by the fact that the perforated meshes alternate (with tolerable regularity) both longitudinally and transversely with those which are closed (Pl. IV. fig. 2).

The number of transverse ridges projecting inwards amounts to sixty or eighty in a full-grown specimen. I have counted thirty longitudinal ridges on the upper portion, and about twenty in the lower, which agrees tolerably well with the numbers given by Marshall. The increase in the number of longitudinal ridges in the upper part of the tube is due to the splitting which here and there occurs.

The watch-glass-like, arched, terminal sieve-plate consists of a lattice-work of laterally compressed ridges of various thickness, which, though exhibiting no very regular arrangement, yet suggest a wheel-like reticular structure. One can distinguish, at least, three or four main beams which are approximately circular and several which extend radially. These form the primary meshes, which are again divided by narrower and less prominent ridges. Here and there a broader plate is formed in the network, as if by the confluence of the stronger beams.

At the lower end of the body the longitudinal bundles of siliceous fibres gradually emerge on the surface, and breaking up into separate spicules, form the basal tuft. This has a length of from 4 to 8 cm., is tube-like in its upper portion, but towards the lower end becomes brush-like through divergence of the component fibres. This tuft accordingly encloses a central inversely conical cavity, into which the extreme lower end of the lattice-like skeleton of the tube-wall extends downwards for a variable distance. In all full-grown specimens I found that this extreme end of the tube was dead, and at a distance of several centimetres from the terminal opening, which is from 1 to 2 cm. broad, the end of the tube was devoid of all soft tissue, in fact macerated and generally filled with a firm stopper of mud. The younger the specimen examined, the better was the preservation of the lower end of the tube, and the narrower the terminal opening. I was, however, unable to discover, in any of the specimens at my command, any "pointed terminal cone, formed from the longitudinal and spiral strands of the parietal tissue," such as Marshall has observed in a very young specimen, and has designated the "inferior sieve-plate."

In uninjured specimens whose soft parts had been well hardened by being preserved in absolute alcohol, no external openings except the parietal gaps could be seen with the naked eye. The sponge was of a pale yellowish-grey colour. The consistence of the soft tissue which covered the skeletal framework in a somewhat thin layer resembled that of *bread crumbs*, while Wyville Thomson in The Atlantic, p. 136, observed:—"In fresh specimens of *Euplectella aspergillum* the crystal framework is covered and entirely masked by a *layer of grey-brown gelatinous matter*."

The perforated dermal membrane, which is beset with numerous, small, conical protuberances, extends smoothly over the much folded chamber layer, and is connected with it only by the outer trabecular framework, which is much riddled by the subdermal spaces