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## HONG KONG'S PORCELLANID CRABS

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### ABSTRACT

Fifteen species of porcellanid crabs (Crustacea: Anomura: Porcellanidae) have been recorded from Hong Kong in scattered publications. In the present report they are treated together for the first time, along with five species new to the area. Synonymy, known distribution along the east Asian coast, and general distribution are given for each species, and all 20 species are illustrated.

### INTRODUCTION

The first records of Porcellanidae from Hong Kong were published by Stimpson (1858) in a preliminary report on Crustacea collected during the United States Government's North Pacific Exploring Expedition, 1853–56. Stimpson recorded nine species from the Hong Kong area, seven of them new. Most of the crustaceans from this expedition were destroyed in the Chicago fire of 1871, but syntypes of a number of decapods, including two porcellanid species from Hong Kong, are deposited in the collections of the Natural History Museum, London (Evans 1967).

The final report on the brachyuran and anomuran Crustacea of the North Pacific Exploring Expedition, originally believed to have perished along with the bulk of the collections, was found after Stimpson's death in 1872 and published in 1907 (Stimpson 1907). It includes illustrations and more detailed information on the Hong Kong porcellanid species.

Only a few authors aside from Stimpson have recorded Porcellanidae from the area. Henderson (1888), Gordon (1931), and Haig (1964; 1981) included a few Hong Kong records in more general treatments. Markham (1982), in a report on the bopyrid isopods of Hong Kong, cited three porcellanid hosts of these parasites. Morton and Morton (1983) discussed several Porcellanidae and Morton (1988) discussed two other, symbiotic, species. These authors accounted for six additional species, bringing the number known from Hong Kong to 15. Another five species, which were not previously known to occur in Hong Kong, are treated in the present report.

## MATERIALS AND METHODS

Porcellanids examined during this study were received from several sources. In 1974 Robert Wear collected Porcellanidae from various localities around Hong Kong and sent material to me for identification. John Markham provided porcellanid hosts of Bopyridae that had been collected in 1980. From the National Museum of Natural History, Smithsonian Institution I received a collection that had been sent there by Brian Morton. Professor Morton also forwarded other material to me for identification.

References cited for each species treated in the present report include those to its original description and the original descriptions of its synonyms; any that deal with material from Hong Kong; and those with good illustrations.

Examined material is deposited in the Allan Hancock Foundation, University of Southern California (AHF), The University of Hong Kong (UHK) and National Museum of Natural History, Smithsonian Institution (USNM).

## SYSTEMATICS

*Aliaporcellana* Nakasone and Miyake, 1969

*Aliaporcellana suluensis* (Dana, 1852)

(Fig. 1)

*Porcellana suluensis* Dana, 1852: 414 [type-locality Sulu Sea]. —Dana 1855: plate 26 fig. 4. —Miyake 1942: 354, figs. 15, 16. —Miyake 1943: 128, fig. 49.

*Polyonyx denticulatus* Paul'son, 1875: 89, plate 11 fig. 6 [type-locality Red Sea].

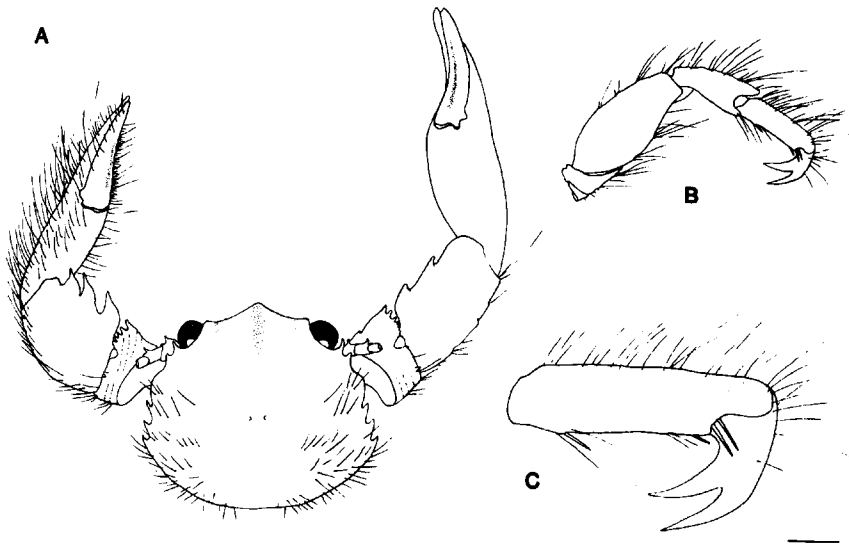


Fig. 1. *Aliaporcellana suluensis* (Dana), female. Kai Islands, Indonesia (AHF). A, carapace and chelipeds; B, right walking leg; C, propodus and dactyl of right walking leg. Scale: 40 cm for A, B; 120 cm for C.

*Polyonyx hexagonalis* Zehntner, 1894: 187, plate 8 figs. 18, 18a [type-locality Amboina, Moluccas, Indonesia].

*Polyonyx suluensis*. —Haig 1964: 373, fig. 3 [off Hong Kong]. —Lewinsohn 1969: 166, fig. 37.

*Aliaporcellana suluensis*. —Nakasone and Miyake 1969: 21, fig. 1.

*Material examined.* None.

*Remarks.* This species was recorded 8 miles from Hong Kong at 22°12' N, 114°15' E, in 26 m (Haig 1964).

*Distribution.* Formosa Strait; Hong Kong; Gulf of Thailand; Singapore. North to Kyushu, Japan, south to tropical Australia, and west to Red Sea and east coast of Africa.

*Enosteoides* Johnson, 1970  
*Enosteoides ornatus* (Stimpson, 1858)  
(Fig. 2)

*Porcellana ornata* Stimpson, 1858: 242 [type-locality Hong Kong]. —Stimpson 1907: 188 [Hong Kong]. —Gordon 1931: 526, 529, fig. 1 [Hong Kong]. —Miyake 1943: 118, figs. 42, 43. —Kim and Choe 1968: 1, fig. 1, plate 1 fig. 1. —Morton and Morton 1983: 272 (fig. 12.9:4), 274, 299, 300 (fig. 12.20:3) [Hong Kong].

*Porcellana corallicola* Haswell, 1882: 759 [type-locality Port Molle, Queensland].

*Petrolisthes? corallicola?*. —Miers 1884: 271, plate 29 fig. 3.

*Enosteoides ornatus*. —Haig 1978: 709. —Markham 1982: 329 [Breakers Reef, Mirs Bay, Hong Kong].

*Material examined.* Tai Tam Bay, 22°14'01" N, 114°13'04" E, extreme low water, under rocks, 22 May 1974, R. Wear coll.: 1 ♂, 1 ♀ (post-ovig.), USNM. —Tolo Harbour, about 2 m, from dead coral bases, March/April 1975, B. Morton coll.: 1 ♂, 1 ♀, USNM. —Breakers Reef, Mirs Bay, 18 m, from coral head, April 1980, M. Holland coll.: 1 ♂ AHF 2206-03.

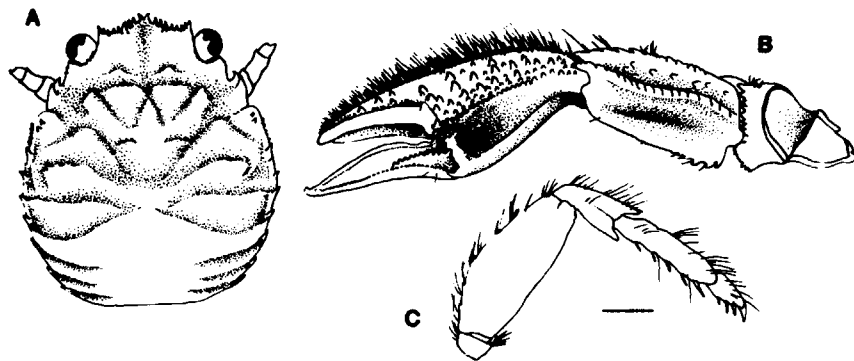


Fig. 2. *Enosteoides ornatus* (Stimpson), male. Tolo Harbour, Hong Kong (USNM). A, carapace; B, right cheliped; C, right walking leg. Scale: 40 cm.

*Remarks.* 'Adults uniform cream coloured and quite rare. Eggs orange to yellow' (R. Wear). One male from Tolo Harbour and the specimen from Breakers Reef were the hosts of bopyrids; the parasite in the latter instance was identified as *Pleurocryptosa enosteoidis* Markham (Markham 1982).

Morton and Morton (1983, 299, 300), in a discussion of the tidepool fauna at the island of Ping Chau, recorded the frequent occurrence there of *Enosteoides ornatus* sheltering beneath the circum-oral area of a sea urchin, *Acanthocidaris crassispira*. However, the illustration (fig. 12.20:3) does not accurately depict *Enosteoides ornatus* and the identity of the porcellanid associate needs confirmation.

*Distribution.* Cheju Do, Korea; China off Amoy (now Xiamen); Hong Kong; Vietnam; Gulf of Thailand; Singapore. North to Honshu, Japan, south to tropical Australia, and west to Pakistan.

