

*The Test* is moderately thick and strong, but quite soft and flexible. Its outer surface is rough on account of the presence of small processes scattered thickly all over, and developed in certain places into papilla-like tufts. These processes are of a brownish colour, while the test at their base has a slightly grey tint; where the processes are few or of small size this slate colour shows, elsewhere the general appearance is brown. The test is quite opaque.

On the inner surface, when the adhering mantle has been removed, the test has a pale hyaline blue tint, with minute dots or punctures all over it. Under a low power of the microscope (50 diameters) this appearance is seen to be caused by the presence of a large number of small chambers deeply imbedded in the test (as viewed from the inner surface). These are all very nearly of the same size, and are so numerous that the bars left between them seem to mark out the entire surface into polygonal areas. Most of these chambers in this view are seen to be occupied by masses of reddish-brown blood-corpuscles.

In thin sections through the test the minute papillæ on the outer surface are seen to be hollow (Pl. VIII. fig. 2, *t.p.*), and their large bases contain the chambers seen from the inner surface. These chambers or interior spaces of the papillæ extend, however, a little into the thickness of the test; they are in direct connection with the blood-vessels ramifying through the substance of the test, and frequently in sections one of the terminal twigs of the vessels is seen entering the base of a chamber (Pl. VIII. fig. 2, *t.k.*'). The vessels in this test seem rather feebly developed. They are not present in large numbers in any of the sections, and they are of small size. These chambers occupying the papillæ seem to be a modification of the knobs on the ends of the terminal twigs of the vessels so well developed in many species of the genus *Ascidia*, and like them are generally filled with blood-corpuscles. Lacaze-Duthiers states<sup>1</sup> that the hairs on the test in the Molgulidæ are merely the terminal knobs greatly developed in length. In the present case we have them extending beyond the surface of the test as a series of hernia-like papillæ. The larger projections, however, found round the branchial and atrial apertures, and on the belt round the posterior end, are comparable with the hairs of the Molgulidæ, although their function appears to be different, as I have never observed any foreign matter adhering to these processes. They are conical in shape, taper to a blunt point, and have usually a considerable number of short lateral branches which frequently bifurcate at the tip, and in some cases end in a clump composed of several little papillæ (Pl. IX. fig. 3, *t.k.*'). The whole process is hollow and very thin-walled. It is, like the chambers at the bases of the smaller papillæ, directly continuous with the blood-vessels of the test, and usually contains blood-corpuscles.

It is difficult to say what the use of these processes of the test can be. Their connection with the vascular system and their thin walls suggest a respiratory function,

<sup>1</sup> Archives de Zoologie expérimentale et générale, vol. iii. p. 314 (1874).