

## THE DECAPOD CRUSTACEANS OF WEST AFRICA.

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This paper was prepared at the request of Prof. O. F. Cook, for the help of collectors and students on the west coast of Africa, and it was his intention to publish it as an appendix to his report of work done for the New York State Colonization Society. The preparation of that report having been unavoidably delayed, it was thought best to publish this portion while it is complete. The region covered extends on the continent from Senegal to Portuguese West Africa, inclusive, or from the River Senegal at about 16° north latitude to the River Kunene at 17° south latitude. It includes the fresh waters tributary to this coast and the islands in the Gulf of Guinea, namely, Princes Island, St. Thomas, and Rolas.

A comparison of the ranges of the species found in this area emphasizes the relation of the fauna to those of America and Europe rather than to the fauna of South and East Africa. Of the 152 species enumerated, 40 occur also in some of the islands west and northwest of Africa—the Azores, Madeiras, Canaries, Cape Verde Islands, Ascension Island, or St. Helena—24 species have been recorded from the Atlantic coast of America, 25 from Europe or the Mediterranean, 8 are South African, 5 East African, 6 extend to the west coast of America, while 15 occur in the oriental region. The widespread species, *Planes minutus*, *Grapsus grapsus*, and *Pachygrapsus transversus* are excluded from the foregoing count.

More than half the species of the list are known to the writer only from descriptions. Professor Cook and his colleagues have extended the range of several species, and have added one, *Olibanarius cooki*, to those hitherto known.

The classification used in this paper is chiefly, but not wholly, that of Claus in the Grundzüge der Zoologie. The key to families is made up partly from definitions in that work, and largely from those in Stebbing's History of Crustacea.

KEY TO THE SUBORDERS, TRIBES, AND FAMILIES OF THE ORDER DECAPODA,  
REPRESENTED ON THE WEST COAST OF AFRICA.

- A. Body short, with the carapace usually wide and triangular, rounded or quadrate, and the sternal surface excavated and covered by the abdomen, which is folded forward and narrow in the males, but wide in the females.....Suborder BRACHYURA.
- B. Branchiæ not more than nine.
- C. Buccal frame quadrate; efferent branchial channels opening at sides of endostome.
- D. Carapace quadrilateral. Frontal region curved downward. Verges of male inserted either in sternal plastron or in basal joints of fifth pair of legs, thence passing through channels in sternum beneath abdomen.....Tribe CATOMETOPA.
- E. Carapace hard and firm. Front, orbits, and eyestalks not very small. Buccal frame quadrate anteriorly.
- F. Carapace moderately convex or depressed; branchial regions not greatly dilated.
- G. Third maxillipeds with fifth joint articulated at the front inner angle usually. Front of moderate width or very narrow. Eye-stalks often greatly elongate.....Family OCYPODIDÆ.
- G'. Third maxillipeds with fifth joint articulated at apex or front outer angle of fourth. Front usually broad. Eye-stalks of moderate size..... Family GRAPSIDÆ.
- F'. Carapace very convex, especially dilated over and in front of the branchial regions; antero-lateral margins entire and strongly arcuate. Seventh joint of walking legs often armed with longitudinal rows of spines. Land crabs.....Family GECARCINIDÆ.
- E'. Carapace more or less membranaceous. Front, orbits, and eyestalks very small. Buccal frame arcuate anteriorly. Species of small size, and may be found in shells of bivalve mollusks, tests of sea-urchins, and tubes of annelids.....Family PINNOTHERIDÆ.
- D'. Carapace not quadrilateral. Male genital openings on the basal joint of the fifth pair of legs.
- E. Carapace broad, short, rounded anteriorly, without projecting frontal rostrum.....Tribe CYCLOMETOPA.
- F. Buccal cavity well defined. Antennulæ folded transversely or obliquely transversely.
- G. Carapace convex. Terminal joint of last pair of legs not flatly expanded.
- H. Terminal joint of the last pair of legs usually spinuliferous. Species fluviatile or living in damp earth away from the sea.  
Family POTAMONIDÆ.
- H'. Terminal joint of last pair of legs usually unarmed. Species marine.....Family PILUMNIDÆ.
- G'. Carapace depressed, widest at the last antero-lateral marginal spine. Usually from 5 to 9 antero-lateral teeth or spines. Terminal joint of last pair of legs usually flatly expanded.  
Family PORTUNIDÆ.
- F'. Buccal cavity not sharply defined, the third maxillipeds usually extending over its anterior margin. Antennulæ folded longitudinally.....Family CANCRIDÆ.
- E'. Carapace usually triangular, with projecting pointed rostrum.  
Tribe OXYRHYNCHA.
- F. Basal joint of antennæ well developed, inserted beneath the eyes and usually forming a great part of the infra-ocular space.  
Family MAIDÆ.

- F'. Basal joint of antennæ very small, and with the next joint embedded in the narrow gap between the front and the inner orbital angle ..... Family PARTHENOPIDÆ.
- C'. Buccal frame usually triangular, narrowed forward. Efferent channels opening at middle of endostome. Male genital openings on the basal joint of the last pair of legs..... Tribe OXYSTOMATA.
- D. Last one or two pairs of feet not articulated higher up than the preceding pairs.
- E. Afferent channels to the branchiæ opening behind the pterygostomian regions and in front of the chelipeds.
- F. Fifth and following joints of the third maxillipeds not wholly concealed by the fourth joint..... Family CALAPPIDÆ.
- F'. Fifth and following joints of the third maxillipeds concealed behind the triangular acute fourth joint..... Family MATUTIDÆ.
- E'. Afferent channels to the branchiæ not in front of bases of chelipeds, but at the antero-lateral angles of the endostome.  
Family LEUCOSIDÆ.
- D'. Last one or two pairs of feet articulated higher up than the preceding pairs.
- E. Afferent channels to the branchiæ in front of bases of chelipeds.  
Family DORIPPIDÆ.
- E'. Afferent channels to the branchiæ not in front of bases of chelipeds. Pleon short, not folded under the carapace.  
Family RANINIDÆ.
- B'. Branchiæ more than nine..... Tribe ANOMALA.
- C. Last one or two pairs of feet subdorsal, often prehensile, for carrying a shell, sponge, or leaf over the body as a means of concealment.  
Family DROMIDÆ.
- A'. Body elongate, with the abdomen or pleon usually well developed, longer than the carapace, and extended, or partially so, never closely reflexed against the sternum ..... Suborder MACRURA.
- B. Body not compressed. Rostrum depressed, often wanting. First abdominal segment shorter and narrower than the following. Abdominal appendages not oar-shaped. The articulation between the carpus and propodus at two fixed points.
- C. Abdomen with hard integument, tapering, and recurved from the middle, and without a swimming fan. Second to fifth pairs of legs short and wide, with terminal joint wide, curved outwardly for swimming and digging in the sand..... Tribe HIPPIDÆ.  
Family HIPPIDÆ.
- C'. Abdomen sometimes soft; when hard it is usually provided with a swimming fan. Second to fifth pairs of legs not wide nor with terminal joint flattened and curved for swimming and digging.
- D. Abdomen or pleon usually soft and membranaceous and spirally twisted. Carapace weak or membranaceous behind the cervical groove. Chelipeds and two following pairs of legs well developed, the last two pairs small, one or both being usually chelate.  
Tribe PAGURIDÆ.
- E. First antennæ with peduncle elongate, first joint as long as eyestalks. Second antennæ with peduncle compressed. Hermit crabs chiefly ..... Family CENOBITIDÆ.
- E'. First antennæ with peduncle of moderate size, first joint short and stout. Second antennæ with peduncle subcylindrical. Hermit crabs.  
Family PAGURIDÆ.
- D'. Abdomen or pleon with firm integument. Carapace not weak behind the cervical groove.

- E. Pleon with segments not overlapping. Rostrum minute or absent. Carapace short. First pair of legs chelate. Eyes small. Burrowing shrimps..... Tribe THALASSINIDEA.  
Family CALLIANASSIDEA.
- E'. Pleon with segments overlapping.
- F. First pair of legs simple or only subchelate. Carapace with very thick integument..... Tribe LORICATA.
- G. Carapace subcylindrical; external antennæ very long and rigid. "Spiny lobsters"..... Family PALINURIDÆ.
- . G'. Carapace flattened; external antennæ flat, short, squamiform.  
Family SCYLLARIDÆ.
- F'. First pair of legs chelate. Carapace with moderately firm integument.  
Tribe PORCELLANIDEA.  
Family PORCELLANIDÆ.
- B'. Body more or less compressed. Rostrum usually compressed. Pleon elongate, not inflexed; appendages oar-shaped. Articulation between the carpus and propodus at only one fixed point.  
Tribe CARIDEA.
- C. First three pairs of legs chelate; rostrum laterally compressed.  
Family PENÆIDÆ.
- C'. First three pairs of legs not all chelate.
- D. Rostrum long; first and second pairs of legs chelate; last three pairs simple.
- E. Second pair of legs with carpal joint undivided. Sometimes fluviatile.  
Family PALÆMONIDÆ.
- E'. Second pair of legs with carpal joint divided into segments.  
Family HIPPOLYTIDÆ.
- D'. Rostrum very small or absent.
- E. Eyestalks short, more or less covered by the projection of the front margin of the carapace; first pair of legs robustly chelate, sometimes unsymmetrical; second pair long and slender, minutely chelate..... Family ALPHEIDÆ.
- E'. Eyestalks not covered by the front margin of the carapace.
- F. First and second pairs of legs distinctly chelate, with spoon-shaped fingers. Fluviatile..... Family ATYIDÆ.
- F'. First and second pairs of legs more or less chelate. Fingers not spoon-shaped. Marine..... Family CRANGONIDÆ.

## Suborder BRACHYURA.

## Tribe CATOMETOPA.

## Family OCYPODIDÆ.

## KEY TO THE WEST AFRICAN GENERA OF THE FAMILY OCYPODIDÆ.

- A. Carapace quadrate; sides entire; front narrow; orbits occupying nearly the whole width of the carapace.
- B. Eye peduncles large; chelæ in male somewhat unequal..... *Ocyropsis*.
- B'. Eye peduncles slender; chelæ in male extremely unequal..... *Uca*.
- A'. Carapace with arcuate anterior margins; front and orbits of moderate width.
- B. Antero-lateral margins distinctly dentate..... *Pilumnoplax*.
- B'. Antero-lateral margins obscurely lobate..... *Typhlocarcinus*.



## Genus OCYPODE Fabricius.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS OCYPODE.

- A. Eyes terminated by a short style.....*ippeus*.  
 A'. Eyes without terminal style.....*africana*.

## OCYPODE IPPEUS Olivier.

*Ocypode ippeus* OLIVIER, Voy. Empire Ottoman, IV, 1804, p. 52; Atlas, Pt. 2, pl. XXX, fig. 1.

*Ocypode cursor* MILNE-EDWARDS, Ann. Sci. Nat. (3), Zool., XVIII, 1852, p. 142  
 (= ? *Cancer cursor* Linnæus).

*Range*.—Greece (Guérin); Syria (Olivier); Egypt (Lamarck); African coast of the Mediterranean (Desmarest); West African coast.

*West African localities*.—Cape Verde Islands (Stimpson, Miers, Studer); Cape Verde (Milne-Edwards); Senegal (Kingsley); Rufisque, Senegal (Hilgendorf); Dakar, Senegal (O. F. Cook); Mouth of Mesurado River, Monrovia (O. F. Cook); Liberia (Studer); Acra d'Elmina (de Man); St. Thomas, at Iogo-Iogo, Diogo Nunes, Praia das Conchas, Praia Almoxarife (Osorio); St. Thomas (Vieira, teste Osorio); Ile du Prince (Osorio); Kongo coast (de Man, Studer); St. Paul de Loanda (Studer, Benedict); Angola, at Benguella, Novo Redondo and Lobito (Osorio).

## OCYPODE AFRICANA de Man.

*Ocypode africana* DE MAN, Notes Leyden Mus., III, 1881, p. 253.

*Ocypode hexagonura* HILGENDORF, SB. Ges. Natur. Freund. Berlin, 1882, p. 23.

*Ocypode edwardsi* OSORIO, Jor. Sci. Lisboa (2), II, 1890, p. 48.

*West African localities*.—Rufisque, Senegal (Hilgendorf); Mouth of Mesurado River, Monrovia (O. F. Cook); Liberia (Hilgendorf); Grand Cape Mount, Liberia (de Man); Ile du Prince (Osorio); Kongo coast (de Man); Loango (Hilgendorf); Muserra (de Man).

## Genus PILUMNOPLAX Stimpson.

## PILUMNOPLAX SULCATIFRONS ATLANTICA Miers.

*Pilumnoplax sulcatifrons* var. *atlantica* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 259.

*West African locality*.—Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

## Genus TYPHLOCARCINUS Stimpson.

## TYPHLOCARCINUS INTEGRIFRONS Miers.

*Typhlocarcinus integrifrons* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 260, pl. XIV, fig. 1.

*West African locality*.—Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

## Genus UCA Leach.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS UCA.

- A. Carapace tuberculate; front narrow .....*tangeri*.  
 A'. Carapace smooth; front broad .....*mordax*.

## UCA TANGERI (Eydoux).

*Gelasimus tangeri* EYDOUX, Mag. de Zool., 1835, Cl. VII, pl. XIV.

*Gelasimus perlatus* HERKLOTS, Addit. Fauna Afr. Occ., 1851, p. 6, pl. I, fig. 3.

*Gelasimus cimatodus* ROCHEBRUNE, Bull. Soc. Philom. Paris (7), VII, 1883, p. 171.

*Uca tangeri* ORTMANN, Zool. Jahrb., Syst., X, 1897, p. 356.

The *perlatus* form of this species differs from typical *tangeri* only in the great reduction of the larger cheliped of the male and its comparative smoothness, there being no tubercular ridges on the inner side of the palm. The single male of *perlatus* in the U. S. National Museum collection, from St. Paul de Loanda, appears to be an aborted *tangeri*.

*Range*.—From Portugal (Capello, Osorio), to north and west coasts of Africa, as far as Algiers and Angola; West Indies (Miers); ? Bahia (Kingsley).

*West African localities*.—Rufisque, Senegal (Hilgendorf); Dakar, (O. F. Cook); Goree Bay, 9 to 15 fathoms (Miers); Sierra Leone (Miers); Rock Spring, Monrovia (O. F. Cook); mouth of Mesurado River (O. F. Cook); Liberia (Hilgendorf); Grand Bassam (Studer); Guinea (Kingsley); Beyah River, Ashantee (Benedict); near Boutry, Guinea (Herklots); Lagos (Studer); Bibundi, Kamerun (Aurivillius); St. Thomas, at Iogo-Iogo, and Praia Almozarife (Osorio); Ogove (Thallwitz); Chinchoxo (Hilgendorf, Studer); mouth of the Kwilu River (Berlin Mus.); mouth of the Kongo (Studer); Loanda (Hilgendorf, Studer); St. Paul de Loanda (Benedict); Barre du Dande, Benguella and Lobito (Osorio); "Les deux Mamelles" and "Côté des Maringouins pointe des Chameaux" (Rochebrune).

## UCA MORDAX (Smith)?

*Gelasimus mordax* SMITH, Trans. Conn. Acad. Sci., II, 1870, p. 135, pl. II, fig. 3; pl. IV, figs. 4, 4a.

*Range*.—Bahamas to Rio de Janeiro. West Africa?

*West African locality*.—Liberia (O. F. Cook, collector); one small but mature female.

This single specimen is very like females of *Uca mordax* from America. Its identity can not be determined with certainty until the male is discovered.

*Dimensions*.—Length, 8.6 mm.; width, 12.6 mm.