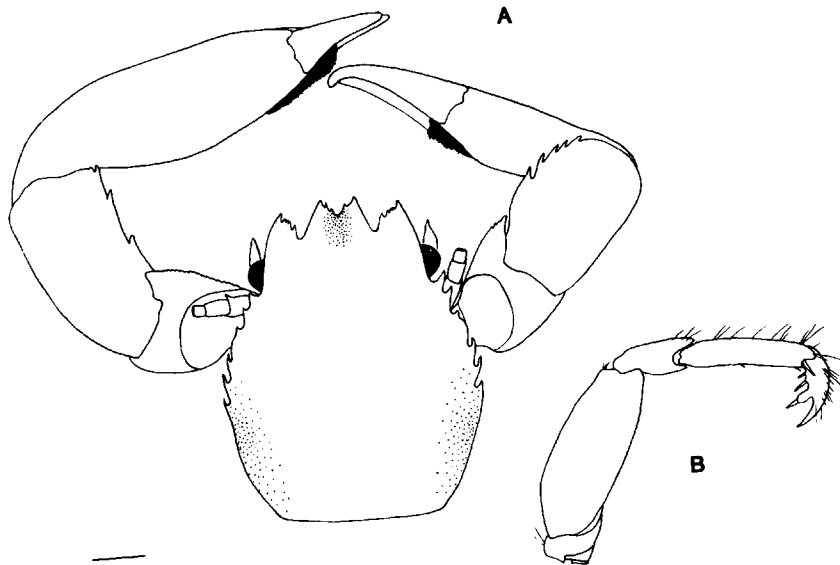
*Lissoporcellana* Haig, 1978  
*Lissoporcellana quadrilobata* (Miers, 1884)  
(Fig. 3)

*Porcellana quadrilobata* Miers, 1884: 276, plate 30 fig. D [type-locality Port Denison, Queensland].

*Porcellana gaekwari* Southwell, 1909: 112, figs. 1–3 of plate [type-locality Challai Paar, Gulf of Mannar].

*Aliaporcellana quadrilobata.* —Nakasone and Miyake 1969: 24, figs. 2, 3.

*Lissoporcellana quadrilobata.* —Haig 1978: 712. —Haig 1981: 279, fig. 2 [off Hong Kong].



**Fig. 3.** *Lissoporcellana quadrilobata* (Miers), male. Madagascar (AHF). A, carapace and chelipeds; B, right walking leg. Scale: 40 cm.

*Material examined.* None.

*Remarks.* This species was reported from the South China Sea off Hong Kong at 22°13' N, 115°04' E at a depth of 46 m (Haig 1981).

*Distribution.* East China Sea at 27°30'5" N; Formosa Strait; Hong Kong; Gulf of Tonkin; Gulf of Thailand; Singapore. South to tropical Australia and west to Red Sea and east African coast.

*Lissoporcellana spinuligera* (Dana, 1853)

(Fig. 4)

*Porcellana armata* Dana, 1852: 426 [type locality Mangsi Island, Balabac Passage north of Borneo; name preoccupied by *Porcellana armata* Gibbes, 1850 = *Petrolisthes armatus*]. —Dana 1855: plate 26 fig. 14. —Miyake 1942: 356, figs. 17–19. —Miyake 1943: 127, fig. 48.

*Porcellana spinuligera* Dana, 1853: 1595 [new name for *Porcellana armata* Dana, 1852].

*Porcellana latifrons* Stimpson, 1858: 243 [type-localities Hong Kong and Ousima Island, Ryukyu Islands]. —Stimpson 1907: 190, plate 23 fig. 4 [east side of Hong Kong].

*Pisidia spinuligera*. —Nakasone and Miyake 1968a: 101, fig. 2.

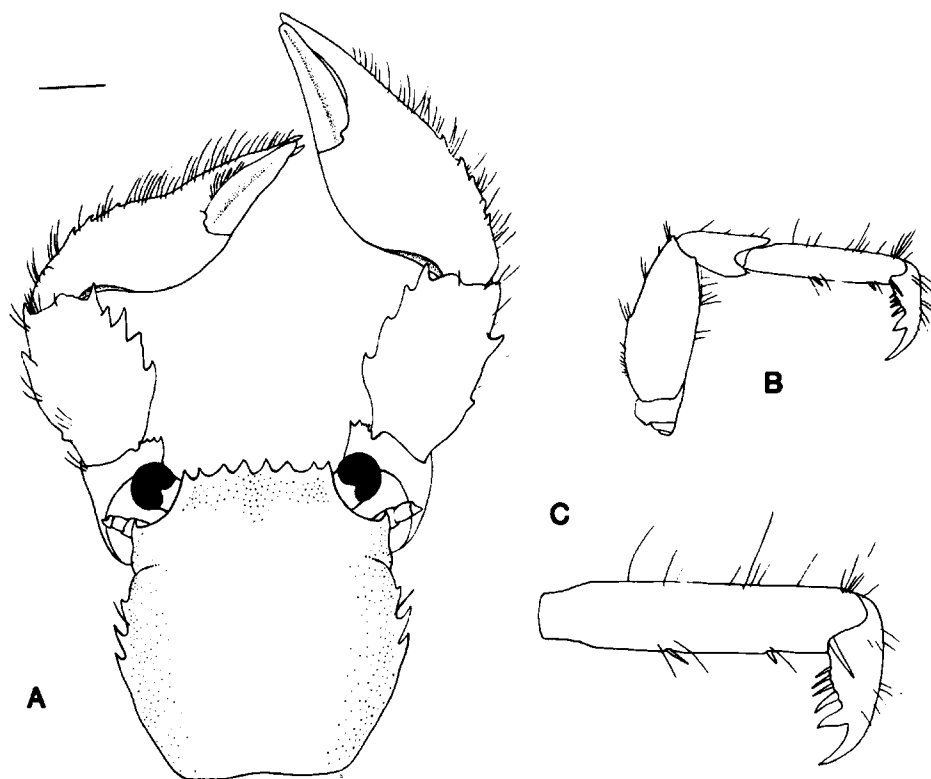
*Lissoporcellana spinuligera*. —Haig 1978: 712. —Morton 1988: 106, plate 35 [Hong Kong].

*Material examined.* West end Chik Chau, 22°30'15" N, 114°21'02" E, 5 m, in acroporan coral together with brittle stars, 28 May 1974, R. Wear coll.: 2 ♂, 3 ♀ (ovig.), 1 ♀ (post-ovig.), USNM. —Tolo Harbour, about 2 m, from dead coral bases, March/April 1975, B. Morton coll.: 1 ♂, 3 ♀, USNM.

*Remarks.* 'On madrepores taken at one fathom depth on the east side of Hongkong' (Stimpson 1907). 'Very common' (R. Wear). Morton (1988) recorded the occurrence of this porcelain crab in association with a sponge, *Sigmatocia symbiotica* Bergquist: 'As small individuals, they are found within the chambers of the host. More commonly as adults, however, they cling to the outside of the sponge, nestling within the crevices of the branches and holding on firmly.'

R. Wear provided the following colour notes from live specimens: 'Adults with abdominal segments checked with black and cream squares; carapace with similar checks across gastrohepatic region; first three leg segments similar, but propod and dactyl of cheliped unmarked as are dactyli of all other legs; propod of legs 2–4 with longitudinal black stripes; background colour dark olive green; lateral carapace spines (2) and lateral spines on palm of cheliped tipped brilliant orange-red; claws tipped black. Eggs deep pink or light red.'

*Distribution.* Hong Kong; Gulf of Thailand; Singapore. North to the Ryukyu Islands, south to tropical Australia, and east to Palau (now Belau).



**Fig. 4.** *Lissoporcellana spinuligera* (Dana), female. Tolo Harbour, HK (USNM). **A**, carapace and chelipeds; **B**, right walking leg; **C**, propodus and dactyl of right walking leg. Scale: 40 cm for **A**, **B**; about 80 cm for **C**.

