

XXXIII.—The Alcyonarians of the Scottish National Antarctic Expedition. By
Prof. J. Arthur Thomson, M.A., and Mr James Ritchie, M.A. (With Two
Plates.)

(MS. received May 30, 1905. Read July 3, 1905. Issued separately January 18, 1906.)

The Alcyonarians collected by Mr W. S. BRUCE on the *Scotia* voyage represent nine species—six of which are new, namely:—

Primnoisis ramosa, n. sp.

Thouarella brucei, n. sp.

Amphilaphis regularis, Wright and Studer.

Primnoella scotia, n. sp.

Primnoella magellanica, Studer.

Paramuricea robusta, n. sp.

Gorgonia wrighti, n. sp.

Gorgonia studeri, n. sp.

Umbellula durissima, Kölliker.

Apart from the six new species, the collection is of interest in extending our knowledge of the geographical distribution of previously recorded forms. Thus *Amphilaphis regularis*, Wright and Studer, previously collected off Inaccessible Island, Tristan da Cunha, and off Nightingale Island, was got in abundance off St Helena; *Primnoella magellanica*, Studer, previously collected off Monte Video and in the Magellan Straits, was obtained at Burdwood Bank 54° 25' S., 57° 32' W.; while *Umbellula durissima*, Wright and Studer, previously obtained by the *Challenger* from the North Pacific Ocean, south of Yeddo, was found by the *Scotia* at 48° 06' S., 10° 5' W.

It may also be noted that the fine specimens of *Umbellula durissima*, Kölliker, give us a better idea of this beautiful species than the single young specimen collected by the *Challenger*. Several of the specimens obtained by Mr BRUCE are much larger, older, and of more vigorous growth than that which KÖLLIKER described and named.

With the exception of the much-weathered *Primnoisis ramosa*, n. sp., all the specimens are admirably preserved.

Family ISIDÆ.

Sub-family MOPSEINÆ.

Primnoisis ramosa, n. sp., Pl. I. fig. 2.

The specimen is much weathered, quite devoid of polyps, and without the basal portion. Although far from complete it attains a height of 230 mm., and a maximum lateral expansion of 45 mm. The bare stem bends frequently, at irregular intervals,

throughout its course, and gives off many branches which are also naked. The branches arise at various acute angles, and some of them, especially towards the lower end, are almost as thick (1.5 mm.) as the main stem (1.75 mm. at the lowest part). Like the latter, they give origin to smaller branches, which may bear minute twigs with a single joint or with two joints. Small branches with only a few joints are much more frequent on the stem than the large branches already mentioned, and they stand off from the stem at greater angles than the large branches—some, indeed, arising perpendicularly.

All the branches spring from the calcareous internodes, and are equally developed on all sides. They vary in number from 3 to 7, or even 8, per joint, 7 perhaps being the most common number. They seem to arise quite irregularly, a frequent interval between two on the same side being 4 mm.; but very occasionally 3 or 4 arise in a whorl.

The axis consists of alternate horny nodes and calcareous internodes, the latter being covered with very fine longitudinal grooves. The internodes are much longer than the nodes, and are themselves longer towards the apex of the colony. The following measurements of successive internodes were taken:—(a) from the lowest joint upwards, 5, 6.5, 7, 9 mm.: (b) from the topmost joint downwards, 9, 9.5, 10, 9, 10 mm. Near the base the horny nodes are only about 0.5 mm. in length, and gradually decrease towards the apex. The branches never begin with a horny node; in every case a process arises from the originative calcareous node, and on this the first horny node of the branch is based.

This species most closely approaches *P. antarctica*; but the branches arise from all surfaces of the stem and secondary branches, and are equally developed on all sides, whereas in *P. antarctica* the branches arise from only four sides and are unequally developed. Moreover, in the new species the calcareous internodes are much longer than in *P. antarctica*, and may bear 7 or 8 branches, whereas in *P. antarctica* there are only about 4 per joint.

The specimen bears several siliceous sponges, several Polyzoa, a small brown Actinian, and several worm-tubes.

Locality.—Station 411, lat. 74° 1' S., long. 22° W.; 161 fathoms. Surface temperature 28.9°, March 12, 1904.

Family PRIMNOIDÆ.

Sub-family PRIMNOINÆ.

