

centric layers. When the thickness of the sheath is examined in profile, it appears to be fibrous (Pl. XX. *Fig. 2*); but this is owing to the minute concentric layers of which the tube is composed; since, in a view from the superficies (Pl. XX. *Fig. 1, a*), nothing like fibres is to be seen. In the young hydroid (Pl. XX. *Fig. 6*) the outer (*a*) and inner (*b*) walls are built up of columnar cells of much smaller size than in the adult. See p. 203.

Proles medusoidea. No definite information has been obtained about the cellular structure of the embryo medusa-bud, in its earliest stages. At that time the outer and inner walls appear like perfectly homogeneous and very transparent layers. As soon, however, as the innermost wall (Pl. XVIII. *Fig. 9, b¹ c*) has been established, the outer wall (*b*) may be seen, in profile, to be composed of wedge-shaped, faintly granulated, prismatic cells, the broader ends (Pl. XIX. *Fig. 7^a, a*) of which are turned outward, while the narrower ends (*b*) form the inner surface of the wall. The inner ends (*Fig. 7^b*), in a front view, present an irregularly polygonal mesh. At a still later period, when the tentacles are considerably elongated (Pl. XVIII. *Fig. 13, a*), but before they coil inwards into the cavity of the disk, the cells of the outer wall (Pl. XIX. *Fig. 7, a*) have become proportionally broader and shorter, in fact, nearly as broad as long, and have very little of the wedge-shaped form of earlier stages. The outer wall (*Fig. 7, a¹*) of the tentacles is composed of the same sort of cells as are found in the outer wall of the disk. The cells of the middle wall (*Fig. 7, b*) are very obscure, except in its prolongation in the inner wall (*b¹*) of the tentacles. There they have much the same character as those of the outer wall (*a¹*).

About the time the medusa is ready to drop from the parent stem, or just at the time when it becomes free, the cells of the outer wall (Pl. XIX. *Figs. 14, a*, and *14^a*) have expanded laterally, so as to be a great deal broader than long. When seen in front (*Fig. 14^a*) they are conspicuous for their irregular form, giving the disk the appearance of being covered by a network of irregular meshes. In profile, the inner ends appear like slightly prominent papillæ (*Fig. 14, a a¹*). Each cell contains a very large, distinctly granulated mesoblast *Fig. 14^a, b*, and each mesoblast a very faint entoblast (*c*). The cells of the outer wall (Pl. XX. *Fig. 8, a¹*) of the short papilliform tentacles of a medusoid, which lays its eggs before becoming free (Pl. XVII. *Fig. 15*), are broadly pear-shaped, and very transparent, resembling very closely the cells of the outer wall in a much younger stage (Pl. XIX. *Figs. 7^a and 7^b*). The only trace of organization that could be found in the middle wall (Pl. XIX. *Figs. 11, b*, and *14, b b¹*) of the disk, was a faint horizontal striation (Pl. XIX. *Fig. 11, d*), caused by rows of granules (*Fig. 12, a a¹*) arranged in close parallel lines; and even these were brought out by the agency of water or alcohol. There seems to be only a single layer of these granules, judging from a profile