

CARCINOLOGICAL NOTES, No. IV.—SYNOPSIS OF THE GRAPSIDÆ.

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The following paper is a continuation of my studies of the Catometopa contained in the Museum of the Academy of Natural Sciences of Philadelphia. In it I have endeavored to embrace every known species of the family with sufficient references to their geographical distribution. To aid in the identifications of species I have compiled analytical tables for most of the genera, but descriptions are given of only those species of which I have examined specimens. I have reduced considerably the number of nominal species, but believe that I am fully warranted in relegating to synonymy many so-called species founded on size, color, geographical distribution, or variations of minor importance. All localities from which I have examined specimens are marked with an exclamation point (!). The classification employed is mainly that of Dana, in the U. S. Exploring Expedition Crustacea (1852); those of Milne-Edwards (*Annales des Sciences Naturelles*, III Series, Zoologie, tome xx, pp. 163-200, 1853), and Kossmann (*Zoologische Ergebnisse, Reise in die Küstengebiete des rothen Meeres*, 1877), being comparatively worthless. Owing to the limited amount of space at my disposal, the synonymy and bibliography have been condensed as far as possible.

Family **GRAPSIDÆ** Dana. (*Grapsoidiens* M. Edw.).

Carapax subquadrate, depressed. Front generally broad. Eyes short. Antennulæ transversely plicate. Epistome short, sometimes linear. Meros of the external maxillipeds bearing the palpus at the summit or at its external angle. Second joint of the abdomen of the male nearly as wide as the adjacent portion of the sternum.

The *Grapsidæ* are all inhabitants of the temperate or tropical waters, and generally live near the shores. A few, however (e.g. *Nautilograpsus* and *Varuna*), live on the high seas. The family may conveniently be divided into two¹ sub-families, by characters derived from the antennæ. In the *Grapsinæ* the antennæ are

¹ The characters given by Dana for the Sesarminæ I do not consider of sufficient importance to warrant its retention as a sub family, and would rather consider it as a group of the Grapsinæ.

covered by the front; in the *Plagusinæ* they are received into notches in the front and are visible from above.

Analytical Key to the Genera of the Grapsidæ.

- Antennæ covered by the front. GRAPSINÆ.
 External maxillipeds without a piliferous ridge. GRAPSINI.
 External maxillipeds widely gaping.
 Antennæ excluded from the orbit.
 Meros of the external maxillipeds as long as the ischium. *Goniopsis*.
 Meros of the external maxillipeds shorter than the ischium. *Metopograpsus*.
 Antennæ entering the orbit.
 Front less than half the width of the carapax.
 No tooth behind the orbital angle. *Epiograpsus*.
 One tooth behind the orbital angle.
 Fingers of cheliped excavate. *Grapsus*.
 Fingers acuminate.
 Sides straight. *Orthograpsus*.
 Sides arcuate in front. *Geograpsus*.
 Two teeth behind the orbital angle. *Leptograpsus*.
 More than two teeth behind the angle of the orbit.
 Male abdomen five-jointed, antennulæ transverse, front straight. *Grapsodes*.
 Male abdomen seven-jointed, antennulæ oblique, front excavate. *Cyrtograpsus*.
 Front more than half the width of the carapax.
 Carapax transverse. *Pachygrapsus*.
 Carapax longer than broad. *Nautilograpsus*.
 External maxillipeds without a rhomboidal gape.
 Palpus articulating with the inner angle of the meros of the external maxillipeds.
 One tooth behind the orbital angle. *Brachygrapsus*.
 Several teeth behind the orbital angle. *Euchirograpsus*.
 Palpus articulating with middle of the anterior margin of the meros of the external maxillipeds.
 Exognath of external maxillipeds very broad. *Ptychognathus*.
 Exognath much narrower than the ischium.
 Sides of carapax entire. *Acmaeopleura*.
 Sides of carapax dentate.
 External distal angle of the meros of the external maxillipeds expanded.
 Joints of ambulatory feet rounded, dactyli styliform. *Pseudograpsus*.
 Ambulatory feet compressed, dactyli flattened, natatorial. *Varuna*.
 Meros of external maxillipeds not expanded.

Meros of external maxillipeds broader than long.

Meros as long as ischium. *Glyptograpsus*.

Meros shorter than ischium. *Utica*.

Meros as long or longer than broad.

Front nearly half as wide as carapax. *Heterograpsus*.

Front not over one-third as wide as carapax. *Eriocheir*.

Palpus articulating with the outer angle of the meros of the external maxilliped.

One tooth behind the orbital angle. *Perigrapsus*.

More than one tooth behind the orbital angle. *Platygrapsus*.

External maxillipeds with an oblique piliferous ridge. **SESARMINI**.

Meros of external maxilliped elongate, its apex rounded.

Antennæ excluded from the orbit. *Metasarma*.

Antennæ not excluded from the orbit.

Carapax subquadrate, sides arcuate.

Joints of ambulatory feet entire. *Sarmatium*.

Joints of ambulatory feet dentate. *Rhaconotus*.

Carapax quadrate, sides straight. *Sesarma*.

Carapax elongate, narrowed behind. *Aratus*.

Meros of external maxilliped short, its distal border truncate or even excavate, and bearing the palpus.

Antennæ excluded from the orbit. *Clistocaloma*.

Antennæ entering the orbit.

Sides of carapax straight. *Helice*.

Sides arcuate.

Sides entire. *Cyclograpsus*.

Sides emarginate or toothed. *Chasmagnathus*.

Antennæ lodged in notches in the front, and visible from above.

PLAGUSINÆ.

Meros of external maxillipeds large, as broad as ischium. *Plagusia*.

Meros small and much narrower than ischium. *Leiolophus*.

Sub-family **Grapsinæ** (*Grapsinæ* et *Sesarminæ* Dana).

Antennulæ more or less transverse, and covered by the front.

Tribe **GRAPSINI** (Sub-family *Grapsinæ* Dana).

§ External maxillipeds without an oblique piliferous ridge on the ischial and meral joints.

Genus **GONIOPSIS** De Haan, 1835 (*Goniograpsus* (pars) Dana, 1851).

Carapax flat; front vertical, over half as wide as carapax; sides straight, one-toothed. Suborbital lobe broad, reaching the front and excluding the antenna from the orbit. External maxillipeds slender; meral and ischial joints of equal length.

1. *G. cruentatus* De Hann *ex* Latreille.

Cancer ruricola De Geer. *Memoirs pour servir a l'Hist. Insectes*, vii, 417, Pl. XXV, 1778 (non Linné).

Grapsus cruentatus Latreille. *Histoire Naturelle des Crust. et Ins.*, vi, p. 70 (1803-4).

Goniopsis cruentatus De Haan. *Fauna Japonica Crust.*, p. 33 (1835).

Grapsus longipes Randall. *Jour. Phila. Acad.*, viii, p. 125 (1839).

Goniopsis ruricola White. *List Brit. Mus. Crust.*, p. 40 (1847).

Grapsus pelli Herklots. *Additamenta ad Faunam Carcinologicam Africae Occidentalis*, 8, Pl. I, f. 6-7 (1851).

Goniograpsus cruentatus Dana. *U. S. Expl. Exped. Crust.*, p. 342, Pl. XXI, f. 7 (1852).

Front granulate, supra-frontal lobes four, margins crenulate, orbits entire above, distally emarginate. Carapax with oblique transverse ridges. Anterior margin of meros of chelipeds expanded, dentate, the upper and lower margins with spiniform tubercles, as is also the upper margin of carpus. Hands with spiniform tubercles above and below, the middle of the outer surface smooth, the inner surface with scattered prominent granules. Thumb and finger sub-excavate, the latter spinose above. Ambulatory feet compressed and armed with stiff black bristles. Posterior angle of meros of last pair rounded, in the other feet dentate.

Florida! (H. E. Webster, in Union College Museum); *Bahamas!*
Cuba! (H. F. Baker); *Surinam!* (Dr. Hering, Randall's type of *G. longipes*); *Gaboon, W. Africa* (Du Chaillu); *West Coast of Nicaragua!* (J. A. McNeil, in Museum of Peabody Academy); *Tropical Seas of America* (Auct.).

Genus **METOPOGRAPSUS** M.-Edw., 1853.

Front more than half the width of carapax, deflexed. Sides straight. Internal suborbital lobe very broad, reaching the front and excluding the antenna from the orbit. Meros of external maxilliped short, much broader than long.

Key to Species.

Antero-lateral margin entire.

Frontal margin sinuate.

messor.

Frontal margin straight.

latifrons.

Antero-lateral margin toothed.

oceanicus.

M. messor Edwards *ex* Forskal.

Cancer messor Forskal. *Descr. An. in Itin. Observ.*, p. 88 (1775).

Grapsus gaimardii Andouin, *Expl. Pl. Savigny* (teste Edw.).

Grapsus messor Edw. *Hist. Nat. Crust.*, ii, p. 88 (1837).

Grapsus thukuhar Owen. In Beechey's Voyage, Zoology, p. 80, Pl. XXIV, f. 3 (1839).

Grapsus parallelus Randall. Jour. Acad. Nat. Sci., Phila. viii, p. 127 (1839).

Metopograpsus messor, thukuhar, cydouxii et intermedius Edw. Ann. Sci. Nat., III, xx, p. 165 (1853).