Thouarella brucei, n. sp., Pl. I. fig. 1; Pl. II. fig. 1.

Several specimens of strong upright branched colonies of a creamy-white colour were found at various stations. The largest specimen is a bushy colony 14 cm. in height by 10.5 cm. in maximum breadth, with an axis 5 mm. in breadth at the base;

but like the others, with one exception, it lacks the basal attachment. The single complete specimen is a graceful bush, 9 cm. in height by 4 cm. in maximum breadth, with an axis 1 mm. in breadth at the base, and an expanded disc of attachment almost 1 cm. across. Of the other specimens the following measurements were taken:— (a) 14 cm. in height by 3 in breadth, a single branch, with an axis 4 mm. in breadth; (b) 11 cm. in height by 9.5 cm. in maximum breadth, a bushy colony with an axis 3 mm. in breadth at the base; (c) 8 cm. in height by 9 cm. in maximum breadth, a bushy colony with an axis 2 mm. in breadth. The colonies bear Comatulids attached by their cirri, encrusting Polyzoa, hydroids, and several sponges.

The branching of the specimens differs from that of the previously described species of *Thouarella*. A main stem, 1 to 5 mm. in diameter, gives off strong branches almost as thick as itself, and sometimes attaining a length of 12 cm. They arise *in at least three directions* and at irregular intervals. From these branches, as also from the intervals between them on the main stem, slender twigs arise on all sides, and at varying angles. But the strong branches of the first degree may also bear strong branches of the second degree, likewise carrying slender twigs. The larger branches show a tendency to curve inwards towards the main stem.

In all cases the slender, graceful twigs spring *from all sides* at very irregular intervals, and are equally developed all round. As a result of the repeated branching, of the incurving of the larger branches, and of the very numerous close-set twigs, the colony bears a characteristic resemblance to a thickly-growing sturdy bush.

Where the coenenchyma has been rubbed off in the lower parts of the colonies, the stout, almost inflexible axis is exposed. It is tawny-brown in colour, with in some places a yellowish sheen; but it becomes lighter in colour (honey-yellow), as well as very flexible, towards the tips of the branches and in the twigs. It is composed of horny and calcareous materials, and is *circular* in cross section.

The calices, which are about 1 mm. in height, are borne chiefly on the twigs, but they are occasionally borne by the twig-supporting branches and by the main stem. On the twigs they are closely approximated, arising in all directions and without any definite arrangement. They are pear-shaped, and generally bent inwards to the axis.

The number of transverse rows of scales varies slightly, but five is a very common number. The number of longitudinal rows is about seven. The scales appear to be similar in size and structure on all sides of the polyp, there being none distinctively dorsal or ventral. They have a convex upper edge, frequently assume an almost quadrangular form, and are thickly tuberculated. Fusion of the tubercles occasionally gives rise to very slight ridges running outwards from the nucleus. The embedded edges of all the scales are more ragged than the free edges.

The rows of scales are surmounted by about seven opercular scales, all of which have a ridge projecting for a considerable distance, usually bordered by a narrow leaf-like wing.

This species is marked off from others previously described by the origin of strong

branches in at least three directions, by the origin of twigs on all sides of the axis, by the cylindrical shape of the axis, and by the detailed speculation of the polyps.

Localities.—Burdwood Bank, 56 fathoms, December 1, 1903; Gough Island, 100 fathoms, April 22, 1904; St Helena.

Amphilaphis regularis, Wright and Studer, Pl. II. fig. 5.

Numerous fine specimens of this graceful form were obtained from St Helena. The following measurements of height and lateral expansion were taken in cm.:—40 by 25, 33 by 15, 26 by 15, 20 by 30, 17 by 9, 20 by 19, 20 by 10, 16 by 11; but none of these represent complete specimens. As is the case with *Thouarella brucei*, there are very noticeable differences in the vigour of the various specimens, for some have the polyps much more crowded than others.

The specimens agree closely with the description by WRIGHT and STUDER, but it may be noted that the figures of the spicules given in the *Challenger* Report do not show the prominent spines described in the text. We have therefore given a supplementary figure.