*Lissoporcellana streptochiroides* (Johnson, 1970)

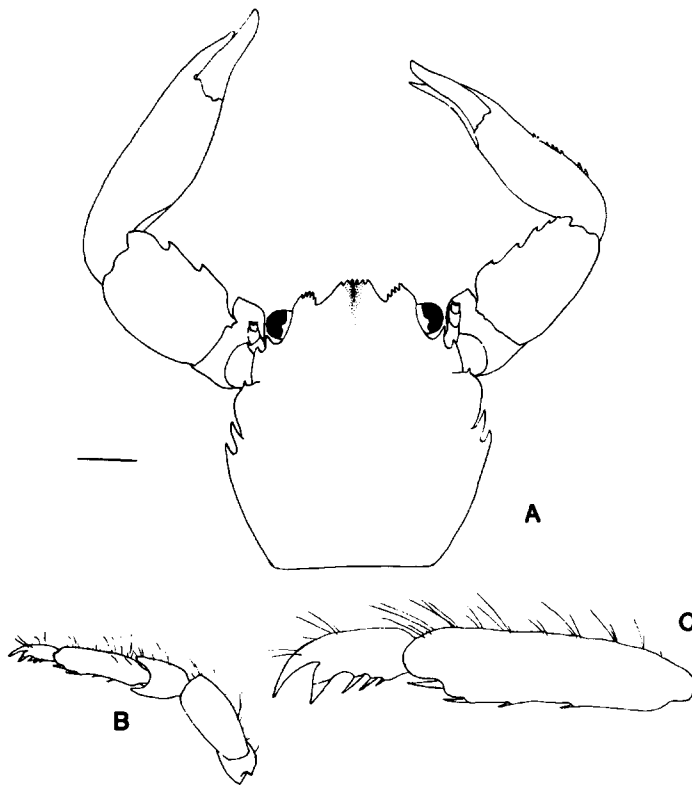
(Fig. 5)

*Porcellana* (*Porcellana*) *streptochira*. —De Man 1888: 419, plate 18 fig. 6. [Not *Porcellana streptochira* White, 1847 = *Lissoporcellana quadrilobata* (Miers, 1884)].  
*Porcellana* (*Pisidia*) *streptochiroides* Johnson, 1970: 26, fig. 3j-1 [new name for *Porcellana* (*Porcellana*) *streptochira* of De Man 1888].  
*Lissoporcellana streptochiroides*. —Haig 1978: 712. —Haig 1981: 280 [off Hong Kong].

*Material examined.* None.

*Remarks.* Haig (1981) recorded this species from three localities off Hong Kong: 22°12' N, 114°15' E in 26 m, 22°10' N, 114°30' E in 31–37 m, and 21°30' N, 113°08' E in 37 m.

*Distribution.* East China Sea at 26°42' N, 121°19' E; Formosa Strait; off Hong Kong; Singapore. South to tropical Australia and east to Philippine Islands.



**Fig. 5.** *Lissoporcellana streptochiroides* (Johnson), male. Formosa Strait (AHF). *A*, carapace and chelipeds; *B*, left walking leg; *C*, propodus and dactyl of left walking leg. Scale: 40 cm for *A*, *B*; about 120 cm for *C*.

*Pachycheles* Stimpson, 1858

*Pachycheles pectiniscarpus* Stimpson, 1858

(Fig. 6)

*Pachycheles pectiniscarpus* Stimpson, 1858: 242 [type-locality not specified]. —Stimpson 1907: 186, plate 23 fig. 5 [type-locality Ly-i-moon Passage near Hong Kong]. —Haig 1966a: 286, 291. —Markham 1982: 327 [off Bluff Island, Mirs Bay, Hong Kong].

*Material examined.* Off Bluff Island, Mirs Bay, by diving, on sponges with ophiuroids, 20 April 1980, M. Holland coll.: 1 ♂, 1 ♀ (ovig.), 2 juv., AHF 2201-01.

*Remarks.* 'Found under stones on rocky ground in the third subregion of the littoral zone, on the shore of Ly-i-moon passage, near Hongkong, China' (Stimpson 1907). The four specimens from Mirs Bay are the first to be recorded since the holotype. The female was parasitized by a bopyrid, *Pleurocryptosa megacephalon* Nierstrasz and Brender à Brandis (Markham 1982).

*Distribution.* Known only from the vicinity of Hong Kong.

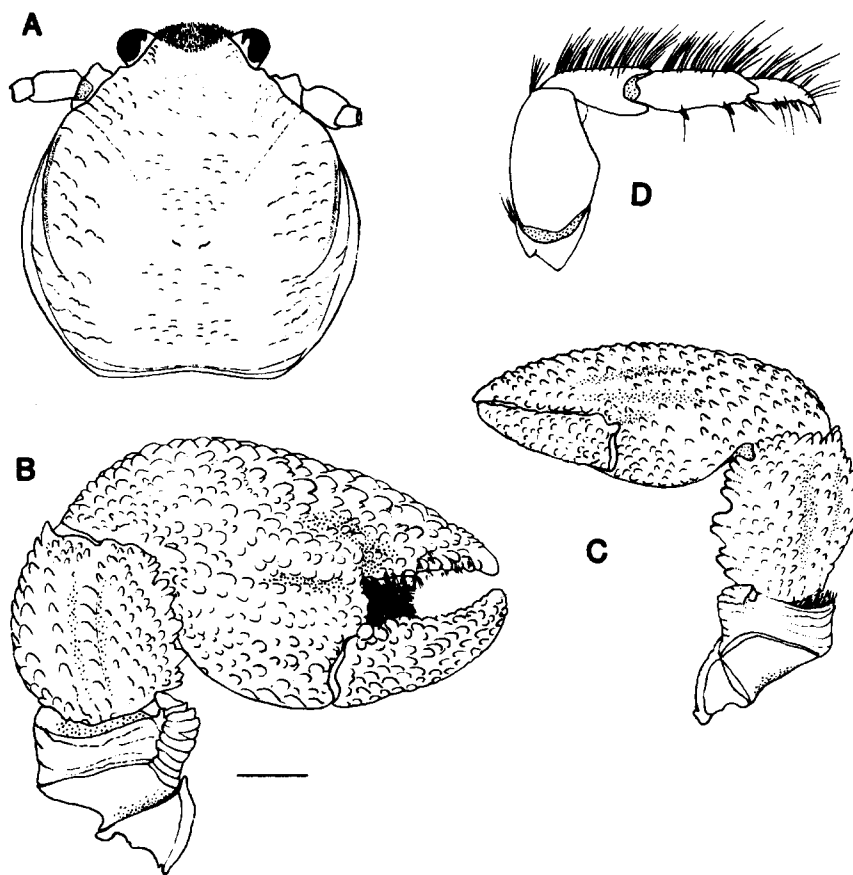


Fig. 6. *Pachycheles pectinicaпус* Stimpson, male. Bluff Island, HK (AHF). A, carapace; B, left cheliped; C, right cheliped; D, right walking leg. Scale: 32 cm.

*Pachycheles sculptus* (H. Milne Edwards, 1837)

(Fig. 7)

*Porcellana sculpta* H. Milne Edwards, 1837: 253 [type-locality Java].

*Porcellana pisum* H. Milne Edwards, 1837: 254 [type-locality seas of China].

*Porcellana pulchella* Haswell, 1882: 758 [type-localities Holborn Island and Port Molle, Queensland].

*Pachycheles pulchellus*. —Miers 1884: 273, plate 30 fig. A.

*Pachycheles sculptus*. —Haig 1964: 368. —Haig 1966b: 286, 287. —Nakasone and Miyake 1968b: 61, fig. 1, plate 5 figs. 1–3. —Markham 1982: 326 [Breakers Reef, Mirs Bay, Hong Kong]. —Morton and Morton 1983: 272 (fig. 12.9:2), 274 [Hong Kong].

*Pachycheles pisum*. —Morton and Morton 1983: 274 [Hong Kong].

*Material examined*. East Lamma Channel 200 m south of Aplei Chau, 22°15' N, 114° 09'01" E, 35 m, Agassiz trawl over rough ground, 31 May 1974, R. Wear coll.: 1 ♂, 1



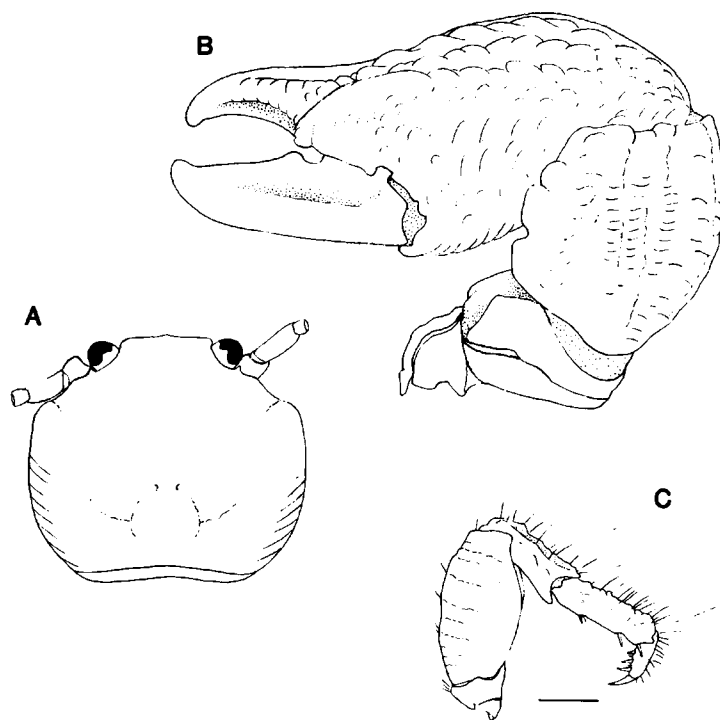


Fig. 7. *Pachycheles sculptus* (H. Milne Edwards), male. East Lamma Channel, HK (USNM). A, carapace; B, right cheliped; C, right walking leg. Scale: 30 cm.