Carapax slightly narrowed behind, plications and rugæ more or less distinct. Frontal lobes rather prominent, frontal margin sinuate, smooth or crenulate at the angles. Meros of chelipeds with the posterior surface rugose, the anterior margin expanded and distally truncate, a few spinose teeth near the base and several on the truncate margin. Carpus externally rugose, internally with a prominent bifid or quadrifid tubercle. Hands with oblique folds above and below, and a longitudinal ridge on the lower outer surface. Fingers sub-excavate. Last joint of male abdomen but slightly narrower than penult joint.

Sandwich Is. ! (Nuttall, Pease, Jones, Wilkes' Expedition); *Tahiti!* (A. J. Garrett); *Australia!* (E. Wilson); *Mauritius!* (Guerin); *Aden!* *Natal!* (Dr. T. B. Wilson); *Indian and Pacific Oceans* (Auct.)

M. latifrons Edwards *ex* White.

Grapsus latifrons White, in Jukes' Voyage of the Fly, ii, p. 337, Pl. II, f. 2 (1847).

Metopograpsus latifrons et maculatus Edw., Ann. Sci. Nat. III, xx, pp. 166 and 165, Pl. VII, f. 1 (1853).

Metopograpsus pictus A. M.-Edw., Ann. Soc. Ent. France, vii, p. 283 (1867); *Nouv. Arch. du Mus.*, ix, p. 289. Pl. XIII, f. 2 (1873).

Carapax narrowed behind, plications indistinct; frontal lobes granulate on the edge. Front broad, nearly straight, margin denticulate. Chelipeds similar to those of *M. messor*. Base of last joint of male abdomen much narrower than the extremity of penult joint.

Batavia! (Dr. Wilson); *Singapore* (White); *Java* (Edw); *New Caledonia* (A. M.-Edw.).

M. oceanicus Jacq. et Lucas.

Metopograpsus (Grapsus) oceanicus Jacquinot et Lucas, Voyage Astrolabe et Zéélee, Crust., p. 73, Pl. VI, f. 9 (Text 1853, Plates 1842-53).

Metopograpsus quadridentatus Stimpson, Proc. Acad. Nat. Sci. Philadelphia, 1858, p. 102.

Pulo Han (J. et L.); *near Hong Kong* (Stm.); *Nicobar Is.* (Heller).

Genus **EPIGRAPSUS** Heller, 1862¹ (*Nectograpsus* Heller, 1865).

Sides arcuate, entire orbits externally open; external maxillipeds gaping, meros shorter than the ischium, rather broad abdomen of the male five-, of the female seven-jointed.

E. politus Heller.

Epigrapsus politus Heller, Verh. Z. B. Ges. Wien, 1862, p. 522.

Nectograpsus politus Heller, Reise der Novara, Crustaceen, p. 57, Pl. V, f. 3 (1865).

Nicobars; Tahiti (Heller).

Genus **GRAPSUS** Lamarck (restrict).

Sides arcuate, with one tooth behind the orbital angle; front narrow, deflexed; antennæ entering the orbit. External maxillipeds slender, gaping; meros oblong. Fingers of chelipeds excavate.

G. maculatus Edwards *ex* Catesby.

Pagurus maculatus Catesby, Nat. Hist. of the Carolinas, ii, Plate XXXVI, f. 1 (1743 et 1771).²

¹ Dr. Heller, in his preliminary account of the Crustacea collected by the Novara Expedition (Verhandl. Zool. Bot. Gesellschaft, Wien, 1862, pp. 519-528), characterizes several genera and species of which no mention is made in the final report. These are *Menathius brevirostris* which is probably *Acanthonyx consobrinus* A. Edw., of the final report; *Xantho tetraodon* is *Eudora tetraodon*, *Carpilodes granulatus* appears to be *C. tristis* Dana. *Lupu hirsuta* was probably referred to *Neptunus sanguinolentus*. *Thelphusa wüllerstorfi* appears to be *I. leschenaudii*, *Parathelphusa dentipes* to be *P. tridentata*, *Helveticus areolatus* to be *H. cordiformis*, *Metaplax hirtipes* is apparently referred to a new genus, *Grapsus depressus* is probably *Geograpsus crinipes*, *Grapsus declivifrons* is apparently rechristened *Pachygrapsus intermedius*, *Heterograpsus barbigerus* has its specific name altered to *barbimanus*, *Epigrapsus* nov. gen. reappears as *Nectograpsus* nov. gen. with no reason assigned for the change. *Metasesarma granulatus* is redescribed as new under the name *rugulosa*. *Plagusetes elatus* is probably, as pointed out by Mr. Miers (Ann. and Mag. Nat. Hist., ix, p. 147, 1878), *Acanthocyclus gayi* of the final report. *Gelasimus variegatus* appears to have been finally referred to *G. annulipes*. *Palinurus paulensis* was afterward apparently referred to *P. lalandii* and *Pelias notatus* is referred to *Anchistia*. All this shuffling of names is made without the slightest hint to aid one in correlating the two papers, and is a proceeding which cannot be too strongly condemned.

² There were at least two editions of Catesby bearing dates as above, and as the second appeared thirteen years after the tenth edition of the *Systema Naturæ* of Linné, and five after the twelfth edition, the names employed by Catesby will hold.

Cancer grapsus Linn., Syst. Nat., Edit., x, p. 630 (1758).

Grapsus pictus Latreille, Hist. Crust. et Ins., vi, p. 69, Pl. XLVII, f. 2 (1803-4.)

Goniopsis pictus De Haan, Fauna Japonica Crust., p. 33 (1835).

Grapsus strigosus Brullé, in Webb et Berthelot Hist. Canaries, ii, Pl. II; Crustacea, p. 15, 1836-44 (teste¹Edw.)¹

Grapsus maculatus, webbi, ornatus et pharaonis Edw., Ann. Sci. Nat. pp. 167-8, Pl. VI, f. 1 (1853).

Grapsus altifrons Stimpson, Annals N. Y. Lyceum Nat. Hist., vii, p. 230 (1860).

Carapax depressed, transversely plicate, folds anteriorly broken up into squamiform tubercles. Frontal crest four-lobed, median lobes the larger, their margins subtuberculate. Frontal margins crenulate, regularly arcuate. Lateral margin arcuate. Inferior border of orbit with a deep fissure. Anterior border of ischium and meros of cheliped spinose, the lower margin of the meros spinotuberculate, the posterior surface plicate. Carpus with distant tubercles, its interior margin with a laminate spine. Hand above tuberculate, externally with longitudinal ridges, below with oblique folds. On the inner surface the tubercles and folds are less prominent. Fingers short, tips excavate. Ambulatory feet compressed, propodal and dactylic joint spinose.

Florida Keys! (Webster, Ashmead); *West Indies!* (Lawrence, Wood, Wilson, Göes, Lea); *San Lorenzo!* (Wilkes' Expedition); *Pernambuco!* (Dr. Wilson); *Tuhiti!* (A. Garrett); *W. Coast Mexico!* (Dr. Jones); *Central America!* (McNiel); *New Zealand!* (Dr. Wilson); *Mauritius!* (Guerin); *Natal!* (Dr. Wilson); *Georgia, California, Peru, St. Helena and Cape Verde Is.* (Miers); *Poimotu and Hawaiian Is.* (Dana); *Honduras!* (no collector's name).

The genus *Grapsus*, as well as several others, is divided into sections by Milne-Edwards, characterized either by having the posterior distal angle of the meros of the last pair of ambulatory feet regularly rounded, or dentate; but in specimens of *G. maculatus*, I have occasionally found this angle on one side entire, and the other dentate.

G. maculatus var. *tenuicristatus* Martens ex Herbst.

Cancer tenuicristatus Herbst. Krabben und Krebse, Pl. III, f. 33-34, 1790 (teste Martens).

Grapsus rudis Edw., Hist. Nat. Crust., ii, p. 87 (1837).

Grapsus hirtus Randall, Jour. Phila. Acad., viii, p. 124 (1839).

¹ Brullé gives not the slightest description which will distinguish his specimens from either *maculatus* or *strigosus*.

Is distinguished from the typical forms of *G. maculatus* only by the hairy carapax and meral joints of the ambulatory limbs, and the narrower carpal spine. All other characters which have been given prove inconstant. Dr. Martens, by an examination of Herbst's type, has shown the identity of Herbst's *tenuicristatus*, and Edwards' *rudis*.

Hawaiian Is.! (J. K. Townsend, Randall's type); *Oahu!* (Dr. W. H. Jones); *Ceylon* (Heller); *Bonin* (Stm.).

G. strigosus Latreille *ex* Herbst.

Cancer strigosus Herbst, Pl. XLVII, f. 7 (1799).

Grapsus strigosus Latr., Hist. Crust. et Ins., vi, p. 70 (1803-4).

Grapsus albolineatus Lamarck, Hist. Animaux sans Vertebres, v, p. 249 (1817).

Goniopsis strigosus De Haan, Fauna Japonica Crust., p. 33 (1835).

Grapsus granulatus, *peronii* et *plagiatus* Edw., Ann. Sci. Nat., III, xx, p. 169 (1853).

Grapsus longipes et *subquadratus* Stimpson, Proc. Acad. Nat. Sci. Philadelphia, 1858, pp. 102 et 103.

Carapax but little convex, posteriorly with oblique transverse lines, anteriorly with squamiform tubercles. Frontal lobes moderate, frontal margin crenulate. Orbits with a deep fissure below. Epistome short. Meros spined anteriorly, its other margins rounded, the posterior surface with transverse rugæ. Carpus granulate and bearing internally a slender spine. Hands much as in *G. maculatus*. Posterior distal angle of meros of last pair of ambulatory feet denticulate.