## Family GECARCINIDÆ.

## KEY TO THE WEST AFRICAN GENERA OF THE FAMILY GECARCINIDÆ.

- A. Palpus of the outer maxillipeds inserted on the inner face of the third joint near its summit and concealed under the joint. . . . . *Gecarcinus*.  
 A'. Palpus of the outer maxillipeds inserted at the external angle of the third joint and exposed to view. . . . . *Cardisoma*.

Genus GECARCINUS Leach.

GECARCINUS LAGOSTOMA Milne-Edwards.

*Gecarcinus lagostoma* MILNE-EDWARDS, Hist. Nat. Crust., II, 1837, p. 27.

*Range*.—Australasia (Milne-Edwards, Miers); South and West Africa; Bermuda? (Miers).

*African localities*.—West Africa (Miers); St. Thomas and Rolas (Greeff, as *ruricola*; Osorio, as *ruricola*); Benguella, Angola (Osorio); Cape of Good Hope (Miers); Ascension Island (Drew, Miers, Benedict, Ortmann).

Genus CARDISOMA Latreille.

CARDISOMA ARMATUM Herklots.

*Cardisoma armatum* HERKLOTS, Addit. Fauna Afr. Occ., 1851, p. 7, pl. 1, figs. 4, 5.

*West African localities*.—St. Jago, Cape Verde Islands (Stimpson, as *C. guanhumi*), Cat. No. 2037, U.S.N.M.; Porto Praya, St. Jago, Cape Verde Islands (Miers); Rufisque, Senegal (Hilgendorf); Dakar, Senegal (O. F. Cook); St. George del Mina, and near Boutry, Guinea (Herklots); Lagos (Ortmann, as *C. guanhumi*), Bibundi, Kamerun (Aurivillius); St. Thomas and Rolas (Greeff, as *C. guanhumi*); Ribeira Peixe, St. Thomas (Osorio); Ogove (Thallwitz); Benguella, Novo Redondo, Lobito, and Koroka River (Osorio).

Family GRAPSIDÆ.

KEY TO THE WEST AFRICAN GENERA AND SUBGENERA OF THE FAMILY GRAPSIDÆ.

- A. Antennæ covered by the front.
  - B. External maxillipeds without a piliferous ridge.
    - C. Antennæ excluded from the orbit.
      - D. Merus of maxillipeds as long as ischium ..... *Goniopsis*.
      - D. Merus of maxillipeds shorter than ischium ..... *Metopograpsus*.
    - C'. Antennæ entering the orbit.
      - D. Merus of maxillipeds longer than broad ..... *Grapsus*.
      - D'. Merus of maxillipeds as broad as long.
        - E. Outer surface of palm of large chela quite flat, and prolonged proximally beyond the wrist ..... *Platychirograpsus*.
        - E'. Outer surface of palm not flattened and prolonged.
          - F. Carapace longer than broad ..... *Plaes*.
          - F'. Carapace transverse ..... *Pachygrapsus*.
    - B'. External maxillipeds with a piliferous ridge.
      - C. Sides arcuate ..... Subgenus *Sarmatum*.
      - C'. Sides straight.
        - D. Sides with a tooth behind orbital tooth. Manus with pectinated ridges above ..... Subgenus *Perisesarma*.
        - D'. Sides entire.
          - E. Manus without pectinated ridges above ..... Subgenus *Holometopus*.
          - E'. Manus with pectinated ridges above ..... Subgenus *Parasesarma*.
  - A'. Antennæ visible from above.
    - B. Merus of maxillipeds large, as broad as ischium ..... *Plagusia*.
    - B'. Merus of maxillipeds small, much narrower than ischium ..... *Percnon*.

## Genus GONIOPSIS de Haan.

## GONIOPSIS CRUENTATA (Latreille).

*Grapsus cruentatus* LATREILLE, Hist. Nat. Crust., VI, 1803, p. 70.

*Grapsus (Goniopsis) cruentatus* DE HAAN, Fauna Japon., 1835, p. 33.

*Grapsus pelii* HERKLOTS, Addit. Fauna Afr. Occ., 1851, p. 8, pl. I, figs. 6, 7.

*Range*.—Bahamas and Florida Keys to Rio de Janeiro; Bermudas; West Africa; west coast of Nicaragua (Kingsley).

*West African localities*.—Dakar (O. F. Cook, collector); Rock Spring, Monrovia (O. F. Cook, collector); mouth of Mesurado River (O. F. Cook, collector); Liberia (von Martens); Ashantee (Benedict); Boutry, Guinea (Herklots); Princes Island (Osorio); St. Thomas, at Iogo-Iogo, Praia das Conchas, and Binda (Osorio); Gabun (Kingsley); Ogove (Thallwitz); Angola and Lobito (Osorio).

## Genus METOPOGRAPSUS Milne-Edwards

## METOPOGRAPSUS MESSOR (Forskål).

*Cancer messor* FORSKÅL, Desc. Anim. Itin. Or., 1775, p. 88.

*Metopograpsus messor* MILNE-EDWARDS, Ann. Sci. Nat. (3), XX, 1853, p. 165.

*Range*.—Oriental region; West Africa.

*West African localities*.—Canaries (Brullé); St. Thomas (Osorio); Angola (Osorio).

## Genus GRAPSUS Lamarck.

## GRAPSUS GRAPSUS (Linnæus).

*Cancer grapsus* LINNÆUS, Sys. Nat., 10th ed., I, 1758, p. 630.

*Cancer (Grapsus) grapsus* LATREILLE, Règne Anim. Cuvier, III, 1817, p. 16.

*Grapsus grapsus* IVES, Proc. Acad. Nat. Sci. Phila., 1891, p. 190.

*Range*.—Throughout the Tropics.

*West African localities*.—Madeira (Dana, Stimpson); Canary Islands (Milne-Edwards); Cape Verde Islands (Dana, Stimpson, Miers, Benedict); Ascension Island (Miers, Benedict, Ortmann); Rufisque, Senegal (Hilgendorf); Liberia (de Man); St. Thomas Island, at Ribeira Peixe, Praia Almoxarife, Praia das Conchas, and Angolares (Osorio); Angola, at Benguella and Koroka River (Osorio).

## Genus PACHYGRAPSUS Randall.

## PACHYGRAPSUS TRANSVERSUS Gibbes.

*Pachygrapsus transversus* GIBBES, Proc. Amer. Assoc. Adv. Sci., III, 1850, p. 181.

*Leptograpsus rugulosus* MILNE-EDWARDS, Ann. Sci. Nat. (3), XX, 1853, p. 172 [138].

*Range*.—Bahamas and Florida Keys to Rio Janeiro; Bermudas; West Africa; Oriental region (Australia, New Zealand, Singapore, Tahiti); California; Gulf of California; Gulf of Fonseca; west coast of Central America; Peru; Galapagos Islands.

*West African localities*.—Madeira (Stimpson, Miers); Cape Verde Islands (Miers, Benedict); Loanda (Hilgendorf).

This species is quite distinct from *P. maurus* Lucas (= *Goniograpsus*



*simplex* Dana), which can be told most readily by its narrower carapace, with sides slightly converging posteriorly, and by the entire lower extremity of the meri of the last pair of feet. There is a specimen of *P. maurus* in the U. S. National Museum from Terceira, Azores, collected by William Trelease. It is also known from Algiers (type locality); Oran (Milne-Edwards); Madeira (Stimpson); Rio Janeiro (Dana, Heller).

It is possible that *Grapsus simplex* Herklots, from Boutry, Guinea, is a synonym of *Pachygrapsus maurus* Lucas.

Genus PLANES Leach.

PLANES MINUTUS (Linnæus).

*Cancer minutus* LINNÆUS, Sys. Nat., 10th ed., I, 1758, p. 625.

*Planes clypeatus* BOWDICH, Excursions in Madeira and Porto Santo, 1825, p. 15, pl. XII, figs. 2a, 2b.

*Planes minutus* WHITE, List Crust. Brit. Mus., 1847, p. 42.

*Range*.—In all tropical and temperate seas.

*West African localities*.—Canary Islands (Miers); Rio Gambia (Kingsley).

Genus PLATYCHIROGRAPSUS de Man.

PLATYCHIROGRAPSUS SPECTABILIS de Man.

*Platychirograpsus spectabilis* DE MAN, Zool. Anz., No. 506, 1896, p. 292; Jahrb.

Hamburg. Wissen. Anst., XII, 1896, p. 97, pl. II, figs. 4, 4a, b, d; pl. III, fig. 4c.

*Aspidograpsus typicus* KRÖYER, manuscript (Copenhagen Museum).

*Range*.—Mexico; West Africa. One specimen was received from the Mexican Commission at the World's Columbian Exposition, 1893 (U.S.N.M.). Bay of Mexico, one male (Copenhagen Mus.). A claw of this rare species was discovered by the writer among a collection of deformed lobster claws in the museum at Halifax, Nova Scotia; its origin is unknown.

*West African locality*.—Gabun (de Man).

Genus SESARMA Say.

Subgenus HOLOMETOPUS Milne-Edwards.

KEY TO THE WEST AFRICAN SPECIES OF THE SUBGENUS HOLOMETOPUS.

- A. Upper margin of front concave and deeply four-lobed ..... *roberti*.  
 A'. Upper margin of front straight and nearly undivided ..... *elegans*.

SESARMA (HOLOMETOPUS) ROBERTI Milne-Edwards.

*Sesarma roberti* MILNE-EDWARDS, Ann. Sci. Nat. (3), XX, 1853, p. 182 [148].

*Sesarma americana* POCKOCK, Ann. Mag. Nat. Hist. (6), III, 1889, p. 7. Not *S. americana* Saussure.

*Sesarma bromeliarum* RATHBUN, Proc. U. S. Nat. Mus., XIX, 1896, p. 143.

*Range*.—West Indies: Haiti; Jamaica; Puerto Rico (Cat. No. 4801, Berlin Mus.); Laiou, Dominica (Pocock); Martinique (Paris Mus.); St. Lucia. West Africa.

*West African locality*.—Goree, Senegal (Milne-Edwards)

**SESARMA (HOLOMETOPUS) ELEGANS** Herklots.

*Sesarma elegans* HERKLOTS, Addit. Fauna Afr. Occ., 1851, p. 10, pl. 1, fig. 10.—DE MAN, Notes Leyden Mus., I, 1879, p. 69.

*West African localities.*—Near Boutry, Guinea (Herklots); Ogove (Thallwitz).

Subgenus **PARASESARMA** de Man.

KEY TO THE WEST AFRICAN SPECIES OF THE SUBGENUS PARASESARMA.

- A. Outer surface of hand perfectly flat and smooth.....*büttikoferi*.  
 A'. Outer surface of hand not perfectly flat and smooth.....*angolensis*.

**SESARMA (PARASESARMA) BÜTTIKOFERI** de Man.

*Sesarma büttikoferi* DE MAN, Notes Leyden Mus., V, 1883, p. 163.

*West African localities.*—Rock Spring, Monrovia (O. F. Cook, collector); Fisherman Lake, Liberia (de Man); Gunk River, Liberia (U.S.N.M.); Bibundi, Kamerun, in brackish water at the mouth of the river Bekongolo (Aurivillius); river N'Dian, Kamerun, brackish water (Aurivillius); Ogove (Thallwitz).

**SESARMA (PARASESARMA) ANGOLENSIS** Capello.

*Sesarma angolensis* CAPELLO, Desc. tres esp. nov. Crust. Afr. Occ., Lisboa, 1864, p. 4, fig. 2; Mem. Acad. R. Sci. Lisboa, Cl. Sci. Nat., Nova Ser., II, 1865 Pt. 2.

*West African localities.*—Grand Cape Mount, Liberia (de Man); Kamerun, at Bibundi on land, and river N'Dian, brackish water (Aurivillius); Ponte da Leuha, Kongo (Studer); Sea of Angola (Capello); Angola (Osorio).

Subgenus **PERISESARMA** de Man.

KEY TO THE WEST AFRICAN SPECIES OF THE SUBGENUS PERISESARMA.

- A. External surface of palm rising to an acute tubercle, situated near the external inferior angle.....*kamermani*.  
 A'. External surface of palm regularly convexly arched.....*africanum*.

**SESARMA (PERISESARMA) KAMERMANI** de Man.

*Sesarma kamermani* DE MAN, Notes Leyden Mus., V, 1883, p. 165.

*West African locality.*—Muserra, Kongo (de Man).

**SESARMA (PERISESARMA) AFRICANUM** Milne-Edwards.

*Sesarma africana* MILNE-EDWARDS, Hist. Nat. Crust., II, 1837, p. 73; Ann. Sci. Nat. (3), XX, 1853, p. 185 [151].

*Range.*—Barbados (Paris Mus.); West Africa.

*West African localities.*—Senegal (Milne-Edwards); Rock Spring, Monrovia (O. F. Cook, collector); Liberia (de Man); Beyah River, Ashantee (Benedict); near Boutry, Guinea (Herklots); Ekundu and Bibundi, Kamerun (Aurivillius); Gabun (Paris Mus.); Ogove (Thallwitz); Benguella (Osorio).

Subgenus **SARMATIUM** Dana.**SESARMA (SARMATIUM) CURVATUM** Milne-Edwards.

*Sesarma curvata* MILNE-EDWARDS, Hist. Nat. Crust., II, 1837, p. 75.

*Sesarma violacea* HERKLOTS, Addit. Fauna Afr. Occ., 1851, p. 10, pl. 1, fig. 9.—DE MAN, Notes Leyden Mus., II, 1880, p. 31.

*Metagrapsus curvatus* MILNE-EDWARDS, Ann. Sci. Nat. (3), XX, 1853, p. 189 [155].

*Sarmatium curvatum* KINGSLEY, Proc. Acad. Nat. Sci. Phila., 1880, p. 212.

*West African localities.*—Senegal (Milne-Edwards); near Boutry, Guinea (Herklots); Boutry and Sacconi (de Man); Ogove (Thallwitz); Lobito (Osorio); West Africa (Kingsley).

Genus **PLAGUSIA** Latreille.KEY TO THE WEST AFRICAN SPECIES OF THE GENUS **PLAGUSIA**.

- A. Carapace tuberculate.....*depressa*.  
 A. Carapace smooth.....*delanunayi*.

**PLAGUSIA DEPRESSA** (Fabricius).

*Cancer depressus* FABRICIUS, Sys. Ent., 1775, p. 406.

*Plagusia depressus* SAY, Jour. Acad. Nat. Sci. Phila., I, 1817, p. 100.

*Range.*—From Charleston, South Carolina, to Brazil; from the Mediterranean to St. Helena and South Africa.

*African localities.*—Madeira (Osorio); Cape Verde Islands (Osorio); St. Vincent, Cape Verde Islands (Miers); Rufisque, Senegal (Hilgen-dorf); Senegambia (Herklots, as *P. squamosa*); Liberia, Sacconi and Acra d'Elmina (de Man); Beyah River, Ashantee (Benedict); near Boutry, Guinea (Herklots, as *P. squamosa*); St. Thomas Island (Osorio); Angola (Osorio); Natal (Herklots, as *P. squamosa*).

**PLAGUSIA DELAUNAYI** Rochebrune.

*Plagusia delanunayi* ROCHEBRUNÉ, Bull. Soc. Philom., Paris (7), VII, 1883, No. 4, p. 172.

*West African localities.*—Ile aux Chiens, Albreda; Gambia (Roche-brune).

Genus **PERCNON** Gistel.<sup>1</sup>**PERCNON PLANISSIMUM** (Herbst).

*Cancer planissimus* HERBST, Natur. Krabben u. Krebse, III, 1804, Pt. 4, p. 3, pl. LIX, fig. 3.

*Leiolphus planissimus* MIERS, Cat. Crust. New Zealand, 1876, p. 46.

*Range.*—West Indian region; Oriental region to Japan and Sand-wich Islands; Clarion Island; Cape St. Lucas; Chile; Azores; West coast of Spain and Portugal; West and South Africa.

