notched below. This notch, however, is probably ultimately filled in. The back of the polyzoary is mapped out into irregular areas by narrow raised vibices, in each of which is one or occasionally two avicularia similar to those found on the front of the cells. The operculum is very peculiar. It is of small size, rounded above; there is an inner mark, parallel to the free margin except that at about the middle on each side it is sharply inflected inwards; down the centre is a wide groove, on each side of which, especially towards the base, the surface bulges forwards.

#### EXPLANATION OF FIGURES.

PLATE 99.—Figs. 4 and 5, specimens, natural size. Fig. 6, group of cells, magnified. Fig. 6a, dorsal surface, showing the small areas, with narrow avicularia. Fig. 7, young cells, magnified. Fig. 8, small group, showing an ovicell.

## PLATE 99, FIG. 9.

## RETEPORA SERRATA (P. McG.).

DESCRIPTION.—Polyzoary expanded; fenestræ about the same width as the interspaces, or slightly wider; cells much elongated, separated by raised lines; mouth nearly circular or oval, projecting forwards, with a small sinus below, and a fringe of about 12 short, pointed processes arranged round the margin; operculum higher than wide, contracted at the base; ovicell rounded, smooth; a sessile avicularium, with a long, narrow, pointed mandible at the bottom of each fenestra, opening directly upwards; dorsal surface obscurely tubercular, strongly vibicate.

REFERENCE.—P. H. MacGillivray, Tr. Roy. Soc. Vict., 1882.

Port Phillip Heads, a single specimen.

The only specimen I have seen is the very perfect one figured. It forms a small expansion  $\frac{3}{4}$ ths of an inch in diameter, curved on itself on one side where it is attached to the calcareous tube of an annelid. The colour is leaden-grey. The cells are elongated, narrow, slightly expanded upwards, separated by narrow raised lines. In the youngest the mouth is smooth, the lower lip straight, slightly hollowed or with a slight sinus. The peristome is rapidly developed to form a serrated circle of small sharp teeth, projecting forwards; at the lower part of this circle is a small sinus. At the bottom of each fenestra is a sessile avicularium, the rostrum with a tooth on each side behind the strong curved apex, the mandible long, narrow, curved, and pointed. There are a few other large avicularia, situated on mound-like elevations on the cells, and with spatulate or linguiform mandibles. The back is obscurely tubercular, glistening, divided into numerous angular spaces by narrow, sharply-raised vibices; a few scattered, rounded avicularia are situated about the edges of the fenestræ.

