Portunid Crabs from the
International Indian Ocean Expedition
In the Smithsonian Collections
(Crustacea: Portunidae)

By W. Stephenson and May Rees

The present material, mostly collected by the Anton Bruun on Cruises 1 and 4B, comprises 35 recognisable species that are present in very unequal numbers. Of the total of 3444 specimens, 2250 were of one species (Portunus argentatus). Of the remaining 1194, 442 specimens were of one species (Charybdis hoplites) and 550 of the other four (C. callianassa, C. edwardsi, C. rostrata, and P. pulchrioristatus). At the other extreme, 18 species were represented by less than five specimens. Several of these are common inshore or shallow water species in the Indo-West Pacific area, including C. feriatus, C. natator, P. pelagicus, P. sanguinolentus, Seylla serrata, and Thalamita crenata. Their small numbers indicate merely that during the cruises these environments usually were neglected in preference for offshore situations.

There is comparable heterogeneity in the numbers of species recorded from the different stations; thus, five species were recorded from 1 station (202A), four species from 7 stations, three from 10, two from 16, and one species from 34 stations. Stations 201A, 202A,

1 Both authors: Department of Zoology, University of Queensland, Brisbane, Australia.
and 202B were the richest trio of stations with respect to number of species recorded (4, 5, 4, respectively) and number of individuals (434, 1760, 289, respectively).

Throughout, synonymy has been abbreviated in most cases to a few recent references that permit ready identification. Fuller listings are given in cases where the synonymy has presented problems.

Dimensions are those of breadthts and are given in millimeters. Measurements were by dial calipers to the nearest 0.1 mm, but these are given below only to the nearest 0.5 mm.

Genus Charybdis de Haan, 1833

Charybdis callianassa (Herbst)

Cancer callianassa Herbst, 1789, pl. 54, fig. 7 (fide Leene, 1938).

Charybdis (Charybdis) callianassa (Herbst).—Leene, 1938, pp. 81–4, figs. 41–43.—Stephenson, Hudson, and Campbell, 1957, pp. 493–5, figs. 1B–D, 2C, 3D, pl. 1 (fig. 2); pl. 44.—Stephenson and Rees, 1967, p. 8.

Material Examined.—1 ovig. female (30 mm), Sta. No. AB 40–63. 4 males (22.5–27 mm), Sta. No. 203B. 53 males (16.5–30.5 mm), 91 females (20–29 mm), Sta. No. 203C. 1 male (32 mm), 1 female (29 mm), Sta. No. 204A. 1 female (18.5 mm), Sta. No. 222A. 5 males (20–25.5 mm), 16 females (19–31.5 mm), 2 ovig. females (20.5–23.5 mm), 3 Sacculina-infested specimens (20–22 mm), Sta. No. 223A. 5 males (19.5–25 mm), 1 female (18 mm), Sta. No. 224A. 1 ovig. female (23 mm soft, without appendages), Sta. No. 9682.

All trawled in shallow water (12.5–33 m); all notings on nature of bottom mention mud.

Remarks.—In many specimens the ridge on the cardiac region of the carapace is very indistinct, and these specimens are difficult to key out from Leene (1938). The last listed specimen probably belongs to this species, but, in absence of chelipeds, there is some uncertainty.

C. ihlei Leene and Buitendijk (1949, pp. 291–3; figs. 1, 4a), closely resembles the present species but differs in having a bifid first anterolateral tooth and a different male pleopod. This species apparently is known only from the holotype.

Distribution.—Karachi to northern Australia.

Charybdis feriatus (Linnaeus)

Cancer feriatus Linnaeus, 1758, p. 625.

Charybdis (Charybdis) cruciata (Herbst).—Leene, 1938, pp. 24–7, figs. 1, 2.—Stephenson, Hudson, and Campbell, 1957, pp. 495, 497, figs. 2E, 3F, pl. 1 (fig. 3), pl. 4B.—Crosnier, 1962, pp. 75–7, figs. 130–2.

Charybdis cruciata (Herbst).—Sakai, 1939, pp. 403–4, pl. 82 (fig. 3); 1965, pp. 123–4, pls. 62, 63 (fig. 1).

Charybdis (Charybdis) feriatus (L.).—Stephenson and Rees, 1967, p. 10.
Material examined.—1 male (77.5 mm), Sta. No. AB 47B–63. 1 female (34 mm), Sta. No. 201A. 1 female (76.5 mm, no trace of pigment), Sta. No. 9682.

All trawled, in depths of from 12.5 to 30 m.

Distribution.—East coast of South Africa to Japan and Australia.

Charybdis hongkongensis Shen

Charybdis (Goniohellenus) hongkongensis Shen, 1934, p. 46, figs. 11, 12.—Leene, 1938, pp. 110–113, figs. 61, 62.

Material examined.—9 males (18–54 mm), 1 Sacculina-infested male (34.5 mm), 2 females (27.5–37.5 mm), Sta. No. AB–20. 3 males (29.5–34.5 mm), 1 female (18.5 mm), Sta. No. AB–41A. 1 male (38.5 mm), Sta. No. AB42–63.

All trawled, depths from 29 to 60 m.

Distribution.—Hong Kong (Shen, 1934); Banda Sea; Diamantpunt, Sumatra (Leene, 1938).

Charybdis hoplites (Wood-Mason)

Figure 1

Goniosoma hoplites Wood-Mason, 1877, p. 422.—Alcock and Anderson, 1894, p. 184; 1896, pl. 23 (fig. 6).

Charybdis (Goniohellenus) hoplites (Wood-Mason).—Alcock, 1899a, p. 67; 1899b, p. 66.—Nobili, 1906, p. 119.—Gordon, 1931, pp. 534–5, figs. 12b, b’ [under C. sinensis].—Leene, 1938, pp. 99–102, figs. 53, 54a–c.

Charybdis (Goniohellenus) hoplites var. pusilla Alcock, 1899b, p. 67.—Leene, 1938, pp. 102–4, figs. 55, 56a, b.

Material examined.—171 males (18–43 mm), 95 females (18–30.5 mm), 49 ovig. females (20–33.5 mm), 1 Sacculina-infested specimen (27 mm), 1 unsexable specimen (25.5 mm), 4 fragmented specimens, Sta. No. 201A. 3 males (18–24.5 mm), 3 females (23–43 mm), 1 ovig. female (33.5 mm), Sta. No. 202A. 3 males (20–22.5 mm), 4 females (18.5–33.5, 1 fragmented), 9 ovig. females (16.5–24 mm), 1 Sacculina-infested male (24.5 mm), Sta. No. 202B. 2 males (23, 23.5 mm), 1 ovig. female (22.5 mm), Sta. No. 202C. 23 males (16–22.5 mm), 12 females (15.5–21 mm), Sta. No. 212A. 2 males (20, 23.5 mm), Sta. No. 213A. 2 males (17.5, 22 mm), 1 ovig. female (19 mm), Sta. No. 218A. 1 male (17.5 mm), 1 ovig. female (19.5 mm), Sta. No. 221A. 1 ovig. female (20.5 mm), Sta. No. 228A. 1 ovig. female (21 mm), Sta. No. 237A. 29 males (17.5–31 mm), 8 females (19–23 mm), 8 ovig. females (18.5–23.5 mm), Sta. No. 241A. 1 male (20.5 mm), 1 female (21.5 mm), Sta. No. 248A. 4 males (22.5–30.5 mm), Sta. No. 249A. 1 female (27 mm), Sta. No. 252A. 1 female (23.5 mm), Sta. No. 253A. 1 male (27.5 mm), Sta. No. 255A. 1 male (ca. 22.5 mm), 1 female (ca. 29.5 mm), (both cephalothorax only),
Sta. No. 263A. 3 males (17–28.5 mm), 3 females (21–28.5 mm),
Sta. No. 264A. 1 male (25 mm), 3 females (23–25.5 mm), Sta. No.
265A. 1 female (40 mm), Sta. No. 268A. 1 female (41 mm), Sta.
No. 270A.

All trawled, depths from 35 to 368 m, bottoms mostly mud, but
one station (202B) of coral and sand.

Remarks.—The above specimens differ from Leene's (1938) de-
scription of the forma typica only in the following minor particulars:

1. On the anterior border of the arm of the cheliped, Leene
describes two spines and a tubercle. In most of the present specimens,
three spines are present, but in the larger specimens there are often
four.

2. The upper border of the carpus of the second pair of walking
legs bears either no armature or microscopic spinules. Leene describes

3. These specimens usually have a very small cluster of granules
on the carapace posterior to each mesobranchial area.

Sixteen individuals were noted with carapaces narrower than the
remainder, and two more appeared when samples were measured.
These were from eight stations, and in six cases these were stations
from which typical C. hoplites were recorded. Apart from carapace
proportions the specimens did not appear to differ in any way from
the remainder.

Figure 1.—Charybdis hoplites: frequency
distribution diagram of L/B carapace
ratios on 104 individuals (L/B ratios are
grouped into units 0.01 apart, each taken
from 0.05 below graphed values to 0.04
above).
Measurements made upon the original 16 narrower specimens and upon randomly selected specimens from the remainder showed that the differences in proportions were not primarily due to different lengths of the last anterolateral teeth; thereafter only lengths and breadths of carapaces were measured. I/B ratios were variable and were not obviously related to the size or sex of the specimens. Data on 104 specimens are given as a frequency distribution diagram on figure 1. The specimens include the 16 narrow individuals, randomly chosen small individuals from several collections, and the larger individuals from several collections. Because the figure shows only a slight hint of bimodality, the narrower specimens do not merit separation from the remainder.