We add a few details in reference to the spicules. The scales of the operculum are roughly triangular, usually with an indentation in the base directly opposite the nucleus. A strong ridge, sometimes double, extends from the apex of the triangle towards the nucleus, which, however, it seldom reaches. The calyx scales resemble a rude ellipse, toward the upper edge of which the tubercles have become fused to form prominent ridges, frequently 0.08 to 0.1 mm. in length, radiating from the nucleus and projecting as spines beyond the edge. The arrangement of the ridges resembles that of the teeth in a comb.

The specimens bear numerous small Actinians, clusters of Polyzoa, clambering Ophiuroids, serpuloid worm-tubes, small barnacles, etc.

Locality.—St Helena.

Primnoella scotiæ, n. sp., Pl. II. figs. 3 and 8.

A simple upright colony, 105 mm. in height, of a dirty yellowish-white colour. The basal portion is absent and the axis has disappeared. It looks as if the dredge had dragged the colony from off the axis, for there is a slightly oval central canal, a little over 1 mm. in diameter at the base and narrowing to 0.5 mm. towards the apex.

The stem is closely covered with polyps arranged in whorls of 9 to 11, the most frequent number being ten. The calices are closely apposed to the stem and are pressed against one another laterally, and the whorls themselves overlap, so that the general effect is that of a uniformly thick rod with a diameter of 4 mm.

The calices are from 2.5 to 3 mm. long and 1 mm. broad, but owing to the overlapping at the base less than 2 mm. of the calyx is visible. Under the lens the

verrucae appear as slightly flattened cylinders covered with fine horizontal striae, which higher magnification shows to be the smooth edges of regularly arranged broad imbricating scales. These are arranged in two longitudinal parallel rows along the dorsal surface, those in one row interlocking with the alternate scales of the other row. The upper edges of all the dorsal scales are parallel, and the two rows meet in the middle without any distinct angle or keel. Each row has from 21 to 28 scales.

On the ventral side of the calyx there are two small longitudinal rows along the edges, but the rest of the surface is covered with indistinct roundish scales irregularly disposed.

There does not seem to be any special operculum, but several of the uppermost scales bend over so as partly to cover the mouth of the calyx, within which the retracted tentacles of the polyp can usually be seen.

The dorsal calyx-scales are roughly rectangular, very broad and slightly curved to fit the cylindrical polyp body. The upper or projecting margin of each scale is smooth, while the lower or overlapped margin is toothed. The whole of the inside of the scale, except a narrow strip along the upper edge, is covered with numerous small tubercles. On the external surface there are numerous very fine wavy lines running from edge to edge of the scale.

The other scales are irregular in outline, sometimes with toothed margins, sometimes smooth-edged; they may be almost free from tubercles or covered with them.

All the scales are colourless, and show an eccentric darker nucleus from which any slight ridges on the surface run. From these nuclei, as is shown by polarised light, the rest of the scale has been deposited in concentric zones.

Locality.—Burdwood Bank, lat. $54^{\circ} 25' S.$, long. $57^{\circ} 32' W.$; 52 fathoms. Surface temperature 41.8° , December 1, 1903.

Primnoella magellanica, Studer, Pl. I. fig. 3.

An almost complete specimen of this species, lacking only a small part of the basal region. The stem reaches a height of 148 mm., but towards the lower end the coenenchyma has disappeared, exposing the brown axis for about 15 mm., while for the next 30 mm. the whorls of polyps are broken and incomplete.

The specimen agrees with the description of *P. magellanica* given in the *Challenger* Report except in the following particulars. In the *Challenger* specimen the number of polyps in a whorl was 8; in the *Scotia* specimen there are 9, 11, 12, 13, 10, 12, 12, 13, in the various whorls counted. In the *Challenger* specimen the opercular scales were in length and breadth 0.48×0.2 mm., while the corresponding measurements for the *Scotia* specimen are 0.65×0.35 , 0.625×0.375 mm. Similarly for the calyx scales, the measurements for the *Challenger* specimen were 0.31×0.3 , 0.36×0.37 ; and for the *Scotia* specimen 0.3×0.3 , 0.425×0.35 , 0.3×0.25 . Thus there are decidedly larger dimensions in the scales of the *Scotia* specimen. The larger and

variable number of polyps in a whorl is of greater importance, but it probably means nothing more than a greater vigour of growth.

The figure in the *Challenger* Report shows the whorls too far apart, as the text points out; we have therefore given a supplementary figure.

