Art. XVI.—*Polyzoa from the Gilbert Islands.*

By C. M. MAPLESTONE.

(With Plates XXVI.–XXVIII.).

[Read 10th September, 1908].

Some five years ago the Rev. Dr. Porter, of Petersham, N.S.W., sent me some slides of Polyzoa that he had received from the Gilbert Islands. At that time I was not able to do more than make a cursory examination of them, and I laid them aside. Now, however, I have been able to make a thorough examination of them, and, as would naturally be supposed from the locality from which they came, being situate on the Equator, in longitude 174 deg. East, I found that almost all of them were new to science. Many of the specimens are not in very good condition, having minute fragments of sand, etc., adhering to them, and some of them are in a fragmentary state; still among them I have found many of considerable interest.

In addition to those described below, there were a specimen of a *Farciminaria* too much shrivelled up to identify; a specimen of a very slender form of *Tubucellaria cereoides* less than one-fourth the diameter of those found upon this coast, but otherwise identical with them; a *Retepora* indistinguishable in its zooecial characteristics from *R. producta*, Busk., recorded in the "Challenger" Polyzoa as from Tongatabo and the Philippine Islands (Gilbert Islands are about midway between these places), but the branches are free, not anastomosing, and very much narrower and more delicate than those described by Busk; and a specimen of *Schizoporella cecilii*, which, though not exactly the same as the form found here, cannot be differentiated from it; also specimens of *Reteporae*, *Crisiae*, *Lichenoporae*, *Tubuliporae*, and other genera which cannot be definitely placed, being more or less imperfect, and on the slide containing the *Catenaria* are some pieces of a *Notamia*, but as the dorsal surface only is visible, the species cannot be determined.

Catenaria infundibuliformis, n. sp. (Pl. XXVI., Fig. 1).

Zoarium free. Zooecia tubular below, expanded and ventricose above; surface punctate with a smooth longitudinal band on the dorsal surface; distal end smooth, surmounted by 4 to 6 spines and two umbonate projections. Thyrostome orbicular; operculum opening upwards.

The specimens are entangled in a mass of sponge threads and are composed of single disconnected zooecia, so that the mode of branching does not appear; "a" and "b" are side views of two different specimens; "c" and "d," front views of two others; "d" showing the operculum.

Scrupocellaria gilbertensis, n. sp. (Plate XXVI., Fig. 2).

Zooecia 6 to 10 in an internode, elongated. Thyrosrome arched above, straight below; surrounded by an elevated elliptical area, in the lower portion of which is a slightly raised crescentic punctate area. Scutum suborbicular with rounded boss. Three to five spines above the thyrostome. Lateral avicularia large, pointing outwards and upwards, with a ligulate mandible.

On the front of the zooecia, below the elevated area there is a small umbonate process, probably avicularian, but the specimen is small, somewhat imperfect and much covered with small grains of sand, etc., so that it is difficult to make out the details, but sufficient are visible to show it is a good species.

Megapora gilbertensis, n. sp. (Plate XXVI., Fig. 3).

Zoarium encrusting. Zooecia oval, with raised margins. Thyrostome arched above, straight below, with a chitinous rib separating it from the proximal membranous flap; a crenulated ridge extending from each side of the thyrostome in a curve to the margins, thence downwards to the base enclosing a granulated, slightly depressed area in which are two large subcircular perforations (opesia), in some cases covered with an epitheca.

This specimen is growing upon a small red coral; it much resembles in appearance Micopora coriacea, owing to the presence of the two large perforations in the front wall, but the peculiar thyrostome with a raised ridge separating the upper

and lower parts of the operculum show it to be a Megapora; the membranous covering of the lower part is sometimes wanting, and shows an opening into the interior of the zooecia.

It is worthy of note that the other two species of this genus have been found in high latitudes only; M. ringens. Busk. in the Shetland Islands (this species has no perforations in the front wall); M. hyalina, Waters, is recorded from the Antarctic region among the Polyzoa obtained on the voyage of the "Belgica." This species has small perforations in the front wall, and also some spines. The present specimen has no spines.

Steganoporella porteri, n. sp. (Pl. XXVI., Fig. 4).

Zoarium encrusting. Zooecia quadrate, margins raised. Cryptocyst occupying about two-thirds of area; distal margin curved and studded with small tuberosities; surface perforated, the perforations have raised margins; "tube" opening upwards.

Locality, Solomon Islands.

