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[SIXTH SERIES.]

"..... per litora spargite muscum,
Naiades, et circum vitreos considite fontes:
Pollice virginico teneros hic carpite flores:
Floribus et pictum, divæ, replete canistrum.
At vos, o Nymphæ Craterides, ite sub undas;
Ite, recurvato variata corallia trunco
Vellite muscosis e rupibus, et mihi conchas
Ferte, Deæ pelagi, et pingui conchyliis succo."
N. Parthenii Giannettasii Ecl. 1.

No. 7. JULY 1888.

I.—*On some new Species of Uruguay, Carter, with Remarks on the Genus.* By GEORGE JENNINGS HINDE, Ph.D.

[Plate IV.]

I AM indebted to the kindness of my friend Dr. H. Woodward, F.R.S., for the opportunity of studying a specimen of a freshwater sponge from the River Uruguay, brought to this country by Alex. R. Mackinnon, Esq. The specimen proves to be a new species of the genus *Uruguay*, Carter, and it is more particularly interesting from the fact of possessing well-developed gemmules, which have not hitherto been discovered in examples of this genus. In comparing the new species with specimens of *U. corallioides*, Bowbk., sp., in the British Museum and elsewhere, I have ascertained that gemmules are likewise present in a specimen referred by Mr. H. J. Carter, F.R.S., to Bowerbank's species, but which appears to me to be distinct from it; and I have further met with some minute forms which appear to be yet undescribed. I propose in the present paper to refer to all the forms of the genus from South America, and to discuss the validity of the genus in view of the fact that some of the sponges included in it are gemmuliferous.

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1

Uruguayia repens, n. sp. (Pl. IV. figs. 1-6.)

Sponge incrusting, growing evenly over a continuous surface of a fragment of wood. Colour in the dry state of a light lead-brown, both on the surface and in the interior of the sponge. Skeleton very hard and resistant. Surface smooth and even, with numerous minute irregular apertures, scarcely visible without a lens. Neither canals nor oscules are shown in the skeleton. This is built up of large, slightly arcuate, smooth, cylindrical spicules, evenly rounded at both ends, which are so disposed as to form an open meshwork with loop-like interspaces. The spicules of the surface-layer are much more closely arranged than those of the interior. The gemmules occur either singly or in small groups or monticules, which are attached to the surface of the wood overgrown by the sponge and enclosed by a spicular envelope or layer, the spicules of which are of the same form, but usually smaller than those of the skeleton. The gemmules are subglobose in form and covered by a single layer of amphidisc-spicules with smooth incurved complete margins and stout shafts, which slightly project beyond the rotules at both ends.

The specimen partially covers an irregularly-shaped fractured fragment of decaying wood with a smooth crust, about 1 millim. in thickness, which is nearly of the same tint in its dried state as the wood itself. Evidently the sponge originally incrusting nearly the entire piece, for here and there small monticules of gemmules yet remain on the exposed surfaces, which must have been formed when these were covered by the sponge. The smooth even surface of the sponge has a punctate appearance, produced by minute rounded or subpolygonal apertures, varying from $\cdot 13$ to $\cdot 4$ millim. in width, which open into the interior of the mesh. The skeleton-spicules are all curved to a slightly varying degree and uniformly cylindrical; they are smooth, but under high powers of the microscope a slight micropunctuation is apparent near the rounded ends. They vary from $\cdot 15$ to $\cdot 24$ millim. in length and from $\cdot 02$ to $\cdot 03$ millim. in thickness. The spicules are grouped as it were in fascicles, to form the mesh; those of the same fascicle are nearly parallel with each other, and project from a common centre. The surface-layer in some patches is completely felted over with spicules.

The gemmules are invariably attached to the surface of the wood on which the sponge is growing, and in no instance do they appear to be imbedded in the skeleton tissue of the sponge. On lifting up a portion of the sponge from the surface of the wood they always remain behind, fixed to the