Alcock's var. *pusilla* appears to be within the range of variation of the one taxonomic entity and, following Leene's suggestion, is added to the synonymy of the present species. On the other hand, Leene's (1938) var. *omanensis* merits specific status, although there are problems of synonymy with *C. smithii* Mc Leay 1838. Meanwhile Leene's var. *longicollis* clearly has specific status (see below).

*Charybdis longicollis* Leene

*Charybdis hoplites* Balss, 1921, p. 2 [specimens from Ras Abu Somer].

*Charybdis* (Goniohellenus) *hoplites* var. *longicollis* Leene, 1938, pp. 107–110, figs. 59, 60a–c.—Stephensen, 1945, pp. 118–9, figs. 24 F–G, 25.—Crosnier, 1962, pp. 86–7, figs. 140, 147, 148, pl. 7 (fig. 2).


**Material examined.**—1 male (40.5 mm), Sta. No. 258A. 3 males (24.5–28 mm), 1 female (21 mm), Sta. No. 266A. 1 ovig. female (29 mm), Sta. No. 268A.

All trawled, depths from 30 to 368 m, bottoms all muddy.

**Remarks.**—*Charybdis hoplites* and *C. longicollis* resemble each other in possessing (1) relatively short and slightly curved anterolateral borders, (2) last anterolateral teeth of moderate length and directed laterally or slightly forwards, (3) anterolateral teeth generally somewhat square-cut, but with forwardly directed anterior spines, (4) mesobranchial area of carapace swollen, (5) no longitudinal line of granules on carapace running from mesogastric to metagastric region, (6) metagastric region of carapace with short granular ridges, (7) median frontal lobes protruding beyond submedians and narrowly rounded.

*Charybdis longicollis* is distinguished from *C. hoplites* by having (1) cardiac and mesobranchial areas of carapace with ridgelike elevations, as against granular patches; (2) sides of antepenultimate
segment of male abdomen strongly as against slightly concave; (3) first pleon of male relatively straight and thin as against sinusuous and thick, outer side with relatively few subterminal bristles, inner side with large subterminal bristles as against spinules or small bristles.

**Distribution.**—Eastern Mediterranean, Red Sea, Ras Abu Somer, Ravayah, Persian Gulf, Gulf of Oman, Malgache [Madagascar], and Seychelles.

**Charybdis miles (de Haan)**

*Portunus (Charybdis) miles* de Haan, 1835, p. 41, pl. 11 (fig. 1).

*Charybdis miles* (de Haan).—Stimpson, 1858, p. 39.—Doflein, 1902, p. 659.—Rathbun, 1902, p. 27.—Stimpson, 1907, p. 82.—Parisi, 1916, p. 175.—Balss, 1922, p. 104.—Yokoya, 1933, p. 175.—Sakai, 1939, p. 405, pl. 46 (fig. 2); 1965, p. 123, pl. 61.


*Charybdis* (Goniosoma) miles (de Haan).—Alcock, 1899a, pp. 62–3.—Chopra, 1935, p. 486, fig. 9.—Shen, 1937, p. 123, fig. 13.

*Charybdis* (Charybdis) miles (de Haan).—Leene, 1938, pp. 38–43, figs. 10, 11, 12, 13.—Stephenson, Hudson, and Campbell, 1957, pp. 500–1, figs. 2H, 3I, pl. 2 (fig. 3), pl. 4F.—Rees and Stephenson, 1966, p. 37.—Stephenson and Rees, 1967, p. 11.

**Material examined.**—1 male (52.5 mm), 1 ovig. female (47.5 mm), Sta. No. AB–20. 1 male (51.5 mm), Sta. No. AB21–63. 1 male (26.5 mm), 1 female (28 mm), Sta. No. 255A. 4 males (21.5–54 mm), 1 ovig. female (47.5 mm), Sta. No. 256A. 1 female (54.5 mm), Sta. No. 261A. 1 male (81.5 mm), 1 female (30.5 mm), Sta. No. 262A.

All trawled, depths 55–99 m, muddy bottoms (in cases where records made).

**Remarks.**—See *C. riversandersoni*.

**Distribution.**—Previously from Ganjam Coast of India to Hong Kong, Japan, and eastern Australia. Now eastward to Gulf of Oman.

**Charybdis natator (Herbst)**

*Carcinus natator* Herbst, 1789, pl. 40 (fig. 1) [fide Leene, 1938].

*Charybdis* (Charybdis) natator (Herbst).—Leene, 1938, pp. 93–7, figs. 50, 51.—Stephenson, Hudson, and Campbell, 1957, pp. 501–2, figs. 2G, 3H, pl. 2 (fig. 4), pl. 4J.—Crosnier, 1962, pp. 82–3, figs. 143–4, pl. 13 (fig. 2).—Stephenson and Rees, 1967, p. 11.


**Material examined.**—1 male (64 mm), Sta. No. AB46–63. 2 females (20–26.5 mm), Sta. No. 201A.

Both probably trawled, depths 23–55 m, muddy bottom (Sta. 201A only).

**Remarks.**—The small specimens from Station 201A differ from large specimens in having (1) much more conspicuous carapace areas,
relatively larger first anterolateral teeth, (3) short granular ridges on the postfrontal areas of the carapace, and (4) longer wrist spines. These small specimens are close to *C. moretonensis* Rees and Stephenson (1966), who list the distinguishing features.

**Distribution.**—East coast of Africa to Japan and Australia.

*Charybdis orientalis* Dana

*Charybdis orientalis* Dana, 1852a, p. 285, pl. 17 (fig. 10); 1852b, p. 85.—Sakai, 1939, pp. 407-8, pl. 53 (fig. 2).

*Charybdis* (*Charybdis*) *orientalis* Dana.—Leene, 1938, pp. 63-72, figs. 32-34 [excluding some synonymy].—Stephenson, Hudson, and Campbell, 1957, pp. 502-3, figs. 2B, 3B, pl. 3, (fig. 1), pl. 4G.—Crozier, 1962, pp. 80-1.—Stephenson and Rees, 1967, p. 11.

Not *Charybdis orientalis* Edmondson, 1946, p. 173c (= *C. hawaiiensis*).

**Material examined.**—1 male (38.5 mm), India, north side Okah Point, Port Okah, Mar. 9, 1963. 7 males (ca. 23-58 mm), 7 females (34-ca. 67 mm), Sta. No. LW-1. 3 males (18.5-73.5 mm), 3 females (21-34.5 mm), Sta. No. RF-2.

Shore collections, rocky and sandy bottoms.

**Remarks.**—This species resembles *C. hellerii* (A. Milne Edwards), particularly the larger individuals in which the second anterolateral tooth is barely smaller than the first. Both species possess an extension of the posterior border of the carpus of the natatory leg, but, whereas that in *C. orientalis* is a blunt tubercle, in *C. hellerii* there is a sharp spine.

Rees and Stephenson (1966) have shown that Leene (1938) was incorrect in synonymizing *C. incisa* Rathbun, 1923, with *C. orientalis*, and Edmondson (1954) has also shown that *C. hawaiiensis* is a separate species.

**Distribution.**—Malagache [Madagascar] and East Africa to Japan and Australia.

*Charybdis riversandersoni* Alcock

*Charybdis* (*Gonioma*) *riversandersoni* Alcock, 1899a, p. 53.—Alcock and Mc Ardle, 1902, pl. 40 (fig. 3).

*Charybdis* *sagamiensis* Parisi, 1916, p. 175, pl. 11 (fig. 1).

*Charybdis* *riversandersoni* Alcock.—Bals, 1922a, p. 105.—Gordon, 1931, pp. 537-8, fig. 13c.—Sakai, 1939, pp. 404-5, pl. 16 (fig. 1); 1965, pp. 122-3, pl. 60 (fig. 2).

*Charybdis* (*Charybdis*) *riversandersoni* Alcock.—Leene, 1938, pp. 28-30, figs. 3, 4a, 4b.

**Material examined.**—1 female (26 mm), Sta. No. 202A. 2 males (65.5, 75.5 mm), Sta. No. 263A. 1 male (18.5 mm), 2 females (26, 34.5 mm), 1 additional cheliped, Sta. No. 264A.

All trawled, depths from 46 to 291 m, muddy bottoms.
Remarks.—The largest specimen has four spines on the anterior borders of the arms of the chelipeds; all of the remaining chelipeds bear three spines on these borders. All specimens have the characteristically swollen branchial regions of the carapace.

This species, which is close to *C. miles*, has the undersurface of the immovable finger smooth and rounded, whereas in *C. miles* it is deeply grooved. There are also differences in the last anterolateral teeth, which are longer and more laterally directed in *C. riversandersoni*.

The two species were also distinguishable by the pigmentation of the present recently preserved specimens. In *C. riversandersoni* the red pigment on the under side of the immovable finger of the cheliped did not extend along its entire length, while in *C. miles* it extended to the distal part of the palm. In the larger males of *C. riversandersoni* there was a pale circle in each postlateral area of the carapace, bordered by deeper pink. This had no counterpart in *C. miles*.

