

8. *Hymenaster vicarius*, Sladen (Pl. LXXXIV. figs. 3 and 4; Pl. LXXXVI. figs. 1-3).

Hymenaster vicarius, Sladen, 1882, Journ. Linn. Soc. Lond. (Zool.), vol. xvi. p. 223.

Marginal contour subpentagonal. Interbrachial arcs well indented, the minor radius being in the proportion of 69·2 per cent. $R = 39$ mm.; $r = 27$ mm. The lateral fringe is more or less distinct, and its margin forms a line that curves outwards after passing the middle of the ray, adding greatly to the appearance of its breadth; the margin then suddenly contracts and emphasises the rapid tapering of the ray at the extremity.

The supradorsal membrane is thin and papyraceous in appearance. The muscular fibres are numerous and irregular, rather thick, closely placed, and radiate from the tips of each spinelet to those around, thus forming an interlacing web with moderately large meshes of rhomboid or quadrate form. The interspaces are filled in with transparent membrane, punctured in the centre by a spiraculum; these are moderately large, well spaced, and uniformly, though irregularly, distributed over the abactinal area. The paxillæ are numerous, and composed of four, five, or six spinelets, rather short and pointed, their tips elevating the membrane into small pointed papillæ, which are very evenly spaced over the abactinal area and appear to rise sharply from the surface, whilst their small size and comparative closeness of position give an easily recognisable character to the starfish.

The ambulacral furrows are moderately broad, lanceolate in outline, and taper rather rapidly before they reach the extremity, which is in consequence somewhat produced. The armature of the adambulacral plates consists of two rather short, cylindrical, and pointed spines, covered with an extensive investing membrane which forms an elongate sacculus at the tip, and also adds greatly to the apparent robustness of the spinelets. The aperture-papillæ are large, acumino-spatulate, wide and rotund at the base, and often contract rapidly to a point at the free extremity, or may be simply rounded.

The mouth-plates are small, elongate, narrow, keeled, and prominent aborally. Each bears two short robust secondary surface-spines, one near the adoral extremity, and the other placed more aborally near the middle of the plate. The horizontal margins of the plate falling into the actinostome are expanded into a rather wide flange, upon the edge of which are situated four or five short cylindrical mouth-spines, slightly curved and rounded at the tips, but not tapering.

The actino-lateral spines are delicate, those included within the disk being short and not reaching up to the median interradial line, but leaving a rather wide space. The longest spine is about the fifteenth from the mouth, but even these do not meet in the interbrachial arc, where a considerable amount of thickening and deformity of the membrane occurs. The tips of the spinelets are rather tapering, and not thickened or knobbed. The margin of the web is slightly thickened, not indented or festooned.