♀ (post-ovig.), USNM. —Tolo Harbour, about 2 m, from dead coral bases, March/April 1975, B. Morton coll.: 1 ♂, 3 ♀ (2 ovig.), USNM. —Breakers Reef, Mirs Bay, 18 m, from coral head, April 1980, M. Holland coll.: 1 ♀ (ovig), AHF 2206-01.

*Remarks.* 'Animals in pairs commensal in cavernicolous sponge together with synalpheids. Adults brick red with white longitudinal stripe on carapace; claws tipped white; abdominal segments 1–3 with white patch mid-dorsally. Eggs orange' (R. Wear). 'Attractively coloured in coffee brown with a cream streak down the carapace midline' (Morton and Morton 1983). The specimen from Breakers Reef was parasitized by a bopyrid, *Parioniella astridae* Nierstrasz and Brender à Brandis (Markham 1982).

Morton and Morton (1983) remarked that *Pachycheles sculptus* lives permanently in sponge cavities in Hong Kong. Specimens inhabiting coral galleries were cited by those authors as *Pachycheles pisum*. For a discussion of variability in this species, and its complicated synonymy, see Haig (1964).

*Distribution.* China Sea (exact locality unknown); Hong Kong; Gulf of Thailand; Singapore. North to Ryukyu Islands, south to Australia, west to Seychelle Islands, and east to Tuamotu Archipelago in French Polynesia.

*Petrolisthes* Stimpson, 1858  
*Petrolisthes boscii* (Audouin, 1826)  
 (Fig. 8)

*Porcellana boscii* Audouin, 1826: 89 [type-locality Red Sea].

*Petrolisthes boscii*. —Miyake 1943: 90, figs. 23, 24. —Lewinsohn 1969: 132, fig. 27.

*Petrolisthes amakusensis* Miyake and Nakasone, 1966: 173, figs. 1–3 [type-locality Shiroiwazaki, Tomioka, Amakusa, Kyushu, Japan].

*Material examined.* Cheung Shui Tan, Tolo Harbour, 22°25'4" N, 114°12' W, intertidal, extreme low water, 24 April 1974, R. Wear coll.: 1 ♂, USNM. —Long Harbour, 22°27'35" N, 114°20'02" E, intertidal under rocks, extreme low water, 24 April 1974, R. Wear coll.: 1 ♂, 1 ♀ (post-ovig.), USNM. —Tolo Harbour, about 2 m, from dead coral base, March/April 1975, B. Morton coll.: 1 ♀, USNM.

*Remarks.* 'Adults striped and blotched red on white. A beautiful animal, quite common. Eggs red' (R. Wear). The species is reported from Hong Kong for the first time.

*Distribution.* Taiwan; Hong Kong; Gulf of Thailand. North to Honshu, Japan, south to tropical Australia, west to Persian Gulf and Red Sea, and east to Fiji Islands.

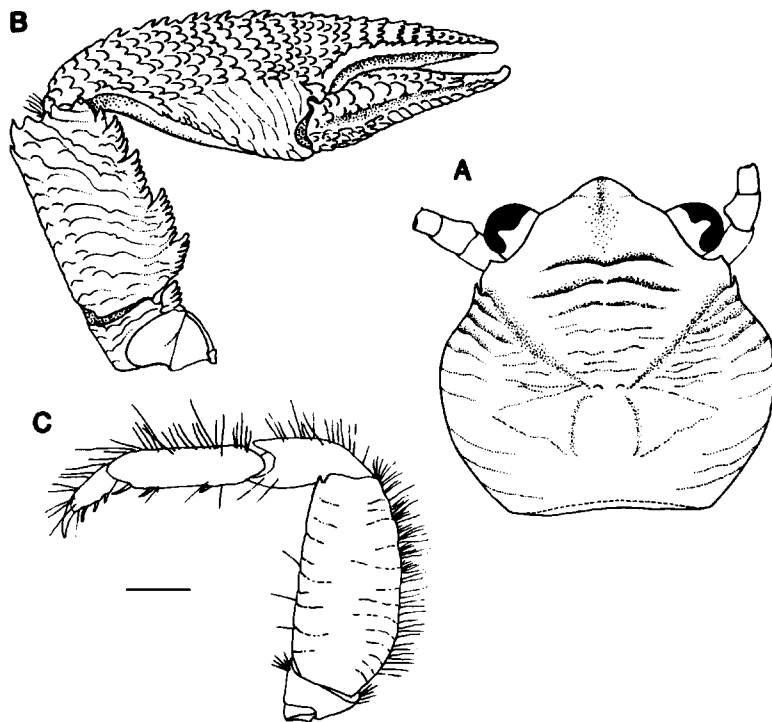


Fig. 8. *Petrolisthes boscii* (Audouin), female. Tolo Harbour, HK (USNM). A, carapace; B, left cheliped; C, left walking leg. Scale: 28 cm.

*Petrolisthes coccineus* (Owen, 1839)  
(Fig. 9)

*Porcellana coccinea* Owen, 1839: 87, plate 26 [type-locality Low (= Tuamotu) Islands].

*Petrolisthes coccineus*. —Stimpson 1858: 228. —Miyake 1943: 59, figs. 3, 4. —Morton and Morton 1983: 42, 43 (fig. 4.4:6), 274 [Hong Kong].

*Porcellana barbata* Heller, 1862: 523 [type-locality Nicobar Islands].

*Petrolisthes nipponensis* Miyake, 1937b: 213, fig. 2, plate 12 fig. 1 [type-locality Tsunashirazu, Seto, Wakayama-ken, Japan].

*Material examined.* None.

*Remarks.* Morton and Morton (1983) reported this species from the Hong Kong area, subtidally on corals and inhabiting rock crevices on exposed rocky shores. The colour of the Hong Kong specimens was dull red or rose red.

*Distribution.* Taiwan; Hong Kong. North to Honshu, Japan, south to Indonesia, west to east African coast, and east to Tuamotu Archipelago and Hawaiian Islands.

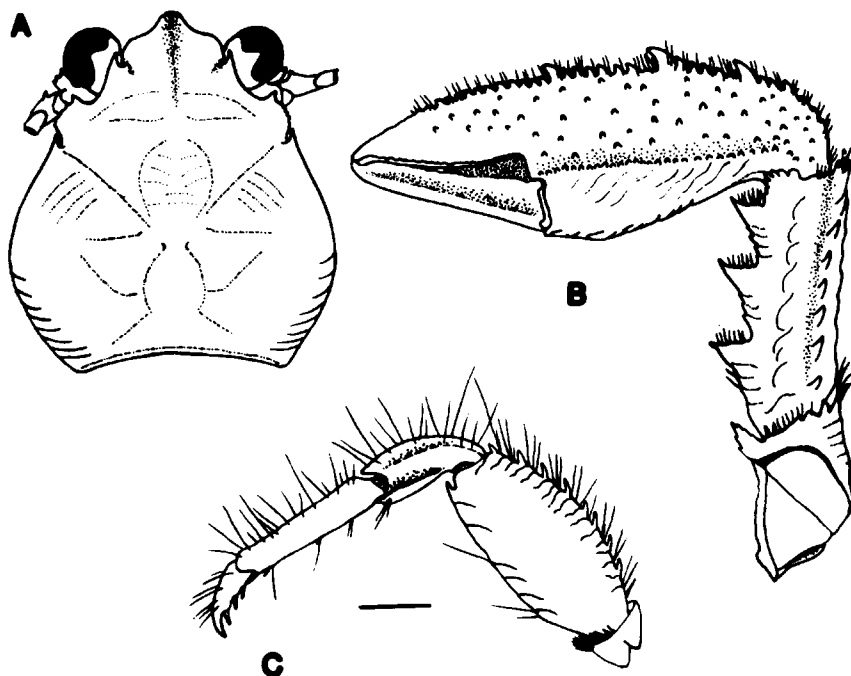


Fig. 9. *Petrolisthes coccineus* (Owen), male. Guam, Mariana Islands (AHF). A, carapace; B, right cheliped; C, left walking leg. Scale: 30 cm.

*Petrolisthes japonicus* (De Haan, 1849)  
(Fig. 10)

*Porcellana japonica* De Haan, 1849: 199, plate 50 fig. 5 [type locality Japan].