Locality.—Burdwood Bank, lat. 54° 25' S., long. 57° 32' W.; 52 fathoms. Surface temperature 40·8°, December 1, 1903.

Family MURICEIDÆ.

Paramuricea robusta, n. sp., Pl. I. fig. 6; Pl. II. figs. 2 and 7.

A strong upright colony of a light brown colour, expanded for the most part in one plane, 27·5 cm. in maximum height by 14 cm. in maximum breadth. Not far from the base, which is expanded to 2 cm. and soon narrows to 1 cm., a strong side-branch is given off with a diameter of 6 mm., and this, like the main stem, bears strong offshoots from which smaller, usually simple, branches arise. The branching is very irregular, but anastomosis is rare, being represented in one of the specimens by only two instances, one of which shows the junction of an apparently broken branch of the first degree with the main stem. In another specimen, 18 cm. by 12 cm., there is no anastomosis. Towards the base of the colony the main stem is distinctly flattened, 9·5 by 8 mm., immediately above the basal thickening.

The axis is horny, non-calcareous, fibrous, and of a brownish colour. It narrows from about 6 mm. near the base to 1 mm. near the tips of the branches.

The cœnenchyma is relatively thin (0·5 mm.) and somewhat translucent, allowing the brownish axis to shine faintly through. Its surface is rough, owing to the abundance of large colourless spicules which cover it. Some of these spicules project from the tops of the verrucæ as crowns of spines.

The yellowish verrucæ are cylindrical with a slightly conical summit, 1·5 mm. in height by 1 mm. in diameter, and arise perpendicularly from all sides of the main stem and its branches. They are closely set, without any regular interval between them. Four or five are always grouped at the tip of a branch, giving it a knobbed appearance.

The polyps are wholly retracted, and an operculum of 8 parts, each composed of about 5 spicules resting on the bases of the tentacles, closes over the aperture. Round the top of the verruca a few rows of spicules are arranged horizontally, and on this support the bases of the opercular covering rest.

Various types of spicules characterise the species. Most characteristic are the large tuberculate clubs whose 'handles' form the spiny crowns of the verrucæ, while the much divided root-like 'heads' are embedded in the cœnenchyma. There are also simpler clubs with heads covered with tubercles and spiny processes. Curved spindles are common, some knobbed and thickened, with comparatively large projecting processes and smaller

spines; others are more regular, boomerang-like, with spines and tubercles only; others again are almost smooth with only a few small warts.

The following measurements were taken:—complex clubs, 0·8 to 0·9 mm. in length by 0·45 between the extremes of the spreading heads; broad almost straight spindles, 0·65 × 0·2 mm.; narrow curved spindles, 0·7 × 0·04, 0·5 × 0·05, 0·425 × 0·06 mm.; simple forks with few spines, 0·5 mm. in length by 0·1 at the forked end.

In general the colony presents a remarkably sturdy, rigid appearance, due to the thickening effect of the numerous polyps which arise from the flexible twigs and branches. The various specimens bear numerous epizoic animals, *e.g.* small Actinians, Polyzoa, worm-tubes.

This new species may be distinguished from most of the other representatives of the genus by the absence of any arrangement of the verruca spicules in longitudinal rows. It is separated from all by the characters of its spicules, and in particular by the large tuberculate clubs with expanded divaricate heads. From *P. ramosa*, which it most nearly approaches in appearance, and from *P. laca*, it may be distinguished, apart from the spicules, by the absence of any intermediate part of the stem or branches free from polyps. The verrucæ are distributed equally on all sides of the stem and branches instead of being disposed, for the most part, on opposite sides. From *P. ramosa* it is also distinguished by the exceedingly rare occurrence of anastomosis. Some of the spicules of KÖLLIKER'S *P. spinosa* closely resemble some of those in our species, but in *P. spinosa* the cœnenchyma is very thin, the polyps are rather sparse, and there are many other points of difference.

Localities.—Gough Island, lat. 40° 20' S., long. 9° 56' W.; 100 fathoms; surface temperature 55·2°, April 22, 1904. St Helena.

Family GORGONIDÆ.

Gorgonia wrighti, n. sp., Pl. I. figs. 7 and 8; Pl. II. figs. 6 and 9.

