

Angola: Lobito, 1899, P. Kamerman, 1♀ (L).

DESCRIPTION.—Rathbun, 1921:455; Chace and Hobbs, 1969:173.

Figure: Monod, 1956, fig. 609.

Male Pleopod: Monod, 1956, figs. 610–612 (Cape Verde Islands; Senegal); Chace and Hobbs, 1969, fig. 58b–d (West Indies).

Color: "Brun-rouge uniforme. Extrémité des pattes brun foncé, extrémités des pinces jaunâtres" (Rossignol, 1957:94).

MEASUREMENTS.—Our specimens have carapace widths ranging from 6 to 12 mm, those of ovigerous females being 8 and 9 mm.

BIOLOGY.—This species is found under rocks in the intertidal zone. Off West Africa ovigerous females have been collected in March, May, and July.

DISTRIBUTION.—The species inhabits both the eastern and the western Atlantic; it has also been reported from the Indo-West Pacific region, from East Africa to Polynesia (Campbell and Griffin, 1966; Griffin, 1968b). In the western Atlantic it occurs from Bermuda and Florida to Brazil. In the eastern Atlantic its range extends from the Cape Verde Islands and Senegal to Angola. To the West African localities enumerated by Monod (1956) the following can be added:

Cape Verde Islands: Baía da Murdeira, Sal (Guinot and Ribeiro, 1962; Ribeiro, 1964).

Senegal: Dakar (Sourie, 1954a).

Guinea: Conakry (Sourie, 1954a; Uschakov, 1970).

Congo: Loango lagoon (Rossignol, 1957, 1962). Pointe-Noire (Rossignol, 1962).

Angola: Lobito (Bott, 1964). Baía Farta and Baía de Santa Marta, Benguela (Guinot and Ribeiro, 1962).

Genus *Metagrapsus* H. Milne Edwards, 1853

Metagrapsus H. Milne Edwards, 1853:188 [type-species: *Sesarma curvatum* H. Milne Edwards, 1837, selection by Rathbun, 1918:321; gender: masculine].

REMARKS.—Serène and Soh (1970:397) restricted the genus *Sarmatium* Dana, 1851, to include only two species: the type, *Sarmatium crassum* Dana, 1851, and *Sesarma germaini* A. Milne Edwards, 1869. The West African species, which is

best known as *Sarmatium curvatum* (H. Milne Edwards, 1837), according to these authors belongs to a distinct genus, for which the name *Metagrapsus* H. Milne Edwards, 1853, is available. Serène and Soh (1970:398) placed a second species in the genus *Metagrapsus*, viz., *Metagrapsus pectinatus* H. Milne Edwards, 1853. According to Rathbun (1918:322), who examined the type of *Metagrapsus pectinatus*, this species is synonymous with *M. curvatus*. Some authors, however, doubted the correctness of Rathbun's identification, mainly on zoogeographic grounds. As the type of *M. pectinatus* (said to be from Martinique) so far is the only specimen of the genus ever reported from the western Atlantic, there seems to be more reason to doubt the correctness of the locality label "Martinique" than Rathbun's identification. If Rathbun is correct, *M. curvatus* at present is the only species known of the genus *Metagrapsus*.

* *Metagrapsus curvatus* (H. Milne Edwards, 1837)

Sarmatium curvatum.—Capart, 1951:193.—Monod, 1956:449, fig. 608.—Rossignol, 1957:93, 122 [key], fig. 7.—Jordan, 1957:198.—Humes, 1957:184, 187, 189.—Longhurst, 1958:88.—Gauld, 1960:71.—Rossignol, 1962:121.—Uschakov, 1970:448, 455 [listed].—Powell, 1979:129.

Sesarma curvatum.—Humes, 1957:186.

Sarmatium.—Humes, 1957:188, 189.

SYNONYMS.—*Sesarma violacea* Herklots, 1851; ?*Metagrapsus pectinatus* H. Milne Edwards, 1853.

MATERIAL EXAMINED.—*Pillsbury Material*: Nigeria: Sta 1, Lagos harbor, shore, 3♂ (W).

Other Material: Liberia: Harbel, mouth of Junk River, mangrove bank, dug from mud under rocks, 20 Jul 1968, T. C. Rutherford, 1♂ (W).

Ghana: Butre, 1840–1851, H. S. Pel, 1♂ lectotype, 2♂ and 1♀ paralectotypes of *Sesarma violacea* Herklots, 1851 (L, Crust. D.180). Sekondi, 1840–1851, H. S. Pel, 1♂, 1♀ paralectotypes of *Sesarma violacea* Herklots, 1851 (L, Crust. D.182). Accra, 1868, 1869, M. Sintenis, 1♂ (L).

Nigeria: Mangrove creek behind the Mao-Ajudaibo road, south bank of the mouth of the Escravos River, 05°35'N, 05°12.5'E, in *Avicennia* mangroves, 31 Jul 1975, C. B. Powell, 1♂ (L). W side of Forcados near confluence of Odimodi Creek and Forcados River, 05°22'N, 05°26'E, 28 Feb 1976, C. B. Powell, 2♂, 2♀, 1 juv (L). Mayuku Creek near Ugebe-

koko, about 10 km west of Sapele, 05°N, 05°34.5'E, Oct-Dec 1975, C. B. Powell, 1♂ (L). Between Brass and Port Harcourt, Niger delta, May-Aug 1960, H. J. G. Beets, 2♂, 1♀ (L).

Congo: No specific locality, 1894, Dybowski, legator, 1♂, 1♀ (W).

Zaire: Banana, mouth of the Congo River, Jul-Aug 1915, H. Lang, American Museum Congo Expedition, 4♂, 1♀ (W). Maléla, 8 Jul 1915, H. Lang, American Museum Congo Expedition, 5♂, 4♀, 3 juv (W).

Angola: Santo António do Zaire, Aug 1915, H. Lang, American Museum Congo Expedition, 3♂, 1 juv (W).

DESCRIPTION.—Rathbun, 1918:321; Rathbun, 1921:454; Capart, 1951:193.

Figures: Rathbun, 1918, pl. 95; Rathbun, 1921, pl. 16, pl. 42: fig. 3, pl. 46, pl. 47: fig. 1; Monod, 1956, fig. 608.

Color: "Violet-mauve. Pincés et pattes un peu plus claires. Dactyles et sternites jaunâtres" (Rossignol, 1957:93).

MEASUREMENTS.—The examined males have carapace widths ranging from 9 to 26 mm.

BIOLOGY.—This species is a characteristic inhabitant of mangroves; Rathbun (1921) gave an account of the habitat of the species in the Congo estuary. Gauld (1960) found it in mangroves and creeks, and Uschakov (1970) reported it from the intertidal above the *Avicennia* zone. Humes (1957) reported that this species was the host of the harpacticoid copepods *Cancrincola longiseta* Humes (rarely) and *C. abbreviatus* Humes (usually). Off West Africa, ovigerous females have been found in March.

DISTRIBUTION.—*Metagrapsus curvatus* is a West African species known from localities between Senegal and Angola. The single record from Martinique in the West Indies (Monod, 1956:449) is evidently based on an incorrectly labeled specimen. In addition to the West African localities mentioned by Monod (1956) for this species the following can be listed:

Guinea: Île Marara and Rio Pongo (Uschakov, 1970).

Sierra Leone: Rokupr (Jordan, 1957). Sierra Leone River (Longhurst, 1958). Bunce River near Freetown (Humes, 1957).

Ghana: Butre, Sekondi, Ada, and Angaw Lagoon (Gauld, 1960).

Nigeria: Elechi Creek, Port Harcourt, 04°47'15"N, 06°-58'45"E (Powell, 1979).

Congo: Mount of the Songololo River (Rossignol, 1957, 1962). Pointe-Noire (Rossignol, 1962). Loeme River near Pointe-Noire (Humes, 1957).

Genus *Sesarma* Say, 1817

Sesarma Say, 1817:76 [type species: *Ocyrode reticulatus* Say, 1817, by monotypy; gender: neuter].

REMARKS.—The systematics and the nomenclature of the genus *Sesarma* sensu lato are quite unsatisfactory. Serène and Soh (1970) assigned the Indo-West Pacific species, that until then were considered to belong to the genus *Sesarma*, to 13 genera and 3 subgenera, for the greater part new. Serène and Soh's preliminary revision contains several inconsistencies and inaccuracies and furthermore does not cover the Atlantic species of *Sesarma* sensu lato. Therefore, for the time being, we follow Monod (1956) in recognizing a single genus *Sesarma* in the eastern Atlantic with two subgenera, both of which are found in the tropical West African region.

The following is a list of genera and subgenera, the type-species of which either (1) were considered to belong to *Sesarma* in Tesch's (1917) review of that genus or (2) were assigned to *Sesarma* by later authors. So far as we can determine, the gonopods of West African species of *Sesarma* have not been illustrated.

Sesarma Say (1817:76).

Pachysoma de Haan (1833:5, circ. pl. 2, pl. 7: fig. 4, pl. 8: fig. 3). Invalid junior homonym of *Pachysoma* MacLeay, 1821 (Coleoptera); type-species: *Grapsus* (*Pachysoma*) *haematocheir* de Haan, 1833, by selection by Holthuis (1977a:170); gender: neuter.

Chiromantes Gistel (1848:x). Substitute name for *Pachysoma* de Haan, 1833; type-species: *Grapsus* (*Pachysoma*) *haematocheir* de Haan, 1833; gender: masculine.

Holometopus H. Milne Edwards (1853:187). Type-species: *Grapsus* (*Pachysoma*) *haematocheir* de Haan, 1833, by monotypy; gender: masculine.

Geosesarma De Man (1892:341). Type-species: *Sesarma* (*Geosesarma*) *nodulifera* De Man, 1892, selected by Serène and Soh (1970:402); gender: neuter.

Episesarma De Man (1895b:165). Type-species: *Sesarma taeniolatum* Miers, 1877 (= *Sesarma taeniolata* White, 1847, a nomen nudum), a subjective junior synonym of *Sesarma mederi* H. Milne Edwards, 1853, selected by Holthuis (1978:24); gender: neuter.

Parasesarma De Man (1895b:181). Type-species: *Cancer quadratus* Fabricius, 1798 (not Fabricius, 1787)(= *Ocypode plicata* Latreille, 1803), by selection by Rathbun, 1918:284; gender: neuter.

Perisesarma De Man (1895b:208). Type-species: *Sesarma* (*Perisesarma*) *eumolpe* De Man, 1895, selected by Holthuis (1977a:170); gender: neuter.

Nanosesarma Tweedie (1950:310). Type-species: *Sesarma andersonii* De Man, 1887, by original designation; gender: neuter.

Beanium Serène and Soh (1970:389, 394). Type-species: *Sesarma batavica* Moreira, 1903, by original designation; gender: neuter.

Neosesarma Serène and Soh (1970:389, 394). Type-species: *Sesarma gemmiferum* Tweedie, 1936, by original designation; gender: neuter.

Neopisesarma Serène and Soh (1970:390, 395). Type-species: *Sesarma mederi* H. Milne Edwards, 1853, by original designation; gender: neuter.

Muradium Serène and Soh (1970:390, 396). Type-species: *Cancer tetragonus* Fabricius, 1798, by original designation; gender: neuter.

Selatium Serène and Soh (1970:390, 397). Type-species: *Sesarma brockii* De Man, 1887, by original designation; gender: neuter.

Tiomanum Serène and Soh (1970:391, 398). Type-species: *Sesarma indica* H. Milne Edwards, 1837, by original designation; gender: neuter.

Bresedium Serène and Soh (1970:391, 399). Type-species: *Sesarma edwardsii brevipes* De Man, 1889, by original designation; gender: neuter.

Pseudosesarma Serène and Soh (1970:391, 399). Type-species: *Sesarma edwardsi* De Man, 1888, by original designation; gender: neuter.

Sesarmops Serène and Soh (1970:391, 400). Type-species: *Sesarma impressa* H. Milne Edwards, 1837, by original designation; gender: masculine.

Labuanium Serène and Soh (1970:392, 401). Type-species: *Sesarma polita* De Man, 1888, by original designation; gender: neuter.

Sesarmoides Serène and Soh (1970:392, 403). Type-species: *Sesarma krausii* De Man, 1887, by original designation; gender: masculine.

Namlacium Serène and Soh (1970:392, 404). Type-species: *Sesarma crepidatum* Calman, 1925, by original designation; gender: neuter.

Subgenus *Chiromantes* Gistel, 1848

REMARKS.—The name *Chiromantes* was proposed by Gistel (1848:x) as a replacement for the generic name *Pachysoma* de Haan, 1833, which is preoccupied by *Pachysoma* MacLeay, 1821 (Coleoptera) and *Pachysoma* Geoffroy, 1828 (Mammalia).

