

DESCRIPTIONS OF NEW, OR LITTLE KNOWN POLYZOA.

PART IV.

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(WITH TWO PLATES.)

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OF the species of *Retepora* described in this paper, three are new; three others have already been briefly described by me in the *Society's Transactions* for 1869. Two of these, *R. granulata* and *R. porcellana* (as *R. robusta*), have since been more fully described by Mr. Hincks, in a valuable paper in the *Annals and Magazine of Natural History* for May, 1878. We have one or two other undescribed species, as well as *R. monilifera* (McG.), *R. phoenicea* (Busk), *R. tessellata* (Hincks), and what I believe to be *R. cellulosa*. Of the last, I have not had an opportunity of examining European specimens, but I expect to receive authentic ones soon.

Retepora serrata, n. sp. Fig. 4.

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 twelve short, pointed processes arranged round the margin. Ovicell rounded, smooth. A sessile avicularium, with a long, narrow, pointed mandible at the bottom of each fenestra, opening directly upwards. Back obscurely tubercular, strongly vibicate.

Of this species I have one perfect specimen, dredged off Port Phillip Heads in about fifteen fathoms. The entire specimen forms a small expansion three-quarters 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. The ovicell is rounded, projecting, smooth, and destitute of a fissure. 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 ridges; a few scattered, rounded avicularia about the edges of the fenestræ.

Retepora aurantiaca, n. sp. Fig. 5.

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; usually a round, vertical, or oblique avicularium on the front of the cell. Ovicell large, pyriform, with a vertical narrow fissure, wider above, and with thickened margins. Back strongly vibicate, granular, and with numerous, small, rounded avicularia, similar to the anterior ones, especially abundant near the fenestræ.

Dredged off Port Phillip Heads.

The largest complete specimen I have found forms a foliaceous, convoluted polyzoary, three inches wide by about two in the other diameters. The base of attachment is about an inch long. Some fragments indicate that it attains a still larger size. The avicularium on the front of the cell is by no means constant. The ovicells are abundant, and have a very distinctive appearance. It is of a beautiful orange colour.

Retepora avicularis, n. sp. Fig. 6.

Polyzoary expanded, curled. Fenestræ elongated, wider than the interspaces. Cells elongated, separated by distinct margins; mouth arched above; lower lip with a small suboral avicularium at the centre (frequently absent, and leaving a loop-shaped notch), on each side of which is a triangular projection pointing upwards; a long spine articulated on each side of the mouth. Numerous large avicularia, the rostrum elevated, and with strong curved beak, the

mandible triangular and pointed. Ovicell rounded, widely open below, crossed by an obscure ridge. Back smooth, vibicate, with scattered avicularia, with triangular mandibles.

Off Port Phillip Heads.

Of this elegant species I have only one complete specimen. It is three-quarters of an inch in length, by half-an-inch at the broadest part, and forms a slightly convoluted, leaf-like polyzoary. I have also three or four other fragments, which all present the same character. The small, central, suboral avicularium, with the triangular process on each side, is very characteristic. In place of the avicularium there is frequently a loop-shaped opening, no doubt formed by the destruction or loss of the chitinous part. The ovicell also is very distinct from that of any other species, and the huge avicularia, situated on the front of many of the cells, form very striking objects.

Retepora porcellana, M'G. Fig. 9.

(*R. robusta*, Hincks, *Ann. and Mag. N. Hist.*, May, 1878.)

Polyzoary massive, expanded, convoluted, or calyculate. Fenestræ elongated, narrower than the interspaces. Cells 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 immediately below it; a spine articulated on each side; an elliptical avicularium on the front of the cell toward the lower part, directed straight or obliquely downwards. Ovicell rounded, smooth, entire, not much projecting; when young with a broad, short, vertical opening, which, as growth advances, becomes filled in, and in some cases forms a prominent ridge. Posterior surface obscurely granular or slightly areolated, traversed by numerous raised lines, and usually with one or more small oval avicularia situated on each part defined by these vibices.

Port Phillip Heads and elsewhere.