Natal! *Australia!* (Dr. T. B. Wilson); *Sandwich Is.!* (in Peabody Acad.). Its distribution is embraced within the above limits and *Hong Kong* (Stimpson).

G. gracilipes Milne-Edwards.

Grapsus gracilipes Edw., Ann. Sci. Nat., III, xx, p. 168 (1853).

China (Edwards).

Subgenus **Orthograpsus**, nov.

Carapax transverse, broadest behind. Sides straight, with one tooth behind the orbital angle. Antennæ entering the orbit. Fingers of chelipeds acute.

O. hillii nov.

Carapax depressed, plications faint. Supra-frontal lobes moderate; front straight, narrow, deflexed. Sides of carapax straight. post-orbital tooth small. Meros of external maxilliped a little

longer than broad. Chelipeds much as in *Metopograpsus messor*, the hand granulate above, fingers acuminate. Posterior distal angle of meral joints of ambulatory feet rounded, entire or finely serrate, there being a variation in the sides of the same specimen.

West Indies! (Dr. Wilson); *Key West, Fla.!* (Dr. A. S. Packard, Jr., Peab. Acad.).

O. longitarsis Kingsley *ex* Dana.

Grapsus longitarsis Dana, Proc. Acad. Nat. Sci., Phila., 1851, p. 249. U. S. Expl. Exped. Crust., p. 339, Pl. XXI, f. 4 (1852).

Paumotu Archipelago (Dana).

Genus **GEOGRAPSUS** Stimpson, 1858 (*Discoplax*, Am. Ed., 1867).

Carapax depressed, sides curved in front, straight behind, one tooth behind the angle of the orbit. Front narrow, strongly deflexed. Internal suborbital lobe large. Antennæ entering the orbit. Dactyli of chelipeds acuminate.

Synopsis of Species.

Meros of chelipeds with a laminiform expansion of the anterior margin.

Front nearly straight.

Folds of carapax transverse.

lividus.

Folds of carapax oblique.

grayi.

Front arcuate.

crinipes.

Meros not expanded, carapax tuberculate anteriorly.

longipes.

G. lividus Stimpson *ex* Milne-Edwards.

Grapsus lividus Edwards, Hist. Nat. Crust., ii, p. 85 (1837).

Grapsus brevipes Edw., Ann. Sci. Nat., III, xx, p. 170 (1853).

Geograpsus lividus Stimpson, Proc. Acad. Nat. Sci. Philadelphia, 1858, p. 101.

Geograpsus occidentalis Stimpson, Annals N. Y. Lyc., vii, p. 230 (1860).

Carapax much broader than long, depressed. Plications nearly transverse. Frontal lobes prominent, front deflexed, its margin nearly straight. Sides of carapax slightly arcuate. Orbit with a deep fissure below. Meros of chelipeds above and below with transverse rugæ, its anterior margin expanded, proximally denticulate, distally the teeth are larger. Carpus granulate and with a short spine on the inner margin. Hand and dactylus tuberculate above, externally and below with short, oblique rugæ; fingers acuminate. Distal angle of meral joints of the last pair of ambulatory feet rounded.

Isle Bartholomer, W. I.! (A. Goës); *Chili!* (Guerin); *West Indies* (Auct.); *Cape St. Lucas* (Stm.).

G. crinipes Stimpson *ex* Dana.

Grapsus crinipes Dana, Proc. Acad. Nat. Sci. Philadelphia, 1851, p. 249. U. S. Expl. Exped. Crust., p. 341, Pl. XXI, f. 6 (1852).

Geograpsus crinipes Stimpson, Proc. Acad. Nat. Sci. Philadelphia, 1858, p. 101.

Grapsus depressus Heller, Verh. Z. B. Gess. Wien, 1862, p. 521.

Carapax depressed, the sides nearly parallel, folds of the carapax oblique, frontal lobes but little prominent, front arcuate. Ischial joint of cheliped spined in front; meros with the anterior margins expanded, finely serrate proximally, more coarsely so at the apex; carpus and hand roughened above, a few inconspicuous lines on the lower outer surface of the palm. Distal angle of meros of the last pair of ambulatory feet rounded.

Sandwich Is.! (Dr. W. H. Jones); *Tahiti* (Heller).

G. grayi A. Milne-Edwards *ex* H. Milne-Edwards.

Grapsus grayi Edw., Ann. Sci. Nat., III, xx, p. 170, 1853.

Geograpsus rubidus Stimpson, Proc. Acad. Nat. Sci. Philadelphia, 1858, p. 103.

Geograpsus grayi A. M.-Edw., Nouv. Arch. du Mus., ix, p. 288 (1873).

Carapax somewhat inflated, its folds oblique; frontal lobes prominent, front nearly straight. Orbit with a slight fissure below; chelipeds much as in *G. crinipes*. Distal angle of meros of last pair of feet rounded, entire or dentate.

This is probably the adult of the preceding species.

Tahiti! (A. Garrett); *Australia, Mauritius, Zanzibar* (Hilgendorf); *Madagascar, Indiu, Bonin, New Caledonia* (A. M.-Edw.).

G. longipes Kingsley *ex* A. Milne-Edwards.

Discoplax longipes A. M.-Edw., Anu. Soc. Ent. France, vii, p. 284 (1867). Nouv. Arch. du Mus., ix, p. 294, Pl. XV (1873).

New Caledonia (A. M.-Edw.).

Genus **LEPTOGRAPSUS** M.-Edwards (pars), 1853, Stimpson.

Carapax with the sides arcuate, two-toothed. Front less than half the width of the carapax, not deflexed. Internal sub-orbital lobe small, antennæ entering the orbit. Meros of external maxillipeds as broad as long, but shorter than the ischium.

Leptograpsus variegatus Milne-Edwards *ex* Fabricius.

Cancer variegatus Fabr., Ent. Syst., ii, p. 450 (1793).

Grapsus marginatus Latr., Hist. Crust. et Ins., vi, p. 71 (1803-4).

Grapsus personatus Lamareck, Hist. An. sans Vert., v, 249 (1817).

Grapsus pictus Quoy et Gaimard, Voyage Uranie et Physiciene, p. 523, Pl. LXXVI, f. 2 (1824).

Grapsus strigillatus White, in Gray's Zoological Miscellany, p. 78 (1842).

Grapsus variegatus Edwards et Lucas, in d'Orbigny's Voyage, p. 27 (1849).

Grapsus planifrons Dana, Proc. Acad. Nat. Sci. Philadelphia, 1851, p. 249. U. S. Expl. Exped. Crust., p. 638, Pl. XXII, f. 3 (1852).

Leptograpsus variegatus Edw., Ann. Sci. Nat., III, xx, p. 171 (1853).

Leptograpsus bertheloti, verreauxi, ansoni et gayi Edw., l. c., p. 172 (1853).

Carapax nearly flat, transversely plicate. Protogastric region concave, with squamose tubercles, protogastric lobes but little prominent. Front slightly depressed, its margin crenulate and nearly straight. Orbits with a narrow, deep, external fissure. Meros of chelipeds with the anterior border expanded, dentate; the other angles rounded, the posterior surface rugose. Carpus tuberculate and with a short spine on the internal surface. Hand tuberculate above, externally smooth. In the young there is an elevated line along the outside of the palm. Ambulatory feet with stiff setæ.

Pernambuco! (Dr. Wilson); *Chili!* (Wilkes' Expedition); *Australia!* (E. Wilson); *New So. Wales!* (Capt. Putnam, Peabody Academy); *Isle Guam* (Quoy and Gaimard); *Cunaries* (Edw.); *Norfolk I.* (Miers); *Shanghai* (Heller).

Genus **GRAPSODES** Heller, 1865.

Carapax depressed, sides arcuate and dentate in front, behind straight. Front less than half the width of the carapax, strongly deflexed. Orbits externally open. Internal sub-orbital lobe small, antennæ entering the orbit. Meros of external maxilliped longer than broad. Male abdomen five-jointed.

G. notatus Heller.

Grapsodes notatus Heller, Novara Crust., p. 58, Pl. V, f. 2 (1865).

Nicobars (Heller).

Genus **CYRTOGRAPSUS** Dana, 1851.¹

Carapax broader than long, front narrow, excavate, sides arcuate, with three teeth behind the orbital angle. External maxillipeds widely gaping, without a piliferous ridge. Epistome very

¹ For some reason, Prof. Smith in his paper on Brazilian Crustacea (Transactions of the Connecticut Academy of Arts and Sciences, Vol. ii, pp. 1-42, 1869), and in his notes on Ocypodoidea (l. c., p. 154), refers several times to this genus, and always as *Cryptograpsus*.

short. Antennæ entering the orbit. Male abdomen seven-jointed, the second joint very short.

C. angulatus Dana.

Cyrtograpsus angulatus Dana, Proc. Acad. Nat. Sci. Phila., 1851, p. 250. U. S. Expl. Exped., p. 352, Pl. 22, f. 6 (1852).

Cryptograpsus angulatus Smith, Trans. Conn. Acad., ii, p. 37, 1869.

Carapax uneven, granulate. Sides three-toothed, second tooth small. Orbits with a slight fissure above. Feet all granulate. Hands inflated, fingers acuminate.

Rio Negro, Patagonia! (U. S. Expl. Exped.).

C. cirripes Kingsley *ex* Smith.

Cryptograpsus cirripes Smith, Trans. Conn. Acad. ii, p. 11, Pl. I, f. 3 (1869).

