

The vesicular tissue of the ectochrote consists of a collenchymatous matrix which stains with hæmatoxylin, and in addition to the usual collencytes is crowded with empty oval cells, which give to it its vesicular character. These cells are about 0.02 mm. in diameter, and are apparently devoid of contents (Pl. XXVII. fig. 14), except for an oval nucleus 0.005 mm. in diameter, which bulges inwards from the side of the cell-wall. The cell can be traced from this stage backwards to a granular protoplasmic cell, not much larger than 0.005 mm. in diameter, which lies in an oval cavity now a little larger than itself. The cell increases in size; the protoplasm becomes paler in colour, and from surrounding the nucleus as a granular heap, extends from it, by the time it has shifted its position to the side of the cell-wall, in fine, irregular, branching threads, which eventually altogether disappear. The fibres joining the sterrasters are clearly displayed; they represent the fibrillated exterior of fusiform cells. In the associated inner fibrous layer of the cortex densely stained fusiform cells, 0.007 mm. in diameter, are to be met with; in these the protoplasm is granular throughout and exhibits no trace of fibrillation.

*Choanosome.*—The sarcenchyma of the mesoderm is of the usual character. The flagellated chambers are small, varying from 0.016 to 0.023 mm. in diameter, the aphodus and prosodus alike measure about 0.008 mm. in diameter (Pl. XXVII. fig. 16). The fenestræ of the inner membrane are also very small, about 0.002 mm. in diameter.

*Spermatozoa* (Pl. XXVII. figs. 18–21).—In certain regions, near the main excurrent canals, the sarcenchyma becomes specially modified to give rise to sperm-clusters. The sarcencytes increase in size and take a more than usually deep stain with reagents, passing into large granular cells, of about 0.02 mm. in diameter, with well-developed nuclei and nucleoli. These next segment and give rise to oval clusters of small spherical cells, with a darkly stained marginal layer and spherical nucleus, separated by an intervening crescentic clear space. Clusters up to about 0.03 mm. in diameter completely fill the cavity which they occupy, but in subsequent stages they are separated from its walls by a considerable interval; thus in a cavity 0.05 mm., a size seldom exceeded, the cluster measures 0.044 mm. in diameter. The sarcencytes which form the wall of the vesicle are extended over its surface and take a somewhat deeper stain than those elsewhere. As the cluster increases, the component cells diminish in size; in a cluster 0.024 mm. in diameter they measure 0.004 mm., in one 0.043 mm. they measure 0.003 mm. in diameter; at the same time the outer marginal layer of each cell becomes thinner and paler. The increase in the number and consequent decrease in the size of the cells appears to take place from without inwards as regards the cluster, so that when the external cells are on the verge of maturity, a comparatively large granular protoplasmic cell may be seen in the centre of the group. Thus in the case of a cluster 0.044 mm. filling a cavity 0.05 mm. in diameter, and composed of cells 0.003 mm. in diameter, an oval granular cell measuring 0.012 by 0.005 mm., and containing an oval nucleus 0.005 by 0.004 mm., persists in the middle of the group (Pl. XXVII. fig. 19); it cannot be regarded