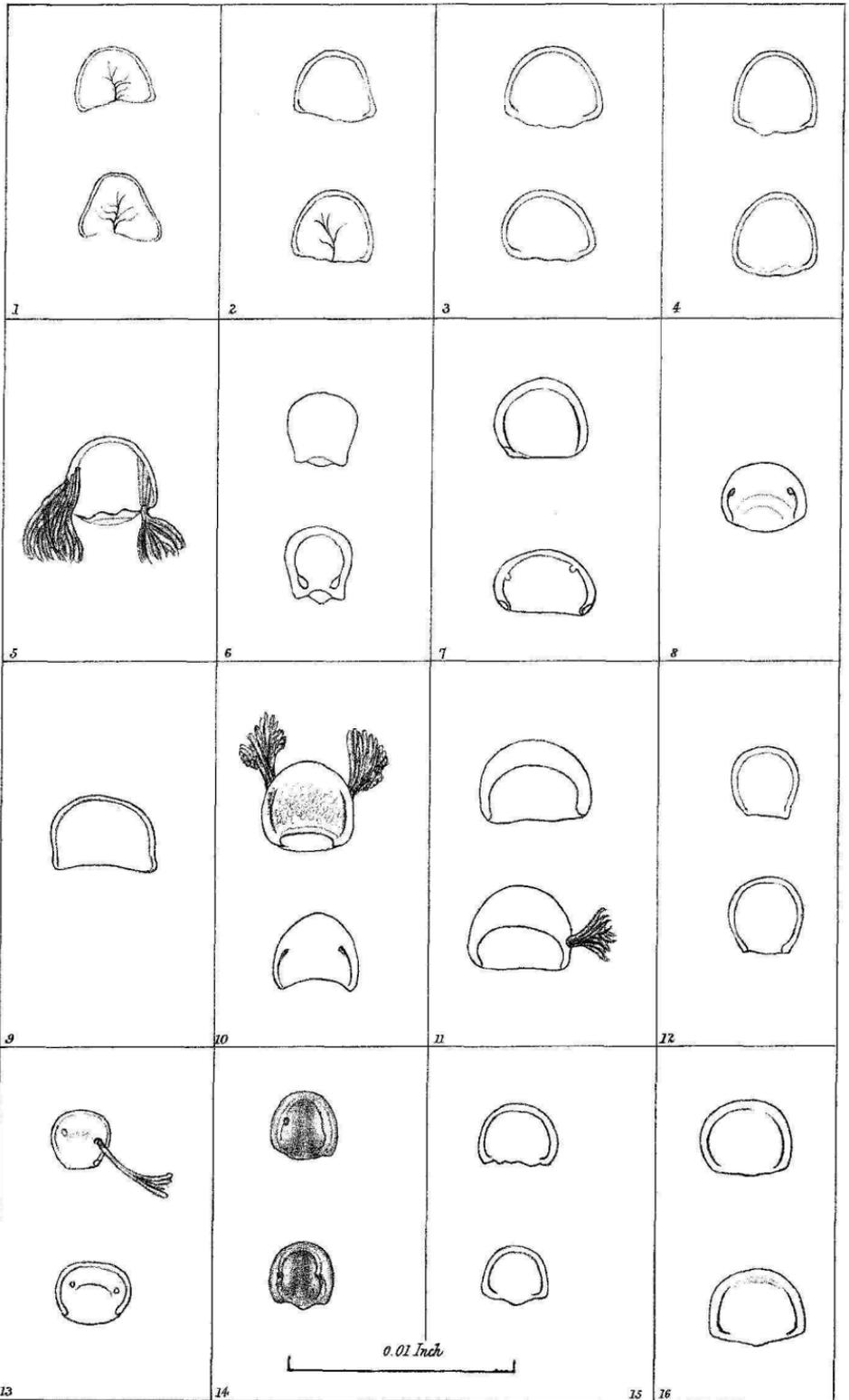
## EXPLANATION OF FIGURES.

PLATE 99.—Fig. 9, specimen, natural size. Fig. 9a, portion, magnified.

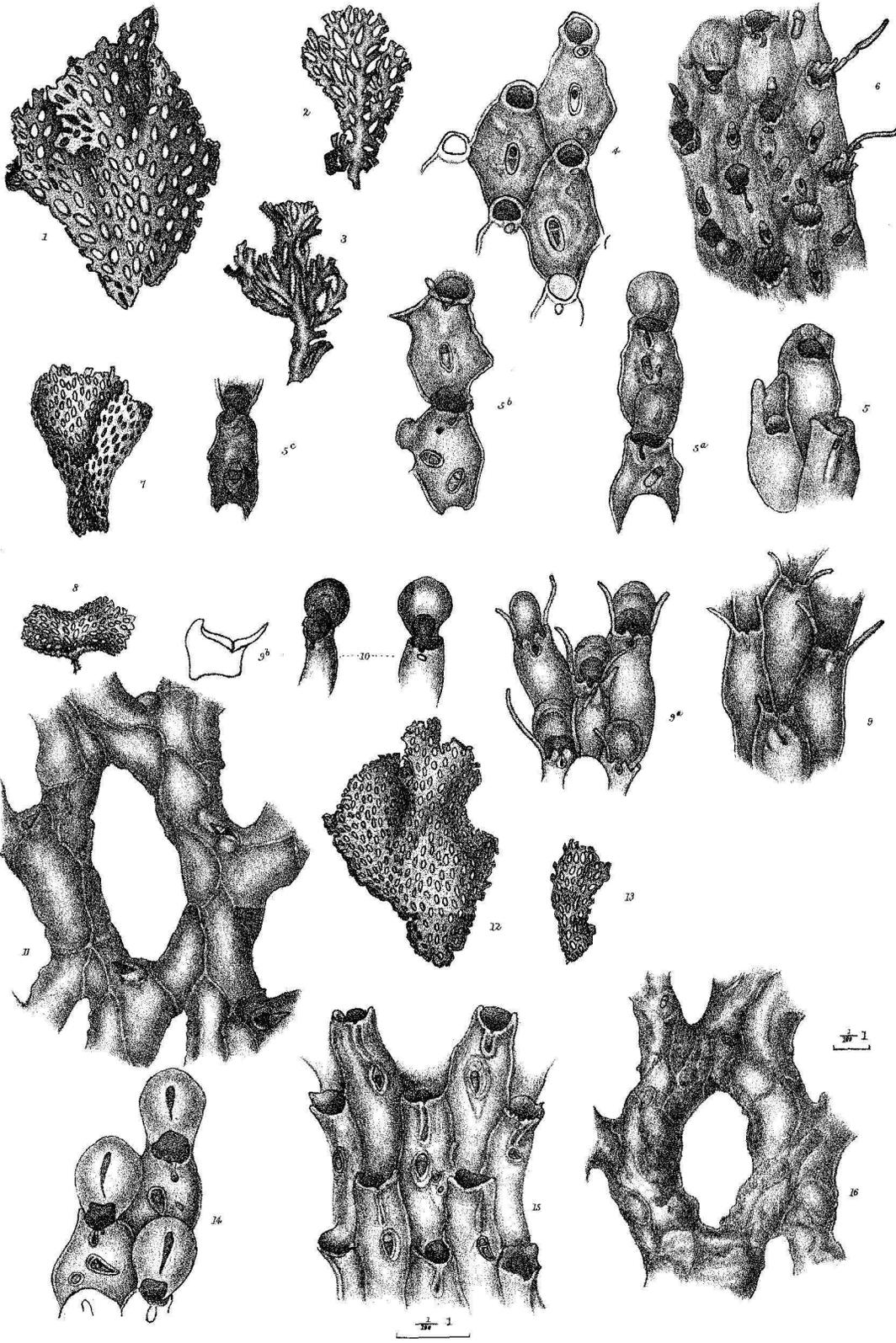
I am indebted to my friend Mr. MacGillivray for this valuable series of *Reteporæ*, which he has contributed to the National Museum collections and this work.