*African localities.*—Madeira (Brullé, Dana, Miers); Canaries (Brullé); Praia das Conchas, St. Thomas Island (Osorio); Ascension Island (Miers); Cape of Good Hope (Ortmann).

<sup>1</sup> *Percnon* Gistel, Naturgeschichte des Thierreichs, Stuttgart, 1848, p. VIII, substituted for *Acanthopus* de Haan, preoccupied.

## Family PINNOTHERIDÆ.

Genus THAUMASTOPLAX Miers.

THAUMASTOPLAX ANOMALIPES Miers.

*Thaumastoplax anomalipes* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 261, pl. XIV, fig. 2.

*West African locality.*—Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

## Tribe CYCLOMETOPA.

## Family POTAMONIDÆ.

KEY TO THE WEST AFRICAN GENERA AND SUBGENERA OF THE FAMILY POTAMONIDÆ.

- A. Ambulatory legs with anterior margin of carpal and propodal joints unarmed.  
 B. Lateral margin of carapace armed with large and sharp teeth or spines.  
     Genus *Parathelphusa*.  
 B'. Lateral margin of carapace entire, toothed or granulate..... Genus *Potamon*.  
     C. Postfrontal crest present and uninterrupted ..... Subgenus *Potamonantes*.  
     C'. Postfrontal crest absent ..... Subgenus *Geothelphusa*.  
 A'. Ambulatory legs armed with numerous spines on the anterior margin.  
     Genus *Erimetopus*.

## Genus POTAMON Savigny.

## Subgenus POTAMONAUTES MacLeay.

KEY TO THE WEST AFRICAN SPECIES OF THE SUBGENUS POTAMONAUTES.

- A. Lateral margin of carapace with a tooth between the outer orbital tooth and the postfrontal crest.  
 B. Postfrontal crest terminating in a well-marked tooth ..... *africanus*.  
 B'. Tooth rudimentary or wanting.  
     C. A groove separates the postfrontal crest from the lateral margin of the carapace ..... *aubryi*.  
     C'. Postfrontal crest and lateral margin continuous ..... *deczei*.  
 A'. Lateral margin of carapace without a tooth between the outer orbital tooth and the postfrontal crest.  
 B. Epibranchial tooth strong, produced.  
     C. Postfrontal crest arcuate, more advanced at its middle than the epibranchial tooth.  
     D. Carapace very thick, swollen ..... *bayonianus*  
     D'. Carapace less thick, swollen; front narrower; a deeper sinus between the postfrontal crest and the epibranchial tooth ..... *dubius*.  
     C'. Postfrontal crest sinuous, its middle portion about equally advanced with the epibranchial tooth ..... *ballayi*.<sup>1</sup>  
 B'. Epibranchial tooth nearly obsolete, not produced.  
     C. Carapace flattened; postfrontal crest not prominent ..... *margaritarius*.  
     C'. Carapace very convex.  
     D. Postfrontal crest sloping backward from the middle to the lateral margins ..... *perlatus*.  
     D'. Postfrontal crest sinuous ..... *anchieta*.

<sup>1</sup> According to the figure of this species, the postfrontal crest is uninterrupted.



## POTAMON (POTAMONAUTES) AFRICANUS (A. Milne-Edwards).

*Thelphusa africana* A. MILNE-EDWARDS, Nouv. Arch. Mus. Hist. Nat., V, 1869, p. 186, pl. XI, figs. 2, 2a; Ann. Sci. Nat., Zool. (7), IV, 1887, p. 124, fig. 8.

*Potamon (Potamonantes) aubryi* ORTMANN (part), Zool. Jahrb., Syst., X, 1897, p. 309.

*West African localities.*—Rivers of Liberia (de Man); Mount Coffee, Liberia (O. F. Cook; U.S.N.M.); Kamerun (Aurivillius); Gabun (A. Milne-Edwards); the San Benito, the Ogove, the Alima, the Kongo (A. Milne-Edwards).

## POTAMON (POTAMONAUTES) DECAZEI (A. Milne-Edwards).

*Thelphusa decazei* A. MILNE-EDWARDS, Bull. Soc. Philom. (7), X, 1886, p. 150; Ann. Sci. Nat., Zool., (7), IV, 1887, p. 127, fig. 7.

*Potamon (Potamonantes) decazei* ORTMANN, Zool. Jahrb., Syst., X, 1897, p. 309.

*West African localities.*—The San Benito, Franceville on the Alima (A. Milne-Edwards).

## POTAMON (POTAMONAUTES) AUBRYI (Milne-Edwards).

*Thelphusa aubryi* MILNE-EDWARDS, Ann. Sci. Nat. (3), XX, 1853, p. 210.—A. MILNE-EDWARDS (part), Ann. Sci. Nat., Zool. (7), IV, 1887, p. 122.

*Thelphusa aurantia* HERKLOTS, Addit. Faun. Afr. Occ., 1851, p. 5, pl. I, fig. 2. (Not *Cancer aurantius* Herbst.)

*Thelphusa pelii* HERKLOTS, Symb. Carc., Leyden, 1861, p. 13.

*Thelphusa emarginata* KINGSLEY, Proc. Acad. Nat. Sci. Phila., 1880, p. 36.

*Potamon (Potamonantes) aubryi* ORTMANN (part), Zool. Jahrb., Syst., X, 1897, p. 309.

*Potamon (Potamonantes) emarginatum* ORTMANN, Zool. Jahrb., Syst., X, 1897, p. 309.

*African localities.*—St. George-del-Mina, Guinea (Herklots); Kamerun (Aurivillius); Gabun (Milne-Edwards); West Africa (Kingsley); Port Natal (Kingsley).

## POTAMON (POTAMONAUTES) MARGARITARIUS (A. Milne-Edwards).

*Thelphusa margaritaria* A. MILNE-EDWARDS, Nouv. Arch. Mus. Hist. Nat., V, 1869, p. 185, pl. IX, figs. 4, 4a, 4b; Ann. Sci. Nat., Zool. (7), IV, 1887, p. 130.

*Potamon (Potamonantes) margaritarium* ORTMANN, Zool. Jahrb., Syst., X, 1897, p. 308.

*Habitat.*—St. Thomas, off west coast of Africa (A. Milne-Edwards). The following localities on the island have been noted: Ribeira Peixe; Portinho, 400 meters altitude; Bindá; Batepá; Saudade, 750 meters altitude; River Agua Grande (Osorio); Rio de Mello, 300 meters (Greeff).

## POTAMON (POTAMONAUTES) ANCHIETÆ (Capello).

*Thelphusa anchietæ* CAPELLO, Jor. Sci. Lisboa, III, 1870, p. 132, pl. IIa, fig. 11.—A. MILNE-EDWARDS, Ann. Sci. Nat., Zool. (7), IV, 1887, p. 128.

*Potamon (Potamonantes) perlatum* ORTMANN (part), Zool. Jahrb., Syst., X, 1897, p. 307.

*West African localities.*—Braganca; Ambaka; Pungo-Ndongo; Dondo (all in Angola). Luebo, Kongo; D. W. Snyder (U.S.N.M.). Quilengues and Quando (Osorio).

## POTAMON (POTAMONAUTES) DUBIUS (Capello).

*Thelphusa dubia* CAPELLO, Jor. Sci. Lisboa, IV, 1873, p. 254, pl. 1, figs. 1a, 2a.—A. MILNE-EDWARDS, Ann. Sci. Nat., Zool. (7), IV, 1887, p. 129.

*Potamon (Potamonautes) dubium* ORTMANN, Zool. Jahrb., Syst., X, 1897, p. 307.

*African localities.*—St. Thomas (Osorio); Kunene River, Mossamedes (Capello); Angola, Humbe, and Kunene River (Osorio); Kazungula, Zambesi (U.S.N.M.).

## POTAMON (POTAMONAUTES) BAYONIANUS (Capello).

*Thelphusa bayoniana* CAPELLO, Desc. tres esp. nov. Crust. Afr. occ., Lisboa, 1864, p. 2, pl. 1, fig. 3; Mem. Acad. R. Sci. Lisboa, Cl. Sci., Nova Ser., II, 1865, Pt. 2; Jor. Sci. Lisboa, III, 1870, p. 131, pl. 2a, fig. 10.—A. MILNE-EDWARDS, Ann. Sci. Nat., Zool. (7), IV, 1887, p. 128.

*Potamon (Potamonautes) bayonianum* ORTMANN, Zool. Jahrb., Syst., X, 1897, p. 306.

*African localities.*—Angola: To the north of Quibula; Duque de Braganca; Kakonda; Huilla; Kunene River (Osorio).

## POTAMON (POTAMONAUTES) BALLAYI (A. Milne-Edwards).

*Thelphusa ballayi* A. MILNE-EDWARDS, Bull. Soc. Philom. (7), X, 1886, p. 149; Ann. Sci. Nat., Zool. (7), IV, 1887, p. 132, figs. 2, 2a, 2b.

*African locality.*—Ngancin on the Kongo (A. Milne-Edwards).

## POTAMON (POTAMONAUTES) PERLATUS (Milne-Edwards).

*Thelphusa perlata* MILNE-EDWARDS, Hist. Nat. Crust., II, 1837, p. 13.

*Potamon (Potamonautes) perlatum* ORTMANN (part), Zool. Jahrb., Syst., X, 1897, p. 307.

*African localities.*—Zanzibar and Zanzibar coast (Pfeffer); Natal (Krauss, Ortmann); Cape Colony (Milne-Edwards, Krauss, Heller); Constantia (Stimpson); Cape Town (Miers); Wellington (Miers); Chalk Bay (Studer); Biballa and Caconda (Osorio); 400 miles inland from Loanda in River Cuiji—H. Chatelain, collector (U.S.N.M.). "Found in ponds and swamps; eaten by the natives; called 'Hala.'"

## Subgenus GEOTHELPHUSA Stimpson.

## POTAMON (GEOTHELPHUSA) MACROPUS Rathbun.

*Potamon (Geothelphusa) macropus* RATHBUN, Proc. Biol. Soc. Washington, XII, 1898, p. 29, pl. II, figs. 1-4.

*African locality.*—Mouth of Mesurado River, Monrovia; O. F. Cook, collector.

## Genus PARATHELPHUSA Milne-Edwards.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS PARATHELPHUSA.

- A. Lateral margin with only one tooth behind the post-frontal crest..... *charanesi*.
- A'. Lateral margin with more than one tooth behind the post-frontal crest.
  - B. Lateral margin with more than three teeth behind the post-frontal crest.
    - C. Carapace narrow; post-frontal crest feeble..... *brazzae*.
    - C'. Carapace broad; post-frontal crest distinct..... *chaperi*.
  - B'. Lateral margin with only three teeth behind the post-frontal crest.
    - C. Post-frontal crest uninterrupted, nearly straight..... *pacilei*.
    - C'. Post-frontal crest arcuate, uneven, interrupted..... *campi*.

## PARATHELPHUSA BRAZZÆ A. Milne-Edwards.

*Parathelphusa brazzæ* A. MILNE-EDWARDS, Bull. Soc. Philom. (7), X, 1886, p. 148; Ann. Sci. Nat., Zool. (7), IV, 1887, p. 142, fig. 6.

*Potamon (Acanthothelphusa) brazzæ* ORTMANN, Zool. Jahrb., Syst., X, 1897, p. 300.

*West African locality.*—Ngancin, Kongo (A. Milne-Edwards).

## PARATHELPHUSA CHAPERI A. Milne-Edwards.

*Parathelphusa chaperi* A. MILNE-EDWARDS, Ann. Sci. Nat., Zool. (7), IV, 1887, p. 144, fig. 4.

*West African locality.*—Assini (A. Milne-Edwards).

## PARATHELPHUSA PÆCILEI A. Milne-Edwards.

*Thelphusa pæcilei* A. MILNE-EDWARDS, Bull. Soc. Philom. (7), X, 1886, p. 149.

*Parathelphusa pæcilei* A. MILNE-EDWARDS, Ann. Sci. Nat., Zool. (7), IV, 1887, p. 143, fig. 1.

*Potamon (Acanthothelphusa) pæcilei* ORTMANN, Zool. Jahrb., Syst., X, 1897, p. 300.

*West African locality.*—Alima River, Bateke, French Kongo (A. Milne-Edwards).

## PARATHELPHUSA CAMPI Rathbun.

*Parathelphusa campi* RATHBUN, Proc. U. S. Nat. Mus., XVII, 1894, p. 25.

*Potamon (Acanthothelphusa) campi* ORTMANN, Zool. Jahrb., Syst., X, 1897, p. 300.

*West African locality.*—Stanley Pool, Kongo.

## PARATHELPHUSA CHAVANESI A. Milne-Edwards.

*Thelphusa chavanesi* A. MILNE-EDWARDS, Bull. Soc. Philom. (7), X, 1886, p. 150.

*Parathelphusa chavanesi* A. MILNE-EDWARDS, Ann. Sci. Nat., Zool. (7), IV, 1887, p. 145, fig. 3.

*Potamon (Potamonantes) chavanesi* ORTMANN, Zool. Jahrb., Syst., X, 1897, p. 309.

*West African locality.*—Environs of Franceville on the Alima, French Kongo (A. Milne-Edwards).

## Genus ERIMETOPUS Rathbun.

## ERIMETOPUS SPINOSUS Rathbun.

*Erimetopus spinosus* RATHBUN, Proc. U. S. Nat. Mus., XVII, 1894, p. 26.

*West African locality.*—Stanley Pool, Kongo; under boards and timbers, in mud.

## Family PILUMNIDÆ.

## KEY TO THE WEST AFRICAN GENERA OF THE FAMILY PILUMNIDÆ.

- A. The ridges that define the efferent branchial channels, if present, are low and are confined to the posterior part of the endostome, never reaching to the anterior boundary of the buccal cavern.
- B. Fronto-orbital border hardly ever (in adults) more than half, most usually much less than half, the greatest width of the carapace.
- C. Antero-lateral margin continued to the angle of the buccal cavity; carapace eroded..... *Glyptoxanthus*

- C'. Antero-lateral margin ending at the orbit.  
 D. Ambulatory legs cristate..... *Lophopanopeus*.  
 D'. Ambulatory legs not cristate.  
 E. Carapace deeply lobulate..... *Actæa*.  
 E'. Carapace not deeply lobulate.  
 F. Fingers sharp-pointed; carapace subhexagonal..... *Xantho*.  
 F'. Fingers blunt-pointed, hollowed at the tip.  
 G. Carapace very broad, oval; antero-lateral margin thickened.  
     *Xanthodius*.  
 G'. Carapace of moderate width, suboval; front and antero-lateral margins not thickened..... *Leptodius*.  
 B'. Fronto-orbital border much more than half the greatest width of the carapace.  
 C. Fingers pointed at tips.  
 D. Carapace and legs granulate or tuberculate..... *Xanthias*.  
 D'. Carapace almost smooth, except for short transverse lines. Legs smooth.  
     *Eupanopeus*.  
 C'. Fingers hollowed at tip..... *Chlorodiella*.  
 A'. The ridges that define the efferent branchial channels extend to the anterior boundary of the buccal cavern, and are often very strong.  
 B. Fronto-orbital borders half or less than half the greatest breadth of the carapace, which is broad and transversely oval..... *Epixanthus*.  
 B'. Fronto-orbital border just about two-thirds the greatest breadth of the carapace. Antero-lateral borders almost always shorter than the postero-lateral..... *Pilumnus*.

Genus ACTÆA de Haan.

ACTÆA MARGARITARIA A. Milne-Edwards.

*Actæa margaritaria* A. MILNE-EDWARDS, Nouv. Arch. Mus. Hist. Nat. Paris, IV, 1868, p. 62, pl. xvii, figs. 9-12.

*West African localities*.—Cape Verde Islands (A. Milne-Edwards); Iogo-Iogo, St. Thomas (Osorio).

Genus XANTHO Leach.

KEY TO THE WEST AFRICAN SPECIES OF THE GENUS XANTHO.

