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XL.—*Notes on the Genus* Retepora, *with Descriptions of new Species.* By the Rev. THOMAS HINCKS, B.A., F.R.S.

[Plates XVIII. & XIX.]

THE singular beauty of the Lace-corals has always attracted the collector; but, so far, little has been accomplished towards the elucidation of their history. Of the many forms which exist, especially in the Southern Ocean, few have been discriminated. Even the representatives of the tribe in Northern and British waters and in the Mediterranean have been only imperfectly investigated; and much remains to be done amongst them.

The notices of *Retepora* which we have from the older writers are valueless for purposes of identification; and the same remark applies to many of the descriptions of more modern date.

The following recent species have been described:—

From Australia:

Retepora phœnicea, *Busk.*
R. monilifera, *Macgillivray.*
R. porcellana, *id.*
R. granulata, *id.*
R. fissa, *id.*

I believe that the foregoing are all distinct from the forms described as new in this paper; but in so difficult a genus it is essential that the diagnosis should be much fuller and more minute than authors have usually made it, and identification is not always sure.

From the South Seas:

R. versipalma, *De Blainville* (Man. d'Act. p. 419).

Of this species the diagnosis is hopelessly defective.

From India:

R. indica, *D'Orbigny*.

Nothing is to be learnt of this species from the brief notice of it in the 'Paléontologie Française' (vol. v. p. 364); but it is identified by D'Orbigny with a form figured by Rumphius (Amboin. pl. 87. fig. 5); and as Busk quotes the latter as a synonym of his *R. phœnicea*, it is possible that this species and *R. indica* may be identical.

From Florida:

R. marsupiata, *Smitt* * (also from Teneriffe).

R. reticulata, *Pourtales* †. Ranked by Smitt as a variety of *R. Beaniana*, but probably a distinct species. Dredged from a depth of 270 fathoms.

R. reticulata of *Johnston & Couch* cannot be identified from their descriptions.

From the Arctic seas:

R. Wallichiana, *Busk & Hincks* ‡ (associated with *R. Beaniana*, King, and *R. cellulosa*, Smitt).

From the North Sea:

R. Edwardsii, *Van Beneden* § (probably identical with *R. cellulosa*, Smitt).

From the British seas:

R. Beaniana, *King* ‖.

From the Mediterranean:

R. cellulosa, *auctt.*

There has been much confusion amongst authors as to the application of this name. The northern form, with which Smitt has connected it, ranges to the Mediterranean; but it has probably been applied to other Mediterranean forms by the earlier writers.

I do not give this as an exhaustive list, though I believe that it will be found to include most of the described species

* Floridan Bryozoa, pt. ii. p. 67, pl. xiii. figs. 245–254.

† Ibid. p. 69, pl. xiii. figs. 242–244.

‡ Hincks on Polyzoa from Greenland (wrongly "Iceland" in the text) and Labrador, Ann. & Mag. Nat. Hist. for January 1877, p. 107, pl. xi. figs. 9–13.

§ "Sur les Polypes Bryozoaires de la Mer du Nord," Bull. Acad. Roy. d. Belg. vol. xv. no. 2 (1849), pl. x. figs. 9–13.

‖ Ann. & Mag. Nat. Hist. 1846, xviii. p. 237.

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(if not all) which are recognizable. If so, the number of known forms is remarkably small compared with the probable extent of the genus.

The Retepores have a wide distribution in space, ranging from the Arctic seas to New Zealand and Australia, where they are represented by many species, and occurring in the Indian seas (Straits of Malacca &c.), at the Canary Isles, off Cape Horn, and on the southern coasts of North America. They have also a wide bathymetrical range, and have been taken at great depths as well as in comparatively shallow water.

The new species which I am about to describe are in part Australian; one of them is common to our own shores and to the Mediterranean; and one or two besides are inhabitants of the latter or of the Red Sea.

The most important specific characters in this group are the structure of the oral aperture, the shape and size of the *fenestræ*, and the form and position of the avicularian appendages. Some of the species are distinguished by a slit or fissure in the lower margin of the mouth, terminating below in a loop-like foramen; in others this is wanting. The genus may be conveniently divided into two groups, characterized by the presence or absence of the oral fissure.