De Haan (1833:5, circ. pl. 2, pl. 7: fig. 4, pl. 8: fig. 3) introduced the name *Pachysoma* in the first fascicle of his Crustacea volume of Ph. F. von Siebold's *Fauna Japonica*. In the text of this fascicle the name *Pachysoma* was given in a key to the subgenera of the genus *Grapsus*, and no species were mentioned there. However, on two of the plates of this first fascicle two species of the subgenus *Pachysoma* were figured and mentioned by name: *Grapsus* (*Pachysoma*) *haematocheir* de Haan (1833, pl. 7: fig. 4) and *Grapsus* (*Pachysoma*) *quadratus* (Fabricius, 1798) (pl. 8: fig. 3). As these two species are the only nominal species referred to *Pachysoma* in the original publication of that subgenus, it is from among them that a type may be selected for the subgenus. Therefore, as Holthuis (1977a:170) pointed out, the selection of *Grapsus* (*Pachysoma*) *bidens* de Haan, 1835, as the type of *Pachysoma*, made by Fowler (1912:439) is invalid. The first valid type selection for *Pachysoma* de Haan, 1833 (and thus automatically for *Chiromantes* Gistel, 1848) is the one by Holthuis (1977a:170), who selected *Grapsus* (*Pachysoma*) *haematocheir* de Haan, 1833, as the type of that subgenus.

As *Grapsus* (*Pachysoma*) *haematocheir* de Haan, 1833, is also the type-species (by monotypy) of the subgenus *Holometopus* H. Milne Edwards, 1853, the name *Chiromantes*, being the senior of the two, has to be used.

Although the transfer of a name from one

taxon to another usually is harmful and to be avoided, the status of the taxonomy and nomenclature of the subgenera of *Sesarma* is at present in such a state of flux that it seems best to adhere strictly to the Code in the present case, at least until a revision of the *Sesarma* complex is achieved.

The subgenus *Chiromantes* is represented in the eastern Atlantic by three species, all three of which occur in tropical West Africa. *Sesarma roberti*, erroneously reported from West Africa (p. 226), also belongs in the present subgenus.

The subgenus was referred to as *Holometopus* by Monod (1956) and all later authors, while they used the name *Chiromantes* for the subgenus here indicated with the name *Perisesarma*.

***Sesarma (Chiromantes) angolense* De Brito
Capello, 1864**

Sesarma angolensis.— Büttikofer, 1890:487.—Johnston, 1906: 861.—Longhurst, 1958:88.—Gauld, 1960:71.

Sesarma (Holometopus) angolensis.—Dartevelle, 1950:48.—Monod, 1956:445, fig. 605.—Rossignol, 1962:120.

Sesarma (Holometopus) angolense.—Dartevelle, 1950:50.—Capart, 1951:191, fig. 76.—Rossignol, 1957:92, 122 [key].—Jordan, 1957:198.—Humes, 1957:186, 187, 189.

MATERIAL EXAMINED.—*Pillsbury Material*: None.

Other Material: Liberia: No specific locality, 1890, 1897, J. Demery, 2♀ (L). Grand Cape Mount near Robertsport, 1882, J. Büttikofer, 4♂, 3♀ (L).

Nigeria: Mayuku Creek near Ugbekoko, 10 km W of Sapele, Midwest State, ca. 05°54'N, 05°34.5'W, Oct, Oct-Dec, Dec 1975, Jan 1976, C. B. Powell, many specimens (L). Niger delta between Brass and Port Harcourt, May-Aug 1960, H. J. G. Beets, 1♂, 2♀ (L).

Angola: Lobito, 1899, P. Kamerman, 1♂, 2♀ (L).

DESCRIPTION.—Rathbun, 1921:451; Capart, 1951:191.

Figures: Rathbun, 1921, pl. 43, pl. 45: fig. 1; Capart, 1951, fig. 76; Monod, 1956, fig. 605.

Color: Rossignol (1957:92) gave a detailed description of the color of this species.

BIOLOGY.—Rathbun (1921) gave extensive notes on the biology and habitat of this species. It inhabits mangroves and was found by Mr. C. B. Powell (in litt.) "in shallow holes, perhaps burrows, in the intertidal mud among man-

groves." Humes (1957) reported that this species was the host of the harpacticoid copepod *Cancrincola abbreviatus* Humes. Oviparous females have been recorded in December (Capart, 1951).

DISTRIBUTION.—The species is restricted to West Africa and is known from Sierra Leone to Angola. Records in the literature, additional to the ones given by Monod (1956), are the following:

Sierra Leone: Rokupr (Jordan, 1957). Rice bunds, Sierra Leone River (Longhurst, 1958).

Liberia: No specific locality (Büttikofer, 1890; Johnston, 1906).

Ghana: No specific locality (Gauld, 1960).

Congo: Loya River (Rossignol, 1957, 1962). Pointe-Noire (Rossignol, 1962). Loeme River about 18 km S of Pointe-Noire (Humes, 1957).

Zaire: Maléla, Katala, Zambi, and Île de Mateba, estuary of the Congo River; Tumuna [?], estuary of the Rio Shiloango (= Louango River) (Dartevelle, 1950).

*** *Sesarma (Chiromantes) buettikoferi*
De Man, 1883**

Sesarma buettikoferi.—Büttikofer, 1890:464, 487.—Rossignol, 1957:91, fig. 6, pl. 2: fig. 5.

Sesarma buettikoferi.—Johnston, 1906:861.

Sesarma (Holometopus) buettikoferi.—Dartevelle, 1950:48.

Sesarma (Holometopus) buettikoferi.—Monod, 1956:447, figs. 606, 607.—Rossignol, 1962:121.

Sesarma (Holometopus) buettikoferi.—Rossignol, 1957:91, 122 [key].

MATERIAL EXAMINED.—*Pillsbury Material*: Nigeria: Sta 1, Lagos harbor, shore, 1♀ (W).

Other Material: Liberia: Grand Cape Mount, near Robertsport, 1882, J. Büttikofer, 1♂ (L). Lake Piso (as Fisherman's Lake), near Robertsport, Jan 1881, J. Büttikofer and J. A. Sala, 1♂ holotype (L, Crust. D. 148). Rock Spring, Monrovia, Apr 1894, O. F. Cook and G. N. Collins, 4♂, 3♀ (W). Junk River, 1882, F. X. Stämpfli, numerous specimens (L). Junk River, 1♂ dry (W). Farmington River at Snafu Docks, Nov 1946, H. A. Beatty, 10♂, 6♀ (1 ov) (W). Bromley [?], W. Mann, Smithsonian-Firestone Liberia Expedition, 3♀ (W).

Ivory Coast: Near Lagune Ébrié, about 17 km W of Abidjan, among rotting leaves in rainwater puddles in hollow trees in shaded areas, 11 Aug 1963, B. de Wilde-Duyfjes, 1 specimen (L). Near ORSTOM office, Lagune Ébrié, 11 Aug 1963, W. J. J. O. de Wilde, several males and females (L).

Nigeria: Mayuku Creek near Ugbekoko, about 10 km W

of Sapele, 05°54'N, 05°37'E, in mangrove swamp, Oct–Dec 1975, C. B. Powell, 28 specimens (1♀ ov) (L).

Cameroon: Kribi, among humid dead leaves on the bank of a forest stream not far from the sea, 8 Aug 1964, B. de Wilde-Duyfjes, 1♂, 2♀ (L).

Zaire: Banana, mouth of the Congo River, Jul–Aug 1915, H. Lang, American Museum Congo Expedition, 1♂, 1♀ (W). Maléla, 8 Jun 1915, H. Lang, American Museum Congo Expedition, 22♂, 10♀ (2 ov) (W). Zambi, 4 Jul 1915, H. Lang, American Museum Congo Expedition, 1 juv (W).

DESCRIPTION.—Rathbun, 1921:449.

Figures: Monod, 1956, figs. 606, 607; Rossignol, 1957, fig. 6.

Color: The specimens from Lagune Ébrié carried a note stating that in life the chelae are purplish blue with red tips. Additional color notes were provided by Rossignol (1957:91).

BIOLOGY.—This species inhabits littoral estuarine areas, particularly mangroves and adjoining inland regions (see Rathbun, 1921:449, 450).

Ovigerous females have been collected in March, June, July–August, and October through December (Rathbun, 1921; Rossignol, 1957; present paper).

DISTRIBUTION.—*Sesarma buettikoferi* is found along the West African coast from Liberia to Angola. Monod (1956) listed the locality records known to him; to these the following can now be added:

Liberia: No specific locality (Büttikofer, 1890; Johnston, 1906).

Congo: Mouth of the Songololo River (Rossignol, 1957, 1962). Pointe-Noire (Rossignol, 1962).

Zaire: Kunga, Maléla, and Katala, in estuary of Congo River (Darteville, 1950).

Sesarma (Chiromantes) elegans Herklots, 1851

Sesarma (Holometopus) elegans.—Darteville, 1950:48.—Capart, 1951:192, fig. 77.—Monod, 1956:442, fig. 601.—Rossignol, 1957:92, 122 [key]; 1962:120.

Sesarma elegans.—Longhurst, 1958:88.—Gauld, 1960:71.—Uschakov, 1970:448, 455 [listed].—Powell, 1979:127.

Sesarma.—Uschakov, 1970, fig. 4.

MATERIAL EXAMINED.—*Pillsbury Material:* None.

Other Material: Liberia: Farmington River at Snafu Docks, Nov 1946, H. A. Beatty, 1♂ (W).

Ghana: Butre, 1840–1855, H. S. Pel, 1♂ lectotype, 3♂ and

5♀ paralectotypes (L, lectotype Crust. D. 150, paralectotypes Crust. D. 151).

Nigeria: Harbor of Lagos, 13 Jun 1963, A. R. Longhurst, 1♂ (L). W of Forcados near confluence of Odimodi Creek and Forcados River, 05°22'N, 05°26'E, 28 Feb 1976, C. B. Powell, 1♂, 3♀ (L). Mayuku Creek near Ugbekoko, about 10 miles [16 km] W of Sapele, Midwest State, ca. 05°54'N, 05°34.5'E, in mangroves, 1–3 Nov 1975 and Jan 1976, C. B. Powell, 30 specimens (10♀ ov) (L). Niger delta between Brass and Port Harcourt, May–Aug 1960, H. J. G. Beets, 7 specimens (1♀ ov) (L). Creek between Eagle Island and College of Science and Technology, Port Harcourt, 04°47.5'N, 06°58.5'E, on vertical poles of a fish fence and mangrove trunks, 30 Jan 1977, C. B. Powell, 18♂, 28♀ (8 ov), 3 juv (L).

Gabon: Owendo, 27 Aug 1961, F. Zielinski, 1 specimen (Zoologisches Museum, Hamburg).

Zaire: Banana, mouth of Congo River, July–Aug, 1915, H. Lang, American Museum Congo Expedition, 11♂, 11♀ (1 ov) (W).

DESCRIPTION.—Rathbun, 1921:453; Capart, 1951:192.

Figures: Rathbun, 1921, pl. 44, pl. 45: fig. 2; Capart, 1951, fig. 77; Monod, 1956, fig. 601.

Color: Rathbun (1921:453) and Rossignol (1957:92) both gave color descriptions for this species.

BIOLOGY.—Rathbun (1921:453, 454) gave an extensive description of habits and habitat of the species. Monod (1956) mentioned it from pilings in the estuarine area. Darteville (1950) found it “dans les criques à salinité moins élevée.” The specimens from Nigeria dealt with here were found in the estuarine and mangrove area. C. B. Powell (in litt.) stated that the specimens from Mayuku Creek were observed at night on the mangrove prop roots above the water, and near Forcados the specimens were taken “from piles of a jetty and from small branches of shrubs overhanging the water. They appeared to be naturally arboreal, and dropped into the water only as a last resort.”

Ovigerous females have been reported taken in the following months: January (present material), February (Capart, 1951), March–April (Rossignol, 1957), May–August (present material), July–August (Rathbun, 1921, present material), November (present material).

DISTRIBUTION.—The species is known only from

West Africa (Guinea to Angola). To the localities listed by Monod (1956) the following can be added.

Guinea: Île Marara, Rio Pongo (Uschakov, 1970).

Sierra Leone: Kissy (Longhurst, 1958).

Ghana: Near Butre (Gauld, 1960).

Nigeria: Elechi Creek, Port Harcourt, 04°47'15"N, 06°48'45"E (Powell, 1979).

Congo: Loya River and Djeno (Rossignol, 1957, 1962).
Pointe-Noire (Rossignol, 1962).

Zaire: Banana, mouth of the Congo River (Dartevelle, 1950).

Angola: Santo António do Zaire (as Saint-Antoine) (Dartevelle, 1950).

Subgenus *Perisesarma* De Man, 1895

REMARKS.—This subgenus was cited by Monod (1956) and most other authors as *Chiromantes* Gistel, 1848. However, as shown by Holthuis (1977: 170) the type-species of *Chiromantes* is *Grapsus* (*Pachysoma*) *haematocheir* De Haan, 1833; hereby *Chiromantes* Gistel, 1848, becomes a senior objective synonym of *Holometopus* H. Milne Edwards, 1853, and should replace the latter name (p. 242). For the subgenus usually cited as *Chiromantes* the name *Perisesarma* is available.

