

## DENDROBRACHIIDÆ.

I am unable to decide definitely the precise systematic position of the genus *Dendrobrachia*, owing to the fact that the polyps are badly preserved. It differs most remarkably from all Antipathidæ in three or four important points, and must be considered as the type of a new family. Like the Antipathidæ it possesses a spinose horny axis, but here the outward resemblance ceases. In transverse section the younger branches show a most exceptional outline. A central canal appears to be absent and the sclerenchyma is arranged in plates radiating from a short central portion (Pl. X. figs. 6-8). A faint line may often be noticed running along the centre of each plate, and the horny matter forming the skeleton is deposited in thin lamellæ as in the Antipathidæ. The free margin of each plate is dentate or spined. The plates seem to be somewhat irregular in their course, which is mainly longitudinal, and vary in number from four to seven. Lower down, the angle between two plates becomes partly filled up with sclerenchyma, and this process goes on until finally a round spinose axis is produced, not distinguishable externally from that of the Antipathidæ.

The zooids are usually very remote and often arranged in pairs, which are sub-opposite, the base of each extending over half the axis. The zooids do not stand out at right angles to the axis as in Antipathidæ generally, but form an acute angle with it, as in many Gorgonidæ. The tentacles, the number of which is uncertain, are not simple fusiform outgrowths of the coelenteron, but bear a number of relatively elongate branches in all directions. They thus have the dendritic character of the Alcyonaria, and in this respect differ from all Zoantharia, with the exception of the Thallassianthidæ and Sarcophianthidæ amongst the Actiniaria. On this account I was at first inclined to regard *Dendrobrachia* as a genus of Gorgonacea, which approached the Antipathidæ in the form of its axis. There appears, however, to be a total absence of spicules or indeed any skeletal structures, with the exception of the sclerobasic axis, which is horny throughout, and deposited in thin lamellæ, as in the Antipathidæ. Another feature in which *Dendrobrachia* differs from the Antipathidæ is to be found in the fact that in retraction the tentacles may be completely covered by the anterior portion of the body-wall. The fact that nearly every zooid observed was in this condition has tended not a little to prevent a satisfactory examination of their structure. Frequent attempts have been made to ascertain the number and arrangement of the mesenteries by means of horizontal sections, but I have, so far, been unable to arrive at any definite conclusion. In some cases I thought I recognised ten mesenteries, in others eight, and in others again only six. I also failed to recognise any well-marked band of muscular fibres on either side of a mesentery. This genus therefore appears to approach the Gorgonidæ more nearly than any other known Antipatharian, and possesses a curious medley of