

thin, almost membranaceous, smooth, and slightly wrinkled. Polype-cells on all sides of the branchlets, alternate or opposite, cylindrical, short, smooth externally, with a convex 8-valved top. Axis very slender, thread-like, except the main stems, calcareous, hard, pale horn-colour, very brittle.

*Brandella intricata.*

Coral fan-shaped, expanded. Stem very irregular; branches and branchlets regularly pinnately disposed, forming an irregular network; some of the uppermost branchlets free.

*Hab.* Bass's Strait, Dewi Reef. (T. M. Rayner.)

VIII.—*On a new Genus of Gorgonidæ from Portugal.* By EDWARD PERCEVAL WRIGHT, M.D., F.L.S., Professor of Zoology, Trinity College, Dublin.

WHEN in Lisbon in September 1868, my friend Professor J. V. Barboza du Bocage showed me three very remarkable specimens of Alcyonarian Corals which had been taken, from a considerable depth, off the coast at Setubal. The most remarkable of these was a magnificent specimen of *Paragorgia arborea* (Linn.), which was several feet in height, and was in excellent preservation. A second specimen was *Primnoa lepadifera* (Linn.); and the third appeared to me to present some affinities to *Mopsea arbusculum* (Yate Johnson\*), a species taken at Madeira. Professor Bocage kindly gave me a specimen for examination, accompanied by a request that, if new, I would describe it. It appears to me not only to be a new species, but to present characters that render it necessary to form a new genus for its reception. I would therefore propose to characterize it as follows:—

KERATOISIS, gen. nov.

Coral branched, irregularly furcate; axis jointed, composed of horny and calcareous portions; the latter are *hollow, smooth*†, varying considerably in length, and maintaining their form after maceration in caustic alkalies; the branches are given off from the calcareous portions. The so-called "barky layer" (cœnenchyma) is well developed, and contains a large number of calcareous spicules. The polypes are irregularly and somewhat

\* "Descriptions of two Corals from Madeira belonging to the Genera *Primnoa* and *Mopsea*," Proc. Zool. Soc. 1862, p. 245, pl. 31. figs. 1 and 1 a.

† I have only been able to examine a portion of one of the smaller branches. It is possible that the calcareous joints near the point of attachment of the stem may be striated and solid.

densely grouped all round the axis; they are of large size and are completely covered with spicules, which are closely packed side by side. *A variable number (nine to eleven) of long fusiform spicules surround the apical portion of the polype, forming a calyx.* Tentacles eight, pinnately lobed.

*Keratoisis Grayii*, n. sp.

Deep water off Setubal, on the coast of Portugal\*. In the Museum of the University of Lisbon, also the British Museum and Museum of Trinity College, Dublin.

I name the species after Dr. J. E. Gray, of the British Museum.

Fig. 1.

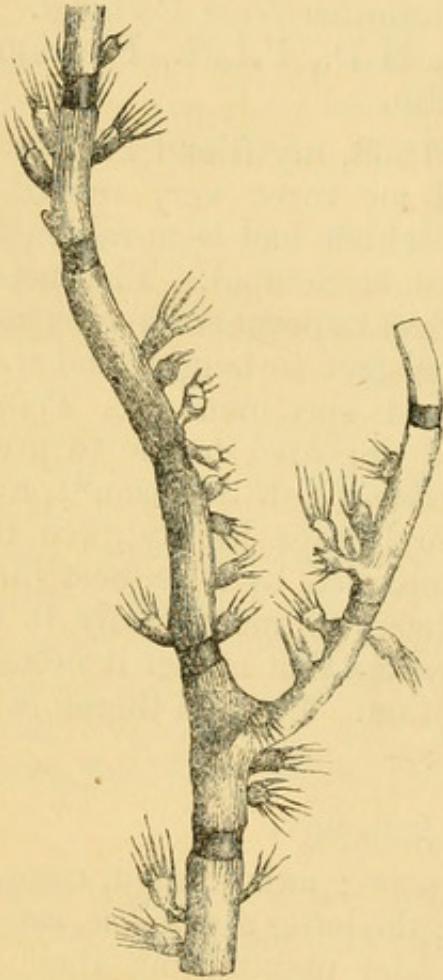


Fig. 2.



Fig. 3.



Fig. 1 represents a portion of the main axis, deprived of cœnenchyma and of nearly all its polypes.

Fig. 2 represents a branch, of the natural size, with the polypes.

Fig. 3. A polype magnified.

