

FIG. 3. *Cyrtomaia horrida* Rathbun, holotype, male, 59.0 mm, dorsal view.

Doclea calcitrata White

Doclea calcitrata White, 1847 a : 61, 1847 b : 56; Adams & White, 1848 : 7, pl. 1, fig. 2.

Doclea tetraptera Walker, 1890 : 114–115.

Material examined: 1 ovig. ♀, 36 mm (USNM 47368).

Locality: Off N. Borneo: Jolo Sea, St. 5358, 1 specimen.

Habitat: 39 fms, mud.

Remarks: Reasons for considering Walker's species to be a synonym of White's are given elsewhere (Griffin, 1974 : 10).

Adams & White recorded this species from Zebu.

Distribution: Philippine Islands: Cebu and off N. coast of Borneo; northern Indo-Pacific: Andaman Sea, Singapore, Gulf of Thailand.

Gryphachaeus hyalinus (Alcock & Anderson)

Achaeus hyalinus Alcock & Anderson, 1894 : 205.

Gryphachaeus hyalinus.—Alcock, 1895: 177–178, pl. 3, figs. 4, 4 (a); Griffin (1974 : 14), figs. 1 (e), (f).

Material examined: 3 ♀♀ (2 ovig.), 15–18 mm, smaller ovig. ♀ 15.5 mm (USNM 49838).

Locality: S.E. Luzon—Samar: E. of Masbate I., St. 5213, 3 specimens.

Habitat: 80 fms, sand, mud, shells.

Remarks: The present specimens considerably extend the known range of the species.

Distribution: Philippine Islands: E. of Masbate I.; Western Indian Ocean: N. of Mombassa to mouth of Gulf of Aden; off Ceylon.

Huenia proteus De Haan

Maja (Huenia) proteus De Haan, 1839 : 95–96, fig. G, pl. 23, figs. 4, 5, 6 (a), (b).

Huenia proteus.—Adams & White, 1848 : 21–23, pl. 4, fig. 5.

Huenia proteus.—Sakai, 1965 a : 75, pl. 34, figs. 1, 2.

Material examined: 5 ♂♂, 3 ♀♀, 10–25 mm (USNM 49566–67, 49570–71).

Localities: Sulu Archipelago: Jolo I. and vicinity, St. 5557, 3 specimens; near Siasi, St. 5149, 1 specimen; Tawi Tawi Group, St. 5159, 4 specimens.

Habitat: 10–21 fms, sand, coral, shells, coral sand.

Remarks: This is among the most characteristic and widespread Indo-west Pacific majids. Adams & White (1848) described three varieties—*elongata*, *heraldica* and *tenuipes*. The *Albatross* material agrees with specimens from Japan and Hawaii in having a short rostrum (less than 1/4 postorbital length), the hepatic expansion in the male is small or absent and the propodus of the first ambulatory leg is broadly expanded distally. In some the dorsal edge of the first propodus bears a small lobe rather than a crest dorsally.

None of the specimens resemble *Huenia brevifrons* described by Ward (1941).

Distribution: Philippine Islands: Mindoro to Sulu Archipelago; widespread Indo-Pacific from South Africa to Japan, Australia and Hawaii.

Hyastenus auctus Rathbun

Hyastenus auctus Rathbun, 1916 : 543; Ward, 1941 : 1; Griffin, 1966 b : 281, pl. 15, fig. (a).

Material examined: 5 ♂♂, 6 ♀♀ (2 ovig.), 8–31.5 mm, smaller ovig. ♀ 25 mm (USNM 48214 (holotype), 48262, 49919, 49927, 49934–37, 50694).

Localities: Sulu Archipelago: vicinity of Jolo, St. 5139, 1 specimen; St. 5141, 2 specimens; St. 5145, 1 specimen; St. 5174, 2 specimens; St. 5555, 1 specimen; vicinity of Siasi, St. 5147, 1 specimen; St. 5148, 1 specimen (holotype); Tawi Tawi Group, St. 5151, 1 specimen. Celebes Sea: Buton Strait, St. 5640, 1 specimen.

Habitat: 17-34 fms, coral to coarse sand with shells.

Remarks: This species possesses a single mesogastric tubercle, three branchial tubercles toward the anterolateral margin, the last just forward of the small epibranchial spine, and an intestinal tubercle; these tubercles are generally low or absent. The basal antennal article is broadly expanded laterally in the posterior half, and the anterolateral angle is sometimes produced into a short, uncurved spine. Both the supraorbital and suborbital hiatuses are very narrow. The holotype has been figured recently (Griffin, 1966 b).