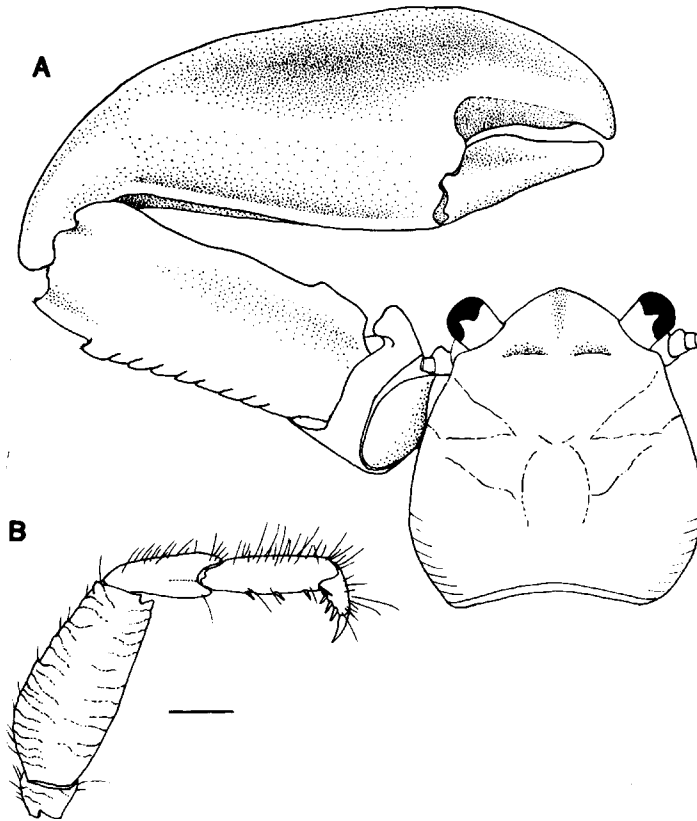
*Petrolisthes japonicus*. —Stimpson 1858: 241. —Stimpson 1907: 184 [Hong Kong]. —

Miyake 1943: 72, figs. 11–13. —Morton and Morton 1983: 92 (fig. 7.3:4), 95, 109 (fig. 7.10), 110 [Hong Kong].

*Material examined.* Cheung Shui Tan, Tolo Harbour, 22°25'04" N, 114°12' E, extreme low water, under rocks, 3 April 1974, R. Wear coll.: 1 ♀ (post-ovig.), USNM. —Same locality and habitat, 23 April 1974, R. Wear coll.: 1 ♂, 1 ♀ (post-ovig.), USNM.

*Remarks.* 'A common local species on cobble beaches ... dull grey with the under-parts of the chelae pink' (Morton and Morton 1983). 'Eggs purple' (R. Wear).

*Distribution.* Yellow Sea, Cheju Do and Korea Strait, Korea; Hong Kong. North to Honshu, Japan, thence south to Tokara, Ryukyu, and Ogasawara islands.



**Fig. 10.** *Petrolisthes japonicus* (De Haan), male. Tolo Harbour, HK (USNM). A, carapace and left cheliped; B, right walking leg. Scale: 30 cm.

*Petrolisthes lamarckii* (Leach, 1820)

(Fig. 11)

*Pisidia Lamarckii* Leach, 1820: 54 [type-locality not specified].*Porcellana dentata* H. Milne Edwards, 1837: 251 [type locality Java].*Porcellana lamarckii*. —White 1847: 63 [type-locality New Holland = Australia].*Porcellana speciosa* Dana, 1852: 417 [type-localities Drummond Island, Kingsmills Group; Wake Island; Mangsi Islands, Philippines; Raraka, Tuamotu Archipelago]. —Dana 1855: plate 26 fig. 8.*Petrolisthes speciosus*. —Stimpson 1858: 241 [Hong Kong]. —Stimpson 1907: 182, plate 22 fig. 2 [outer shore of Hong Kong Island].*Petrolisthes lamarcki*. —Gordon 1931: 526 [Hong Kong].*Petrolisthes obtusifrons* Miyake, 1937a: 155, 1 fig. [type-locality Shika, Ishigaki-shima, Yaeyama Group, Ryukyu Islands].*Petrolisthes lamarckii*. —Miyake 1942: 342, figs. 7, 8. —Miyake 1943: 98, fig. 29. —Yang 1983: 3, plate 4.

*Material examined.* Cheung Shui Tan, Tolo Harbour, 22°25'04" N, 114°12' W, extreme low water, under rocks, 24 April 1974, R. Wear coll.: 1 ♂, USNM. —Tai Tam Bay, 22°14'01" N, 114°13'04" E, extreme low water, under rocks, 22 May 1974, R. Wear coll.: 1 ♂, 1 ♀ (ovig.), USNM.

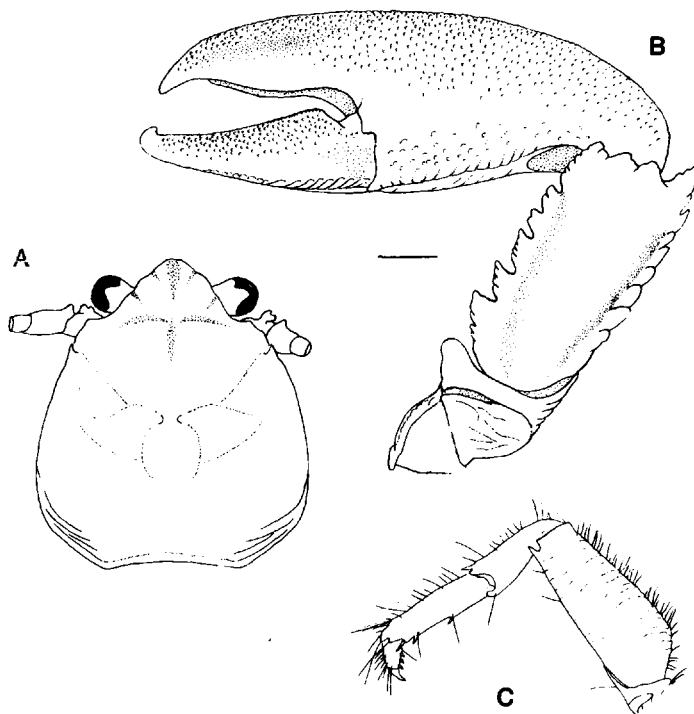


Fig. 11. *Petrolisthes lamarckii* (Leach), male. Tai Tam Bay, HK (USNM). A, carapace; B, right cheliped; C, left walking leg. Scale: 14 cm.

*Remarks.* 'Common in Tolo Harbour' (R. Wear).

*Distribution.* Taiwan; Hong Kong; Xisha Islands; Singapore. North to Kyushu, Japan, south to Australia, west to the east African coast, and east to the Line Islands and Tuamotu Archipelago.

*Petrolisthes militaris* (Heller, 1862)  
(Fig. 12)

*Porcellana annulipes* White, 1847: 63 [*nomen nudum*; type-locality Corregidor, Philippine Islands].

*Porcellana militaris* Heller, 1862: 523 [type-locality Nicobar Islands].

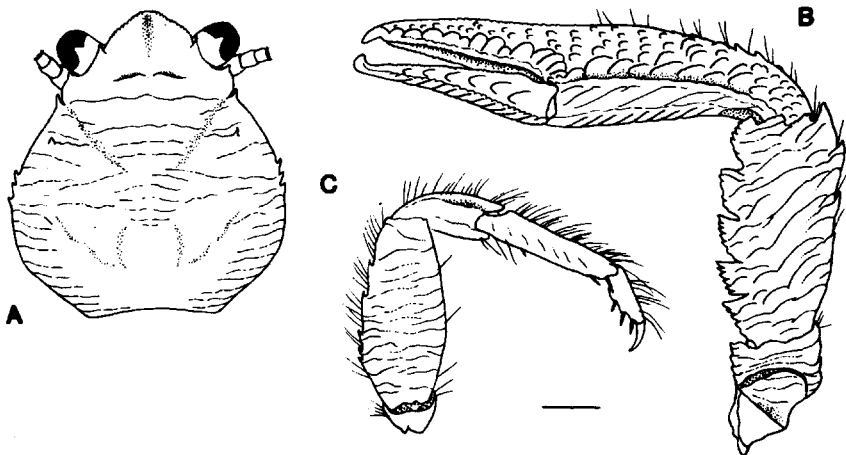
*Petrolisthes annulipes*. —Miers 1884: 270, plate 29 fig. B.

*Petrolisthes militaris*. —Miyake 1943: 56, figs. 1, 2. —Haig 1964: 357, fig. 1. —Yang 1983: 1, plate 1.

*Material examined.* Tolo Harbour, about 2 m, from dead coral bases, March/April 1975, B. Morton coll.: 2 ♂, 1 ♀, USNM.

*Remarks.* This species occupies a broad bathymetric range, from the subtidal to about 180 m. It was not previously recorded from Hong Kong.

*Distribution.* East China Sea at 26°30' N, 121°10' E and 26°10' N, 121°00' E; Formosa Strait at 23°34'42" N, 119°49'04" E and 23°08' N, 117°30' E; Namoa Island; Hong Kong; South China Sea at 20°42' N, 113°26' E; Xisha Islands. North to Tsugaru Strait, Japan, south to tropical Australia, west to east African coast, and east to New Caledonia.



**Fig. 12.** *Petrolisthes militaris* (Heller), male. Tolo Harbour, HK (USNM). A, carapace; B, right cheliped; C, right walking leg. Scale: 30 cm.

*Pisidia* Leach, 1820  
*Pisidia dispar* (Stimpson, 1858)  
 (Fig. 13)

*Porcellana dispar* Stimpson, 1858: 242 [type-locality Port Jackson, Australia]. —Miers 1884: 275, plate 30 fig. C. —Stimpson 1907: 190, plate 23 fig. 3.