Carapax depressed, areolate; front narrow, slightly excavate. Sides of carapax strongly arcuate, with four teeth behind the angle of the orbit, the second and last teeth much smaller than the others; all of the borders of the carapax are crenulate. Chelipeds stout, granular. Propodal joints of first, second, and fourth, and dactylus and carpus of fourth pair of ambulatory feet haired.

Rio Janeiro! (Captain Harrington, Peabody Academy of Science, Salem, Mass., types).

Genus **PACHYGRAPSUS** Randall (1839); Stimpson (1858).

Carapax somewhat narrowed behind, and with transverse striæ. Front more than half the width of the carapax, sides entire, or with one or two teeth; inner sub-orbital lobe small, allowing the antennæ to enter the orbit. External maxillipeds widely gaping, meros as broad as long. Type, *P. crassipes*.

Synopsis of Species.

Sides entire.

Front straight or nearly so.

Numerous transverse folds on carapax; lower margin of hand spined.

corrugatus.

Carapax but little plicate, hands smooth below.

athiopticus.

Front strongly sinuate.

Hands smooth.

minutus.

Hands externally with longitudinal ridges.

plicatus.

Sides with one tooth behind the orbital angle.

Posterior distal angle of meros of fifth pair of feet rounded.

Front with a prominent tooth at angle.

crassipes.

Front slightly sinuate without prominent teeth.

maurus.

Posterior distal angle of meros of fifth feet dentate.

Fingers of cheliped smooth.	<i>transversus.</i>
Fingers dentate or spined above.	<i>gracilis.</i>
Sides two-toothed.	.
Transverse lines of carapax naked.	<i>marmoratus.</i>
Transverse lines of carapax haired.	<i>pubescens.</i>
Unknown to me.	<i>latipes.</i>

P. crassipes Randall.

Pachygrapsus crassipes Randall, Jour. Acad. Nat. Sci. Philadelphia, viii, p. 127 (1839).

Grapsus eydouzi Edw., Ann. Sci. Nat., III, xx, p. 170 (1853).

Leptograpsus gonagrus Edw., l. c., p. 173 (1853).

Carapax somewhat arcuate, sides with a single tooth behind the orbital angle; frontal lobes prominent; front deflexed, its margin nearly straight, the angles with a prominent tooth. Meros of chelipeds with the anterior margin produced, distally truncate and dentate. Hands inflated, margined above and with a longitudinal ridge on the lower outer surface; fingers excavate. Distal angle of meros of posterior ambulatory feet rounded; dactyli of the ambulatory feet spinulose.

(?) *Sandwich Is.*! (T. Nuttall, Randall's type); *California* from *San Francisco!* to *San Diego!* (Many collectors); ? *New Providence, W. I.!* (H. C. Wood, Jr.); *Yokohama* (Tozzetti).

P. maurus Lucas.

Pachygrapsus maurus Lucas, Expl. Algiers, Crust., p. 20, Pl. II, f. 5 (1849).

Goniograpsus simplex Dana, Proc. Acad. Nat. Sci. Phila., 1851, p. 249; U. S. Expl. Exped. Crust. p. 344, Pl. XXXI, f. 8 (1852).

Pachygrapsus simplex Stimpson, Proc. Acad. Nat. Sci. Phila., 1858, p. 102.

Algiers (Lucas); *Madeira* (Dana); *Rio Janeiro* (Dana, Heller).

P. transversus Gibbes.

Pachygrapsus transversus Gibbes, Proc. Am. Assoc. Adv. Science, iii, p. 182 (1850).

Goniograpsus innotatus Dana, Proc. Acad. Nat. Sci. Phila., 1851, p. 249; U. S. Expl. Exped. Crust., p. 345, Pl. XXI, f. 9 (1852).

Leptograpsus rugulosus Edw., Ann. Sci. Nat. III, xx, p. 172 (1853).

Pachygrapsus lewimanus Stimpson, Proc. Phila. Acad., 1858, p. 102.

Metopograpsus dubius et miniatus, Saussure, Mem. Soc. Phys. et d'Hist. Nat. Geneve, xiv, pp. 444-445, Pl. II, f. 16, 17 (1858).

Grapsus declivifrons Heller, Verhandl. Z. B. Gesellschaft, Wien, 1862, p. 521.

Pachygrapsus intermedius Heller, Novara Crust, p. 44 (1865).

Pachygrapsus socius Stm., Ann. N. Y. Lyc. x, p. 114 (1871).

Pachygrapsus advena Catta Ann. Sci. Nat. VI, iii, No. 1. p. 7, Pl. I (1876).

Carapax depressed, shining, with transverse plicæ, oblique on the branchial region. Sides generally slightly arcuate, with one tooth behind the orbital angle. Frontal lobes prominent, front sinuate. Meros of chelipeds with transverse rugæ, the inner margin dentate; carpus rugose, with an internal rounded tubercle. Hand minutely granulate, a longitudinal ridge on the lower outer surface, margins rounded; dactylus with the upper margin smooth. Postero-distal angle of the meros of last pair of ambulatory feet dentate.

Florida! (A. S. Packard; Peab. Acad.; Brown Univ.; H. E. Webster, Union College); *West Indies!* (S. G. Morton, H. C. Wood, Jr.); *Brazil!* (Dr. T. B. Wilson); *California!* (J. L. Leconte); *New Zealand!* (E. Wilson); *Tahiti!* (A. Garrett); *W. Coast Nicaragua!* (J. A. McNeil, Peab. Acad.); *Australia* (Stm.); *Rio Janeiro* (Heller); *Madeira* (Stm.).

P. gracilis Stimpson *ex* Saussure.

Metopograpsus gracilis Saussure, l. c., p. 443, Pl. II, f. 15 (1858)

Grapsus guadulpensis Desbonne et Schramm, Crustaces de la Guadeloupe, p. 48 (1867).

Pachygrapsus gracilis Stimpson, Ann. N. Y. Lyc., x, p. 113 (1871).

Grapsus (*Leptograpsus*) *rugulosus* Martens, Archiv für Naturgeschichte, xxxviii, p. 102 (1872).

Carapax much as in *P. transversus*, but with no folds on the cardiac region; lateral margins nearly straight, one-toothed. Frontal lobes nearly obsolete; front nearly horizontal, regularly arcuate and minutely crenulate. Chelipeds and ambulatory feet nearly as in *P. transversus*, the hand and dactylus, however, being spined or toothed above.

Florida! (A. S. Packard, Jr., Peab. Acad.); *West Indies* (Auct.).

P. corrugatus Kingsley *ex* Martens.

Grapsus (*Leptograpsus*) *corrugatus* Martens, l. c., p. 107, Pl. IV, f. 8 (1872).

Cuba (Martens).

P. æthiopicus Hilgendorf.

Grapsus (*Pachygrapsus*) *æthiopicus* Hilgendorf, in von der Decken's Reisen in Ost-Afrika, Crust., p. 88, Pl. IV, f. 2 (1869).

Ugurunga, East Africa (Hilgendorf).

P. plicatus Stimpson *ex* Milne-Edwards.

Grapsus plicatus Edwards, Hist. Nat. Crust., ii, p. 89 (1837).

Grapsus kraussi Edwards, Ann. Sci. Nat. III, xx, p. 170 (1853).

Pachygrapsus plicatus Stimpson, Proc. Acad. Nat. Sci. Phila., p. 102 (1858).

Pachygrapsus striatus A. M.-Edw., Journal Museum Godeffroy, iv, p. 82 (1873).

Carapax broader than long, everywhere crossed by plications which are bordered by short hairs; frontal lobes prominent, front sinuate. Sides of carapax entire. Meros and carpus of chelipeds externally plicate, inner margin of meros expanded, proximally denticulate distally with spiniform teeth. Carpus with a prominent internal spine. Hand and dactylus granulate above, externally the hand bears several longitudinal rugæ. Fingers short, gaping, extremities excavate.

Oahu! (Dr. W. H. Jones); *Tahiti!* (A. Garrett, Peab. Acad.); *New Caledonia*; *Samoan Is.* (A. M.-Edw.); *Natal* (Krauss); *Loo Choo* (Stimpson).

P. marmoratus Stimpson *ex* Fabricius.

Cancer marmoratus Fabricius, Ent. Syst., ii, p. 450 (1793).

Grapsus varius Latreille. Hist. Crust. et Ins. vi, p. 69 (1803-4).

Grapsus marmoratus Desmarest, Considerations, p. 131 (1825).

Leptograpsus marmoratus Edw., Ann. Sci. Nat. III, xx, p. 171 (1853).

Pachygrapsus marmoratus Stimpson, Proc. Acad. Nat. Sci. Phila., 1858, p. 102.

Carapax depressed, naked, transversely plicate; frontal lobes prominent, front depressed, slightly arcuate, or sometimes a little sinuate. Sides with two teeth behind the angle of the orbit. Meros of chelipeds expanded in front, expansion distally truncate and dentate. Carpus and hand tuberculate above, the former with a prominent internal tooth. Fingers slightly excavate. Posterior distal angle of meros of last pair of feet rounded, entire.

France! (Guerin); *Bosphorus!* (Smithsonian); *Mediterranean* (Auct.); *Madeira* (Stm.).

P. pubescens Heller.

Pachygrapsus pubescens Heller, Novara Crust, p. 45, Pl. IV, f. 4 (1865).

Chili (Heller).