I include this species from the Solomon Islands, as it differs very considerably from the next species described, and from those described by Prof. Harmer in his revision of the genus published in the Quarterly Journal of Microscopical Science, vol. 43, p.. 225, ff. The specimen is somewhat imperfect, and has minute fragments of sand, etc., adhering to it which obscure the surface of some of the zooecia. Only a few show any part of the membranous outer wall, and one or two of the opercula are present. There is no trace of dimorphism in the zooecia. The "tube" takes the form of a cup, being constricted into a narrow neck at a short distance below the upper surface. The perforations in the cryptocyst are very peculiar, having raised margins, causing an appearance similar to that of a thin metal plate pierced with a blunt punch from beneath.

Steganoporella minuta, n. sp. (Pl. XXVI., Fig. 5).

Zoarium encrusting. Zooecia subhexagonal, arched above; margins raised, very rugose. Cryptocyst granulated, not perforated; opening subtriangular, but very irregular in shape.

I have placed this in Steganoporella, as the zooecia have a

similar structure to that of the other species of the genus. The proximal margin of the opening in the cryptocyst is very irregular in form, but in every case the protruding portion shows an incurved part in the middle, which I consider represents an imperfectly developed "tube." The zooecia are very much smaller than those of any other species, and the surface of the cryptocyst is granulated, not perforated. There is no trace of the membranous front wall in the specimen.

Cribrilina gilbertensis, n. sp. (Pl. XXVI., Fig. 6).

Zoarium encrusting. Zooecia oval, ventricose, with 8 to 12 transverse rows of minute globular elevations. Thyrostome arched above, straight below, surrounded with a raised margin bearing seven long spines. On each side of the thyrostome there is a very long acute avicularium placed slightly above it, extending and opening directly upwards.

This species resembles C. radiata, but has not the central pore below the thyrostome of that species, and it has very long avicularia. It is a very delicate form, and has a glassy-like appearance. In the specimen from which the figure is drawn only the bases of the spines round the thryrostome are present, but in another specimen, which otherwise is somewhat imperfect, they are shown as delicate spines almost as long as the avicularia.

Lepralia trispinosa, n. sp. (Pl. XXVI., Fig. 7).

Zoarium encrusting. Zooecia oval or pyriform, ventricose; surface slightly granulated. Thyrostome arched above, straight below, with three long spines above. An acute avicularium with a slightly curved mandible on the proximal margin of the thyrostome.

A small, delicate species. The three long spines and the oral avicularium distinguish this species from others.

Hiantopora corniculata, n. sp. (Plate XXVI., Fig. 8).

Zoarium encrusting. Zooecia totally immersed and undefined; surface rugose, with irregularly shaped perforations. Long ligulate avicularia scattered about, and also some small,

very acute ones. Thyrostome orbicular, margins slightly raised; a long truncated, upright process on one side.

The long upright truncated processes are not only on the edge of the thyrostomes, but occasionally are present on other portions of the surface of the zoarium. Fig. 8a gives a side view, and Fig. 8b is drawn looking down straight upon the specimen, and shows the flat tops of the processes, one of which is on the surface of the zoarium, at a distance from the thyrostomes. In many of the zooecia the perforations are much more numerous than in those figured, making the surface cribriform.

Hiantopora corrugata, n. sp. (Pl. XXVII., Fig. 9).

Zoarium encrusting. Zooecia oval, ventricose, immersed; surface with irregularly shaped hollows and pores, sometimes radiating from the thyrostome. Thyrostome arched above, curved below, with a raised margin.

The surface very irregularly cribriform, in many instances it consists of raised narrow ribs with deep hollows and pores between. The proximal lip of the thyrostome is often elevated into an umbo.

Microporella irregularis, n. sp. (Pl. XXVII., Fig. 10).

Zoarium encrusting. Zooecia quadrate, but very irregular in shape; surface very minutely mamillated, sometimes quite smooth. Thyrostome arched above, straight below; a reniform covered opening below it. Ooecium globular, smooth, with semicircular opening and operculum.

This is near *M. malusii*, but differs from it in the smooth ooecium and mamilliform surface. One of the zooecia has a row of minute mamillae near the distal end. The specimen is a very small one upon which to found a new species, but I thought it worthy of a place in this paper on account of the peculiar abnormality shown; the ooecium on the left side of the specimen (as figured) I consider to be the normal form; the other, which is apparently common to two zooecia, is mis-shapen, has no operculum, and the zooecia adjacent to it do not appear to have any thyrostomes.

Microporella falcifera, n. sp. (Pl. XXVII., Fig. 11).

