

columnar structure (*Fig. 19<sup>a</sup>, b*). When the peduncle is extended (*Fig. 19*) the cells (*b*) of the inner wall are about as broad as long, with rounded outer, and flattened inner ends. They are, like those of the outer wall, very transparent. When viewed endwise, they show their polygonal shape (*Fig. 18<sup>a</sup>, b*), and nearly equal-sided outline. As the peduncle contracts, these cells become flattened laterally and in the direction of the length of the wall, so that their polygonal outline elongates transversely (*Fig. 18, b*) to this.

*The young Hydroid.*—When the germ-mass is nearly ready to begin the process of segmentation, its cellular structure is very distinct. The whole mass (*Fig. 9, c*, *Fig. 9<sup>a</sup>, b*) is composed of small vesicles (*Fig. 9<sup>b</sup>*), congregated without order. Each vesicle or cell consists of homogeneous contents (*a*), with a mesoblast (*b*) which is so large as to occupy three fifths of the diameter of the whole cell. This leaves between the cell wall and the mesoblast so little space, in the shape of a broad ring (*a*), that one might very easily mistake the ring for a thick wall, and the mesoblast (*b*) for the homogeneous contents. After a segment has separated (*Fig. 11, c*) from the germ-basis, a greater portion of its constituent cells (*Fig. 24, a*) retain for a short time the same structure as we have just described, but at the periphery of the segment the cells are very much changed; they are much smaller (*Fig. 24, c*) and more numerous, and densely crowded into a thick layer, which in profile appears like a semi-transparent margin. As the young hydroid begins to take on a polygonal shape (*Fig. 21*), this layer increases in transparency (*Fig. 21<sup>a</sup>, c*) and the cells (*Fig. 25, c*), although augmented in size, become quite inconspicuous, except under the highest magnifying powers. There does not as yet seem to be any arrangement among them, but, on the contrary, they are packed together indiscriminately. The interior portion (*Fig. 21<sup>a</sup>, a*) has undergone a considerable change at the corners (*a'*), where the tentacles are now forming. This change consists in an increase of transparency of the cells at this place, and a diminution of their numbers. Soon after this, when the young hydroid has assumed a prominently polygonal outline (*Fig. 22*), the cells of the outer wall (*Fig. 22<sup>a</sup>, c*) arrange themselves in a single layer. Each cell is about as broad as long, and the outer and inner ends form, respectively, the outer and inner surface of the wall. The contents of these cells are perfectly homogeneous and hyaline. The inner mass, in the region of the tentacles (*Fig. 22<sup>a</sup>, a'*), is still more transparent than in the last phase, but elsewhere, throughout the body, the cells (*a*) are still very conspicuous, so that, under a low magnifying power, they appear like coarse granulations (*Fig. 22, a*). By the time the tentacles have grown to a prominent triangular shape (*Fig. 23, b*), the cells of the outer wall (*Fig. 23<sup>a</sup>, c*) have grown to a full and clear definition of their respective outlines. The inner mass, as far as it enters into the composition of the tentacles, has assumed an