

19. *Hymenaster membranaceus*, Wyville Thomson (Pl. XCII. figs. 6 and 7; Pl. XCIII. figs. 10-12).

Hymenaster membranaceus, Wyville Thomson, 1877, Voy. of Challenger, Atlantic, vol. i. p. 108 (name only).

Hymenaster membranaceus, Sladen, 1862, Journ. Linn. Soc. Lond. (Zool.), vol. xvi. p. 237.

Marginal contour subpentagonal. Interbranchial arcs wide and flat, the minor radius in the proportion of 62 per cent. or less. $R = 35$ mm. approximately; $r = 22$ mm. Rays very narrow and tapering on their outer portions. Abactinal area almost flat. Actinal area slightly convex, but deeply incurved along the median interradial lines.

The supradorsal membrane is thin and transparent, with a great number of thin fibrous muscular bands extended between the tips of the paxillæ-spinelets, passing from one to each of those in the vicinity and crossing one another in all directions, but without merging or forming a reticulated tissue in the true sense of the word.

The tissue is semitransparent, with a few isolated spiracula here and there. The tips of the spinelets produce slight prominences, but there is no massing of the tissue or the fibres upon their extremities, which are consequently quite sharp and little conspicuous. The oscular orifice is very large, the outer or basal circumference measuring 12.5 mm. in diameter. Each valve is composed of at least ten radiating spines, their bases of articulation forming a prominent semicircular boss in each radius.

The ambulacral furrows are narrow and deep, scarcely petaloid, although much narrower near the mouth and rapidly tapering at the extremity; the adambulacral plates are high. The armature of the adambulacral plates consists of three very short, stout, slightly tapering and slightly compressed spines, placed high in the furrow, each series standing in line slightly oblique to the median line of the ray, and oblique also to the horizontal plane of the furrow, the innermost spine being highest up in the furrow and most aboral. The spines are not webbed. The aperture-papillæ are very large, and covered with widely expanded membrane, which gives them a squarely oval or subquadrate shape, often with a slight peak.

The mouth-plates are rather small, sloping upward into the mouth, their aboral extremity being tilted downward; a prominent keel occurs along the line of junction, and the internal peak is rounded and very little produced. Each mouth-plate carries two secondary or superficial spines: one short, dumpy, obtuse, compressed, standing on the surface of the plate at about one-third the distance from the adoral extremity, and directed somewhat outward and away from the mouth; the other, rather longer but much less robust, placed quite at the adoral extremity, and rather geniculated sideways; in fact this spinelet might almost be ranked as a mouth-spine proper, except that it stands at a slightly lower level and more on the plate itself. On the horizontal margin of the plate, and situated on the widely expanded lateral flange, are four or five small compressed mouth-spines, very much smaller than those just described, and similar to the spines on the adambulacral plates, only smaller in size.