FREDERICK MCCOY.

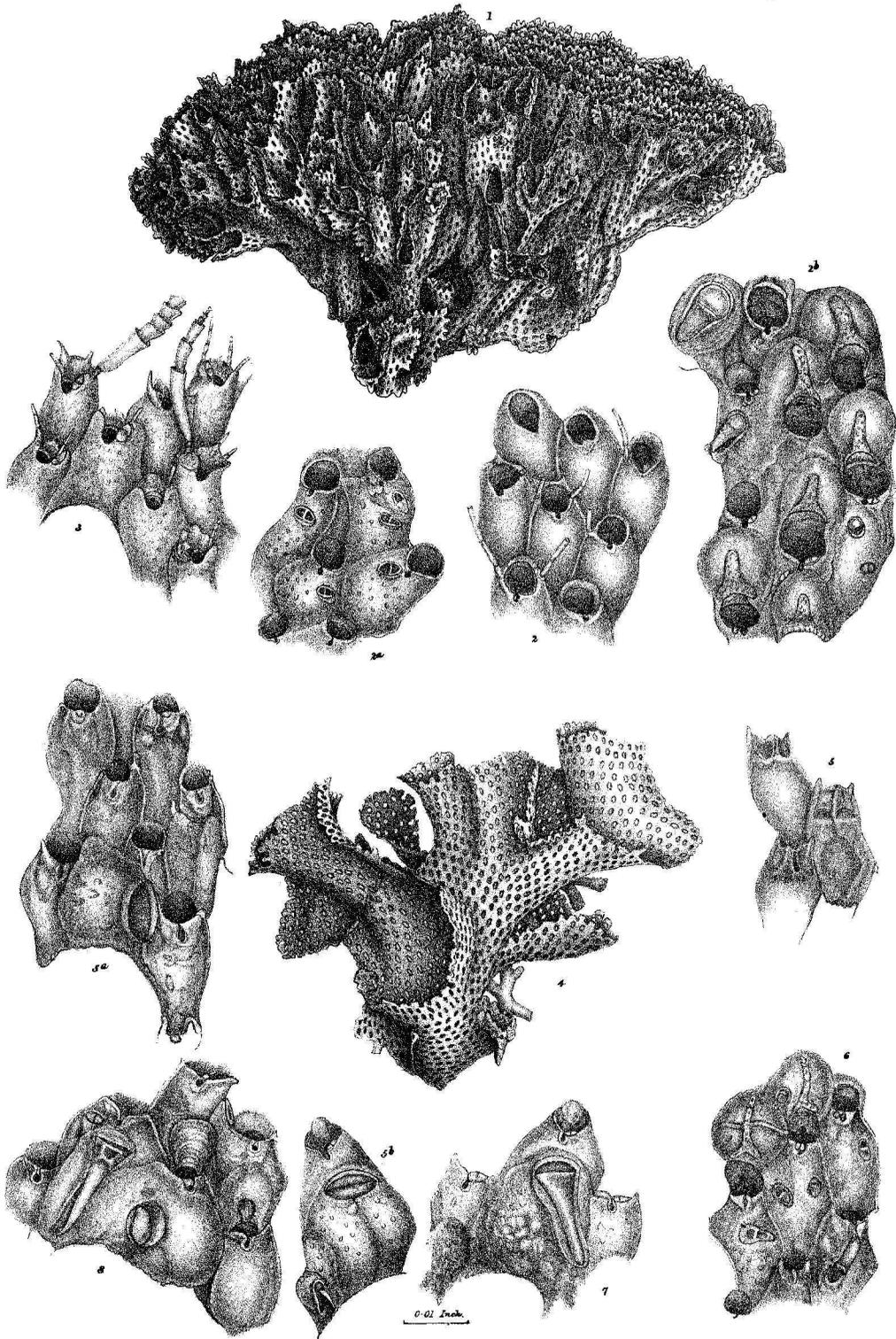
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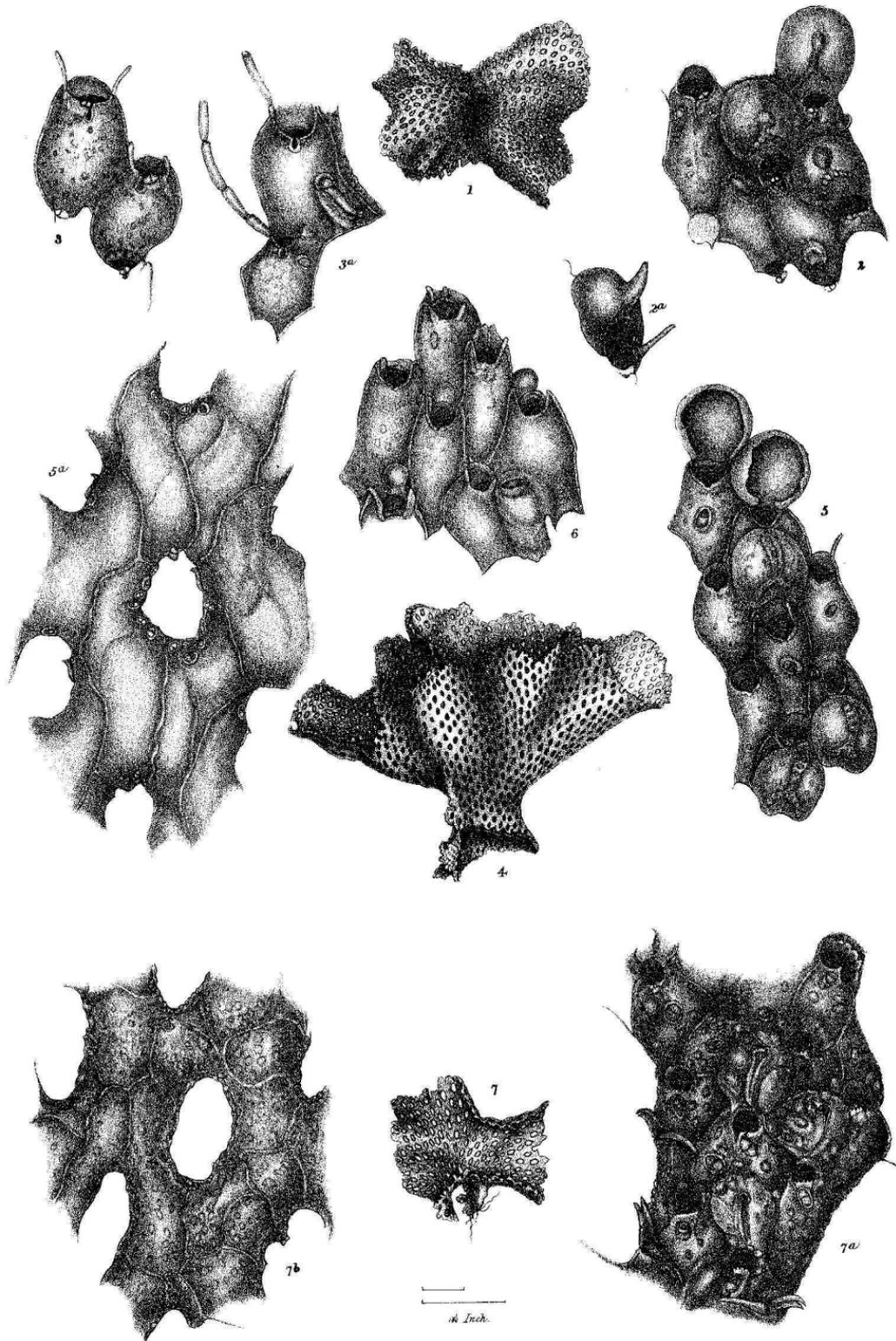
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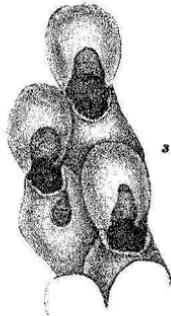