Zoarium encrusting. Zooecia immersed, oval, elongate, ventricose; surface rugose, with small pores and rounded depressions, sometimes in linear series round the margins. A minute pore with a raised border in the centre of the zooecium. Thyrostome arched above, straight below, with slightly raised margins; an acute avicularium below proximal border, and one, or more, on the surface of the zooecium, some of them very small, with very acute mandibles. Large vicarious avicularia with long curved mandibles and a large pore, always situated on the incurved side of the mandible, scattered about the zoarium.

The chief peculiarity of this species is the very large vicarious avicularium, with a long, acute, curved mandible and the presence of a large round pore in the surface of the cell.

Schizoporella ensifera, n. sp. (Pl. XXVII., Fig. 12).

Zoarium encrusting. Zooecia irregularly orbicular or oval; surface uneven and crystalline in appearance. Thyrostome rounded, with a shallow sinus in proximal margin; three spines on distal border; two slightly curved ridges below, enclosing a slightly depressed subtriangular area. In some of the zooecia one of these ridges is replaced by a long falciform avicularium. Ooecium orbicular, contracted proximally; distal portion punctate.

A very small, delicate, glassy-looking species. The zooecia are very irregularly grouped.

Schizoporella perlata, n. sp. (Pl. XXVII., Fig. 13).

Zoarium encrusting, robust. Zooecia elongated, oval; surface smooth, with small annular dark markings. Thyrostome orbicular with raised margins; a very shallow sinus proximally; a small avicularium with a triangular mandible just below or to one side.

A very distinct species; on one of the zooecia figured there is an apparently imperfect avicularium just below the middle. The surface is covered with small, annular, dark markings, with

a lighter-coloured centre, evidently being the epitheca covering pores in the calcified wall of the zooecia.

Schizoporella nitida, n. sp. (Pl. XXVII., Fig. 14).

Zoarium encrusting. Zooecia oval, ventricose; surface smooth, with slightly elevated ridges radiating towards the centre. Thyrostome with raised margin, arched above, straight below, with a deep, narrow sinus in the lower lip; a very small avicularium close to the margin on one side. A few large vicarious avicularia, with spatulate mandibles scattered about the zoarium.

A neat, small-celled form. The vicarious avicularia are characteristic of this species.

Schizoporella granulata, n. sp. (Pl. XXVII., Fig. 15).

Zoarium encrusting. Zooecia irregularly quadrate or oval; surface granulated or pitted; a raised line between the zooecia. Thyrostome with raised margins, orbicular, with a deep sinus in the lower lip. A small subtriangular avicularium below the thyrostome near the middle of the zooecia, pointing either vertically or transversely.

This is near S. triangular, Hincks and S. pachnoides, McG., but I think distinct: the avicularium is very much smaller, and is sometimes placed transversely.

Schizoporella porifera, n. sp. (Pl. XXVII., Fig. 16).

Zoarium encrusting. Zooecia ovoid, ventricose; surface covered with minute circular pores. Thyrostome subtriangular, with raised margins, arched above, with a deep sinus in the proximal margin. An acute avicularium on one side close to the margin of the thyrostome in most of the zooecia, varying, however, in size, and also in direction.

Schizoporella perarmata, n. sp. (Pl. XXVII., Fig. 17).

Zoarium encrusting. Zooecia elongate, quadrate; surface much depressed, perforated with small round pores; margins

very high, rugose, with small oval avicularia scattered about upon them. Thyrostome orbicular, with raised margins; a wide, deep sinus on the proximal margin.

This is a very peculiar form. The zooecia are bounded by high, rugose, marginal edges, on which are scattered a great number of small oval avicularia, giving it a very unique appearance; similar avicularia are present on the surface of most of the zooecia in the distal part on each side of the thyrostome.

Pollaploecium, n. gen.

Zoarium free, dichotomously branched; branches consisting of internodes, joined by corneous tubes. Internodes composed of six to ten zooecia, united on their dorsal surfaces, facing all ways. Thyrostome with a sinus on proximal lip.

This genus is near *Diploecium*, Kirkpatrick (recorded from Mauritius), but differs therefrom chiefly by the internodes being composed of six to ten zooecia, whereas in *D. simplex* (the only species) there are only two in an internode placed back to back; the ooecia also are different.

Pollaploecium gilbertensis, n. sp. (Pl. XXVIII., Fig. 18).

Zooecia oval or pyriform, ventricose; surface minutely punctate; bordered by narrow, raised lines. Thyrostome arched above, straight below, with a deep sinus in the middle. Ooecia globose.

