

dinal muscles. No definite circular fibres could, however, be detected, and the appearance is probably due to contraction of the membrane.

The inner surface of the membrane is lined by endodermal cells. In the contracted zooid, these form a layer two, three, or four cells thick. The cells are globular, clear, and transparent, and contain a nucleus (Pl. X. fig. 2; Pl. III.). On the actual inner surface of the layer, bounding the zooid cavity, is a layer of cells similar in character to, but much smaller than, those composing the main mass of the endoderm. No doubt the inner surface of the cavity of the zooid is ciliated in the living condition; cilia were, however, not detected. Towards the base of the zooid cavity, the transparent cells are replaced in the endoderm by the spherical pigmented cells, which are the principal constituent of the endoderm of the *cœnosarc*.

The dactylozooids have a tendency to be attached by their bases to one side of the bottoms of their sacs, rather than to the lowest extremities. When this is the case, as in Plate III. DZ, the zooid in the retracted condition is partly doubled up upon itself, and not merely drawn directly in. The main retractor muscles, however, pass almost directly downwards to their insertion into the *cœnosarc*al canals. In consequence of this arrangement the bottoms of the sacs are, when it occurs, pulled somewhat to one side. This form of attachment of the dactylozooids occurs mostly amongst the larger examples, no doubt because their greater length requires such an arrangement in order to allow of more complete retraction by the aid of the doubling of the zooid. This tendency to lateral attachment in the dactylozooids, as occurring in *Sporadopora*, where the zooids are diffusely scattered over the coral surface, is of interest, because the same tendency is shown by the dactylozooids in nearly all the *Stylasteridæ*; and in some, as in *Cryptohelia*, *Allopora*, &c., it is the normal and only method of attachment.

*Gastrozooids*.—The gastrozooids in *Sporadopora dichotoma* are cylindrical in form, with four short tentacles set on to the body equidistantly in a single whorl. Above the line of origin of the tentacles rises the dome-like hypostome, which in the retracted condition of the zooids has a height equal to that of about one-third of the entire height of the zooid body.

The zooid in its inferior region is circular in section, but superiorly, in the region where the tentacles are given off and in that of the hypostome, it assumes, in section, the form of a rectangle with the corners rounded off and the sides indented, the tentacles being situate at these corners of the rectangle.

Within the zooid is a wide gastric cavity, into the axis of which, in the retracted condition of the zooid, the calcareous style of the gastropore protrudes for two-thirds of the height of the cavity (Pl. III. *St*).

The mouth at the summit of the hypostome appears when viewed from above as a cruciform opening leading directly to the gastric cavity. The gastric cavity communi-