Sakai’s (1939) colored plates of fresh material of the two species clearly show the differences in the last anterolateral teeth and in the pigmentation under the immovable finger, but they show *C. riversandersoni* with three pale areas in the postlateral portion of the carapace (pl. 46: fig. 1) and *C. miles* with one pale area (pl. 46: fig. 2). Sakai’s (1965) plates again show the differences in last anterolateral teeth, show even more clearly the differences between the colors of the immovable fingers, but show one indistinct light postlateral patch in *C. riversandersoni* (pl. 60: fig. 2), against a very distinct patch in *C. miles* (pl. 61).

Distribution.—Previously Konkak Coast, Bay of Sagami, South China Sea, and now Arabian Sea and Gulf of Oman.

*Charybdis rostrata* (A. Milne Edwards)


Charybdis (Goniosoma) rostrata (A. Milne Edwards).—Alcock, 1899a, p. 59.—de Man, 1925, p. 326, fig. 2.—Chopra, 1935, p. 491, fig. 12.

Charybdis (Charybdis) rostrata (A. Milne Edwards).—Leene, 1938, pp. 78-81, figs. 39, 40.

Material examined.—1 female (24 mm), Sta. No. AB-37. 12 males (17-25.5 mm), 50 females (16.5-25 mm), 1 ovig. female (21 mm) (many specimens cephalothorax only), Sta. No. AB-40. 18 males (12-27 mm), 12 females (16.5-25.5 mm), 1 Sacculina-infested specimen (22.5 mm), Sta. No. AB 44-63. 1 male (16.5 mm), 6 females (18.5-22.5 mm), Sta. No. AB 44a-63. 1 male (21.5 mm), 1 yg. (5 mm), Sta. No. AB 45-63.

All trawled, depths from 15 to 81 m.
Remarks.—One of the males (23 mm), from Station AB–40, has the left branchial cavity swollen from containing a parasite. The young specimen from Station AB 45–63, almost certainly belonging to this species, has an almost continuous front with a barely detectable median notch.

Several specimens have three spines on the anterior border of the arm, and these key out to 
_C. callianassa_ from Leene (1938). The present species is immediately recognizable from the prominent frontal teeth.

As Leene has noted, the last anterolateral teeth are longer in females than in males and longer in smaller specimens than in larger ones.

Distribution.—Indian region (Ceylon, Calcutta, Andamans) to Indo-Malayan Archipelago.

_Charybdis smithii_ McLeay


*Goniosoma truncata* (Fabricius).—A. Milne Edwards, 1861, p. 380, pl. 34 (fig. 4).

*Charybdis* (Goniohellenus) _edwardsi_ Leene and Buitendijk, 1949, p. 296, figs. 3, 4c.—Della Croce and Holthuis, 1965, pp. 33–7 [with pl.].

*Goniopeptus smithii* (McLeay).—Barnard, 1950, pp. 163–4, 818, fig. 37j.

?_Charybdis* (Goniohellenus) _hoplites_ var _omanensis_, Leene, 1938, pp. 104–7, figs. 57, 58.

Not _Portunus truncatus_ Fabricius, 1798, p. 365 (=_Charybdis truncata_).

Stephenson and Rees (in ms.) have examined the type of _C. smithii_ and will report more extensively on the synonymy.

Material examined.—3 males (59.5–70.5 mm), Sta. No. AB 3–63. 1 female (56 mm), Sta. No. 172 (dipnet at surface). 1 male (63 mm), Sta. No. 202A. 1 female (63 mm), Sta. No. 207A. 2 males (both 58.5 mm), Sta. No. 231A. 14 males (61.5–75 mm), 1 female (56.5 mm), Sta. No. 249A. 51 males (56.5–73.5 mm), 10 females (52–61.5 mm), Sta. No. 252A. 3 males (62–67 mm), Sta. No. 253A. 4 males (62–73 mm), Sta. No. 263A. 1 male (59.5 mm), 3 females (50–59.5 mm), Sta. No. 264A. 5 males (49.5–71 mm), 13 females (40.5–60 mm), Sta. No. 268A.

Apart from the first two listed stations, all trawled, in depths of from 70 to 368 m on mud and/or clay bottoms.

Distribution.—From a large area of the Indian Ocean, as will be shown in later publications by Stephenson and by Stephenson and Rees.

_Charybdis vadorum_ Alcock

_Charybdis* (Goniohellenus) _hoplites_ var. _vadorum_ Alcock, 1899a, p. 67.

_Charybdis* (Goniohellenus) _sinensis_ Gordon, 1930, p. 522; 1931, p. 534, figs. 11, 12c, d, d'.—Shen, 1934, p. 44, figs. 9, 10.

241–652—67—2
Charybdis (Goniohellenus) vadorum (Alcock).—Chopra, 1935, p. 493, text-fig. 13, pl. 9 (fig. 2).—Leene, 1938, pp. 114-7, figs. 63-5.—Stephenson and Rees, 1967, p. 12.

?Archias serdentatus Paulson, 1875, p. 56, pl. 8 (fig. 3-3b).—Nobili, 1906, p. 198 (fide Leene, 1938).

Material examined.—2 ovig. females (ca. 21.5, ca. 24 mm) (cephalothorax only), Sta. No. AB 41-63. 4 males (22-23.5 mm), 2 females (21, 24 mm), Sta. No. AB 41-A. 3 males (21-25.5 mm), 1 ovig. female (24 mm), Sta. No. AB 42-63. All trawled, depths from 29 to 46 m.

Remarks.—Certain differences between Leene’s (1938) description and figures have been noted by Stephenson and Rees (1967). In addition, the frontal teeth are more rounded than Leene figured.

Distribution.—Red Sea and Persian Gulf to Hong Kong.

Charybdis variegata (Fabricius)

Portunus variegatus Fabricius, 1798, p. 364.
Charybdis (Charybdis) variegata (Fabricius).—Leene, 1938, pp. 84-8, figs. 44, 45.—Stephenson, Hudson, and Campbell, 1957, p. 503, fig. 3C, pl. 3 (fig. 2).—Sakai, 1939, p. 406, fig. 9a, pl. 47 (fig. 4); 1965, p. 121, pl. 59 (fig. 2).—Rees and Stephenson, 1966, pp. 39-40.

Material examined.—1 male (31.5 mm), Sta. No. AB 46-63. Probably trawled, depth 23-25 m.

Distribution.—Persian Gulf to northern Australia.

Charybdis species

Material examined.—Female 15.5 mm, Sta. No. 218-A. Trawled, depth 79-84 m, bottom sandy.

Remarks.—This specimen, which is a soft, possibly badly preserved female, has an eared postlateral junction and a basal antennal joint that permits the flagellum to lie in the orbit. These are the diagnostic features of the subgenus Gonioneptunus, but the specimen does not resemble any of the known forms within this subgenus and possibly is C. hoplites.

Charybdis species

The following specimens were not identifiable beyond generic level: 1 yg. (ca. 3.5 mm), Sta. No. 251B. 1 badly fragmented specimen, Sta. No. 268A.

Genus Lupocyclus Adams and White, 1849

Lupocyclus philippinensis Semper

Lupocyclus philippinensis Semper, in Nauck, 1850, p. 68.—Leene, 1940, pp. 174-6, fig. 5, pl. 3.—Stephenson and Campbell, 1960, p. 109 [in key].—Crosnier, 1962, pp. 40-1, figs. 49, 51, 53, 56, 57, pl. 2 (fig. 1).
Material examined.—3 males (14–19.5 mm), additional larger male (fragmented), Sta. No. 21–63. 4 males (12–13.5 mm), 2 females (13, 16 mm), 1 ovig. female (17 mm) (many specimens fragmented), Sta. No. 202A.

Trawled, depths from 70 to 106 m.

Remarks.—Crosnier (1962, fig. 53) has accurately shown the curved junction, concave distally, between the ultimate and penultimate segments of the male abdomen. Leene (1940, pl. 3) shows a straight junction.

Distribution.—Laccadives, Ceylon, Philippines, Japan.

Genus Portunus Weber, 1795

Portunus argentatus (A. Milne Edwards)

Figures 2a–c, e–g

Amphitrile argentata White, 1847, p. 146 [descriptio nulla].

Neptunus argentatus A. Milne Edwards, 1861, pp. 332, 339, pl. 31 (figs. 4, 4a, 4b).

Neptunus (Amphitrile) argentatus A. Milne Edwards.—Alcock, 1899a, pp. 36–7.—Sakai, 1939, p. 391, fig. 5b, pl. 81 (fig. 1).


Monomia argentata (White, A. M. Edwards).—Barnard, 1950, pp. 156–8, figs. 27c, 30a–d.

Portunus argentatus (A. Milne Edwards).—Stephenson, 1961, pp. 105–6, figs. 1F, 3D, pl. 2 (fig. 2), pls. 4D, 5A.—Crosnier, 1962, pp. 50–1, figs. 71, 75, 77, 80, 81, pl. 3 (fig. 1).—Stephenson and Rees, 1967, p. 16.