Distribution: Sulu Archipelago, Philippine Islands; N.W. Australia.

Hyastenus biformis Rathbun

Hyastenus biformis Rathbun 1916 : 545-546.

Material examined: 8 ♂♂, 6 ♀♀ (4 ovig.), 7.5-12 mm, smallest ovig. ♀ 9 mm (USNM 48217 (holotype), 48258, 49850, 49922, 128936).

Localities: Sulu Archipelago: Tawi Tawi Group, St. 5158, 3 specimens; St. 5159, 5 specimens (including holotype); St. 5160, 6 specimens; vicinity of Sibutu I., St. 5169, 1 specimen.

Habitat: 10-12 fms, sand, coral sand, coarse sand, shells.

Remarks: The rostral spines are very short in this species and the marginal branchial spines are small or absent.

Distribution: Known only from the Sulu Archipelago, Philippine Islands.

Hyastenus convexus Miers

Hyastenus (Chorilia) convexus Miers, 1884 : 196, pl. 18, fig. B, b; De Man, 1902 : 664-666, pl. 22, fig. 32; Balss, 1935 : 123, 124.

Hyastenus tuberculosus Rathbun, 1916 : 543-544.

Material examined: 4 ♂♂, 5 ♀♀ (2 ovig.), 4.5-12.5 mm, smaller ovig. ♀, 11 mm (USNM 48215 (holotype of *H. tuberculosus*), 48228-32, 49900, 129838).

Localities: S. Mindanao: Gulf of Davao, St. 5251, 2 specimens; St. 5253, 1 specimen; Davao Bay, 18.v.1908, 1 specimen. Sulu Archipelago: vicinity of Jolo, St. 5141, 3 specimens (including holotype of *H. tuberculosus*); vicinity of Siasi, St. 5146, 1 specimen; Tawi Tawi Group, St. 5169, 1 specimen.

Habitat: 20-49 fms, coral, coral sand and shells.

Remarks: Balss (1935) has already included Rathbun's *H. tuberculosus* as a synonym of Miers' species. The holotype of '*Hyastenus (Chorilia) convexus*' (male, 17.8 mm, Port Molle, Queensland, pres. Lords of the Admiralty, BMNH 81.31), differs in only minor features such as relative curvature of the rostral spines. There is very close agreement in details of the orbit, basal antennal article and tuberculation of the carapace.

In all the Philippine series the tubercles of the carapace are very low, the epibranchial tubercle is always blunt and there is sometimes a low protogastric tubercle close to the orbit near the hiatus between the supraorbital cave and the postorbital lobe. The latter possesses a rounded or subacute lobe

on the anterior upper edge and the posterolateral angle of the eave is broadly rounded. The anterolateral angle of the basal antennal article is blunt.

Distribution: Philippine Islands: Gulf of Davao south to Sulu Archipelago; Indo-west Pacific from E. Africa through Malay Archipelago to northern Australia.

***Hyastenus fraterculus* Rathbun**

(Fig. 1 (b))

Hyastenus fraterculus Rathbun, 1916 : 546.

Material examined: 1 ♂ (holotype), 7.5 mm (USNM 48291).

Locality: Sulu Archipelago: Tawi Tawi Group, St. 5165, 1 specimen.

Habitat: 9 fms, coral.

Remarks: Rathbun considered this species to be close to *H. biformis*. There are similarities in the orbit above and below, the postorbital lobe having a strong tubercle on the upper anterior edge near the base and the basal antennal article possessing a strong blunt spine on the anterolateral angle and another midway along the lateral margin. However, there are obvious differences, the present species having a much shorter rostrum and a more tuberculate carapace laterally and along the midline.

Distribution: Known only from the Sulu Archipelago, Philippine Islands.

***Hyastenus hilgendorfi* De Man**

Hyastenus hilgendorfi.—Griffin, 1968 b : 103–105, fig. 1, pl. 1; Tirmizi & Serene, 1971 : 25–27 (in discussion), pl. 2, fig. 3.

Material examined: 5 ♂♂, 4 ♀♀ (3 ovig.), 14.5–23 mm, smallest ovig. ♀ 15.5 mm (USNM 48235–6, 49921, 49923).

Localities: S.W. Luzon-Mindoro: Manila Bay, St. 5360, 1 specimen. S. Mindanao: Gulf of Davao, St. 5249, 1 specimen. Sulu Archipelago: vicinity of Jolo, St. 5145, 1 specimen; vicinity of Siasi, St. 5147, 7 specimens.

