

Some Off-Shore and Deep-Sea Ophiuroids from New Zealand Waters

ABSTRACT

Amphiura abernethyi sp.nov., characterized by widely separated radial shields, an almost naked adoral disc, and lateral arm-plates bearing five arm-spines, is described from material trawled in Cook Strait from 50 fathoms. *Ophiactis cuspidata* Lyman, previously known from the "Challenger" dredgings off the Kermadec Islands, is reported from the Tasman Sea, at a point 400 miles north-west of Wellington, where it was taken in 600 fathoms. *Ophiopteris antipodum* Smith is recorded from 400 fathoms, off Timaru; and *Astroporpa wilsoni* Bell from 150 fathoms, off Mercury Bay.

The genus *Amphiura* is represented in the New Zealand fauna by some fifteen species known hitherto, to which is now added a further species from littoral waters of Cook Strait. All but one of the species are endemic to the New Zealand region. Most of them are rather small forms, but three—namely, *Amphiura aster*, *A. rosca*, and *A. norac*—reach or exceed an armspread of 100 mm. Of the latter, *A. norac*, Benham (1909) has hitherto been unique in possessing an almost naked aboral disc surface, with paired tentacle scales. However, both these features prove now to be shared by another large *Amphiura* trawled by Mr. F. Abernethy in Cook Strait; the species is here described as *Amphiura abernethyi* sp.nov. The chief distinction between *A. norac* and *A. abernethyi* may be seen from the following comparisons:—

Amphiura norac

Radial shields separated by an intervening space which is but little broader than the width of one shield, and occupied by five to seven mosaic platelets.

Lateral arm-plates bearing each four arm-spines.

Amphiura abernethyi

Radial shields widely separated, the intervening space occupied by about 25 to 30 polygonal mosaic platelets of varying size.

Lateral arm-plates bearing each five arm-spines, the upper four directed outwards from the arm, the lowermost directed distally, parallel to the axis of the arm.

In addition, there are easily observable differences in the shapes of the radial shields and of the arm-plates, as can be appreciated by comparing Benham's (1909) figures with those given here. Notable is the attenuation of the proximal part of the radial shield in *Amphiura abernethyi* and the curvature of the whole plate, both features not apparent in Benham's figures of *Amphiura norac*.

