

seems to differ from all other Alcyonarians except *Corallium*. From both *Corallium* and *Tubipora*, *Heliopora* differs in that the hard tissue of its corallum shows no signs of being composed of fused spicules, but in its histological structure most closely resembles Zoantharian corals. With the Milleporidæ and with *Pocillopora* and *Seriatopora* *Heliopora* is allied solely on account of its possession of tabulæ, and these structures being possessed alike by Hydrocorallinæ, Helioporidæ, Tubiporidæ, and certain Madreporaria, their presence is proved to be of no classificatory importance, and is of less value even than Professor Verrill showed it to be. The group Tabulata must be entirely given up as only misleading in its signification, and the corals formerly placed in it must be distributed amongst their natural allies. There can hardly be a doubt that *Seriatopora* will prove to be, like *Pocillopora*, a Zoantharian. *Heliopora* thus stands quite alone amongst modern forms; and in the peculiar structure of its cellular cœnenchym it is so remarkable that it is unlikely that on examination of the soft parts of other living corals, at present known from their coralla only, any near relatives of it will be discovered. Amongst extinct forms, however, *Heliopora* has several close allies, and the genus itself existed in the Cretaceous period. The genus *Polytremacis* differs apparently only in the more perfect development of the so-called septa, which reach to the centres of the tabulæ. The genus occurs in the Chalk, Greensand, and in Eocene formations. *Heliopora* has, further, a very closely allied palæozoic representative in *Heliolites*, in which the cœnenchymal tubes are provided with very closely placed tabulæ. Professor Alleyne Nicholson¹ groups with these *Plasmopora*, *Propora*, *Lyellia*, and *Pinacopora*; he finds a difficulty in the fact that the cavities of the tubes do not communicate with those of the calicles in *Heliolites*, and appears not to have understood my description of the manner in which the polyp cavities communicate with the sacs of the tube cavities in *Heliopora*. There are no apertures in the walls of the calicles, or tubes in *Heliopora*, any more than in *Heliolites*, and the connecting canals pass, as described, only over the edges of the mouths of the cœnenchymal tubes, lying quite superficially.

The three genera *Heliopora*, *Polytremacis*, and *Heliolites* differ from one another in so slight a degree that they are placed under the one genus *Heliopora* by Queenstedt. For the reception of the genus *Heliopora* and its fossil allies I formed a separate family of Alcyonarians characterised as follows from the recent species.

¹ H. Alleyne Nicholson, On the Structure and Affinities of the Tabulate Corals of the Palæozoic Period, Edinburgh, 1879, pp. 242, 243.