A much-branched, flexible, upright white colony with a general height of 22 cm. by about 10 cm. in breadth. The main stem gives off, about 25 mm. above the base, a strong branch which bears long flexible offshoots, and these again bear numerous usually simple branches. There are even some branches of the fourth degree, and with the base of one of these another branch unites—the only instance of anastomosis in the colony. The branches have a fairly uniform thickness of 2 mm., and can hardly be said to taper toward the blunt, rounded, or swollen tip. The larger branches are very slightly flattened towards their base. They all arise at angles rather less than 90°, and the whole system shows a tendency to spread in one plane, though here and there a branch arises at right angles to the rest. The branches of the same degree are markedly parallel when not twisted out of their original direction. There is a tendency in the secondary branching to

preponderate towards the side more remote from the main axis. The first main branch is 150 mm. in length and 2.5 mm. in breadth.

Towards the base of the colony a portion of the axis is exposed. It is slightly flattened, 3 mm. in breadth, horny, non-calcareous, and very flexible. The colour is a rich dark brown, fading into pale brownish yellow towards the tips of the branches. There are very marked 'chambers' or curved transverse septa. A cross section shows a central canal filled with whitish material.

The coenenchyma is thick (0.375 mm.) and has a granular appearance, due to the complete covering of spicules. On one of the branches there is a calcareous cirripede gall.

The polyps occur on all surfaces of the stem and branches, but are more frequent along the opposite sides than along the middle. They are completely retractile, and when withdrawn leave small almost circular openings, which are on a level with the surface on the older portions, while in the younger parts their margins are slightly raised to form lips, giving a warty appearance to the terminal regions.

The spicules are translucent spindles and scaphoids, almost always curved, and bearing numerous spines which often equal or exceed the diameter of the spicule proper. The spines are generally developed to a much greater extent on the convex side of the spicule. They are frequently tubercled or almost branched. Some of the spindles are fairly smooth with only a few tubercles. The following measurements were taken of the length and maximum breadth including the spines:—0.85 × 0.1, 0.8 × 0.1, 0.75 × 0.06, 0.7 × 0.04, 0.6 × 0.06, 0.5 × 0.03, 0.4 × 0.1, 0.3 × 0.075 mm. As almost every possible adjective is already preoccupied as the specific name of some *Gorgonia* or so-called *Gorgonia*, we have named this new form *G. wrighti* after Prof. E. PERCEVAL WRIGHT, joint-author of the *Challenger* Report on Alcyonarians.

Locality.—Station 81; lat. 18° 26' S., long. 37° 58' W.; 40 to 50 fathoms.

Gorgonia studeri, n. sp., Pl. I. fig. 4; Pl. II. fig. 4.

A portion of an upright branched white colony, consisting of what may be part of the main stem (30 by 2 mm.), bearing on one side two parallel branches from one of which a smaller branch arises. The distance between the two parallel branches is 13 mm.; the length of the longer simple branch is 95 mm., of the shorter 70 mm., and of its branch 35 mm. There is an indication that still another branch arose from the last, so that branching of at least the third degree is present. The branches, which taper almost imperceptibly towards their tips, have a diameter of 2 mm. They lie in one plane, leave the axis at an angle of about 70°, and are slightly compressed in their older portions.

The axis is horny, non-calcareous, and flexible, of a brown colour passing into a horny yellow in the younger portions. It shows transverse 'chambers' or curved septa. Its diameter at the oldest part is 0.8 mm.

The polyps show a tendency to bilateral arrangement, being more frequent along the

two opposite sides of the branches, although by no means confined to these. They are not wholly retracted, but protrude from the surface of the coenenchyma as small roundish warts surrounded by a gently sloping spicular dome, which rises gradually to form a very slight lip around the polyp aperture.

The spicules, which are whitish and translucent, are of three main types. (a) Most abundant are long narrow spindles, *e.g.* 0.75×0.06 , 0.7×0.05 mm., covered with warty tubercles, which are frequently produced into blunt spines. The spines show a marked tendency to unilateral development, being often more prominent and more numerous on one side of the spindle. (b) Less abundant are scaphoid forms, *e.g.* 0.7×0.12 , 0.4×0.06 mm. (c) There are also some forms which approach the 'club' type and differ greatly in size, *e.g.* 0.45×0.12 , 0.25×0.06 mm. Their heads are covered with long blunt processes, similar to the blunt spines of the spindles, and these are sometimes continued down the 'handle' of the club. Both the 'scaphoids' and the 'clubs' are readily derivable from the spindle type.