P. minutus A. M.-Edwards.

Pachygrapsus minutus A. M.-Edw., Nouv. Arch. du Mus., ix, p. 292, Pl. XIV, f. 2 (1873).

New Caledonia (A. M.-Edw.).

P. simplex Kingsley *ex* Herklots.

Grapsus simplex Herklots, Additamenta, etc., p. 9, Pl. I, f. 8 (1851).

Boutry, West Coast of Africa (Herklots).

Genus **NAUTILOGRAPUS** Edwards (*Planes* Bell¹).

Carapax narrow, regularly arcuate, sides slightly convex, and bearing a rudimentary tooth behind the orbital angle. Front

¹ The genus *Planes* is a MS. one of Leach. Bowdich, in his "Excursion to Madeira and Porto Santo," p. 15, f. 2 (1825), figures and mentions a spe-

more than half the width of the carapax. External maxillipeds broad, meros broader than long. Posterior feet compressed.

N. minutus Edwards *ex* Linné.

Cancer minutus Linné Syst. Nat. Edit. xii, p. 1048 (1766).

Grapsus minutus Latreille, Hist. Crust. et Ins., vi, p. 68 (1803-4).

Grapsus cinereus Say, Journ. Acad. Nat. Sci. Phila. i, p. 99 (1817).

Grapsus pelagicus Say, l. c., p. 442 (1818).

Planes clypeatus Bowdich, l. c., p. 15, Pl. f. 2 (1825).

Grapsus testudineum et pelagicus Roux, Crust. Med., Pl. VI, f. 6-7 (1828-30).

Ocyropa (Grapsus) pusillus De Haan, op. cit., p. 59, Pl. XVI, f. 2 (1835).

Nautilograpsus minutus Edw., Hist. Nat. Crust. ii, p. 90 (1837).

Grapsus divisi Costa, Fauna Napoli, Crustacea, Pl. IV, f. 1 (1838-1851).

Planes minutus White, Cat. Brit. Mus. Crust. p. 42 (1847)

Nautilograpsus Major et Smithii, McLeay in Smith Zool., South Africa, Annulosa, pp. 66-67 (1849).

Planes linnæana Bell, British Stalk-eyed Crustacea, p. 135 (1851).

Planes cyaneus Dana, Proc. Phil. Acad., 1851, p. 250.

Nautilograpsus angustatus Stimpson, Proc. Acad. Nat. Sci. Phila., 1858, p. 103.

Carapax smooth, arcuate in both directions; front nearly straight, post-orbital tooth small, sometimes obsolete. Sides arcuate. Meros of chelipeds with its inner distal border dentate; Carpus with a tubercle on the inner surface; hand smooth, fingers deflexed. Ambulatory feet compressed, ciliate.

Gulf Stream! (Many Collectors); *West Indies!* (Dr. Griffith); *Sri-lam!* (Dr. Hering); *Falkland Is.!* (Dr. Wilson); *Peru!* (Dr. Ruschenberger); *West Coast of Mexico!* *Alaska!* (Dr. W. H. Jones); *China!* (Capt. Putnam); *New Zealand!* *Natal!* (Dr. Wilson); *Rio Gambia!* (J. Cassin); *Mediterranean.* (Dr. Wilson); *France!* (Guerin); "*toutes des mers!*" (Guerin). Guerin's ideas of the distribution leave nothing more to be said.

Genus **EUCHIROGRAPSUS** M.-Edwards, 1853.

Carapax depressed, subquadrate, sides slightly arcuate, with three teeth behind the orbital angle; orbits entire. Antennæ long,

cies in these words: "A small crab, f. 3, *a* and *b*, which I conceive to be a new species of *Planes* was found in great numbers amongst the anatifera." In a foot-note the species is described as follows: "It was of a delicate, but bright, rose-color; from the symmetrical form of its test (notched so regularly as to increase the projection and distinctness of its chaperon), it may be called *P. clypeatus*." This can hardly be considered as a sufficient description to establish the genus, and hence I prefer to retain the commonly accepted name.

entering the orbit; Meros of the external maxillipeds about half the length of the ischium, its outer distal angle rounded, its inner excavate and bearing the palpas.

E. liguricus Edwards.

Euchirograpsus liguricus Edwards, Archives du Museum, vii, p. 153, Pl. X, f, 2 (1853).

Nice (Edwards).

Genus **BRACHYGRAPSUS** nov.

Carapax broader than long, arcuate, without transverse lineation, sides nearly straight, with one tooth behind the angle of the orbit. Meros of the external maxillipeds shorter than broad, its external distal angle prominent, the internal one bearing the palpus.¹

B. lævis nov.

Front straight, external angles of orbit not prominent, tooth of lateral margin spiniform. Meros of cheliped triquetral, bearing an obtuse tooth on the upper border. Carpus with an acute internal spine. Hands inflated, smooth; fingers acute. Ambulatory feet elongate, slender, but slightly compressed, the daetyli longer than the propodal joints.

New Zealand! (E. Wilson).

Genus **PTYCHOGNATHUS** Stimpson, 1858 (*Gnathograpsus* A. M.-Edwards).

Carapax flat, lateral border emarginate. External maxillipeds very broad, nearly meeting, the exognath fully as broad as the ischium. The carpus bears the palpus at the middle of the anterior margin, and has the external distal angle strongly produced.

Synopsis of Species.

Exognath of external maxilliped extending to or exceeding the external distal angle of the meros. *riedelii.*

Exognath extending only to the middle of the meros.

Oblique portion of branchial ridge bounded by a granulated ridge.

pilipes.

Oblique portion without a prominent boundary.

pusillus.

Insufficiently characterized.

glaber.

P. glaber Stimpson.

Ptychognathus glaber Stimpson. Proc. Acad. Nat. Sci. Philadelphia, 1858, p. 104.

Bonin I. (Stm.)

¹ I am not certain as to the exact position of this genus, as it appears to combine the characters of both the *Cyclometopa* and *Catometopa*. In the form of carapax and structure of the external maxillipeds it closely resembles *Trapezia*. In the male genital appendages it is allied to the *Grapsidæ*, where for the present I prefer to allow it to remain.

Dr. Stimpson's short diagnosis presents no characters which are not held in common by both *P. riedelii* and *pilipes*, excepting the non-pilose hand, which in other species of the genus is only of sexual importance.

P. riedelii Kingsley *ex* A. Milne-Edwards.

Gnathograpsus riedelii A. M.-Edw., *Nouv. Arch. du Museum*, iv, p. 182, Pl. XXVII, f. 1-5 (1868).

Celebes (A. M.-Edw.).

P. pusillus Heller.

Ptychognathus pusillus Heller, *Riese der Novara Crustaceen*, p. 60, 1867.

Gnathograpsus barbatus A. M.-Edw., *Nouv. Arch. du Museum*, ix, p. 316, Pl. XVII, f. 4, 1872.

Carapax depressed, nearly smooth, with a few shallow impressions anteriorly. Front slightly sinuate. Antero-lateral margin with two indistinct teeth behind the orbital angle. Chelipeds finely granulate, but without spines or tubercles. Hands of the male with a lanose spot on the outside at the base of the fingers; in the female this is wanting. The exognath of the external maxillipeds reaches only to the middle of the meros. Ambulatory feet slender, compressed.

Mauritius! (Guerin¹); *Nicobars* (Heller); *New Caledonia* (A. M.-Edw.)

P. pilipes Kingsley *ex* A. Milne-Edwards.

Gnathograpsus pilipes A. M.-Edw., *Nouv. Arch. du Museum*, iv, 184, Pl. XXVII, f. 6-10 (1868).

This species is scarcely more than a variety of *P. pusillus*, but I prefer for the present to leave them separate.

Philippines and *Celebes* (A. M.-Edw.).

Genus **ACMÆOPLEURA** Stimpson, 1858.

Carapax depressed, the antero-lateral margins entire. External maxillipeds nearly meeting the meros, bearing the palpus on the middle of the anterior margin; the exognath narrow.

A. parvula Stimpson.

Acmaeopleura parvula Stimpson, *Proc. Acad. Nat. Sci. Philadelphia*, 1858, p. 105.

Japan (Stimpson).

Genus **PSEUDOGRAPSUS** M. Edwards (1837), *restr.*

Carapax depressed, transverse; sides arcuate, with two teeth behind the orbital angle. Front less than half the width of the

¹ These were labeled by Guerin "*Sesarma penicillata* sp. ined."

carapax. Meros of external maxillipeds broader than long, shorter than the ischium and with its external distal angle strongly produced.

Synopsis of Species.

Hands inflated without elevated lines.

Fingers with many long hairs, carapax inflated. *setosus.*

Hairs on the hand between the bases of the fingers short, carapax flat. *albus.*

Hands with an elevated line on the lower outer surface, fingers without hairs. *crassus.*

P. setosus.

Cancer barbatus Rumph., Pl. X, No. 2 (1705).

Cancer setosus Fabricius, Suppl. Ent. Syst., p. 339 (1798).

Grapsus penicilliger Latr., Reg. An. (I Edit.), iii, p. 16, Pl. XII, f. 1 (1817).

Eriochair? *penicilliger* De Haan, Fauna Japonica, Crust., p. 31 (1835).

Pseudograpsus penicilliger Edw., Hist. Crust., ii, p. 82 (1837).

Pseudograpsus barbatus Edw., Ann. Sci. Nat., III, xx, p. 191 (1853).
Eastern Seas (Auct).

P. albus Stimpson.

Pseudograpsus albus Stimpson, Proc. Acad. Nat. Sci., Phila., 1858, p. 104.

