

Around the pores in the cloacal walls myocytes are concentrically arranged, and stellate cells occur close to their margins, which send a process to the epithelium on the one hand, and one or two processes inwards in the opposite direction.

*Sexual Elements.—Spermatozoa.*—Around the lower end of the cloaca the choanosome is densely crowded with sperm-clusters, each lying in a distinct cavity, which it does not fill, owing no doubt to shrinking produced by immersion in spirits. They are of round, oval, or sometimes irregular shape, and vary from 0·006 by 0·012 mm. to 0·047 by 0·075 mm. in diameter. Most of them consist of small spherical cells, about 0·004 mm. in diameter, with a very obvious nucleus and a dark-stained nucleolus. They are therefore not mature, though some few instances occur in which the constituent cells are of smaller size, and appear to be produced into a tail. A cover-cell is certainly not present, but the wall of the containing cavity is lined by epithelium, and the adjacent mesoderm stains more deeply in its immediate neighbourhood than elsewhere.

The sperm-clusters are so numerous that they reduce the surrounding mesoderm to little more than a trabecular network, in which flagellated chambers are only rarely seen. It would therefore seem that we have here a specialised sperm-bearing region or rudimentary testicular tissue, recalling the specialised ova-bearing region or rudimentary ovary which Schulze discovered in *Euspongia*.

*Ova.*—Certain remarkable cells of great size and complexity occur here and there in cavities of the choanosome; their true nature is doubtful, and if not ova, they must be regarded as parasites. They present numerous variations both in form and structure. Some suggest a resemblance to gigantic Rhizopoda, extending into large branched pseudopodial extensions (Pl. IV. fig. 22), which enter the surrounding tissue, and lose themselves in it. Others (Pl. IV. fig. 21) present a round or oval outline, varying from about 0·1 mm. to 0·2 mm. in diameter. The nucleus is an oval body, 0·0395 mm. long by 0·0276 mm. broad, with evenly and finely granular, faintly-staining contents, enclosed in a well-defined limiting membrane. It always presents at least one well-marked, highly refringent, non-granular, deeply-stained, spherical nucleolus, varying from 0·0039 to 0·0118 mm. in diameter. Often, however, two or three nucleoli are present, and in one instance no less than six were counted. Outside this nucleus, immediately next the nuclear membrane, succeeds a layer of dense, darkly-stained protoplasm; then a clearer zone follows, in which a vesicular structure can sometimes be made out; outside this again is a dense, darkly-stained margin, which is sometimes so distinct as to look like a second nuclear envelope; finally, outside this succeeds the general mass of external protoplasm. While the structure just described is of most common occurrence, cases also occur in which it becomes simplified, the nucleus for instance simply lying in protoplasm, which is rather more deeply stained immediately next to it than elsewhere.

In general character the mass of external protoplasm of these cells is finely granular