We have named this new species *G. studeri* after Prof. TH. STUDER, joint-author of the *Challenger* Report on Aleyonarians.

Locality.—Station 81; lat. $18^{\circ} 26'$ S., long. $37^{\circ} 58'$ W.; 40 to 50 fathoms.

Family UMBELLULIDÆ.

Umbellula darissima, Kölliker, Pl. I. fig. 5.

About twenty specimens of this beautiful form were obtained from one locality, from a depth of 1742 fathoms (April 13, 1904). Only one specimen was obtained by the *Challenger* expedition, and that much younger and smaller than the best of the *Scotia* specimens.

The following total length measurements were taken:—50, 45, 42, 37, 34, 32, 22, 20, 18, 17 cm. The heads vary from 2.8 cm. in height and breadth to 1.7 in height by 0.5 in breadth. The stalk is very slender in proportion to the head, and the following breadth measurements were taken:—3.5 mm. almost at the base and 1 mm. near the top of the largest specimen; 1.5 mm. at the base and 0.5 mm. near the top of the smallest specimen.

There is considerable diversity in the number of polyps—thus one head had 9, one had 7, five had 6, one had 5, and four had 3 polyps. The colouring of the polyps is exceptionally beautiful—a milky blue fading basally into white; the tentacles are chocolate brown. Eight vertical rows of rod-like spicules extend up the surface of the polyps and are continued into the tentacles. The largest polyps measure 15 mm. by 8 mm., not including the tentacles, which are 15 mm. in length. The minute siphonozoids are exceedingly numerous, covering the whole ventral surface of the head except a narrow median ridge, and also extending in bands between the bases of the polyps or autozooids. The bluish colour was not noticed in the *Challenger* specimen, and seems to be gradually fading in those under our observation.

The larger spicules are rods with rounded or swollen ends, and have the following dimensions in mm.:— 2.5×0.25 , 2×0.2 , 2×0.15 , 1.8×0.13 , 1.45×0.125 , 1.4×0.1 , 1.2×0.1 . Besides these there are minute rods, 0.14×0.023 , 0.1×0.02 .

Locality.— $48^{\circ} 06' S.$, $10^{\circ} 5' W.$ Bottom at 1742 fathoms, pebbles and diatom ooze. Surface temperature $40.8^{\circ} F.$

EXPLANATION OF PLATES.

