

the means of determining with certainty the nature of the soft parts which fill the little accessory cups of *Diplocyathus*; and the most that could be made out from an examination of the preserved specimens was the presence within the cups of simple granular contents, which might occasionally be seen to extend beyond the margin, thus suggesting the commencement of a pseudopodial protrusion of the sarcodite contents. In other respects the agreement between *Ophioides* and *Diplocyathus* is so decided that the close affinity of the two genera can hardly be questioned.

The hydrophore in *Diplocyathus dichotomus*, the only known representative of the genus, is funnel-shaped, with a well-developed limbus, a form which closely resembles that of the hydrophore in *Ophioides mirabilis*. In *Ophioides* as figured by Hincks the hydrophores terminate the branches, while in *Diplocyathus* they are disposed alternately from distance to distance along their sides.

*Diplocyathus dichotomus*, n. sp. (Pl. VIII. figs. 1, 2, 3).

*Trophosome*.—Hydrocaulus monosiphonic, dichotomously and profusely branched; branches given off in various planes and frequently reuniting with one another so as to form a bulky reticulated mass. Hydrophores widely funnel-shaped, rather closely set, alternate, supported through the medium of a very short annular segment on a lateral process of the stem. Accessory cups cylindrical, sessile, each seated in the axil of the lateral process.

*Gonosome* not present.

*Locality*.—Off Somerset, Cape York, Torres Strait; depth, 8 to 12 fathoms.

In its general physiognomy *Diplocyathus dichotomus* is so distinct as to be easily recognised at a glance. It is of remarkably rigid habit, and by the profusion of its branches, which extend in all directions, and their frequent union with one another, it forms a bulky reticulated mass which forcibly recalls the skeletons of some of the horny sponges.

The ramification is regularly dichotomous, and the branches are heré and there—but not at exactly regular intervals—intersected by transverse joints. The hydrophores with their accessory cups are borne along the sides of the branches in two very regular alternate series. Their limbus is well developed, but though the cup it forms is deeper than in any of the species of *Halecium*, the hydranth even in its condition of extreme retraction is quite incapable of being included within it, as the soft parts still well preserved in the specimens plainly show. In no instance were the hydrophores in the specimen continued by the superposition of accessory tubes.

The accessory cups, which are situated on the distal side of each of the lateral processes and in the re-entrant angle between this process and the stem, are cylindrical in shape.