

Outside this normal test substance, and therefore winding between the canals, are masses and trabeculæ of a bright yellow-brown tissue (Pl. IX. figs. 1 and 2, *t.m.c.*) concentrically laminated—appearing as longitudinal striation in longitudinal sections of the bars. An examination of this tissue shows that it is merely a modification of the neighbouring test substance caused by some sort of cornification taking place in successive layers so as to produce the concentric lamination. The bright yellowish-brown matrix is closely fibrillated, the bundles of fibrillæ running as a rule parallel to the concentric laminae. In this fibrous matrix numerous protoplasts are imbedded; they are very minute, circular to fusiform in outline, and have comparatively large, brightly refracting, circular nuclei.

The blood-vessels occupying the canals (Pl. IX. fig. 1, *ped. c.*) and surrounded by the unmodified test substance are of various sizes. A large trunk, and occasionally one or more small branches from it, are found in the central large canal, while smaller vessels occupy the other spaces; like the canals they lie in, these vessels intercommunicate—they form a branching and anastomosing system. The wall of all these vessels consists of a single layer of cells. These are large and elongated, varying in shape from fusiform to oblong, and have large and distinct circular and centrally placed nuclei, and finely granular protoplasm. They lie with their long axes parallel to the length of the vessel, and in transverse sections appear as small round cells.

*The Mantle* is thin but moderately strong; it still (in spirit specimens) adheres to the inner surface of the test, but the connection is slight, as it may be peeled off with ease. The muscle bands are strong but distantly placed, so as to form an open network. Most of the bands run transversely to the longitudinal axis drawn through the point of attachment to the peduncle and the opposite extremity of the body, but a few longitudinal bands are also present, radiating from the branchial and atrial apertures; these lie internally to the transverse muscles. On the branchial and atrial siphons the muscle bands lie transversely, are more regular and parallel than elsewhere, and considerably closer; these can hardly be characterised, however, as sphincter muscles.

The muscle bands are flattened like ribbons, and contain on an average about fifty fibres in their breadth. The fibres are rather large, of a much elongated fusiform shape, and are closely packed in bundles. They stain deeply with carmine, but no distinct nuclei are visible. In teased bundles, however, some rather smaller fibres (or series of fibres) were noticed having swellings at intervals, or shaped like a series of spindles joined by their ends; these had distinct circular nuclei in the wider parts. No transverse stripes were observed in any of the fibres.

The greater part of the mantle is composed of connective tissue, which envelopes and stretches between the muscle bands. It is in the form of a thin layer of gelatigenous areolar connective tissue—a delicate transparent matrix, in many places apparently structureless, in others finely fibrillated, and sometimes formed of bundles of white