main water-canals and parallel to the surface in the cortex. Transverse strands also extend through the cortex, the most marked being those which accompany the radiating spicular fibres. Owing to their generally tangential direction in the cortex a transverse section presents the appearance shown in Pl. XVI. fig. 13, *i.e.*, tracts of fibres are seen cut across transversely, surrounded by others cut longitudinally. In the transverse sections the hyaline wall appears as a round or oval area, enclosing a circular, granular spot in the centre, which represents the axial fibre cut across. Collencytes are almost always associated with the inocytes of the fibrous strands, and sometimes granular- or pigment-cells as well. In many sponges (*Pilochrota gigas*, *Psammastra murrayi*, *Tethya lyncurium*, and many others) strong bands are given off from the cortex, sometimes as much as 20 mm. in length, for attachment to stones, shells, or other foreign objects. These (Pl. XX. figs. 9–13) chiefly consist of longitudinal strands of inocytes or myocytes.

Myocytes.—These are long, granular, fusiform cells, enclosing a small oval nucleus with a spherical nucleolus in the middle. A thin layer of hyaline material is frequently present around them, or they may occur simply immersed in a homogeneous, gelatinous matrix. They differ from inocytes chiefly in the reduction or suppression of the hyaline sheath of the latter, and in the constantly granular character of the axial thread, which in the myocyte forms the chief part of the cell. Collencytes are associated with the myocytes and can sometimes be traced into continuity with them (Pl. XXXIX. fig. 10); either the filamentous end of the protoplasmic portion of the myocyte, or small fibrils extending from its sides in the neighbourhood of the nucleus, passing into the processes of a branching collencyte.

The myocytes chiefly occur concentrically arranged about the openings of the water-canals; thus they are always present about the central aperture of the vela and form a thick sphincter representing an enlarged and highly muscular velum about the ends of the chones. Radiately arranged myocytes usually are associated with concentric ones in a velum, crossing the latter transversely. In the case of a typical chone the inner end lies in the inner (inocytal) layer of the cortex, and the sphincter is evidently only a modified portion of this layer, into which it gradually passes. The myocytal ring or muscular sphincter is, however, always easily distinguished, even when examined in unstained preparations and under a low magnification. This is due to the extreme thinness of the hyaline sheath about the axial protoplasm, so that the protoplasmic bodies of the myocytes lie almost in contact with each other, and thus produce a darkly granular ring of tissue, which is in marked contrast with the clearness of the inocytal layer, in which the protoplasmic threads are separated by the thickness of two comparatively thick hyaline walls. The radiating myocytes of a velum are frequently attached at one end to the epithelium lining the margin of the central aperture; in such a case the point of attachment may frequently be observed sunk below the general