Habitat: 12–23 fms, coral sand and shells.

Remarks: Although these specimens have the carapace ornamentation typical of this species the anterior corner of the supraorbital eave and the anterolateral lobe of the basal antennal article vary from blunt to subacute.

This species has not been recorded previously from the Philippine Islands.

Distribution: Philippine Islands: Southern Luzon to Sulu Archipelago; Mediterranean Sea and Suez Canal; widespread Indo-west Pacific from E. Africa, Red Sea and Iranian Gulf to Australia and Hawaii.

***Hyastenus orbis* Rathbun**

(Fig. 4 (a))

Hyastenus orbis Rathbun, 1916 : 544–545.

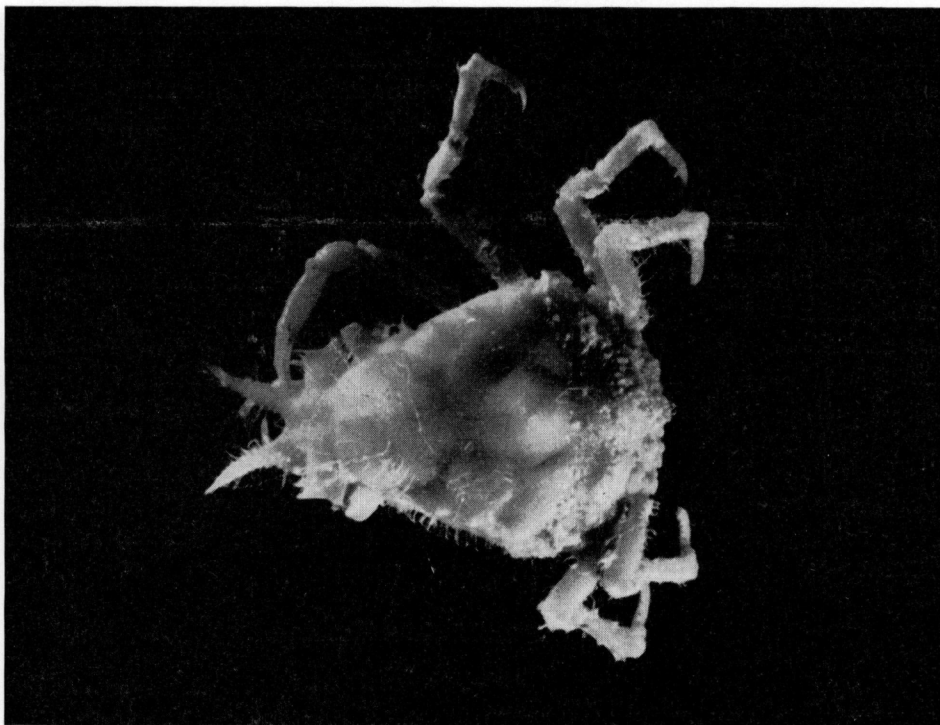
Material examined: 3 ♀♀ (2 ovig.), 8.5–10.5 mm, smallest ovig. ♀ 10 mm (USNM 48216 (holotype), 48226–7).

Localities: Sulu Archipelago: Tawi Tawi Group, St. 5165, 1 specimen (holotype); Jolo I. and vicinity, St. 5557, 1 specimen; St. 5558, 1 specimen.

Habitat: 9–15 fms, sand and coral.

Remarks: Rathbun's description is quite adequate. She mentioned a number of tubercles on the midline of the carapace, 3 gastric, 1 cardiac and 1

(a)



(b)



FIG. 4. (a) *Hyastenus orbis* Rathbun, holotype, ovigerous female, 10.2 mm, dorsal view.
(b) *Hyastenus scrobiculatus* Rathbun, holotype, male, 9.6 mm, dorsal view.

intestinal; these are very low and not obvious. The basal antennal article possesses a strong, forwardly directed spine at the anterolateral angle. In this feature there is a similarity to *H. irami* Laurie which has a smooth carapace and *H. borradailei* (Rathbun) which possesses a longer rostrum.

Distribution: Known only from the Sulu Archipelago, Philippine Islands.

***Hyastenus planasius* (Adams & White)**

Pisa planasia Adams & White, 1848 : 9-10, pl. 2, figs. 4, 5.

Hyastenus planasius.—Chhapgar 1957 : 411-412, pl. 3, figs. (l)-(n).