Japan (Stimpson); *New Caledonia* (A. M.-Edwards).

P. crassus A. Milne-Edwards.

Pseudograpsus crassus A. M.-Edw., Nouv. Arch. du Mus., iv, p. 176, Pl. XXVI, f. 6-10 (1868).

Celbes (A. M.-Edw).

Genus **VARUNA** Edwards, 1830 (*Trichopus* De Haan, 1835).

Carapax depressed, sides arcuate, two-toothed. Antennulæ oblique. Antennæ entering the orbit; external maxillipeds slightly gaping. Meros much shorter than the ischium, its external distal angle expanded. Palpus articulating with the middle of the anterior margin. Exognath half as wide as ischium. Ambulatory feet compressed, natatorial.

V. litterata Milne-Edwards ex Fabricius.

Cancer litterata Fabr., Suppl. Ent. Syst., p. 342 (1798).

Trichopus litterata De Haan, Fauna Japonica, Crust., p. 32 (1835).

Varuna litterata Edw., Dict. Class. d'Hist. Nat., xvi, p. 511 (1830).
Hist. Nat. Crust., ii, p. 95 (1837).

Carapax smooth, cardiac region partly circumscribed. Front straight, orbits fissured above, lateral teeth separated by slight fissures. Posterior margin of meros of chelipeds acute, the

inferior granulate, the anterior with spiniform tubercles. Carpus with a prominent internal spine and one or two smaller ones. Hands inflated, rough, an elevated line on the lower outer margin. Ambulatory feet strongly compressed, margins ciliate. In a specimen from New Zealand the carpal spines are wanting.

Philippines! (E. & T. B. Wilson); *Indian Ocean!* (Guerin); *New Zealand!* (E. Wilson); *China!* (Capt. Putnam, Peab. Acad.); *Penang!* (J. P. Ward, Peab. Acad.); *Japan* (Miers); *Mauritius* (A. M.-Edw.).

Genus **UTICA** White, 1847.

Carapax depressed, sides more or less arcuate, two-toothed. Antennulæ oblique. Antennæ entering the orbit. Meros of external shorter than the ischium, its external angle not expanded. Posterior feet compressed.

Synopsis of Species.

Inner margins of fingers strongly haired. *barbimanus.*

Hands naked.

Angles of front acute. *gracilipes.*

Angles of front rounded. *glabra.*

U. gracilipes White.

Utica gracilipes White, Proc. Zool. Soc., 1847, p. 86. Adams and White, Voyage Samarang, Crust., p. 53, Pl. XIII, f. 6 (1850).

Philippines (White.)

U. glabra A. Milne-Edwards.

Utica glabra A. M.-Edw., Nouv. Arch. du Mus., ix, p. 296, Pl. XIV, f. 3 (1878).

New Caledonia (A. M.-Edw.).

U. barbimanus A. Milne-Edwards.

Utica barbimanus A. M.-Edw., l. c., p. 297, Pl. XIV, f. 4 (1873).

New Caledonia (A. M.-Edw.)

Genus **GLYPTOGRAPSUS** Smith, 1870.

Carapax transverse, distinctly areolate, sides arcuate, three-toothed. Antennæ entering the orbit. External maxillipeds nearly meeting. Ischium and meros nearly equal in length, very broad, the meros being broader than long, its external distal angle not expanded. Ambulatory feet elongate, the dactyli quadrangular and spinose.

G. impressus Smith.

Glyptograpsus impressus Smith, Trans. Conn. Acad., ii, p. 154 (1870).
Acajutla, West Coast of Central America (Smith).

Genus **HETEROGRAPSUS** Lucas, 1849.*(Pseudograpsus, pars. Edw., Dana; Hemigrapsus Dana.*

Carapax arcuate, front inclined, antero-lateral margins dentate. External maxillipeds nearly closing. The meros as long or longer than broad, and bearing the palpus on the middle of its anterior border, the exognath narrow.

As the distinctions between the species are mainly comparative and the descriptions of authors are very brief, no synopsis can be given. The species may however be divided into two sections, according to the number of teeth on the antero-lateral margin.

A. *Antero-lateral margin with two teeth behind the orbital angle.***H. lucasii** Edwards.

Heterograpsus sexdentatus Lucas, Exploration Algiers, i, p. 19, Pl. II, f. 4 (1849), (nec Edwards).

Heterograpsus lucasii Edwards, Ann. Sci. Nat., III, xx, p. 192 (1853).

Carapax regularly arcuate, epigastric lobes but slightly indicated. Front four-lobed. Antero-lateral margin with two prominent, narrow, acute teeth. Chelipeds without spines or tubercles, the hands of the male are smooth and rounded, in the female they have a double crest above and two elevated lines on the outer surface.¹ Ambulatory feet slender, naked; dactyli long and slender.

Algiers! (Dr. T. B. Wilson); *Candia* (Edwards).

H. sexdentatus Edwards.

Cyclograpsus sexdentatus Edwards, Hist. Nat. Crust., ii, p. 79 (1837).

Hemigrapsus sexdentatus Dana, U. S. Expl. Exped., Crustacea, p. 343, Pl. XXII, f. 2 (2850).

Heterograpsus sexdentatus Edwards, Ann. Sci. Nat., III, xx, p. 192, Pl. vii, f. 7 (1853).

Carapax arcuate, surface uneven, laterally granulate. Epigastric lobes prominent. Front straight. Antero-lateral margin with two teeth behind the orbital angle, the teeth broad, the emarginations narrow. Chelipeds without spines or tubercles. Hands small, fingers excavate. Ambulatory feet moderate, naked; dactyli short and stout.

Australia! (E. Wilson); *New Zealand!* (Dr. T. B. Wilson); *Bay of Islands* (Dana).

¹ Milne-Edwards (l. c., p. 192,) divides this section of the genus into two groups, one with the hands rounded and without longitudinal crests, the other with crests a division which evidently cannot be maintained.

H. sanguineus Edwards ex De Haan.

Grapsus sanguineus De Haan, Fauna Japonica, Crustacea, p. 58, Pl. XVI, f. 3 (1835).

Grapsus marmoratus White, Cat. Brit. Museum, Crust., p. 41, 1847 (*sine descr.*).

Pseudograpsus nudus Dana, Proc. Acad. Nat. Sci. Phila., 1851, p. 249. Expl. Exped., Crust., p. 335, Pl. XX, f. 7 (1852).

Heterograpsus sanguineus, marmoratus et maculatus Edw., Ann. Sci. Nat., III, xx, p. 193 (1853).

Heterograpsus nudus Stimpson, Proc. Acad. Nat. Sci. Phila., 1858, p. 104.

Carapax posteriorly nearly flat, in front arcuate, with scattered punctæ and a curved line of larger depressions running inward from the last tooth of the lateral margin. Front obsoletely two-lobed; antero-lateral margin with two teeth closely similar to those of *H. sexdentatus*. Chelipeds smooth, with small red spots, which persist in alcoholic or dried specimens. Hands with an external crest, becoming obsolescent with age; fingers excavate. Ambulatory feet short, stout, naked, punctate; the dactyli very stout.

California! (many localities and collectors); *Vancouver Is.!* (Dr. A. S. Packard, Jr., in Peabody Acad. Science); *San Lorenzo, Gulf of California!* (Wilkes' Expedition); *Australia!* (E. Wilson); *Japan* (De Haan); *Punipct and Auckland* (Heller); *Hong Kong* (Stimpson); *Sitka* (White); *Polynesia* (Edwards).

H. crassimanus Kingsley ex Dana.

Hemigrapsus crassimanus Dana, Proc. Phila. Acad., 1851, p. 250. U. S. Ex. Exped., Crust., p. 349, Pl. XXII, f. 4 (1852).

Hawaiian Is. (Dana).

H. crenulatus Edwards ex Guerin.

Grapsus crenulatus Guerin, Voy. Coquille, ii, pt. i, p. 15 (1838).¹

Cyclograpsus crenulatus Edw., Hist. Nat. Crust., ii, p. 80 (1837).

Hemigrapsus crenulatus Dana, U. S. Ex. Ex., Crust., p. 349, Pl. XXII, f. 3 (1852).

Heterograpsus crenulatus Edwards, Ann. Sci. Nat. III, xx, p. 193 (1853).

Heterograpsus barbigerus Heller, Verh. Z. B. Gesellschaft Wien, 1862, p. 522.

Heterograpsus barbimanus Heller, Novara Crustacea, p. 53, Pl. IV, f. 5 (1867).

Australia (Guerin); *New Zealand* (Edwards); *Bay of Islands* (Dana); *Punipct and Auckland* (Heller).

¹ The title bears the date 1830, the introduction to the Crustacea and Arachnida, "15 Novembre 1838," and the plates 1826. Guerin in his description, refers to Milne-Edwards' classic work as then in manuscript.

H. elongatus A. M.-Edw.

Heterograpsus elongatus Alph. Milne-Edwards, Nouv. Arch. du Museum, ix, p. 317, Pl. XVII, f. 5 (1873).

New Caledonia (A. M.-Edw.).

H. oregonensis Stimpson ex Dana.

Pseudograpsus oregonensis Dana, Proc. Acad. Nat. Sci. Philadelphia, 1851, p. 248. Expl. Exped. Crust., p. 334, Pl. XX, f. 6 (1852).

Heterograpsus oregonensis Stimpson, Proc. Acad. Nat. Sci. Philadelphia, 1858, p. 104.