wood, and they appear as minute, brownish, wart-like bodies from .5 to 2 millim. in width. These may consist of a single gemmule or there may be a number, varying from two to five, aggregated together in a single heap. Both the single gemmules and the aggregated masses are enclosed by a layer of spicules forming a kind of envelope or nidus, which completely invests them and conceals them from view. The spicules of this investing layer are smooth and of the same character as those of the sponge-skeleton, but distinctly smaller, averaging .14 millim. in length by .018 millim. in thickness. There does not seem to be any distinct arrangement in the spicules of this layer; in some cases, however, they are side by side, in others crossing over each other irregularly, and there is no aperture at its summit. Very frequently this envelope is partially worn off, and the upper portion of the gemmules is then exposed. The individual gemmules are about .5 millim. in average diameter, very small forms are only .1 millim., and a large example measures .6 millim. across. Most of them are now partially collapsed through desiccation; but they appear originally to have been subglobose in form. Their outer surfaces are smooth, and in most of them no indications of an aperture can be seen; in a few there are one or more slightly raised spots in a lateral position, which may represent apertures. The gemmule is furnished with a single layer of amphidisc-spicules, very regularly and closely arranged, so that the outer surface has the appearance of being studded over with microscopic nail-heads. These amphidiscs are very regular in size, averaging .016 millim. in height and the same in the width of the rotules. The shafts are cylindrical, and they project beyond the rotules at both ends in the form of bluntly rounded processes. The rotules are approximately circular in outline, with smooth, complete, curved, saucer-like margins, which are invariably turned in the same direction.

This species differs from *U. corallioides*, Bowbk., sp., in its incrusting mode of growth, in the absence of definite oscules, in the smaller dimensions of the skeleton-spicules, and in the presence of gemmules. From the incrusting species of *Uruguay* or *Potamolepis*, described by Dr. W. Marshall* from the Congo, the present form differs in the absence of definite oscules and in the slighter proportions of the skeleton-spicules, likewise in the presence of gemmules, which have not yet been met with in any of the Congo forms of the genus.

* Zeitschrift für Naturwissenschaften, N. F. Bd. ix. pp. 553-577. See also a translation of this paper in Ann. & Mag. Nat. Hist. ser. 5, vol. xii. (1883), pp. 391-412.

A remarkable feature in connexion with *U. repens* is the close agreement in details of form of the amphidisc-spicules with those of other freshwater sponges of the genus *Meyenia*, Carter, which occur in widely separated geographical areas. Thus, for example, the amphidisc-spicules of *Meyenia Leidyi*, Bowbk., sp. *, from the Schuylkill River, near Philadelphia, of *Meyenia gregaria*, Bowbk., sp. †, from the River Amazons, and of *Meyenia erinaceus*, Ehr., sp. ‡, from the River Elbe, alike possess circular, complete, curved margins, and their shafts are similarly prolonged into small bosses at both ends of the spicules, so that there are, in fact, only unimportant differences in the size of the amphidiscs in these species of *Meyenia* and in *Uruguayaya repens*. But with this similarity in the form of the amphidisc-spicules there are notable differences in the characters of the skeleton in the above-named species of *Meyenia* which distinguish them from each other and from *Uruguayaya*.

Distribution. River Uruguay, South America. Only a single specimen has at present been discovered, and the exact locality whence it comes is unknown to me.

Uruguayaya Macandrewi, n. sp. (Pl. IV. figs. 11-14.)

1881. *Uruguayaya corallioides*, Carter (in part), Ann. & Mag. Nat. Hist. ser. 5, vol. vii. p. 100.

Sponge with an incrusting base, from which numerous thickly-set palmate stems or branches arise, which partially coalesce and give off digitiform processes with truncated summits. The exterior surface is very dark, almost black in appearance, but the interior is of a much lighter tint and approaches silver-grey. The surface is smooth and even and in the lower portion compact. The skeleton is very hard and resistant to pressure. The oscules are circular, elliptical, or trifoliate in outline; they have no regular arrangement, but are scattered indiscriminately over the surface of the branches. There is usually a small cavity immediately beneath the oscular aperture. The canals in the interior of the skeleton can scarcely be distinguished from the interspaces of the mesh. The skeleton-spicules are moderately robust, decidedly arcuate, cylindrical, evenly rounded at the ends. There are also a few slender acerate spicules and transitional forms between these and the cylindrical spicules. The surface of

* Proc. Zool. Soc. 1863, p. 7, pl. xxxviii. fig. 2 b.

† *Ibid.* p. 14, pl. xxxviii. fig. 7 d, e.

‡ See Vejdovsky, "Die Süßwasser-Schwämme Böhmens," Abh. königl. Gesellsch. Wiss. (Prag), 1883, p. 31, pl. iii. figs. 11-13.

the spicules is distinctly micropunctate, but this is scarcely visible unless they are magnified about 300 diameters.

