

and transported into such totally different conditions of temperature, pressure, &c., suffer greatly from this violent change. They are, in fact, almost knocked to pieces, and their fine tissues are in a nearly deliquescent state." This is what Sir Wyville Thomson says, when speaking of the gigantic Hydroid *Monocaulus*, and the same may be said of the Stannomidæ and their delicate symbiotic Hydroids.<sup>1</sup>

Indeed it was quite impossible, in spite of all possible precautions and different methods of examination, to make out the anatomical structure of the canal-system of the Stannomidæ, and especially of the flagello-chambers. The dermal membrane, too, was more or less destroyed. It is very probable that they agree in these particulars with the closely-allied Spongelidæ, with which they are closely connected by intermediate forms (*Psammophyllum*). Nevertheless the composition of the well-preserved skeleton, and the relations with the symbiotic Hydroids, are so peculiar, that they are sufficient for the erection of a new family.

*Skeleton.*—Accepting the term "skeleton" in the usual physiological sense as the combination of all the solid parts of the body which serve as supporting and protecting organs, due to their hard and firm consistence, we may say that the skeleton of the Stannomidæ consists of three different parts, viz.—(1) the delicate spongin-fibrillæ produced by the sponge itself; (2) the xenophya, or the foreign enclosures (siliceous shells of Radiolaria, calcareous shells of Foraminifera, &c.), all received from the ooze of the sea-bottom; (3) the chitinous tubes of the hydrorhiza of the symbiotic Hydroids, which replace the absent stout spongin-fibres. The two latter elements, of course, represent a pseudo-skeleton composed of foreign enclosures, whilst the first alone is the true skeleton proper of the sponge. But the most curious fact is, that in all these Stannomidæ the main mass of the body consists of the pseudo-skeleton, and that the fibres of the spongin-skeleton form only a delicate connective tissue between the constituents of the pseudo-skeleton. The spongin-fibrillæ appear as a framework of fine elastic threads (*f*) strengthening the scanty maltha, which holds together all the different parts of the sponge. (Pl. II. figs. 1–3, *m*).

*Maltha.*—The ground-mass of the mesoderm, which we briefly call maltha (the mesogloea, mesenchyma, collenchyma, intercellular substance, common ground-mass, &c., of other authors), is in all the Stannomidæ scanty, and appears as a soft (clear and transparent) structureless mass, cementing all the heterogeneous parts of the sponge and its foreign enclosures together. The maltha has the same characters as in the closely-allied Spongelidæ; it is clear and transparent, not granular, and contains two different kinds of connective cells—(1) malthar cells, the usual small cells of the connective tissue, roundish, spindle-shaped or stellate, with scanty protoplasm around the small nucleus; and (2) amœboid wandering cells, probably migrating slowly through the whole body and producing the fibrillæ (similar to the odontoblasts which produce the dentin-fibrillæ).

<sup>1</sup> Compare Zool. Chall. Exp., part lxx. p. 6.