

**ON THREE SPECIES OF PORCELLANIDS (CRUSTACEA-ANOMURA)
FROM THE GULF OF MANNAR***

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THE present report is based on a small collection of porcellanids from the Gulf of Mannar off Tuticorin and has been found to be of interest since it includes a new species and yet another species which has not so far been recorded from the coasts of Indian peninsula. All three species were found to live as commensal on coelenterates and were collected from depths ranging from 18 to 25 metres using aqualung.

Compared to the very exhaustive works on Brachyura by Alcock and by later workers, Porcellanidae has been a less known family as far as the Indian region is concerned; the contributions from India being by Henderson (1893), Southwell (1906 & 1909), Gravely (1927) and Sankarankutty (1961).

The present collection is deposited along with the reference collections of the Central Marine Fisheries Research Institute, Mandapam Camp.

Genus *Porcellanella* White

***Porcellanella baigae* sp. nov.**

(Fig. 1, a-e)

Material: Holotype—a male measuring 6.54 mm. in length and 4.36 mm. in breadth; an allotype—an ovigerous female measuring 7.33 mm. in length and 5.39 mm. in breadth.

Locality: Off Tuticorin in the Gulf of Mannar.

Description: Carapace (fig. 1, a) much longer than broad, flat, smoothly and slightly convex in either direction with transverse sinuous striae on the lateral region. Front trilobed and broad; median lobe large, conical in shape and more prominent than lateral lobes; lateral lobes also conical with straight inner border and a slightly convex outer border. Outer angle of orbit marked by a small projection; carapace widening behind this projection. Supra-antennal border straight and diverging posteriorly, its posterior limit marked by a small depression; carapace widest behind this depression. Basal antennal joint produced anteriorly as an acute projection and fuses with the lateral margin of carapace separating movable part of antenna from orbit. Antennal peduncle of three enlarged segments; first segment visible in the dorsal view of animal, second segment longer than first and

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about as long as broad, third segment smallest of the three. Basal antennular joint (fig. 1, b) armed with two small spinules on the inner side.

Chelipeds (fig. 1, c) unequal in size ; merus long, sub-cylindrical, inner border slightly sharp and serrated, upper and outer surfaces with transverse sinuous striae. Carpus long, a little flat dorso-ventrally with a fairly sharp inner distal border. Propodus lightly flattened laterally, narrow at the proximal end, wide in the middle and narrowing distally; outer border more or less carinate, clearly so proximally. Inner surface of propodus pubescent from about the middle to the finger cleft. Fingers curved at the tips, tip of dactylus not reaching to that of fixed finger ; cutting edges minutely and elegantly toothed. Smaller chela essentially like larger chela except that tip of dactylus reaching to that of fixed finger.

Walking legs (fig. 1, d) with laterally flattened merus. Propodus armed with a terminal spinule on the posterior side. Dactylus (fig. 1, e) quadriunguiculate; proximal spinule minute, third largest, fourth about as large as second.

Affinities: The author in an earlier publication (1961) has [already pointed out the distinction between the two species, *Porcellanella triloba* and *P. picta* described and illustrated by Miyake (1942 & 1943) and has mentioned that *P. triloba* represents a species not known so far. The careful examination of the new species in the present collection indicated its close resemblance to *P. triloba* described by Miyake. However, the prominently rounded nature of the frontal lobes of Miyake's species alone suggests its separation from the present species. The size of the spinules of the dactylus of walking legs and the absence of inner distal lobe on merus of cheliped form the two important characters by which the new species can easily be separated from *P. triloba* White.

The following table brings out the distinguishing features of *P. triloba* White and *P. haigae* sp. nov.

<i>Characters</i>	<i>P. haigae</i>	<i>P. triloba</i>
1. Supra-antennal border	Demarcated behind from lateral margin as a straight oblique border	Demarcated as a slightly concave margin of carapace.
2. Width of carapace	Narrower	Broader.
3. Merus of cheliped	Sub-cylindrical without distal inner lobe	With distal inner conical lobe.
4. Dactylus of walking leg	With 4 spinules, largest third from the proximal end	With 4 spinules, largest second from proximal end.

Habitat: Observed as a commensal on *Pteroides* sp.

