developed bifurcate anchor. The simple tooth- or paddle-shaped transverse arms of the latter exhibit a much thickened base rising from the club-shaped swollen terminal portion, and in the larger forms are connected by a distinct lateral fringe on either side. While the upper half of the long anchor spicules, which is for the most part buried in the sponge body, is perfectly smooth, gradually increasing in thickness downwards, the lower half, which becomes gradually narrower, bears small barbs increasing in height and breadth. These are spirally disposed round the shaft, and decrease again in size towards the very end, disappearing entirely a little above the anchor. Thus the much narrowed, and just above the anchor yet slimmer, terminal portion appears quite smooth (Pl. LI. fig. 14).

Among the many Hexactinellids which were trawled by the Challenger near the Little Ki Islands (Station 192, lat. 5° 49′ 15″ S., long. 132° 14′ 15″ E.), from a depth of 192 fathoms and a blue mud ground, there was a beautiful specimen of a *Semperella*, which agrees in so many points with *Semperella schultzei*, Semper, that I regard it as a young form of the latter. There are indeed some differences, but these may be explained as characteristic of the young form. The specimen has a total length of 10·5 cm., of which only 5·6 go to the stretched cylindrical body, and 4·9 cm. to the inferiorly much broadened root process, which is almost wholly enveloped in a *Palythoa* encrustation (Pl. LII. fig. 2). At its broadest the body measures 12 mm., and the somewhat bevelled longitudinal edges, which measure about 2 mm. in breadth, anastomose abundantly by means of cross processes. They project somewhat more markedly than in the adult specimen, and are bounded by a fringe of perpendicularly inserted, straight, rod-like spicules (Pl. LII. fig. 3), which may be called marginalia, and are almost wholly absent in the large specimen. These slim spicules, which in many places form a continuous garniture and in others are not discoverable, are quite smooth on their internal pointed half, while the free external portion is for the most part beset with small lateral teeth (turned upwards and outwards), and ends in a delicate point, below which there is usually a small club-shaped swelling with two or four lateral teeth. Similar needles also project in the above described young specimens of *Poliopogon amadou*, both on the oscular margin and on the lateral surface, but are not discoverable on the side of the adult form. This fact seems to make it especially probable that we have here to do with a young specimen, and not with another species, and that the more, since all the other spicules closely resemble in form and disposition those of the larger specimen, as is equally true of the structure of the soft tissue.

Suborder II. DICTYONINA, Zittel (Pls. LXXI.–CI., CIII., CIV.).

Hexactinellida in which the principal hexacts are already at an early stage united into a connected and compact (dictyonal) framework in a more or less regular fashion.