Class POLYZOA, J. V. Thompson.

Subclass HOLOBRANCHIA, E. Ray Lankester.

Group *a*. *ECTOPROCTA*, Nitsche.

Order **GYMNOLÆMATA**, Allman.

Suborder **Cheilostomata**, Busk.

Genus RETEPORA, Lamarck.

a. *With an oral fissure.*

1. *Retepora Couchii*, n. sp. (Pl. XVIII. figs. 1–6.)

Retepora Beaniana, Hincks, Devon and Cornw. Cat., Ann. & Mag. Nat. Hist. ser. 3, ix. 306 (50, sep.).

Retepora cellulosa, var. *Beaniana*, Manzoni, Bryoz. Foss. Ital. quarta contrib. 19, pl. v. fig. 26 (Sitzungsb. d. k. Ak. d. Wiss. Bd. lxi. 1 Abth. März-Heft, 1870).

Zoarium irregularly cup-shaped, undulated and contorted, with a sinuated margin, hispid. *Fenestræ* small, oval; stem short. *Zoœcia* subcylindrical, depressed, except at the upper extremity, surface smooth; orifice semielliptical, the front

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margin produced into a tall mucronate process, broad below and narrowing towards the apex, bent outwards, and bearing on its summit a minute avicularium, with rounded mandible; peristome elevated on one side of the mucro into a broad, wing-like process, produced at its upper and outer angle into a pointed spine; a slit-like fissure between the mucro and the lateral process, closed above, but forming a looped foramen below; elongate, linguiform avicularia, with a very delicate mandible, distributed over the zoarium, frequently one on the front of the cell towards the side. *Dorsal surface* vibicate, with many small subcircular and linguiform avicularia, irregularly placed. *Oœcia* elliptical, smooth, with a narrow longitudinal fissure.

Height (of the largest specimen examined) a little more than $\frac{1}{2}$ inch, breadth about $\frac{3}{4}$ inch.

Hab. On stones &c., deep water.

Localities. Off the Land's End (*R. Q. Couch*); south-west of Polperro, on stone, 40 fathoms (*T. H.*); Guernsey (*Rev. A. M. Norman*).

Distribution. Mediterranean, 390 fathoms ('Porcupine' expedition, *teste Busk*).

Range in time. Italian Pliocene beds (*Manzoni*).

The very much produced and recurved rostrum, with its minute terminal avicularium and the wing-like elevation of the peristome on one side of it, are the most salient and striking features of this species. But it is also distinguished from its allies *R. Beaniana* and *R. cellulosa* by differences in the *avicularia* and *fenestræ*. From the former it is also separated by the presence of an oral fissure.

This is probably the form which Borlase records from Scilly, and which Couch includes in his 'Cornish Fauna' under the name of *R. reticulata*, though it is quite impossible to identify it by their descriptions. I infer that it is the same species, because no other south-western Retepore has been brought to light by recent dredgings.

2. *Retepora prætenuis*, n. sp. (Pl. XIX. figs. 6–8.)

Zoarium forming a simple, reticulated frond, more or less curved and contorted. *Fenestræ* usually of large size, elongate, and narrowed towards both extremities; the branches very slender, commonly composed of only two rows of cells. *Zooœcia* ovate, very slightly convex, smooth; orifice suborbicular, peristome not elevated, a small fissure on the lower margin, and beside it usually a minute avicularium with rounded mandible; on the front of the cell, a little below the mouth, frequently a raised elongate avicularium; mandible

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broad at the base, slender and somewhat curved above, directed downwards. *Oœcia* small, suberect, semielliptical, closely adnate to the cell above, somewhat flattened in front, produced below into a truncate process, which reaches down some way within the aperture; a short and narrow fissure in the front wall. *Dorsal surface* very slightly vibicate, with many scattered elongate avicularia.

Height (of fine specimens) about $\frac{3}{4}$ inch.

Locality. For my specimens of this very beautiful species I am indebted to R. S. Newall, Esq., F.R.S. It was included amongst a number of Polyzoa which were said to have been taken from a telegraph cable in the Red Sea. On examining the collection, however, I find it to contain so many Mediterranean forms that I suspect there has been some mistake about the locality. Probably both Mediterranean and Red-Sea forms may be mixed in it. Mr. Newall is unable to clear up the point; and I can therefore only refer the present species doubtfully to the Red Sea.