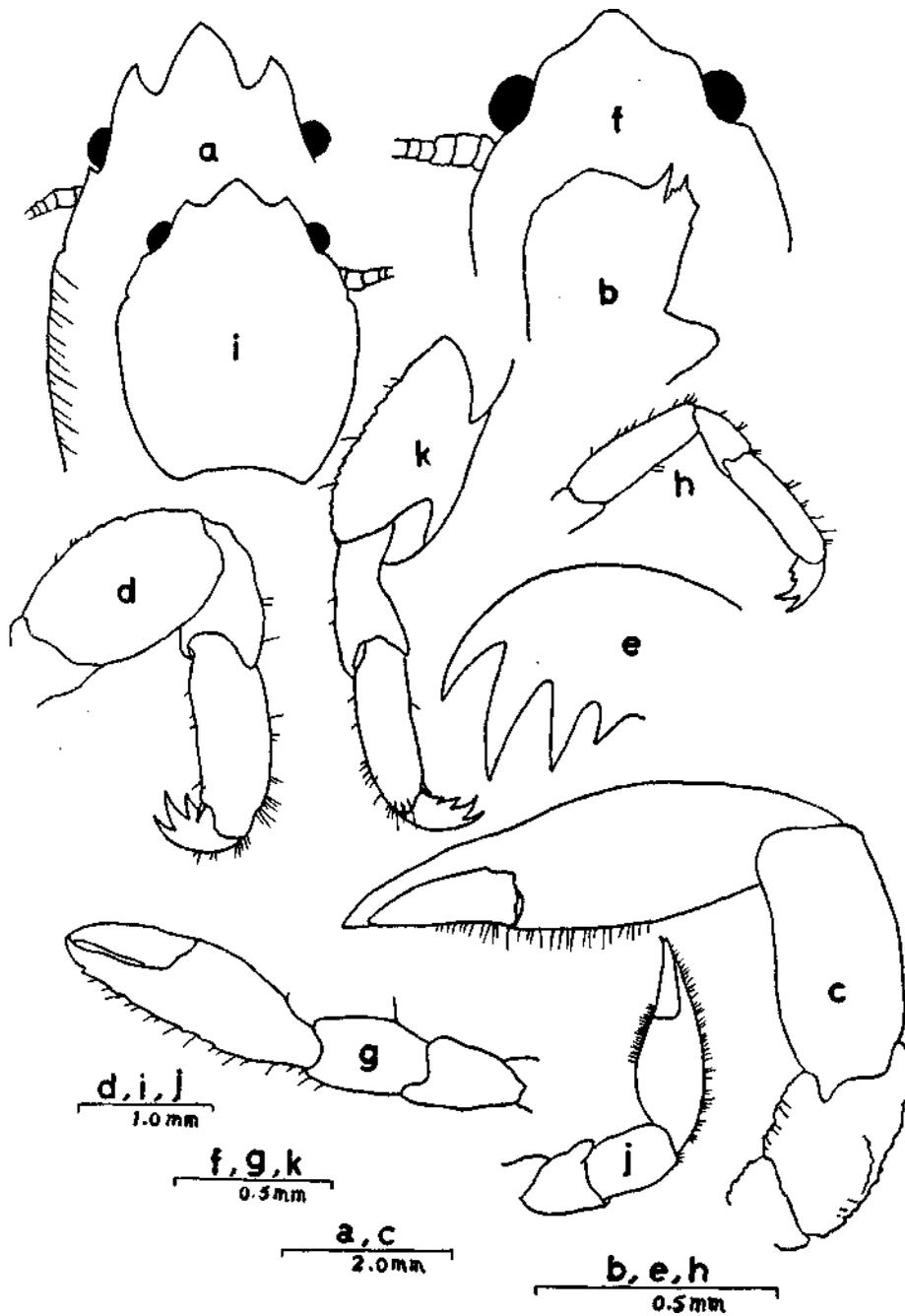


FIG. 1. a-e: *Porcellanella haigae* sp. nov., (a) Carapace of the holotype; (b) Basal antennular joint; (c) Cheliped; (d) Walking leg; (e) Dactylus of walking leg; (f-h) *Porcellanella* sp., (Juvenile 1.39 mm./1.03 mm.); (f) Carapace; (g) Cheliped; (h) walking leg; (i-k) *Porcellanella* sp., (Juvenile 2.13 mm./1.76 mm.); (i) Carapace; (j) Cheliped; (k) Walking leg.

