

described; it differs from the others mainly in the composition of the skeleton, in which the interwoven bundles of spongin-fibrillæ predominate, whereas the inorganic xenophya are less numerous. The fibrillæ are much more fully developed than in the other species, and form strong bundles, the smaller of which are composed of ten to twenty, the larger of thirty to fifty or more, parallel fibrillæ. These are nearly equal in size, of medium thickness, their diameter being usually 0·005 mm. on an average (0·002 to 0·008 mm.). Their yellow colour effects the brown tint of the sponge, which is much darker than in the other species. The bundles of fibrillæ are interwoven and cross in all directions, forming an elastic framework, in the smaller meshes of which are imbedded the xenophya, in the larger the canal-system and its flagello-chambers (Pl. II. fig. 2). The xenophya are partly Radiolarian shells, partly fragments of *Globigerina* shells, the former usually much more numerous.

*Xenophya*.—The foreign bodies which compose the pseudo-skeleton are in *Stannophyllum zonarium* relatively less numerous than in the four other species of the genus; they are for the most part siliceous shells of Radiolaria, mainly in the distal portion of the leaf, while in the basal portion fragments of *Globigerina* shells and fine inorganic particles are intermingled.

*External Form*.—The flabelliform body of *Stannophyllum zonarium* is easily distinguished from all the other species externally in the softly coriaceous shape of the thick roundish leaf, the two faces of which exhibit sharp concentric zones, but no ribs. The basal pedicle is flat and thin, tapering towards the basal insertion, 10 to 30 mm. long., 1 to 5 mm. thick. The flat leaf is 40 to 60 mm. in diameter, and is sometimes subcircular, at other times reniform, with a flat basal excision. Its thickness is between 1 and 3 mm., usually 1·5 to 2 mm. The colour is deep brown in the wet state, yellow-brown in the dry state. The thick rounded distal margin is integral and not lobate. The two parallel surfaces of the thick leaf exhibit a most striking zonary structure. Numerous concentric deep furrows, which run parallel to the semicircular distal margin, divide both faces into zones or bands of subequal breadth (between 3 and 5 mm., usually 4 mm.). The proximal part of the concentric bands is somewhat thicker than the distal, so that they exhibit a slight imbrication. This zonary structure presents a striking similarity to that of two other flabelliform but widely remote organisms, viz., *Flustra foliacea* (Bryozoa) and *Zonaria pavonia*, Ag. *Padina pavonia*, Grev. (Fucaceæ Dictyotæ); even the breadth of the concentric zones is usually about the same.

The consistence of this species is much denser and more elastic than in any of the other species of the genus, owing to the much stronger development of the spongin-fibrillæ and the smaller quantity of imbedded xenophya. The thin dermal membrane is denser and more coherent than in the others, and the medullar substance is also more consistent. The dermal pores are very small and regular.