Three species of *Perisesarma* are known from the eastern Atlantic area, all three are restricted to tropical West Africa.

Sesarma (*Perisesarma*) *alberti* Rathbun, 1921

Sesarma (*Chiromantes*) *alberti*.—Dartevelle, 1950:48.—Capart, 1951:189, fig. 75.—Monod, 1956:440, fig. 594.—Jordan, 1957:198.—Rossignol, 1957:122 [key]; 1962:120.—Forest and Guinot, 1966:93.

Sesarma (*chiromantes*) *alberti*.—Rossignol, 1957:90.

Sesarma alberti.—Longhurst, 1958:88.—Powell, 1979:127.

MATERIAL EXAMINED—*Pillsbury Material*: None.

Other Material: Liberia: St. John River at upper Buchanan, mud in mangroves, collected at night, 24 Aug 1967, T. C. Rutherford, 1♀ (W). Rock Spring, Monrovia, O. F. Cook and G. N. Collins, 9 juv (W). St. Paul River lagoon at True Rubber Farm, 9 Oct 1953, G. C. Miller, 1♂ (W). Farmington River at Snafu Docks, Nov 1946, H. A. Beatty, 1♂, 2♀ (W).

Nigeria: Mayuku Creek near Ugbekoko, about 10 km W of Sapele, ca. 05°54'N, 05°34.5'E, Oct–Dec 1975, C. B. Powell, 24 specimens (L). Between Brass and Port Harcourt,

Niger delta, May–Aug 1960, H. J. G. Beets, 1♂, 2♀ (1 ov) (L).

Congo: Bank of Loya River, 3 juv (W).

Zaire: Banana, mouth of Congo River, Jul–Aug 1915, H. Lang, American Museum Congo Expedition, 3 juv (W). Maléla, 8 Jul 1915, H. Lang, American Museum Congo Expedition, 3♂, 3♀ (W).

Angola: Santo António do Zaire, Aug 1915, H. Lang, American Museum Congo Expedition, 1♂, 1♀ (W).

DESCRIPTION.—Rathbun, 1921:448; Capart, 1951:189.

Figures: Rathbun, 1921, pl. 42: fig. 1, pl. 48: fig. 3; Capart, 1951, fig. 75; Monod, 1956, fig. 594.

Color: Rossignol (1957:90) provided color notes.

BIOLOGY.—The species is usually found in mangroves. Ovigerous females have been reported in April (Monod, 1956) and summer (May–Aug, present paper).

DISTRIBUTION.—*Sesarma alberti* is known from the West African coast from Guinea to Angola. An enumeration of the localities known at that time was given by Monod (1956). To these the following can now be added:

Sierra Leone: Rokupr (Jordan, 1957). Great Scarcies River (Longhurst, 1958).

Ivory Coast: Abidjan (Forest and Guinot, 1966).

Nigeria: Elechi Creek, Port Harcourt, 04°47'15"N, 06°58'45"E (Powell, 1979).

Principe: Rio Papagaio (Forest and Guinot, 1966).

Congo: Loya River (Rossignol, 1957, 1962). Pointe-Noire (Rossignol, 1962).

Zaire: Kunga, Maléla, and Katala, all in estuary of Congo River (Dartevelle, 1950).

Sesarma (*Perisesarma*) *huzardi* (Desmarest, 1825)

Sesarma africana.—Pechüel-Loesche, 1882:287.—Büttikofer, 1890:487.—Johnston, 1906:861.

Sesarma (*Chiromantes*) *africanum*.—Dartevelle, 1950:48.—Bruce-Chwatt and Fitz-John, 1951:117.—Rossignol, 1957:122 [key].—Bright and Hogue, 1972:8.

Sesarma africanum.—Bruce-Chwatt and Fitz-John, 1951:118.—Jordan, 1955:734.—Rossignol, 1957:133, pl. 2: fig. 4.

Sesarma (*Chiromantes*) *huzardi*.—Monod, 1956:437, fig. 593.—Jordan, 1957:198.—Rossignol, 1962:120.

Sesarma (*chiromantes*) *africanum*.—Rossignol, 1957:90.

Sesarma huzardi.—Humes, 1957:181, 184, 185, 186, 187, 189.—Longhurst, 1958:88.—Gauld, 1960:71.—Hart-

mann-Schröder and Hartmann, 1974:19.—Powell, 1979: 127.

SYNONYM.—*Sesarma africana* H. Milne Edwards, 1837.

MATERIAL EXAMINED.—*Pillsbury Material*: None.

Other Material: Senegal: Senegal, legator M. Delambre, donor Mus. Paris, 1♂ syntype of *Sesarma africanum* H. Milne Edwards, dry (W).

Liberia: Liberia, 1881, J. Büttikofer and J. A. Sala, 1♂ (L). Grand Cape Mount near Robertsport, 1882, J. Büttikofer, 4 specimens (L). Near Monrovia, 1947–1948, H. A. Beatty, 1 juv (W). Rock Spring, Monrovia, Apr 1894, O. F. Cook and G. N. Collins, 4 juv (W). Harbel, mouth of Junk River, mangrove bank, dug from mud under rocks, 20 Jul 1968, T. C. Rutherford, 5♂, 1♀ ov (W). Harbel, Capt. M. S. Briscoe, 1♂ (W). Inlet near football field, lower Buchanan, collected at night in the water, 24 Aug 1967, T. C. Rutherford, 3♂, 5♀ (W).

Ivory Coast: Near Lagune Ébrié, about 17 km W of Abidjan, among rotting leaves in rainwater puddles in hollow trees in shaded area, 11 Aug 1963, B. de Wilde-Duyfjes, 1♂, 1♀ (L). Near Lagune Ébrié, in fresh water stream, the species is also found on land, 3 Sep 1963, B. de Wilde-Duyfjes, 1♂ (L).

Ghana: Butre, 1840–1855, H. S. Pel, 3♂, 3♀ (L). Baya River near Elmina, 27 Nov 1889, W. H. Brown, U. S. Eclipse Expedition, 2♂, 1♀ ov (W). Sakumo Lagoon, 19 Jul 1961, Bane and Richards, 1♂, 1♀ ov (W).

Dahomey: Lagoon of Lac Nokoué near Zogbo, north of Cotonou, 29 Mar 1963, H. Hocstlandt, 2♂, 1♀ (L).

Nigeria: Yaba, near Lagos, 26 Jul 1926, A. S. Pearse, 1♀ (W). South bank of mouth of Escravos River at Ajudaibo, Niger delta, 05°34.5'N, 05°11.75'E, 30 Jul 1975, C. B. Powell, 4♂ (L). Mayuku Creek near Ugbekoko, about 10 km W of Sapele, 05°54'N, 05°34.5'E, Oct–Dec 1975, C. B. Powell, 1♀ (L).

Cameroon: Douala, in rotting wood with shipworm, 14 Dec 1951, Th. Monod, 1♂ (W).

Zaire: Mouth of Congo River near Banana, Jul 1915, H. Lang, American Museum Congo Expedition, 9♂, 4♀ (W).

Angola: Santo António do Zaire, Aug 1915, H. Lang, American Museum Congo Expedition, 2♂, 1♀ ov (W). Mouth of Cuanza River near Luanda, 17 Jun 1967, G. Hartmann, 2♂, 1♀, 1 juv (L). Luanda, 18 Jun 1967, G. Hartmann, 1♂ (L).

DESCRIPTION.—Rathbun, 1918:287; Rathbun, 1921:446.

Figures: Rathbun, 1918, pl. 75; Rathbun, 1921, pl. 41, pl. 42: fig. 2, Monod, 1956, fig. 593.

Color: Rossignol (1957:90) gave the following color description of the species: “variable, du

jaune clair au brun foncé. En général, carapace jaune ou beige avec les touffes de poils courts soulignées d'un trait noir. Pinces jaune-clair.” Irvine (1947:292, 293) indicated that in young specimens the carapace is dark in color, but that it becomes lighter and yellowish in older specimens. Monod (1956:406) used the color of the chelipeds (“jaunâtre à violacé”) to distinguish *S. huzardi* from *S. alberti*, where the chelipeds in alcohol are bright red. Mrs. De Wilde-Duyfjes, who collected the species at Lagune Ébrié, Ivory Coast, commented upon the yellowish white color of the chelipeds of the living animals, which contrasted strongly with the purplish blue chelipeds with red tips of *S. buettikoferi*, with which the present species was found.

MEASUREMENTS.—The carapace breadth of the examined males varies between 12 and 37 mm, that of the examined non-ovigerous females between 24 and 33 mm, and that of the ovigerous females between 19 and 27 mm.

BIOLOGY.—This is a common species of muddy estuarine areas; it is found in mangroves, salt marshes, tidal rice lands, and mouths of rivers.

Humes (1957) reported that this species served as host of the harpacticoid copepods *Cancrincola jamaicensis* Wilson (rarely), *C. longiseta* Humes (rarely), and *C. abbreviatus* Humes (usually).

Ovigerous females have been collected in February, July, August, and November (Monod, 1956; present paper).

DISTRIBUTION.—*Sesarma huzardi* inhabits the coast of West Africa from Senegal to Angola. To the list of localities cited by Monod (1956) the following can now be added:

Sierra Leone: No specific locality (Jordan, 1955). Rokupr (Jordan, 1957). Bunce River opposite Kamatara Island near Freetown (Humes, 1957). Great Scarcies River (Longhurst, 1958).

Liberia: No specific locality (Büttikofer, 1890; Johnston, 1906).

Ivory Coast: Lagune Ébrié at Adiapo-doumé and 8 km W of Grand Bassam; Koumassi near Abidjan (Humes, 1957).

Ghana: Volta River (Gauld, 1960).

Nigeria: No specific locality (Bruce-Chwatt and Fitz-John, 1951). Iru Fisheries Station near Lagos (Humes, 1957).

Elechi Creek, Port Harcourt, 04°47'15"N, 06°58'45"E (Powell, 1979).

Congo: Loango (Pechüel-Loesche, 1882). Mouths of the Songololo and Loya rivers (Rossignol, 1957, 1962). Songololo River near Pointe-Noire; mouth of Loeme River near Pointe-Noire (Humes, 1957).

Zaire: Banana, mouth of the Congo River (Dartevelle, 1950).

Angola: Santo António do Zaire (as Saint Antoine) (Dartevelle, 1950). Between Cacucaco and Lobito-Benguela (Hartmann-Schröder and Hartmann, 1974).

***Sesarma (Perisesarma) kamermani* De Man, 1883**

Sesarma (Chiromantes) kamermani.—Monod, 1956:441, figs. 595–600.—Rossignol, 1957:122 [key].

MATERIAL EXAMINED.—*Pillsbury Material*: None.

Other Material: Angola: Musserra, 1882, P. Kamerman, ♂ holotype (L. Crust. D. 166).

DESCRIPTION.—De Man, 1883:165; Balss, 1936:1.

Figures: Balss, 1936, figs. A, B; Monod, 1956, figs. 595–600.

MEASUREMENTS.—The carapace length of the holotype is 27 mm, its carapace width is 32 mm.

DISTRIBUTION.—So far only two specimens, both males, have become known of this species. The type-specimen (in the Leiden Museum) originated from Musserra, Angola. The second specimen was reported upon by Balss (1936) and Monod (1956) and was collected at Banana, Zaire.

**Subfamily VARUNINAE
H. Milne Edwards, 1853**

Genus *Brachynotus* de Haan, 1833

Brachynotus de Haan, 1833:5, 7 [subgenus established without included nominal species; type-species: *Goneplax sexdentatus* Risso, 1827, by subsequent monotypy by de Haan, 1835: 34; gender: masculine; name 1610 on *Official List*].

Heterograpsus Lucas, 1846:18 [type-species: *Heterograpsus sexdentatus* Lucas, 1846, a subjective junior synonym and homonym of *Goneplax sexdentatus* Risso, 1827, by monotypy; gender: masculine].

Shurebus Verany, 1846:7 [type-species: *Shurebus genuensis* Verany, 1846, an objective junior synonym of *Cleistotoma gemmellari* Rizza, 1839, by monotypy; gender: masculine].

***Brachynotus atlanticus* Forest, 1957**

Brachynotus sexdentatus.—Monod, 1933a:219, fig. 7.—Bouvier, 1940, fig. 184A only [copied from Monod, 1933a, fig. 7]. [Not *Goneplax sexdentatus* Risso, 1827.]

Brachynotus sexdentatus lucasi.—Monod, 1956:428, 631, figs. 589–592, 881 [not *Heterograpsus lucasi* H. Milne Edwards, 1853 = *Goneplax sexdentatus* Risso, 1827].

Brachynotus atlanticus Forest, 1957:505, figs. 2, 4, 6, 8, 10, 12, 14.—Forest and Gantès, 1960:354, fig. 2.