A large proportion of the specimens in the collection afford unmistakable evidence as to their habitat, the base from which they rise having been moulded on the cable and forming a cast of it.

R. prœtenuis is one of the most beautiful of its tribe. Whether it ever assumes the caliculate form I am unable to say; but all the specimens which have come into my hands (about a dozen in number) consist of a simple reticulated expansion. The *fenestræ* are usually much elongated, and the inosculating branches which compose the network remarkably slender, giving an air of great lightness and delicacy to the whole structure, which is very slightly put together and extremely fragile. The oral fissure is very small, almost rudimentary, and is associated with a minute, rounded avicularium, rising from the lower margin beside it. The peristome is very slightly developed; and the structure of the oral aperture is essentially simple. The elongate and pointed avicularia are not present on every cell; but on every specimen a considerable number may always be met with, and they form a good distinctive character. They are raised on a mound-like elevation; and the slender acuminate mandible points, as a rule, straight downwards. The ovicell presents some very marked peculiarities. It is small and decidedly suberect; the front wall is flattened, and is prolonged below into a kind of lamina, subtruncate at its lower extremity, which extends some way into the aperture. The fissure is very short and narrow, and is not open below.

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b. *Without an oral fissure.*

3. *Retepora plana*, n. sp. (Pl. XVIII. figs. 7, 8.)

Zoarium thin, flat, and compressed. *Fenestræ* rather large, usually pointed above and below, separated by wide interspaces (three or four rows of cells); habit of growth unknown. *Zooœcia* ovate, very slightly convex, surrounded by a raised line, surface smooth; orifice arched above, with a straight lower margin; peristome not raised, thin, entire, unarmed; frequently a small avicularium, with rounded mandible, immediately below the mouth, usually supported on an umbo. *Dorsal surface* smooth, vibicate, destitute of avicularia. *Ooœcia* ——?

Locality. Red Sea (probably). The specimens form part of the collection to which I have previously referred.

This very distinct species is characterized by the flatness and evenness of its surface, by its great simplicity of structure, and the slight development of the accessory appendages, which are usually so abundant amongst the Retepores. The cell resembles that of an ordinary *Lepralia* (auct.). The orifice is well arched above and straight below, the height somewhat exceeding the breadth, and is surrounded by a perfectly simple peristome, which is not raised above the level of the surface.

The small rounded avicularium, which is often present below the mouth, usually mounted on an umbonate rising, is the only appendage which occurs in my specimens.

4. *Retepora tessellata*, n. sp. (Pl. XIX. figs. 9–12.)

Fenestræ elongate, narrow, not so wide as the interspaces, which are broad and rather massive; habit of growth unknown. *Zooœcia* short-ovate, smooth, flattish, bordered by a raised line; orifice arched above, lower margin straight, with a small central sinus, the front wall (in the adult state) carried up on each side of it and terminating above in a somewhat pointed extremity, hollowed out below it; a spine immediately above each lateral prolongation of the front wall; usually on the front of the cell a slender elongated avicularium with pointed mandible, frequently placed transversely, but sometimes directed downwards; many stout processes distributed over the zoarium, standing out at right angles to its surface, and bearing a large pointed avicularium on one side. *Ooœcia* immersed, subglobose, smooth, hollowed out in front. *Dorsal surface* divided into numerous distinct areas, bounded by raised lines, each bearing one or more of the elongate avicularia.

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Locality. South Australia*.

In this species the characters of the mouth are very distinctive. The shape and the minute marginal slit and the way in which the cell-wall in the adult is carried up on each side of it and hollowed out in front are all very characteristic points. The *avicularium* on the front of the cell is a very constant feature; it is sometimes depressed and sometimes slightly elevated above the surface.

Perhaps, however, the most marked peculiarity is to be found in the tessellated condition of the dorsal surface. It is mapped out into distinct areas, each bounded by a raised line, and is covered with great numbers of the pointed avicularia, similar to those which are so abundant on the front of the zoarium.

5. *Retepora robusta*, n. sp. (Pl. XVIII. fig. 9, 10.)

