

- a. Rays broad. Aperture-papillæ simple.
 1. Interbrachial arcs indented, defining broad lanceolate rays. Spiracula numerous, large and conspicuous. Spinelet-tips very prominent . . . *vicarius*.
 2. Interbrachial arcs not indented; form pentagonoid. Spiracula few, small and inconspicuous. Spinelet-tips not prominent . . . *pellucidus*.
 β. Rays attenuate. Aperture-papillæ comb-like . . . *infernalis*.
- C. Adambulacral armature consisting of three spinelets.
- a. Muscular fibrous bands close, subdiffused, coherently reticulated.
- α. Paxillæ-crowns forming definite areas in relief.
- α. Paxillar elevations closely crowded. Spiracula uniformly distributed, not in lines . . . *calatus*.
- β. Paxillar elevations widely spaced. Spiracula confined to interspaces, arranged in lines . . . *crucifer*.
- β. Paxillæ-crowns not forming definite elevated areas.
- α. Spines of the adambulacral armature partially webbed. Three pairs of secondary mouth-spines . . . *anomalus*.
- β. Spines of the adambulacral armature not webbed. Two pairs of secondary mouth-spines.
1. Meshes of supradorsal membrane irregular and not uniform. Spines of the adambulacral armature unequal . . . *latebrosus*.
 2. Meshes of supradorsal membrane small and uniform. Spines of the adambulacral armature equal . . . *porosissimus*.
- b. Muscular fibrous bands fine, definite, widely spaced, simply intercrossing.
- α. Supradorsal membrane with granular bodies . . . *graniferus*.
- β. Supradorsal membrane devoid of granular bodies.
- α. Spines of the adambulacral armature long and needle-shaped . . . *geometricus*.
- β. Spines of the adambulacral armature short and compressed.
1. Muscular fibres very numerous in supradorsal membrane. Web of the actinal floor with crossmuscular fibres. Longest actino-lateral spine the 12th . . . *pullatus*.
 2. Muscular fibres not very numerous in supradorsal membrane. No muscular fibres in the web of the actinal floor. Longest actino-lateral spine the 17th . . . *membranaceus*.
- D. Adambulacral armature consisting of more than three spinelets.
- a. Three or four spinelets in the adambulacral armature. Aperture-papillæ five to seven rayed, comb-like, large. One pair of secondary mouth-spines . . . *coccinatus*.
- b. Three to five spinelets in the adambulacral armature. Aperture-papillæ simple, small and dumpy. Two or three pairs of secondary mouth-spines . . . *præcoquis*.

1. *Hymenaster nobilis*, Wyville Thomson (Pl. LXXXVII. figs. 1-3).

Hymenaster nobilis, Wyville Thomson, 1876, Journ. Linn. Soc. Lond. (Zool.), vol. xiii. p. 73, fig. 11; Voy. of Challenger, Atlantic, vol. ii. p. 238, fig. 48.

Marginal contour pentagonal, interbrachial arcs very slightly indented, the margin forming a continuous curve of small degree from tip to tip. Rays not produced, and tapering very slightly beyond the natural angle of a pentagon. The minor radius is in