collencytes. This tissue extends from the ectosome inwards, forming a wall to the larger incurrent and excurrent canals. Near the free surface of the canal walls or of the ectosome the granule-cells are crowded closely together in cavities only just large enough for them; but further inwards they are separated by wider intervals, and the cavities in which they lie are sometimes several times the diameter of the cells themselves both in length and width (Pl. XI. fig. 27). The walls of these cavities are usually very thin, mere immeasurable films, in which, however, collencytes can be discerned under favourable conditions. The granule-cells in some parts of the tissue lose their granules, and are reduced to a finely granular protoplasm, in which a nucleus and nucleolus are to be seen (Pl. XI. fig. 26). In some cases these cells take a far fainter stain than usual, while the surrounding matrix becomes stained, so that, instead of appearing as darkly coloured cells on a colourless ground, they are seen as pale cells on a darker ground (Pl. XI. fig. 25).

The mesoderm of the choanosome does not take a very deep stain; more gelatinous matrix appears to be present than is usual in sarcenchyme, and it might perhaps be more properly termed a highly granular collenchyme.

The Skeleton.—The oxeate rhabdi are collected together into bundles which run more or less parallel to the sides of the larger canals, and at right angles to the external surface of the sponge; the tissue surrounding them is not modified to form a spicular tract. The calthrops appear, for the most part, to be scattered through the sponge without any arrangement, they are densely crowded together, their actines crossing each other in all directions. Near the exterior of the sponge, however, two or three of the actines tend to lie tangentially with the surface, and a similar disposition is to be observed in those calthrops which lie adjacent to the walls of the canals. Near the bundles of oxeas also the calthrops show a tendency to definite arrangement, three of the actines extending more or less at right angles to the course of the bundles, and the fourth parallel to it; in this case the calthrops is orientated in the same manner as a triæne would be in a corresponding position.

The microstrongyles form a dense layer immediately beneath the outer epithelium (Pl. XI. fig. 25), and occur in a single layer beneath the epithelium of the canal walls, they are also irregularly scattered throughout the tissues of the sponge generally. The spirasters appear to be restricted to a position immediately beneath the lining epithelium of the canals, occurring in conjunction with the microstrongyles, or occasionally by themselves, in the latter case usually only in the vela of the canals, or in the smaller canals of the choanosome.

In the earliest observed stage of the calthrops (Pl. XI. fig. 4) its actines are traversed by disproportionately large axial fibres, which are probably continued into the substance of the surrounding scleroblast, since in nitric acid preparations the axial canals are freely open at the extremities of the actines.