Zoarium thick and massive. *Fenestræ* elongate-oval, large, separated by very wide and solid interspaces; habit of growth unknown. *Zooœcia* regularly rhomboidal, surrounded by raised lines, which terminate above on a level with the inferior margin of the orifice; surface smooth, uneven, often depressed in the centre. *Orifice* arched above; lower margin almost straight; no sinus; occasionally a small oval avicularium placed transversely immediately under the lower lip, or upon it; on the front of most of the cells a somewhat tongue-shaped avicularium, pointing straight downwards, or sometimes placed obliquely, often occupying its central depression. *Ooœcia* ——? *Dorsal surface* vibicate, with scattered small avicularia.

Locality. South Australia.

This species is distinguished from all the preceding by its massive zoarium and large reticulations. The meshes are much elongated and the inosculating branches of remarkable width and solidity.

There are points of agreement between it and Macgillivray's *R. porcellana*. But as he has not given us a detailed account of its minute structure, or a figure, it is impossible to decide whether such agreement implies specific identity. His description of the avicularium which occurs towards the middle of the cell in *R. porcellana*, as having a "short mandible," is sufficiently vague; but, so far as it goes, it does not apply to that of the present form, which is elongate and tongue-shaped.

* I am indebted for most of my Australian specimens to my friend H. R. W. Lemann, Esq., of Bath.

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The very regular rhomboidal shape of the cell in *R. robusta*, and the way in which its bounding lines extend only to the inferior margin of the orifice and do not embrace the mouth itself, are distinctive points. Its most striking characteristic, however, is the stoutness of its habit, by which it can be at once distinguished from all the other southern species with which I am acquainted.

The species which follow have already been described; but I venture to supply a fuller account of them than we have from the authors who have previously noticed them. In studying this very difficult family I have vividly realized the necessity of thorough and minute diagnosis, if we are to escape the very serious evils of doubtful identification and a burthensome synonymy.

1. *Retepora monilifera*, Macgillivray*. (Pl. XIX. figs. 1–5.)

Zoarium regularly cup-shaped, or much convoluted, and forming a number of irregularly shaped cavities, the sinuous and anastomosing walls of which give a very intricate appearance to the surface; surface minutely granulated. *Fenestræ* very small, narrow-oval; interspaces broad. *Zooœcia* subcylindrical, distinct, flattish; orifice (primary) arched above, slightly curved outwards below, broader below than above, with a minute sinus on the inferior margin; secondary orifice (formed by the elevation of the cell-wall) orbicular, with a deep looped sinus in front, on each side of which is an ascending process, one of the two bearing on its inner side a small avicularium, the mandible directed upwards; a tall and stout jointed spine on one side just above the avicularium. Small oval avicularia distributed over the zoarium. Tall and stout aviculiferous processes, expanding downwards, often present in great numbers; the avicularium placed on the front with a pointed mandible. *Ooœcia* large, prominent, subpyramidal, with a granulated rim above the upper edge of the aperture, from the centre of which a somewhat clavate band, also granulated or beaded, extends upwards, almost to the top of the ovicell. *Dorsal surface* dense, minutely granular, slightly vibicate, with scattered small oval avicularia.

Locality. South Australia.

On the young marginal cells the primary orifice with its minute sinus is met with; in the older portions of the colony

* "Notes on the Cheilostomatous Polyzoa of Victoria and other parts of Australia," by P. H. Macgillivray, A.M., M.R.C.S. (Trans. Phil. Inst. of Victoria, vol. iv. 1860, p. 168, pl. iii. figs. 6–9).