*Porcellana rostrata* Baker, 1905: 260, plate 35 figs. 1, 1a, b [type-locality Investigator Straits, South Australia].

*Pisidia dispar*. —Nakasone and Miyake 1968a: 97, fig. 1.

? *Enosteoides variabilis* Yang and Sun, 1985: 150, figs. 1–4 [type-locality Weizhou Island, Gulf of Tonkin].

*Material examined.* Tolo Harbour, about 2 m, from dead coral base, March/April 1975, B. Morton coll.: 1 ♂, USNM. —Breakers Reef, about 10–15 m, with crinoid, 16 April 1989, divers coll.: 1 specimen, UHK.

*Remarks.* This species is recorded from Hong Kong for the first time. The specimen from Breakers Reef was apparently using the crinoid as a shelter, and no symbiotic association was involved (Morton and Mladenov 1992). This is also true of the specimens of *Pisidia serratifrons* (Stimpson) that were taken with *P. dispar*. The crinoid was *Tropiometra afra-macrodiscus* Hara.

*Distribution.* Hong Kong; ? Gulf of Tonkin. North to Honshu, Japan, south to Australia, and east to the Fiji Islands.

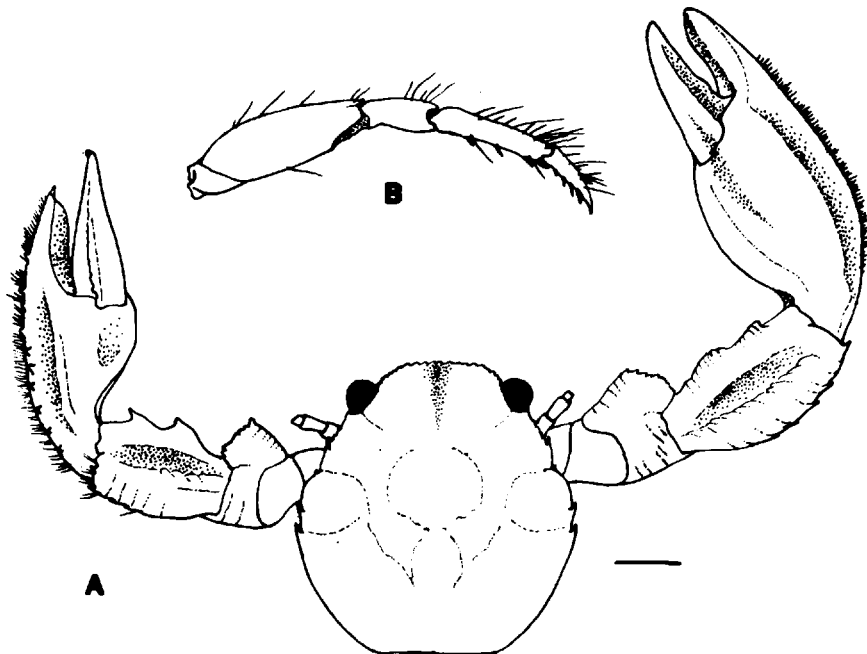


Fig. 13. *Pisidia dispar* (Stimpson), male. Tolo Harbour, HK (USNM). A, carapace and chelipeds; B, right walking leg. Scale: 60 cm.

*Pisidia gordoni* (Johnson, 1970)  
(Fig. 14)

*Porcellana spinulifrons*. —Gordon 1931: 526, 530 [in part: Hong Kong], figs. 4C, 5.

[Not *Porcellana spinulifrons* Miers, 1879 = *Pisidia serratifrons* (Stimpson, 1858).]

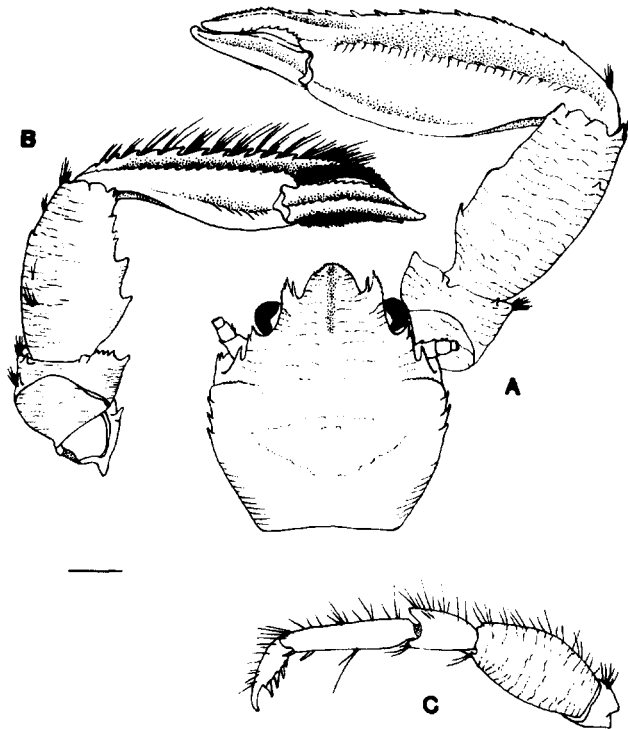
*Porcellana (Pisidia) gordoni* Johnson, 1970: 29, fig. 3m-p [type-locality Nanas Channel north of Pulau Ubin, Singapore].

*Pisidia gordoni*. —Haig 1973: 283.

*Material examined*. Centre Island, Tolo Harbour, 22°26'45" N, 114°13'02" E, extreme low water, under rock covered in mussels, sponges and Bryozoa, 26 April 1974, R. Wear coll.: 1 ♂, 1 ♀ (post-ovig.), USNM. —Tai Tam Bay, 22°14'01" N, 114°13'04" E, extreme low water, beneath silt and mud-covered rocks and among ascidians and rock oysters, 21 May 1974, R. Wear coll.: 1 ♀ (post-ovig), USNM. —Tolo Harbour, about 2 m, from dead coral bases, March/April 1975, B. Morton coll.: 3 ♂, USNM.

*Remarks*. 'Adults gray-green. Eggs light cream coloured' (R. Wear).

*Distribution*. Hong Kong; Gulf of Thailand; Singapore. South to tropical Australia and west to Persian Gulf, Red Sea and east African coast.



**Fig. 14.** *Pisidia gordoni* (Johnson), male. Tolo Harbour, HK (USNM). A, carapace and right cheliped; B, left cheliped; C, left walking leg. Scale: 40 cm.



*Pisidia serratifrons* (Stimpson, 1858)  
(Fig. 15)

*Porcellana serratifrons* Stimpson, 1858: 242 [type-locality Hong Kong]. —Stimpson 1907: 189, plate 23 fig. 2 [Hong Kong Harbour]. —Henderson 1888: 110, plate 11 figs. 5, 5a [Hong Kong]. —Gordon 1931: 526, 530, fig. 6. —Miyake 1943: 121, figs. 44, 45.  
*Porcellana spinulifrons* Miers, 1879: 21, 46 [type-locality 'Korean Channel' = Korea Strait]. —Gordon 1931: 526, 530 [in part: Hong Kong], figs. 4A, B.  
*Pisidia serratifrons*. —Haig 1981: 277.

*Material examined.* Tai Tam Bay, 22°14'01" N, 114°13'04" E, extreme low water, beneath silt and mud-covered rocks and among ascidians and rock oysters, 21 May 1974, R. Wear coll.: 1 ♂, 1 ♀ (post-ovig.), USNM. —Tolo Harbour, about 2 m, from dead coral base, March/April 1975, B. Morton coll.: 1 ♂, USNM. —Breakers Reef, about 10–15 m, sheltering under crinoids, *Tropiometra afra-macrodiscus*, 16 April 1989, divers coll.: several specimens, UHK. —Lighthouse south of Chek Chau, about 10–15 m, sheltering under *Tropiometra afra-macrodiscus*, 22 April 1989, divers coll.: 2 specimens, UHK (Morton and Mladenov 1992).

*Remarks.* 'Dredged in the circumlittoral zone in the harbor of Hongkong' (Stimpson 1907).

*Distribution.* Korea, Yellow Sea and Korea Strait; China, Pei-tai-ho, East China Sea at 28°38' N, 122°25' E, Formosa Strait from 25°50' N, 120°04' E to 23°57' N, 118°33' E, off Amoy (now Xiamen), South China Sea at 23°15' N, 117°40' E and 23°08' N, 117°30' E; Hong Kong. Honshu south to Kyushu, Japan.