This is the most interesting species in the collection. As noted above, this is near *D. simplex*, and I would have placed it in the same genus, but the number of zooecia in an internode is made a generic distinction by Kirkpatrick. The ooecia are placed above the zooecia, and are continuous with them, only a slight suture showing the line of demarcation between them.

Mucronella umbonata, n. sp. (Pl. XXVIII., Fig. 19).

Zoarium encrusting. Zooecia immersed, area undefined; surface with stellate and irregularly-shaped pores. Thyrostome orbicular. Peristome much elevated, with a straight, narrow, deep notch in the side; one side of which is more or less raised

into a prominent umbo. Ooecium oval, raised above the surface of the zoarium, with a triangular opening on the summit.

The form of the peristome in this species is very various, but the narrow, slit-like notch is always present, though not always in the same position, and the raised umbo is in most cases very much more prominent than shown in the figure, but, as in them, the thyrostome is consequently almost hidden, so the figure was drawn from that portion of the zoarium bearing the only ooecium present on the specimen.

Mucronella rugata, n. sp. (Pl. XXVIII., Fig. 20).

Zoarium encrusting. Zooecia elongated; surface very rugose, covered with irregular, rough elevations. Thyrostome orbicular, with a prominent quadrate mucro in the proximal margin. Occasionally a very large avicularium, with a long, acute mandible, on one side of the zooecia, pointing horizontally. Marginal zooecia furnished with five slender spines on the edge of the thyrostome. Ooecium orbicular, somewhat flattened, with a round umbo in the centre and others round the margin and on the sufrace.

A very rugose species. With age the spines seen on the marginal zooecia disappear.

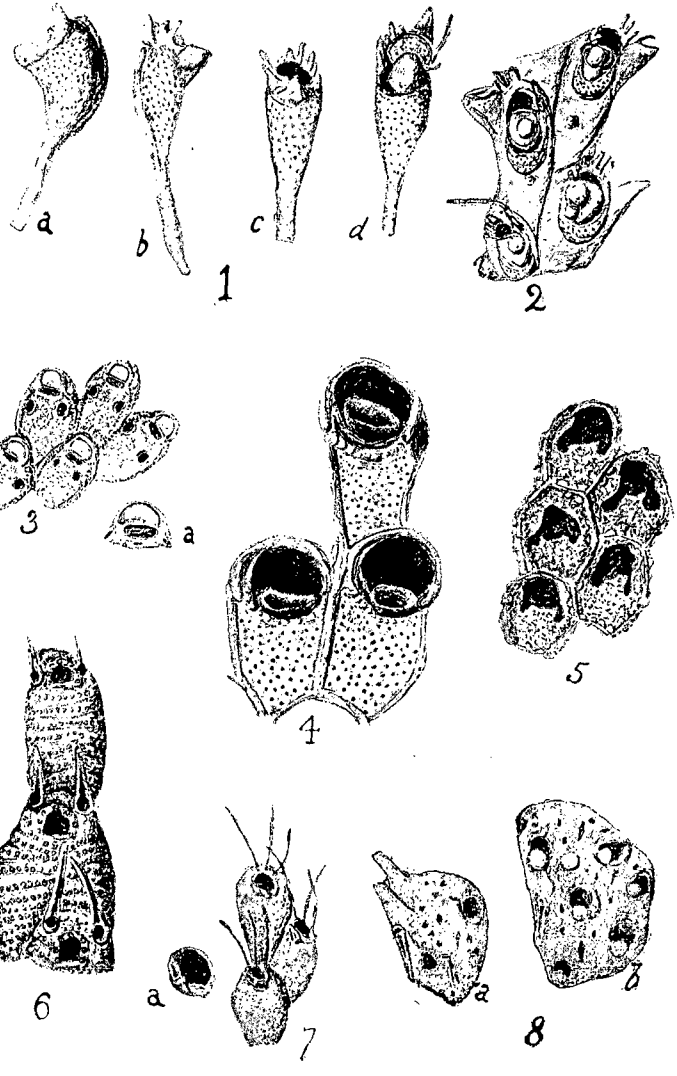
Cellepora crenulata, n. sp. (Pl. XXVIII., Fig. 21).

Zoarium encrusting. Zooecia orbicular or cylindrical, closely crowded together so that only the upper or distal surface is visible. This surface is covered with irregularly shaped mamillations, mostly radially arranged. Thyrostome orbicular, margin slightly raised and crenate. A few large wedge-shaped avicularia scattered about the zoarium.

