

the collenchymatous lining of the cloaca similar fibrous strands are longitudinally and concentrically arranged; fusiform cells also concentrically surround the fenestræ by which the excurrent canals open into the cloaca. Isolated fusiform cells are always present near the margins of the fenestræ, arranged radiately, and with one end in connection with the outer epithelium.

*Flagellated Chambers* (Pl. XXX. figs. 7, 8).—These are almost spherical, measuring 0·024 by 0·026 mm. They are aphodal, the apopyle frequently measuring 0·012 mm. in diameter. The choanocytes, which are about 0·008 mm. in length, are of the usual nature, a deeply stained basal part containing the nucleus contrasts with a transparent collum which does not stain, and is indicated by two sharply marked marginal lines. So clearly marked are these lines as to suggest sometimes the appearance of a conical tube rather than a collum; they terminate in the usual fenestrated membrane (Pl. XXX. fig. 8).

*Symbiosis or Parasitism*.—The sponge is infested throughout with a form of Cyanophyceous protophyte, which is so abundant as to constitute a really important part of the tissues. It usually presents itself as narrow jointed threads, 0·004 mm. in diameter, and of considerable length; the joints of the threads are sometimes square in lateral optical section, like those of an *Oscillaria*, sometimes round, like those of a *Nostoc*; they measure about 0·004 mm. in length. Besides the threads isolated spherical protophytes are very abundant in places, particularly in the ectosome; they measure about 0·007 mm. in diameter, and present a thick double-contoured wall and finely granular contents. These are represented in Pl. XXX. figs. 12, 14, the thread-like forms are shown in the neighbourhood of the flagellated chambers in fig. 7, and amidst the fusiform cells of a fibrous thread in fig. 14. In the latter it will be noticed that they run parallel with the fusiform cells, and this they do invariably.

*Spicules*.—The strongyles, which are usually collected into spicular fibres, are best studied where they traverse the collenchyma of the cloaca, since the matrix of this tissue in this place is perfectly colourless and transparent, and not affected by staining reagents. Many of them are here met with, surrounded by a deeply-stained, faintly granular spicular sheath, in which in a few instances I thought I detected an oval nucleus with its nucleolus; if so, this sheath may be regarded as the scleroblast; most of the strongyles are without the sheath, and this would suggest that when the spicule is fully formed the scleroblast disappears; in other words, the scleroblast remains active for only a limited period, during which the spicule increases in size; when its secretive power is exhausted, the spicule has attained its limit of growth, and the scleroblast is absorbed.

*Spongin*.—In numerous instances a homogeneous non-granular substance, taking a deep stain with hæmatoxylin, was noticed in association with the strongyles; it is most obvious at the points where two strongyles cross each other, frequently forming at the junction a comparatively large mass; it has all the appearance of spongin.