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 
bejond 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 possi­
bility 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 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.
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REFERENCES


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