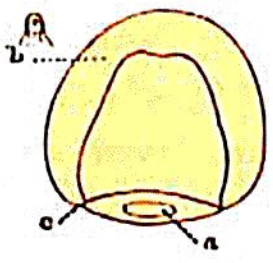
visible as far as the pigment spot (*Fig.* 14, *e*), but within the range of this field they are so excessively transparent as to escape the powers of an ordinary microscope. The inner wall (*Fig.* 12, b^1) of the eye fills the whole length, breadth, and depth of its thickness, and is a direct prolongation of the inner wall (*b*) of the disk; and as in the latter, its cells are too transparent to be seen with an ordinary objective. The optical apparatus proper consists of a row of highly refractive, globular bodies (*c*), arranged in the form of a crescent, which lies parallel to the extreme border (a^2) of the eye, and half way between the upper and lower surface, as we may see by an end view (*Fig.* 15, *c*). Each lens of the coronet is enclosed by a cell wall, in fact, it is the whole content of a cell. We have counted as many as fourteen lenses (*Fig.* 12, *c*) in one coronet, of which the central ones are the largest, and those on each side successively smaller. The circular tube (*f*) has no communication whatever with the eye, nor with the pigment spot.

The generative organs are represented on Pl. XXXI. *Figs.* 9 and 9^a. In the region occupied by these organs, the radiating tube has the form of a deep oblong pouch (*Fig.* 9, a^1), which, when the edge of the disk is rolled inwardly, may be seen, in a sectional view (*Fig.* 9^a), to be broadest above (*a*) and narrowed by one half to a rounded bottom (a^1), in such proportions as to be one third deeper than the greatest breadth. The innermost, or lining wall (*Fig.* 9, 9^a, *b*) of the disk, is prolonged over the pouch, and becomes a thicker layer (b^1) than in any other part of the disk. Between this and the wall (a^1) of the radiating tube, the eggs, or spermatic particles, are developed. As the eggs increase in size, the outer surface of the ovary becomes papillated by their prominence, and the color gradually changes to a dark bluish-grey. The chymiferous fluid circulates as freely in the pouches as in the rest of the tubes, and rather more actively, and with a greater variety of passing and repassing currents.

Embryology. — On the 31st of March, 1855, we discovered the youngest Tiaropsis diademata which we have ever had the good fortune to investigate. At that time the disk was deep bell-shaped (wood-cut 45), and about one twelfth of an inch in diameter; the thickness of the parieties (*b*) nearly uniform, and, on the average, one fifth that of the diameter of the bell, with a slight diminution toward the lower edge (*c*), where it rounded off abruptly; and the aperture (*a*) in the veil one third the marginal diameter of the disk. There were nine diversely developed tentacles (wood-cut 46, *a b d*) on every quarter of the disk, making, with the four primary ones (*e*), opposite the four radiating canals, forty in all. The four tentacles (*a*), intermediate to the four canals (*g*), were two thirds the length of the primary ones (*e*) and the

Fig. 46.



Youngest TIAROPSIS observed, with forty tentacles, and magnified disk.

a opening in the veil. — *b* wall of the bell. — *c* its lower edge.