

of the same sponge, or even different individuals of the same species of sponge, are brought in contact, and thus we may conclude that the pleats wherever they touched each other coalesced; in this manner a complex folded sponge-wall, traversed by sinuses, and much thicker than of the earlier stage, would result (Fig. 2, *d*). Obviously this wall may by a continuation of the same process increase in thickness and complexity to an almost unlimited extent. A transverse section (Pl. XXVI. fig. 1) through the actual sponge presents appearances which are entirely consistent with the foregoing explanation. The diagram (Fig. 2, *d*) might well stand for a generalised representation of its structure; there are sinuous passages of the most irregular form, some still merely deep extensions of the outer folds, others converted into complete canals opening by circular mouths to the interior; some communicating with the inner surface of the cup, but more with the outer. All are lined by a thin layer of sterrasters, thus demonstrating their superficial origin, and proving that they are in no way connected with the true water-canals of the sponge.

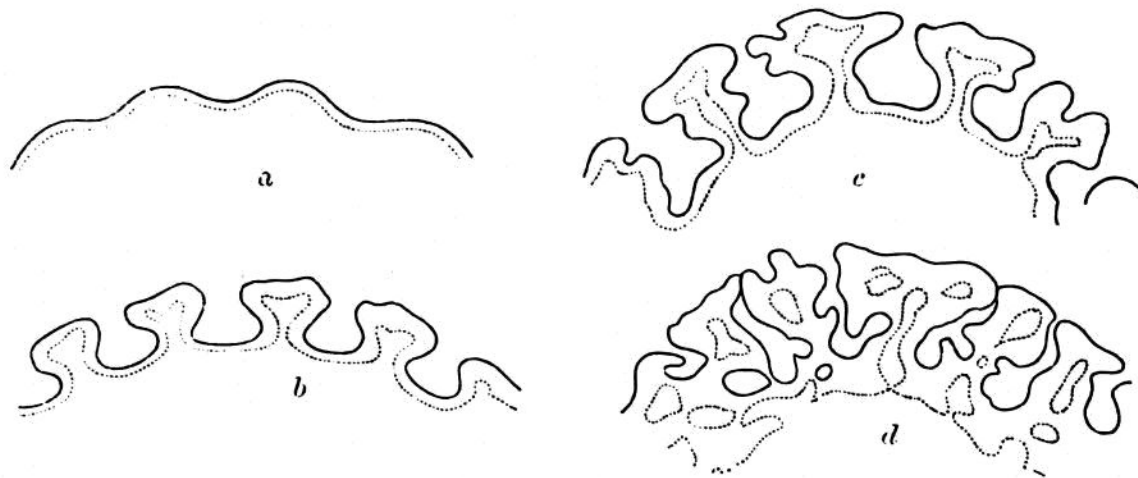


FIG. 2.—Diagram showing the development of the wall of *Synopsis neptuni*, Sollas.

The passages are seldom empty, usually they are closely packed with a substance which looks like cotton wool, but which really consists of sponge spicules densely matted together, every one of them identical in character with those which build up the skeleton of the sponge. They are deciduous spicules, which have been secreted by the sponge and shed from its free surface; and they owe their preservation in these cavities to the accident that a part of the free surface has here become involved in the interior of the wall. In most sponges the effete spicules when they are shed from the sponge fall to the sea-floor and dissolve all connection with their source. Here, owing to fortunate circumstances, they are preserved to suggest the existence of a process which might otherwise have been overlooked. Whilst there are other sponges which also furnish evidence as to the deciduous nature of the spicules, there are none which would have led us to suppose that the quantity of deciduous material is so large as from this sponge we learn to be the case, for the quantity of dead spicules accumulated within its