MATERIAL EXAMINED.—None.

DESCRIPTION.—Forest, 1957:505.

Figures: Monod, 1933a, fig. 7; Monod, 1956, figs. 589–592, 881; Forest, 1957, figs. 2, 4, 6, 8, 10, 12, 14.

Male Pleopod: Monod, 1956, figs. 591, 592 (Mauritania); Forest, 1957, fig. 14 (Mauritania).

DISTRIBUTION.—This species, which until recently was not distinguished from *B. sexdentatus*, is only known from the Atlantic coast of Morocco and from the Cap Blanc peninsula (Mauritania).

The records are the following.

Morocco: Numerous localities as far north as 34°53'N (Monod, 1933a; Forest and Gantès, 1960).

Mauritania: Baie de l'Ouest, coast of Cap Blanc peninsula (Monod, 1956; Forest, 1957). Pointe de Cansado (Monod, 1956). Baie de Cansado (Monod, 1956; Forest, 1957). Port-Étienne (Monod, 1956). Baie du Repos near Port-Étienne (Monod, 1956).

The Mauritanian localities are all situated on the east coast of the Cap Blanc peninsula. The species is not known to occur farther south.

Genus *Euchirograpsus* H. Milne Edwards, 1853

Euchirograpsus H. Milne Edwards, 1853:175 [type-species: *Euchirograpsus liguricus* H. Milne Edwards, 1853, by monotypy; gender: masculine; name 300 on *Official List*].

***Euchirograpsus liguricus* H. Milne Edwards, 1853**

Euchirograpsus liguricus H. Milne Edwards, 1853:175.—Türkey, 1975b:105, figs. 1–3, 17, 23; 1976a:25 [listed], 39, figs. 29–31.

Euchirograpsus americanus.—A. Milne Edwards and Bouvier, 1894:46, pl. 4: figs. 10–14; 1900:107.—Dollfus and

Monod, 1927:216, figs. 1, 2.—Monod, 1933a:320; 1933b: 535.—Capart, 1951:184, fig. 72.—Monod, 1956:434, figs. 592 bis, 882–884.—Rossignol, 1957:121 [key].—Forest and Gantès, 1960:355.—Rossignol, 1962:120.—Forest and Guinot, 1966:92.—Crosnier, 1970:1215 [listed], 1217. [Not *Euchirograpsus americanus* A. Milne Edwards, 1880].

MATERIAL EXAMINED.—*Pillsbury Material*: None.

Geronimo Material: Gabon: Sta 211, 100 m, 1♂ (W).

Undaunted Material: South-West Africa: Sta 106, 225 m, 10♂, 6♀ (1 ov) (L). Sta 107, 359 m, 2♂ (L).

Other Material: Morocco: 33°19'N, 09°00'W, 120–180 m, 23 Nov 1977, *Meteor* Sta 8–13a, 1♂, 1♀ (W). Off Cap Hadid, 31°55'N, 09°52'W, 78 m, muddy sand, 5m beam trawl, 25 Mar 1976, *Onversaagd* Sta 127, 1 specimen (L).

Guinea: Off the coast of Guinea, Mar–Apr 1964, Guinean Trawling Survey, 1♀ (L).

DESCRIPTION.—Türkay, 1975b:105.

Figures: Capart, 1951, fig. 72; Monod, 1956, figs. 592 bis, 882–884; Türkay, 1975b, figs. 1–3, 17, 23; Türkay, 1976a, figs. 29–31.

Male Pleopod: Monod, 1956, figs. 883, 884 (Senegal); Türkay, 1975b, fig. 17a, b (no locality); Türkay, 1976a, fig. 31 (Morocco).

MEASUREMENTS—Our specimens have carapace widths of 7 to 16 mm.

REMARKS.—Until recently most authors were of the opinion that the genus *Euchirograpsus* was represented in the eastern Atlantic by two species: *E. liguricus* H. Milne Edwards, and *E. americanus* A. Milne Edwards. However, Türkay (1975b) showed that the eastern Atlantic specimens assigned to *E. americanus* usually were juveniles of *E. liguricus*, and that the true *E. americanus* is restricted to the western Atlantic. In his 1975(b) paper Türkay dealt with the material from Guinea and South-West Africa, which we examined for the present paper. The South-West African material, collected by the *Undaunted*, had before that also been reported upon by Crosnier (1970).

BIOLOGY.—This species has been reported from bottoms of sand, sandy mud, mud, rock with gorgonians and/or sponges, and gravel at depths between 10 and 359 m, most of the records being from between 100 and 250 m.

Few ovigerous females have been recorded

from West Africa; the only record in the recent literature is that by Crosnier (1970) based on a specimen taken by the *Undaunted* in March and also recorded herein.

DISTRIBUTION.—The range of this species extends from west of Portugal and Madeira and the Azores south to South-West Africa; it also occurs in the western Mediterranean. It does not occur outside of the eastern Atlantic and is there the only species of the genus (see Türkay, 1975b). West African records include:

Madeira: No specific locality (Türkay, 1975b).

Azores: E of Ilha do Pico, 38°23'30"N, 30°20'20"E, 318 m (A. Milne Edwards and Bouvier, 1894).

Morocco: Port of Casablanca, 10 m (Forest and Gantès, 1960). 35°35'N, 08°42'W, 150 m (A. Milne Edwards and Bouvier, 1900). 33°54'30"N, 07°34'W, 125 m; 33°54'30"N, 07°54'16"W, 145 m; 33°31'30"N, 07°47'26"W, 133 m (all Dollfus and Monod, 1927; Monod, 1933a). 33°48'30"N, 08°04'35"W, 132 m; 30°38'10"N, 09°58'40"W, 180 m; 30°23'N, 09°54'30"W, 110–118 m (Dollfus and Monod, 1927). 33°53'N, 07°43'W, 126 m; 33°47'N, 07°56'16"W, 122 m; 30°30'30"–30°32'30"N, 09°47'–09°47'20"W, 150 m (Monod, 1933a). 33°19'N, 09°00'W, 120–180 m, and 31°–35'N, 10°10.5'W, 145–180 m (Türkay, 1975b, 1976a).

Spanish Sahara: 21°05'N, 17°14'W, 43–45 m (Forest and Guinot, 1966).

Mauritania: Cap Blanc, 10–30 m (Dollfus and Monod, 1927; Monod, 1933b).

Cape Verde Islands: Between Ilhéu Branco and Ilhéu Raso, 110–180 m (A. Milne Edwards and Bouvier, 1900).

Senegal: Joal, 50 m (Monod, 1956).

Gambia to Sierra Leone: On cable between Bathurst (Gambia) and Sierra Leone (Türkay, 1975b).

Guinea: Off the coast of Guinea (Türkay, 1975b).

Gabon: Between Nyanga and Pointe-Panga, 65–70 m (Rossignol, 1962).

Congo: Off Pointe-Noire, 04°55'S, 11°35'E, 115 m (Capart, 1951).

Angola: Off Ponta do Dandé, 08°30'S, 13°E, 150 m (Capart, 1951).

South-West Africa: 17°18'S, 11°24'E, 225 m, and 17°–23'S, 11°20'E, 359 m (Crosnier, 1970; Türkay, 1975b).

Family GECARCINIDAE MacLeay, 1838

Gécarciniens H. Milne Edwards, 1837:7, 16–20.

GECARCINIDAE MacLeay, 1838:63.

Cardisomaceen Nauck, 1880:27, 65.

GEOCARCINIDAE Miers, 1886:xiv, 216, 346.

EASTERN ATLANTIC GENERA.—Two, *Cardisoma* and *Gecarcinus*, each represented by one tropical species.

EASTERN ATLANTIC SPECIES.—Two, both reported below. Neither species is represented in the Pillsbury collections.

Genus *Cardisoma* Latreille, 1828

Cardisoma Latreille, 1828b:685 [type-species: *Cardisoma guanhumi* Latreille, 1828, selected by H. Milne Edwards, 1838, in 1836–1844, pl. 20; gender: neuter].

Perigrapsus Heller, 1862:522 [type-species: *Perigrapsus excelsus* Heller, 1862, a subjective junior synonym of *Cancer carnifex* Herbst, 1794, by monotypy; gender: masculine].

Discoplax A. Milne Edwards, 1867b:284 [type-species: *Discoplax longipes* A. Milne Edwards, 1867, by monotypy; gender: feminine].

Cardiosoma S.I. Smith, 1869b:16, 36 [unjustified emendation of *Cardisoma* Latreille, 1828; type-species: *Cardisoma guanhumi* Latreille, 1828; gender: neuter].

Cardisoma armatum Herklots, 1851

Cardisoma Guanhumi.—Studer, 1882:333, 353 [discussion] [not *C. guanhumi* Latreille, 1828].

Cardisoma armatum.—Pechüel-Loesche, 1882:299.—Büttikofer, 1890:464, 487, fig. on p. 465.—Johnston, 1906:861.—Gruvel, 1913:169 [listed].—Capart, 1951:196, fig. 79.—Monod, 1956:458, fig. 618.—Rossignol, 1957:95, 120 [key], pl. 2: fig. 2.—Humes, 1957:181, 189.—Dubois, 1957:7, fig. 24.—Gauld, 1960:72.—Rossignol, 1962:121.—Guinot and Ribeiro, 1962:73.—De Leersnyder and Hoestlandt, 1963:211 [physiology].—Ribeiro, 1964:18.—De Leersnyder and Hoestlandt, 1966:43 [physiology].—Forest and Guinot, 1966:94.—Monod, 1967:180, pl. 17: fig. 1.—Uschakov, 1970:450, 455 [listed].—Bright and Hogue, 1972:17.—Türkay, 1973:86, figs. 1, 3, 7–8, map 1.—Hartmann-Schröder and Hartmann, 1974:19.

Cardisoma Guanhumi var. *armatum*.—Bouvier, 1911:226.

Cardisoma guanhumi.—Gruvel, 1913:169 [listed] [not *C. guanhumi* Latreille, 1828].

Cardiosoma armata.—Bruce-Chwatt and Fitz-John, 1951:117, 118, 119.

Cardiosoma.—Bruce-Chwatt and Fitz-John, 1951:120.

Cardisoma.—Uschakov, 1970, fig. 4.

Cardiosoma armatum.—Pauly, 1975:57.

MATERIAL EXAMINED.—*Pillsbury Material*: None.

Other Material: Cape Verde Islands: Porto da Praia, São Tiago, coconut grove, North Pacific Exploring Expedition, 1♂ (W).

Senegal: Dakar, O. F. Cook, 1♂, 1♀ (W).

Liberia: Grand Cape Mount, 1882, J. Büttikofer, 3♂, 3♀ (L).

Ghana: Accra, 1868–1869, M. Sintenis, 1♂ (L). Elmina, 1840–1855, H. S. Pel, 1♀ holotype (L, Crust. D.58).

Dahomey: Near Cotonou, Oct 1962, H. Hoestlandt, 1♂, 1♀ (L).

Nigeria: Lagos, 16 Aug 1926, A. S. Pearse, 1♀ (W). Adu, 25 Aug 1926, A. S. Pearse, 1♂ fragmented (W). Niger delta between Brass and Port Harcourt, May–Aug 1960, H. J. G. Beets, 4♂, 5♀ (L).

Cameroon: Batanga, A. J. Good, 13 Mar 1931, 1♂, 1♀ (W).

Zaire: Banana, Jul 1915, H. Lang, American Museum Congo Expedition, 1♂, 8♀ (W).

Angola: Musserra, P. Kameron, several specimens (L).

DESCRIPTION.—Rathbun, 1921:457; Capart, 1951:197; Türkay, 1973:87.

Figures: Capart, 1951, fig. 79; Monod, 1956, fig. 618.

Male Pleopod: Türkay, 1973, fig. 1 (no locality).

MEASUREMENTS.—Carapace widths of males 25 to 109 mm, of females 27 to 85 mm.

BIOLOGY.—This species, like other gecarcinids, is terrestrial, living in burrows inland. Rathbun (1921:458) gave an account of its habits. Gauld (1960:72) noted that the species is “very common in the marshy ground around lagoons where they dig large burrows; they are extensively trapped for food.” Bruce-Chwatt and Fitz-John (1951:117–118) called it the edible land crab and noted that it may attain a carapace width of 7 inches (17.5 cm). They reported a burrow 5 feet 9 inches (172.5 cm) deep. Pauly (1975:57) noted that this species was very common in the Sakumo Lagoon, Ghana.

Humes (1957) reported that this species was the host of the harpacticoid copepod *Cancrincola jamaicensis* Wilson.

Ovigerous females have been recorded in August (Guinot and Ribeiro, 1962; Ribeiro, 1964).