Gemmules are present in the lower portion of the sponge attached to the surface on which the sponge grows; as in *U. repens* they are aggregated together into small monticules, from two to five in each. The monticule is enclosed by a common outer envelope of curved cylindrical spicules of far smaller proportions than those of the skeleton. The gemmules are subglobular and furnished with a coating of amphidisc-spicules of a similar form to those of *U. repens*, but of slightly different proportions.

This species is based on a large bushy specimen, nearly entire, which is now preserved in the British Museum. It was presented by Mr. MacAndrew, and is labelled as coming from Paraguay. The specimen has been studied by Mr. H. J. Carter, F.R.S., who regarded it as identical with *U. corallioides*, Bowbk., and, in fact, Mr. Carter's own description of this last-named species appears to have been mainly derived from the characters of this specimen. There are, however, distinct differences between this and the type of Bowerbank's species which seem to me to be of specific value.

The Paraguay specimen is attached to a large pebble, which it almost entirely covers with a firm thin crust, from which the stems and branches rise to form a rigid bushy mass, which is about 200 millim. in height, the same in width, and 90 millim. in thickness. The branches, when simple, are nearly circular in cross section and about 5 millim. in thickness; they have a tendency to coalesce laterally to form semipalmate expansions. Occasionally small patches of a smooth dermal membrane are preserved. The spicules of the surface of the lower portions of the sponge are so closely arranged as to form a crust in which no apertures can be recognized; in the upper portions there are irregular interspaces in the surface-layer leading into the interior, as in *U. repens*.

The oscules are, as a rule, nearly level with the general surface of the sponge, sometimes they have slightly elevated margins; they are from 1 to 2 millim. in width, a few simple oscules are, however, only .5 millim. across. The skeleton-spicules are from .25 to .34 millim. in length and from .03 to .04 millim. in thickness. The acerate spicules are about half as thick as the cylindrical forms; they are very few in comparison with these latter.

The gemmules appear to be few in number, and, as in *U. repens*, they are attached to the substance on which the sponge is growing and are overgrown by the base of the sponge.

They appear to be entirely restricted to the basal portion, for I failed to find any gemmules in the broken stems and branches. In this specimen they were entirely hidden from view, and it was only by removing a small portion of the incrusting base that they were found attached directly to the pebble beneath.

The spicules of the monticular envelope are not more than 11 millim. in length by $\cdot 015$ millim. in thickness, thus contrasting greatly in size with the spicules of the skeletal mesh. The spicules are very closely arranged and apparently united together in a distinct membranous layer. As far as can be ascertained the gemmules are subglobular in form; I could not see any apertures in the few specimens examined. An average example measured $\cdot 6$ millim. in width. The amphidisc-spicules have short and very thick shafts; they are $\cdot 014$ millim. in height, and the rotules $\cdot 017$ millim. in width.

This species is closely allied to *U. corallioides*, Bowbk., sp., in its mode of growth, but is distinguished by the irregular distribution of the oscules and their generally compound character; the skeleton-spicules are also less robust. It likewise possesses gemmules which have not yet been definitely recognized in Bowerbank's type form. From *U. repens* it is distinguished by its mode of growth, the presence of oscules, the larger forms and the micropunctuation of the skeleton-spicules, whilst the spicules of the monticular envelope are smaller and the amphidisc-spicules are shorter and stouter. From the Congo species of *Uruguayia* (*Potamolepis*) it is marked off by its bushy mode of growth and the smaller dimensions of the skeleton-spicules.

Distribution. Paraguay. No further information as to its precise locality can be obtained.

Uruguayia corallioides, Bowbk., sp. (Pl. IV. figs. 15, 16.)

1863. *Spongilla corallioides*, Bowerbank, Proc. Zool. Soc. 1863, p. 22, pl. xxxviii, fig. 13.
 1877. *Spongilla corallioides*, T. Higgin, Proc. Lit. and Phil. Soc. Liverpool, 1877-78.
 1881. *Uruguayia corallioides*, Carter (in part), Ann. & Mag. Nat. Hist. ser. 5, vol. vii. p. 100.
 1884. *Uruguayia corallioides*, Carter, *ibid.* ser. 5, vol. xiii. p. 271.
 1887. *Uruguayia corallioides*, Vosmaer, Bronn's Klassen u. Ordn. des Thierreichs, Bd. ii. p. 347.
 1887. *Uruguayia corallioides*, Potts, Proc. Acad. Nat. Sci. Philad. p. 268.