Material examined: 10 ♂♂, 7 ♀♀ (4 ovig.), 7.5-15 mm, smallest ovig. ♀ 10 mm (USNM 48240-43, 49898-99).

Localities: Sulu Archipelago: vicinity of Jolo, St. 5141, 1 specimen; St. 5145, 3 specimens; vicinity of Siasi, St. 5146, 1 specimen; St. 5149, 2 specimens; Tawi Tawi Group, St. 5151, 1 specimen; St. 5165, 9 specimens.

Habitat: 9-29 fms, coral sand, shells, sand.

Remarks: This is the first record of this species from the Philippine Islands; Adams & White (1848) described the species from the 'Chinese Seas'.

Distribution: Sulu Archipelago, southern Philippine Islands; Indo-west Pacific—Ceylon, Singapore, Timor, N.E. Australia.

***Hyastenus scrobiculatus* Rathbun**

(Fig. 4 (b))

Hyastenus scrobiculatus Rathbun, 1916 : 547.

Material examined: 1 ♂ (holotype), 9.5 mm, 1 ♀ (ovig.), 9 mm (USNM 48218 (holotype), 134419).

Locality: Sulu Archipelago: Tawi Tawi Group, St. 5160, 2 specimens.

Habitat: 12 fms, sand.

Remarks: Rathbun's description is adequate. The 'two triangular, acute teeth' on the basal antennal article, one on the anterolateral angle and one midway along the lateral edge, are characteristic of this species.

Distribution: Known only from the Sulu Archipelago, Philippine Islands.

***Hyastenus sebae* White**

(Fig. 6 (a))

Hyastenus sebae White, 1847 b : 57 (part only—see below); Griffin, 1966 b : 281, pl. 15, figs.

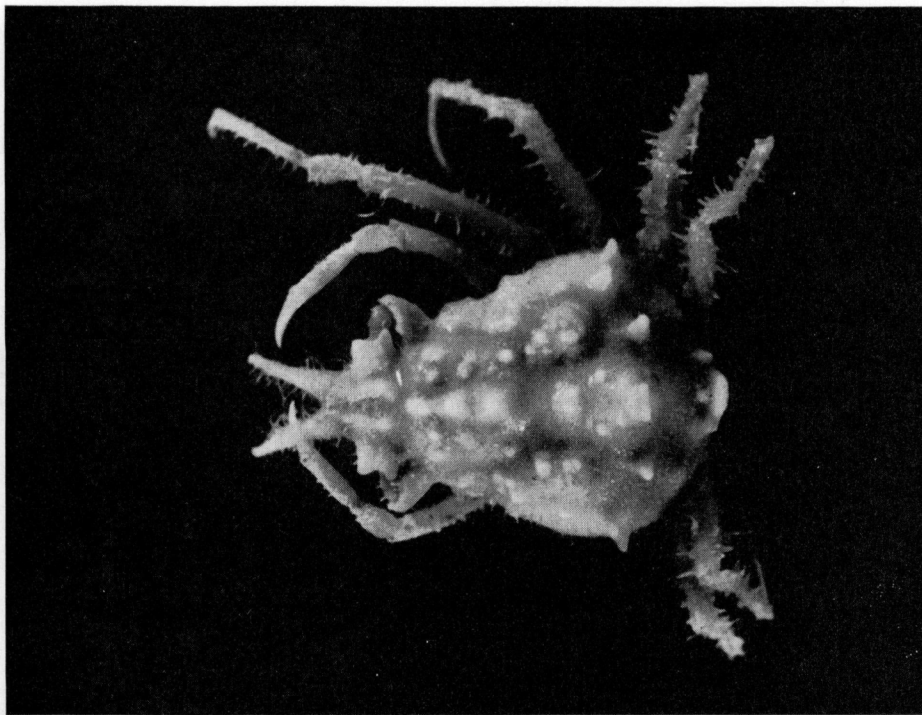
(b), (c) (part only—the female designated as lectotype).

Hyastenus oryx A. Milne Edwards, 1872 : 250, pl. 14, fig. 1; Alcock, 1895 : 214; Buitendijk, 1939 : 244.

Type material: The type material of *H. sebae* White is dealt with below under *H. whitei*. A lectotype was chosen for *Hyastenus sebae* in 1966 (Griffin, 1966 b : 281, pl. 15, figs. (b), (c)). In fact, five specimens were registered under the one number—43.6. Three males from this series now form the type series of *H. whitei*, one specimen actually belongs to *Hyastenus convexus* Miers and the remaining one, a female, cl. 11 mm, is the lectotype of *H. sebae* White.