DISTRIBUTION.—*Cardisoma armatum* is a tropical West African species, known from the Cape Verde Islands and from Senegal to Angola, including Fernando Poo and São Tomé islands in the Gulf of Guinea. Monod (1956) and Türkay (1973) summarized the older literature and the latter author has provided the most recent ac-

count of the species. To the references in Monod the following can be added:

- West Africa: No specific locality (Türkay, 1973).
 Cape Verde Islands: Baía de Sal-Rei, Boavista (Guinot and Ribeiro, 1962; Ribeiro, 1964).
 Senegal: No specific locality (Türkay, 1973). Marigots de Hann (Bouvier, 1911). Saint-Louis (Monod, 1967; Türkay, 1973). Dakar (Monod, 1967). Rtombo [?](Türkay, 1973). Joal; Ngor near Dakar (Humes, 1957).
 Guinea: Conakry (Uschakov, 1970).
 Sierra Leone: Bunce River, opposite Kamatara Island, near Freetown (Humes, 1957).
 Liberia: No specific locality (Büttikofer, 1890; Johnston, 1906).
 Ivory Coast: From market in Abidjan (Forest and Guinot, 1966). Koumassi, near Abidjan (Humes, 1957). Abidjan (Türkay, 1973).
 Ghana: No specific locality (Gauld, 1960; Türkay, 1973). Kumasi and Sekondi (Türkay, 1973). Sakumo lagoon (Pauly 1975). Accra; Osu Fisheries Station near Accra (Humes, 1957).
 Dahomey: No specific locality (De Leersnyder and Hoestlandt, 1963, 1966).
 Nigeria: Lagos (Bruce-Chwatt and Fitz-John, 1951; Türkay, 1973). Iru Fisheries Station near Lagos (Humes, 1957).
 Cameroon: Douala (Türkay, 1973).
 Fernando Poo: No specific locality (Türkay, 1973).
 São Tomé: "environs de la ville" and Iógoiôgo (Forest and Guinot, 1966).
 Gabon: No specific locality (Türkay, 1973).
 Congo: No specific locality (Rossignol, 1957). Baie de Pointe-Noire (Rossignol, 1962). Bahua [?] and Pointe-Noire (Türkay, 1973). Loango (Pechüel-Loesche, 1882). Pointe-Noire; Songololo River near Pointe-Noire (Humes, 1957).
 Zaire: Banana (Dubois, 1957; Türkay, 1973).
 Angola: Luanda (Türkay, 1973). Santo António do Zaire; Moçâmedes (Guinot and Ribeiro, 1962). Between Cacuaço and Lobito-Benguela (Hartmann-Schröder and Hartmann, 1974).

Genus *Gecarcinus* Leach, 1814

- Gecarcinus* Leach, 1814:430 [type-species: *Cancer ruficollis* Linnaeus, 1758, by selection by H. Milne Edwards, 1838, in 1836-1844, pl. 21; gender: masculine].
Geocarcinus Miers, 1886:xiv, 216, 219 [invalid emendation of *Gecarcinus* Leach, 1814; type-species: *Cancer ruficollis* Linnaeus, 1758; gender: masculine].
Johngarthia Türkay, 1970:335, 341, 343 [type-species: *Gecarcinus planatus* Stimpson, 1860, by original designation; gender: feminine].

Gecarcinus weileri (Sendler, 1912)

- Pelocarcinus weileri* Sendler, 1912:191, figs. 4, 5.
Gecarcinus lagostoma.—Capart, 1951:198, fig. 80.—Monod,

- 1956:461 [not fig. 619 = *G. lagostoma* sensu stricto].—Rossignol, 1957:120 [key].—Forest and Guinot, 1966:94. [Not *G. lagostoma* H. Milne Edwards, 1837.]
Gecarcinus (Johngarthia) weileri.—Türkay, 1973:96, figs. 15-17, map 2.
Johngarthia weileri.—Türkay, 1976c:69, 70, 71 [lectotype designated].

MATERIAL EXAMINED.—*Pillsbury Material*: None.

Other Material: Fernando Poo: No specific locality, Feb 1959, J. A. Warners, 1♀ dry (L).

DESCRIPTION.—Türkay, 1973:97.

Figures: Türkay, 1973, figs. 15-17.

MEASUREMENTS.—Our specimen has a carapace width of 60 mm.

BIOLOGY.—This is a terrestrial species from the Gulf of Guinea, largely restricted to the offshore islands but also known from the mainland in Cameroon. Capart (1951) recorded an ovigerous female in January.

DISTRIBUTION.—West Africa, where it has been taken from two localities in Cameroon and from the offshore islands of the Gulf of Guinea. Monod (1956) saw no material. Records in the literature since 1956 include:

- West Africa: No specific locality (Türkay, 1973).
 Cameroon: Bibundi (Türkay, 1973; 1976c).
 Fernando Poo: No specific locality (Türkay, 1973).
 Principe: Ilhéu Carçoço (Forest and Guinot, 1966).
 São Tomé: No specific locality (Türkay, 1973). Ribeiro do Peixe (Forest and Guinot, 1966). Ilhéu Gago Coutinho (as Ilot das Rollas) (Forest and Guinot, 1966; Türkay, 1973).
 Annobon: No specific locality (Forest and Guinot, 1966; Türkay, 1973).

Family HALALOCARCINIDAE Calman, 1900

- Lithoscaptus A. Milne Edwards, 1862b: F 10.
 HALALOCARCINIDAE Calman, 1900:3, 49.

EASTERN ATLANTIC GENERA.—One, *Neotroglocarcinus*, represented in the tropical fauna.

EASTERN ATLANTIC SPECIES.—One, *Neotroglocarcinus balssi*, reported below. It is not represented in the *Pillsbury* collections.

Genus *Neotroglocarcinus* Fize and Serène, 1957

- Neotroglocarcinus* Fize and Serène, 1957:134 [type-species:

Troglocarcinus monodi Fize and Serène, 1955, by original designation; gender: masculine].

Neotroglocarcinus balssi (Monod, 1956)

Troglocarcinus balssi Monod, 1956:463, 632, figs. 620–627.—Longhurst, 1958:88.—Gauld, 1960:72.—Monod, 1963, fig. 37 [no locality].—Crosnier, 1969:535.

Neotroglocarcinus Balssi—Fize and Serène, 1957:135, 136, 141–143.

MATERIAL EXAMINED.—*Pillsbury Material*: None.

Other Material: Canary Islands: Ponta de Matorra, Fuerteventura, 14 km from Morro, 20–25 m, in *Phyllangia mouchezi* (Lacaze-Duthiers, 1897), 27 Jan 1975, M. Grasshoff and F. Engelhardt, 1 damaged specimen (MP).

West Africa: No specific locality, in *Asterosimilia marchadi* (Chevalier, 1966), A. R. Longhurst, 1♀ ov (BMNH).

Ivory Coast: Off Abidjan, 62 m, 23 Aug 1968, C.R.O., Abidjan, 1♀ (MP).

DESCRIPTION.—Monod, 1956:463.

Figures: Monod, 1956, figs. 620–627.

Male Pleopod: Monod, 1956, fig. 623 (Ghana).

MEASUREMENTS.—Our specimens have carapace lengths of 3.2 to 3.8 mm; that of the ovigerous female is 3.8 mm.

REMARKS.—As the single adult female from Sierra Leone listed by Monod (1956:632) was collected by A. R. Longhurst, and the single specimen reported upon by Longhurst (1958:88) was identified by Monod (see Longhurst, 1958:5), it seems likely that they are the same specimen and that an error crept into the ecological data reported for either: Monod reported the specimen as an epibiont of *Cidaris cidaris* (Linnaeus) from 68 m depth, while Longhurst listed it as an epibiont of *Eucidaris tribuloides* (Lamarck) from 200 m. (Under *Eucidaris tribuloides*, however, Longhurst (1958:101) only mentioned two specimens, both from 25–88 m depth, and under *Cidaris cidaris* 6 specimens from depths between 88 and 132 m.) Longhurst (1958:7) reported that his collection finally was deposited in the British Museum (Natural History). Manning examined a specimen of this species of the British Museum collection, viz., the above-mentioned ovigerous female labeled “West Africa” and collected by Longhurst; this specimen is said to be taken from

the coral *Asterosimilia marchadi* (Chevalier). The fact that both *Cidaris* and *Eucidaris* are very unlikely hosts for the species, and the conflicting information in the ecological data suggest that these should be regarded with the utmost reserve, and the possibility is not precluded that both the Monod (1956) and the Longhurst record pertain to the ovigerous female now in the British Museum, and that this specimen was collected in *Asterosimilia marchadi* in a depth of 68 m, at 08°25'N, 14°18'W (off Freetown, Sierra Leone) on a sandy bottom on 22 Feb 1956 (*Cape St. Mary Sta MB1/A3*).

BIOLOGY.—This is a sublittoral species usually associated with corals. It has been taken with *Dendrophyllia*, in 44 m (Gauld, 1960); on rocks with gorgonians, probably associated with *Phyllangia*, in 10 m (Crosnier, 1969); on *Eucidaris tribuloides* (?) in 200 m (Longhurst, 1958); on *Cidaris cidaris* (?) in 68 m (Monod, 1956); and with *Phyllangia mouchezi* and *Asterosimilia marchadi*.

Ovigerous females have been recorded in January (Crosnier, 1969; present paper); ova measured 0.4 mm in the ovigerous female we examined.

DISTRIBUTION.—West Africa, from localities in the Canary Islands, off West Africa proper from localities between Sierra Leone and the Congo, and from Ilhéu Gago Coutinho (as I. das Rolas), near São Tomé in the Gulf of Guinea (Balss, 1922) in depths between 10 and 200 m. It has not previously been recorded from the Canary Islands or the Ivory Coast. Monod's specimens came from Ghana; since 1956 the species has been recorded from the following:

Sierra Leone: No specific locality, 200 m (Longhurst, 1958); 08°25'N, 14°18'W, 68 m (Monod, 1956).

Ghana: Off Accra, 44 m (Gauld, 1960).

Congo: Pointe-Noire, ca. 10 m (Crosnier, 1969).

Family HYMENOSOMATIDAE MacLeay, 1838

HYMENOSOMIDAE MacLeay, 1838:68 [corrected to Hymenosomatidae by Stebbing, 1905:49].

HYMENICINAE Dana, 1851c:290.

EASTERN ATLANTIC GENERA.—Two, *Elamena*

and *Hymenosoma*, both represented by West African species.

EASTERN ATLANTIC SPECIES.—Two, both listed below. This family was not represented in the Pillsbury collections.

Genus *Elamena* H. Milne Edwards, 1837

Elamena H. Milne Edwards, 1837:33 [type-species: *Hymenosoma mathaei* Desmarest, 1825, by monotypy; gender: feminine].

Trigonoplax H. Milne Edwards, 1853:224 [type-species: *Ocy-pode (Elamene) unguiformis* de Haan, 1839, by monotypy; gender: feminine].

Elamena (Trigonoplax) gordonae Monod, 1956

Elamena (Trigonoplax) gordonae Monod, 1956:469, figs. 629–637 [between Conakry, Guinea and Monrovia, Liberia, 30–40 m; Sierra Leone]; 1963, fig. 40 [no locality].

Elamena gordonae.—Uschakov, 1970:455 [listed; Guinea].

DISTRIBUTION.—West Africa, from the localities cited above.

Genus *Hymenosoma* Desmarest, 1825

Hymenosoma Desmarest, 1825:163 [type-species: *Hymenosoma orbiculare* Desmarest, 1825, by selection by H. Milne Edwards, 1842, in 1836–1844, pl. 35: fig. 1; gender: neuter].

Leachium MacLeay, 1838:68 [type-species: *Hymenosoma orbiculare* Desmarest, 1825, by original designation; gender: neuter].

Centridion Gistel, 1848:viii [substitute name for *Leachium* MacLeay, 1838; type-species: *Hymenosoma orbiculare* Desmarest, 1825; gender: neuter].

Hymenosoma orbiculare Desmarest, 1825

Hymenosoma orbiculare.—Capart, 1951:61, fig. 18 [Angola; South-West Africa].—Monod, 1956:468, fig. 628 [Gabon (?); South-West Africa].—Penrith and Kensley, 1970a: 209, 232 [South-West Africa].

DISTRIBUTION.—Known with certainty from localities in Angola, South-West Africa, and South Africa. The record from Gabon is questionable.

Family MAJIDAE Samouelle, 1819

MAIADAE Samouelle, 1819:88 [corrected to Majidae by Neumann, 1878:5].

MACROPODIADAE Samouelle, 1819:90.

INACHIDAE MacLeay, 1838:56 [given preference over Macro-podiadae Samouelle, 1819, by International Commission on Zoological Nomenclature, Opinion 763, 1966; name 400 on *Official List*].

EPIALTIDAE MacLeay, 1838:56.

HUENIDAE MacLeay, 1838:56.

EURYPODIDAE MacLeay, 1838:56.

MITHRACIDAE MacLeay, 1838:56.

LEPTOPODIADAE Bell, 1844:1.

MACROCHEIRINAE Dana, 1851a:427.

PISINAE Dana, 1851a:428 [name 368 on *Official List*, date and citation erroneous there].