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it is almost entirely concealed by the secondary orifice. In this we find the characteristic orbicular shape, the large loop-like sinus, and the marginal processes and avicularium. The remarkable spine (Pl. XIX. fig. 3) which rises on one side of the orifice seems to have escaped observation. Its structure is peculiar. At the base it is articulated by a corneous joint to a small tubular process on the margin, and is composed of a number of segments or pieces, each of which is contracted below and expands upward, and seems to fit into the one beneath it; so that the spine presents an uneven outline and has the appearance of being jointed at pretty regular intervals. The large aviculiferous processes are often present in profusion and give a very marked character to the zoarium; occasionally, however, they are scantily developed. The variety of the avicularian appendages in this species is remarkable. In addition to those which have been described, there is occasionally a gigantic avicularium, exceeding the zoœcium in length, which occupies an elevated space at the top of the fenestræ, with a much elongated subspatulate mandible directed obliquely downwards. This is sometimes replaced by a very curious form, which I have not met with elsewhere. It is narrow-elliptical in shape, usually large, with a very solid semielliptical mandible, of a dark horn-colour (Pl. XIX. fig. 5). This form, I believe, is really an aborted condition of the gigantic avicularium just described, and consists essentially of the basal portion of the latter *minus* the long mandible. I was at one time induced to think that the form with the gigantic avicularia should be accounted distinct; but in its minute characters it agrees with the present species. It is perhaps worthy of being distinguished as *R. monilifera*, var. *munita*.

It should be noted that the aspect of the cell, and especially of its oral aperture, is subject to great variations, corresponding with the stages of growth and development. After the formation of the secondary orifice has been commenced, its sinus appears as a very small slit almost closed above, and the avicularium lies transversely on the margin beside it, without being elevated, as it is subsequently, on a mucronate process.

The peculiar structure of the ovicell, which has suggested the specific name, seems to be due to the filling-in of the fissure, which exists in the usual condition on the younger cells, with a granulated calcareous plate. The oœcia are commonly developed in such quantities as almost to conceal the surface of the zoarium; and this profusion may perhaps be accounted a specific character.

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R. monilifera affords a very striking illustration of the diversities in the habit of growth which are so characteristic of the present family. So utterly different in aspect are its simply caliculate and its convoluted and chambered variety, that it is difficult to believe that they are referable to one and the same species. I was at first so completely deceived by the very distinctive habit of the latter, combined with some other trifling peculiarities, that I had marked it as a new species, under the name of *R. contortuplicata*.

2. *Retepora phœnicea*, Busk *.

Zoarium of a rich red colour, irregularly cup-shaped, variously contorted, the edges of the lamina sometimes uniting so as to form cylindrical cavities. *Fenestræ* small, oval, the inosculating branches broad and rather massive. *Zooœcia* rhomboidal or irregularly ovate, commonly enlarged above, narrowed downwards, and truncate at the bottom, flat, with a conspicuous line and a few very large punctures round the edge; surface smooth and polished; orifice orbicular; peristome raised and somewhat thickened, subtubular, slightly bent forwards, the margin often serrulate; sometimes a minute circular orifice in the centre, immediately below it; a depression on the front of the cell below the mouth, from which a pointed avicularium extends upwards to the lower margin. *Dorsal surface* solid, smooth or minutely warty, strongly vibicate, and generally destitute of avicularia. *Oœcia* globose, subimmersed; surface entire, smooth and shining, hollowed out in front, the fissure being filled in by a thick opercular plate, which is prolonged below within the orifice.

Locality. South Australia, Adelaide and Glenelg.

Mr. Busk has characterized *R. phœnicea* with his accustomed accuracy; but as his description is very concise, in harmony with the plan of his work, it may not be superfluous to furnish a further account of it.

To the elements of beauty which are common to the tribe, the charm of rich colouring is superadded in the present species; and its fine red tint is well preserved in fresh unbleached specimens. The cell exhibits strongly marked characters, but is subject to a certain amount of variation. The subtubular peristome is sometimes wanting, and the orbicular orifice, with its slightly thickened rim, is on a level with the surface. The edge is often entire and shows no trace of serrulation. The minute central foramen below the mouth I have

* Cat. Marine Pol. part ii. p. 94, pl. cxxi. figs. 1, 2.

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not always been able to detect, even when it is not concealed by the apex of the suboral avicularium. The latter is not always present; but it must be accounted a characteristic feature of the species. It is immersed, extending from a depression situated about halfway down the cell, or less, to the lower margin of the mouth, on which its pointed extremity rests. It is rounded below and is furnished with a short mandible, very broad at the base, and tapering to a fine point. Very characteristic also is the flat, smooth, polished and tinted surface of the cell, bordered by a distinct raised white line, and sparsely punctured round the edge. The punctures or *foramina* are of very considerable size; two are generally placed side by side at the bottom of the cell.