Varies a good deal in appearance, according to age, old specimens being very massive, the fenestræ shorter and interspaces thicker than in younger ones. 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. In one specimen, which I was inclined at first to refer to a distinct species, the fenestræ are very long, and are formed by the irregular anastomoses of branches from a main stem. The cells are longer, the separating raised margins not so prominent, the avicularia not so regularly placed, and many of the oral spines, of which in the marginal cells there are frequently four or five, present the same telescope-like appearance as is seen in *R. monilifera*. The back is smooth, the vibices not so prominent, the enclosed spaces not so angular, and each with a small round avicularium near its centre. In another older and somewhat worn specimen, in which the mode of branching is precisely similar, many of the cells present the characters of the typical form.

Retepora granulata, M'G. Fig. 7.

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; surface of cells granular or tuberculate; numerous small oval avicularia scattered over the cells, and a few larger situated on rounded elevations. Ovicells large, rounded, granular. Back of polyzoary granular, vibicate, with small, scattered, rounded avicularia.

Port Phillip Heads.

Of this, the most massive species with which I am acquainted, I have one perfect specimen four inches high, and of the same width at its widest part. It is attached by a stout calcareous basis. The polyzoary is very thick, foliaceous, twisted, and united so as to form several calyculate chambers. It is of a brownish colour (dried). The other specimens I have are mostly fragments. 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 fissures 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.

Retepora fissa, M'G. Fig. 8.

Polyzoary expanded. Fenestræ narrower than the inter-spaces. Cells separated by narrow raised lines; mouth rounded above, lower lip hollowed, entire, or with a loop-shaped mark about the centre; a considerable avicularium with a triangular mandible near the middle of the cell, directed downwards and outwards. Ovicells large, rounded, prominent, with a vertical fissure wider above; posterior surface vibicate, slightly granular, with a few small avicularia.

Allied to *R. cellulosa*. The lower lip is usually entire, although sometimes (as in the figure) with a small loop-shaped mark or notch. The avicularium about the middle of the cell varies in its direction, being usually pointed obliquely outwards and downwards, sometimes nearly transversely outwards, and occasionally slightly upwards. It is sometimes very large, the rostrum much elevated on a calcareous basis, and the mandible long and triangular.

Hornera robusta, n. sp. Fig. 1.

Polyzoary composed of one or more thick, flattened stems, from which lateral branches extend on either side, these lateral branches frequently anastomosing with each other and with those from adjacent stems. Cells arranged in numerous longitudinal rows, separated by raised ridges; mouth in central cells slightly exserted; in the lateral and those near the edge the peristome produced and irregularly dentate. Back of polyzoary longitudinally sulcate; the narrow intermediate ridges thickly punctate. Ovicell large, posterior, elongated in the direction of the branch, pitted.

Port Phillip Heads.

My largest specimen measures an inch and three-quarters in height, and is of the same width at its broadest part. It originates in a single stem, which immediately divides into two, these again sub-dividing into several main branches. From the main branches others spread on each side, nearly at right angles, in a penniform manner, and these again give origin to still smaller branches; these anastomose irregularly together, and the large branches from the neighbouring main stems frequently unite in the same way. Some specimens consist only of a single stem with lateral branches, frequently not so regular, while in others these stems are still more numerous. The resulting polyzoary in those with several

stems is more or less expanded and curled. The anastomoses of the branches and branchlets are very irregular, being absent in some specimens, while in others they are very numerous. There is nothing like the regular fenestrate arrangement, which is seen in *Retihornera foliacea*.

Pustulopera regularis, n. sp. Fig. 3.

Polyzoary dichotomously branched. Cells arranged in nearly regular sub-spiral series, projecting above, indistinct below; mouth rounded, directed forwards; surface sub-granular.

Port Phillip Heads.

I have only examined two specimens, the larger the one figured. The cells follow more or less spiral lines in both directions, so as to result in a nearly quincuncial arrangement. The upper part is prominent, the lower indistinct. The mouth is nearly circular, and the peristome sometimes produced into a very short tube.

It is closely allied to some of D'Orbigny's fossil species, and may prove to be identical with his *Entalophora sub-regularis*.

Fasciculipora gracilis, n. sp. Fig. 2.

Cells very long; arranged in flattened bundles, the upper parts usually distinct and free; surface thickly punctate.