LIBININAE Dana, 1851a:429.

PRIONORHYNCHINAE Dana, 1851a:429.

MICIPPINAE Dana, 1851a:429.

CHORININAE Dana, 1851a:429.

PYRINAE Dana, 1851a:430.

OTHONINAE Dana, 1851a:430.

SALACINAE Dana, 1851a:430.

CYCLACINAE Dana, 1851a:431.

TYCHIDAE Dana, 1851a:431.

CRIOCARCININAE Dana, 1851a:431.

CAMPOSCINAE Dana, 1851a:431.

AMATHINAE Dana, 1851a:431.

STENORHYNCHINAE Dana, 1851a:432.

ACHAEINAE Dana, 1851a:432.

PERICERIDAE Dana, 1851a:432.

PARAMICIPPINAE Dana, 1851a:432.

INACHOIDINAE Dana, 1851a:432.

MENAETHINAE Dana, 1851a:433.

STENOCIOPINAE Dana, 1851a:433.

ONCININEA Dana, 1852b:77.

ONCINOPIDAE Stimpson, 1858d:222.

LEPTOPINAE Stimpson, 1871a:109.

NAXIINAE Stimpson, 1871a:114.

COLLODINAE Stimpson, 1871a:119.

ANOMALOPINAE Stimpson, 1871a:124.

ACANTHONYCHINAE Stimpson, 1871a:127.

IXIONINAE Neumann, 1878:10.

ACANTHOPHYRINAE Neumann, 1878:10.

PICROCERINAE Neumann, 1878:12.

PODOCHELINAE Neumann, 1878:13.

CYPHOCARCININAE Neumann, 1878:15.

EURYNOMINAE Neumann, 1878:17.

MICRORHYNCHINAE Miers, 1879a:651.

SCHIZOPHYRSINAE Miers, 1879a:659.

LISSOIDA Alcock, 1895:161.

BLASTIDAE Stebbing, 1902:2.

MAMAIDAE Stebbing, 1905:22.

OPHTHALMIINAE Balss, 1929:6.

HYASTENINAE Balss, 1929:8, 14.

MACROCOELOMINAE Balss, 1929:8, 16, 20.

OREGONINAE Garth, 1958:134.

EASTERN ATLANTIC GENERA.—Twenty, of which the following 15 are represented by tropical species: *Acanthonyx*, *Achaeus*, *Apiomithrax*, *Calypsachaeus*, new genus, *Capartiella*, new genus, *Dorhynchus*, *Ergasticus*, *Eurynome*, *Herbstia*, *Inachus*, *Macropodia*, *Maja*, *Micropisa*, *Pisa*, and *Stenorhynchus*. The other genera are as follows:

Anamathia Smith (1885:493). Substitute name for *Amathia* Roux (1828, pl. 3), an invalid junior homonym of *Amathia* Lamouroux, 1812; type-species: *Amathia rissoana* Roux, 1828, by monotypy; gender: feminine; name 1606 on *Official List*.

Hyas Leach (1814:431). Type-species: *Cancer araneus* Linnaeus, 1758, by monotypy; gender: masculine.

Hyastenus White (1847b:56). Type-species: *Hyastenus sebae* White, 1847, by monotypy; gender: masculine.

Lissa Leach (1815b:69). Type-species: *Cancer chiragra* Fabricius, 1775, by monotypy; gender: feminine; name 1302 on *Official List*.

Rochinia A. Milne Edwards (1875, in 1873–1881:86). Type-species: *Rochinia gracilipes* A. Milne Edwards, 1875, by monotypy; gender: feminine; name 1647 on *Official List*.

EASTERN ATLANTIC SPECIES.—Sixty-six, of which 49 occur in tropical waters. Monod (1956) recorded the following species.

Name in Monod	Current Name
<i>Maja squinado</i>	<i>Maja squinado</i>
<i>Maja verrucosa</i>	<i>Maja crispata</i>
<i>Maja goltziana</i>	<i>Maja goltziana</i>
<i>Eurynome aspera</i>	<i>Eurynome aspera</i> *
<i>Herbstia rubra</i>	<i>Herbstia rubra</i>
<i>Herbstia rubra</i>	<i>Herbstia condyliata</i> *
<i>Pisa tetraodon</i>	<i>Pisa tetraodon</i>
<i>Pisa nodipes</i>	<i>Pisa nodipes</i>
<i>Pisa gibbsi</i>	<i>Pisa ornata</i> *
<i>Pisa carinimana</i>	<i>Pisa carinimana</i> *
<i>Micropisa ovata</i>	<i>Micropisa ovata</i>
<i>Apiomithrax violaceus</i>	<i>Apiomithrax violaceus</i> *
<i>Apiomithrax bocagei</i>	<i>Apiomithrax bocagei</i>
<i>Acanthonyx lunulatus</i>	<i>Acanthonyx lunulatus</i>
<i>Dorhynchus thomsoni</i>	<i>Dorhynchus thomsoni</i>
<i>Ergasticus clouei</i>	<i>Ergasticus clouei</i>
<i>Inachus angolensis</i>	<i>Inachus angolensis</i>
<i>Inachus dorsettensis</i>	<i>Inachus nanus</i> , new species*
<i>Inachus guentheri</i>	<i>Inachus guentheri</i>

<i>Inachus phalangium</i>	<i>Inachus phalangium</i>
<i>Inachus thoracicus</i>	<i>Inachus biceps</i> , new species*
<i>Inachus aguiari</i>	<i>Inachus aguiarii</i>
<i>Inachus leptochirus</i>	<i>Inachus leptochirus</i>
<i>Physachaeus (?) longipes</i>	<i>Capartiella longipes</i> *
<i>Achaeus cranchi</i>	<i>Achaeus cranchii</i>
<i>Achaeus foresti</i>	<i>Achaeus foresti</i> *
<i>Achaeus sp.</i>	<i>Achaeus trifalcatus</i>
<i>Achaeus monodi</i>	<i>Achaeus monodi</i>
<i>Macropodia gilsoni</i>	<i>Macropodia gilsoni</i> *
<i>Macropodia macrocheles</i>	<i>Macropodia macrocheles</i> *
<i>Macropodia rostrata</i>	<i>Macropodia spinulosa</i> *
<i>Macropodia straeleni</i>	<i>Macropodia straeleni</i> *
<i>Stenorhynchus seticornis</i>	<i>Stenorhynchus lanceolatus</i> *

Representatives of 24 species were taken by the Pillsbury, eight of them previously undescribed.

The following species occur outside of the tropical region:

Achaeus gracilis O. Costa, 1839 (= *Achaeus gordonae* Forest and Zariquiey Alvarez, 1955). Forest and Zariquiey Alvarez (1955:68, figs. 2, 4, 6, 8) pointed out that two species of *Achaeus* could be recognized in the Mediterranean, *A. cranchii* Leach, 1817, and a second species that they named *Achaeus gordonae*. In their account Forest and Zariquiey Alvarez noted that O. Costa (1839, in Costa and Costa, 1838–1871:25) in his *Fauna del Regno di Napoli*, named a small crab, *Macropodia gracilis*, which has the general aspect of an *Achaeus* and that Costa also had recognized *A. cranchii*. Forest and Zariquiey Alvarez (1955:66) considered Costa's *M. gracilis* to be unidentifiable ("espèce douteuse") and they did not synonymize it with *A. cranchii*. An examination of Costa's account and figure (pl. 3: fig. 1A,b) suggests to us that he was dealing with an *Achaeus*, one in which the rostral teeth are almost contiguous and the hepatic lobes of the carapace are poorly developed, characters which Forest and Zariquiey Alvarez used to separate *A. gordonae* from *A. cranchii*. In addition, in Costa's figure 1A the length/width ratio of the illustrated specimen is 1.44; this ratio was given by Forest and Zariquiey Alvarez as 1.16 to 1.38 in *A. cranchii*, 1.32 to 1.55 in *A. gordonae*. Thus this ratio in *A. gracilis* is larger than that of *A. cranchii* but fits well within the range reported for *A. gordonae*. We believe that *Achaeus*

gordoniae must be considered a synonym of *Macropodia gracilis* O. Costa, 1839. *Achaeus gracilis* occurs in the Mediterranean and adjacent Atlantic; sublittoral, to about 20 m (Zariquiey Alvarez, 1968).

Anamathia rissoana (Roux, 1828). Azores and eastern Mediterranean; sublittoral to about 400 m (Zariquiey Alvarez, 1968).

Eurynome spinosa Hailstone, 1835. Eastern Atlantic, from Scandinavia and British Isles southward to NW Spain, Azores, Mediterranean; sublittoral, from about 180 to about 400 m (Zariquiey Alvarez, 1968; Christiansen, 1969).

Hyas araneus (Linnaeus, 1758). Eastern Atlantic from Barents Sea southward to NW France; also western Atlantic; sublittoral, shallow water to more than 300 m (Christiansen, 1969).

Hyas coarctatus Leach, 1815. Eastern Atlantic from Barents Sea and Arctic southward to NW France; also western Atlantic, northern Pacific; sublittoral, between 1 and 500 m (Christiansen, 1969).

Hyastenus hilgendorfi De Man, 1887. An Indo-West Pacific immigrant into the eastern Mediterranean, now known from the coasts of Israel (Lewinsohn and Holthuis, 1964) and Egypt (Ramadan and Dowidar, 1976).

Inachus communissimus Rizza, 1839. Mediterranean and adjacent Atlantic, at least as far as Portugal; sublittoral, 15 to 24 m (Zariquiey Alvarez, 1968).

Lissa chiragra (Fabricius, 1775). Mediterranean, sublittoral, between 20 and 40 m (Zariquiey Alvarez, 1968).

Macropodia czernjawszkii (Brandt, 1880). Mediterranean; sublittoral, between 10 and 30 m (Zariquiey Alvarez, 1968).

Macropodia deflexa Forest, 1978. Northeastern Atlantic, from southern England to Portugal; sublittoral, shallow water to 20 m (Forest, 1978).

Macropodia intermedia Bouvier, 1940. (See page 300).

Macropodia linaresi Forest and Zariquiey Alvarez, 1964. Eastern Atlantic, from southern England and France to Spain, Mediterranean; sublittoral, between 30 and 80 m (Zariquiey Alvarez, 1968; Forest, 1978).

Macropodia longirostris (Fabricius, 1775). Mediterranean; sublittoral, between 4 and 50 m (Zariquiey Alvarez, 1968).

Macropodia rostrata (Linnaeus, 1761). Northeastern Atlantic, from Norway southward at least to Mediterranean; sublittoral; tropical West Africa records are referable to *M. spinulosa* (Zariquiey Alvarez, 1968; Christiansen, 1969; Forest, 1978).

Macropodia tenuirostris (Leach, 1814). Northeastern Atlantic, from the Faroes southward to Portugal; sublittoral, to more than 150 m (Zariquiey Alvarez, 1968; Christiansen, 1969; Forest, 1978).

Pisa corallina (Risso, 1816). Mediterranean; sublittoral, usually in less than 10 m (Zariquiey Alvarez, 1968).

Pisa muscosa (Linnaeus, 1758). Mediterranean; sublittoral, from 4–5 to about 40 m (Zariquiey Alvarez, 1968).

Rochinia carpenteri (Thomson, 1873). Eastern Atlantic, from Iceland and the Faroes southward to NW Africa, Azores; sublittoral, from about 180 to about 1300 m (Zariquiey Alvarez, 1968; Christiansen, 1969).

We believe that the following species, tentatively recorded by Monod (1956) from West Africa, are based on erroneously labeled specimens (each is known from a single specimen thought to be West African) and should not be included in the West African fauna:

Libinia erinacea A. Milne Edwards, 1879. A western Atlantic species recorded from "West Africa" as *Libinia dubia* by Streets (1870:105) and subsequently recorded by Rathbun (1925:321). Monod (1956:514, fig. 705), who examined the specimen, identified it with *L. erinacea*.

Notolopas brasiliensis Miers, 1886. A western Atlantic species reported by Monod (1956:513, figs. 703, 704), based on a specimen collected off South-West Africa in 1900.

Rochinia gracilipes A. Milne Edwards, 1875. A western Atlantic species included by Monod (1956:516, figs. 706–708), on the basis of a single specimen from Gabon collected by Heurtel. Much of the material from Gabon in this collection apparently has been erroneously labeled.

REMARKS.—In our account of this family we

have departed from our usual format in presenting synonymies for several Mediterranean-North Atlantic species which may not be represented in the tropical fauna. The occurrence of three such species, *Pisa armata*, *Acanthonyx lunulatus*, and *Herbstia condyliata*, is well documented, but in the cases of the latter two species older records may well pertain to other species recognized herein.

The occurrence of several other northern species off tropical West Africa should be verified: *Achaeus cranchii*, *Inachus aguiarii*, *I. dorsettensis* (tropical records of which are referred to *I. nanus*, new species, p. 291), *I. leptochirus* (tropical records are referred to *I. biceps*, new species, p. 285), *I. phalangium*, *I. thoracicus*, *Macropodia intermedia*, *M. longipes*, and *Pisa nodipes*.

