

to its calyx, on account of the peculiar form and proportions of the latter. The reproductive hydræ (Pl. XXVIII. *Fig. 2, b*) bring forth planulæ (*Figs. 17 and 17^a*), which are developed within a very low form of medusa. Each calycele contains but one medusa, either male (Pl. XXVIII. *Figs. 13, 13^a, i, 14, i, and 19, i*; Pl. XXIX. *Figs. 2, e f g, 3, i, 4, i, and 5, h i*) or female (Pl. XXVIII. *Figs. 15 and 16, i*), and in each colony the medusæ are either all males or all females. The relations of the medusa to the axis or axes of the reproductive calycele, can be better understood in connection with the process of development of this part of the hydromedusarium; and, therefore, we will merely state here that there are more frequently two, three, four, or five axes, than one, and that the medusa develops either from one side of the axis, whether single (Pl. XXVIII. *Fig. 14, c*) or multiple (*Fig. 13, c*), or arises from within the circle of axes, at their point of branching (*Figs. 15, 16, and 19*; Pl. XXIX. *Figs. 2, 3, 4, and 5*).

Embryology. Proles medusoidea.—The young reproductive calyces (Pl. XXVIII. *Figs. 2, c c¹, 11, and 12*) have a broad, pyriform contour, being mere hernia-like expansions of the stem, with double walls (*Fig. 11, β γ*). In the very earliest stage they seem to be perfectly identical with the young sterile hydra-buds (*Fig. 4*); and have very thick outer (*a*) and inner (*b*) walls, which press closely against the horny covering (*e*). As development goes on, the terminal portion (*Fig. 11, d*) always presents a broad outline, and uniformly adheres to the horny sheath (*h*), which, by the way, it constantly secretes from its exterior surface. At a certain period, however, that part of the axis which is already well developed, retracts from the sheath, and occupies a central position; and as fast as this occurs, the cellular structure, which is so conspicuous in the terminal portion (*d*), becomes obscure. Almost immediately after this, the medusa (*i*) begins to bud from the axis, and usually near its base. In its incipient condition it is a slight lateral divergence of the double walls of the axis; but it soon increases to much larger dimensions, and assumes, by degrees, a broad, cylindrical form (*Fig. 12, i*), with a rounded end. At this stage, the terminal growth of the axis (*d*) is considerably broader than in the previous phase, and the free portion of the axis immediately below it is bent to one side; but what is, perhaps, most noteworthy here, is that the outer wall (*β*) has increased to an enormous thickness, and fills the entire space of the calycele not occupied by the medusa. At a later period (*Fig. 13*) we find the medusa (*i*) possessing four radiating chyminiferous tubes (*f*), which appear to be excavated within the thickness of the inner wall, after the manner of the earlier stages in the medusa of *Tubularia Couthouyi* (Pl. XXIV. *Fig. 11, c*). In the specimen which we have represented (Pl. XXVIII. *Fig. 13*) the axis is quadruple (*c c¹ c²*), the original and single axis (*a*) having diverged in four directions during the process of development. At the actinal end, where the axis is