Material examined.—52 males (25.5–34.5 mm), 47 females (23–35 mm), 29 ovig. females (27.5–36.5 mm), 2 Sacculina-infested males (32.5, 33 mm), 1 Sacculina-infested specimen (29.5 mm), 1 unsexable specimen with both branchial cavities swollen with parasites (22 mm), Sta. No. AB 21–63. 3 males (24–32 mm), Sta. No. AB–22. 7 males (26.5–32 mm), 12 females (24.5–31 mm), 1 Sacculina-infested specimen (30.5 mm), Sta. No. AB–22A. 2 females (19, 22.5 mm), Sta. No. AB 28A. 1 fragmented specimen, Sta. No. AB–47B. 1 male (42 mm), Sta. No. AB–49. 1238 males (15–27 mm), 232 females (17.5–44.5 mm), 272 ovig. females (19–26 mm), Sta. No. 202A. 153 males (18.5–32.5 mm), 46 females (16.5–46 mm), 11 females (18–23 mm), 7 ovig. females (21.5–34.5 mm), Sta. No. 202B. 16 males (18.5–40 mm), 11 females (18–23 mm), 7 ovig. females (21.5–34.5 mm), Sta. No. 202C. 2 males (16.5, 19 mm), 4 females (16–17 mm), 1 ovig. female (27 mm), Sta. No. 203A. 1 female (23 mm), Sta. No. 206A. 21 males (23.5–30 mm), 4 females (21.5–25 mm), 11 ovig. females (21–29 mm), Sta. No. 266A.

All trawled, depths from 22 to 196 m, bottoms (where noted) sand with mud, clay, or coral.
Figure 2.—First male pleopods: 

a, *Portunus argentatus* (205 mm, Sta. 202B), pleopod close to form b; b, *P. argentatus* (20 mm, Sta. 202B), relatively straight pleopod; c, *P. argentatus* (20.5 mm, Sta. 202A), pleopod approaching form a; d, *Thalamita gracilipes* (10.5 mm, Sta. B-16) whole pleopod. Tips of pleopods a–d, respectively: e–h. (Scales: a–d, 0.5 mm; e–h, 0.1 mm.)
Remarks.—Because two forms of male pleopods have been described for this species (Stephenson and Rees, 1967, p. 16), pleopods of all the males in the present collection were examined. The number involved (almost 1500) no doubt greatly exceeds the numbers examined in any other species of portunid and possibly any other brachyuran.

All males were concluded to belong to form B, which typically possesses a pleopod with a right-angled bend. The range of the present material clearly links the shapes figured by Crosnier (1962, fig. 77) and by Stephenson and Rees (1967, fig. 2), with the bulk being intermediate.

A very small number of individuals (not more than five) possessed pleopods with considerable curvature near their right-angled bends (fig. 2a, this paper). A greater number (33) possessed relatively straight pleopods (fig. 2b). The latter were relatively small specimens (breadths 15—ca. 21.5 mm) although they overlapped considerably the sizes of those with normal pleopods (breadths 17.5—40 mm). It is assumed that the small specimens were immature males, which would have developed curved pleopods on later molts.

In addition to variations in curvature, there were variations in the form and spinulation of the tips of the pleopods (see figs. 2c—g). While none showed the bulbous shape of form A (Stephenson, 1961, figs 1F, 3D), one specimen showed slight swelling and reasonably dense spinulation (figs. 2c, g).

A single specimen from Station AB 21—63 was unsexable because of presumed parasitic castration caused by parasites in both branchial cavities. Three specimens with parasites in a single branchial cavity were noted (two with left cavities, one with right, all from Station AB 21—63). In none of these specimens was the sex indeterminable (two females, one male). Four Sacculina-infested specimens were noted. Two of these were clearly males, with normal pleopods, while two were most probably females. Sacculina infestation had less obvious effects upon secondary sexual characteristics than had the double branchial infestation.

Distribution.—East coast of Africa to Japan, Australia, and Hawaii.

Portunus emarginatus Stephenson and Campbell


Portunus longispinosus Rathbun.—Stephenson and Campbell, 1959, pp. 104—6, figs. 2F, 3F, pl. 2 (fig. 2), pls. 4F, 5F.

Material examined.—1 male (10.5 mm), Sta. No. B9.

Dredged, 18—24 ft., fine white sand.
Remarks.—See *Portunus* cf. *longispinosus*.

Distribution.—Malgache [Madagascar], Australia, and Palau.

*Portunus gladiator* (Alcock)

*Neptunus (Amphioctites) gladiator* Alcock, 1899a, pp. 35–6.—Shen, 1937, pp. 101–3, figs. 2a–e.

*Monomia gladiator* (Fabricius).—Barnard, 1950, p. 156.

*Portunus gladiator* Fabricius.—Crosnier, 1962, pp. 51–4, figs. 72, 76, 78, 82, 83, pl. 3 (fig. 2).

*Portunus gladiator*.—Fabricius, 1798, p. 368.

*Not Portunus gladiator* Fabricius.—Stephenson and Campbell, 1959, pp. 110–111, figs. 2J, 3J, pl. 3 (fig. 2), pls. 4I, 5J.

**Material examined.**—2 females (50.5, 51.5 mm), Sta. No. AB–20. 1 male (31.5 mm), Sta. No. 202 B.

Trawled, depths from 58 to 90 m.

Remarks.—As indicated by Stephenson and Rees (1967, p. 24), further work is required to clarify the confused synonymy of the *Portunus gladiator* complex. The present specimens were compared with Crosnier’s material.

Distribution.—Eastern South Africa, Malgache [Madagascar], India, and Hong Kong, and now near Mergui.

*Portunus hastatoides* Fabricius

*Portunus hastatoides* Fabricius, 1798, p. 368.—Stephenson and Campbell, 1959, pp. 101–2, figs. 2D, 3D, pl. 1 (fig. 4), pls. 4D, 5D.—Crosnier, 1962, pp. 68–9, figs. 98, 109, 117, 122, 123.—Sakai, 1965, p. 119, pi. 58 (fig. 2).—Stephenson and Rees, 1967, p. 27.

*Neptunus (Hellenus) hastatoides* (Fabricius).—Alcock, 1899a, pp. 38–9.—Sakai, 1939, pp. 391–2, pl. 47 (fig. 1).


**Material examined.**—2 males (26.5, 33.5 mm), Sta. No. AB 42–63. 1 male (33 mm), Sta. No. 47B–63. 8 males (15–29.5 mm), 2 females (ca. 24.5, 27 mm), Sta. No. 48–63. 2 males (37, 40.5 mm), 2 females (40.5, 42 mm), 1 ovig. female (35 mm), Sta. No. 203C. 1 male (36.5 mm), Sta. No. 218A. 1 male (31.5 mm), Sta. No. 224A 1 male (ca. 27.5 mm), Sta. No. 228A. 4 males (30.5–39.5 mm), 4 females (27–34 mm), Sta. No. 9682.

Trawled (except Sta. No. 48–63 dredged), depths from 22 to 84 m, bottom (when noted) from silty sand through mud to clay.

Distribution.—East Coast of Africa to Japan, Australia, and Philippines, but not from the Red Sea.

*Portunus cf. longispinosus* (Rathbun)

cf. *Portunus (Xiphonecetes) longispinosus* (Dana).—Rathbun, 1906, p. 871, fig. 30, pl. 12 (fig. 6).

**Material examined.**—1 male (14 mm), Sta. No. B 16.
Dredged, 12-18 ft sand, shell, and coral rubble.

Remarks.—As indicated by Stephenson and Rees (1967, p. 28), there is confusion over the different species in the *Portunus longispinosus* complex. The present specimen keys out in Stephenson and Rees as *P. longispinosus* Rathbun but differs from Rathbun’s illustration (1906, pl. 12: fig. 6), in possessing a less strongly embossed carapace.

A brief examination (at the Smithsonian Institution by the senior author) of the material identified by Rathbun as *P. longispinosus* showed that there is variation in a number of features; it is hoped that this and other material in the complex can be dealt with in a later publication.

*Portunus minutus* (Shen)

*Neptunus (Lupocycloporus) minutus* Shen, 1937, p. 115, fig. 9a-c.

*Portunus minutus* (Shen).—Stephenson and Campbell, 1959, p. 89 (in key).

Material examined.—1 female (19 mm), Sta. No. AB 41A. Trawled, 29–33 m.

Remarks.—This specimen has fine spines on the anterior border of the arm of the cheliped. Stephenson, in a later publication, will deal with a new species very close to *P. minutus*.

Distribution.—Previously from Hong Kong and Gulf of Siam. Now off the Gulf of Martaban.

*Portunus orbicularis* (Richters)

*Achelous orbicularis* Richters, 1880, p. 153, pl. 16 (figs. 14, 15).—Henderson, 1893, p. 371.—Stebbing, 1920, p. 236.—Barnard, 1950, pp. 159–60, fig. 31a

*Neptunus (Achelous) orbicularis* (Richters).—Alcock, 1899a, p. 47.

*Portunus (Achelous) orbicularis* (Richters).—Rathbun, 1906, p. 871, pl. 12 (fig. 4).—Edmondson, 1946, p. 280; 1954, pp. 239–41, figs. 16c–e, 17b.

*Cycloachelous orbicularis* (Richters).—Ward, 1942, p. 51.


Material examined.—3 females (12–16 mm), Sta. No. B 16. Dredged, 12–18 ft, sand, shell, and coral rubble.