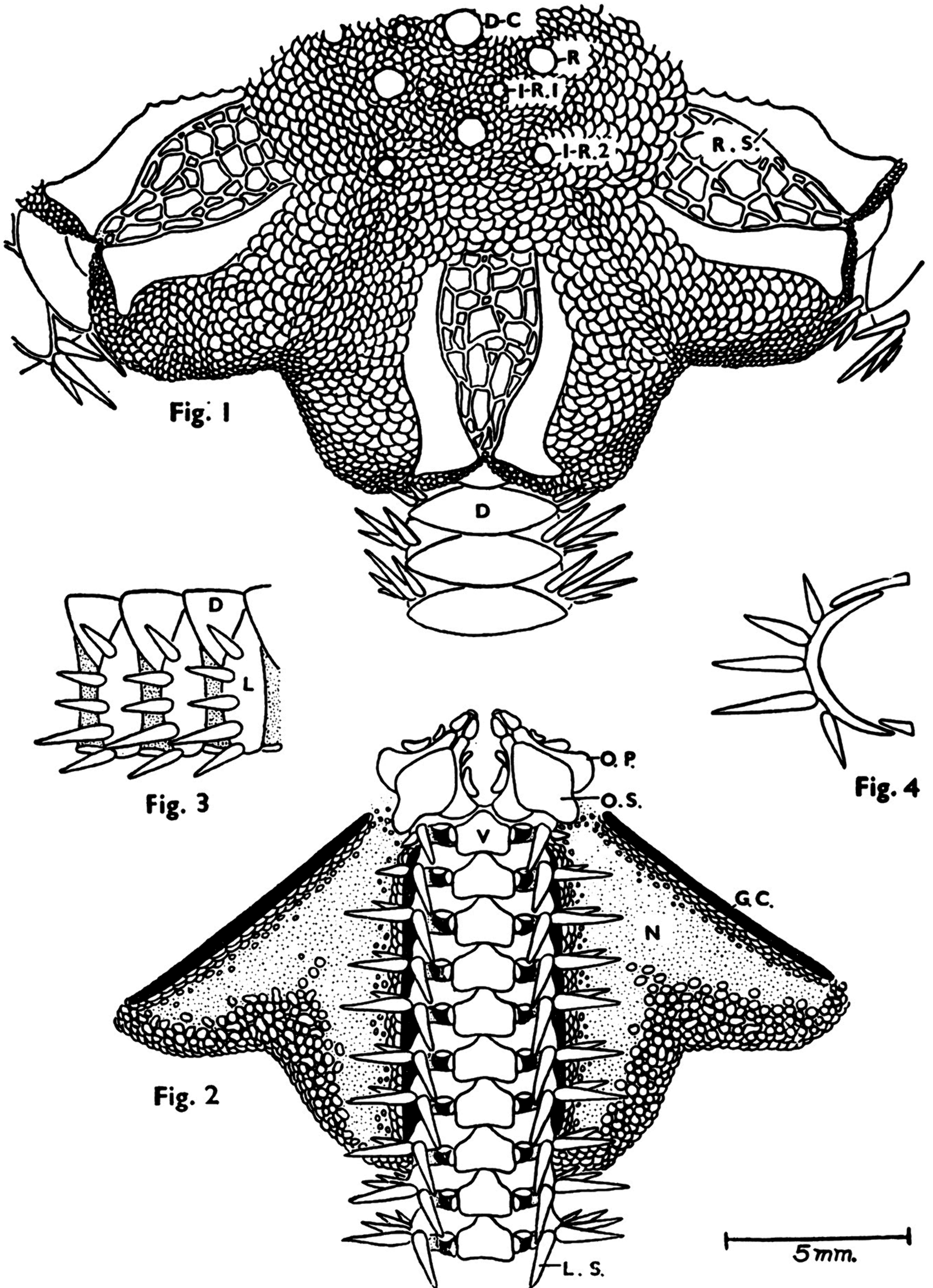
AMPHIURA Forbes 1842

Amphiura abernethyi sp. nov. (Figures 1-4.)

Dimensions.—Holotype: R, 140 mm.; r, 7 mm.; ratio R/r, 20. The dozen or so syntypes are fragmentary, but suggest that the data given for the holotype are generally true. The holotype is complete.

Colour: Bright orange in life, fading to pale grey in alcohol or after drying.

Disc: Form pentagonal, constricted in the interradii. Aboral surface covered by numerous closely imbricating small scales, among which the original embryonic



Amphiura abernethyi sp. nov.

Fig. 1: Aboral aspect. Fig. 2: Adoral aspect.

Fig. 3: Lateral aspect of arm, near base. Fig. 4: Arrangement of spines on lateral arm-plate.

Abbreviations: D, upper arm-plate. D-C, dorso-central primary plate. G.C., genital plate. I-R.1, first inter-radial primary plate. I-R.2, second inter-radial primary plate. L, lateral arm-plate. L.S., lowermost arm-spine. N, naked area of disc dermis. O.P., adoral plate. O.S., oral shield. R, radial primary plate. R.S., radial shield. V, lower arm-plate.

primary plates (the dorso-central, radials, first and second inter-radials) remain distinguishable in the central region. The primary plates are widely separated by intervening scaled areas in the adult. Radial shields prominent, about five times as long as broad, widest distally, attenuated proximally, reaching from near the periphery to a point about midway to the centre of the disc. Radial shields widely separated save at their distal extremities, the intervening area between them occupied by a mosaic of about 30 irregularly polygonal platelets, of uneven sizes, which do not imbricate. The proximal abradial borders of the radial shields are partly concealed by imbricating plates of the general disc scalation. Adoral surface incompletely scaled, the dermis being almost naked save for the peripheral part and the margins of the genital clefts. The genital clefts extend almost to the periphery of the disc. Oral shields spearhead-shaped, longer than broad, with an acute angle within. Adoral plates broader without than within, proximally contiguous. The inner and outer pairs of oral papillae larger than the intermediate pair.

