

*Spongin-Fibrillæ.*—The fibrillæ characteristic of the Stannomidæ are imbedded in the clear hyaline maltha or the connective ground-mass, and exhibit the same physical and chemical peculiarities as the well-known corneous fibres of the common Keratosa; they consist, therefore, of spongin (or spongiolin). Usually they are simple cylindrical filaments, rarely a little branched, never anastomosing or reticular. Their colour is yellow, sometimes light brownish (Pl. II. figs. 1-3, *f*; Pl. III. fig. 9).

*Size of the Fibrillæ.*—The fibrillæ are in general very long, but difficult to determine, since it is usually impossible to isolate them for their whole length; in some macerated specimens, however, I was able to separate fibrillæ 2 to 5 mm. in length, and in one case even a thread 11 mm. in length. I suppose that they often really attain a length of some centimetres or more; perhaps often (or even constantly?) a great part of the fibrillæ run uninterruptedly from the base of the sponge to its periphery. Their thickness is usually equal throughout their whole length, viz., 0·001 to 0·004 mm. on an average, but sometimes the thicker fibrillæ attain a diameter of 0·01 to 0·02 mm., whilst the thinnest threads are only 0·0001 to 0·0005, or even less. In the majority of the Stannomidæ the thickness of the fibrillæ varies very little, and is nearly constant in one and the same specimen.

*Arrangement of the Fibrillæ.*—The arrangement of the spongin-fibrillæ in the body of the Stannomidæ is rather variable, and seems to depend often upon the mode of growth and the development of the pseudo-skeleton and of the symbiotic Hydroids. Often all the fibrillæ run isolated, irregularly interwoven in all directions. But usually the fibrillæ are aggregated densely in bundles, connected by a minimum quantity of maltha. The smaller bundles are composed of four to eight, the larger of ten to twenty or more parallel fibrillæ. When the bundles branch, a part of the unbranched fibrillæ separates from the rest and passes into the branch, similar to the nervous primitive fibres in a branching nerve. The fibrillæ themselves do not usually branch, but in some of the Stannomidæ, and especially in those in which the pseudo-skeleton is composed of Globigerina ooze, the thicker fibrillæ branch frequently. The branches are sometimes of equal, at other times of unequal, thickness; they never anastomose in the true Stannomidæ. As soon as the neighbouring branched fibrillæ anastomose and form a network, the Stannomidæ pass over into Spongelidæ. So *Stannophyllum* (from Station 271) passes over into *Psammophyllum* (Stations 241 and 244).

*Structure of the Fibrillæ.*—The thinnest fibrillæ appear under the microscope, even with the highest powers, perfectly structureless; but in the thicker threads, mainly the thickest forms (0·01 to 0·02 mm. in diameter), may be clearly distinguished a central medullary substance or an axial thread and a peripheral cortical substance; the latter is usually also in the thickest threads much broader than the former, but in some of the Stannomidæ distinguished by rather thick fibrillæ the axial thread is twice as broad as the surrounding cortical tube. In some macerated specimens the axial canal