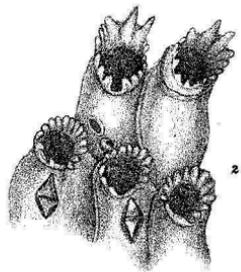
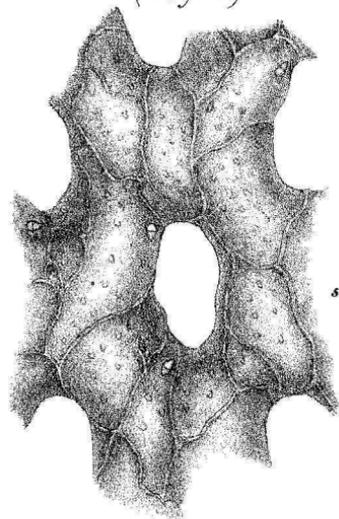
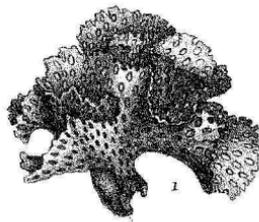
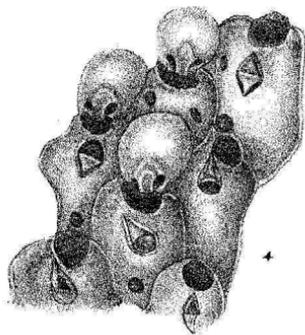
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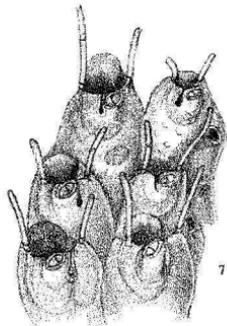