I have examined many fragments of this fine species; but the only perfect specimen which I possess is of a compressed cup-shape, with the lamina gracefully curved and the margin sinuated. The cup is much flattened at one side; and on the other side, which is greatly produced, it widens out and then terminates in a pointed spout-like projection. The height is half an inch, and the width an inch. The form is a singularly elegant one, even for a Retepore; but in this genus the habit of growth is so variable that it cannot be relied on as a specific character.

3. ? *Retepora granulata*, Macgillivray. (Pl. XIX. figs. 13–15.)

Zoarium cup-shaped, thick. *Fenestræ* very small, oval or subrotund, much narrower than the very broad interspaces. *Zooœcia* rhomboid, flat, lined round, the surface covered with granules, which often form a border or edging round the upper margin of the mouth; orifice suborbicular, somewhat extended transversely; peristome not raised; frequently one or two small oval or subcircular avicularia placed transversely immediately below the inferior margin; many such avicularia scattered over the surface of the cells; numerous blunt and low mamillæ distributed over the zoarium, bearing on the upper side an avicularium with broad triangular mandible. *Ooœcia* large, prominent, subglobose, surface granular, no fissure. *Dorsal surface* indistinctly vibicate, with scattered circular avicularia, sometimes absent.

Locality. South Australia.

This is probably the *R. granulata* of Macgillivray—though, in the absence of a sufficiently minute diagnosis of the latter, I hardly venture to identify the two with certainty. Amongst my specimens there is much difference in the degree in which the surface is granulated. In some cases the cells are almost smooth; in others the surface is thickly studded with small

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glossy granules. Round the upper part of the orifice they are frequently of larger size, and are ranged in line and placed close together, so as to have much the appearance of rudimentary spines.

The oocœcium in *R. granulata* is described as "immersed and granular;" in my specimens it is closely united to the cells about it, and the base may be slightly immersed, but its striking characteristics are its massiveness and prominence. It stands out boldly from the surface of the cell, sometimes smooth, sometimes much roughened and bearing several of the small avicularia. The minute characters of the zooœcium and its orifice are not included in Macgillivray's diagnosis. In most of the cells of the form which I have in view an oval avicularium, set transversely, occurs immediately under the lower margin of the orifice, *placed towards one side*. Sometimes a second is present. Great numbers of similar avicularia are distributed over the cells, whilst the aviculiferous mamillæ, very different from the tall acuminate processes which occur on other species, thickly stud the surface of the zoarium. The inosculating branches are very thick and massive, and the meshes small and often suborbicular in shape.

Macgillivray describes the zoarium of his *R. granulata* as "expanded, foliaceous, convoluted." The habit of growth, as I have already remarked, has no specific significance in this tribe; but the fragments of the present species which I have examined show it to be caliculate and occasionally to form subcylindrical cavities.

4. *Retepora cellulosa*, Smitt *.

This species has a wide range. It occurs in the Arctic seas and in the Mediterranean, but has not been obtained, so far as I know, on our own coasts. Darwin took it off Cape Horn Macgillivray, a slender variety of it, in Australia; Hutton records it from New Zealand. I have a characteristic specimen from South Australia.

EXPLANATION OF THE PLATES.

Plate XVIII.

Fig. 1. *Retepora Couchii*, Hincks: natural size.
Fig. 2. The same.
Fig. 3. A portion of the zoarium, front surface, magnified.
Fig. 4. A portion of the zoarium, dorsal surface, magnified.
Fig. 5. A single zooœcium, magnified.
Fig. 6. One of the larger avicularia.

* Kritisk Förteckn. öfver Skandinaviens Hafs-Bryozoer, iv. (1868) pp. 34, 203, pl. xxviii. figs. 222-225.

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Fig. 7. *Retepora plana*, Hincks: portion of the front surface, magnified.
Fig. 8. The same: portion of the dorsal surface, magnified.
Fig. 9. *Retepora robusta*, Hincks: a fragment of the zoarium, natural size.
Fig. 10. The same: portion of the front surface, magnified.

PLATE XIX.

