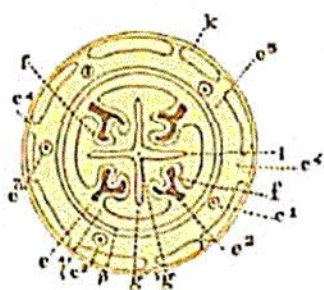


various walls and channels of the reproductive calycele. In this wood-cut (*Fig. 40*), the branches of the compound axis, extending from base to summit, are represented by simple rings ( $e^1$ ,  $e^2$ ,  $e^3$ ) around the medusa ( $\beta$   $\gamma$ ), and the chymiferous tubes of the latter ( $e$   $e$ ), with their blind sacs, appear furcate.

Fig. 40.



Section through the reproductive hydra of *CLYTIA* (*Orthopyxis*) *POTEMUM*. Drawn by H. J. Clark.

$e^1$   $e^2$   $e^3$  branches of the compound axis of the reproductive hydra. —  $e$   $e$  wall of hydra. —  $e$   $e$  radiating tubes. —  $f$   $f$  blind sacs of radiating tubes. —  $g$   $g$  furrows dividing the reproductive mass. —  $i$  spermatic mass. —  $k$  the calycele. —  $\beta$  outer wall. —  $\gamma$  inner wall of the medusa.

At maturity the medusa fills the calycele from base to top (*Pl. XXIX. Figs. 3 and 4, i*), while the axis occupies but a small space, being crowded to one side and compressed by its swelling progeny. Under such conditions the channels of the axes are collapsed, and the walls appear like wrinkled bands (*Figs. 3 and 4, e e^1*), running longitudinally over the medusa. So great is the pressure caused by the enormous swelling of the medusa, that, oftentimes, when the calycele opens to allow the egress of the planulae, they are forced out in a body (*Pl. XXVIII. Fig. 16, i^2*), carrying along with them the actinal end of the medusa. In this way there is produced the semblance of an exterior development of a medusa, even to the formation of radiating tubes ( $e^3$ ). The exit of the planulae is made through an opening between the ends of the compound axes, so that the latter has the appearance of an exterior medusa. This similitude is more fully carried out in the male (*Pl. XXIX. Fig. 5*), where the medusa ( $h$ ) opens at its end, and the spermatic mass ( $i$   $i^1$ ) streams out through the central aperture ( $d^1$ ) of the disk-like, common termination of the channelled axes; and the latter, at the same time, gradually contract toward the base of the calycele as the mass of the medusa grows smaller. The planules are finally released by the disintegration of the medusa, and they commence an independent life as oval, or more or less ovate solid bodies (*Pl. XXVIII. Figs. 17 and 17^a*), and move about by means of vibratile cilia, with which they are covered. The planula is not a homogeneous body at this time; but consists of a very thick outer wall (*Fig. 17*), which is composed of irregularly round cells (*Fig. 18, A*), and a central clearer portion which is made up of much smaller cells (*Fig. 18, B*), that appear like mere granules beside those of the outer wall. In an end view (*Fig. 17^a*) of the planula it appears circular.

A short time before maturity the spermatic particles are broad, flask shaped (*Pl. XXVIII. Fig. 20, C*), and do not possess any filamentary appendage. The fully-developed spermatic particles (*Fig. 20, A B*) are elongate, flask shaped, with a moderately long filamentary appendage attached to the broader end.

*Proles hydroidea.*—In the development of the hydra, by the budding process, the proportionate growth of the walls, the mode of formation of the tentacles,