Subfamily EPIALTINAE MacLeay, 1838

Genus *Acanthonyx* Latreille, 1828

- Acanthonyx* Latreille, 1828a:698 [type-species: *Maia lunulata* Risso, 1816, by monotypy; gender: masculine; name 1603 on *Official List*, there erroneously dated 1827].
- Gonosoma* Costa, 1844:69 [type-species: *Gonosoma viridis* Costa, 1844 (= *Acanthonyx viridis* Costa, 1838), a subjective junior synonym of *Maia lunulata* Risso, 1816, by monotypy; gender: neuter].
- Peltinia* Dana, 1851d:272 [type-species: *Peltinia scutiformis* Dana, 1851, a subjective junior synonym of *Acanthonyx petiverii* H. Milne Edwards, 1834, by present selection; gender: feminine].

REMARKS.—*Acanthonyx* is dated from 1827 in the *Official List of Generic Names in Zoology*. So far as we can determine, this is an error that originated in Neave, *Nomenclator Zoologicus*, in which 1827 is given. Other genera named in the same article by Latreille are correctly dated 1828 in Neave.

Until now *Acanthonyx* included seven species, as follows: *A. petiverii* H. Milne Edwards, 1834, from

both coasts of the Americas (Rathbun, 1925; Garth, 1958); *A. lunulatus* (Risso, 1816) (with *A. brevifrons* A. Milne Edwards, 1869, as a synonym), from the eastern Atlantic (see p. 256, and Zariquiey Alvarez, 1968 for Mediterranean references); *A. sanctaehelenae* Chace, 1966, from Saint Helena; *A. simplex* Dana, 1852, from the Pacific; and three species from the western Indian Ocean: *A. consobrinus* A. Milne Edwards, 1862, *A. limbatus* A. Milne Edwards, 1862, and *A. elongatus* Miers, 1877 (Stephensen, 1945; Barnard, 1950; Guinot, 1967a).

Acanthonyx closely resembles *Dehaanix* MacLeay, 1838, the only difference mentioned in the literature being the presence of a seven-segmented abdomen in the male in the latter, and an abdomen with six or less somites in the former. Stephensen (1945) and Barnard (1950) both suggest that this character is unreliable. The status of the two genera requires clarification.

According to accounts in the literature (cited above), the four Indo-West Pacific species of *Acanthonyx* can be distinguished from those occurring in the Atlantic as follows: *A. simplex* lacks dorsal spines or tubercles on the carapace; *A. dentatus* has a strong tooth on the orbital margin; *A. consobrinus* has a tooth on the orbital margin and four lateral projections on the carapace; and *A. limbatus* has much stronger lateral projections on the carapace.

In his account of *A. sanctaehelenae*, Chace (1966: 13) provided good comparative illustrations of the three species then known from the Atlantic, *A. lunulatus*, *A. petiverii*, and *A. sanctaehelenae*.

Material of *Acanthonyx* available to us from West African localities includes one new species from the Pillsbury collections, a second new species from Point-Noire, and *A. brevifrons* from the Cape Verde Islands. We recognize four species from the eastern Atlantic.

Key to Eastern Atlantic Species of *Acanthonyx*

- 1. Carapace with only 2 lateral lobes. [Rostral teeth short. 8-13 tubercles ventrally on dactyli of pereopods] *A. brevifrons*
- Carapace with 3 lateral lobes 2

2. Orbital margin with blunt tooth or projection. [Size very small, adults with carapace lengths of less than 4 mm. 6–8 tubercles ventrally (usually 6; 3 or 4 in juveniles) on dactyli of walking legs] *A. minor*, new species
Orbital margin smooth, evenly concave 3
3. Rostral teeth strongly depressed. Rostral sinus V-shaped. Merus of claw with 1 tubercle. [Size very small, adults with carapace lengths of less than 5 mm. 4–6 tubercles ventrally on dactyli of walking legs] *A. depressifrons*, new species
Rostral teeth not markedly depressed. Rostral sinus U-shaped. Merus of claw with 2 tubercles. [Size moderate to large, adults with carapace lengths of 15 mm or more. Males with 11–17 and females with 8–12 tubercles ventrally on dactyli of walking legs] *A. lunulatus*

***Acanthonyx brevifrons* A. Milne Edwards,
1869**

FIGURES 60a, 61

Acanthonyx brevifrons A. Milne Edwards, 1869:353.—A. Milne Edwards and Bouvier, 1894:12; 1900:152.—Bouvier, 1940:349.

?*Acanthonyx lunulatus*.—Miers, 1886:43.—Barrois, 1888:9. [See p. 258, references to *A. lunulatus* from Cape Verde Islands; not *Acanthonyx lunulatus* (Risso, 1816)].

?*Acanthonyx lunulatus* var. *brevifrons*.—Chapman and Santler, 1955:375.

MATERIAL EXAMINED.—*Pillsbury Material*: None.

Other Material: Cape Verde Islands; between Ilhéu Branco and Ilhéu Raso, 110–180 m, sand and rock, *Talisman*, 27 Jul 1883, 1♀, 1 juv (W).

DESCRIPTION.—Carapace (Figure 61a) pear-shaped, length in midline 1/5 longer than maximum breadth. Dorsal surface of carapace smooth, lacking distinct pubescence (in material studied). Hepatic lobe scarcely produced anteriorly. One prominent rounded lobe on branchial region, lateral margin between hepatic and branchial lobes straight, subparallel or slightly convergent posteriorly. Rostral teeth, preorbital, hepatic, and branchial lobes each with terminal tuft of stout setae. Rostral sinus (Figure 61b,e) broadly V-shaped. Rostral teeth depressed in lateral view (Figure 60a). Basal article of antennae with proximal spine on outer margin; 2 succeeding articles subcylindrical, extending to or slightly beyond rostral teeth. Chelipeds (Figure 61c,f) with 2 lobes proximally on outer margin, 1 smaller lobe near

midline, and 1 triangular distal lobe. Carpus with low crest dorsally. Fingers about as long as palm, with small proximal gape. Dactyli of walking legs (Figure 61d) with 8–13 tubercles on opposable margin in females.

MEASUREMENTS.—Female with carapace length of 8.8 mm, juvenile with carapace length of 5.4 mm. A. Milne Edwards (1869) reported that the type had a carapace length of 13 mm.

REMARKS.—Our examination of two specimens of this species taken by the *Talisman* in the Cape Verde Islands, part of the material recorded by A. Milne Edwards and Bouvier (1900), leads us to believe that *A. brevifrons* should be recognized as a distinct species. It is a smaller and smoother species than *A. lunulatus*, and it further differs in having shorter rostral teeth, a less prominent hepatic lobe on the carapace, and in the complete absence of a lateral lobe between the hepatic and branchial lobes. Females of *A. brevifrons* resemble those of *A. lunulatus* in having 8–13 tubercles on the opposable margin of the dactyli of the walking legs. In our material of *A. lunulatus*, there were 8–12 tubercles on the dactyli of the female and 11–17 tubercles on the dactyli of the males.

The confusion that has existed until now over the identity of this species is understandable, as it closely resembles *A. lunulatus* and both species occur in West African waters, although there is no indication that the species have been found together. The species originally was described from material taken in the bay of São Vicente,

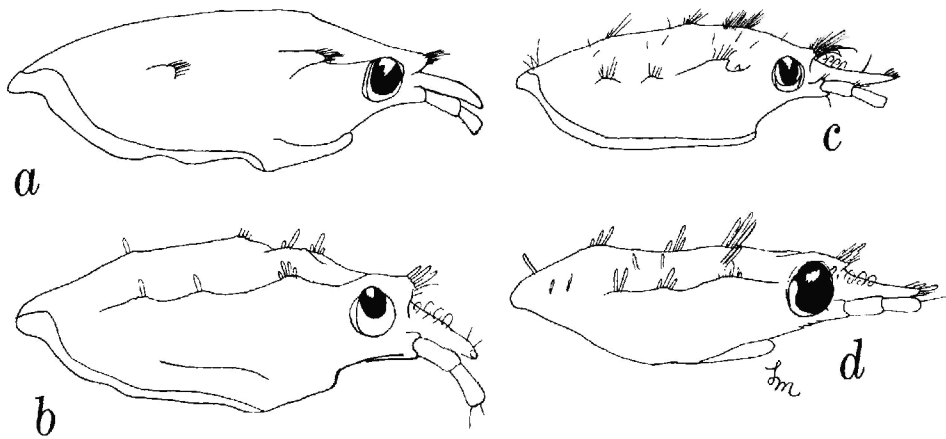


FIGURE 60.—Carapaces of West African species of *Acanthonyx* in lateral view: a, *A. brevifrons* A. Milne Edwards, female, cl 8.8 mm, Cape Verde Islands; b, *A. depressifrons*, new species, holotype, male, cl 4.0 mm, Pointe-Noire; c, *A. lunulatus* (Risso), female, cl 6.8 mm, Tunis; d, *A. minor*, new species, paratype, male, cl 2.6 mm, Pillsbury Sta 271.

Cape Verde Islands by A. Milne Edwards (1869); no depth data were given. Miers (1886:43) recorded a small female of *A. lunulatus* from São Vicente and noted that it approached the "species or variety *Acanthonyx brevifrons* A. Milne Edwards, in the form of the front, but there are indications of three antero-lateral teeth, and the carapace, as in *Acanthonyx lunulatus*, bears several tufts of setae." Miers' material, which could not be located, may be referable to *A. lunulatus*. A. Milne Edwards and Bouvier (1894, 1900) gave additional differences between this species and *A. lunulatus*, but did not give figures. Balss (1914) identified material from Annobon with this species, but in 1922 he synonymized *A. brevifrons* with *A. lunulatus*. We suspect that the material reported by Balss from Annobon actually belongs to a new species, *A. minor* (p. 261). Bouvier (1940:348) suggested that *A. brevifrons* should be considered as a race of *A. lunulatus*, and Chapman and Santler (1955) identified material from the Azores as *A. lunulatus* var. *brevifrons*. Monod (1956) synonymized *A. brevifrons* with *A. lunulatus*, and figured a male of the latter species from Dakar. In his list of material, Monod noted that his figured specimen, a large male (cl 15 mm), had an obsolete intermediate tooth on the carapace and corresponded to "f. *brevifrons*". The figured specimen appears to be a typical *lunulatus*,

as does the specimen from Mauritania figured earlier by Monod (1933b, fig. 7D). None of the material of *A. lunulatus* that we have examined approaches our material of *A. brevifrons* in short-

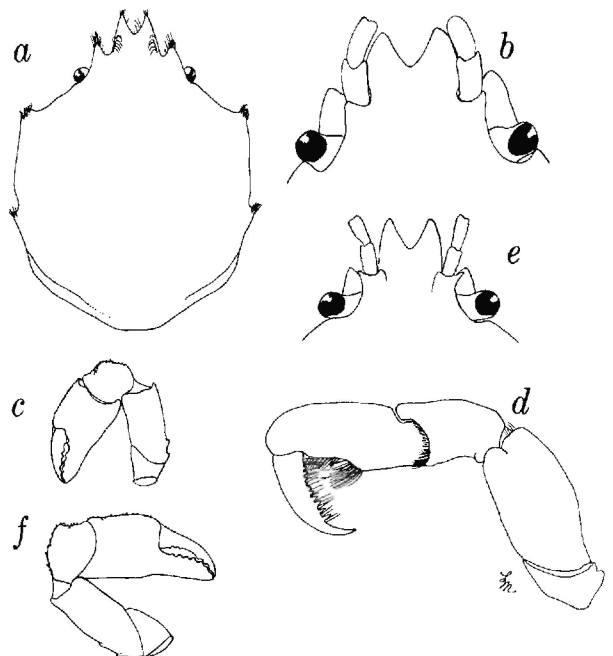


FIGURE 61.—*Acanthonyx brevifrons* A. Milne Edwards, Cape Verde Islands. Female, cl 8.8 mm: a, carapace; b, front, ventral view; c, cheliped; d, fifth pereiopod. Juvenile, cl 5.4 mm: e, front, ventral view; f, chela.

ness of rostral teeth or in the total suppression of the second lateral tooth on the carapace.

Bouvier (1940) noted that *A. lunulatus* occurred to a depth of about 20 m; it is usually taken in shallow water on algae. In the Mediterranean it often occurs on the algal genus *Cystoseira*. Two of the records for *A. brevifrons* given by A. Milne Edwards and Bouvier (1900) are from depths of 75 m and 110–180 m (our material is from the latter collection). It seems likely that *A. brevifrons* occurs in much deeper water than does *A. lunulatus*, and it is possible that both occur together in the Cape Verde Islands. All of the material from the Cape Verde Islands, the Azores, and Madeira (below) should be reexamined to determine which species occurs in the localities.