- A. Carapace wide; width more than  $1\frac{1}{2}$  its length..... *rivulosus*.  
 A'. Carapace narrow; width less than  $1\frac{1}{2}$  its length..... *pilipes*.

XANTHO RIVULOSUS (Risso).

*Cancer rivulosus* RISSO, Crust. Nice, 1816, p. 14.

*Xantho rivulosus* MILNE-EDWARDS, Hist. Nat. Crust., I, 1834, p. 394.

*Range*.—Great Britain; Atlantic coast of Europe; Black Sea; Mediterranean Sea; West coast of Africa.

*West African locality*.—Angola (Osorio).

XANTHO PILIPES A. Milne-Edwards.

*Xantho pilipes* A. MILNE-EDWARDS, Ann. Soc. Entom. France, VII, 1867, p. 268.

*Xantho pilipes?* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 213.

*West African localities*.—Senegal (A. Milne-Edwards); Goree Bay, Senegambia, 9 to 15 fathoms (Miers); Senegambia (Ortmann).



Genus XANTHODIUS Stimpson.

XANTHODIUS PUNCTATUS (Miers).

*Leptodius punctatus* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 214, pl. XIII, fig. 3.

*West African locality*.—Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

Genus LEPTODIUS A. Milne-Edwards.

LEPTODIUS CONVEXUS (A. Milne-Edwards).

*Chlorodius (Leptodius) convexus* A. MILNE-EDWARDS, Rev. Mag. Zool. (2), XXI, 1869, p. 410.

*West African localities*.—Cape Verde Islands, at St. Vincent, St. Lucia, Mayo, and Santiago (A. Milne-Edwards); Iogo-Iogo, St. Thomas Island (Osorio); Isla das Rolas (Osorio).

Genus XANTHIAS Rathbun.

XANTHIAS MELANODACTYLUS (A. Milne-Edwards).

*Xanthodes melanodactylus* A. MILNE-EDWARDS, Nouv. Arch. Mus. Hist. Nat. Paris, IV, 1868, p. 60, pl. XVII, figs. 1-3.—MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 212.

*Range*.—Fayal, Azores, 50 to 90 fathoms (Miers); West Africa.

*West African localities*.—Madeira Islands (Miers); off Gomera, Canary Islands, 75 fathoms (Miers); Cape St. Vincent, Cape Verde Islands (A. Milne-Edwards, Miers); Harbor of Porto Praya, Cape Verde Islands, 10 fathoms (Studer); Goree Bay, Senegambia, 9 to 15 fathoms (Miers); Senegambia (Ortmann); St. Thomas Island, at Praia Almoxarife and Praia des Conchas (Osorio); Ascension Island (Miers); Ascension Island, 20 to 30 fathoms, March 25, 1890, U. S. Eclipse Expedition to West Africa, William Harvey Brown, Naturalist (U.S.N.M.).

Genus LOPHOPANOPEUS Rathbun.

LOPHOPANOPEUS SEXDENTATUS (Miers).

*Lophozoymus (Lophozanthus) sexdentatus* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 211, pl. XIII, fig. 2.

*West African locality*.—Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

Genus EUPANOPEUS Rathbun.

EUPANOPEUS AFRICANUS (A. Milne-Edwards).

*Panopeus africanus* A. MILNE-EDWARDS, Ann. Soc. Entom. France (4), VII, 1867, p. 276.

*Eupanopeus africanus* RATHBUN, Bull. Lab. Nat. Hist. State Univ. Iowa, IV, 1898, p. 273.

*West African localities*.—Rock Spring, Monrovia (O. F. Cook; U.S.N.M.); Gabun and Angola (A. Milne-Edwards).

This may be the "*Panopeus herbstii*" recorded from Angola and Loanda,<sup>1</sup> and from Iogo-Iogo, St. Thomas Island, by Osorio.<sup>2</sup>

<sup>1</sup>Jor. Sci. Lisboa, XI, 1887, p. 224.

<sup>2</sup>Idem. (2), II, 1890, p. 45.

## Genus CHLORODIELLA Rathbun.

## CHLORODIELLA LONGIMANA (Milne-Edwards).

*Chlorodius longimanus* MILNE-EDWARDS, Hist. Nat. Crust., I, 1834, p. 401.

*Chlorodiella longimanus* RATHBUN, Ann. Inst. Jamaica, I, 1897, p. 14.

*Range*.—Florida Reefs; West Indies; Curaçao; West Africa.  
*West African locality*.—St. Thomas Island (Osorio).

## Genus GLYPTOXANTHUS A. Milne-Edwards.

## GLYPTOXANTHUS VERMICULATUS (Lamarck).

*Cancer vermiculatus* LAMARCK, Hist. Nat. Anim. sans Vert., V, 1818, p. 271.

*Xantho vermiculatus* MILNE-EDWARDS, Hist. Nat. Crust., I, 1834, p. 391.

*Actæa angolensis* CAPELLO, Desc. alg. esp. nov. Crust. e Arach. Portugal e poss. Port. do ultramar, 1866, p. 4, pl. I, fig. 3; Mem. Acad. R. Sci. Lisboa, Cl. de Sci. Nat., Nova Ser., IV, 1867, Pt. 1.

*Glyptoxanthus vermiculatus* A. MILNE-EDWARDS, Crust. Rég. Mex., 1879, p. 255, pl. XLIII, fig. 2.

*West African locality*.—Angola (Capello, Osorio).

In 1868,<sup>1</sup> A. Milne-Edwards said "Le *Xantho vermiculatus* des Antilles a été signalé à Angola par M. Capello." Later, in 1879,<sup>2</sup> he said "La patrie des deux exemplaires qui ont servi aux descriptions de Lamarck et de M. Milne-Edwards, et qui appartiennent aux collections du Muséum, est inconnue; mais il est très probable que c'est l'Amérique."

## Genus PILUMNUS Leach.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS PILUMNUS.

- A. Outer surface of the larger hand granulate except toward the lower margin. *verrucosipes*.  
A'. Outer surface of larger hand armed with strong spines ..... *africanus*.

## PILUMNUS VERRUCOSIPES Stimpson.

*Pilumnus verrucosipes* STIMPSON, Proc. Acad. Nat. Sci. Phila., X, 1858, p. 36.—MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 216, pl. XIII, fig. 5.

*African localities*.—Goree Bay, Senegambia, 9 to 15 fathoms (Miers); Simons Bay, Cape of Good Hope, 11 fathoms (Stimpson).

## PILUMNUS AFRICANUS A. Milne-Edwards.

*Pilumnus africanus* A. MILNE-EDWARDS, Ann. Soc. Entom. France (4), VII, 1867, p. 280.

*West African localities*.—Goree, Senegambia (A. Milne-Edwards); Angola (A. Milne-Edwards); Loanda (Osorio).

<sup>1</sup> Nouv. Arch. Mus. Hist. Nat. Paris, IV, p. 149.

<sup>2</sup> Crust. Rég. Mex., p. 255.

## Genus EPIXANTHUS Heller.

## EPIXANTHUS HELLERII A. Milne-Edwards.

*Epixanthus hellerii* A. MILNE-EDWARDS, Ann. Soc. Entom. France (4), VII, 1867, p. 278.

*Ozius corrugatus* OSORIO, Jor. Sci. Lisboa, XI, 1887, p. 224; (2), I, 1889, p. 131.

*West African localities.*—Senegal (A. Milne-Edwards); Gabun (A. Milne-Edwards); St. Thomas Island, at Iogo-Iogo, S. João dos Angulares and Praia das Conchas (Osorio); Angola (Osorio).

## Family PORTUNIDÆ.

## KEY TO THE WEST AFRICAN GENERA OF THE FAMILY PORTUNIDÆ.

- A. Antero-lateral teeth nine.  
 B. Flagellum of antenna entering orbit.  
 C. Abdomen of male triangular..... *Portunus*.  
 C'. Abdomen of male an inverted T..... *Callinectes*.  
 B'. Basal joint of antenna enlarged and almost excluding the antenna from the orbit..... *Charybdelta*.  
 A'. Antero-lateral teeth less than nine.  
 B. Carapace wide, subquadrilateral. Front and orbits occupying almost entire width of carapace..... *Thalamita*.  
 B'. Carapace narrow; frontal and antero-lateral borders forming a regular curve. Lateral teeth five.<sup>1</sup>..... *Liocarcinus*.

## Genus PORTUNUS Fabricius.

= *Neptunus* De Haan.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS PORTUNUS.

- A. Posterior border of the arm with two spines near the wrist..... *validus*.  
 A'. Posterior border of the arm with one spine at the wrist.  
 B. Carapace rough with series of granulations. Hand with three spines.. *hastatus*.  
 B'. Carapace almost smooth.  
 C. Hand with two spines..... *edwardsi*.  
 C'. Hand with one spine..... *pallidus*.

## PORTUNUS VALIDUS Herklots.

*Portunus (Posidon) validus* HERKLOTS, Addit. Faun. Africae Occ., 1851, p. 4, pl. 1, fig. 1.

*Neptunus validus* A. MILNE-EDWARDS, Arch. Mus. Hist. Nat., X, 1861, p. 321, pl. XXIX, fig. 1.

*West African localities.*—St. George del Mina, Guinea (Herklots); Benguela (Osorio).

<sup>1</sup> "*Lupa spinimosa* Learn." is known to me only by the entry of Osorio in Jor. Sci. Lisboa (2), I, 1890, p. 129.

## PORTUNUS HASTATUS (Linnæus).

*Cancer hastatus* LINNÆUS, Sys. Nat., 12th ed., I, 1767, Pt. 2, p. 1046.

*Lupa hastata* MILNE-EDWARDS, Hist. Nat. Crust., I, 1834, p. 455.

*Neptunus (Amphitrite) inaequalis* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 217, pl. XIII, fig 6.

*Range.*—West coast of Spain and Portugal; Azores; Mediterranean Sea; West Africa.

*West African localities.*—Canaries; Goree Bay, Senegambia, 9 to 15 fathoms (Miers); St. Thomas Island, at Praia das Conchas and Baie d'Anna Chaves (Osorio).

## PORTUNUS EDWARDSI (Rochebrune).

*Neptunus edwardsi* ROCHEBRUNE, Bull. Soc. Philom. Paris (7), VII, 1883, p. 169.

*West African localities.*—Gambia and Casamance Rivers (Rochebrune).

## PORTUNUS PALLIDUS Rochebrune.

*Neptunus pallidus* ROCHEBRUNE, Bull. Soc. Philom. Paris (7), VII, 1883, p. 170.

*West African locality.*—Lac de N'Guer, Marigots de M'Bao, Thionk, Leybar (Rochebrune).

## Genus CALLINECTES Stimpson.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS CALLINECTES.

- A. Length of lateral spine less than twice that of preceding tooth ..... *bocourti*.  
 \*A'. Length of lateral spine more than twice that of preceding tooth.  
 B. Appendages of first abdominal segment of male much shorter than the abdomen.  
 C. Lateral spine long and slender, about three times length of preceding tooth. *gladiator*.  
 C'. Lateral spine shorter and stout, between two and two and a half times length of preceding tooth ..... *marginatus*.  
 B'. Appendages as long as the abdomen ..... *latimanus*.

## CALLINECTES BOCOURTI A. Milne-Edwards.

*Callinectes bocourti* A. MILNE-EDWARDS, Crust. Rég. Mex., 1879, p. 226 (variety of *C. diacanthus*).—RATHBUN, Proc. Biol. Soc. Wash., XI, 1897, p. 151, and synonymy.

? *Neptunus annicola* ROCHEBRUNE, Bull. Soc. Philom. Paris (7), VII, 1883, p. 168.

*Range.*—Honduras to Rio de Janeiro, Brazil; West Africa.

*West African localities.*—Senegal; Liberia; Chinchoxo. *Neptunus annicola* Rochebrune is described from Sénégal, Falémé, Bakoy, Bafing, "et tous les Marigots tributaires."

Osorio records "*Neptunus diacanthus*" from Angola, Benguella, Loanda, Lobito,<sup>1</sup> from Praia das Conchas, St. Thomas,<sup>2</sup> and from Iogologo, St. Thomas.<sup>3</sup> De Man reports *N. diacanthus* from Liberia, St. George del Mina, and Congo.<sup>4</sup> Thallwitz also records a *Callinectes*

<sup>1</sup> Jor. Sci. Lisboa, XI, 1887, p. 225.

<sup>2</sup> Idem. (2), II, 1890, p. 199.

<sup>3</sup> Idem. (2), I, 1889, p. 131.

<sup>4</sup> Notes Leyden Mus., V, 1883, p. 150.



("Neptunus diacanthus") from Ogowé, West Africa, and Bahia, Brazil.<sup>1</sup> It is impossible to tell without examination of specimens whether these so-called "*N. diacanthus*" are synonymous with *C. bocourti* or with other species of *Callinectes*.

Rochebrune says of *Neptunus amnicola*, which I think may be identical with *Callinectes bocourti*, that it is found only in the fresh waters of rivers and is much sought after for food, the meat being exceptionally good. The negroes fish for them to eat and to sell to the Europeans. The Oulofs call it "koti."

#### CALLINECTES MARGINATUS (A. Milne-Edwards).

*Neptunus marginatus* A. MILNE-EDWARDS, Arch. Mus. Hist. Nat. Paris, X, 1861, p. 318, pl. XXX, fig. 2.

*Callinectes marginatus* RATHBUN, Proc. Biol. Soc. Washington, XI, 1897, p. 149, and synonymy.

*Range*.—Bahamas and Florida Keys to Bahia, Brazil; West Africa.

*West African localities*.—Cape Verde Islands; Bissau (Osorio); Liberia; Beyah River, Elmina, Ashantee; Gabun; St. Paul de Loanda.

#### CALLINECTES GLADIATOR (Benedict).

*Callinectes tumidus* var. *gladiator* BENEDICT, Proc. U. S. Nat. Mus., XVI, 1893, p. 537.

*Callinectes tumidus gladiator* RATHBUN, Proc. U. S. Nat. Mus., XVIII, 1896, p. 360.

*Callinectes gladiator* RATHBUN, Proc. Biol. Soc. Washington, XI, 1897, p. 150.

*West African localities*.—Liberia; mouth of Mesurado River, Monrovia (O. F. Cook); Dakar (O. F. Cook); Beyah River, Elmina, Ashantee; Chinchoso; Kongo Expedition (Brit. Mus.).

#### CALLINECTES LATIMANUS (Rathbun).

*Callinectes latimanus* RATHBUN, Proc. Biol. Soc. Washington, XI, 1897, p. 151, text figs. 6-8.

? *Neptunus marginatus* var. *truncata* AURIVILLIUS, K. Sv. Vet.-Akad. Handl., XXIV, 1898, Pt. 4, No. 1, p. [5], pl. I, figs. 1-4.

*West African localities*.—Lagos, Bight of Benin, Guinea; Kamerun (Aurivillius).

#### Genus CHARYBDELLA Rathbun.

##### CHARYBDELLA RUBRA (Lamarck).

*Portunus ruber* LAMARCK, Hist. Anim. sans Vert., V, 1818, p. 260.

*Cronius ruber* STIMPSON, Ann. Lyc. Nat. Hist. N. Y., VII, 1860, p. 225.

*Goniosoma millerii* A. MILNE-EDWARDS, Nouv. Arch. Mus. Hist. Nat., IV, 1869, p. 54, pl. XVIII, figs. 1-3.—MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 218.

*Cronius millerii* A. MILNE-EDWARDS, Crust. Rég. Mex., 1879, p. 232.

*Range*.—Charleston Harbor, South Carolina, to Brazil; Panama; Acapulco (Faxon in litt.); West Africa.

<sup>1</sup> Abh. Ber. K. Zool. Mus. Dresden, No. 3, 1891, p. 53.

*West African localities.*—Cape St. Vincent, Cape Verde Islands (A. Milne-Edwards); Goree Bay, Senegambia, 9 to 15 fathoms (Miers); St. Thomas (Osorio); Loanda (Osorio).