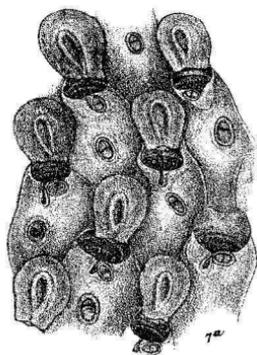
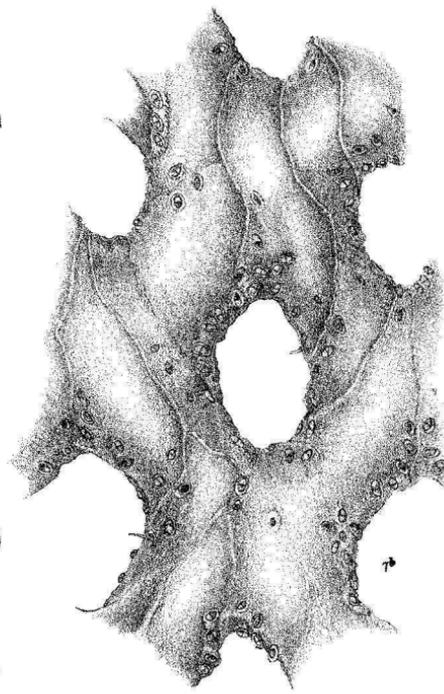
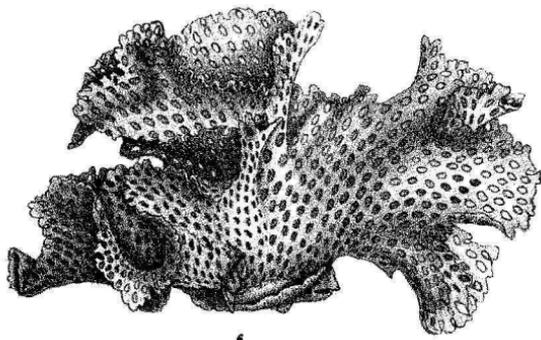
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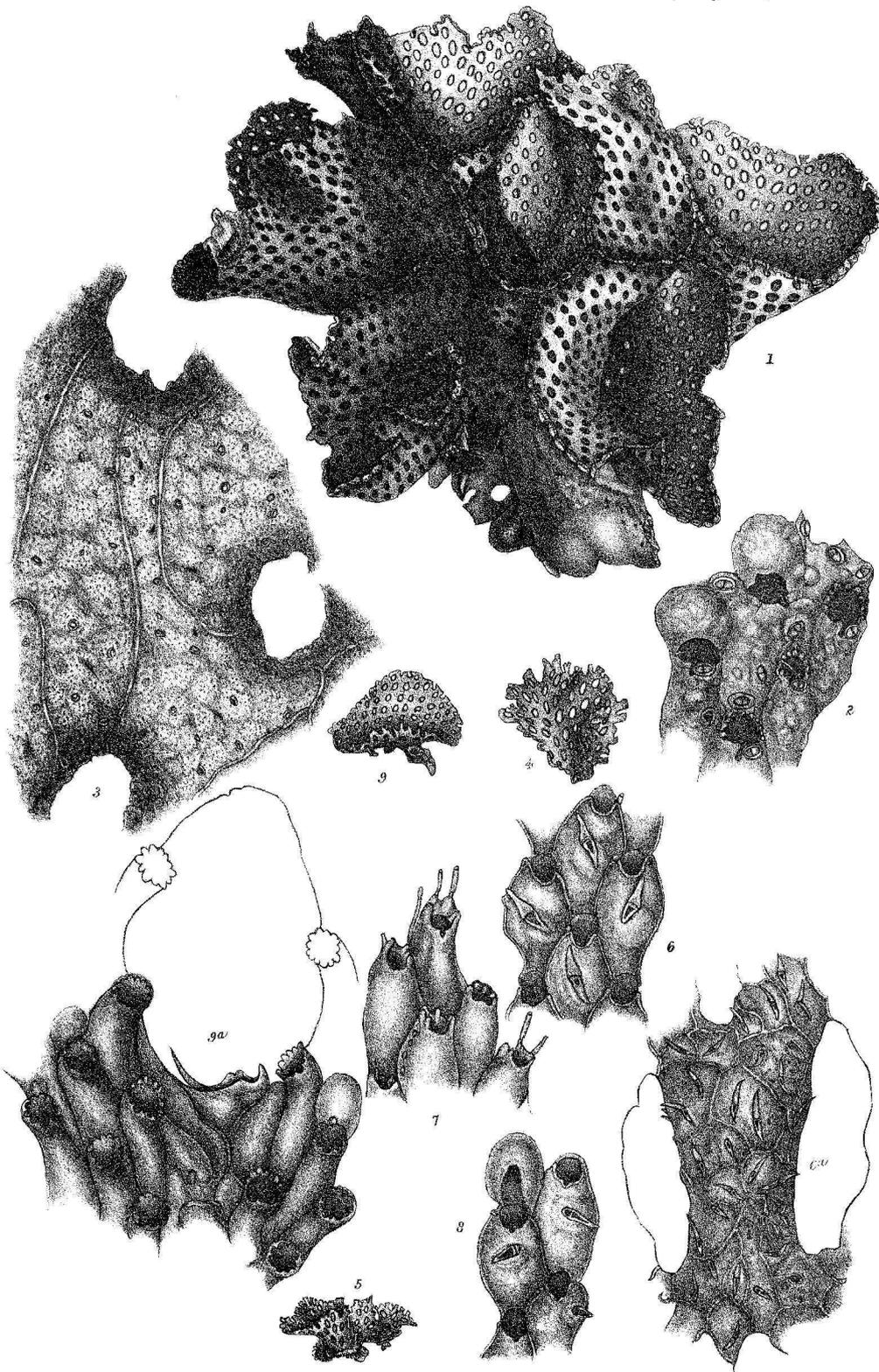
0.01 Inch.



0.01 Inch.

0.01 Inch.

(Polyzoa)



1/16 Inch.