prosopyle becomes continued into a comparatively long prosodus. This, which may be called the diplodal type of chamber-system, is rarely met with among the Tetractinellida, or indeed in the Parazoa generally. Schulze[1] describes it in *Corticium candelabrum*, O. Schmidt, and I have met with it in *Thrombus challengeri* and *Azorica pfeifferæ*. It appears to correspond to Vosmaer's fourth type of chamber-system.[2]

Since the progressive change from one type of chamber to another is associated with a change in the characters of the mesoderm and its increased development, we might expect some marked differences, evident to the unaided senses, in the general character of sponges distinguished by different types of chamber-system. Such differences certainly do exist, but they are of little value to the investigator. On the whole sponges with eurypylous chambers are less dense, and those with diplodal chambers denser than those with aphodal chambers. Sponges with diplodal chambers are usually remarkably compact and "fleshy."

The characters of the chamber-system are most easily determined in the eurypylous type; in sponges belonging to it the chambers are sometimes clearly displayed in thick slices cut free hand from a spirit specimen, with no further preparation than staining and mounting in glycerine.

The Ectosome.

The change in the character of the canal-system is usually but not invariably (*Thrombus* and *Azorica* are exceptions) accompanied by considerable modifications of the ectosome. These appear to be of different nature in different sponges, and even when the final products are structurally similar, they may have been differently evolved.

Embryological evidence as to the precise history of the ectosome is however scanty, and consequently the following explanation must be regarded as to some extent hypothetical.

In sponges with eurypylous chambers the ectosome never attains any high degree of differentiation. It consists, as shown in the diagram (Fig. III., p. xv), of an investing membrane composed of a thin layer of mesoderm bounded on both sides by ectodermal epithelium, together with the metamorphosed ends of the excurrent lobes, which place the outer membrane in continuity with the rest of the sponge; these metamorphosed ends we shall speak of as the pillars of the subdermal cavities. The external or dermal membrane may attain a thickness of nearly a millimetre and sometimes presents considerable histological differentiation; but the subdermal cavities are never completely differentiated from the incurrent canals, and always communicate directly with more or fewer of the flagellated chambers (Pl. I. figs. 12, 27; Pl. VII. fig. 4; Pl. VIII. fig. 9).

[1] Schulze, *Zeitschr. f. wiss. Zool.*, Bd. xxxv., 1881.

[2] Vosmaer, Bronn's Klassen u. Ordnung. d. Thierreichs, Porifera, p. 131, fig. 7.