Port Phillip Heads.

The specimen, of which a portion is figured, grows on a small specimen of *Retepora aurantiaca*. There are two groups springing from the same calcareous basis. The cells are arranged in flat fasciculi, closely bound together at their bases, but at the summit separating into smaller bundles, or being each distinct and considerably projecting. The whole surface, including part of the free portions, is thickly punctate. The mouth is circular and entire, and the part of the cell (peristome) immediately below it is smooth or with obscure transverse wrinkles. In many of the fasciculi the cells all end at the same level, are closely packed together, and have prismatic orifices. This is generally owing to the free portions of the cells being broken off.

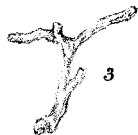
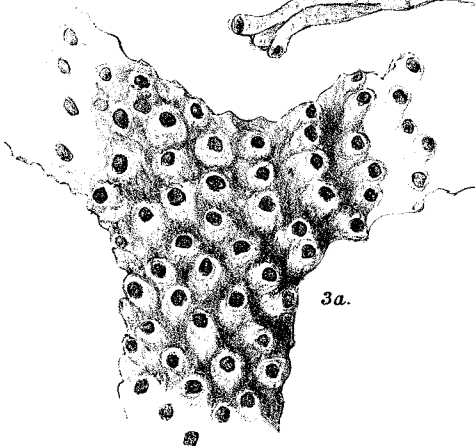
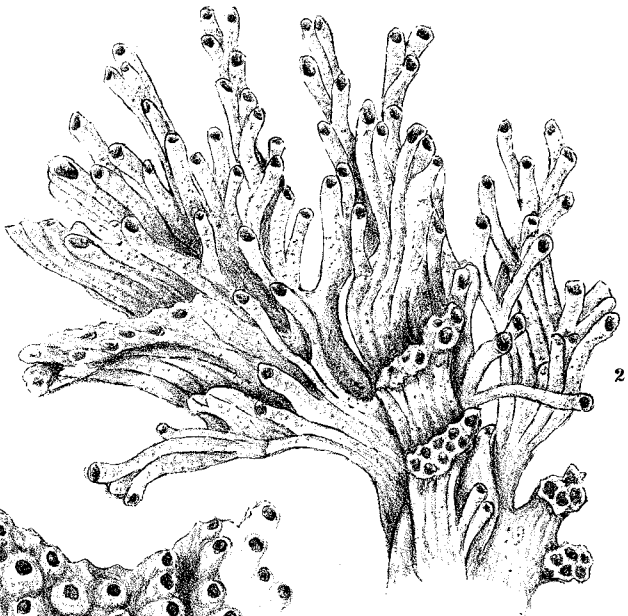
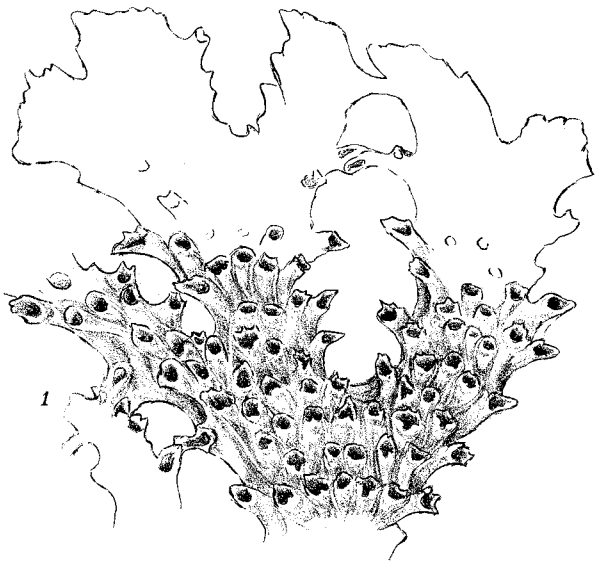
EXPLANATION OF FIGURES.

PLATE I.

