

these bands are disposed in rows, intersecting approximately at right angles, at an average distance of 0.06 mm., and united further by stronger basal strands, a lattice-like pattern results, in which the meshes are approximately rectangular or slightly rhombic in form. As to the nature of the somewhat strongly refracting and slightly stained connecting strands, of which the stronger cross at right angles, while the finer branches are irregularly reticulate (Pl. LXII. fig. 8), I have not been able to come to a perfectly clear decision. I have little doubt, however, that we have here to do with the anastomoses of protoplasmic processes from adjacent cells. Each cell seems to be connected with its four neighbours by one main connecting process and several fine lateral branches (Pl. LXII. figs. 7, 8).

The connective substance, which forms the main framework of the soft body, does not differ essentially from that of most other siliceous Sponges. In the hyaline, somewhat soft matrix, two kinds of cells can be distinguished, namely, (a) simple stellate or spindle-shaped connective-tissue cells with little protoplasm, and a small oval nucleus, and (b) larger cells with clear vesicular nucleus, and with a more or less abundant accumulation of refracting, intensely stained granules of various sizes. As a rule, these granules lie loosely beside one another, and may be included in lappet-like processes of the cell (Pl. IV. fig. 8, and Pl. LXII. fig. 8). Sometimes, however, they are united in firm clumps. Occasionally I found them brownish or yellow in colour. As I have previously noted, I regard these bodies as reserve nutriment, analogous to fat or starch. Small groups of round cells occasionally occur, but their import is not known (Pl. LXII. fig. 8).

All the skeletal structures belong exclusively to the connective-tissue. On the surface of the spicules there is a more or less distinct thin layer of hyaline matrix, the so-called spicular sheath, which, on specially thick needles, is seen as a finely fibrous membrane. In the connective substance, finally, the genital products occur, the sperm masses and ova, in more or less abundance, and usually in the same individual. The sperm masses, both in young and mature stages, are exactly like those of other siliceous Sponges, such as *Reniera*. In their immature form the ova are indistinguishable from connective-tissue cells. They subsequently increase in size and develop refracting yolk granules, and exhibit a very characteristic aspect owing to the enlargement of the nucleus. It is remarkable that in the adult (0.3 mm. in diameter), irregularly roundish ova of *Euplectella aspergillum*, along with which ripe sperm masses also occurred, the nucleus was situated not in the ovum itself, but lay freely in a superficial depression into which it had been squeezed. This expulsion of the nucleus was probably the result of the drastic preservative treatment.

It is curious that I have never been able to discover any distinct segmentation stages. It would not, however, be justifiable to jump to the conclusion that the ova leave the body of the Sponge as such, and undergo subsequent development outside the mother organism.

As to the developmental history I am only able to communicate a few observations.