The mandible of the avicularium is wedge-shaped and longitudinally ribbed, a very uncommon shape.

EXPLANATION OF PLATES XXVI.–XXVIII.

Fig. 1.—Catenaria infundibuliformis. × 36.
„ 2.—Scrupocellaria gilbertensis. × 50.
„ 3.—Megapora gilbertensis. × 25. 3a × 36.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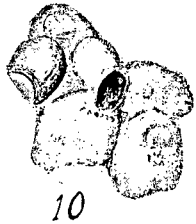

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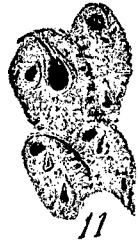

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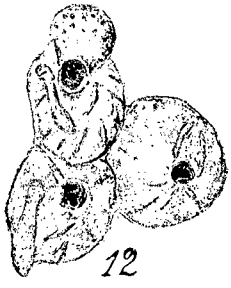

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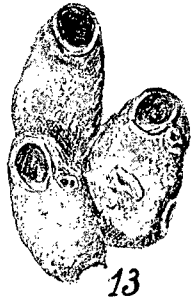

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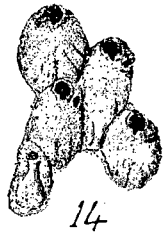

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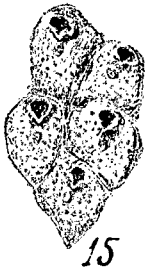

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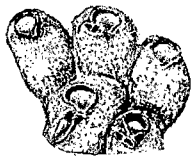

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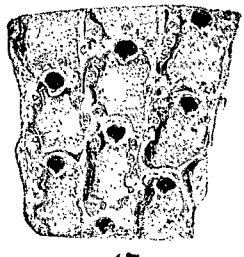

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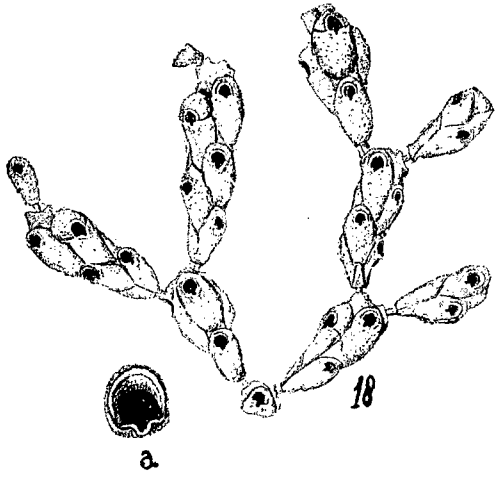
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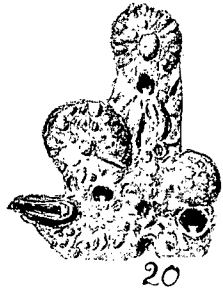
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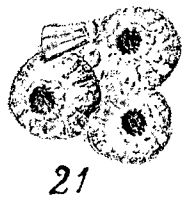
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Fig. 4.—Steganoporella porteri. × 25.
,, 5.— ,, minuta. × 25.
,, 6.—Cribrilina gilbertensis. × 50.
,, 7.—Lepralia trispinosa. × 25. 7a × 50.
,, 8.—Hiantopora corniculata. × 25.
,, 9.— ,, corrugata. × 25.
,, 10.—Microporella irregularis. × 25.
,, 11.— ,, falcifera. × 25.
,, 12.—Schizoporella ensifera. × 36.
,, 13.— ,, perlata. × 25.
,, 14.— ,, nitida. × 25.
,, 15.— ,, granulata. × 25.
,, 16.— ,, perifera. × 25.
,, 17.— ,, perarmata. × 25.
,, 18.—Pollaploecium gilbertensis. × 12. 18a × 36.
,, 19.—Mucronella umbonata. × 25.
,, 20.— ,, rugata. × 25.
,, 21.—Cellepora crenulata. × 25.

APPENDIX.

Change of name of new species of Polyzoa (Idmonea fasciculata).

The name "*angustata*" given to a species of *Idmonea* described by me in Part X. of "Further descriptions of the Tertiary Polyzoa of Victoria," on page 234, vol. xxi. (new series), pt. i., is, I find, preoccupied; I therefore substitute for it the name "*fasciculata.*"

Line 21, page 234, should read "*Idmonea fasciculata*, n.s. (Pl. VII., Fig. 6)."

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29/12/08.