

DESCRIPTION: Largest specimen with disc diameter 9mm, arm length 52mm; smallest 3mm in disc diameter, arms 11mm in length. Central portion of disc in large specimens covered by small circular overlapping plates (Fig. 1). Toward edge of disc plates numerous, bearing small spines which tend to obscure them. At edge of disc, plates disappear and spines borne on leathery dark brown skin. Radial shields conspicuous, members of each pair separated by as many as eight polygonal platelets, which are not overlapping.

In a juvenile specimen with disc diameter of 2mm, primary embryonic plates observable in their original positions (Fig. 4). Centrodorsal and radial plates approximately of equal size, basals much smaller, appearing to have arisen later than centrodorsal and radials, becoming interpolated between them.

Ventral surface of disc with spines in interradial (Fig. 3); no plates present in ventral interradial. Ventral spines slightly larger and more scattered than dorsal spines.

Oral shields approximately rectangular in shape, broader than long. Adoral plates large, carrying lateral wings which meet in midline of each radius. Two oral papillae to each oral plate, and a single terminal infradental papilla which resembles a tooth. Oral papillae approximately rectangular, with outer edges irregular, but not serrate.

Arms widest some distance from nodes (Fig. 1). A single broad rectangular dorsal armplate, often fragmented into smaller pieces. Lateral armplates each carrying four to six short, stout and blunt arm-spines, uppermost and lowermost spines being smaller than the rest (Fig. 2). Ventral armplates elongate, rounded at their free edges (Fig. 3). Tentacle-pores large, each with a single large tentacle scale.

Colour when dried variable. Upper side of disc orange-brown to greenish-grey, mottled with darker and lighter shades. Near ambitus and below it, where scales are lacking, skin light to dark brown. Arms greenish-grey above, often with a longitudinal light orange band along each lateral margin of dorsal armplates, yellowish-white to light brown below.

REMARKS: These specimens differ slightly from those described by Farquhar (1907) and Mortensen (1924). In his description of *O. nomentis* (= *O. resiliens*) Farquhar (1907, p. 125) noted the presence of four arm-spines, and his description was based on ". . . a number of specimens". In the present material the arm-spine numbers vary considerably, there being four to six on each lateral armplate, at least half of the specimens having four arm-spines. This character is therefore not diagnostic. The adoral plates described by Farquhar and those in the present material have their inner edges bent at an obtuse angle (Fig. 3), but Mortensen's (1924) figure shows the oral plates to have an almost straight inner edge. It is doubtful whether much importance can be attached to this feature, for some of the present specimens show variation in the shape of the adoral valves. Mortensen (1924) has also described some variation in the structures on the oral side, and it seems evident that this species, though distinct from all other *Ophiactis* species, is highly variable. Variation in colour is also evident.

The radial oral plates are conspicuous in this species (Fig. 3). Fell (1963, p. 410) has commented upon the significance of these plates, suggesting that they must function as valvate structures helping to close the jaw; these plates evidently develop "as the first sign of a mid-ventral gradient. . . ."

RANGE: *Ophiactis resiliens* is known in the New Zealand region from near Cape Maria van Diemen in the extreme north of the North Island to the Snares, between the shore and 120 metres. The species is also reported from Australia, where it is ". . . a characteristic member of the temperate fauna of southern Australia" (Clark, 1946, p. 212), and from Lord Howe Island.

Class ECHINOIDEA

Pseudechinus novaezealandiae (Mortensen)

Notechinus novaezealandiae Mortensen, 1921, p. 153, figs. 6-8, Pl. 6, figs. 7-10, Pl. 8, figs. 4-5, 7-11.

MATERIAL EXAMINED: 4/2/1961, rock pool, *Durvillea* zone, 1 specimen.