connective tissue of many animals. They may be developed to strengthen the soft ground-mass of the mesoderm, independently from the primary Keratose skeleton. The fibrillæ of the Hircinidæ, ending at the two free ends with a club or knob, may be regarded as monaxial Keratose spicules, similar to the siliceous "biclavated cylindrical spicula" of Bowerbank. They strengthen the tissue of the Hircinidæ in the same manner as the elastic fibrillæ in many kinds of connective tissue.

The fibrillæ of the Stannomidæ seem to be more nearly related, physically as well as chemically, to the common horny fibres of the Keratosa than to the similar filaments of the Hircinidæ. No single fact in their structure, arrangement, and development makes it probable that they are independent organisms. Several botanists who have examined them, and among them two fungological authorities, declared decisively that they are neither fungi nor algæ. I am therefore fully convinced that they are produced by the sponge itself.

Xenophya.—The solid foreign bodies which form the pseudo-skeleton and make up the greatest portion of the body of the Stannomidæ are either siliceous Radiolarian shells, or calcareous *Globigerina* shells, or a combination of both materials. The pseudo-skeleton is composed of pure Radiolarian ooze in five among the nine species, of pure Globigerina ooze in two, and of a mixture of both in the other two species. The two latter species (*Stannophyllum pertusum* and *venosum*) are most remarkable, since several parts of the body (the strong ribs of the leaf) are mainly composed of the coarser Globigerina ooze, whereas other parts (the intercostal plates) are composed of the finer Radiolarian ooze. This fact, as well as others observed in the Psamminidæ and Spongelidæ, seem to uphold my opinion (stated in my description of the Physemaria) that these animals possess a faculty of selection of materials in the construction of their pseudo-skeleton. This opinion is supported, too, by Lendenfeld and Carter (1885), but it is attacked by F. E. Schulze, Marshall, Poléjaeff, and others.

The xenophya are placed so densely and close together in all the Stannomidæ that the connecting maltha appears only as a scarce cement between them. They are never enclosed in the spongin-fibrillæ, but these run everywhere between the foreign enclosures, either single or associated in bundles (Pl. III. figs. 2–4, &c.). When the dermal plate of the sponge is well developed, the crossed bundles of fibrillæ form subregular meshes, in which groups of xenophya are placed, and the dermal pores are scattered at varying distances (Pl. II. figs. 1–4, &c.).

Symbiontes.—Whilst the protecting sandy carapace of the Stannomidæ is formed by the agglutinated xenophya, the supporting scaffold, which gives stiffness and solidity to the body when erect, is formed by a dense network of anastomosing chitinous tubes, filled with a dark brown or blackish cellular mass. In the preliminary examination I supposed that this constant network might be a constituent portion of the sponge itself, a tubular skeleton similar to that of the Aplysinidæ, composed of thin-walled heterogeneous fibres,