BIOLOGY.—Little information is available on the ecology of this species. Our specimens were taken by the *Talisman* on sand and rock in 110–180 m; no information was given for the type. A. Milne Edwards and Bouvier (1900) also recorded material from 75 m but did not record the habitat. In 1894 these same authors recorded the species from algae and rocks in 10 m. Shallower water records for this species, as well as those based on material collected in the alga *Cystoseira*, a favorite habitat for *A. lunulatus*, may be based on this latter species.

DISTRIBUTION.—*Acanthonyx brevifrons* has been reported from localities in the Azores, Madeira, and the Cape Verde Islands. At least some of the following records may be referable to *A. lunulatus*; all should be verified. Records in the literature include:

Azores: No specific locality (A. Milne Edwards and Bouvier, 1900; Bouvier, 1940; Barrois, 1888). E coast of Ilha das Flores, 39°26'30"N, 33°29'15"W of Paris (= 31°09'15"W of Greenwich), intertidal, and Graciosa, Ilhéu da Praia, 39°03'15"N, 30°18'15"W of Paris (= 27°48'15"W of Greenwich), beach, 10 m (A. Milne Edwards and Bouvier, 1894). Pasteleiro, Feteira, and Almoxarife [?], Ilha do Faial; and Madalena, Ilha do Pico (Chapman and Santler, 1955).

Madeira: No specific locality (Chapman and Santler, 1955).

Cape Verde Islands: São Vicente (A. Milne Edwards, 1869; Miers, 1886). Channel between São Vicente and Santo

Antão, 75 m, and between Ilhéu Branco and Ilhéu Raso, 110–180 m (A. Milne Edwards and Bouvier, 1900).

Acanthonyx depressifrons, new species

FIGURES 60*b*, 62

MATERIAL EXAMINED.—*Pillsbury Material*: None.

Other Material: Congo: Pointe-Noire, 5–10 m, in lobster nets, 24 Jan 1967, J. Marteau, 2♂ (larger male is holotype), 4♀ (L, W).

DESCRIPTION.—Carapace (Figure 62*a*) smooth, length 1.20–1.35 times greatest width, greatest width at level of anterolateral tooth. Surface with 2 protogastric, 1 gastric, and 1 cardiac tubercle in midline, lateral branchial tubercle also present. All dorsal tubercles with 1 or 2 broad setae. Rostral sinus (Figure 62*a,b*) V-shaped, rostral teeth noticeably depressed in lateral view (Figure 60*b*), teeth blunt. Carapace, posterior to base of rostrum, with usual 2 diverging rows of curved, hook-shaped hairs. Preorbital tooth blunt, rounded, much shorter than rostral teeth. Orbital margin curving evenly to anterior margin of first anterolateral tooth, which is not markedly set off as in *A. lunulatus*. No tooth present on orbital margin as in *A. minor*. First anterolateral tooth much larger than second and third, which are distinct and subequal in size. Carapace lacking subhepatic tubercle. Eyes small.

Basal segment of antennal peduncle (Figure 62*b*) unarmed. Antennal peduncle extending to or beyond apices of rostral teeth.

Chelipeds (Figure 62*c*) small in both sexes. Fingers about as long as palm, cutting edges dentate, gape slight. Palm smooth. Carpus with low dorsal crest; carpus about as long as palm, much shorter than merus. Merus with single blunt tubercle on basal half.

Dactyli of walking legs (Figure 62*d*) broad, opposable margins with 4–6 pairs of teeth. Second pereopod with dactyl shorter than propodus. Propodus about 3 times as long as high, outer surface with disc-like projection extending over base of dactylus; posterior margin of propodus with broad tubercle, ornamented with large setae, near midline. Carpus about as long as propodus,

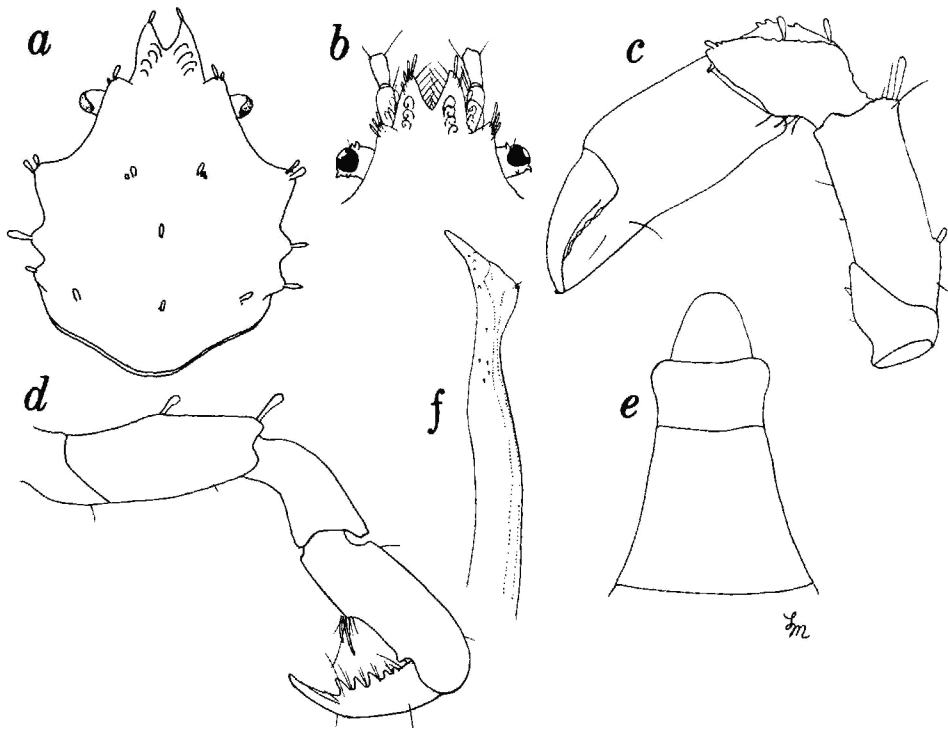


FIGURE 62.—*Acanthonyx depressifrons*, new species. Female paratype, cl 3.6 mm, Pointe-Noire: *a*, carapace. Holotype, male, cl 4.0 mm, Pointe-Noire: *b*, front, dorsal view; *c*, cheliped; *d*, fifth pereiopod; *e*, abdomen; *f*, gonopod.

much shorter than merus. Third and fourth pereiopods shorter than, but otherwise similar to, second. Fifth pereiopod shortest. Dactylus about as long as propodus. Propodus stout, slightly more than 2 times as long as wide; tubercles on posterior margin low, with slender setae and club-like hairs. Carpus shorter than propodus. Merus longer than propodus.

Male abdomen (Figure 62*e*) narrow. Telson triangular, length and width subequal. Sixth somite expanded distally. Male pleopod as illustrated (Figure 62*f*).

MEASUREMENTS.—Carapace lengths of males 3.5 to 4.0 mm, of females 3.3 to 4.3 mm.

REMARKS.—*Acanthonyx depressifrons* differs from the other three eastern Atlantic species of the genus in having the rostrum strongly depressed and in having only one tubercle on the merus of the cheliped. It further differs from *A. brevifrons* in having three distinct lateral lobes on the carapace and fewer tubercles on the dactyli of the walking

legs; from *A. lunulatus* in having the rostral sinus V-shaped and fewer tubercles on the dactyli of the pereiopods; and from *A. minor*, new species, in lacking a projection on the orbital margin and in having its greatest width at the level of the anterolateral tooth of the carapace in both sexes and at all sizes. Like *A. minor*, and perhaps *A. brevifrons*, *A. depressifrons* is a much smaller species than *A. lunulatus*, which can attain 15 mm or more in carapace length.

Acanthonyx depressifrons is a much smaller species than *A. petiverii* or *A. sanctaehelenae*, both of which as adults may attain a carapace length of 18 mm (Rathbun, 1925; Chace, 1966). It also differs from *A. petiverii* in having the rostral sinus V-shaped rather than broadly U-shaped and from *A. sanctaehelenae* in having one rather than two lobes or tubercles on the outer margin of the merus of the chelipeds.

TYPE-LOCALITY.—Off Pointe-Noire, Congo.

DISPOSITION OF TYPES.—The holotype is the

larger male, carapace length 4.0 mm (USNM 127191); three female paratypes (USNM 169535) also have been deposited in the collections of the Smithsonian Institution. A male and a female paratype have been deposited in the Rijksmuseum van Natuurlijke Histoire, Leiden.

ETYMOLOGY.—The specific epithet is from the Latin and refers to the characteristic depressed front of this species.

DISTRIBUTION.—Known only from the type-locality, Point-Noire, Congo, where it was taken at a depth of 5–10 m.

***Acanthonyx lunulatus* (Risso, 1816)**

FIGURES 60c, 63

Acanthonyx lunulatus.—Capart, 1951:84, fig. 26.—Monod, 1956:517, figs. 709, 710.—Rossignol, 1957:78, 116

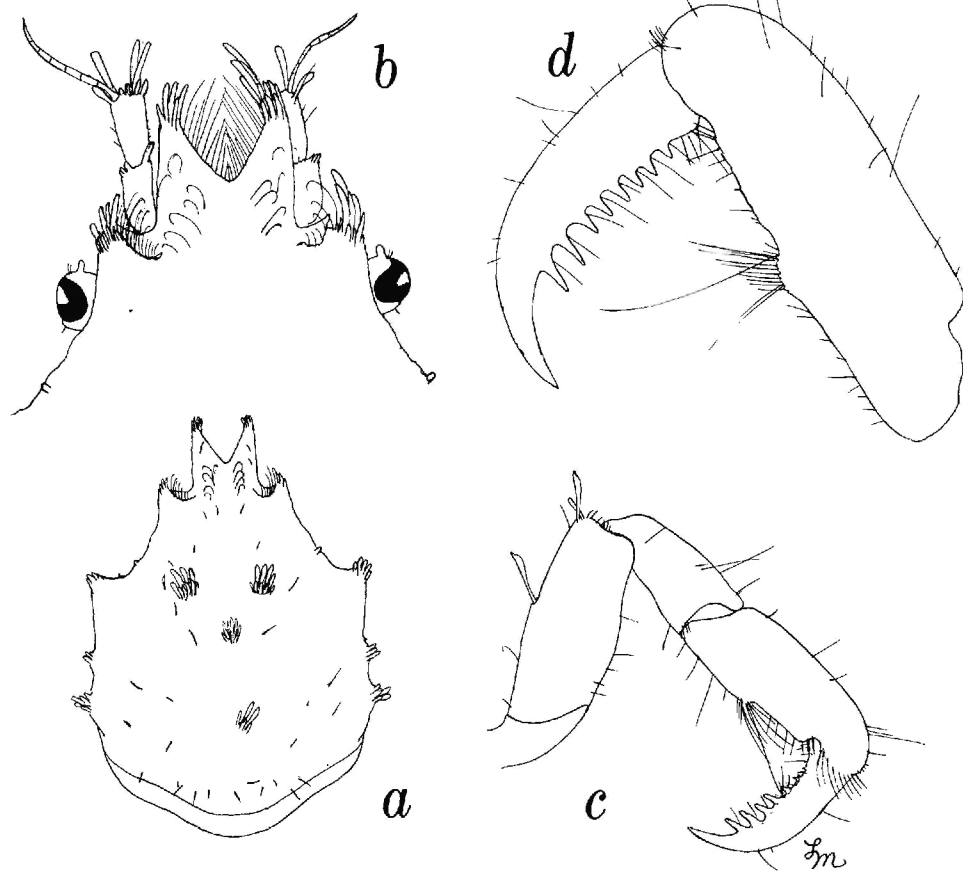


FIGURE 63.—*Acanthonyx lunulatus* (Risso), female, cl 6.8 mm, Tunis: a, carapace; b, front, dorsal view; c, fifth pereopod; d, distal segments of fifth pereopod, enlarged.

[key].—Forest and Gantès, 1960:356.—Gauld, 1960:72.—Rossignol, 1962:122.—Guinot and Ribeiro, 1962:76.—Ribeiro, 1964:20.—Chace, 1966, fig. 13a-d [Mediterranean].—Forest and Guinot, 1966:106.—Zariquiey Alvarez, 1968:466, figs. 7d, 153e,f, 154i,j [Spain; references].—Kensley, 1970:181.—Penrith and Kensley, 1970b:252, 260.—Ushakov, 1970:455 [listed].

SYNONYMS.—*Maia glabra* Latreille, 1836; *Acanthonyx viridis* O. Costa, 1838; *Gonosoma viridis* O. Costa, 1844.

MATERIAL EXAMINED.—*Pillsbury Material*: None.

Other Material: Madeira: SE coast near Agua de Pena, 32°41'N, 16°46'W, 0–25 m, diving, 9 Mar 1976, *Onversaagd* Sta 27, 1♀ (L).

REMARKS.—Monod (1956) summarized earlier records for this species and provided a good illustration of a large male from Dakar. He reported