

3. *Astropecten polyacanthus*, Müller and Troschel.

*Astropecten polyacanthus*, Müller and Troschel, 1842, System der Asteriden, p. 69.

*Astropecten hystrix*, Müller and Troschel, 1842, System der Asteriden, p. 70.

*Astropecten armatus*, Müller and Troschel, 1842, System der Asteriden, p. 71.

*Astropecten vappa*, Müller and Troschel, 1843, Archiv f. Naturgesch., Jahrg. ix., Bd. i. p. 119.

*Astropecten chinensis*, Grube, 1865, Jahres-Ber. Schles. Gesellsch. f. vaterl. Cultur, p. 36.

*Astropecten ensifer*, Grube, 1865, Jahres-Ber. Schles. Gesellsch. f. vaterl. Cultur, p. 36.

*Localities*.—Port Jackson, Australia. Depth 2 to 11 fathoms, 6 to 15 fathoms.

Admiralty Islands. Depth 16 to 25 fathoms.

Yokohama, Japan. Depth 5 to 25 fathoms.

Kobé, Japan. Depth 8 to 50 fathoms.

Hong Kong. Beach.

*Remarks*.—The examples from the Admiralty Islands are remarkable for the robustness and size of the large spines on both the supero-marginal and infero-marginal plates. This is especially conspicuous in one example in which the lateral spines are unusually broad and flattened, the breadth being maintained until near the tip, when it abruptly forms a broad lancet-like point. The same example is also noteworthy from the fact that each supero-marginal plate is armed with a spine; whereas another dredged at the same time follows the usual rule in this species in having the second, or second and third, supero-marginal plates on each side of the median interradial line unarmed. These points are very interesting, but I scarcely feel justified in giving a name to the variety on the strength of the material at command. This course, however, may perhaps be found desirable in the future, when more examples from this locality are available for study.

There is a small *Astropecten* also from the Admiralty Islands, which, from having been dredged in association with the above-mentioned specimens, might not unreasonably be looked upon as the young phase of this species. I consider, however, that it is distinct, and should be referred to *Astropecten velitaris*, von Martens. The example in question, which has a major radial measurement of 11 mm., and sixteen supero-marginal plates, has only the two innermost plates in each interbrachial arc armed with spines, no trace of their presence being found on any of the others. This view is strengthened by the fact that in young examples of *Astropecten polyacanthus* from Port Jackson of even smaller size than this, the supero-marginal plates are characteristically and powerfully armed; and the characters of the paxillæ and of the spinulation of the infero-marginal plates are also different.

The type-specimen of Müller and Troschel's *Astropecten vappa* in the Berlin Museum is quite a young form and in bad condition. After the study of the large series of specimens from Australia, I have no hesitation whatever in regarding the name as a synonym of the present species, although the type-specimen could independently be scarcely held as available for specific recognition. I have also examined the types of Grube's *Astropecten chinensis* and *Astropecten ensifer* in Breslau, and I consider that both of them are with little doubt young stages of *Astropecten polyacanthus*.