Genus LIOCARCINUS Stimpson.

= *Portunus* Leach.

KEY TO THE WEST AFRICAN SPECIES OF THE GENUS LIOCARCINUS.

- A. Carapace and chelipeds covered with numerous transverse lines of granules bordered with hair ..... *corrugatus*  
 A'. Carapace and chelipeds not covered with numerous transverse lines of granules bordered with hair..... *pusillus*

LIOCARCINUS CORRUGATUS (Pennant).

*Cancer corrugatus* PENNANT, Brit. Zool., IV, 1777, p. 5.

*Portunus corrugatus* BOSC, Hist. Nat. Crust., I, 1802, p. 217.—MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 219.

*Portunus strigilis* STIMPSON, Proc. Acad. Nat. Sci. Phila., X, 1858, p. 38.

*Range.*—Europe; West Africa; Japan (Stimpson, Miers); Australia (Miers).

*West African localities.*—Off Fayal, Azores, 50 to 90 fathoms (Miers); Canaries (Brullé); St. Vincent, Cape Verde Islands (Miers); Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

LIOCARCINUS PUSILLUS (Leach).

*Portunus pusillus* LEACH, Trans. Linn. Soc. London, XI, 1815, p. 318.

*Range.*—Europe (in the Mediterranean to 450 meters); Azores (Barrois); West Africa, including islands.

*West African localities.*—Canaries (Miers); Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

Genus THALAMITA Latreille.

THALAMITA INTEGR AFRICANA Miers.

*Thalamita integra* var. *africana* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 218.

*West African localities.*—Canary Islands; Goree Bay, Senegambia, 9 to 15 fathoms (Miers); Saudade, St. Thomas, 750 meters altitude (Osorio).

Family CANCRIDÆ.

Genus ATELECYCLUS Leach.

ATELECYCLUS ROTUNDATUS (Olivi).

*Cancer rotundatus* OLIVI, Zool. Adriat., 1792, p. 47, pl. II, fig. 2.

*Atelecyclus rotundatus* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 220.

*Range.*—Mediterranean; West coast of France; West Africa.

*West African locality.*—Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

## Tribe OXYRHYNCHA.

## Family MAIDÆ.

## KEY TO THE WEST AFRICAN GENERA OF THE FAMILY MAIDÆ.

- A. Eyes without defined orbits.  
 B. Rostrum simple ..... *Stenorynchus*.  
 B'. Rostrum two-spined ..... *Macropodia*.  
 A'. Eyes with defined orbits.  
 B. Orbits incomplete, with open fissures.  
 C. Carapace triangulate; preorbital spines acute, well developed, directed outward ..... *Pisa*.  
 C'. Carapace suboval; branchial regions swollen; preorbital teeth short, blunt ..... *Micropisa*.  
 B'. Orbits complete ..... *Libinia*.

## Genus STENORYNCHUS Lamarck.

## STENORYNCHUS SAGITTARIUS (Fabricius).

*Cancer sagittarius* FABRICIUS (part), Ent. Sys. emend. et aucta, II, 1793, p. 442.

*Leptopodia sagittaria* LEACH, Zool. Misc., II, 1815, p. 16, pl. 67.

*Stenorynchus sagittarius* RATHBUN, Ann. Inst. Jamaica, I, 1897, p. 4.

Range.—Cape Hatteras, North Carolina, to Rio de Janeiro, Brazil; West Africa.

West African localities.—Madeira Islands; Canary Islands; Cape Verde Islands; Senegambia (Herklots); St. Thomas (Osorio).

## Genus MACROPODIA Leach.

## MACROPODIA ROSTRATA (Linnæus).

*Cancer rostratus* LINNÆUS, Fauna Suecica, 1761, p. 492.

*Cancer phalangium* PENNANT, Brit. Zool., IV, 1777, p. 8, pl. IX, fig. 17.

*Stenorynchus phalangium* MILNE-EDWARDS, Hist. Nat. Crust., I, 1834, p. 279.—  
 BELL, Brit. Stalk-eyed Crust., 1853, p. 2, figures.

*Macropodia rostratus* STEBBING, Hist. Recent Crust., 1893, p. 105.

Range.—Europe; West Africa.

West African localities.—Azores Islands; Madeira Islands; Cape Verde Islands; Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

## MACROPODIA ROSTRATA SPINULOSA (Miers).

*Stenorynchus rostratus* var. *spinulosus* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 206.

Range.—Belfast Bay, Ireland (Miers); Vigo Bay, Spain (Miers); West Africa.

West African locality.—Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

Anterior legs armed with numerous spinules on the upper and lower edges of the arms, wrists, and hands; the fingers, which are dilated and laterally compressed, are smooth, and when closed have between them, near the base, a wide hiatus.

## Genus PISA Leach.

## PISA CARINIMANA Miers.

*Pisa carinimana* MIERS, Ann. Mag. Nat. Hist. (5), IV, 1879, p. 11, pl. iv, fig. 6; Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 207.

*West African localities*.—Canary Islands (type locality); Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

## Genus MICROPISA Stimpson.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS MICROPISA.

- A. Four tubercles in a transverse line on the gastric region. Branchial spines pointed.
- B. Carapace considerably longer than wide.....*violacea*.  
 B'. Carapace about as long as wide.....*bocagei*.
- A'. Three tubercles in a transverse line on the gastric region. Branchial spines terminating in a button.....*eryophora*.

## MICROPISA VIOLACEA A. Milne-Edwards.

*Micropisa violacea* A. MILNE-EDWARDS, Nouv. Arch. Mus. Hist. Nat., IV, 1868, p. 50, pl. xvi, figs. 3-6.

*Herbstia violacea* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 206.

*West African localities*.—Cape St. Vincent, Cape Verde Islands (A. Milne-Edwards); Goree Bay, Senegambia, 9 to 15 fathoms (Miers); St. Thomas (Osorio); Loanda (Osorio); Angola (A. Milne-Edwards).

## MICROPISA BOCAGEI Osorio.

*Micropisa bocagei* OSORIO, Jor. Sci. Lisboa, XI, 1887, p. 223.

*West African locality*.—Benguela, Angola (Osorio).

## MICROPISA ERYOPHORA Rochebrune.

*Micropisa eryophora* ROCHEBRUNE, Bull. Soc. Philom. Paris (7), VII, 1883, p. 167.

*Herbstia eryophora* RATHBUN, Proc. U. S. Nat. Mus., XVI, 1893, p. 93.

*West African localities*.—Mouth of the Gambia and of the Casamance (Rochebrune).

## Genus LIBINIA Leach.

## LIBINIA DUBIA Milne-Edwards.

*Libinia dubia* MILNE-EDWARDS, Hist. Nat. Crust., I, 1834, p. 300, pl. xiv bis, fig. 2.—STREETS, Proc. Acad. Nat. Sci. Phila., 1870, p. 104.

*Range*.—Massachusetts to Texas; West Africa (Streets).

I have recently come to the conclusion that certain forms usually considered varieties of *L. dubia* are distinct. These are *L. distincta* Guérin, Capello (not von Martens) and *L. rhomboidea* Streets = *L. inflata* Streets = *L. distincta* von Martens (type examined). A specimen of the former is in the United States National Museum from Charlotte Harbor, Florida (Cat. No. 15203, U.S.N.M.), and of the latter from Merida, Yucatan (Cat. No. 2169, U.S.N.M.).



## Family PARTHENOPIDÆ.

## KEY TO THE WEST AFRICAN GENERA OF THE FAMILY PARTHENOPIDÆ.

- A. Carapace not laterally expanded so as to conceal the ambulatory legs. . . . . *Lambrus*.  
 A'. Carapace more or less expanded to form a vault in which the ambulatory legs are concealed . . . . . *Heterocrypta*.

## Genus LAMBRUS Leach.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS LAMBRUS.

- A. Carapace much wider than long . . . . . *macrochelos*.  
 A'. Carapace nearly as long as wide.  
 B. Carapace very convex and tuberculated . . . . . *massena*.  
 B'. Carapace more depressed and sparingly granulated . . . . . *bicarinatus*.

## LAMBRUS MACROCHELOS (Herbst).

*Cancer macrochelos* HERBST, Natur. Krabben u. Krebse, I, 1790, p. 254, pl. XIX, fig. 107.

*Lambrus mediterraneus* ROUX, Crust. Médit., 1828, p. (20), pl. I.

*Lambrus macrocheles* ORTMANN, Zool. Jahrb., Syst., VII, 1893, p. 414.

*Range*.—Mediterranean Sea; West Africa.

*West African locality*.—Liberia, 49 fathoms (Studer).

## LAMBRUS MASSENA Roux.

*Lambrus massena* ROUX, Crust. Médit., 1828, p. (25), pl. XXIII, figs. 7-12.

*Lambrus (Parthenopoides) massena* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 207.

*Lambrus (Parthenolambrus) massena* MIERS, Challenger Rept., Zool., XVII, 1886, p. 100.

*Range*.—Mediterranean; West Coast of France; Azores (Barrois); Azores, off Fayal, 50 to 90 fathoms (Miers); West Africa.

*West African localities*.—Canaries; St. Vincent, Cape Verde Islands (Miers); Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

## Variety GOREENSIS Miers.

*Lambrus massena* var. *goreensis* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 374=Variety *Spinifer*, idem., p. 208.

Differs from typical *massena* in having the prominent tubercles of the gastric, cardiac, and branchial regions developed into blunt spines. A similar spine exists near the distal end of the upper surface of the arm, and the upper surface of the palms is strongly granulated and tuberculated (Miers).

*West African locality*.—Goree Island, Senegambia (Miers).

## Variety ATLANTICA Miers.

*Lambrus massena* var. *atlanticus* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 208; Challenger Rept., Zool., XVII, 1886, p. 100.

Front much less prominent than in typical forms, more deflexed and rounded at its distal end; the regions of the carapace less convex and

less prominently granulated, with the interspaces and the sides toward the lateral margins also more or less granulated; arm generally shorter (Miers).

*West African localities.*—St. Vincent, Cape Verde Islands (Miers); Goree Island, Senegambia (Miers).

#### LAMBRUS BICARINATUS Miers.

*Lambrus (Parthenopoides) bicarinatus* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 208.

*Lambrus (Parthenolambrus) bicarinatus* MIERS, Challenger Rept., Zool., XVII, 1886, p. 99.

*West African localities.*—Canary Islands (Miers); Goree Island, Senegambia, 9 to 15 fathoms (Miers).

#### Genus HETEROCRYPTA Stimpson.

##### HETEROCRYPTA MALTZANI Miers.

*Heterocrypta maltzami* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 209, pl. XIII, fig. 1.

*Heterocrypta maltzani* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 374; Challenger Rept., Zool., XVII, 1886, p. 103.

*Range.*—Bay of Toulon, 455 meters (A. Milne-Edwards); Fayal, Azores, 50 to 90 fathoms; Azores, 450 fathoms; West Africa.

*West African locality.*—Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

#### Tribe OXYSTOMATA.

##### Family CALAPPIDÆ.

##### Genus CALAPPA Fabricius.

###### KEY TO THE WEST AFRICAN SPECIES OF THE GENUS CALAPPA.

- A. Carapace with a deep hollow on either side of the gastric region. Posterior teeth of clypeiform expansion broad and shallow ..... *gallus*.
- A'. Carapace without a deep hollow on either side of the gastric region. Posterior teeth of clypeiform expansion elongate, spiniform.
- B. Lateral teeth of clypeiform expansion three. Carapace marked with patches of blood red.
- C. Lateral and postero-lateral teeth of clypeiform expansion longer than broad. *rubroguttata*.
- C'. Lateral and postero-lateral teeth of clypeiform expansion broader than long. *granulata*.
- B'. Lateral teeth of clypeiform expansion four. Carapace narrower than the preceding ..... *pelii*.

## CALAPPA GALLUS (Herbst).

*Cancer gallus* HERBST, Natur. Krabben u. Krebse, III, 1803, Pt. 3, pp. 18, 46, pl. LVIII, fig. 1.

*Cancer (Calappa) gallus* LATREILLE, Règne Anim. Cuvier, III, 1817, p. 24.

*Calappa galloides* STIMPSON, Ann. Lye. Nat. Hist. N. Y., VII, 1859, p. 71.

*Range*.—Islands of the Pacific and Indian oceans; Red Sea; West Africa; Florida Keys; Jamaica; Curaçao; Bahia, Brazil.

*West African localities*.—Cape Verde Islands (Paris Mus.), Guinea (Copenhagen Museum), St. Thomas (Osorio), Benguela (Osorio).

## CALAPPA GRANULATA (Linnæus).

*Cancer granulatus* LINNÆUS, Sys. Nat., 10th ed., I, 1758, p. 627; 12th ed., I, Pt. 2, 1767, p. 1043 (type).

*Cancer (Calappa) granulatus* CUVIER, Hist. Nat. Anim., 1798, p. 459.

*Calappa granulata* CAPELLO, Jor. Sci. Lisboa, III, 1870, p. 130.

*Range*.—Mediterranean; Portugal; Azores; West Africa; Japan, (Barrois).

*West African localities*.—Canaries (Brullé); Angola (Capello); Benguela (Osorio).

## CALAPPA RUBROGUTTATA Herklots.

*Calappa rubroguttata* HERKLOTS, Addit. Fauna Afr. Occ., 1851, p. 11.

*Calappa bocagei* CAPELLO, Jor. Sci. Lisboa, III, 1870, p. 130, pl. II, fig. 3.

*West African localities*.—Near Boutry, Guinea (Herklots); Princes Island (Osorio); St. Thomas Island (Osorio); Gabun (Paris Mus.); Angola (Capello); Benguela and Bay of Mossamedes (Osorio).

## CALAPPA PELII Herklots.

*Calappa pelii* HERKLOTS, Addit. Fauna Afr. Occ., 1851, p. 12.

*West African locality*.—Near Boutry, Guinea (Herklots).

## Family MAJUTIDÆ.

## Genus HEPATUS Latreille.

## HEPATUS PRINCEPS (Herbst).

*Cancer princeps* HERBST, Natur. Krabben u. Krebse, II, 1794, p. 154, pl. XXXVIII, fig. 2.

*Calappa angustata* FABRICIUS, Entom. Syst., Suppl., 1798, p. 347.

*Hepatus fasciatus* LATREILLE, Hist. Nat. Crust., V, 1803, p. 388.

*Range*.—From Georgia to Brazil; West Africa; Cape of Good Hope (Herklots); East Indies (Herbst).

*West African locality*.—Guinea (Copenhagen Museum).

## Family LEUCOSIIDÆ.

## KEY TO THE WEST AFRICAN GENERA OF THE FAMILY LEUCOSIIDÆ.

- A. Merus of external maxillipeds more than half the length of the ischium measured along the inner border; fingers stout, gradually narrowing from base to tip.
- B. Carapace subglobular, convex, the regions usually not distinctly delimited, but merged into the general convexity.....*Philyra*.
- B'. Carapace polygonal; surface broken or nodular; regions delimited by grooves or inequalities of level.....*Ebalia*.
- A'. Merus of external maxillipeds half or less than half the length of the ischium measured along the inner border; fingers slender, almost of same diameter from base to tip.....*Leucosia*.

## Genus PHILYRA Leach.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS PHILYRA.

- A. Carapace with a lateral dorsal crest.....*cristata*
- A'. Carapace without a lateral dorsal crest.....*levidorsalis*.

## PHILYRA CRISTATA Miers.

*Philyra cristata* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 263, pl. xv, fig. 1.

*West African locality*.—Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

## PHILYRA LÆVIDORSALIS Miers.

*Philyra levidorsalis* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 264, pl. xv, fig. 2.

