and the Spongelidæ (Pls. IV.–VI.); it is quite absent in the two other families, the Psamminidæ (Pl. VII.) and the Ammoconidæ (Pl. VIII.). These two latter families therefore are, strictly speaking, not Keratosa (or Ceraspongiæ) but Malthosa (or Myxospongiæ). The important question of the natural relations of these different groups will be discussed in the Appendix.

The Spongelidæ of the deep sea are represented in the Challenger collection by two genera, both differing essentially in the structure of the horny skeleton from the common Spongelidæ of shallow water. The stout and strong main fibres of the horny skeleton, which form the solid scaffold of the body in these latter, are wanting in the former; they are replaced by the chitinous tubes of the symbiotic hydrorhiza. The spongin production is restricted in *Psammophyllum* (Pls. IV., V.) to a framework of very thin branched spongin fibres, forming a delicate network, which is expanded within the meshes of the far stouter network produced by the symbiotic Hydroid. *Psammophyllum* seems to be closely related to the similar Spongelid *Phyllospongia papyracea* (Ehlers), but this shallow-water form possesses the same stout main fibres as the common *Spongelia*.

The other genus of deep-sea Spongelidæ, *Cerelasma* (Pl. VI.), is distinguished from all other genera by the peculiar form of the spongin secretion. The spongin here forms peculiar capsular envelopes around the xenophya, and these are connected by branched lamellæ, which form a loose framework. The more solid reticular framework of the symbiotic hydrorhiza branches everywhere between the meshes of the former, and gives them a firm support.

The new family Stannomidæ (Pls. I.–III.), represented by numerous large forms, forming the most stately portion of the collection here described, differ from all other Keratosa in the peculiar development of the spongin-skeleton. This is composed of innumerable fine yellow threads or fibrillæ, which run in all directions through the mesodermal maltha, partly single, partly associated in bundles. They are usually simple and very long, more rarely branched, and never anastomose. They never enclose xenophya, but run everywhere around and between them. A closer examination shows that they cannot be hyphæ of fungi, or other foreign productions (as was supposed by some naturalists), but that they agree perfectly in chemical nature and anatomical structure with the finer horny fibres of the common Spongelidæ.

Xenophya.[1]—The foreign bodies which compose the pseudo-skeleton of the Deep-sea Keratosa, and which we call briefly "xenophya," differ in composition according to the nature of the bottom on which the living sponges grew. The young sponge naturally takes for the building up of its supporting pseudo-skeleton the xenophya making up the bottom at that locality. The three principal kinds of ooze usually found at the bottom of the deep sea compose accordingly the xenophyal skeleton of our Keratosa, viz., (1) Radiolarian ooze, (2) Globigerina ooze, and (3) red clay. Besides, the inorganic

[1] *Xenophya* = ξενόφυες, foreign bodies.