Strassburg. Including the basal tuft this form has a length of 20 cm. The portion which projects freely from the mud is 12 cm. in length, and its cross section is oval, the long axis below measuring 35 mm., but above, just below the dome-like arched sieve-plate, only 25 mm.; the short axis beneath measures 30 mm., and above 22 mm. A comparison of these figures with those recorded by Marshall for his specimen, shows that we have here to deal with a relatively small, and probably young specimen. In form it agrees throughout with Marshall's sketch and figure,[1] exhibiting a straight tube whose diameter is greatest somewhat beneath the inferior third part, and diminishing upwards at first very gradually, finally somewhat more rapidly, becoming narrowest just beneath the terminal sieve-plate. Both cuff and external ledges are entirely absent. The inferior extremity is continued with a more gradual narrowing into the long, soft, hair-like basal tuft.

The arrangement of the round parietal gaps, which are almost 1 mm. in diameter, in regular, transverse and longitudinal rows is very manifest. Between these parietal gaps, which lie in pit-like depressions, a rectangular lattice-work of transverse and longitudinal elevations projects both in the outer and inner surfaces (Pl. VI. fig. 1). A system of rectangularly crossed longitudinal and transverse bands of fibres, of which the latter project most internally, while the former cross them transversely on their outer side, serves for the support of this lattice-work, which forms somewhat narrower meshes at the upper than at the lower end. Transverse fibres also occur, and these become interwoven with the system of longitudinal fibres, sometimes occurring above, and sometimes beneath the latter. The longitudinal and the transverse bands of fibres do not always form, as in *Euplectella aspergillum*, simple and compact bundles, but frequently consist of two separate, but parallel bundles which lie close together, or at some distance from one another. Marshall describes these double bands of fibres as somewhat constant and characteristic of the species. In the specimens before me the division only occurs here and there, and is most marked in the longitudinal bundles (Pl. VI. fig. 1). The circular fibrous bands exhibit this peculiarity only in the upper region of the sponge. I believe, however, that this peculiar condition of the bands of fibres is of essential importance for the characteristic architecture of the sponge, and especially for the nature and method of its growth. Since the spicules do not here become firmly bound to each other, the elements of each individual band of fibres may readily become laterally separated. If this occurs in every two parallel bundles by a simple division both of the longitudinal and circular bands, perfectly similar new rows of quadrate meshes become formed, which are arranged strictly in longitudinal and transverse directions. A few particularly strong fibres always lie in the axis of each of these longitudinal and transverse bundles of fibres. These are the much prolonged rays of those strong tetracts whose axial cross corresponds exactly to the intersections of the

[1] *Loc. cit.*, pl. xii. fig. D.