

2. *Benthaster penicillatus*, Sladen (Pl. XCIV, figs. 6-9).

Benthaster penicillatus, Sladen, 1882, Journ. Linn. Soc. Lond. (Zool.), vol. xvi. p. 245.

Marginal contour stellato-pentagonoid; interbrachial arcs moderately indented and well rounded. Minor radial proportion 65.2 per cent. $R = 11.5$ mm.; $r = 7.5$ mm. The rays taper gradually, and their extremities are somewhat upturned.

The supradorsal membrane is exceedingly delicate and rudimentary, appearing little more than a thin mucous film over the interrachial areas, becoming, however, rather spongiform over the rays. The pedicles of the paxillæ are very thin and delicate, bearing a crown of extremely long, thin, needle-like spines, seven or eight times the length of the pedicle; there are about twenty spinelets in a crown on the disk, and about half that number, or less, towards the extremities of the rays. The spinelets are of the most delicate description, vitreous in appearance, trilaminar, the transverse section representing three cylindrical rods placed together, instead of three flattened laminæ, as in the preceding species. The spinelets are widened at their proximal extremity into a condyloid articulatory base, all fitting close together, and each moulded to the form of its fellows, the whole forming a compact basement to the crown. The spinelets constituting a crown expand very slightly apart, and protrude the greater portion of their length free and naked through the supradorsal membrane.

The cruciform ossicles of the abactinal surface, upon which the paxillæ are borne, are very delicate, the prolongations being attenuated to a remarkable degree, here and there almost aborted, and the central portion of the ossicle manifesting a tendency to become rotund and squamiform. This modification is so far carried out, that in the centre of the disk the whole of the abactinal surface that can be seen under the oscular orifice is simply covered with subcircular scales.

The oscular orifice is very large. The valves (or their representatives) consist of a compressed paxilla-crown composed of rather more robust spinelets than the rest. The pedicles of these modified paxillæ are very much enlarged, compressed laterally, and expanded at the top, upon which the spinelets are articulated in a more or less regular double row, the pedicles standing in the median radial line. Powerful muscular bands run between the bases of the pedicles of the valves and form a regular pentagon, near the centre of which the anal aperture is situated. Close to the periproct and less than its own breadth away is the remarkably small, round, insignificant, madreporiform body. The papulæ are simple round sacs, as broad as long, and immensely large in proportion to the pedicles by which they stand.

Supero-marginal plates are present at the extremity of the ray, and form a terminal arch or ocular guard; but they are not half the length of the similar pieces in the preceding species.

The ambulacral furrows are wide, not petaloid, and the margins of the furrow are very narrow. The armature of the adambulacral plates consists of two or three spines