*West African locality*.—Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

## Genus EBALIA Leach.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS EBALIA.

- A. Exognath of outer maxilliped reaching the distal end of the merus of the endognath.....*affinis*.
- A'. Exognath of outer maxilliped not reaching the distal end of the merus of the endognath.....*tuberculata*.

## EBALIA TUBERCULATA Miers.

*Ebalia tuberculata* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 266, pl. xiv, fig. 3.

*West African locality*.—Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

## EBALIA AFFINIS Miers.

*Ebalia affinis* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 268, pl. xiv, fig. 4.

*West African locality*.—Goree Bay, Senegambia, 9 to 15 fathoms (Miers).



## Genus LEUCOSIA Fabricius.

## LEUCOSIA SPINOSA (Miers).

*Ilia spinosa* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 265, pl. xv, fig. 3.

*West African localities.*—Canary Islands; Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

## Family DORIPPIDÆ.

## KEY TO THE WEST AFRICAN GENERA OF THE FAMILY DORIPPIDÆ.

- A. The anterior extremity of the buccal cavern passes between the antennules to or even beyond the tip of the front; the afferent branchial apertures are situated in front of the bases of the chelipeds, a bridge of the carapace intervening.....*Dorippe*.
- A'. The anterior extremity of the buccal cavern either stops at, or does not reach as far as the basal joint of the antennules; the afferent branchial openings are situated immediately in front of the bases of the chelipeds .....*Ethusa*.

## Genus DORIPPE Fabricius.

## DORIPPE ARMATA Miers.

*Dorippe armata* WHITE, Manuscript, MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 269, pl. xv, fig. 4.

*West African localities.*—Goree Bay, Senegambia, 9 to 15 fathoms (Miers); Island of St. Thomas (Osorio); Kongo Expedition (White's type); Benguela (Osorio).

## Genus ETHUSA Roux.

## ETHUSA MASCARONE (Herbst).

*Cancer mascarone* HERBST, Natur. Krabben u. Krebse, I, 1785, p. 191, pl. XI, fig. 69.

*Ethusa mascarone* ROUX, Crust. Médit., 1828 [p. 83], pl. xviii.

*Range of typical form.*—Mediterranean; West Africa.

*West African localities.*—Canary Islands (Miers); Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

## Family RANINIDÆ.

## Genus RANINA Lamarck.

## RANINA RANINA (Linnæus).

*Cancer raninus* LINNÆUS, Sys. Nat., 10th ed., 1758, p. 625.

*Ranina serrata* LAMARCK, DESMAREST.

*Ranina dentata* LATREILLE, MILNE-EDWARDS.

*Range.*—Oriental region; West Africa (Osorio).

*West African locality.*—Island of St. Thomas (Osorio, 1887).

In 1889 Osorio expresses doubt as to the correctness of the label "St. Thomas."

## Tribe ANOMALA.

## Family DROMIDÆ.

## Genus DROMIA Fabricius.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS DROMIA.

- A. Front simple.  
 B. Antero-lateral margin entire.....*fulvohipida*.  
 B'. Antero-lateral margin four-toothed.....*vulgaris*.  
 A'. Front two-spined.....*spinirostris*.

## DROMIA VULGARIS Milne-Edwards.

*Dromia vulgaris* MILNE-EDWARDS, Hist. Nat. Crust., II, 1837, p. 173, pl. XXI, figs. 5-8.

*Range*.—Mediterranean; Atlantic coast of Europe; West African islands.

*West African islands*.—Canaries (Brullé); Princes Island, and St. Thomas Island (Osorio); St. Helena (Bate).

## DROMIA FULVOHIPIDA Miers.

*Dromia fulvohipida* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 270, pl. XVI, fig. 1.

*West African locality*.—Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

## DROMIA SPINIROSTRIS Miers.

*Dromia spinirostris* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 271, pl. XVI, fig. 2.

*West African localities*.—Goree Bay, Senegambia, 9 to 15 fathoms (Miers); Princes Island and St. Thomas Island (with a piece of wood on its back) (Osorio).

## Suborder MACRURA.

## Tribe HIPPIDÆ.

## Family HIPPIDÆ.

## Genus HIPPA Fabricius.

## HIPPA CUBENSIS (Saussure).

*Remipes cubensis* SAUSSURE, Rev. Mag. Zool. (2), IX, 1857, p. 503.

*Remipes scutellatus* MIERS, Jour. Linn. Soc. London, XIV, 1879, p. 319. (Not *Hippa scutellata* Fabricius, 1793.)

*Range*.—Florida Keys to Brazil; Bermuda (Henderson); West Africa and adjacent islands.

*West African localities*.—Cape Verde Islands (Studer, Miers, Cunningham, Henderson); Dahomey (Osorio); St. Thomas (Osorio); Isla das Rolas (Osorio); Quinchoxo (Studer); Ascension Island (Miers, Benedict).

The generic name *Hippa* has here a different signification from that commonly indicated. *Hippa* was established by Fabricius in 1787.<sup>1</sup> Five species were assigned to it, one of which should still remain in the genus. Of these five species four were removed in 1798 by Fabricius himself to other genera, namely, the species *symnista*, *dorsipes*, and *scabra* to *Albunea*, and the species *variolosa* to *Symethis*=*Zanclifer* Henderson, 1888. The single original species, *adactyla*, left by Fabricius in the genus *Hippa*, should be regarded as the type of the genus. This species was later made the type of the genus *Remipes* by Latreille, 1806, under the name *Remipes testudinarius*. *Remipes*, therefore, becomes a synonym of *Hippa*.

### Tribe PAGURIDEA.

#### Family CÆNOBITIDÆ.

##### Genus CÆNOBITA Latreille.

##### CÆNOBITA RUBESCENS Greeff.

*Cænobita rugosus* GREEFF, SB. Ges. Beförd. Naturw. Marburg, 1882, No. 2, p. 28 (not Milne-Edwards).

*Cænobita rubescens* GREEFF, SB. Ges. Beförd. Naturw. Marburg, 1884, No. 2, p. 53.—OSORIO, Jor. Sci. Lisboa, XI, 1887, p. 222.

*West African islands*.—St. Thomas Island (Greeff, Osorio); Rolas (Greeff, Osorio). Apparently one species only inhabits these islands, and was designated first by Greeff as *C. rugosus* Milne-Edwards, and later as a distinct species, *C. rubescens* Greeff. Osorio records it under both names.

According to Greeff, these hermits on the island of St. Thomas inhabit many different kinds of shells as well as the tests of the sea urchins, *Echinometra subangularis* and *Hipponoe esculenta*. They are numerous near the beaches, but migrate into the interior, distributing and misplacing their marine shells over the whole island, as the growth of the inhabitant or the injury to the shell requires its abandonment. In such cases they often take refuge in land shells, and returning seaward scatter these again far from the place where they have arisen and properly occur. For example, hermits were found on the beach at the mouth of a river in land shells, which naturally do not occur on the island at less than 800 meters altitude.

Osorio found some examples living in the grains of a palm, *Elais guineensis*.

#### Family PAGURIDÆ.

##### KEY TO THE WEST AFRICAN GENERA OF THE FAMILY PAGURIDÆ.

- A. Pleon soft and membranaceous, imperfectly segmented.
- B. First and second abdominal segments without genital appendages.
- C. Fifth leg of male on left side without an appendage at base.
- D. No movable rostriform process.

<sup>1</sup> Mantissa Insectorum, pp. 329, 330.

- E. Chelipeds very unequal and dissimilar.  
 F. Left cheliped the larger. Third maxillipeds approximate at base. *Petrochirus*.  
 F'. Right cheliped the larger. Third maxillipeds distant at base. *Pagurus*.  
 E'. Chelipeds equal or subequal, and similar.  
 F. Dactyli of second and third pairs of feet not twisted. . . . *Clibanarius*.  
 F'. Dactyli of second and third pairs of feet twisted. . . . *Isocheles*.  
 D'. A movable rostriform process between the eye stalks. Left cheliped the larger. . . . *Diogenes*.  
 C'. Fifth leg of male on left side with an appendage at base.  
 D. Appendage more or less spirally twisted. . . . *Spiropagurus*.  
 D'. Appendage short and curved. . . . *Anapagurus*.  
 B'. First and second abdominal segments provided with genital appendages. *Paguristes*.  
 A'. Pleon composed of seven distinct segments. . . . *Glaucothoe*, a larval form.

### Genus PETROCHIRUS Stimpson.

(Includes *Pagurus* Stimpson.)

#### KEY TO THE WEST AFRICAN SPECIES OF THE GENUS PETROCHIRUS.

- A. Hands with an oval cavity on the upper surface near the inner margin. . . *caritarius*.  
 A'. Hands without an oval cavity on the upper surface near the inner margin.  
 B. Upper surface of propodus of large cheliped more or less spinous.  
 C. Upper surface of propodus of large cheliped crossed obliquely by rough striæ.  
 D. Striæ spinous only toward their inner side. . . . *arrosor*.  
 D'. Striæ spinous throughout their length. . . . *arrosor pectinatus*.  
 C'. Upper surface of propodus of large cheliped with spines arranged partly in longitudinal rows. . . . *pustulatus*.  
 B' Upper surface of propodus of large cheliped covered with small irregular plates overlapping like tiles. . . . *granulimanus*.

### PETROCHIRUS ARROSOR (Herbst).

*Cancer arrosor* HERBST, Natur. Krabben u. Krebse, II, 1796, p. 170, pl. XLIII, fig. 1.

*Pagurus strigosus* BOSCH, Hist. Nat. Crust., II, 1802, p. 77, pl. XI, fig. 3.

*Pagurus striatus* LATREILLE, Hist. Nat. Crust., VI, 1803, p. 163.

The type of this species is preserved in the Berlin Museum.

*Range*.—Mediterranean; Portugal; West Africa, including islands; Japan (de Haan); Zebu, Philippines (Henderson); off Tablas Island, 100 to 115 fathoms (Henderson).

*West African localities*.—Madeira (Stimpson, Miers, Studer); Cape Verde Islands, 47 fathoms (Studer); Goree Bay, Senegambia, 9 to 15 fathoms (Miers); Dakar to 8 meters, Goree, 15 meters, and Rufisque, 6 meters (Chevreux and Bouvier).

### PETROCHIRUS ARROSOR PECTINATUS Ortmann.

*Pagurus striatus* var. *pectinata* ORTMANN, Zool. Jahrb., Syst., VI, 1892, p. 284, pl. XII, fig. 10.

*Range*.—Brazil (Ortmann); Dakar, Senegal (O. F. Cook, collector).

In this form, which may prove to be a distinct species, the last two joints of the third foot of the left side have a longitudinal median sulcus on the outer surface much deeper than in any specimens of typical *P. arrosor*.



## PETROCHIRUS GRANULIMANUS (Miers).

*Pagurus granulimanus* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 276, pl. XVI, fig. 3.—CHEVREUX and BOUVIER, Bull. Soc. Zool. France, XVI, 1891, p. 254; Mém. Soc. Zool. France, V, 1892, p. 116, pl. III, figs. 11-15.

*West African localities.*—Cape Verde Islands (Milne-Edwards and Bouvier); Dakar, Goree, and Rufisque (Chevreux and Bouvier); Goree Bay, 9 to 15 fathoms (Miers); Dakar (O. F. Cook, collector); Senegambia (Ortmann).

## PETROCHIRUS CAVITARIUS Osorio.

*Petrochirus ? cavitarius* OSORIO, Jor. Sci. Lisboa, XI, 1887, p. 228.

*Petrochirus cavitarius* OSORIO, Jor. Sci. Lisboa (2), I, 1889, p. 139.

*West African localities.*—Cape Verde Islands; Princes Island; Loanda; Angola (Osorio).

## PETROCHIRUS PUSTULATUS (Milne-Edwards).

*Pagurus pustulatus* MILNE-EDWARDS, Ann. Sci. Nat. (3), X, 1848, p. 60.

*Eupagurus ? pustulatus* STIMPSON, Proc. Acad. Nat. Sci. Phila., X, 1858, p. 238.

*Petrochirus pustulatus* CHEVREUX and BOUVIER, Bull. Soc. Zool. France, XVI, 1891, p. 254; Mém. Soc. Zool. France, V, 1892, p. 112, pl. III, figs. 6-10.

*West African localities.*—Goree (Milne-Edwards); Dakar (Chevreux and Bouvier).

## Genus PAGURUS Fabricius.

= *Eupagurus* Brandt.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS PAGURUS.

- A. Upper surface of right cheliped with a median longitudinal ridge.
  - B. Ridge prominent; depressions deep and relatively smooth ..... *excavatus*.
  - B'. Ridge low; depressions shallow and granulate ..... *sculptimanus*.
- A'. Upper surface of right cheliped without ridges.
  - B. Hand much longer than wide ..... *inermis*.
  - B'. Hand as wide as long (in the palmar portion) ..... *triangularis*.

## PAGURUS EXCAVATUS (Herbst).

*Cancer excavatus* HERBST, Natur. Krabben u. Krebse, II, 1791, p. 31, pl. XXIII, fig. 8.

*Pagurus angulatus* RISSO, Crust. Nice, 1816, p. 58, pl. I, fig. 8.

*Pagurus excavatus* WHITE, List Crust. Brit. Mus., 1847, p. 59.

*Eupagurus angulatus* STIMPSON, Proc. Acad. Nat. Sci. Phila., X, 1858, p. 237.

*Range.*—Mediterranean; Bay of Biscay; Goree Bay, Senegal, 9 to 15 fathoms (Miers).

I have not attempted to give the complete synonymy of this species. From the series of specimens in the U. S. National Museum, I judge that *P. meticulosus* Roux is distinct from *P. excavatus* (Herbst). It is probable that this last should be called *P. alatus* Fabricius, described from Iceland, in 1775; type not extant.

## PAGURUS SCULPTIMANUS (Lucas).

*Eupagurus sculptimanus* LUCAS, Expl. Sci. Algérie, Zool., I, Crust., 1846, p. 32, pl. III, fig. 6.—CHEVREUX and BOUVIER, Bull. Soc. Zool. France, XVI, 1891, p. 253; Mém. Soc. Zool. France, V, 1892, p. 104, pl. II, figs. 18–20.

*Range*.—Mediterranean; West Africa.

*West African localities*.—Madeira and Canaries (Milne-Edwards and Bouvier); Bay of Goree, 15 meters (Chevreux and Bouvier).

## PAGURUS TRIANGULARIS (Chevreux and Bouvier).

*Eupagurus triangularis* CHEVREUX and BOUVIER, Bull. Soc. Zool. France, XVI, 1891, p. 253; Mém. Soc. Zool. France, V, 1892, p. 93, pl. II, figs. 9–15.

*West African localities*.—Cape Verde Islands (Milne-Edwards and Bouvier); Bay of Dakar, 8 meters (Chevreux and Bouvier).

## PAGURUS? INERMIS (Chevreux and Bouvier).

*Eupagurus? inermis* CHEVREUX and BOUVIER, Mém. Soc. Zool. France, V, 1892, p. 109, pl. III, figs. 1–5.

*West African locality*.—Bay of Dakar, 8 meters (Chevreux and Bouvier).

## Genus CLIBANARIUS Dana.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS CLIBANARIUS.

- A. Dactyli of second and third pairs of feet shorter than propodi.
  - B. Claws covered with short conical spines or tubercles.
    - C. Ambulatory feet punctate..... *senegalensis*.
    - C'. Ambulatory feet not punctate..... *aquabilis*.
  - B'. Claws covered with flat granulated scales..... *melitai*.
- A'. Dactyli of second and third pairs of feet longer than propodi.
  - B. Second and third pairs of feet diagonally banded.
    - C. Propodi of second and third pairs of feet short, less than three times as long as wide..... *africanus*.
    - C'. Propodi long and slender, more than three times as long as wide... *virescens*.
  - B'. Second and third pairs of feet not banded nor striped.
    - C. Movable finger of cheliped the length of the palm..... *clibanarius*, variety
    - C'. Movable finger longer than the palm (measured along inner margin)... *cooki*.