Carapax depressed, anteriorly irregularly roughened; proto-gastric lobes defined. Front four-lobed, the inner lobes the more prominent. Antero-lateral margin with two prominent teeth. Chelipeds without spines or tubercles. Hands with an elevated line on the lower outer surface, the inner surface of the hand of the male with a pilose spot. Ambulatory feet moderate, ciliate.

Pacific Coast of North America from Puget Sound! (Geo. Davidson); to Santa Cruz! (Miss Hecox).

There are two specimens belonging to this species in the Museum of the Academy, bearing the label "New Providence, W. I., Dr. H. C. Wood, Jr."

H. penicillatus Stimpson ex De Haan.

Eriocheir penicillatus De Haan, op. cit., p. 60, Pl. XI, f. 6 (1835).

Heterograpsus penicillatus Stimpson, Proc. Acad. Nat. Sci. Philadelphia, 1858, p. 104.

Japan (De Haan).

H. erythræus Kingsley ex Kossmann.

Pseudograpsus erythræus Kossmann, Reise in den Küstengebiete des rothen Meeres, p. 61, Pl. 1, f. 5 (1877).

Red Sea (Kossmann).

H. pallipes Milne-Edwards.

Pseudograpsus pallipes Edw., Hist. Crust., ii, p. 82 (1837).

Heterograpsus pallipes Edw., Ann. Sci. Nat., III, xx, p. 194 (1853).

Australia (Edw.).

B. Antero-lateral margin with three teeth behind the orbital angle.**H. octodentatus** Edwards.

Cyclograpsus octodentatus Edwards, Hist. Nat. Crust., ii, p. 80 (1837).

Heterograpsus octodentatus Edwards, Ann. Sci. Nat., III, xx, p. 194 (1853).

Locality unknown.

H. affinis Kingsley ex Dana.

Hemigrapsus affinis Dana, Proc. Acad. Nat. Sci. Philadelphia, 1851, p. 250. U. S. Exp. Exped., Crustacea, p. 350, Pl. XXII, f. 5 (1852).

Patagonia (Dana).

H. spinosus Edw.

Heterograpsus spinosus Edw., Ann. Sci. Nat., III, xx, p. 194 (1853).

Vanikoro (Edw.); *Australia* (A. M.-Edw.).

Genus **ERIOCHEIR** De Haan (1835).

Carapax quadrate, antero-lateral margin two-toothed. Front much less than half the width of the carapax. Antennulæ oblique. Antennæ not excluded from the orbit. External maxillipeds nearly closing. Meros as long as broad, the external distal angle not expanded and the carpus articulating with the middle of its anterior border.

Synopsis of Species.

Sides convex.

Mesial frontal lobes rounded.

japonicus.

Frontal lobes acute.

sinensis.

Sides straight.

rectus.

E. japonicus De Haan.

Eriocheir japonicus De Haan, op. cit., p. 59, Pl. XVII (1835).

Carapax nearly flat, surface uneven. Front four-lobed, mesial lobes rounded, outer lobes acute; protogastric lobes prominent, granulate. Antero-lateral border two-toothed, with indications of a third. Meros of chelipeds with the margins granulate, the posterior terminating in an acute tooth. Carpus with a prominent internal spine; distal margin of the carpus and external surface of the hand with thickly set long hair; the inner surface of the palm with a short horizontal line of granules. Fingers sub-excavate. Ambulatory feet hairy above.

Japan! (no donor's name).

E. sinensis.

Eriocheir[us] sinensis Edw., Ann. Sci. Nat., III, xx, p. 177 (1853).

Arch. du Mus., vii, p. 146, Pl. IX, f. 1 (1854).

China (Edw.).

E. rectus.

Eriocheir rectus Stimpson, Proc. Acad. Nat. Sci. Phila., 1858 p. 103.

Macac (Stimpson).

Genus **PERIGRAPUS** Heller, 1862.

Carapax convex, sides arcuate, with one tooth behind the angle of the orbit. Front narrower than half the width of the carapax. Meros of the external maxilliped a little longer than broad and bearing the palpus on the external angle. Dactyli of ambulatory feet spined.

P. excelsus Heller.

Perigrapsus excelsus Heller, Verh. Zool. Bot. Ges. Wien, 1862, p. 522.
 Novara Crust., p. 50, Pl. V, f. 1 (1865).

Tahiti (Heller).

Genus **PLATYGRAPSUS** Stimpson, 1858 (*Platynotus* De Haan, 1835, preocc.).

Carapax flat. Front horizontal. Sides nearly straight, with two teeth behind the angle of the orbit. Meros of the external maxilliped longer than the ischium and bearing the palpus on the external angle.

P. depressus Stimpson ex De Haan.

Platynotus depressus De Haan, Fauna Japonica, Crust., p. 63, Pl. VIII, f. 2 (1835).

Platygrapsus depressus et convexiusculus Stimpson, Proc. Acad. Nat. Sci. Phila., 1858, p. 104.

Carapax depressed, smooth; front horizontal, four-lobed, mesial lobes the larger; sides with two teeth behind the angle of the orbit, the posterior tooth indistinct. Chelipeds smooth and unarmed; meros with the anterior margin acute; carpus without spines or tubercles; hand with an elevated line on the lower outer surface; fingers slender, gaping. Ambulatory feet elongate.

Japan! (no donor's name); *Hong Kong* (Heller); *Loo Choo* (Stimpson).

Tribe **SESARMINI** (Sub-family *Sesarminæ* Dana).

Meros and ischium of the external maxillipeds crossed obliquely by a piliferous ridge.

Genus **METASESARMA** Edw (1853).

Carapax quadrate, sides but slightly arcuate, entire; front broad, deflexed. Sub-orbital lobe large, meeting the front and excluding the antennæ from the orbit. Meros of external maxilliped greatly elongate, its apex rounded.

Synopsis of Species.

Hands smooth, externally and above.

rousseauxi.

Hand roughened above.

granularis.

Hand roughened above and externally.

trapezium.

M. rousseauxi Edw.

Metasesarma rousseauxi Edw., Ann. Sci. Nat., III, xx, p. 88 (1853).

Arch. du Mus., vii, p. 158, Pl. X, f. 1 (1854).

Zanzibar (Edw.).

M. granularis¹ Heller.*Metasesarma granularis* Heller, Verh. Z. B. Ges. Wien, 1862, p. 522.*Metasesarma rugulosa* Heller, Novara Crust., p. 65 (1865).

Tahiti (Heller).

M. trapezium Stimpson ex Dana.*Sesarma trapezium* Dana, U. S. Expl. Exped. p. 354, Pl. XXII, f. 8 (1852).*Metasesarma trapezium* Stimpson, Proc. Acad. Nat. Sci. Phila., 1861, p. 373.

Sandwich Is. (Dana).

Genus **SARMATIUM** Dana, 1851 (*Metagrapsus* Edw., 1853).

Carapax convex, sides arcuate, entire or toothed. Front inclined, less than half the width of the carapax. External maxillipeds nearly as in *Sesarma*. Ambulatory feet with the margins entire.

Synopsis of Species.

Sides of carapax with two teeth behind the orbital angle.

Hands externally smooth and rounded.

Carapax smooth, hand transversely plicate above. *crassum.*Carapax areolate, hand smooth above. *curvatum.*

Hands externally roughened.

Hands externally bearing a pectinate crest. *pectinatum.*

Hands without a prominent external crest.

Hands with an internal granulate ridge. *punctatum.*Hands entire within. *indicum.*Sides of carapax entire. *integrum.***S. crassum** Dana.*Sarmatium crassum* Dana, Proc. Acad. Nat. Sci. Phila., 1851, p. .

U. S. Expl. Exped., Crust., p. 358, Pl. XXIII, f. 1 (1852).

Samoa Is. (Dana).

S. curvatum Kingsley ex Milne-Edwards.*Sesarma curvata* Edw., Hist. Crust., ii, p. 75 (1837).*Metagrapsus curvatus* M.-Edw., Ann. Sci. Nat. III, xx, p. 189 (1853).

Arch. du Mus., vii, p. 160, Pl. X, f. 3, 1854.

Senegal (Edw.).

S. pectinatum Kingsley ex Milne-Edwards.*Metagrapsus pectinatus* Edw., Ann. Sci. Nat. III, xx, p. 189 (1853).

Martinique (Edw.).

S. punctatum Kingsley ex A. Milne-Edwards.*Metagrapsus punctatus* A. M.-Edw., Nouv. Arch. du Mus., ix, p. 308,

Pl. XVII, f. 2 (1873).

New Caledonia (A. M.-Edw.).

¹ I have here as in other places employed the earlier name; what reason Dr. Heller had for the change I cannot imagine.

S. indicum Kingsley ex A. Milne-Edwards.

Metagrapsus indicus A. M.-Edw., *Nouv. Arch. du Mus.*, iv, p. 174, XXVI, f. 1-5 (1868).

Celebes (A. M.-Edw.).

S. integrum Kingsley ex A. Milne-Edwards.

Metagrapsus integer A. M.-Edw., *Nouv. Arch. du Mus.*, ix, p. 309, Pl. XVII, f. 3 (1873).

New Caledonia (A. M.-Edw.).

Genus **RHACONOTUS** Gerstacker, 1856.

Carapax sub-quadrate, sides areuate, toothed. Front narrow, about one-third the width of the carapax. Meros of external maxillipeds nearly as broad as long and about half the length of the ischium. Ambulatory feet compressed, the margins of the joints serrate.

