gelatinous matrix presents, besides collencytes and vesicular cells, numerous long fusiform cells, some running more or less parallel with the surface, others quite irregularly. In some places small, round, granular cells, 0·006 mm. in diameter, occur crowded together to the exclusion of other elements; in some the vesicular, and in others the fusiform cells predominate.

The incurrent canals burrow irregularly through the cortex; they are irregular in their course and in their form; they are swollen into vesicles of various sizes, irregularly branched and broken up by trabeculæ; they thus give to the collenchyma a cavernous character which adds to the difficulty of describing it.

The collenchyma is continued from the cortex inwards along the spicular tracts, undergoing certain modifications, of which the most important is the appearance of conspicuous cells, which at once arrest the attention, partly on account of their comparatively large size, and partly because of the regular manner in which they lie one after another in linear series upon the sides of the spicules, and apparently in immediate contact with them. These cells, although evidently all of one kind, are of such various forms and characters that they are not easy to describe in a few words. They are more or less rounded masses, prolonged into filmy or fibrous processes, finely granular, staining somewhat deeply, with an average diameter of 0·016 to 0·02 mm. Some have a columnar form, seated by a flat base on a spicule, and produced at the opposite end into a short tail-like process; the columnar body in one case measured 0·024 mm. in length, the tail 0·016 mm. The outer part of the cell loses in many cases its property of staining deeply, and the change thus begun appears to extend inwards till it affects the whole cell. This appears to point to exhaustion with age, and suggests a glandular, rather than a nervous function for these cells. They lie tolerably close together; in one case I counted six in a row 0·13 mm. long, in another fourteen in a row 0·32 mm. long. I could not determine whether they formed a sheath or not to the spicule.

Cloaca.—As the cortex approaches the margins of the oscule, round or oval, deeply-staining granular cells, 0·012 mm. in diameter, appear within the collenchyma, and increase in numbers, till a tissue, consisting of these and some fusiform cells, embedded in collenchyma results (Pl. IV. fig. 19). This tissue, invested of course by epithelium, is continued from the margins of the oscule as a lining, 0·475 to 0·56 mm. thick, to the whole of the cloacal chamber. The oxeas of the cortex disappear at the margin of the oscule, a little before the lining tissue of the cloaca commences, and the toxospires, at the same time or a little later, *i.e.*, nearer the cloaca, are replaced by ordinary sigmaspires.

The choanosomal tissue intervening between the cortex and the walls of the cloaca, is converted into collenchyma similar to that of the cloacal lining, but distinguished by the predominance of the myocytes which form the greater part of it. This modification of the choanosome extends for a distance of about 0·1 mm. inwards from the margin of the oscule.