Sponge growing in bushy rigid masses from an incrusting

base. The surface in the dry state is of a lead-grey tint with a smooth shiny aspect, the interior is of a lighter tint. It is very hard and resistant in texture. The branches are compressed; they frequently coalesce into semipalmate expansions. The oscules are for the most part simple, circular, or elliptical, scarcely if at all elevated above the general surface; they are usually ranged in vertical rows along the thin compressed edges of the branches. The general surface shows the minute irregular apertures between the spicular mesh as in the species already described. The spicules are cylindrical with rounded extremities, unusually robust; their surfaces are faintly micropunctate. No gemmules have as yet been met with in this species.

The type specimen, on which Dr. Bowerbank based his excellent description of this species, is about 225 millim. in height, 175 millim. in width, and from 50 to 75 millim. in thickness. The basal portion has been broken from the surface to which it was attached; but there are smooth patches on its underside covered by membrane, where the sponge apparently rested on a rock or pebbly surface. The oscules are from 1 to 2 millim. apart and about .75 millim. in diameter; they have a well-defined border of closely arranged spicules. As in *U. Macandrewi*, the spicules of the surface are much more closely arranged than in the interior and form a definite crust to the sponge.

The skeleton-spicules average .28 millim. in length by .052 millim. in thickness. A few acerate spicules are mingled with the cylindrical forms; they are evidently, as Dr. Bowerbank has remarked, only immature forms, and this is further proved by the fact that within some of the cylindrical spicules the outlines of acerate spicules can still be distinguished. The micropunctuation of the spicules can be seen only under high powers of the microscope.

I have made a careful search for gemmules in the type specimen of this species now preserved in the museum of the Royal College of Surgeons, but failed to find any. In some of the membranous patches on the underside of the sponge, where it had been resting on the pebbly or rocky floor of the stream, there were enclosed a few small capsular bodies composed of minute cylindrical spicules, not dissimilar to those of the monticular envelope of *U. Macandrewi*. There were, however, no traces of gemmules within them, and I therefore conclude that they may have been young individuals of *U. pygmaea*, described below, which had been overgrown by the larger sponge.

At my request Mr. T. Higgin, F.L.S., examined the fine

example of *U. corallioides* presented to the Liverpool Free Museum by his brother, Mr. George Higgin, C.E., but could not discover gemmules in it.

This species is closely related to *U. Macandrewi* in its mode of growth, but differs therefrom in the simple form and linear arrangement of the oscules, in its compressed branches, and in the more robust proportions of the skeletal spicules. From the Congo forms of *Uruguaya* it is distinguished by its mode of growth and by the simple character of the oscules; the spicules, moreover, are not so long as in the African forms, but they are equally robust.

Distribution. River Uruguay, near Salto, Banda Oriental, South America. Mr. Carter has already pointed out Dr. Bowerbank's error in stating that this Salto was on a branch of the Amazons. The type form is in the museum of the Royal College of Surgeons; a branch from it, which belonged to the Bowerbank collection, is in the British (Natural History) Museum.

Uruguaya pygmaea, sp. n. (Pl. IV. figs. 7-10.)

Sponges minute, simple or compound, subconical in form, with a slightly expanded base, of a light brown or silvery-white tint in the dried state, with one or occasionally two simple oscules. The sponge is built up of minute, smooth, arcuate, cylindrical spicules with rounded ends, which form a smooth outer crust with microscopic interspaces. Gemmules subglobular in form, furnished with spool-like amphidiscs, with incurved margins, like those of the other species of the genus.

This species is founded on some very small sponges growing at the base of the type specimen of *U. Macandrewi*, described above. In most instances the sponges are partially attached to the outer surface of the larger form, in others they grow entirely separate from it on the surface of the pebble on which the larger form likewise grows. In the cases where the minute sponges grow partially on the surface of *U. Macandrewi* they are attached to the surface-membrane of this form and thus evidently exterior to it. The sponges are nearly circular in outline at the base, from 2 to 5 millim. in width, and from .75 to 1.5 millim. in height. They are generally simple, with a single well-defined oscule from .2 to .5 millim. in width at the summit; in some examples two oscules are present. The sponge apparently consists of a crust-like wall, enclosing an interior spicular mesh. The spicules are very uniform in size, measuring .11 millim. in length by

·017 millim. in thickness. They are disposed in fascicles so as to form a meshwork precisely of the same character as in the larger forms of the genus, but of much smaller proportions. In one of the two specimens of which I examined the interior there was a single gemmule of about the same size as those of the larger sponges, and furnished with similar amphidisc-spicules, varying only in size. The amphidiscs are ·014 millim. in height and the rotules ·017 millim. in width.

