

coral in small openings, which are usually seen to be quite closed by contraction of the surrounding superficial membrane in hardened specimens. The sacs lie loose within the pores of the cœnostea; that is, they are smaller in diameter than their containing calcareous cavities, but they are held in place by the attached radial offsets of the cœnosarc, which issue from the numerous openings in the walls of the pores to join on to them (Pl. II. fig. 1, G Z).

The dactylozooids of *Sporadopora* vary much in size, the smaller being of less than half the dimensions of the largest. They are elongate-conical in form, and are composed of an ectoderm, endoderm, membranous and muscular layers. They have an axial tubular cavity within, which communicates directly at their bases with the larger deeply-situate canals of the cœnosarcular meshwork.

The ectoderm forms, in the retracted zooids, a thick external layer, which is thrown by the contraction of the zooid into a series of transverse folds (Pl. III. D Z. No doubt, in the expanded condition of the zooid the ectoderm would appear much thinner. The outer surface of the layer is thickly beset with nematocysts of the smaller variety, which are so closely packed side by side, with their pointed ends outward, that in the retracted zooid no interstices between them are to be made out (Pl. X. fig. 2, E). Beneath this armature of nematocysts the main thickness of the ectodermal layer is composed of finely granular matter filled with ovoid nuclei and nematocysts, in various stages of development. No definite cell-structure could be determined in the layer, but fine lines, having a radial disposition in transverse sections of the zooid, seemed to indicate that the layer is composed in reality of somewhat prismatic cells, disposed in it radially to the central axis of the zooid.

At the inner surface of the ectoderm is a layer of very distinctly differentiated muscular slips, which have a longitudinal disposition (Pl. X. fig. 2, M; Pl. X. fig. 3). These muscular slips do not form a quite continuous layer, being separated from one another, as appears in transverse section, by a definite series of intervening spaces. These muscles are fine and difficult to detect towards the tips of the zooids, but increase in thickness towards their bases. In these regions of the zooids they are extremely conspicuous, and spread out in a thick layer over the large main vessels of the cœnosarc in immediate connection with the bases of the zooids, passing beneath the ectoderm of these canals, and being inserted into their walls. These muscles act evidently as the retractors of the zooids. Since they are more highly developed in the case of the gastrozooids, they will be further described when these are under consideration.

United with the muscular layer and inseparable from it, is a layer of membrane which is continuous with the membranous layer of the cœnosarcular canals, and forms a complete sac within the zooids. This basement membrane shows, in the contracted zooids, a transverse striation (Pl. X. fig. 6), which was at first supposed to indicate the existence of a layer of circular muscular fibres crossing the described longitu-