rather dense, composed of branched fibres of nearly equal thickness; the majority of the fibres without xenophya; the thickest fibres enclose remains of Radiolaria, which also fill up the maltha.

Psammophyllum annectens has the same external appearance as *Stannophyllum zonarium* (Pl. I. fig. 1); it is a broad reniform leaf, soft and thin, of a brown colour with concentric zones on the surface. The height of the leaf (without pedicle) is usually 25 to 30 mm., breadth 35 to 40 mm., thickness 1 to 3 mm. The largest specimen, however (figured in Pl. IV. fig. 1), is 75 mm. broad, 55 mm. high, without the pedicle (10 mm.). The concentric zones or bands of both surfaces, which run parallel to the semicircular margin, have the same breadth as in the similar *Stannophyllum zonarium*, 3 to 4 mm.; they are separated by superficial furrows, somewhat thicker on the proximal than on the distal margin. The dried body is very soft and flexible, of felty appearance. The inferior edge of the kidney-shaped leaf is more or less concave (in a smaller specimen scarcely emarginated), and from its centre starts a short conical pedicle, with a small basal plate for attachment.

Canal-System.—The entire surface of the sponge on both sides of the leaf is covered by a rather firm dermal membrane, and this is pierced by small inhalent pores; between them are scattered at irregular distances larger openings (two or three times the diameter of the inhalent pores), probably the exhalent oscula; these occur mainly on the proximal margin of the concentric zones, which is somewhat thickened. The large subdermal cavities, which occur in the similar *Stannophyllum*, are absent in this species.

Symbiontes.—The whole spongy parenchyma of the leaf between the two dermal plates is traversed by a network of cylindrical anastomosing tubes, the hydrorhiza of a symbiotic Hydroid (Spongoxenia). Perhaps this is the same, *Stylactella abyssicola*, as occurs in the similar *Stannophyllum*. I was able to find in one specimen the hydranths and gonophores, which were not distinct in the latter (*cf.* Pl. II. fig. 7).

Xenophya.—The foreign bodies which compose the pseudo-skeleton in this species are almost exclusively siliceous shells of numerous Radiolaria and their fragments, as in the closely-allied species of *Stannophyllum* (*radiolarium* and *zonarium*). They fill up the clear maltha of the mesoderm, and are connected, and partly enclosed, by the spongin-fibrillæ (Pl. IV. figs. 2, 3, *f*).

Horny Skeleton.—The spongin-fibrillæ in this species are more like those of *Stannophyllum* and those of the Stannomidæ in general than in any other Spongelidæ hitherto known. They are very thin and of nearly equal breadth (0·003 to 0·006 mm. on an average), but they differ from the simple fibrillæ of the Stannomidæ in the numerous ramifications and anastomoses. The network thus formed includes the xenophya, and the larger Radiolarian shells are surrounded by its meshes. Smaller shells and fragments are also enclosed in the fibres, and they fill up the maltha between them (Pl. IV. fig. 2, *r*). *Psammophyllum annectens*, therefore, is a true intermediate form