The close resemblance of the skeletal spicules of these small sponges to those of the envelope enclosing the gemmules of *U. Macandrewi*, their position of growth at the base of the larger species, and the similarity in the form of the gemmules in both, very naturally raise a suspicion whether the pigmy sponges may not be merely peculiarly modified stages of development of the larger, and not independent sponges. On the other hand, they have every appearance of being complete sponges. Their spicules are uniformly cylindrical, and are evidently full-sized, and not young forms of the larger spicules of *U. Macandrewi*; their arrangement in the wall is the same as in the wall of the larger species, whilst it is distinct from the irregular disposition of the spicules of the monticular envelope in *U. Macandrewi*; the oscules at their summits are perfectly distinct, and the presence of full-sized gemmules within the cavity of the sponge indicates that it had reached maturity.

Distribution. Paraguay. Attached to the base of the type specimen of *Uruguaya Macandrewi*, now in the British (Natural History) Museum. I have also one specimen growing on a fragment of *U. corallioides*, Bowbk., sp.

The genus *Uruguaya* was provisionally constituted by Mr. Carter on the supposition that gemmules were not developed in the sponges placed in it; but now that it has been shown that these bodies are present in some, if not in all, the species, it is necessary to consider whether it can be retained, or whether the forms placed therein should be removed to the genus *Meyenia*, Carter, which includes sponges with gemmules furnished with amphidisc- or birotulate spicules like those in *Uruguaya*. The classification of the freshwater sponges generally adopted at the present time is that proposed by Mr. Carter in his paper on the "History and Classification of the known Species of *Spongilla*"*. This is admittedly "based chiefly on the spicules of the statoblast," since "the form of the skeleton-spicule is not only always acerate, but almost always more or less alike in all." But

* Ann. & Mag. Nat. Hist. ser. 5, vol. vii. (1831), pp. 77-107.

whilst the classificatory value of the gemmule-spicules is generally recognized, it is an undoubted disadvantage to rely wholly upon this single feature for generic distinction, and may lead to uniting sponges in the same genus which in other important features than those of the gemmule-spicules are markedly different from each other.

This is well exemplified in the case of the present genus *Uruguaya* and certain species of *Meyenia* in which, as mentioned above, the gemmule-spicules are strikingly similar, even in minute structural details, to those of *Uruguaya*, whilst the skeleton-spicules and the characters of the skeleton are so extremely different that they would fully justify retaining these sponges in distinct genera. In these forms the converse of Mr. Carter's statement occurs, since the gemmule-spicule is more or less alike in all, and the skeleton-spicule and the skeleton have undergone modification. Taking into account, therefore, the cylindrical form of the skeleton-spicules in *Uruguaya*, their peculiar fascicular arrangement in the skeleton, and its firm rigid structure, this genus possesses characters, independent of the gemmules, sufficiently distinct to mark it off from other * freshwater sponges, and may properly be retained.

There can hardly be a doubt that such large branching sponges as *U. corallioides* and *U. Macandrewi* result from an uninterrupted growth of several years' duration, and that consequently they must have lived in positions where they were not exposed to those influences of heat, drought, or cold which limit the existence of most freshwater sponges to a single season. Their conditions of existence must in fact have approximated closely to those of marine forms, and it is probably owing to these favourable circumstances that in one of these species no gemmules have as yet been found, whilst in another they are very sparsely developed. A further feature in connexion with the gemmules is that they only occur in the basal layer of the sponge, no trace of them appearing in the branches and palmate extensions which grow from the base and constitute the larger part of the sponge. In most freshwater sponges the gemmules likewise occur in the basal layer; but where there is a series of layers marking the growth of successive years there is frequently, if not always,

* I include under *Uruguaya* the sponges from the River Congo described by Dr. W. Marshall under the genus *Potamolepis* (*Zeitschrift für Naturwissenschaften*, N. F. Bd. ix. p. 553). The author acknowledges the generic identity of the Congo forms with *Uruguaya*, Carter, but declines to adopt the name on account of its distinctive geographical origin.

a fresh development of gemmules at the base of each, indicating that there has been a break in the life of the sponge and that the fresh growth, though immediately overlying that of the previous season, is quite distinct from it*. The restriction of the gemmules in *U. Macandrewi* to the base of the sponge, therefore, confirms the idea of its perennial growth.

