

**HYMENASTER KIERI, A NEW SPECIES OF STARFISH
OF THE FAMILY PTERASTERIDAE
(ECHINODERMATA: ASTEROIDEA)**

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Abstract.—A new starfish, *Hymenaster kieri*, is described from 2,625 m off Virginia, bringing to 12 the known Atlantic species of *Hymenaster*.

During a cruise by the Virginia Institute of Marine Science on R/V *Gillis* in November 1974, a large and handsome specimen of the starfish genus *Hymenaster* was collected in deep water off the coast of Virginia by Kathy Larson and Michael Sweeney, of the National Museum of Natural History. Specimens of *Hymenaster* are apparently widely distributed in the world's oceans, at lower bathyal and abyssal depths, but are relatively rare in collections because of the difficulties of collecting such soft-bodied animals from great depths.

Family Pterasteridae Perrier, 1875
Genus *Hymenaster* Thompson, 1873
Hymenaster kieri, new species

Type.—USNM E18204 (Holotype), 36°44'N, 73°45'W, 2,625 m.

Etymology.—This species is named in honor of Dr. Porter M. Kier on the occasion of his resignation as Director, National Museum of Natural History.

Diagnosis.—Form broadly stellate, inflated, fleshy; arms 5, broad-based, petaloid, with tips tapering rapidly to subacute point; abactinal surface with 9 regular rows of paxillae on each arm; paxillae rather small, with 3-4 basal lobes slightly flattened and truncate; pedicel short, bearing 1 very large, spike-like spine elevating a tent of dorsal membrane; interradially, a broad, bare, fleshy marginal flange; abactinal spiracles tiny, numerous, in irregular, meandering groups; centrally, 5 large valves of 10 equal, blunt spines webbed together surrounding large osculum; prominent circle of spines in groups of 3-5 outside valves; within the osculum an enormous bulbous madreporite is visible as well as a small pavement of stout, irregular, flat plates; interbranchial septae a sheet of tissue in which are embedded large flat plates which, from their shape, seem obviously derived from paxillae; actinally, ca. 45 actinolateral spines, well-spaced, not very long, broad-based, with blunt tips, the first 20-30 of nearly equal length, becoming rapidly shorter, more crowded beyond interradiial marginal flange, at arm