Remarks.—The descriptions by Richters, Alcock, and Crosnier mention a carapace that is almost smooth. Crosnier (1962, p. 60), who gives the most recent detailed description, states: "Carapace glabre, subcirculaire, avec des granules surtout à la périphérie et sur les régions cardiaque et intestinale." His figure 99 shows this granulation and indicates that it is very fine. Meanwhile Barnard (1950, p. 159) had stated: "Carapace . . . feebly granulate in places, with patches of distinct granules mostly near the periphery and on the gastric and cardiac regions." His figure 31a shows a much more distinct and coarsely granular form than Crosnier’s. The present
specimens have distinctly granular carapaces, with fine granules near the periphery, with diffuse patches of moderate-sized granules in the protogastric region, with even larger granules in the mesogastric region, and with moderate-sized granules again in the cardiac region. In these respects, they resemble Barnard’s material.

Barnard also shows a single elevation in the cardiac region tapering away posteriorly, which is visible on the present specimens but not on Crosnier’s figure. Edmonson (1954, fig. 17b) shows a similar embossing of the carapace on a Hawaiian specimen, but in Rathbun’s plate (1906, pl. 12: fig. 4) a different shape of the cardiac region is shown and also conspicuous metagastric ridges. Thus, merely on the basis of carapace ornamentation, three forms could all have been called *P. orbicularis*: (1) Richters’ and Crosnier’s, and presumably Alcock’s (2) Barnard’s, Edmondson’s, and the present specimens, and (3) Rathbun’s.

The male pleopod figured by Crosnier (fig. 101) also differs from that of Edmondson (1954, fig. 16d), but the extent to which this is due to Edmondson’s draftsmanship is unknown.

It is evident that a careful re-examination of all available material of the present “species” should be made. The authors are reluctant to erect a new species without a male specimen being available.

**Portunus pelagicus** (Linnaeus)

*Cancer pelagicus* Linnaeus, 1766, p. 1042.

*Neptunus pelagicus* (L.)—Sakai, 1939, pp. 387–8, pl. 49.

*Portunus pelagicus* (L.)—Stephenson and Campbell, 1959, pp. 96–8, figs. 2A, 3A, pl. 1 (fig. 1), pls. 4A, 5A.—Crosnier, 1962, pp. 43–5, figs. 58, 61, 67.—Sakai, 1965, p. 117, pls. 55, 56.—Stephenson and Rees, 1967, p. 34.

**Material examined.**—2 females (33.5, ca. 40 mm) (cephalothorax only, specimens soft), Anton Bruun Cr. 1, Thailand, Patong Phuket; Mar. 22, 1963; coll. Taylor, Tyler, Sterling, and Rogers. Either shore or dipnet collection.

**Distribution.**—East Africa to Tahiti, also Mediterranean.

**Portunus pulchricristatus** (Gordon)

*Neptunus (Hellenus) spinipes* Alcock, 1899a, pp. 31–2, 39–40.

*Neptunus (Hellenus) pulchricristatus* Gordon, 1931, p. 534, figs. 8, 10A.

**Portunus pulchricristatus** (Gordon).—Stephenson and Rees, 1967, p. 35.

Not *Neptunus (Amphitrite) spinipes* Miers, 1886, p. 178, pl. 25 (fig. 1).

**Material examined.**—6 males (18.5–23.5 mm), 1 female (20 mm), 5 ovig. females (19.5–ca. 23 mm), Sta. No. AB 41–63. 4 males (24–26 mm), 1 female (23.5 mm), 1 ovig. female (20.5 mm),
Sta. No. 41A. 3 males (ca. 21–22.5 mm), Sta. No. AB 48–63. 95 males (21–28.5 mm), 2 females (20, 26 mm), 13 ovig. females (20.5–25 mm), Sta. No. 201A. 1 male (19.5 mm), 1 female (ca. 19 mm), Sta. No. 213A. 8 males (21.5–29 mm), 2 females (21.5, 25 mm), 2 ovig. females (20, 24.5 mm), Sta. No. 221A. 1 male (19 mm), Sta. No. 262A. 1 male (27.5 mm), Sta. No. 264A.

Trawled (except Sta. No. AB 48–63 dredged), depths from 29 to 291 m, muddy bottoms.

Remarks.—A single male (25.5 mm, Sta. No. 201A) has one parasitized branchial cavity.

Distribution.—Oman to Philippines, but not Australia.

Portunus sanguinolentus (Herbst)

Cancer sanguinolentus Herbst, 1796, p. 161, pl. 8 (figs. 56, 57).


Neptunus sanguinolentus (Herbst).—Sakai, 1939, p. 387, pl. 47 (fig. 1).

Material examined.—1 male (42 mm), Can 26. 1 male (42 mm), Sta. No. AB 28d–63. 1 male (40 mm), Sta. No. 32.

Dipnet.

Distribution.—East Africa to Australia. Current work shows that Hawaiian specimens are pigmented differently from Japanese and Australian material, but the precise status of the Hawaiian form has not yet been determined.

Portunus trituberculatus (Miers)

Portunus pelagicus De Haan 1835, p. 37, plis. 9, 10.

Neptunus trituberculatus Miers, 1876, p. 222; 1886, p. 172.—Sakai, 1934, p. 303; 1936, p. 129, pl. 37.


Neptunus (Neptunus) trituberculatus (Miers).—Sakai, 1939, p. 388, pl. 50.

Material examined.—1 female (ca. 97 mm), Anton Bruun Cr. 1, India, north side Okah Point, Port Okah; Mar. 9, 1963. 2 males (ca. 160, 170 mm), Sta. No. 46–63.

Sta. No. 46–63 probably trawled, depth 23–25 m.

Distribution.—Red Sea, China, and Japan, and now India and Bay of Bengal.
Genus *Scylla* de Haan, 1833

*Scylla serrata* (Forskål)

*Cancer serratus* Forskål, 1775, p. 90.

*Scylla serrata* (Forskål).—Stephenson and Campbell, 1960, pp. 111–5, fig. 2N, pl. 4 (fig. 4), pls. 5N, 6C.—Crosnier, 1962, pp. 72–3, figs. 128, 129.—Stephenson and Rees, 1967, p. 55.

Material examined.—1 ovig. female (ca. 86 mm), *Anton Bruun* Cr. 1, India, Visakhapatana Port, July 31, 1963.

Habitat uncertain.

Distribution.—East Africa to Tahiti including Japan, Australia, and New Zealand.

Genus *Thalamita* Latreille, 1829

*Thalamita admete* (Herbst)

*Cancer admete* Herbst, 1803, pp. 40–1, pl. 57 (fig. 1).

*Thalamita admete* (Herbst).—Sakai, 1939, pp. 414, 421–2, pl. 85 (fig. 1).—Stephenson and Hudson, 1957, pp. 320, 324–6, figs. 2I, 3I, pl. 1 (fig. 1), pls. 7A, 10A.—Crosnier, 1962, pp. 96–7, figs. 154, 157, 162–4, 168.—Stephenson and Rees, 1967, p. 56.

*Thalamita Edwardsi* Borradaile.—Crosnier, 1962, p. 98, fig. 158.

*Thalamita dispar* Rathbun, 1914, p. 657, pl. 1 (fig. 4).

Material examined.—3 males (ca. 5–26 mm), Sta. No. B9. 2 males (9, 13 mm), 1 ovig. female (10 mm), Sta. No. B16.

Dredged, 12–24 ft, sandy bottoms, lagoons at Cocos Keeling I.

Remarks.—Stephenson and Rees (1967, pp. 56–57) have detailed the synonymy of this species. Examination of Rathbun’s (1914) type of *T. dispar* by the senior author confirms that it belongs to *T. admete*. Stephenson made the following notes:

Resembles *T. Edwardsi* in (1) cardiac ridges of carapace just recognisable, (2) posterior mesobranchial ridges represented by a small pimple, (3) hands of chelipeds smooth, no granules on outer surface. Uppermost carina of outer surface coarsely beaded, middle and lowermost smooth, (4) no trace of fourth anterolateral tooth on right, at most a rudiment on left. Male pleopods—resembling Fig. 20d in Stephenson and Rees MS.

Distribution.—Red Sea and East Africa to Tahiti.

*Thalamita chapalii* (Audouin)

*Portunus chapalii* Audouin, 1826, p. 83 [figs. in Savigny, 1809, pl. 4 (fig. 1)].

Material examined.—1 ovig. female (8 mm), Anton Bruun Cr. 1, Thailand, Patong Phuket; Feb. 22, 1963; coll. Taylor, Tyler, Sterling, and Rogers. Probably shore collection.

Remarks.—Without accompanying males, there is some uncertainty in the above identification.

Distribution.—Malgache [Madagascar] and the Red Sea to Australia and Tahiti.

*Thalamita crenata* (Latreille)

*Portunus crenatus* Latreille, 1829 [side Milne Edwards, II., 1834, p. 461].


Material examined.—1 male (14.5 mm), 1 female (53.5 mm), Anton Bruun Cr. 1, Thailand, Patong Phuket; Feb. 22, 1963; coll. Taylor, Tyler, Sterling, and Rogers. Probably shore collection.

Remarks.—Both specimens are without their chelipeds, which are of diagnostic importance.

Distribution.—East Africa and Red Sea to Japan, Australia, Hawaii, Society Is., and Tuamotus.

