

bearing surface. Indeed, so much does the appearance of the upper surface differ according to whether the sponge be contracted or expanded, that Sir Wyville Thomson recognised a distinct species for each of these two conditions.¹ The figures (Pl. L. figs. 3, 3a) represent the sponge in a partially contracted condition. Judging then from these facts, we are probably correct in assigning to the fibrous tissue of the ectosome a muscular function. In *Tentorium* the thick, fibrous ectosome is present only on the upper, pore-bearing surface (Pl. L. fig. 3, *p.a.*). Elsewhere the columnar body of the sponge is encased in a cylinder of densely packed, vertically disposed, large tylostyli. Inside of this sheath of spicules comes a thin layer of gelatinous mesoderm, containing stellate cells, and inside this again a very thin zone of fibrous tissue in which the fibres are arranged in a circular manner, running round and round the sponge; very possibly these circular fibres also are muscular in function; but, judging from their slight degree of development, we cannot suppose that they are very powerful.

The fibrous tissue of the ectosome appears to be always very much the same in histological character, composed of very slender, very much elongated cells, closely packed together, with elongated nuclei scattered here and there. The same kind of tissue is not infrequently found surrounding the larger exhalent canals (*e.g.*, *Stylocordyla stipitata*, var. *globosa*, nobis; *Latrunculia apicalis*, nobis) and in these cases also it ought possibly to be regarded as part of the ectosome.

As in the case of a gelatinous ectosome, there are usually several elements entering into the composition of the fibrous cortex. Thus, in *Stylocordyla stipitata*, var. *globosa*, there are present an enormous number of rounded or oval, nucleated cells (Pl. L. fig. 1a, *g.c.*) lying in and amongst the fibrous tissue; each cell measures about 0.007 mm. in diameter, is somewhat granular and stains fairly deeply with borax-carmin. They are most abundant in the outer portion of the cortex, being closely packed together and making up by far the chief portion of the ectosome in this place. What their function may be is very doubtful, but from their form and their position in the sponge we are inclined to place them in the category of "glandular (?)." We have observed similar, but more highly granular and deeply staining cells in the ectosome of *Suberites ramulosus*, var. *cylindrifera*, nobis.

In *Latrunculia apicalis* the ectosome has a somewhat different composition. In as much as it is tough and firm and sharply marked off from the underlying choanosome (*vide* Pl. LI. fig. 1), and contains, moreover, a considerable amount of fibrous tissue, it may be considered as forming a true cortex. Here, as is also the case in the genus *Suberites*, its toughness and firm consistency are largely due to the presence in it of numerous supporting spicules, the arrangement of which is described elsewhere, and will be seen by reference to the figures. There is a thin external layer of somewhat fibrous tissue (Pl. LI. fig. 1b, *f.t.*), in which are embedded the bases of the closely-

¹ The Depths of the Sea, figs. 23, 24.