

and, considering that the vessels of the test are by no means greatly developed, it would be of great advantage probably that the blood circulating in the test should undergo additional oxygenation.

The inner surface of the test is lined by a continuous layer of squamous epithelium. The cells are large, regular, and distinctly nucleated; they vary in shape from hexagonal to diamond-shaped, and are usually broadly fusiform.

The remainder of the test is composed of an apparently structureless mass (Pl. VIII. fig. 2, *t.m.*), like the matrix of hyaline cartilage, in which are imbedded minute, circular, fusiform, and stellate cells. A very delicate fibrillation may be detected here and there in the matrix, but as a rule it has a homogeneous appearance. The cells are very minute, and usually only the nucleus is visible. Often, however, a thin layer of protoplasm surrounding it can be made out, and from this delicate processes are occasionally seen radiating outwards so as to give the cell a stellate appearance. No large bladder cells nor pigment cells are present.

The blood-vessels in the test, and their large terminal dilatations in its outer layer are lined by a layer of squamous epithelium of extreme delicacy. The nuclei of the cells are always visible as a series of equidistant strongly refracting circular spots, dotting the walls of the vessels. In good specimens, however, the outlines of the cells are also distinctly seen. The cells are large, pretty equal in size, but irregular in shape; they are scale-like, usually polygonal, and have sometimes undulating edges. The nuclei are large, very distinct, circular in outline, and placed in the centres of the cells.

The peduncle is merely a prolongation of the test, and consists of the same structures somewhat modified so as to produce the necessary toughness and rigidity. In transverse sections under a low power (Pl. IX. fig. 1), one sees that the peduncle is not a solid mass, but is perforated by large canals, which show as more or less circular spaces in each of which one or more blood-vessels are situated. In longitudinal sections (Pl. IX. fig. 2), it is seen that these canals are not parallel tubes, but are irregular, branching, anastomosing, and of very different lengths, so that in fact they are merely a network of canals, most of which run longitudinally. Up the centre of the peduncle, however, runs a tube which is larger than the others, and appears to be continuous, and of much the same calibre throughout (Pl. IX. fig. 1). It communicates freely with the other canals by lateral branches.

The test substance in which these canals are excavated presents two different modifications. Round each canal, and round the outside of the peduncle is a layer of hyaline semi-transparent substance (Pl. IX. figs. 1 and 2, *t.m.*) like the compact part of the normal test covering the body. The matrix is compact, stains faintly pink with picro-carmin, and is apparently structureless, except in the immediate neighbourhood of the modified tissue, where it is fibrillated. It contains numerous protoplasts which are very minute, but distinctly nucleated. These are stained yellow by picro-carmin.