

NOTES ON ANIMAL ASSOCIATIONS\* 1. A PORCELLANID  
CRAB ON THE SEA PEN, *PTEROEIDES ESPERI* HERKLOTS

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RECENTLY while examining a living specimen of the sea pen, *Pteroeides esperi* Herklots\*\*, brought up in a shore seine at Vedalai near Mandapam on the Gulf of Mannar, a porcellanid crab, the colour pattern of which resembled that of the host to a remarkable degree, was found sheltering between the pinnules (Plate I, fig. 1). The camouflage was so perfect that it was difficult at a casual glance to spot the crab, the general colour of which (Plate I, fig. 2 inset) was whitish as that of the sea pen while the carapace and chelipids had dark more or less symmetrically arranged spots, simulating to some extent the dark spots on the distal part and margin of the pinnules (Plate I, fig. 1 inset). Attempts to dislodge the crab automatically disturbed the sea pen which reacted immediately by shrinking. This reduced further the interspace between the pinnules, thereby affording greater protection to the crab. The crab in turn clasped firmly on to the body of the sea pen and only with considerable difficulty could it be separated without inflicting any damage. When thus separated from the host and placed in another part of the aquarium tank it moved about till it could get on the sea pen again.

The crab in question belongs to the genus *Porcellanella* White (Family Porcellanidae : Section Anomura) and does not come under the category of true crabs.† It would appear that only three species of the above have hitherto been recorded from Indian waters, *P. quadrilobata* Miers and *P. gawkari* Hornell from Alcyonarians and *P. triloba* White from Pennatula.

A number of sea pens were collected subsequently, each with one to four crabs, two being the general rule. Of these the larger sized specimens were invariably found to be berried females. The extent to which the parties are benefited by the association is not certain but there is no indication of any mutual harm. The natural movements of the crab do not appear to produce any noticeable reaction in the host. The crabs are characterised by long antennae which are constantly kept in motion and quite often the chelipids are waved to and fro, the action appearing to be deliberate. It is likely that this may be to the mutual advantage of both animals. A row of setaceous hair present in the form of a comb on the inner margin of the cheliped may help to brush off and thus keep clean the body of the sea pen of organic matter and dirt that might get entangled in it, which may also form part of

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\*It is proposed to give in this series instances of associations of a symbiotic and commensal nature found among marine forms in Indian waters.

\*\* Kindly identified by Dr. W. G. Rees of the British Museum to whom my thanks are due.

† The specimen is being studied by Mr. C. Sankarankutty one of the Research Scholars in Central Marine Fisheries Research Station.



1 & 2. Two views of *Ptenides esperi* Herkforts showing the Porcellanid crab (white arrows).  
*Right inset*: *Ptenides hispidus*; *Porcellanid crab*.  
*Left inset*: Portion of a pinnule.

the food of the crab. The third maxillipeds are also characterised by long and closely arranged plumose hairs which may help in trapping micro-organisms on which the animal feeds. So far as the crab is concerned there can hardly be a safer and more impregnable retreat than between the pinnules with their palisade of rays and battery of nematocysts on the zooids.

In the aquarium, the movement of the crab from between the pinnules of one side to the other in the fully expanded host was slow and deliberate. Occasionally it used to come out and remain on the exposed portion of the rachis or stalk. However when disturbed or alarmed, it darted between the protective cover of adjacent pinnules of one side and invariably held out the chelipeds with the pincers open (Plate 1, fig. 2).

The specimen of sea pen shown in the photograph was collected early in November 1959 and it lived for about three months in the aquarium of the Central Marine Fisheries Research Station, Mandapam Camp, along with the two crabs harboured by it.