*Thalamita demani* Nobili


*Thalamita invicta* de Man, 1895, p. 565, pl. 13 (figs. 11, 11a).

*Thalamita cooperi* Stephenson and Hudson, 1957, pp. 331–2 [in part].

*Thalamita trilineata* Stephenson and Hudson, 1957, pp. 359–60, figs. 2E, 3E, pl. 6 (fig. 4), pls. 8S, 10L.—Stephenson, 1961, p. 124, pl. 4 (fig. 21).

*?Thalamita invicta*.—Thallwitz, 1891, pp. 46–7, fig. 11.

Not *Thalamita cooperi* Borradaile, 1902, pp. 206–7, fig. 37.—Sankarankutty, 1961b, p. 122, fig. 113.

Material examined.—1 female (12.5 mm), Sta. No. B 17.

Remarks.—If the small fourth anterolateral teeth are overlooked, females of this species are confused easily with *T. cooperi* Borradaile.

Distribution.—Red Sea and Malgache [Madagascar] to Australia and Philippines.
**Thalamita prymina** (Herbst)

*Cancer prymina* Herbst, 1803, pp. 41-2, pl. 57 (fig. 2).

**Thalamita prymina** (Herbst).—Alcock, 1899a, pp. 78-9.—Sakai, 1939, pp. 413, 416, pl. 51 (fig. 1); 1965, p. 125, pl. 64 (fig. 2).—Stephenson and Hudson, 1957, pp. 346-9, figs. 2R, 3R, pl. 4 (fig. 3), pls. 8L, 9E.—Crosnier, 1962, pp. 136-8, figs. 234-6.—Stephenson and Rees, 1967, p. 89.

**Material examined.**—4 males (38.5-63.5 mm), 2 females (40.5-62 mm), *Anton Bruun* Cr. 1, India, north side Okah Point, Port Okah; Mar. 9, 1963. 2 males (32.5-48.5 mm) (both without chelae), *Anton Bruun* Cr. 1, Thailand, Patong Phuket; Mar. 22, 1963; coll. Taylor, Tyler, Sterling, and Rogers.

Both probably shore collections.

**Remarks.**—In the larger specimens the spines on the ridge of the basal antennal joint are largely worn away, with resultant problems in identification (see Stephenson and Rees, 1967, p. 90).

**Distribution.**—East Africa and Red Sea to Marshalls and Samoa, including Australia and Japan.

**Thalamita gracilipes** (A. Milne Edwards)

**Figures 2d, h**

*Thalamonyx gracilipes* A. Milne Edwards, 1873, pp. 169-71, pl. 4 (figs. 3, 3a-d).—Alcock, 1899a, pp. 71-2.—Rathbun, 1906, p. 873.—Edmondson, 1954, pp. 251-2, figs. 26a, b.—Crosnier, 1962, pp. 91-3, fig. 153 bis a-d.

*Thalamonyx danae* var. *gracilipes* A. Milne Edwards.—Miers, 1886, pp. 192-3.


*? Goniosoma* (*Thalamonyx*) *danae* A. Milne Edwards.—Ortmann, 1894, p. 83.

**Material examined.**—Male (10.5 mm), Sta. No. B-16. Male (6 mm), ovig. female (11.5 mm), Sta. No. B-34.

Dredged, 12-24 ft, sandy bottom, lagoons at Cocos Keeling I.

**Remarks.**—A. Milne Edwards in 1873 listed the diagnostic differences between this species and *Goniosoma danae* A. Milne Edwards (1869, pp. 153-5, pl. 7: figs. 6, 7): *T. gracilipes* has an almost entire front, a narrower carapace, and longer legs. None of these differences do appear to have diagnostic value and the entirety of the front and carapace breadth appear to depend on the size of the specimen—compare Crosnier (1962, fig. 153 bis a) with A. Milne Edwards (1873, pl. 4: fig. 3). Milne Edwards' descriptions and figures indicate that there is an apparently important difference in the ornamentation of the posterior part of the carapace. In *G. danae* there are ovoid elevations in the mesobranchial area but apparently none in the cardiac region. In *T. gracilipes* there are four ridges forming an arc, one in each mesobranchial and one in each cardiac region.
Miers' specimens appear identical to the largest of the present specimens, being pubescent to the point of hirsuteness. Ortmann (1894) considered that G. danae and T. gracilipes were synonymous, presumably working from Milne Edwards' (1873) diagnostic features.

Forest (in Crosnier, 1962, p. 93) wondered whether T. gracilipes of Edmondson (1954) was a different species because of its less prominent front and because it had a different male abdomen. The form of the abdomen of the larger male in the present collections greatly resembles that figured by Edmondson (1954, fig. 26b). Edmondson, however, shows a continuous ridge in the posterior part of the carapace; possibly this is due to inaccurate draftsmanship.

Crosnier's figure of a male pleopod (1962, fig. 153 bis d) is obviously from an immature specimen. That of the larger male in the present collection is short, curved, with a slightly swollen tip ending obliquely. Subterminally on the outer side, there are stout bristles, mostly in pairs, with nine visible in profile view followed by thinner bristles; a sparse row of spinules is also present. On the inner side, in profile view, there are five elongate hook-shaped bristles followed by four almost straight bristles.

Edmondson has noted that Thalamonyx has been regarded variously as a subgenus of Charybdis, a separate genus, or as part of the genus Thalamita. Because of the increasing indefiniteness of the boundaries of the genus Thalamita (see Stephenson and Rees, 1967a, pp. 59-61), the present authors follow Stephenson and Hudson (1957) and regard the present species as belonging to Thalamita.


**Thalamita spinifera** Borradaile

*Thalamita exctica* var. B. spinifera Borradaile, 1902, p. 203.


**Material Examined.**—1 male (18.5 mm), Sta. No. 262A. Trawled, 79 m, sandy bottom.

**Distribution.**—Malagache [Madagascar], Maldives, Philippines, and Hawaii.

**Thalamita species**

This specimen could not be identified beyond the genus.

**Material Examined.**—1 yg. male (6 mm), Sta. No. 28A. Trawled, 66 m.
Table 1.—Data on International Indian Ocean Expedition Stations (GMT = Gulf of Mexico Shrimp Trawl; depth = meters unless otherwise stated; generic abbreviations: C. = Charybdis, L. = Lupocycrus, P. = Portunus, S. = Scylla, T. = Thalamita)

