

quadrangular lobes and deep incisions. Surface reticular, pierced by numerous holes, very soft, without concentric zones, but with more or less distinct ribs or branched veins. Skeleton composed mainly of Radiolarian shells and siliceous sponge spicules, intermingled in the ribs with numerous *Globigerinæ*; spongin-fibrillæ thin and of nearly equal breadth, loosely interwoven.

*Stannophyllum pertusum* differs externally very strikingly from the other species of the genus by the numerous lobes of the distal margin and the holes which pierce the reniform leaf and produce its reticular appearance; these characters, however, are found less prominently in the closely-allied *Stannophyllum venosum*, with which it is connected by intermediate forms. The branched ribs of the latter species, too, are usually more or less indicated, but rarely so prominent. The shape of the two species is also similar, produced by the same composition of the skeleton. This contains a loose framework of interwoven spongin-fibrillæ of various sizes, and imbedded in its meshes a variable quantity and quality of xenophya.

*Xenophya*.—The aggregation of foreign bodies which compose the pseudo-skeleton is a variable mixture of Radiolarian remains and of *Globigerina* ooze, the latter usually predominating in the proximal portion of the leaf, its ribs and the pedicle, the former in the distal portion and in the thin lamellæ between the ribs. The numerous specimens in the Challenger collection vary a great deal in this respect; when the siliceous shells of Radiolaria are predominant, the structure of the leaf approaches that of *Stannophyllum radiolarium*; when the calcareous shells of the Foraminifera are abundant, it is more like that of *Stannophyllum globigerinum*. The spongin-fibrillæ are also very variable, thinner and finer in the former, thicker and coarser in the latter. The leaf of the latter is far more flabby, soft, and inelastic than that of the former. In some specimens a great quantity of siliceous spicules of sponges (mainly Hexactinellidæ) is embedded in the clear maltha, and these specimens are particularly flabby and easily torn.

*External Form*.—The general form of the leaf in *Stannophyllum pertusum* is kidney-shaped; its diameter is between 80 and 120 mm., but some larger specimens seem to reach 200 mm. or more, and approach near to *Stannophyllum venosum*. The semi-circular or crescentic distal margin is always lobate, with a great number (forty to sixty or more) of radial incisions, by which the rounded quadrangular lobes are separated. The irregular roundish holes which pierce the flat leaf are evidently produced by the growing together of formerly separated marginal lobes. Their size and number is very variable. Probably the approachment of divergent branches of the symbiotic reticular Hydrocaulus (*Spongoxenia*) is the first cause of this formation. The proximal margin of the leaf is integral, broadly triangular, and tapers into a slender triangular pedicle. This has a length of 30 to 50 mm., a breadth of 4 to 8 mm., and is attached by a basal plate at the bottom of the sea.