DESCRIPTION OF TWO JUVENILES OF *PORCELLANELLA* sp.

Juvenile: (fig. 1, f-h ; measuring 1.39 mm. in length and 1.03 mm. in breadth). Carapace broad, front feebly trilobed, but not acute, lateral lobe less distinct than median. Supra-antennal border not demarkated from the lateral margin of carapace. Chelipeds equal, merus and carpus of almost same size. Walking leg slender ; merus not broad ; dactylus with four spinules, third spinule largest, first and second small.

Juvenile : (fig. 1, i-k ; measuring 2.12 mm. in length and 1.76 mm. in breadth). Carapace fairly broad ; front distinctly trilobed, though these lobes are broad and short, with acute tips. Supra-antennal border demarkated as an oblique but straight border. Chelipeds subequal, merus shorter than carpus and with an inner distal lobe. Propodus with pubescence along outer border and with fine plumose hairs on the inner side. Walking leg with broad merus ; propodus with a terminal spinule ; dactylus with four spinules, third largest, first two fairly well developed.

Remarks: The above described juveniles were collected from the same host, *Pteroides* sp. along with the type specimens of *Porcellanella haigae*. These juveniles, though found to inhabit the same host as *P. haigae*, differs in the nature of front and shape and size of various spinules on dactylus of walking leg. In addition, the larger juvenile has a distinct lobe on the inner side of merus of cheliped (in this respect agreeing with *P. triloba*). When more specimens representing a good series from juvenile to the adult stage is available, it may be possible to ascertain whether these juveniles represent the early stage of *P. haigae*.

Genus *Petrolisthes* Stimpson***Petrolisthes ohshimai*** (Miyake)

(Fig. 2, a & b)

Neopetrolisthes ohshimai Miyake, 1937, p. 34: Shika, Ishigaki-shima, Yaeyama-group, Riukiu islands ; McNeill, 1953, p. 90 : Fiji islands and Great Barrier reefs ; Holthuis, 1953, p. 49 : Marshall islands.



FIG. 2. *Petrolisthes ohshimai* (Miyake); (a) Basal antennular joint; (b) Dactylus of walking leg with part of propodus.

Petrolisthes ohshimai Johnson, 1960, p. 164 : Christmas Island ; Gordon, 1960, p. 166 : Western Australia.

Material: 4 ovigerous females and a male ; smallest ovigerous female measuring 14.0 mm. in length and 11.0 mm. in breadth.

Locality : Off Tuticorin in the Gulf of Mannar.