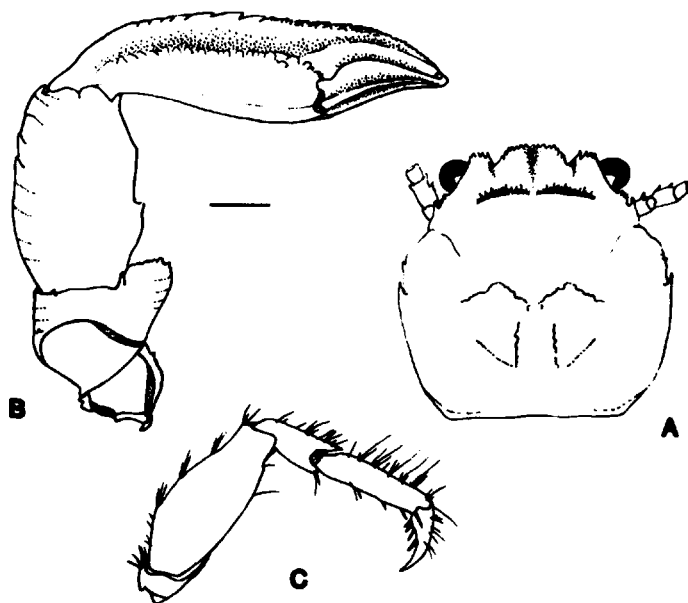


Fig. 15. *Pisidia serratifrons* (Stimpson), male. Tolo Harbour, HK (USNM). A, carapace; B, left cheliped; C, right walking leg. Scale: 30 cm.

*Polyonyx* Stimpson, 1858  
*Polyonyx biunguiculatus* (Dana, 1852)  
 (Fig. 16)

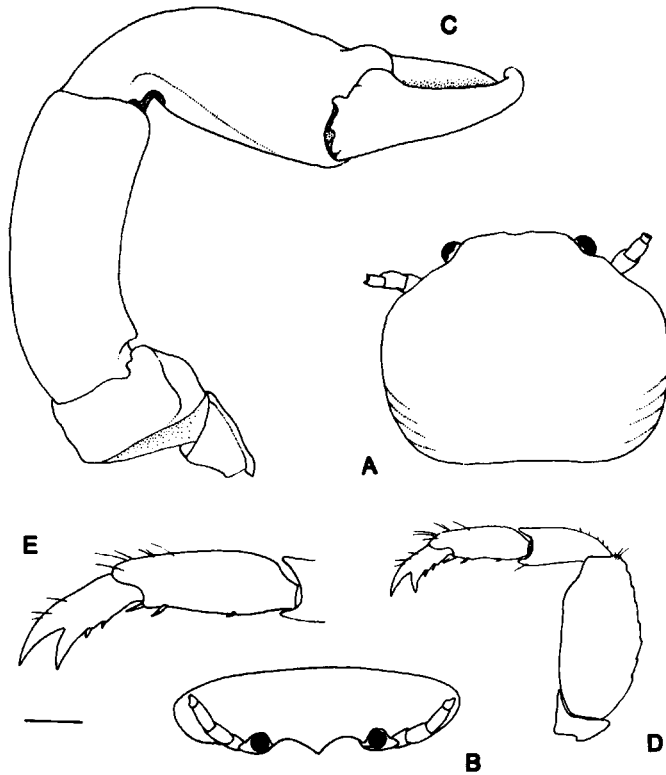
*Porcellana biunguiculata* Dana, 1852: 411 [type-locality not specified]. —Dana 1855: plate 26 fig. 1a–d.

*Polyonyx biunguiculatus*. —Miyake 1942: 371, figs. 30–32. —Miyake 1943: 144, fig. 60. —Johnson 1958: 105, fig. 3.

*Material examined*. West end of Tap Mun, 22°28'85" N, 114°21' E, 3.6 m, in caverniculous soft yellow sponge deep down in dead coral crevice, crabs occurring in pairs, 11 June 1974, R. Wear coll.: 1 ♂, 1 ♀ (post-ovig.), USNM.

*Remarks*. 'Eggs dull red' (R. Wear). This is the first recorded occurrence of *Polyonyx biunguiculatus* in Hong Kong.

*Distribution*. Formosa Strait at 25°28' N, 120°29' E; Hong Kong; Gulf of Thailand; Singapore. South and east to tropical Australia and west to Seychelles.



**Fig. 16.** *Polyonyx biunguiculatus* (Dana), male. West end Tap Mun, HK (USNM). A, carapace; B, carapace, frontal view; C, left cheliped; D, left walking leg; E, propodus and dactyl of left walking leg. Scale: 40 cm for A–D; 80 cm for E.

*Polyonyx obesulus* Miers, 1884  
(Fig. 17)

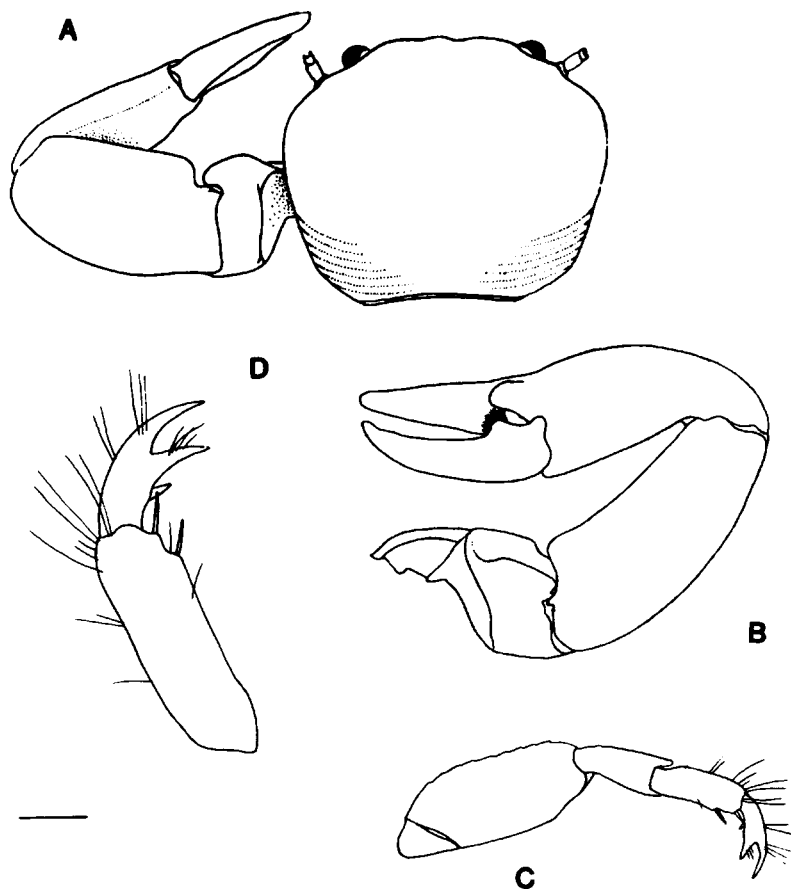
*Porcellana obesula* White, 1847: 130 [*nomen nudum*; type-locality Madgica-Sima (= Sakishima) Islands, Ryukyu Islands].

*Polyonyx obesulus* Miers, 1884: 272, plate 29 fig. D. —Southwell 1909: 116, fig. 5 of plate. —Johnson 1958: 108, fig. 4.

*Porcellana (Polyonyx) tuberculosa* De Man, 1888: 424, plate 19 fig. 1 [type-locality Amboina, Moluccas, Indonesia].

*Polyonyx parvidens* Nobili, 1905: 161 [type-locality Persian Gulf].

*Material examined.* Tolo Harbour, about 2 m, from dead coral bases, March/April 1975, B. Morton coll.: 2 ♂, 1 ♀, USNM.



**Fig. 17.** *Polyonyx obesulus* Miers, male. Tolo Harbour, HK (USNM). A, carapace and left cheliped; B, right cheliped; C, right walking leg; D, propodus and dactyl of right walking leg. Scale: 40 cm for A–C; 80 cm for D.

*Remarks.* Although Johnson (1958) stated that the Madgica-Sima (Sakishima) Islands, the type-locality of *Polyonyx obesulus*, are in the South China Sea, they are in fact east of Taiwan at the southern end of the Ryukyu Islands chain. *P. obesulus* was not reported previously from Hong Kong.

*Distribution.* Hong Kong; Gulf of Thailand; Singapore. North and east to Sakishima Islands, south to tropical Australia, and west to Persian Gulf.

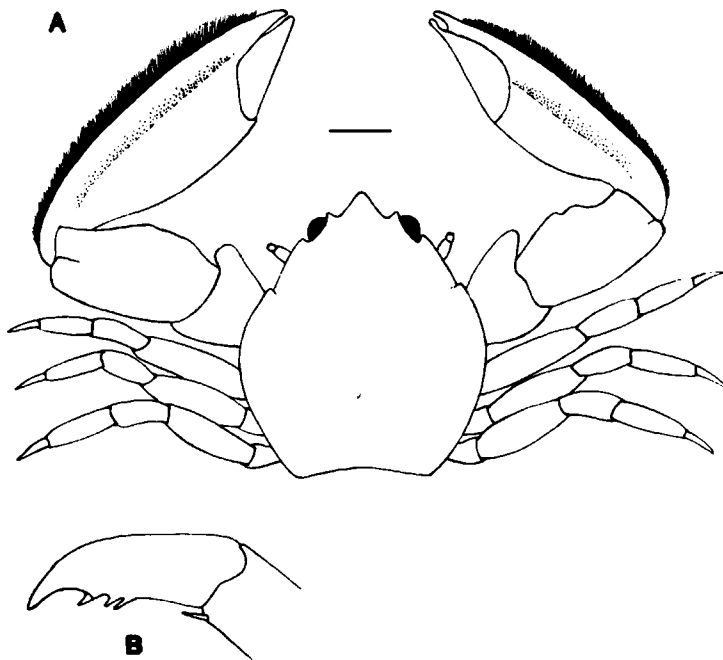
*Porcellana* Lamarck, 1801  
*Porcellana pulchra* Stimpson, 1858  
(Fig. 18)

*Porcellana pulchra* Stimpson, 1858: 243 [type-locality Hong Kong]. —Stimpson 1907: 192, plate 22 fig. 1 [Hong Kong]. —Gordon 1931: 526, 530, figs. 2, 3. —Miyake 1943: 124, figs. 46, 47.