## CLIBANARIUS ÆQUABILIS Dana.

*Clibanarius aquabilis* DANA, Crust. U. S. Expl. Exped., I, 1852, p. 464; 1855, pl. XXIX, fig. 4.—AURIVILLIUS, K. Sv. Vet.-Akad. Handl., XXIV, 1898, p. 12, pl. IV, fig. 8.

*Range*.—Tahiti (Dana); West Africa and islands.

*West African localities*.—Madeira (Dana, Stimpson); Porto Praya, Cape Verde Islands (Dana); Princes Island (Osorio; identification doubtful); Kamerun, not far from Bibundi, in the sea (Aurivillius).

## CLIBANARIUS SENEGALENSIS Chevreux and Bouvier.

*Clibanarius senegalensis* CHEVREUX and BOUVIER, Bull. Soc. Zool. France, XVI, 1891, p. 256; Mém. Soc. Zool. France, V, 1892, p. 131, pl. IV, figs. 7–11.

*West Africa*.—Dakar, Senegal (Chevreux and Bouvier).

## CLIBANARIUS MELITAI Chevreux and Bouvier.

*Clibanarius melitai* CHEVREUX and BOUVIER, Bull. Soc. Zool. France, XVI, 1891, p. 255; Mém. Soc. Zool. France, V, 1892, p. 135, pl. IV, figs. 1-6.

*West Africa*.—Dakar, Senegal (Chevreux and Bouvier).

## CLIBANARIUS COOKI, new species.

Allied to *C. cubensis* (Saussure) = *C. sclopetarius* Stimpson, not Herbst. Eyes long and slender; second and third pairs of feet not striped.

In most of its characters this species resembles *C. cubensis* of the eastern coast of America. The anterior part of the carapace is proportionally shorter than in that species. The eyes, though longer and slenderer than in other West African species, are shorter than in *cubensis*; they reach slightly beyond the peduncles of the antennæ and antennulæ. Peduncles of antennulæ very little longer than those of the antennæ. Last segment of peduncle of antennæ more slender than in *cubensis*.

Chelipeds, as in *cubensis*, equal. The penultimate segments of the ambulatory legs are narrower than in *cubensis*. These legs are without stripes or bands of color; otherwise they resemble those of *cubensis*. The dactylus of the second leg is about as long as its propodus and one-third its carpus; that of the third leg as long as its propodus and two-thirds its carpus.

*Color in alcohol*.—Carapace yellowish; legs yellowish red.

*Dimensions*.—Male: Length of anterior portion of carapace, 13.8 mm.; width of same, 11.5 mm.; length of eyestalk, 11 mm.; length of dactylus of first ambulatory, 20.5 mm.

*Type locality*.—Mouth of Mesurado River, Monrovia; O. F. Cook, collector; one male (Cat. No. 22156, U.S.N.M.).

## CLIBANARIUS AFRICANUS Aurivillius.

*Clibanarius africanus* AURIVILLIUS, K. Sv. Vet.-Akad. Handl., XXIV, 1898, p. 12, pl. IV, fig. 7.

*West African locality*.—Kamerun; in river at Bibundi, in shells of brackish-water snails; Kitta. (Aurivillius.)

## CLIBANARIUS VIRESCENS (Krauss).

*Pagurus virescens* KRAUSS, Die Sudafr. Crust., 1843, p. 56, pl. IV, fig. 3.

*Clibanarius virescens* DANA, Crust. U. S. Expl. Exped., I, 1852, p. 466.

*Range*.—Natal coast (Krauss); the Zaire or Kongo (Osorio); Fijis, Balabac Passage and Sooloo Sea (Dana; identification doubtful).

Proc. N. M. vol. xxii—20



FIG. 2.—CLIBANARIUS COOKI. LEFT LEG OF SECOND PAIR, OUTER FACE. TWO-THIRDS NATURAL SIZE.

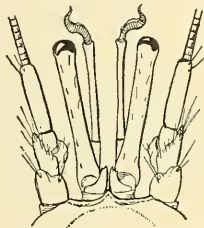


FIG. 1.—CLIBANARIUS COOKI. FRONT AND CEPHALIC APPENDAGES, DORSAL VIEW. TWICE NATURAL SIZE.

## CLIBANARIUS CLIBANARIUS (Herbst).

*Cancer clibanarius* HERBST, Natur. Krabben u. Krebse, II, 1791, p. 20, pl. XXIII, fig. 1.

*Clibanarius vulgaris* DANA, Crust. U. S. Expl. Exped., I, 1852, p. 462.

"*Clibanarius vulgaris* (HERBST) var. ?," THALLWITZ, Abh. u. Ber. K. Zool. Mus., Dresden, 1890-91 [1891] No. 3, p. 33.

*Range*.—Oriental region; Africa.

*African localities*.—Ogove (Thallwitz); Angola or the Kongo (Osorio); South Africa (Krauss).

## Genus ISOICHELES Stimpson.

## ISOICHELES ? GRACILIS Miers.

*Isocheles ? gracilis* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 277, pl. xvi, fig. 4.

*West African locality*.—Goree Bay, Senegambia, 9 to 15 fathoms (Miers).

## Genus DIOGENES Dana.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS DIOGENES.

- A. Carpus and palm of left cheliped oblong, much longer than wide.  
 B. Large hand with an oblique spinulous crest on its outer face ..... *brevisrostris*.  
 B'. Large hand without an oblique spinulous crest on its outer face..... *pugilator*.  
 A'. Carpus and palm broad, the carpus subtriangular, the palm broader than long ..... *denticulatus*.

## DIOGENES PUGILATOR (Roux).

*Pagurus pugilator* ROUX, Crust. Médit., 1828, pl. xiv, figs. 3, 4.

*Diogenes varians* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 272.

*Diogenes pugilator* BOUVIER, Mém. Soc. Zool. France, IV, 1891, p. 396.

*Range*.—From England to Kotonou, on the coast of Gabon; Mediterranean; Black Sea.

*West African localities*.—Senegal: Goree Bay, 9 to 15 fathoms (Miers); Bay of Dakar (Chevreux and Bouvier); Rufisque (Bouvier). Monrovia and Liberia (Bouvier). Kotonou, Gabon (Chevreux and Bouvier).

## Variety OVATA Miers.

*Diogenes varians* var. *ovata* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 274.

*West Africa*.—Goree Bay, 9 to 15 fathoms (Miers); Bay of Dakar, 5 and 8 meters (Chevreux and Bouvier); Senegambia (Ortmann).

## Variety GRACILIMANA Miers.

*Diogenes varians* var. *gracilimana* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 274.

*West Africa*.—Goree Bay, 9 to 15 fathoms (Miers); Kotonou, Gabon (Milne-Edwards and Bouvier).



## Variety INTERMEDIA Bouvier.

*Diogenes pugilator* var. *intermedia* BOUVIER, in Chevreux and Bouvier, Mém. Soc. Zool. France, V, 1892, p. 122.

*West Africa*.—Bay of Dakar, 8 meters (Chevreux and Bouvier); Monrovia (Milne-Edwards and Bouvier); Liberia (Bouvier); Kotonou, Gabon (Bouvier).

## DIOGENES BREVIROSTRIS Stimpson.

*Diogenes brevirrostris* STIMPSON, Proc. Acad. Nat. Sci. Phila., X, 1858, p. 245.

*African localities*.—Porto Praya, Cape Verde Islands (Studer); Monrovia (Studer); Simons Bay, 12 fathoms (Stimpson); Simons Bay, 10 to 20 fathoms (Henderson); Cape of Good Hope (Ortmann).

## DIOGENES DENTICULATUS Chevreux and Bouvier.

*Diogenes denticulatus* CHEVREUX and BOUVIER, Bull. Soc. Zool. France, XVI, 1891, p. 254; Mém. Soc. Zool. France, V, 1892, p. 122, pl. III, figs. 16-20.

*West African localities*.—Rufisque, Senegal (Chevreux and Bouvier); mouth of Mesurado River, Monrovia (O. F. Cook, collector).

## Genus SPIROPAGURUS Stimpson.

## SPIROPAGURUS ELEGANS Miers.

*Spiropagurus elegans* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 278, pl. XVI, fig. 5.

*West African localities*.—Off Gomera, Canaries, 78 fathoms (Henderson); Goree Bay, 9 to 15 fathoms (Miers); Goree, 15 meters (Chevreux and Bouvier).

## Genus ANAPAGURUS Henderson.

## ANAPAGURUS CURVIDACTYLUS Chevreux and Bouvier.

*Anapagurus curvidactylus* CHEVREUX and BOUVIER, Bull. Soc. Zool. France, XVI, 1891, p. 253; Mém. Soc. Zool. France, V, 1892, p. 91, pl. II, figs. 2-8.

*West African localities*.—Bay of Dakar, 8 meters; west of Goree, 15 meters (Chevreux and Bouvier).

## Genus PAGURISTES Dana.

## PAGURISTES HISPIDUS Milne-Edwards and Bouvier.

*Paguristes hispidus* MILNE-EDWARDS and BOUVIER, Ann. Sci. Nat. (7), Zool., XIII, 1892, p. 208.

*West Africa*.—Liberia (Milne-Edwards and Bouvier).

## Genus GLAUCOTHOE Milne-Edwards.

## GLAUCOTHOE CARINATA Henderson.

*Glaucothoe carinata* HENDERSON, Challenger Rept., XXVII, 1888, p. 84, pl. IX, fig. 1.—CHEVREUX and BOUVIER, Bull. Soc. Zool. France, XVI, 1891, p. 256; Mém. Soc. Zool. France, V, 1892, p. 138, pl. IV, figs. 12-24.

*West African localities*.—Coast of Sahara, 80 meters; Goree, 15 meters; Rufisque, 6 meters (Chevreux and Bouvier); Arguin Bank (Milne-Edwards and Bouvier).

## Tribe PORCELLANIDEA.

## Family PORCELLANIDÆ.

## Genus PORCELLANA Lamarck.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS PORCELLANA.

- A. Carapace smooth.....*speciosa*.  
 A'. Carapace marked with prominent lines.  
 B. Front little inclined and with straight border .....*mattosi*.  
 B'. Front inflected. Hands covered above with small granules disposed in groups .....*bella*.

## PORCELLANA SPECIOSA Dana.

*Porcellana speciosa* DANA, Crust. U. S. Expl. Exped., I, 1852, p. 417; 1855, pl. XXVI, fig. 8.

*Range*.—Pacific Ocean: Drummond Island, Kingsmills Group; Wakes Island; Mangsi Islands, Balabac Straits; Raraka, Paumotu Archipelago. West Africa.

*West African localities*.—Princes Island (Osorio); St. Thomas Island (Osorio).

## PORCELLANA MATTOSI Osorio.

*Porcellana mattosi* OSORIO, Jor. Sci. Lisboa, XI, 1887, p. 229.

*West African locality*.—Loanda (Osorio).

## PORCELLANA BELLA Osorio.

*Porcellana bella* OSORIO, Jor. Sci. Lisboa, XI, 1887, p. 229.

*West African locality*.—Loanda (Osorio).

## Tribe THALASSINIDEA.

## Family CALLIANASSIDÆ.

## KEY TO THE WEST AFRICAN GENERA OF THE FAMILY CALLIANASSIDÆ.

- A. Second pair of feet minutely chelate.....*Callianassa*.  
 A'. Second pair of feet not chelate.....*Upogebia*.

## Genus CALLIANASSA Leach.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS CALLIANASSA.

- A. Rostrum three-spined.....*turnerana*.  
 A'. Rostrum five-spined.....*diademata*.

## CALLIANASSA TURNERANA White.

*Callianassa turnerana* WHITE, Proc. Zool. Soc. London, 1861, p. 42, pl. VI.—  
 A. MILNE-EDWARDS, Nouv. Arch. Mus. Hist. Nat. Paris, VI, 1870, p. 89.

*West Africa*.—Kamerun (White, A. Milne-Edwards).

## CALLIANASSA DIADEMATA Ortmann.

*Callianassa diademata* ORTMANN, Zool. Jahrb., Syst., VI, 1891, p. 56, pl. I, fig. 11.

*Range*.—Africa, probably West Africa (Ortmann).

## Genus UPOGEBIA Leach.

## UPOGEBIA FURCATA (Aurivillius).

*Gebia furcata* AURIVILLIUS, K. Sv. Vet.-Akad. Handl., XXIV, 1898, p. 13, pl. I, figs. 5-7.

*West African locality*.—In decaying fragments of wood, rivers of Bibundi, Kamerun (Aurivillius).

## Tribe LORICATA.

## Family SCYLLARIDÆ.

## KEY TO THE WEST AFRICAN GENERA OF THE FAMILY SCYLLARIDÆ.

- A. Exognath of external maxillipeds with a flagellum; rostrum prominent. *Scyllarides*.  
 A'. Exognath of external maxillipeds without a flagellum; rostrum very short, truncate..... *Scyllarus*.

## Genus SCYLLARUS Fabricius.

## SCYLLARUS ARCTUS PARADOXUS Miers.

*Scyllarus (Arctus) arctus* var. *paradoxus* MIERS, Ann. Mag. N. H. (5), VIII, 1881, p. 364.

*West African localities*.—Goree Bay, Senegal, 9 to 15 fathoms (Miers). The typical form of this species is found not only in western and southern Europe, and at Madeira, the Canaries, and Azores (Mus. Comp. Zool.), but there are specimens in the U. S. National Museum from off Cape Hatteras, North Carolina, 49 fathoms (*Albatross* station 2596), from Pensacola, Florida, and from Mazatlan, Pacific coast of Mexico. It is quite distinct from *S. americanus* (Smith) = *S. gundlachi* von Martens, of the West Indian region.

## Genus SCYLLARIDES Gill.

## SCYLLARIDES LATUS (Latreille).

*Scyllarus latus* LATREILLE, Hist. Nat. Crust., VI, 1803, p. 182.

*Scyllarus herklotsii* PEL, in Herklots, Addit. Fauna Afr. Occ., 1851, p. 14, pl. II, figs. 14, 15.

*Scyllarus dehaani* HERKLOTS, Addit. Fauna Afr. Occ., 1851, p. 14, pl. II, figs. 12, 13.

*Range*.—Mediterranean; Portugal; Azores (U. S. N. M.); West Africa, including islands; Cuba (von Martens).

*West African localities*.—Canaries (Milne-Edwards); near Boutry, Guinea (Herklots); St. Helena (Bate).

## Family PALINURIDÆ.

## KEY TO THE WEST AFRICAN GENERA OF THE FAMILY PALINURIDÆ.

- A. Upper part of antennular segment almost horizontal, broad, so that the bases of the outer antennæ are distant from each other ..... *Panulirus*.  
 A'. Upper part of antennular segment oblique, rather narrow, so that the bases of the outer antennæ are near together ..... *Palinostus*.

## Genus PANULIRUS White.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS PANULIRUS.

- A. Exognath of outer maxillipeds without palpus and reaching to the middle of the second joint ..... *regius*.  
 A'. Exognath of outer maxillipeds wanting ..... *ornatus*.

## PANULIRUS REGIUS Capello.

*Panulirus regius* CAPELLO, Desc. tres esp. nov. Crust. Afr. Occ., Lisboa, 1864, p. 5, fig. 1; Mem. Acad. R. Sci. Lisboa, Cl. Sci. Nat., new ser., II, 1865, Pt. 2.

? *Senex longipes* PFEFFER, Verh. Nat. Ver. Hamb.-Altona (2), V, 1881, p. 41.

*West African localities*.—Cape Verde Islands (Capello); Liberia (Mus. Phila. Acad. Nat. Sci.); Monrovia and St. Thomas Island (Pfeffer); St. Thomas Island (Osorio); Benguela (Osorio).

## PANULIRUS ORNATUS (Fabricius?, Herklots).

*Palinurus ornatus* HERKLOTS, Addit. Fauna Afr. Occ., 1851, p. 15.