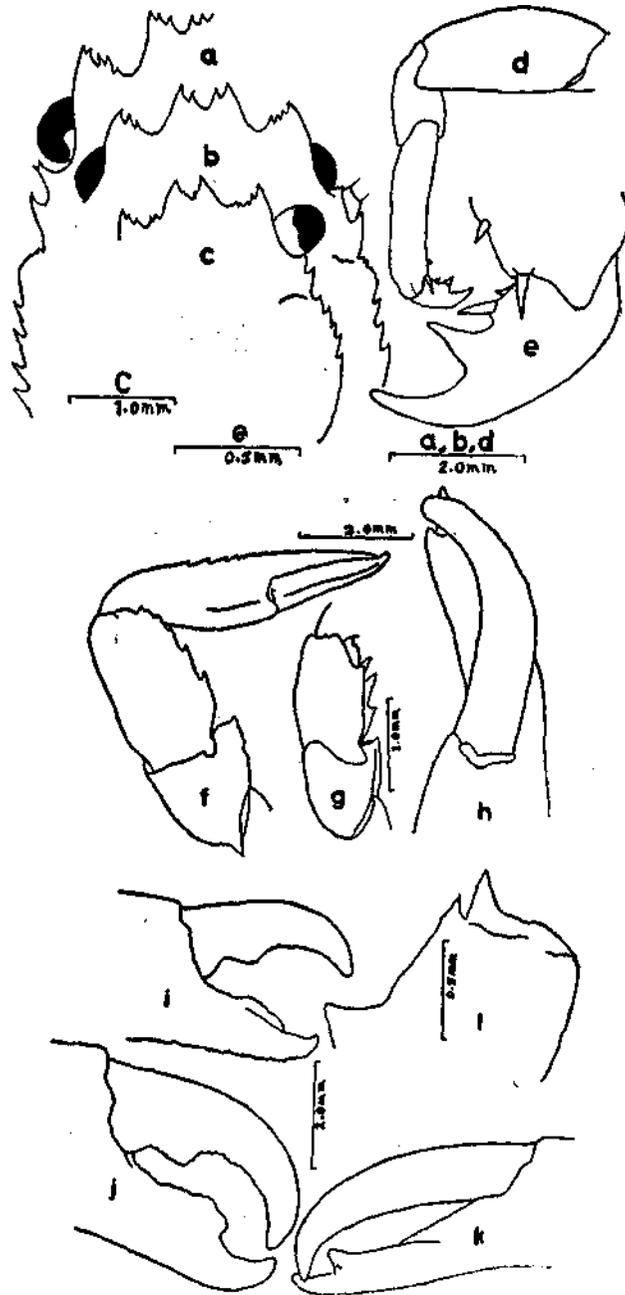


FIG. 3. *Pisidia spinulifrons* (Miers); (a-c) Carapace of different sizes; (d) Walking leg; (e) Dactylus of walking leg with part of propodus; (f) Dorsal view of cheliped; (g) Ventral view of carpus and merus of cheliped; (h) Dorsal view of dactylus of cheliped showing its twisted nature; (i-k) Cutting edges of chelipeds; (l) Basal antennular joint,

Remarks : The species was observed to live as a commensal on the giant sea-anemone, *Stoichactis* sp., at depths ranging from 17 to 25 metres; however the species appear to be rare in shallow waters since none of the sea-anemones examined in the shallower waters up to a depth of 4 metres around Mandapam in the Gulf of Mannar harboured any commensal porcellanid although most of the anemones were associated with *Periclimenes brevicarpalis* (Schenkel) or less frequently with *Amphiprion* sp.

Genus *Pisidia* Leach

Haig (1960) distinguished the genus *Pisidia* Leach from its closely related genus *Porcellana* Lamarck based on the following characters 'Lateral margins of carapace entire posterior to epibranchial angle; fingers not twisted—*Porcellana*. Lateral margins of carapace with spinules posterior to epibranchial angle; fingers twisted out of plane with palm—*Pisidia*'.

Pisidia spinulifrons (Miers)

(Fig. 3, a-1)

Porcellana spinulifrons Miers, 1879, p. 46 : Corean channel ; Gordon, 1931, p. 530 : Hong Kong.

Porcellana serratifrons Nobili, 1906, p. 75 : Persian Gulf; Southwell, 1906, p. 218 : Ceylon ; Southwell, 1909, p. III : Gulf of Kutch; Gravely, 1927, p. 141 : Krusadai Island; Barnard, 1958, p. 4 : Deloga Bay, East Africa.

Material: 5 juveniles, 7 males and 11 ovigerous and 3 non-ovigerous females; smallest ovigerous female measuring 5.0 mm. in length and 4.0 mm. in breadth.

Locality : Off Tuticorin in the Gulf of Mannar.

Remarks: The species is subject to a great deal of variation and hence detailed illustrations have been given here to help in the identification of the species.

The species was observed to be the commonest found in association with alcyonarians.

SUMMARY

The present paper deals with three species of porcellanids collected from the Gulf of Mannar, of which *Porcellanella haigae* (named after Dr. Janet Haig, Allan Hancock Foundation, California) is new to science while *Petrolisthes ohshimai* (Miyake) is reported for the first time from Indian coastal waters.

ACKNOWLEDGEMENT

I wish to acknowledge my deep sense of gratitude to Dr. S. Jones, Director, Central Marine Fisheries Research Institute, Mandapam Camp for his unfailing

interest and encouragement in ray work. My grateful thanks are also due to Dr. Janet Haig, Allan Hancock Foundation, California for all the invaluable help I received by way of providing literature, nomenclatural clarification and for reading through the paper. I am also indebted to Messrs. K. Nagappan Nayar and S. Mahadevan of Central Marine Fisheries Research Unit, Tuticorin, for their help in collecting the material while engaged in the survey of the pearl and chank beds in the Gulf of Mannar.

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* Not referred to in original.