This Coral is of a loose irregular growth. The specimen examined by me is about one foot in length, and gives off three lateral branches: there is no apparent tendency in these to ana-

\* *Vide Annals & Mag. Nat. Hist.* Dec. 1868, p. 427.

stomose. The horny nodes are short and very much of the same length throughout; but the calcareous internodes vary considerably in length. The whole of the stem is equally covered with polypes. The cœnenchyma develops such a mass of spicules, that they may be said to form a roughened mat-like tissue over its whole surface. The spicules forming the calyx around the polypes are large and fusiform; those scattered through the baky layer are much smaller, longer than broad, and slightly irregular, and they differ from any of those figured in Kölliker's 'Icones.' In the body-substance of the polypes, in what he regarded as the inner portion of the ectodermic layer, a third variety of spicules is met with: these are very small, and belong to the same generic type as those occurring in *Isis hippuris* (Linn.). I looked for polymorphism in this species, but it did not exist.

Not only am I indebted to Prof. Bocage for the specimen figured (fig. 2), which I have presented to the British Museum, but Sig. Capello, the Assistant in the Museum of Lisbon, had the great goodness to sketch for me the portion of the coral represented in fig. 1.

An interesting question now arises as to the position of this genus. All zoologists appear agreed to divide the Actinozoa with eight pinnately lobed tentacles (Alcyonaria) into the three divisions (families) of (1) Alcyonidæ, (2) Gorgonidæ, and (3) Pennatulidæ; and the points of dispute are chiefly as to the rank to which these divisions are entitled, as to the genera that are to be placed in them, and as to the sequence of these genera. The family Gorgonidæ is divided by Milne-Edwards into three subfamilies—Gorgoninæ, Isidinæ, and Corallinæ; the second of these contains the genera *Isis*, *Mopsea*, and *Melithæa*. Since the publication of the 'Histoire des Coralliaires' (1857), many new genera belonging to this family have been published by Dr. J. E. Gray and others; and Dr. J. E. Gray published the first part of a "Synopsis of the barked Corals" in the 'Proceedings of the Zoological Society' for 1857 (pp. 278-294). This synopsis was not completed; but all interested in this subject will be glad to know that Dr. Gray has in the press a Catalogue of the Alcyonaria in the British Museum, in which work we may expect to find an arrangement of the genera, based on a very extensive experience and on an examination of an immense number of genera and species. For my present purpose it will be sufficient to decide to which of the genera of Gorgonidæ as established by Milne-Edwards *Keratoisis* most nearly approaches. According to Milne-Edwards, the Corals with an axis presenting nodes and internodes (jointed) would necessarily belong to the

subfamily Isidinæ; but if we refer to one of the latest works on the structure of the Cœlenterata, that of Kölliker\*, we find an arrangement of the Gorgonidæ which, while essentially based on that of Milne-Edwards, departs in several particulars from it. Instead of three subfamilies, Kölliker establishes six, (1) Gorgoninæ, (2) Isidinæ, (3) Briareaceæ, (4) Sclerogorgiaceæ, (5) Melithæaceæ, (6) Corallinæ; and, passing over the characters given for the other subfamilies, we find the second and fifth characterized as follows:—

(2) *Isidinæ*.—Axis jointed, composed of horny and calcareous portions; of these the latter possesses a lamellose structure, and maintains its form after it has been placed in alkali. Genus *Isis*.

(5) *Melithæaceæ*.—Axis jointed; the flexible (soft) joints consisting of calcareous spicules surrounded by horny substance and connective tissue, the hard joints of coalesced calcareous spicules. Genera *Melithæa* and *Mopsea*.

It is interesting to see that this classification of Kölliker's, though it is based on the minute structure of the polypes and their cœnenchyma, does not differ very essentially from those already proposed by others, though they are based on more general considerations; but I am at a loss for a reason why these two subfamilies, which certainly are very nearly allied to one another, should be so far separated as in this scheme, the more especially as there are several species of *Mopsea* which are very closely related indeed to some species of *Isis*; and we may expect to find in Dr. Gray's Catalogue very many species intermediate between those at present known. But regarding for the moment the family Isidæ as having but the one genus *Isis*, and the typical species of this genus to be the *I. hippuris* (Linn.), then I am inclined to regard *Keratoisis Grayii* as having the same relation to it that *Mopsea arbusculum*, Yate Johnson, has to the genus *Mopsea*: for this latter species Dr. J. E. Gray proposes the new genus *Acanella*; so that these genera may be arranged thus:—

Subfamily Isidinæ, with the genera *Isis* and *Keratoisis*.

„ Mopseadinæ, with the genera *Mopsea* and *Acanella*.

I trust to have soon an opportunity of examining the spicules of several species of the latter two genera, as well as of several species of *Isis*, and may probably, in a paper describing some Alcyonaria from Australia, give a more detailed account of their histology. Kölliker figures, in tab. 19. figs. 1–3 of his 'Icones,' very beautifully and very truthfully the spicules of *Isis hippuris*, and those of *Mopsea* in figs. 41–44 of the same plate.

\* Icones Histiologicæ, Part 2, 1866, p. 131.