Fig. 1. *Retepora monilifera*, Macgillivray: zooœcia, magnified.
Fig. 2. The same: a zooœcium in an earlier stage.
Fig. 3. One of the oral spines, magnified.
Fig. 4. One of the gigantic avicularia, magnified.
Fig. 5. Large elliptical avicularium, magnified.
Fig. 6. *Retepora prætenuis*, Hincks: portion of the front surface, magnified.
Fig. 7. The same: portion of the zoarium, magnified, showing the relative width of the fenestræ and the interspaces.
Fig. 8. Fragment of the zoarium, nat. size.
Fig. 9. *Retepora tessellata*, Hincks: front surface.
Fig. 10. The same: dorsal surface.
Fig. 11. The oœcium.
Fig. 12. Fragment of the zoarium, nat. size.
Fig. 13. ?*Retepora granulata*, Macgillivray: front surface.
Fig. 14. The oœcium.
Fig. 15. Two fenestræ magnified, showing the width of the interspace.

XLI.—*Descriptions of new Species of Heteropterous Hemiptera collected in the Hawaiian Islands by the Rev. T. Blackburn.* —No. 2. By F. BUCHANAN WHITE, M.D., F.L.S.

HAVING received from Mr. Blackburn information as to the habits, localities, &c. (as well as more examples of some) of the species noticed in my former paper (vol. xx. p. 110), it will perhaps be as well to give notes on these species before describing certain new ones since received.

In my last paper I omitted to number the species, which I will now do.

1. *Geotomus subtristis*, Buchanan White.

2. *Geotomus jucundus*, Buchanan White.

Both widely distributed and pretty common, living under stones and about the roots of herbage, and not confined to the mountains.

3. *Triphleps persequens*, Buchanan White.

Three specimens only found.

4. *Cardiastethus mundulus*, Buchanan White.

Not rare about the outside of roofs of houses.

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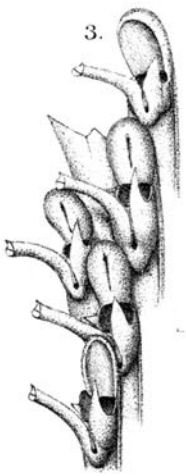