<table>
<thead>
<tr>
<th>Sta. No.</th>
<th>Anton Bruun Cruise No.</th>
<th>Position</th>
<th>Gear</th>
<th>Depth</th>
<th>Bottom, other notes</th>
<th>Date</th>
<th>Portunid species</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB3-63</td>
<td></td>
<td>A 31°58' N, 49°17' E</td>
<td>dipnet</td>
<td>surface</td>
<td></td>
<td>31/iii/1963</td>
<td>C. smithii (3)</td>
</tr>
<tr>
<td>Can 26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P. sanguinolentus (1)</td>
</tr>
<tr>
<td>AB-20</td>
<td>1</td>
<td>09°13' N, 95°51' E</td>
<td>GMT</td>
<td>60-58</td>
<td></td>
<td>23/iii/1963</td>
<td>C. hongkongensis (12)</td>
</tr>
<tr>
<td>AB21-63</td>
<td>1</td>
<td>09°54' N, 97°42' E</td>
<td>GMT</td>
<td>70</td>
<td></td>
<td>24/iii/1963</td>
<td>C. miles (2)</td>
</tr>
<tr>
<td>22</td>
<td>1</td>
<td>10°37' N, 97°34' E</td>
<td></td>
<td>?</td>
<td></td>
<td>24/iii/1963</td>
<td>P. argentatus (132)</td>
</tr>
<tr>
<td>AB-22A</td>
<td>1</td>
<td>10°39' N, 97°06' E</td>
<td>GMT</td>
<td>290</td>
<td></td>
<td>24/iii/1963</td>
<td>P. argentatus (20)</td>
</tr>
<tr>
<td>AB28a-63</td>
<td>1</td>
<td>11°52' N, 92°49' E</td>
<td>GMT</td>
<td>66</td>
<td></td>
<td>27/iii/1963</td>
<td>P. argentatus (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Thalamita sp.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AB28d-63</td>
<td>1</td>
<td>11°37' N, 92°56' E</td>
<td>dipnet</td>
<td>surface?</td>
<td></td>
<td>27/iii/1963</td>
<td>P. sanguinolentus (1)</td>
</tr>
<tr>
<td>AB32</td>
<td>1</td>
<td>12°52' N, 94°13' E</td>
<td>dipnet</td>
<td>surface</td>
<td></td>
<td>28/iii/1963</td>
<td>P. sanguinolentus (1)</td>
</tr>
<tr>
<td>AB-37</td>
<td>1</td>
<td>13°28' N, 97°19' E</td>
<td>GMT</td>
<td>73-81</td>
<td></td>
<td>30/iii/1963</td>
<td>C. rostrata (1)</td>
</tr>
<tr>
<td>AB-40-63</td>
<td>1</td>
<td>15°21' N, 96°24' E</td>
<td>GMT</td>
<td>26-27</td>
<td></td>
<td>31/iii/1963</td>
<td>C. callianassa (1)</td>
</tr>
<tr>
<td>AB-41</td>
<td>1</td>
<td>15°04' N, 95°51' E</td>
<td>GMT</td>
<td>44-46</td>
<td></td>
<td>31/iii/1963</td>
<td>C. rostrata (63)</td>
</tr>
<tr>
<td>AB-41A</td>
<td>1</td>
<td>15°04' N, 95°51' E</td>
<td>GMT</td>
<td>29-33</td>
<td></td>
<td>31/iii/1963</td>
<td>C. vadorum (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P. pulchriscristatus (12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C. hongkongensis (4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C. vadorum (6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P. minutus (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P. pulchriscristatus (6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Lat</td>
<td>Long</td>
<td>Method</td>
<td>GMT</td>
<td>Date</td>
<td>Species</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
<td>------</td>
<td>--------</td>
<td>------</td>
<td>----------</td>
<td>--------------------------</td>
<td></td>
</tr>
<tr>
<td>AB-42</td>
<td>15°08’N</td>
<td>94°54’E</td>
<td></td>
<td>GMT</td>
<td>35</td>
<td>1/IV/1963 1</td>
<td></td>
</tr>
<tr>
<td>AB-44</td>
<td>21°52’N</td>
<td>91°36’E</td>
<td></td>
<td>GMT</td>
<td>15</td>
<td>4/IV/1963 C. hongkongensis (1)</td>
<td></td>
</tr>
<tr>
<td>AB-44a</td>
<td>21°43’N</td>
<td>91°33’E</td>
<td></td>
<td>GMT</td>
<td>15</td>
<td>4/IV/1963 C. vadorum (4)</td>
<td></td>
</tr>
<tr>
<td>AB-45</td>
<td>21°32’N</td>
<td>91°29’E</td>
<td></td>
<td>GMT</td>
<td>17</td>
<td>4/IV/1963 C. hastatooides (2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>19°41’N</td>
<td>93°08’E</td>
<td></td>
<td>dredge</td>
<td>37</td>
<td>5/IV/1963 C. rostrata (2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>19°32’N</td>
<td>92°52’E</td>
<td></td>
<td>GMT</td>
<td>53</td>
<td>6/IV/1963 C. natator (1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>17°42’N</td>
<td>83°17’E</td>
<td>(Visakhapatnam)</td>
<td>GMT</td>
<td>46–55</td>
<td>12–14/IV/1963 C. variegata (1)</td>
<td></td>
</tr>
<tr>
<td>201A</td>
<td>17°54’N</td>
<td>72°27’E</td>
<td>–</td>
<td>17°57’N</td>
<td>72°23’E</td>
<td>Green mud and shells</td>
<td>13/XI/1963 P. trituberculatus (2)</td>
</tr>
<tr>
<td>202A</td>
<td>17°25’N</td>
<td>71°39’E</td>
<td>–</td>
<td>17°21’N</td>
<td>71°41’E</td>
<td>Greenish sand and mud</td>
<td>13/XI/1963 P. argentinus (1)</td>
</tr>
<tr>
<td>202B</td>
<td>17°41’N</td>
<td>71°33’E</td>
<td>–</td>
<td>17°45’N</td>
<td>71°32’E</td>
<td>Coral, sand</td>
<td>14/XI/1963 P. argentatus (34)</td>
</tr>
<tr>
<td>202C</td>
<td>18°27’N</td>
<td>71°13’E</td>
<td>–</td>
<td>18°28’N</td>
<td>71°09’E</td>
<td>Coral, sand</td>
<td>14/XI/1963 P. argentatus (34)</td>
</tr>
<tr>
<td>Station Number</td>
<td>Position: Long/Depths (E/W, N/S)</td>
<td>Depth</td>
<td>Bottom, other notes</td>
<td>Portion species</td>
<td>Date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------------------</td>
<td>-------</td>
<td>---------------------</td>
<td>--------------------</td>
<td>------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>203A</td>
<td>4B 19°07'N, 71°41'E</td>
<td>69-68</td>
<td>Sand green mud, shells</td>
<td>P. argenatus (7)</td>
<td>14/6i/1963</td>
<td></td>
<td></td>
</tr>
<tr>
<td>203B</td>
<td>4B 19°08'N, 71°42'E</td>
<td>27-29</td>
<td>Soft green mud, mud</td>
<td>C. callianassa (4)</td>
<td>14/6i/1963</td>
<td></td>
<td></td>
</tr>
<tr>
<td>203C</td>
<td>4B 19°05'N, 71°47'E</td>
<td>26</td>
<td>Brown mud</td>
<td>C. callianassa (1)</td>
<td>15/6i/1963</td>
<td></td>
<td></td>
</tr>
<tr>
<td>204A</td>
<td>4B 20°30'N, 70°54'E</td>
<td>33</td>
<td>Brown, sticky mud</td>
<td>P. argenatus (3)</td>
<td>15/6i/1963</td>
<td></td>
<td></td>
</tr>
<tr>
<td>204B</td>
<td>4B 20°25'N, 70°50'E</td>
<td>71-79</td>
<td>Green clay, shells, sand</td>
<td>C. simidai (1)</td>
<td>15/6i/1963</td>
<td></td>
<td></td>
</tr>
<tr>
<td>206A</td>
<td>4B 20°20'N, 69°56'E</td>
<td>280</td>
<td>Light organic chunks, green clay</td>
<td>C. hoplites (3)</td>
<td>16/6i/1963</td>
<td></td>
<td></td>
</tr>
<tr>
<td>206B</td>
<td>4B 19°56'N, 69°34'E</td>
<td>35-36</td>
<td>Soft green clay, mud</td>
<td>C. hoplites (1)</td>
<td>16/6i/1963</td>
<td></td>
<td></td>
</tr>
<tr>
<td>207A</td>
<td>4B 19°51'N, 69°24'E</td>
<td>70-72</td>
<td>Green mud, sand, shell</td>
<td>C. hoplites (12)</td>
<td>17/6i/1963</td>
<td></td>
<td></td>
</tr>
<tr>
<td>207B</td>
<td>4B 22°32'N, 68°22'E</td>
<td>57</td>
<td>Greenish silt sand</td>
<td>C. hoplites (2)</td>
<td>18/6i/1963</td>
<td></td>
<td></td>
</tr>
<tr>
<td>208A</td>
<td>4B 22°31'N, 68°21'E</td>
<td>26-27</td>
<td>Sandy green clay, (mud)</td>
<td>C. hoplites (1)</td>
<td>18/6i/1963</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site</td>
<td>Latitude</td>
<td>Longitude</td>
<td>Method</td>
<td>Depth</td>
<td>Notes</td>
<td>Date</td>
<td>Species</td>
</tr>
<tr>
<td>------</td>
<td>------------------</td>
<td>--------------------</td>
<td>--------</td>
<td>-------</td>
<td>----------------------------------------------------------------------</td>
<td>----------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>223A</td>
<td>22°54' N, 68°36'E</td>
<td>22°52' N, 68°34'E</td>
<td>GMT</td>
<td>15</td>
<td>Soft mud</td>
<td>19/xi/1963</td>
<td>C. callianassa (26)</td>
</tr>
<tr>
<td>224A</td>
<td>23°00' N, 68°10'E</td>
<td>23°01' N, 68°08'E</td>
<td>GMT</td>
<td>24</td>
<td>Soft mud</td>
<td>19/xi/1963</td>
<td>C. callianassa (6)</td>
</tr>
<tr>
<td>228A</td>
<td>23°45' N, 70°26'E</td>
<td>23°43' N, 67°23'E</td>
<td>GMT</td>
<td>23-24</td>
<td>Greenish brown clay</td>
<td>20/xi/1963</td>
<td>P. hastaloides (1)</td>
</tr>
<tr>
<td>231A</td>
<td>23°13' N, 66°40'E</td>
<td>23°18' N, 66°39'E</td>
<td>GMT</td>
<td>185-155</td>
<td>Sands, shells, mud</td>
<td>20/xi/1963</td>
<td>C. smithii (2)</td>
</tr>
<tr>
<td>237A</td>
<td>25°04' N, 65°26'E</td>
<td>25°04' N, 65°24'E</td>
<td>GMT</td>
<td>26</td>
<td>Hard packed mud</td>
<td>22/xi/1963</td>
<td>C. hoplites (1)</td>
</tr>
<tr>
<td>241A</td>
<td>24°54' N, 63°52'E</td>
<td>24°56' N, 63°53'E</td>
<td>GMT</td>
<td>101-90</td>
<td>Mud, shell fragments</td>
<td>22/xi/1963</td>
<td>C. hoplites (45)</td>
</tr>
<tr>
<td></td>
<td>63°48'65''E [sic]</td>
<td></td>
<td>collecting</td>
<td></td>
<td>Rotenone and dip net</td>
<td>27/xi/1963</td>
<td>C. orientalis (14)</td>
</tr>
<tr>
<td>LW-1</td>
<td>25°06'35''N,</td>
<td>63°48'65''E [sic]</td>
<td>GMT</td>
<td>65-82</td>
<td>Clay, mud, shell</td>
<td>29/xi/1963</td>
<td>C. hoplites (2)</td>
</tr>
<tr>
<td></td>
<td>63°48'65''E [sic]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>248A</td>
<td>25°10' N, 60°27'E</td>
<td>25°08' N, 60°23'E</td>
<td>GMT</td>
<td>115-94</td>
<td>Sticky clay, shell</td>
<td>20/xi/1963</td>
<td>C. hoplites (5)</td>
</tr>
<tr>
<td>251B</td>
<td>25°17' N, 59°05'E</td>
<td></td>
<td>dredge</td>
<td>35</td>
<td>Green-brown mud, clay, broken shell</td>
<td>29/xi/1963</td>
<td>Charybdis sp. (1 yg.)</td>
</tr>
<tr>
<td>252A</td>
<td>25°20' N, 58°27'E</td>
<td>25°20' N, 58°30'E</td>
<td>GMT</td>
<td>101</td>
<td>Green mud, sand</td>
<td>29/xi/1963</td>
<td>C. hoplites (1)</td>
</tr>
<tr>
<td>253A</td>
<td>25°25' N, 58°20'E</td>
<td>25°23' N, 58°24'E</td>
<td>GMT</td>
<td>82-90</td>
<td>Green mud, clay</td>
<td>29/xi/1963</td>
<td>C. smithii (1)</td>
</tr>
</tbody>
</table>

