

Midway between the extremities of the adambulacral plate is placed a small, thin, semicircular, scale-like papilla, with the straight base upon which it is articulated running parallel to the furrow, and having the rounded free lip directed outward. Each of these papillæ shuts down upon a small cavity or pit, the function of which is as yet unknown. The cavities are filled with very fine dark coloured matter, which may either be mud or excreted matter. I have spoken of these structures under the name of segmental pits and papillæ (*ante* p. 128; see Pl. XXVII. fig. 3).

The mouth-plates are large and prominent, the mouth-angle presenting a broad well-rounded keel. At the aboral extremity there is a graceful slope; the margins of the plate are united, and do not expose the odontophore. In the median line of the keel, however, midway between the extremities, a hollow elliptical space occurs where the margins of the plates do not meet. The adoral extremity is somewhat rounded, and a single short conical spinelet is borne at the union of the two plates, occasionally with a small secondary companion standing above it. No other mouth-spines are present on the plates. On the side of each mouth-plate two of the segmental pits and their papillæ are present; the aboral one is the larger of the two, and is placed rather nearer the aboral extremity than midway on the plate, the smaller pit and papilla being about equidistant between the adoral extremity of the mouth-plate and its larger companion. (See Pl. XXVII. fig. 2.)

The actinal interradial areas, which are very small and subtriangular, are covered with a leathery skin, through which the plating is scarcely discernible.

Colour in alcohol, yellowish grey, with a brownish shade near the disk, darkest near the borders of the area adjoining the marginal plates.

Locality.—Station 286. In the mid south Pacific, near the meridian of 135° W., approximately midway between Sydney and Valparaiso. October 16, 1875. Lat. 33° 29' 0" S., long. 133° 22' 0" W. Depth 2335 fathoms. Red clay. Bottom temperature 34°·8 Fahr.; surface temperature 63°·0 Fahr.

Remarks.—This form is distinguished from all the other species of *Porcellanaster* by its large robust rays, and by the presence of the segmental pits and papillæ. The only other species known to possess these organs has no spines on the supero-marginal plates or only rudimentary ones, whilst in *Porcellanaster crassus* each supero-marginal plate bears a thick well-developed spine.

5. *Porcellanaster gracilis*, Sladen (Pl. XXII. figs. 1-3; Pl. XXVII. figs. 5-8).

Porcellanaster gracilis, Sladen, 1883, Journ. Linn. Soc. Lond. (Zool.), vol. xvii. p. 237.

Rays five. $R = 10$ mm.; $r = 4.5$ mm. $R > 2r$.

The rays are rather long and slender, slightly tapering, and somewhat flattened. The disk is moderately high and inflated; the minor radius is in the proportion of 45