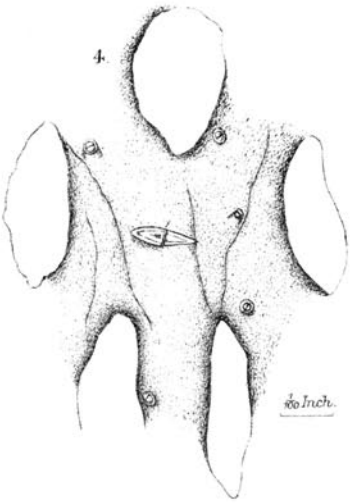

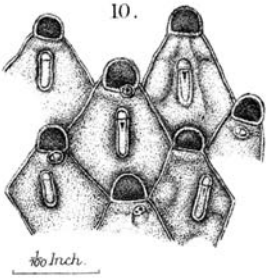

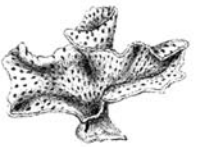

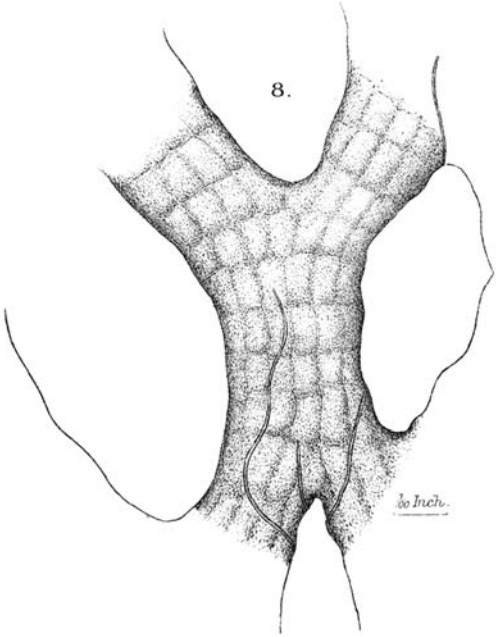

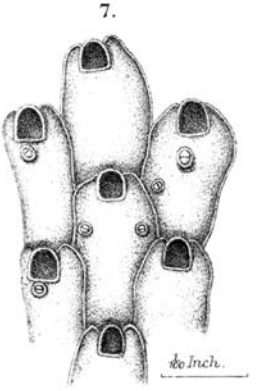

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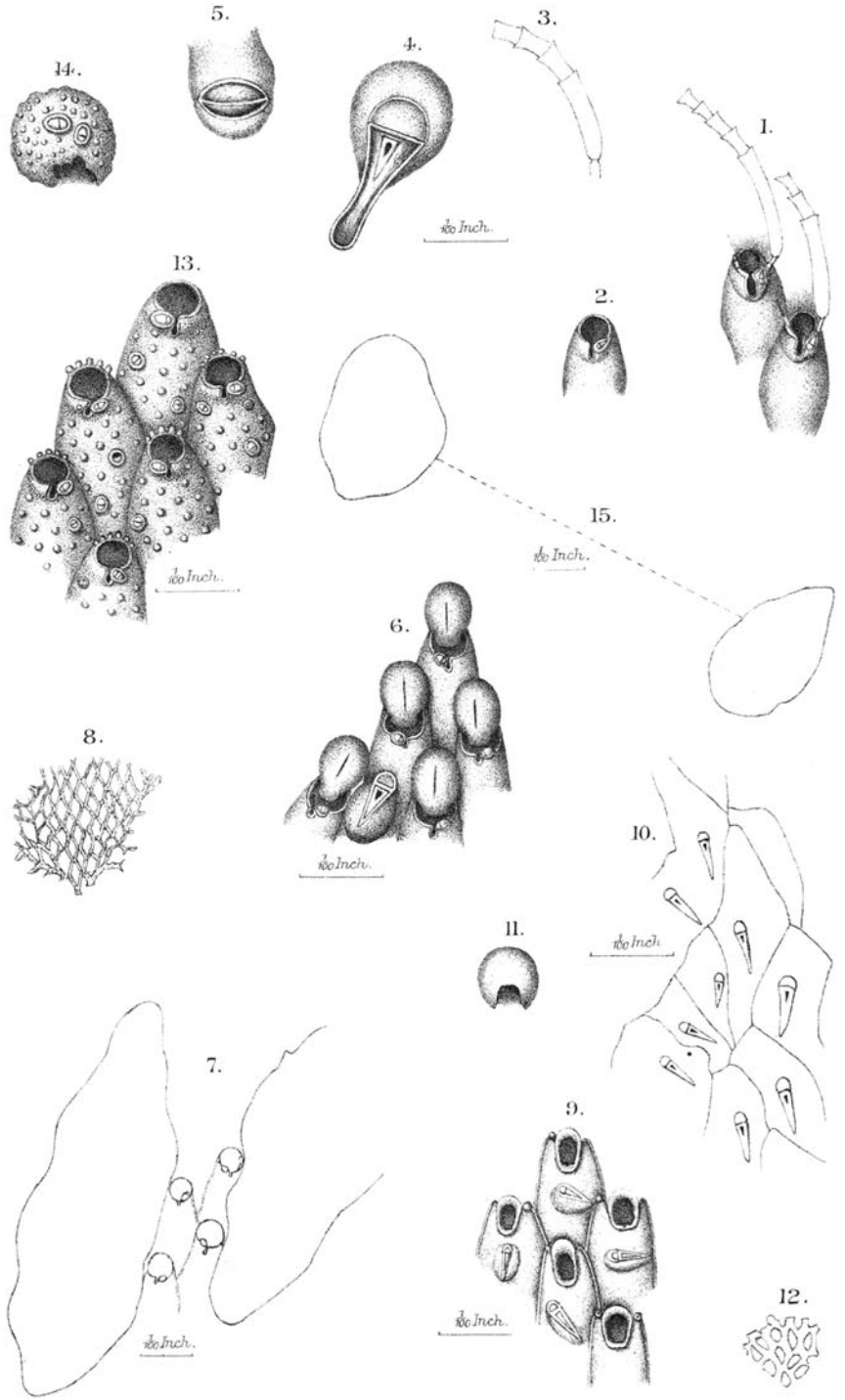

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