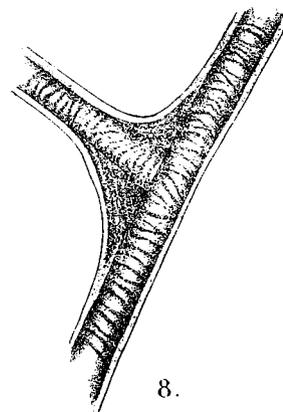
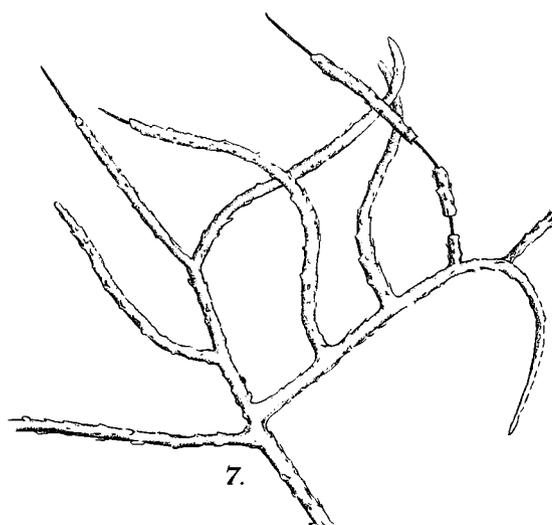
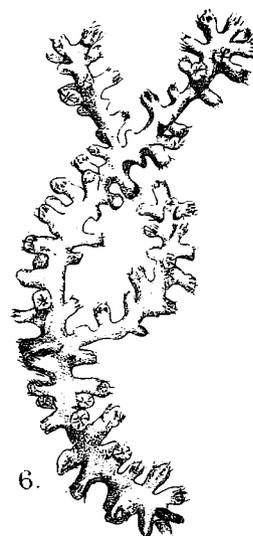
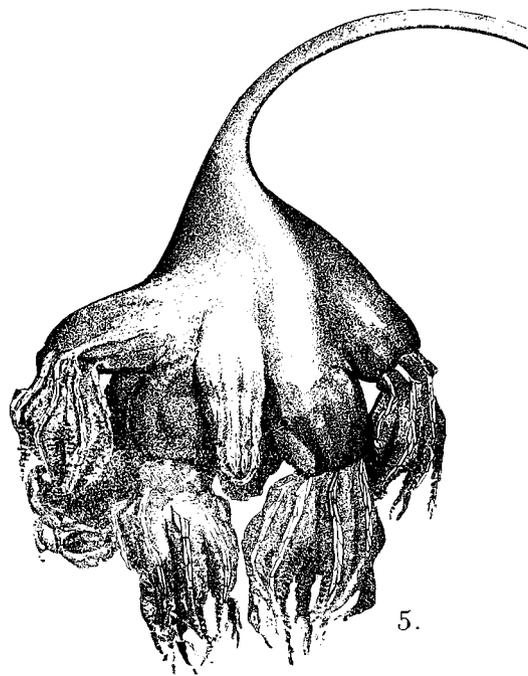
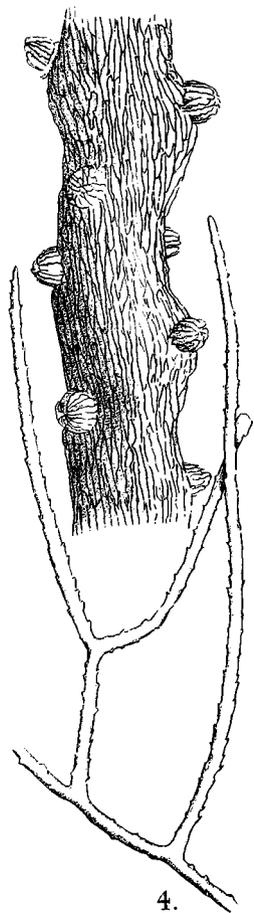
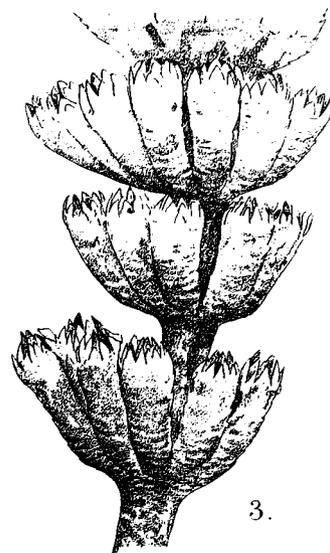
PLATE I.

- Fig. 1. *Thouarella brucei*, n. sp. A branch with twigs. Nat. size.
 Fig. 2. *Primnoisis ramosa*, n. sp. A portion of the axis with branches. Nat. size.
 Fig. 3. *Primnoella magellanica*, Studer. Three whorls of polyps. $\times 9$
 Fig. 4. *Gorgonia stuederi*, n. sp. The whole fragment, natural size; and a portion of the axis with verrucæ, magnified about 10 times.
 Fig. 5. *Umbellula durissima*, K lliker. The largest head, magnified about $2\frac{1}{2}$ times.
 Fig. 6. *Paramuricea robusta*, n. sp. A small piece of a branch with verrucæ, magnified about 2 times.
 Fig. 7. *Gorgonia wrighti*, n. sp. Showing the mode of branching. Nat. size.
 Fig. 8. *Gorgonia wrighti*, n. sp. A portion of the axis, showing the chambers, magnified about 10 times.

PLATE II.