*Material examined.* None.

*Remarks.* 'Dredged from a muddy bottom in six fathoms, in Hongkong Harbor' (Stimpson 1907).

*Distribution.* Yellow Sea and Korea Strait, Korea; Pei-tai-ho, north China; Hong Kong, Kyushu, Japan.



**Fig. 18.** *Porcellana pulchra* Stimpson (after Miyake 1943). A, carapace and pereopods; B, dactyl of walking leg. Scale: about 30 cm for A; about 150 cm for B.

*Porcellanella* White, 1852  
*Porcellanella triloba* White, 1852  
 (Fig. 19)

*Porcellanella triloba* White, 1852: 394, plate 5 figs. 2, 2a [type-locality off Cape Capricorn, Queensland]. —Sankarankutty 1962: 96, figs. 1–12. —Johnson 1964: 100. —Haig 1966b: 59. —Haig 1981: 287. —Nakasone and Yu 1987: 107, fig. 1, plate 1.

*Porcellanella picta* Stimpson, 1858: 243 [type-locality Hong Kong]. —Stimpson 1907: 193, plate 22 fig. 6 [Hong Kong]. —Miyake 1943: 134, figs. 54, 55. —Johnson 1964: 98, 100, fig. 1. —Evans 1967: 404 [records extant syntype]. —Morton 1988: 58, plate 16 [Hong Kong].

*Porcellana picta*. —Morton and Morton 1983: 203, 267 (fig. 12.7:7a), 268 [Hong Kong].

*Material examined.* South end of East Lamma Channel, 22°13'6" N, 114°9'5" E, 22–27 m, Agassiz trawl over grey mud bottom, 27 May 1974, R. Wear coll.: 1 ♂, 1 ♀ (post-ovig.), USNM.

*Remarks.* 'This species is found in considerable numbers hiding between the leaves of the common *Pennatula* on muddy bottoms in six fathoms, in the bays opposite Hongkong, China' (Stimpson 1907). 'Commensal in pairs among "leaves" of *Pteroeides* ? *bankanense*. Generally only 1 adult pair per host. Adults chalky white with or without grey patches or mottling. Eggs olive green' (R. Wear). In Hong Kong the host sea pen is *Pteroeides sparmanni* K llicker (*vide* Morton and Morton 1983; Morton 1988).

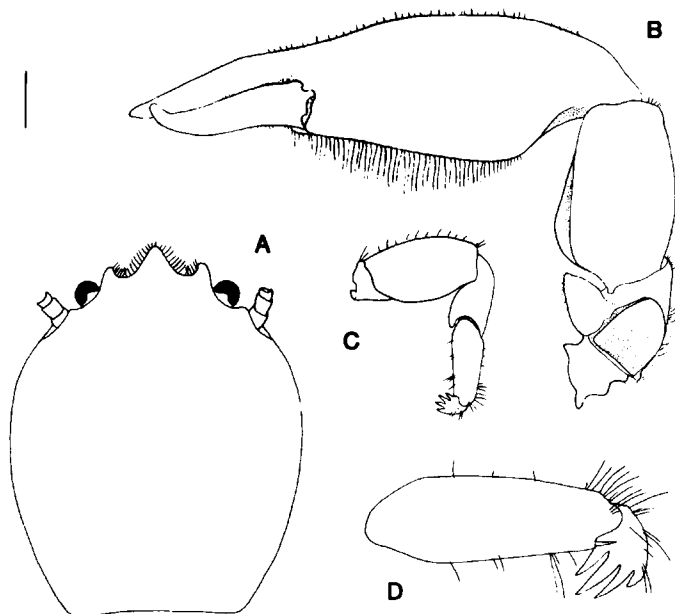


Fig. 19. *Porcellanella triloba* White, male. East Lamma Channel, HK (USNM). A, carapace; B, right cheliped; C, right walking leg; D, propodus and dactyl of right walking leg. Scale: 30 cm for A–C; 90 cm for D.

Sankarankutty (1962) was the first to place *Porcellanella picta* in synonymy with *P. triloba*. Johnson (1964) believed these species to be separable on the basis of constant differences in his material, and retained *P. picta* as a separate species. Haig (1966b; 1981) supported Sankarankutty's position on the grounds that Johnson's criteria do not consistently separate the two species.

*Distribution.* North-eastern Taiwan; Hong Kong; Vietnam; Gulf of Thailand; Singapore. North to Kyushu, Japan, south to tropical Australia, and west to Persian Gulf and east coast of Africa.

*Raphidopus* Stimpson, 1858  
*Raphidopus ciliatus* Stimpson, 1858  
(Fig. 20)

*Raphidopus ciliatus* Stimpson, 1858: 241 [type-locality Hong Kong]. —Stimpson 1907: 185, plate 22 fig. 5 [Hong Kong]. —Henderson 1888: 113 [Hong Kong]. —Miyake 1943: 146, figs. 61, 62. —Haig 1966a: 63, fig. 7. —Evans 1967 [records extant syntype].

*Material examined.* 500 m west of north Ninepin Island, Port Shelter, 22°16'09" N, 114°20'95" E, 20–27 m, Agassiz trawl over soft grey mud bottom, 27 May 1974, R. Wear coll.: 1♂, 1♀ (post-ovig.), USNM.

*Remarks.* 'Taken abundantly with the trawl on a muddy bottom in six fathoms, in a bay on the coast of China opposite Hongkong' (Stimpson 1907). 'Colour red on chalky white. Eggs light red' (R. Wear).

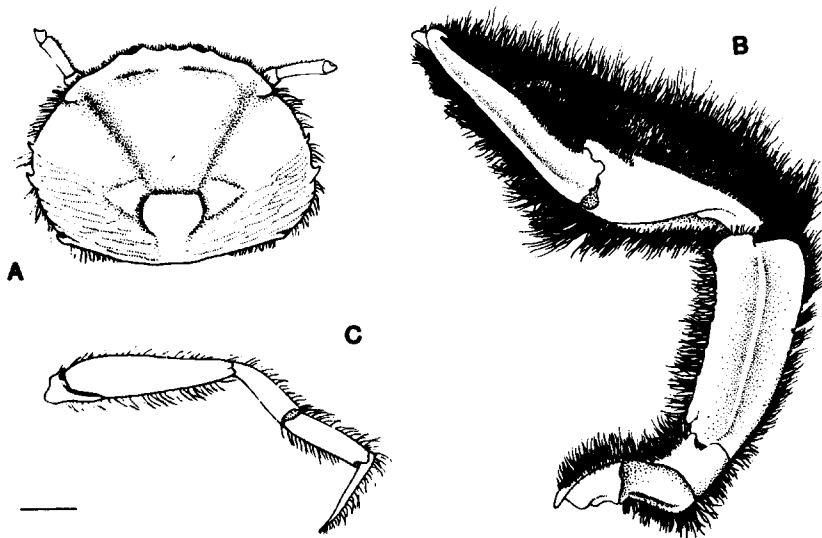


Fig. 20. *Raphidopus ciliatus* Stimpson, male. West of North Ninepin Island, Port Shelter, HK (USNM). A, carapace; B, right cheliped; C, right walking leg. Scale: 20 cm.

*Distribution.* Yellow Sea and Korea Strait, Korea; Formosa Strait; Namoa, China; Hong Kong; Gulf of Thailand; Singapore. East to Kyushu, Japan, south to tropical Australia, and west to western Malay Peninsula.

### DISCUSSION

Fifteen of the porcellanids known to occur in Hong Kong are tropical species with wide distributions in the Indo-West Pacific. *Petrolisthes japonicus*, *Pisidia serratifrons* and *Porcellana pulchra* are temperate species of limited distribution, and so far Hong Kong appears to be at the southernmost end of their ranges on the east Asian coast. (A few records of *Petrolisthes japonicus* from Indonesia and tropical Australia were based on misidentifications.) *Pisidia dispar* occurs in tropical areas but is most common in the temperate waters of southern Australia. *Pachycheles pectiniscarpus* is unknown outside of the Hong Kong region.

It seems likely that with further collecting, more species will be added to the porcellanid fauna of Hong Kong. For example, at least four tropical species not yet known from that area have been reported from Taiwan, and one temperate species, *Polyonyx sinensis* Stimpson, is known from the China Sea (Formosa Strait?) as far south as 23° N. *P. sinensis* should be looked for in polychaete tubes.

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