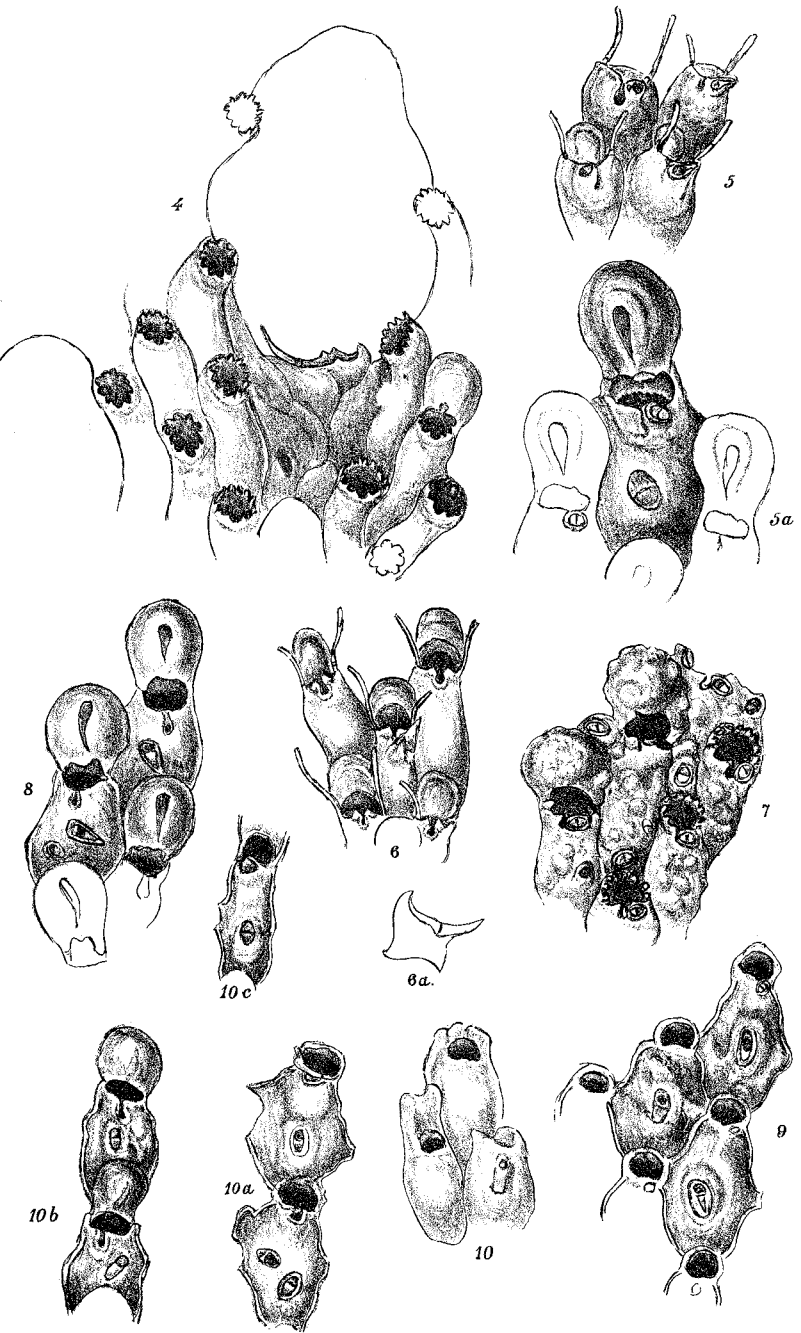
- Fig. 1. *Hornera robusta*.
 Fig. 2. *Fasciculipora gracilis*.
 Fig. 3. *Pustulopora regularis*, natural size. Fig. 3a. Portion of same magnified.

PLATE II.

- Fig. 4. *Retepora serrata*.
 Fig. 5. *R. aurantiaca*. Young cells, showing oral spines. Fig. 5a. Older cell and ovicells.
 Fig. 6. *R. avicularis*. Fig. 6a. Avicularium in profile.
 Fig. 7. *R. granulata*.
 Fig. 8. *R. fissa*.
 Fig. 9. *R. porcellana*. Group of cells from old, worn specimen.
 Fig. 10. Young cells from the growing edge. Figs. 10a, b, and c. Other cells, from the same specimen as 10.



$\frac{1}{100}$ inch



$\frac{1}{100}$ inch