

**NOTES ON ANIMAL ASSOCIATIONS. 4. THE STARFISH,
PENTACEROS HEDEMANNI (LUTKEN) AND THE HESIONID
POLYCHAETE, *PODARKE ANGUSTIFRONS* (GRUBE)**

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THE occurrence of commensals in echinoderms is well known and examples are too many to be listed here. Association between starfishes and polychaetes especially polynoids is common (Hyman 1955). Hesionids and syllids also have been recorded from echinoderms.

While watching some specimens in the Institute's aquarium my attention was drawn to a *Pentaceros hedemanni* harbouring in one of its ambulacral grooves a polychaete which was subsequently identified as a hesionid, *Podarke angustifrons* (Grube). The worm was found to emerge from the grooves winding its way through the podia and move about in the adambulacral region, rarely proceeding beyond the infra-ambulacral region. The starfish was attached to the vertical wall of the aquarium and though the movement of the podia did not appear to disturb the polychaete, it reacted to any outside disturbance and retreated quickly to the ambulacral groove. The accompanying photographs (Plate I) show the polychaete in natural condition. Subsequently when broken open the starfish was found to harbour in all three specimens of *P. angustifrons*. Only very few of the starfish had the commensal and usually only one was on each, and never more than three.

The polychaete when alive was pinkish brown in colour with eleven lemon yellow horizontal bands. Though it was difficult to distinguish it while resting in the ambulacral groove against the background of the pink coloured podia, the contrast was quite apparent while it came outside. It very rarely ventured to the aboral side and the tendency was to keep itself to the oral side which obviously afforded more protection to the worm. The excursions of the polychaete to outside the ambulacral groove should be for feeding purposes.

The polychaete is obviously the party more benefited by the association. It gets protection and also probably shares the food of the host. It is reported that the polynoid polychaete, *Acholoe astericola* goes to the extent of putting its head into the stomach of its host, *Astropecten irregularis*, to steal food! Whether the starfishes derive any benefit out of this association is not known, but the possibility that the worms might help to keep the ambulacral grooves of their hosts clean, cannot be ruled out.

Pentaceros hedemanni has a very wide distribution in the Indo-Pacific but so far as I know the previous record of the commensal is confined to a single specimen collected from the above host from Pamban in the Gulf of Mannar (Fauvel, 1932). The specimens of *P. hedemanni* examined by me were from the Gulf of Mannar and Palk Bay in the vicinity of Mandapam hardly a few kilometres from Pamban.

My thanks are due to Dr. E. G. Silas for drawing my attention to the presence of the polychaete on the starfish and to Mr. K. Rengarajan for its identification.

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