

and the changes in the cellular constituents, are essentially the same as in other Campanularians; but there are some features which are peculiar to this type, in regard to the formation of the calycle. At first the calycle is a thick-walled, pear-shaped, terminal expansion (Pl. XXVIII. *Fig. 4, c*) of the horny tube, and is completely filled by the hydra. As the hydra increases in size, the wall of the calyx thickens most rapidly at a point not far above the base, and projects inwardly (*Fig. 5, c*) so as to seem to constrict the hydra. Next, we find this thickening prolonged sharply toward the axis of the calycle, in the form of an acute, triangular-edged, semi-partition (*Fig. 6, c*), which still further constricts the base of the hydra, and forms a more or less globular space below it, while above, toward the actinal end, the wall very rapidly decreases to a moderate thickness. There is some variation in the degree of progress of the development of this semi-partition (*c*), for we find, at much older periods (*Figs. 7 and 8*) than the last (*Fig. 6*), that the edge is not so sharp, nor prominent, although, as a whole, it is much thicker. Still later, again, we observe that the edge of the semi-partition (*Fig. 9, c*) is quite as sharp as in *Fig. 6, c*, but the space below it is comparatively more extended, and perfectly globular. From the fact, that in a hydra which has reached four fifths of its normal size (*Fig. 9*) the walls are retracted from a larger proportion of the calycle, and yet the thickness of the latter is far inferior to that of the adult, we infer that, notwithstanding this separation, the hydra has the power to renew, at will, the secreting process, in order to bring the walls of the calycle up to the required thickness. Even at the period when the hydra, being fully developed, pushes off the convex cap (*Fig. 10, d*) of the calyx, and emerges from its hitherto embryonic state, we frequently find the semi-partition apparently no more highly developed than in some of the much younger stages; but this is merely owing to the fact that it does not project at so sharp an angle from the sides of the calyx as it does in other individuals. The cap of the calycle which is pushed off, as the hydra protrudes for the first time, has the form of a watch-glass, whose edge is attached to the margin of the calyx at the point where the wall suddenly comes to a thin, revolute border.

We may here mention, also, a curious monstrosity, produced by an injury and the consecutive regeneration of a sterile hydra. Pl. XXIX. *Fig. 1*, represents a single hydra which possesses two calyces ( $a a^1$ ), the inferior one of which forms the basis from which the pedicel of the upper arises. It would seem that the termination of the pedicel of the inferior calycle, having lost the head of its hydra, instead of directly budding a new head, first proceeded to grow onward, as a pedicel, and at the same time secreted a horny sheath ( $a^1$ ), which was made continuous with the diaphragm ( $a$ ) at the base of the old calycle, and, of course, concentric to the same; so that there is the curious anomaly of a calycle whose diaphragm is