*West Africa*.—St. George-del-Mina, Guinea (Herklots).

## Genus PALINOSTUS Bate.

## PALINOSTUS PHOBERUS Rochebrune.

*Palinostus phoberus* ROCHEBRUNE, Bull. Soc. Philom. Paris (7), VII, 1883, p. 173.

*West African localities*.—Mouth of the Gambia and of the Casamance (Rochebrune).

## Tribe CARIDEA.

## Family PENÆIDÆ.

## KEY TO THE WEST AFRICAN GENERA OF THE FAMILY PENÆIDÆ.

- A. First three pairs of trunk-legs with exopods ..... *Penæus*.  
 A'. Trunk-legs without exopods ..... *Sicyonia*.

## Genus PENÆUS Fabricius.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS PENÆUS.

- A. Carapace without a median groove running from the rostrum to the posterior margin ..... *velutinus*.  
 A'. Carapace with a median groove behind the rostrum.  
 B. Base of feet of third pair armed with strong spines ..... *caramote*.  
 B'. Base of feet of third pair without spines.  
 C. Telson with lateral spines ..... *canaliculatus*.  
 C'. Telson without lateral spines ..... *brasiliensis*.



## PENÆUS CARAMOTE (Risso).

*Alpheus caramote* RISSO, Crust. Nice, 1816, p. 90.

*Penæus caramote* DESMAREST, Dict. Sci. Nat., XXVIII, 1823, p. 320.

*Range*.—Mediterranean, Atlantic coast of Spain and Portugal, West Africa.

*West African locality*.—Benguela (Osorio).

## PENÆUS CANALICULATUS (Olivier).

*Palaemon canaliculatus* OLIVIER, Encyc. Méth., Hist. Nat., Entom., VIII, 1811, p. 660.

*Penæus canaliculatus* MILNE-EDWARDS, Hist. Nat. Crust., II, 1837, p. 414.

*Range*.—Indo-Pacific region; West Africa.

*West African locality*.—Benguela (Osorio).

## PENÆUS BRASILIENSIS Latreille.

*Penæus brasiliensis* LATREILLE, Nouv. Dict. Hist. Nat., XXV, 1817, p. 156.

*Range*.—Hudson River at Sing Sing, New York (Stimpson), to Rio Grande do Sul, Brazil (Ortmann); West Africa.

*West African localities*.—Rufisque, Senegal (Miers); Elmina, Ashantee (Benedict); Whydah (Miers); St. Thomas Island (Osorio).

## PENÆUS VELUTINUS Dana.

*Penæus velutinus* DANA, Crust. U. S. Expl. Exped., I, 1852, p. 604; 1855, pl. XL, fig. 4.

*Range*.—Lahaina, Sandwich Islands (Dana); Oriental region, from Japan to Gulf of Suez; West Australia; West Africa.

*West African localities*.—Goree Bay, Senegal, 9 to 15 fathoms (Miers); St. Thomas Island (Osorio).

## Genus SICYONIA Milne-Edwards.

## SICYONIA SCULPTA Milne-Edwards.

*Sicyonia sculpta* MILNE-EDWARDS, Ann. Sci. Nat. (1), XIX, 1830, p. 340, pl. IX, figs. 1-8.

*Range*.—Mediterranean; West Africa.

*West African localities*.—St. Vincent, Cape Verde Islands (Bate); Goree Bay, Senegal, 9 to 15 fathoms (Miers).

## Family CRANGONIDÆ.

## Genus PONTOPHILUS Leach.

## PONTOPHILUS CATAPHRACTUS (Olivi).

*Cancer cataphractus* OLIVI, Zool. Adriat., 1792, p. 50, pl. III, fig. 1 (teste Ortmann).

*Pontophilus cataphractus* ORTMANN, Proc. Acad. Nat. Sci. Phila., 1895, p. 183.

*Range*.—Mediterranean; Goree Bay, Senegal, 9 to 15 fathoms (Miers).

## Family ALPHEIDÆ.

## Genus ALPHEUS Fabricius.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS ALPHEUS.

- A. A deep fissure the length of the orbital lobes separating them from the rostrum ..... *intrinsecus*.  
 A'. No deep fissure between rostrum and orbital lobes.  
 B. Orbital arches armed with a spine.  
 C. Hands tuberculate on inner face ..... *tuberculosus*.  
 C'. Hands not tuberculate on inner face ..... *macrocheles*.  
 B'. Orbital arches entire.  
 C. Rostrum carinated. Merus of large claw without a spine ..... *bouvieri*.  
 C'. Rostrum not carinated. Merus of large claw with a spine at distal end of lower margin ..... *paracrinitus*.

## ALPHEUS BOUVIERI A. Milne-Edwards.

*Alpheus edwardsii* DANA, Crust. U. S. Expl. Exped., I, 1852, p. 542; 1855, pl. xxxiv, fig. 2. Not *A. edwardsii* Audouin.

*Alpheus bouvieri* A. MILNE-EDWARDS, Bull. Soc. Philom. Paris (7), II, 1878, p. 231.

*West African localities*.—St. Jago, Cape Verde Islands (Dana); off St. Vincent, Cape Verde Islands (Bate, as *edwardsii*); Cape Verde Islands (A. Milne-Edwards); Bibundi, Kamerun (Aurivillius, as *edwardsi*).

## ALPHEUS MACROCHELES (Hailstone).

*Hippolyte macrocheles* HAILSTONE, Mag. Nat. Hist., VIII, 1835, pp. 395, 549, 552, 553.

*Alpheus megacheles* NORMAN, Ann. Mag. Nat. Hist. (4), II, 1868, p. 175.

*Alpheus pontederiæ* ROCHEBRUNE, Bull. Soc. Philom. Paris (7), VII, No. 4, 1883, p. 174.

*Range*.—Europe; West Africa.

*West African locality*.—Senegambia (Rochebrune), in *Pontederia natans*, rivers of Leybar, Thiank, and Dakar-Bango, where they empty into the sea.

Contièrè<sup>1</sup> says that Hailstone uses the specific name "*megacheles*" on the figure, "*macrocheles*" in the text.<sup>2</sup> Norman also<sup>3</sup> refers to "*Hippolyte megacheles* Hailstone."<sup>4</sup> In the copies of the eighth volume of the Magazine of Natural History, to which I have access, the name "*megacheles*" is not given. On page 395 the name "*macrocheles*" is used, and there is no figure on that page. "*Macrocheles*" is used again on pages 549, 552, and 553. Figure 49, on page 553, has no name beneath it, but in the list of engravings on page vii is given as "*macrocheles*."

<sup>1</sup> Ann. Sci. Nat. (8), IX, 1899, p. 10.

<sup>2</sup> Mag. Nat. Hist., VIII, 1835, p. 395.

<sup>3</sup> Ann. Mag. Nat. Hist. (4), II, 1868, p. 175.

<sup>4</sup> Mag. Nat. Hist., VIII, p. 395.

## ALPHEUS PARACRINITUS Miers.

*Alpheus paracrinatus* MIERS, Ann. Mag. Nat. Hist. (5), VIII, 1881, p. 365, pl. XVI, fig. 6.

*Range*.—Djibouti (Coutière); West Africa.

*West African localities*.—Goree Bay, Senegal, 9 to 15 fathoms (Miers); Praia das Conchas, St. Thomas Island (Osorio); Loanda (Osorio).

## ALPHEUS TUBERCULOSUS Osorio.

*Alpheus tuberculosus* OSORIO, Jor. Sci. Lisboa (2), II, 1890, p. 201.

*West African locality*.—Iogo-Iogo, St. Thomas Island (Osorio).

## ALPHEUS INTRINSECUS Bate.

*Alpheus intrinsecus* BATE, Challenger Rept., Zool., XXIV, 1888, p. 557, pl. c, fig. 1.

*Range*.—Off Bahia, Brazil, 7 to 20 fathoms (Bate); Iogo-Iogo, St. Thomas Island, West Africa (Osorio).

## Family HIPPOLYTIDÆ.

## Genus HIPPOLYTE Leach.

## HIPPOLYTE species (not described).

*Hippolyte* species OSORIO, Jor. Sci. Lisboa (2), I, 1889, p. 137.

*West African locality*.—Praia das Conchas, St. Thomas Island (Osorio).

## Family ATYIDÆ.

## KEY TO THE WEST AFRICAN GENERA OF THE FAMILY ATYIDÆ.

- A. Carpal joint of second pair of feet distally excavated..... *Atya*.  
 A'. Carpal joint of second pair of feet normal, not distally excavated ..... *Caridina*.

## Genus ATYA Leach.

## ATYA SCABRA Leach.

*Atya scaber* LEACH, Trans. Linn. Soc. London, XI, 1815, p. 345.

*Atya gabonensis* GIEBEL, Zeitschr. f. d. gesamt. Naturwiss., Berlin (2), XII, 1875, p. 52.

*Atya scabra* and *gabonensis* ORTMANN, Proc. Acad. Nat. Sci. Phila., 1894, pp. 409, 410.

*Atya margaritacea* var. *claviger* AURIVILLIUS, K. Sv. Vet.-Akad. Handl., XXIV, 1898, p. [14], pl. III, figs. 5-8.

*Range*.—Mexico; Nicaragua; Costa Rica; Orinoco; West Indies; West Africa, and islands.

*West African localities*.—St. Paul's River, Mount Coffee (O. F. Cook, collector); Beulah and Muhlenburg Mission (O. F. Cook, collector);

Etome, Kamerun, in brooks (Aurivillius); Rio Papagaio, Princes Island (Osorio); St. Thomas Island (Greeff, Osorio); Rolas (Greeff); Gabun (Giebel); Duque de Bragança (Osorio). Known in Africa as "Sütü-feelee" or "Bitter crayfish."

Genus CARIDINA Milne-Edwards.

CARIDINA TOGOENSIS Hilgendorf.

*Caridina togoensis* HILGENDORF, SB. Ges. Naturf. Fr., Berlin, 1893, p. 156.

*West African localities.*—Bismarckburg and Adeli, Togoland (Hilgendorf).

Family PALÆMONIDÆ.

KEY TO THE WEST AFRICAN GENERA OF THE FAMILY PALÆMONIDÆ.

- A. Mandibles with a palpus.  
 B. Frontal margin of carapace with one tooth on each side; a second on the hepatic region nearly in the same horizontal line..... *Bithynis*.  
 B'. Frontal margin of carapace with two antennal teeth, one above the other. *Palæmon*.  
 A'. Mandibles without a palpus..... *Palæmonetes*.

Genus PALÆMON Fabricius.

KEY TO THE WEST AFRICAN SPECIES OF THE GENUS PALÆMON.

- A. Rostrum with seven teeth above and three below..... *maculatus*.  
 A'. Rostrum with eight teeth above and four or five below.  
 B. Fingers of second pair of feet much longer than palm; carpus much shorter than merus..... *hastatus*.  
 B'. Fingers of second pair of feet much shorter than palm; carpus longer than merus..... *edwardsii*.

PALÆMON EDWARDSII Heller.

*Palæmon longirostris* MILNE-EDWARDS, Hist. Nat. Crust., II, 1837, p. 392; not *P. longirostris* Say, nor *P. longirostris* Milne-Edwards, Hist. Nat. Crust., II, 1837, p. 394.

*Palæmon edwardsii* HELLER, Crust. südl. Europa, 1863, p. 265.—CARUS, Fauna Medit., I, 1885, p. 473.

*Leander edwardsii* ORTMANN, Zool. Jahrb., Syst., V, 1891, p. 515.

*Range.*—Bay of Biscay; Mediterranean; West Africa.

*West African localities.*—Monrovia and Mount Coffee, Liberia (O. F. Cook and G. M. Collins, collectors). The African specimens are apparently the same species that exists in the Mediterranean and the Bay of Biscay. I have, however, no specimens for comparison.



## PALÆMON HASTATUS Aurivillius.

*Palæmon (Leander) hastatus* AURIVILLIUS, K. Sv. Vet.-Akad. Handl., XXIV, 1898, p. 27, pl. IV, figs. 3-6.

*West African locality.*—Kamerun, in the sea at Beticka ba Mallale (Aurivillius).

## PALÆMON MACULATUS (Thallwitz).

*Leander maculatus* THALLWITZ, Abh. Ber. K. Zool. Mus. Dresden, 1890-91 (1891), No. 3, p. 19.

*Locality.*—West Africa (Thallwitz).

## Genus BITHYNIS Philippi.

## KEY TO THE WEST AFRICAN SPECIES OF THE GENUS BITHYNIS.

- A. Large chelipeds with palm cylindrical or nearly so.
- B. Rostrum with more than two teeth on lower margin.
  - C. Carpus of large chelipeds regularly cylindrical ..... *acanthurus*.
  - C'. Carpus of large chelipeds thickened in the distal portion.
    - jamaicensis rollenhovenii*.
  - B'. Rostrum with one or two teeth on lower margin ..... *paucidens*.
- A'. Large chelipeds with palm swollen and compressed, wider than the carpus .. *olfersii*.

## BITHYNIS JAMAICENSIS VOLLENHOVENII (Herklots).

*Palæmon rollenhovenii* HERKLOTS, Tijdschr. v. Entom., Nederl. Entomol. Vereen., I, 1858, p. 96.

*West African localities.*—Mouth of Mesurado River, Monrovia (O. F. Cook, collector); St. Paul's River, Mount Coffee (O. F. Cook, collector); Guinea (Herklots); Lagos (Ortmann); Fluss Meme, Kamerun (Aurivillius); St. Thomas Island, in Rio Quija and Rio Gamoela, 200 meters altitude (Osorio); Kongo coast (de Man); Upper Kongo (J. H. Camp, collector); Kuanza River at Cunga (Benedict, as *jamaicensis?*); Benguela, Catumbella, Biballa, (Osorio, as *jamaicensis*).

## BITHYNIS ACANTHURUS (Wiegmann).

*Palæmon acanthurus* WIEGMANN, Arch. f. Nat., II, Pt. 1, 1836, p. 150.

*Palæmon macrobrachion* HERKLOTS, Addit. Faun. Afr. Occ., 1851, p. 15.

*Palæmon africanus* KINGSLEY, Bull. Essex Inst., XIV, 1882, p. 107.

*Range.*—Mouth of Rio Grande, Texas; Antilles; Escondido River, Nicaragua; Brazil; Ecuador (von Martens); West Africa.

*West African localities.*—Sierra Leone (von Martens); near Boutry, Guinea (Herklots); Kamerun (Aurivillius): Fluss Meme, Bibundi and Ekundu; St. Helena (Bate).

## BITHYNIS PAUCIDENS (Hilgendorf).

*Palæmon (Eupalæmon?) paucidens* HILGENDORF, SB. Ges. Naturf. Fr. Berlin, 1893, p. 155.

*West African locality.*—Adeli, near Bismarckburg, Togoland (Hilgendorf).

## BITHYNIS OLFERSII (Wiegmann).

*Palæmon olfersii* WIEGMANN, Arch. f. Nat., II, Pt. 1, 1836, p. 150.

*Palæmon spinimanns* MILNE-EDWARDS, Hist. Nat. Crust., II, 1837, p. 399.

*Range.*—Antilles; Brazil; Gulf of Dolce, Costa Rica; La Paz, Lower California; Cape St. Lucas; West Africa.

*West African localities.*—Etome, Kamerun, in streams (Aurivillius); Rio Papagaio, Princes Island (Osorio); St. Thomas Island (Greeff, Osorio); Rolas (Greeff).

## Genus PALÆMONETES Heller.

## PALÆMONETES TRISPINOSUS Aurivillius.

*Palæmonetes trispinosus* AURIVILLIUS, K. Sv. Vet.-Akad. Handl., XXIV, 1898, p. 29, pl. IV, figs. 1, 2.

*West African locality.*—Kitta, Kamerun, in a brook (Aurivillius).