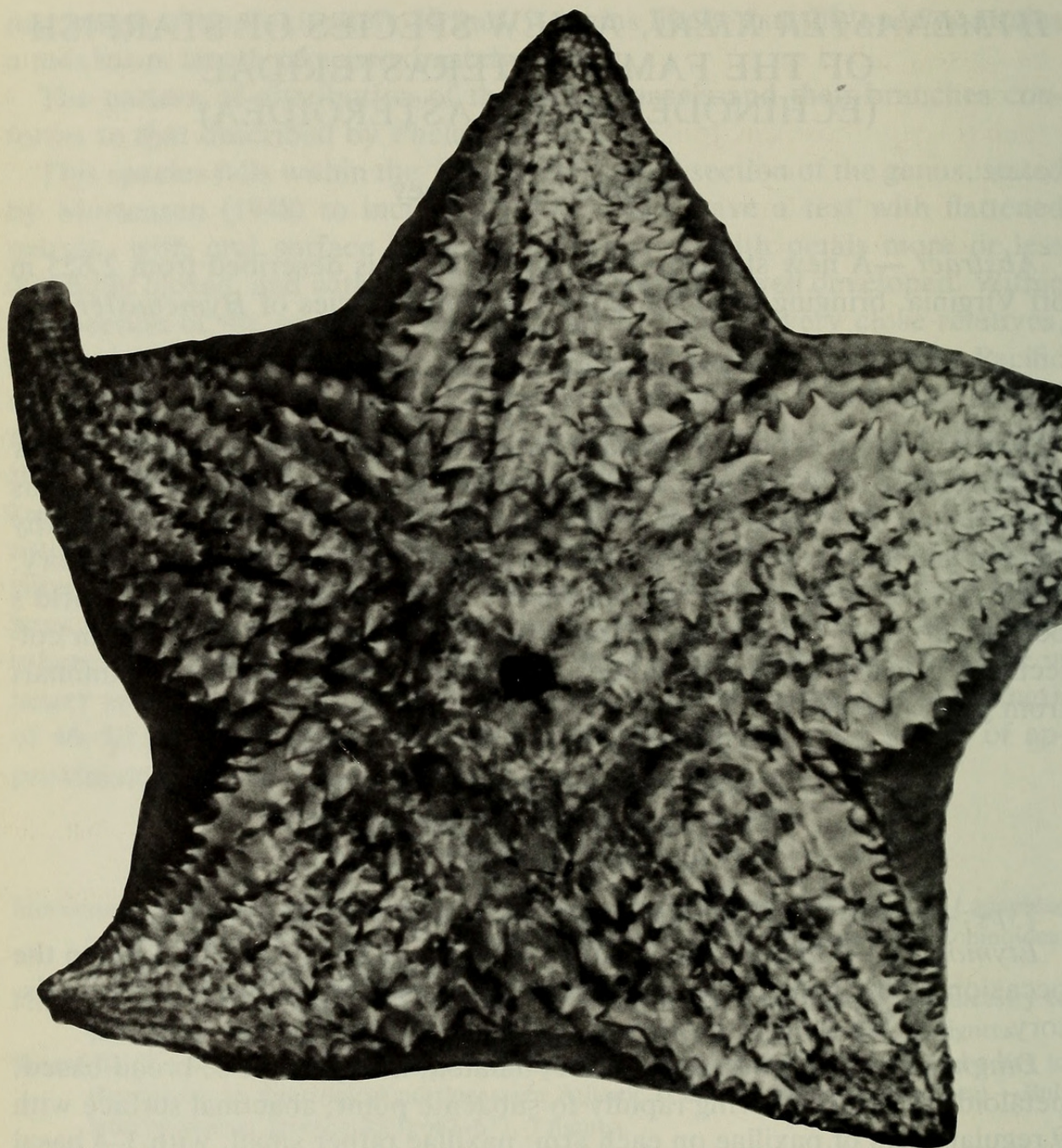


Fig. 1. *Hymenaster kieri*.

tip; these spines, embedded in actinal membrane, do not meet interradially; ambulacral grooves wide, petaloid; adambulacral plates elongate, with distal half underlying next adambulacral plate, proximal half bearing 2-3 short, stout, conical spines in oblique row, and a rounded, ridged opercular spine covering the segmental apertures; mouth plates plowshare-shaped, bearing 1 large, conical oral spine, a similar suboral spine, and 2-3 small, finer lateral spines.

$R = 130$ mm, $r = 85$ mm, $R = 1.5$.

Color: Livid pink abactinally, blood red actinally.

Discussion.—Because of its thick, fleshy tegument, this species seems to be closely allied to *Hymenaster carnosus* Sladen (1882), from the South Atlantic. It differs in having 9 regular rows of paxillae bearing one spine each (except those encircling the osculum), vs. an irregular arrangement of paxillae with an unknown number of spines; petaloid ambulacral grooves, vs. grooves of uniform width; 2–3 parallel conical adambulacral spines, vs. 2 oblique needle-like spines; adambulacral spines bare, vs. ensacculated; operculate spine covering segmental aperture, vs. fleshy pad; 2 lateral mouth spines, vs. 3 or 4; actinolateral spines approximately 45 and well-spaced, vs. 50–60 closely placed spines; spiracles very numerous, in meandering, ill-defined groups, vs. 2 or more in small round groups.

A tabular key to the Atlantic species of *Hymenaster* was published by Sibuet in 1976, and 2 new species were also added to the genus. The only comprehensive reviews of the genus were by Sladen in 1882 and 1889, in reports on the *Challenger* asteroids. Prior to the *Challenger* expedition, only 4 species of *Hymenaster* were known from the Atlantic; the *Challenger* collections added 3 new Atlantic species. With the addition of *Hymenaster kieri*, the number of *Hymenaster* species now known from the Atlantic is 12.

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