Note: GMT stands for Greenwich Mean Time, and "Hand collecting" refers to the method of collecting samples.
<table>
<thead>
<tr>
<th>Sta. No.</th>
<th>Position</th>
<th>Date</th>
<th>Bottom, other notes</th>
<th>Gear</th>
<th>Depth</th>
<th>Bottom, other notes</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>255A</td>
<td>26°50'N, 57°07'E</td>
<td>30/11/1963</td>
<td>Clay, sand, minute gastropod shells</td>
<td>GMT</td>
<td>92-95</td>
<td></td>
<td>C. hoplites (1), C. miles (2)</td>
</tr>
<tr>
<td>256A</td>
<td>26°50'N, 57°07'E</td>
<td>30/11/1963</td>
<td>Green mud</td>
<td>GMT</td>
<td>64-65</td>
<td></td>
<td>P. pulcheriscates (1), C. miles (5)</td>
</tr>
<tr>
<td>258A</td>
<td>26°50'N, 57°07'E</td>
<td>1/12/1963</td>
<td>Soft clay, mud, shell fragments</td>
<td>GMT</td>
<td>35-35</td>
<td></td>
<td>C. longirodialis (1)</td>
</tr>
<tr>
<td>261A</td>
<td>26°50'N, 57°07'E</td>
<td>1/12/1963</td>
<td>Green muddy sand</td>
<td>GMT</td>
<td>90</td>
<td></td>
<td>C. miles (2)</td>
</tr>
<tr>
<td>262A</td>
<td>26°50'N, 57°07'E</td>
<td>2/12/1963</td>
<td>Greasy soft mud</td>
<td>GMT</td>
<td>296</td>
<td></td>
<td>T. spinodera (1)</td>
</tr>
<tr>
<td>263A</td>
<td>26°50'N, 57°07'E</td>
<td>2/12/1963</td>
<td>Black mud</td>
<td>GMT</td>
<td>84-90</td>
<td></td>
<td>C. rivierandonseni (4), C. rivierandonseni (4)</td>
</tr>
<tr>
<td>265A</td>
<td>26°50'N, 57°07'E</td>
<td>2/12/1963</td>
<td>sticky grey clay</td>
<td>GMT</td>
<td>291-272</td>
<td></td>
<td>C. rivierandonseni (4)</td>
</tr>
</tbody>
</table>

**Table 1—Data on International Indian Ocean Expedition Stations—Continued**
<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Method</th>
<th>Depth</th>
<th>Sediment</th>
<th>Collection Dates</th>
<th>Species</th>
</tr>
</thead>
</table>
| 266A    | 24°27' N, 56°50' E-24°30' N, 56°47' E | GMT | 47-49 | Dark green sandy mud | 2/xii/1963 | *C. longicollis* (1)  
*P. argentatus* (36)  
*C. hoplitae* (1)  
*C. longicollis* (1)  
*C. smithii* (18)  
Charybdis sp. (fragmented)  |
| 268A    | 24°12' N, 57°27' E-24°13' N, 57°22' E | GMT | 364-368 | Grey clay, mud, shell fragments | 2/xii/1963 |  |
| 270A    | 22°05' N, 59°47' E-22°08' N, 59°48' E | GMT | 55 | Sand, some clay | 4/xii/1963 | *C. hoplitae* (1)  
*C. smithii* (1)  
*P. emarginatus* (1)  
*T. admete* (3)  |
| 172     | 14°34' N, 51°02' E | Dipnet | surface | Fine white sand; coll. Virginia Orr | 15/x/1963 |  |
| B9      | Cocos-Keeling, lagoon ½ mile SW of Wharf, Central Direction I | dredge | 18-24 ft |  | 18/j/1963 |  |
| B16     | Cocos-Keeling lagoon 1½ miles S by E of Possession Pt, Horsburgh I | dredge | 12-18 ft | Sand, shell and coral rubble; coll. Virginia Orr. | 21/i/1963 | *P. cf. longispinosus* (1)  
*P. cf. orbicularis* (3)  
*T. admete* (3)  
*T. gracilipes* (1)  |
| B17     | Cocos-Keeling lagoon 300 yds off West I, just N of North Lagoon | dredge | 6 ft | Heavy sea-weed, (mostly Thalassia); coll. Virginia Orr | 21/i/1963 | *T. demani* (1)  |
| B34     | Cocos-Keeling lagoon, 2 miles E of northern end of West I | dredge | 24 ft | Hard fine sand and weed; coll. Virginia Orr | 11/ii/1963 | *T. gracilipes* (2)  |
### Table 1.—Data on International Indian Ocean Expedition Stations—Continued

<table>
<thead>
<tr>
<th>Sta. No.</th>
<th>Anton Bruun Cruise No.</th>
<th>Position</th>
<th>Gear</th>
<th>Depth</th>
<th>Bottom, other notes</th>
<th>Date</th>
<th>Portunid species</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Phuket</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><em>P. trituberculatus</em> (1) <em>T. pynma</em> (6)</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>India, north side</td>
<td></td>
<td></td>
<td>9/iii/1963</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Okah Point, Port Okah</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9682</td>
<td>?</td>
<td>18°48' N, 72°37' E</td>
<td>M.U.F. Janjira Bottom Trawl</td>
<td>12.5-14 fm</td>
<td>12/v/1964</td>
<td></td>
<td><em>C. callianassa</em> (1) <em>C. feriatus</em> (1) <em>P. hastatoides</em> (8)</td>
</tr>
</tbody>
</table>
Literature Cited

Adams, A., and White, A.

Alcock, A.

Alcock, A., and Anderson, A. R. S.

Audouin, V.

Balss, H.

Barnard, K. H.

Borradaile, L. A.

Chopra, B.
Crosnier, A.

Dana, J. D.

Della Croce, N. and Holthuis, L. B.

Doplein, F.

Edmondson, C. H.

Fabricius, J. C.
1798. Supplementum entomologiae systematicae, 572 pp. [Cited from Forest and Guinot, 1961.]

Forest, J., and Guinot, Danièle

Forskål, P.
1775. Descriptiones animalium, avium, amphibiorum, insectorum, vermium quae in itinere orientali observavit Petrus Forskål, 19+xxxii+64 pp., 1 map. Hauniae.

Gordon, Isabella

Haan, W. de

Henderson J. R.

Herbst, J. F. W.
HOLTHUIS, L. B.

KRAUSS, F.

LATREILLE, M.

LEENE, JENTINA E.


LEENE, JENTINA E., and BUTENDIJK, ALIDA M.

LEWINSOHN, C., and HOLTHUIS, L. B.

LINNAEUS, C.
1758. Systema naturae per regna tria naturae, secundum classes, ordines, genera, species cum characteribus, differentiis, locis, ed. 10, vol. 1, 824 pp. Holmiæ.

1766. Systema naturae, p. 1042. [Quoted from Crosnier, 1962.]

MAN, J. G. DE


MCLEAY, W. S.
1838. On the brachyurous decapod Crustacea brought from the Cape by Dr. Smith. *In* Illustrations of the Annulosa of South Africa; being a portion of the objects of natural history chiefly collected during an expedition into the interior of South Africa, under the direction of Dr. Andrew Smith, in the years 1834, 1835 and 1836; fitted out by “The Cape of Good Hope Association for Exploring Central Africa,” 75 pp., 4 pls. London.

Miers, E. J.

32 PROCEEDINGS OF THE NATIONAL MUSEUM VOL. 122

Milne Edwards, A.

Nobili, G.

Ortmann, A.

Parisi, B.

Paulson, A.
1875. Recherches sur les crustacés de la Mer Rouge. [In Russian, quoted from Leene, 1985.]

Rathbun, Mary J.

Rees, May, and Stephenson, W.

Richters, F.

Sakai, T.
1936. Crabs of Japan: 66 plates in life colours with descriptions, Tokyo. [Quoted from Sakai, 1965.]
1965. The crabs of Sagami Bay, xvi+206 pp., 100 pls. Tokyo: Maruzen Ltd. [English text.]


Stimpson, W.  


Thallwitz, J.  

Ward, M.  

Weber, F.  

White, A.  
1847. List of the specimens of the Crustacea of the British Museum, viii+143 pp.

Wood-Mason, J.  

Yokoya, Y.  