It also seems probable that gemmules are not produced after the first year of the life of the sponge, and that when the conditions are sufficiently favourable to allow of its continued growth for longer periods there is no repetition of this mode of reproduction. It might also well happen that under these circumstances gemmules would cease to be produced, and this may be the case in *U. corallioides*.

The presence of gemmules in some forms of *Uruguaya* and the minute structural resemblance between their amphidisc-spicules and those of certain species of *Meyenia* indicate that these sponges are genetically related to some common gemmuliferous ancestor, and thus tend to negative the supposition of Dr. W. Marshall that the sponges of the former genus may have been derived independently from marine forms which have become adapted to fresh water. The suggestion of Dr. Marshall that freshwater sponges may be of polyphyletic origin seems very probable, more especially as regards those occurring in Lake Baikal; but the facts brought forward in the present paper point to the desirability of renewed careful search before speculating with confidence on the absence of gemmules either in *Lubomirskia* or in the Congo forms of *Uruguaya*.

In conclusion, I wish to express my thanks for the kind assistance in the preparation of this paper which I have received from my friend Mr H. J. Carter, F.R.S., from Mr. T. Higgin, F.L.S., of Liverpool, Dr. C. Stewart, F.L.S., of the Royal College of Surgeons, Mr. E. Howarth, of the Sheffield Public Museum, and from the authorities of the British Museum of Natural History.

EXPLANATION OF PLATE IV.

Uruguaya repens, n. sp.

Fig. 1. A fragment of the skeletal mesh, showing the arrangement of the spicules. Enlarged 60 diameters.

Fig. 2. Detached spicules of the skeleton. Enlarged 100 diameters.

* This is well shown in a specimen of *Meyenia Leidyi*, Bowbk., sp., which has been kindly sent to me by Mr. Edward Potts, of Philadelphia. In this there are several skeletal layers overlying each other, and there is a platform of gemmules at the base of each.

- Fig. 3.* Detached spicules of the envelope enclosing the gemmules. Enlarged 100 diameters.
- Fig. 4.* One of the monticules of gemmules, showing the irregularly arranged cylindrical spicules of the outer layer; these are partially weathered off at one end, and the surface of one of the gemmules is exposed. Enlarged 20 diameters.
- Fig. 5.* A portion of the exterior surface of a gemmule, showing the natural arrangement of the amphidisc-spicules. Enlarged 200 diameters.
- Fig. 6.* Detached amphidisc-spicules. Enlarged 660 diameters.

Uruguaya pygmaea, n. sp.

- Fig. 7.* A complete specimen, in which two oscules are developed. It is growing at the base of *U. Macandrewi*. Enlarged 8 diameters.
- Fig. 8.* A portion of the exterior surface, showing the arrangement of the spicules. Enlarged 60 diameters.
- Fig. 9.* Detached skeleton-spicules. Enlarged 100 diameters.
- Fig. 10.* Detached amphidisc-spicules. Enlarged 660 diameters.

Uruguaya Macandrewi, n. sp.

- Fig. 11.* A fragment of the type specimen, showing its mode of growth and the character of the oscules. Natural size.
- Fig. 12.* Cylindrical and immature acerate spicules of the skeleton. Enlarged 100 diameters.
- Fig. 13.* Detached spicules of the monticular envelope. Enlarged 100 diameters.
- Fig. 14.* Detached amphidisc-spicules. Enlarged 660 diameters.

Uruguaya corallioides, Bowbk., sp.

- Fig. 15.* A fragment of the type specimen, showing the mode of growth and the arrangement of the oscules. Natural size.
- Fig. 16.* Detached skeleton-spicules. Enlarged 100 diameters.

[The originals of all the figures are in the British
(Natural History) Museum.]

II.—*Polyzoa from Port Phillip.* By R. KIRKPATRICK,
British Museum (Natural History).

[Plate II.]

A COLLECTION of Polyzoa dredged in the neighbourhood of Port Phillip by Mr. J. Bracebridge Wilson was sent by him to the Natural-History Museum.

The collection contains representatives of ninety-five species, of which six appear to have been undescribed, and fifteen have not been recorded from the locality. The genera *Amathia* and *Catenicella* were most largely represented.