The type material of *Hyastenus oryx* A. Milne Edwards is in the Muséum National d'Histoire Naturelle, Paris. It comprises 15 specimens, cl. 8-19 mm, at least five of which are males; all are dry, pasted to pith which in turn is pasted to a large rectangular piece of board. They are clearly labelled 'Types?', 'auct. det' and the locality is given as 'Nouvelle Calédonie'.

(a)



(b)



FIG. 5. (a) *Hyastenus tinaktensis* Rathbun, holotype, female, 11.5 mm, dorsal view.
(b) *Hyastenus trispinosus* Rathbun, holotype, male, 15.9 mm, dorsal view.

Material examined: 16 ♂♂, 8 ♀♀ (3 ovig.), 6–21.5 mm, smallest ovig. ♀ 12 mm (USNM 48239, 49890–95, 49928, 49930–33, 55693).

Localities: S.W. Luzon-Mindoro: Between Burias and Luzon, St. 5218, 1 specimen. S.E. Luzon-Samar: Off W. Samar (Catbalogan-Quinituay Reef beach, 16.iv.1908), 1 specimen. Palawan: Linapacan Strait (Linapacan I., Malcochin Harbour, 18.xii.1908), 1 specimen. Cebu-Bohol: Off N. Cebu (Mactan I., 7.iv.1908), 1 specimen. Sulu Archipelago: Vicinity of Jolo, St. 5145, 3 specimens; Sts. 5557–5559, 4 specimens; Vicinity of Sibutu I., St. 5169, 1 specimen; Tawi Tawi Group. Sts. 5158–5160, 11 specimens; St. 5164, 1 specimen.

Habitat: Intertidal to 23 fms; coral and sand, sometimes with shells, rarely mud.

Remarks: The reason for the change in name of this species is explained below under *H. whitei*; the main differences between this species and *H. whitei* are also set out.

Distribution: Central and southern Philippine Islands; northern Indian Ocean, Indonesia, New Caledonia, northern Australia.

Hyastenus spinosus A. Milne Edwards

Hyastenus spinosus A. Milne Edwards, 1872 : 250; Barnard 1950 : 53–54, fig. 11 (*f*).

Material examined: 13 ♂♂, 14 ♀♀ (3 ovig.), 10.5–54 mm, smallest ovig. ♀ 32.9 mm (USNM 48237–38, 48261, 49842–49, 49887–89, 49896, 49918).

Localities: S.W. Luzon-Mindoro: Manila Bay, St. 5360, 1 specimen. Leyte: vicinity of Surigao Strait, St. 5482, 1 specimen. Mindanao: Sulu Sea, St. 5131, 1 specimen. S. Mindanao: Gulf of Davao, St. 5249, 4 specimens; St. 5252, 2 specimens; St. 5253, 2 specimens; St. 5254, 1 specimen. Sulu Archipelago: vicinity of Jolo, St. 5142, 1 specimen; St. 5144, 1 specimen; St. 5145, 2 specimens; St. 5174, 1 specimen; St. 5555, 1 specimen; vicinity of Siasi, St. 5146, 2 specimens; St. 5147, 4 specimens; Tawi Tawi Group, St. 5163, 1 specimen; St. 5164, 2 specimens.

Habitat: 12–67 fms, coarse sand, broken shells or sometimes sand or coral.

Remarks: This species has not been recorded previously from the Philippine Islands.

Distribution: Central and southern Philippine Islands from Luzon to the Sulu Archipelago; widespread Indo-west Pacific from South Africa and the Red Sea to Australia and Fiji.

Hyastenus tinaktensis Rathbun

(Fig. 5 (*a*))

Hyastenus tinaktensis Rathbun, 1916 : 547–548.

Material examined: 3 ♀♀ (2 ovig.), 11.5–13 mm, smaller ovig. ♀ 11.5 mm (USNM 48221 (holotype), 48259, 128937).

Localities: Sulu Archipelago: Tawi Tawi Group, St. 5159, 2 specimens (including holotype); St. 5160, 1 specimen.

Habitat: 10–12 fms, coral sand, sand.

Remarks: This species is very similar to *H. verrucosipes* (Adams & White) but the carapace is more tuberculate and the cardiac region possesses a flattened lobe instead of a small tubercle.

Distribution: Known only from the Sulu Archipelago, Philippine Islands.