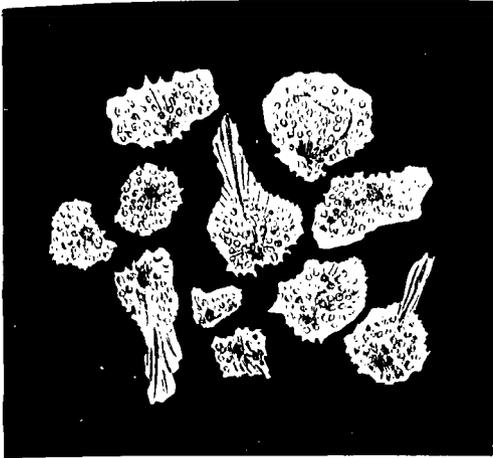
- Fig. 1. *Thouarella brucei*, n. sp.
 Fig. 2. *Paramuricea robusta*, n. sp.
 Fig. 3. *Primnoella scotix*, n. sp.
 Fig. 4. *Gorgonia stuederi*, n. sp.
 Fig. 5. *Amphilaphis regularis*, Wright and Studer.
 Fig. 6. *Gorgonia wrighti*, n. sp.
 Fig. 7. *Paramuricea robusta*, n. sp. A small portion with two verrucæ. $\times 10$.
 Fig. 8. *Primnoella scotix*, n. sp. The apex with four whorls of polyps. $\times 8$.
 Fig. 9. *Gorgonia wrighti*, n. sp. A small portion of the stem. $\times 10$.

THOMSON AND RITCHIE: ALCYONARIANS.



G. Davidson, del. 2-6
J. Ritchie del. 1 7 8

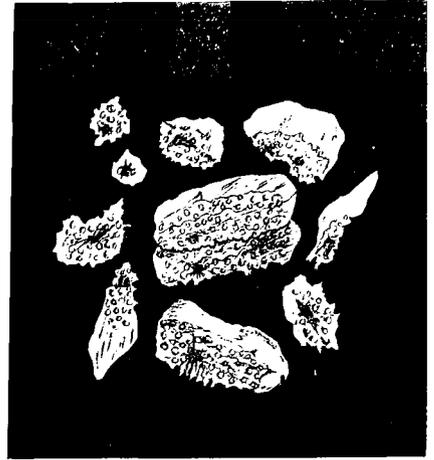
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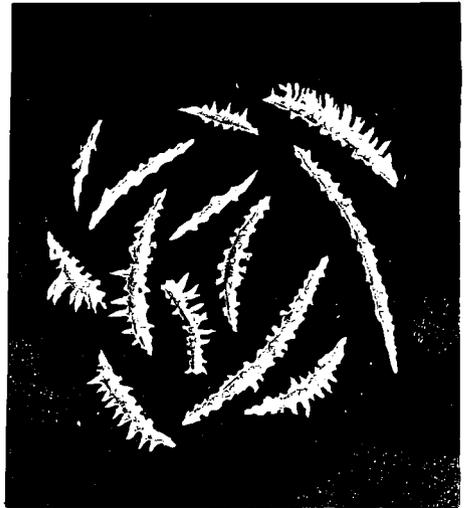
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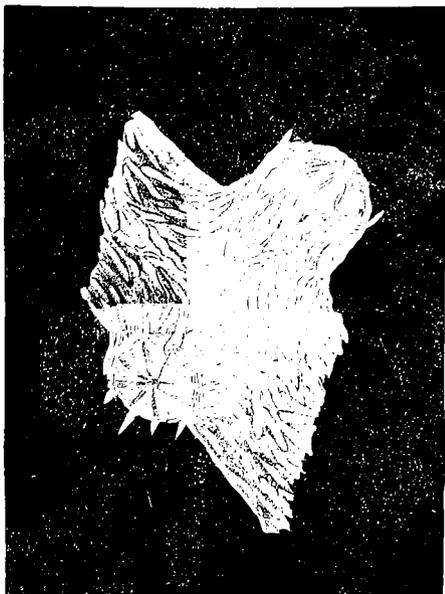
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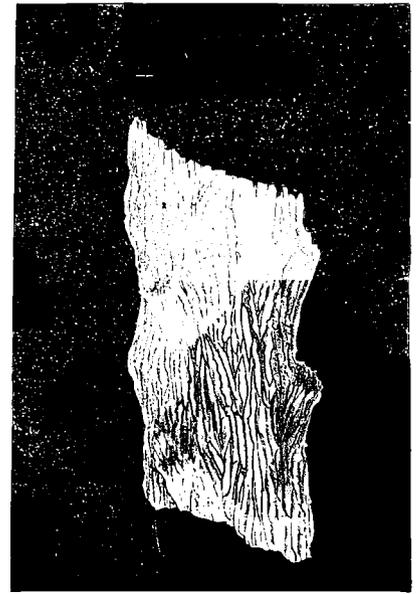
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