

double-contoured wall, enclosing a few minute granules; both wall and granules are highly refringent, not stainable, and in general appearance strongly suggestive of a vegetable nature. The number of these structures within one cell is variable, there may be one, two, three, or four (and then frequently arranged as in a tetraspore), or many more; when numerous scarcely a trace of the original protoplasm of the cell remains (Pl. XXXVI. fig. 24).

Except in the ectosome and the walls of the larger canals, these comparatively large granular cells are so numerous that they seem to constitute the whole of the tissue, the gelatinous matrix being reduced to a minimum so small as to be scarcely discernible. But in the regions just excepted they are singly embedded, scattered about irregularly, in one place two or three lying in contact, in another separated by more than their own diameter. Other cellular constituents then come into view, such as the usual branching collencytes, but more noticeably small fusiform cells (Pl. XXXVI. figs. 22, 27), consisting of an oval or fusiform body, about 0.002 mm. in diameter, very deeply stained, and produced at one or both ends into a long, simple, or branching filament, frequently 0.085 mm. long. They mostly radiate at right angles to the nearest free surface of the tissue in which they occur, in the ectosome the outer surface of the sponge, in the canal-wall the epithelial surface of the canal. When the body of the cell is situated some distance from the free surface, then each end is produced into a filament; when it projects against the epithelium, then naturally only the end pointing away from the epithelium is so produced; sometimes a whole series of cells lying close together may be observed so situated, forming a subepithelial layer in the canal-wall. In the vela of the canals fusiform cells occur arranged concentrically about the central perforation. In some regions, as in the wall of the most superficial vesicles of the excurrent canals, the mesoderm passes into cavernous collenchyma.

Those desmas, which lie immediately beneath the outer epithelium, differ in several respects from those of the choanosome. They are chiefly extended in a plane parallel to the surface, and their outer faces are covered with erect tubercles bearing one or more simple or bifid spines. This ectosomal layer, by the closeness of its texture, presents quite a different appearance to that of the general skeleton, and is easily removed in continuous pieces by tangential section.

*Variation.*—The different specimens here assigned to the same species all differ in various points of detail from each other, and from the type specimen of *Azorica pfeifferæ*, Carter. The thickness of the wall of the sponge is in all slightly less than in the type, which measures about 0.5 mm. in thickness. The specimens from Stations 33 and 56 (both off Bermuda), and from Bahia, agree most closely in this respect, not varying much on either side of 3 mm., that from Porto Praya is about 5 mm. thick, and most resembles in other respects the typical specimen; that from Amboina does not exceed 4 mm. in thickness. The size and proximity of the oscules is another very variable