Arms: Long and slender, tapering to fine extremities. Upper arm-plates elliptical, their long axes transverse, about three times as broad as long, the distal border of each slightly overlapping upon the proximal border of the next plate. The most proximal plate of the upper series reduced in size, partly obscured by the disc margin. Lateral plates meeting neither above nor below, the more proximal ones bearing five arm-spines, of which the lowermost is directed distad, parallel to the long axis of the arm, the other directed outwards, the second lowermost being the longest. Lower arm-plates five-sided, yet mainly sub-rectangular in outline, owing to the fact that the two disto-lateral angles are blunt right-angles, whilst the proximal angle is exceedingly obtuse; the distal border of each very weakly concave, and weakly imbricating over the proximal angle of the next plate. Tentacle scales two, one attached to the lower arm-plate, the other to the lateral plate.

Holotype: In the museum of the Department of Zoology, Victoria University College, Wellington.

Type Locality: Off Cape Campbell, Cook Strait, New Zealand; trawled from 50 fathoms.

It may be noted that no young were seen in the bursae of dissected specimens, so that the species may provisionally be regarded as oviparous. It seems unlikely that this species could be merely a larger form of *Amphiura norae* (as might be concluded from the fact that it has one more spine on the lateral plates, and more mosaic platelets between the radial shields); the fact that the radial shields are more slender than in the smaller *A. norae*, and the distinctive arrangement of the spines of the arm, both point to the conclusion that *A. abernethyi* is a different species. It appears to be common at the type locality, though it has not been taken at any other point. *A. norae* was originally described from off Cape Kidnappers, and has not with certainty been taken since.

***Ophiactis cuspidata* Lyman 1879**

Specimens referable to this species are in the Dominion Museum, Wellington. They were collected by Mr. W. Foster, of the C.S.S. "Recorder" in 1932, at a point 400 miles north-west of Wellington, in the Tasman Sea, at a depth of 600 fathoms. This species was originally described from material dredged by the "Challenger" from 520 to 600 fathoms, off the Kermadec Islands. It has not, apparently been since seen. Of the other five-armed species of *Ophiactis* known from New Zealand waters, all differ from the present species in so far as the latter has spines on the disc and also two or three oral papillae on either side of the jaw.

***Astroporpa wilsoni* Bell 1917**

Hitherto only the original "Terra Nova" type specimens (now in the British Museum) have been known. It is therefore of considerable interest that another specimen has come to light. It was taken by a fisherman off Mercury Bay, Coromandel Peninsula, and secured by Miss U. V. Dellow, who kindly forwarded it. It is said to have been adhering to a fishing-line and to have been brought up from 150 fathoms, a statement not inconsistent with the submarine contours off Coromandel, nor with the general abyssal facies of the genus. It was attached to a portion of gorgonid coral.*

The distinctive features of *Astroporpa wilsoni* and a key to the Gorgonocephaliidae are given elsewhere (Fell, 1949).

***Ophiopteris antipodum* E. A. Smith 1877**

A specimen of this striking species was taken in 40 fathoms, off the coast of Timaru, South Island, by Miss P. M. Ralph in February, 1951. Its distinctive feature is the possession of supplementary scale-like spines over the arm-spines. It is endemic to New Zealand, one other species being known from California. This is the most southern record, it being known previously only from Cook Strait and from Rangitoto Island. Despite its relatively wide distribution in New Zealand waters, it is nevertheless rarely seen.

REFERENCES

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- BENHAM, W. B., 1909: Echinoderma (Science Reports N.Z. Government Trawling Expedition). *Rec. Cant. Mus.*, 1 (2), 83.
- FELL, H. B., 1949: New Zealand Littoral Ophiuroids. *Tuatara* 2 (3), 122.

*Identified as *Paracis* sp., by Miss P. M. Ralph, who will be recording the specimen elsewhere.