

## TUBES.

The majority of the tubes formed by the Annelids collected by the Challenger have been described along with their inhabitants, but a few remarks are necessary on certain empty tubes. A very striking form is one procured by the trawl at Station 298 (south of Valparaiso); lat.  $34^{\circ} 7' S.$ , long.  $73^{\circ} 56' W.$ ; depth, 2225 fathoms; bottom temperature  $35^{\circ} \cdot 6$ , surface temperature  $59^{\circ}$ ; sea-bottom, blue mud. The same form comes from the neighbouring Station 299. It consists of a triangular tapering tube (Pl. XLIX. figs. 8, 9) composed of very fine dark mud, and having the three ridges hispid with short muddy processes. On magnifying the surface between the ridges (fig. 9) peculiar transverse markings, which almost resemble scutes, are observed. Its occupant probably pertained to the Terebellidæ or a neighbouring family, but no trace of it was found.

The tubes composed of the secretion produced by the body of the animal, such as those of *Hyalinæcia* and *Eunice*, are of course independent of their surroundings, but the majority have a composite nature, viz., have either an internal lining of the secretion or an admixture, and an external investment of mud or other solid particles. On the blue mud and red clay the tubes are often almost entirely formed of these deposits. As *Globigerinæ* appear these are studded over the surface of the mud; while in certain localities the discoid Foraminifera are set on edge on the surface of the mud so as to render the tube hispid. Massive tubes, almost entirely composed of Foraminifera, occurred at Station 158 (south of Australia). Small bivalves and other Mollusks are also largely used to strengthen and protect muddy tubes, and the extreme development of this method is shown in the empty tube in fig. 13 of Pl. XXXIXA. from Port Jackson. The tube is quite squamous, from a close series of Molluscan valves which overlap each other around the tube.

## GENERAL REMARKS.

The drawings of the first fifty-five plates were made by my niece, who patiently endeavoured to render them as life-like as possible, though it was hardly possible in all cases to represent minute structural detail. Moreover, many of the specimens were so much injured that difficulty was felt in making a satisfactory picture; indeed, previous knowledge of their structure was necessary in this respect. Upwards of thirty plates and the woodcuts are from my own drawings, a fact which will explain the somewhat tardy appearance of the Report, which had to be carried on amidst one or two distractions. Mr. Edward Prince and Mr. John Wilson, my former students and prizemen, aided me with several of the concluding plates; while Dr. R. Marcus Gunn, previously associated with me in Perthshire, and now one of the ophthalmic surgeons at Moorfields, illustrated his own observations on the eyes of the Alciopidæ and Phyllodocidæ.