

fusiform cells, different in character to the others, extend from the collenchyma radially across the outer fibrous layer to end against the investing epithelium.

*Choanosome.*—The mesoderm, except where it forms the walls of the larger excurrent canals, is a sarcenchyma; about the large canals it is a very typical collenchyma, presenting a colourless unstained matrix and numerous collencytes with long branching processes; it also contains numerous fusiform cells, which are evidently modified collencytes. In the velar diaphragms of the larger excurrent canals one finds displayed in the clearest manner the following structure:—Immediately around the central perforation of the diaphragm is a narrow ring of concentrically arranged fusiform cells, which we may regard as myocytes; surrounding this follows a layer of collenchyma containing numerous fusiform cells, all radiately disposed, and again in some instances surrounding this a thick layer of collenchyma with concentrically arranged fibres. The layer of radiating cells varies in thickness; it is frequently 0·04 mm. across. The cells themselves are very similar in character to myocytes, a slightly different appearance being sometimes produced through the abbreviation or suppression of the outwardly directed filamentous extremity, and sometimes by the conspicuous appearance of the oval vesicular nucleus which bulges out the sides of the cell. In one direction, they end against the epithelium of the velar aperture; in the opposite direction, away from the aperture, they terminate in one or more fibrils which lose themselves amidst the surrounding collenchyma, with the collencytes of which they appear to become continuous. Along with the radiating fusiform cells collencytes are associated with more or less regularly arranged branching processes; thus one process usually runs radiately up to the velar epithelium, two others given off from opposite sides take a concentric direction, and others again are given off from the inner face and extend more or less radiately into the deeper lying collenchyma. This contains a plexus of collencytes and a number of more or less fusiform cells on the whole concentrically arranged.

*Ova.*—The sarcenchyma contains numerous round or oval cells, consisting of deeply stained granular protoplasm, but without yolk granules, enclosing a spherical nucleus with a spherical deeply stained nucleolus. These cells lie in cavities lined by so-called endothelium; they are of various sizes, the largest seen measured 0·056 mm. in diameter, its nucleus 0·0158 mm., and nucleolus 0·005 mm. in diameter. They are probably ova.

*Canal-System.*—The pores, 0·025 mm. to 0·06 mm. in diameter on an average, though exceptionally larger, lead into irregular intercortical canals, which communicate through the inner cortical layer with the incurrent canals of the choanosome. These run more or less radially towards the centre of the sponge, interdigitating with the radial branches of the excurrent canals, which originate within the choanosome in circular or oval apertures in the immersed part of the cloacal tube. Thence they extend root-like into the choanosome, running somewhat concentrically within it, but giving off branches which, with their subdivisions, run nearly radially towards the cortex. The flagellated