R. crenulatus Gerstacker.

Rhaconotus crenulatus Gerstacker, *Archiv fur Naturgeschichte*, xxi, p. 142 (1856).

Locality unknown.

Genus **SESARMA** Say, 1818. (*Pachysoma* De Haan, 1835. *Holometopus* Edw., 1853.)

Carapax thick, quadrate, lateral margins straight, entire or toothed. External maxillipeds with an oblique piliferous ridge crossing the ischium and meros; the meros elongate, its apex rounded. Antennae entering the orbit.

I have not attempted to revise the species of this genus on account of a lack of sufficient material. I merely give a list of the described species, indicating in a few cases the synonymy, but leaving the task of comparing a large number of poor descriptions to some future careinologist.

S. affinis Edw. (= ? *quadrata*).

Grapsus (*Pachysoma*) *affinis* De Haan, op. cit., p. 61, Pl. XVIII, f. 5 (1835).

Sesarma affinis Edwards, *Ann. Sci. Nat.*, III, xx, p. 183 (1853).

Japan (De Haan); *China* (Edw.); *Natal* (Krauss).

S. africana Edwards.

Sesarma africana Edw., *Hist. Nat. Crust.*, ii, p. 73 (1837).

Senegal (Edw.).

S. americana Saussure.

Sesarma americana Saussure, *Mem. Soc. Phys. et Hist. Nat.*, xiv, p. 441 (1858).

St. Thomas, W. I. (Saussure).

S. angolensis Capello.

Sesarma angolensis Capello, *Descr. tres sp. Nov. Crust. du Africa Occident*, p. 4, f. 2 (1864).

Angola, West Africa (Capello).

S. angusta Smith.

Sesarma angusta Smith, Trans. Conn. Acad., ii, p. 159 (1870).

Panama (Smith).

S. angustifrons A. Milne-Edwards.

Sesarma angustifrons A. M.-Edw., Nouv. Arch. du Mus. Bulletin, v, p. 26 (1869).

Sandwich Is. (A. M.-Edw.).

S. angustipes Dana.

Sesarma angustipes Dana, U. S. Expl. Exped., Crust., p. 853, Pl. XXII, f. 7 (1852).

Florida! West Indies! Brazil!

S. aspera Heller.

Sesarma aspera Heller, Novara, Crust., p. 63, Pl. VI, f. 2 (1865).

Nicobars, Ceylon, Madras (Heller).

S. atrorubens Hess.

Sesarma atrorubens Hess, Archiv für Naturgeschichte, xxxi, p. 149, Pl. VI, f. 12 (1865).

Sydney, Australia (Hess).

S. aubryi A. Milne-Edwards.

Sesarma aubryi A. M.-Edw., Nouv. Arch., Bulletin, v, p. 25 (1869).
Nouv. Arch., ix, p. 307, Pl. XVI, f. 3 (1873).

New Caledonia (A. M.-Edw.).

S. bidens Milne-Edwards ex De Haan.

Grapsus (Pachysoma) bidens De Haan, op. cit., p. 60, Pl. XVI, f. 4, Pl. XI, f. 4 (1835).

Sesarma bidens Edw., Ann. Sci. Nat., III, xx, p. 185 (1853).

Japan (De Haan); *Hong Kong, Nicobars* (Heller); *Friendly Is.* (Dana); *Ceylon, Zanzibar* (Hilgendorf).

S. boucourti A. Milne-Edwards.

Sesarma boucourti A. M.-Edw., Bulletin, l. c., p. 28 (1869).

Siam (A. M.-Edw.).

S. chirogona Tozzetti.

Sesarma chirogona Targioni-Tozzetti, Zoologia del Viaggio della Magenta, p. 136, Pl. IX (1877).

Yokohama (Tozzetti).

S. cinereus Say ex Bosc.

Grapsus cinereus Bosc., Hist. Nat. Crust., i, p. 204 Pl. V, f. 1, 1802-3 (teste Auct.).

Sesarma cinerea Say, Jour. Acad. Nat. Sci., Phila., i, p. 442 (1818).

Virginia! to Florida! and the West Indies!

S. dentifrons A. Milne-Edwards.

Sesarma dentifrons A. M.-Edw., Bulletin, l. c., p. 31 (1869).

Samoan Is. (A. M.-Edw.).

S. dehaani Milne-Edwards.

Grapsus (Pachysoma) quadratus De Haan, op. cit. p. 62, Pl. VIII, f. 3 (1835).

Sesarma dehaani Edw., Ann. Sci. Nat., III, xx, p. 184 (1853).

Japan (De Haan).

- S. dusumieri** Milne-Edwards (= *S. bidens*).
Sesarma dusumieri Edw., Ann. Sci. Nat., III, xx, p. 185 (1853).
 Bombay (Edw.).
- S. elegans** Herklots.
Sesarma elegans Herklots, Addit. ad Faunam Afric. Occident., p. 10,
 Pl. I, f. 10 (1851).
 Boutry, West Africa (Herklots).
- S. elongata** A. Milne-Edwards.
Sesarma elongatum A. M.-Edw., Bulletin, l. c., p. 30 (1869).
 Madagascar (A. M.-Edw.).
- S. erythroductyla** Hess.
Sesarma erythroductyla Hess, Arch. für Naturges., xxxi, p. 151, Pl. VI,
 f. 10 (1865).
 Sydney, Australia (Hess).
- S. eydouxi** Milne-Edwards.
Sesarma eydouxi Edw., Ann. Sci. Nat., III, xx, p. 184 (1853).
 Cochín China (Edw.); Madras (Heller).
- S. fascicularis** Hilgendorf ex Herbst.
Cancer fascicularis Herbst, Krabben und Krebse, Pl. XLVII, f. 5
 (1795).
Sesarma mederi Edw., Ann. Sci. Nat., III, xx, p. 185 (1853) teste Hil-
 gendorf.
 Batavia (Edw.).
- S. frontale** A. Milne-Edwards.
Sesarma frontale A. M.-Edw., Bulletin, l. c., p. 27 (1869).
 Madagascar (A. M.-Edw.).
- S. germani** A. Milne-Edwards.
Sesarma germani A. M.-Edw., Bulletin, l. c., p. 28 (1869).
 Poulo Condore.
- S. gracilipes** A. Milne-Edwards.
Sesarma impressa jun. Homb. et Jacq., Voy. Ast. et Zelee, Crust., Pl.
 VI, f. 5.
Sesarma gracilipes Edw., Ann. Sci. Nat., III, xx, p. 182 (1853).
 Vaoa (Edw.); Nicobars (Heller).
- S. guerini** Milne-Edwards.
Sesarma guerini Edw., Ann. Sci. Nat., III, xx, p. 183 (1853).
 Locality unknown.
- S. guttatum** A. Milne-Edwards.
Sesarma guttatum A. M.-Edw., Bulletin, l. c., p. 26 (1869).
 Zanzibar (A. M.-Edw.).
- S. hæmatocheir** Kingsley ex De Haan.
Grapsus (Pachysoma) hæmatocheir De Haan, op. cit. p. 67, Pl. VII,
 f. 4 (1837).
*Holometopus hæmatocheir*¹ Edw., Ann. Sci. Nat., III, xx, p. 188 (1853).
 Japan (De Haan).

¹ M. Milne-Edwards has elevated this species to distinct generic rank on what seem to me wholly inadequate characters. A similar proceeding with other *Sesarmæ* would result in the creation of nearly a dozen genera.

S. impressa Milne-Edwards.*Sesarma impressa* Edw., Hist. Nat. Crust., ii, p. 74 (1837).*Locality unknown.***S. indica** Milne-Edwards.*Sesarma indica* Edw., Hist. Nat. Crust., i i, p. 74 (1837).*Indian Seas* (Edw.); *Ceylon and Nicobars* (Heller).**S. intermedia** Milne-Edwards ex De Haan.*Grapsus (Pachysoma) intermedia* De Haan, op. cit., p. 61, Pl. XVI, f. 5 (1835).*Sesarma intermedia* Edw., Ann. Sci. Nat., III, xx, p. 186 (1853).*Sesarma lave* A. M.-Edw., Bulletin, l. c., p. 27 (1869).*Japan* (De Haan); *Shanghai, Hong Kong* (Heller);*Arrow Is.* A. M.-Edw.).**S. lafondi** Jacquinot et Lucas.*Sesarma lafondi* Jacquinot et Lucas, Voyage Astrolabe et Zelee, Crust., p. 70, Pl. VI, f. 4 (1853).*Batavia* (J. and L.).**S. leptosoma** Hilgendorf.*Sesarma leptosoma* Hilgendorf, in Decken's Reise, p. 91, Pl. VI, f. 1 (1869).*Zanzibar* (Hilgendorf).**S. lividum** A. Milne-Edwards.*Sesarma lividum* A. M.-Edw., Bulletin, l. c., p. 25 (1869), N. Arch., ix, p. 303, Pl. XVI, f. 2 (1873).*New Caledonia* (A. M.-Edw.).**S. longipes** Krauss.*Sesarma longipes* Krauss, Süd Afric. Crust., p. 444, Pl. III, f. 2 (1843).*Umluss River, S. Africa* (Krauss).**S. Müllerii** A. Milne-Edwards.*Sesarma mülleri* A. M.-Edw., Bulletin, l. c., p. 29 (1869).*Desterro, Brazil* (A. M.-Edw.).**S. obesum** Dana.*Sesarma obesum* Dana, Proc. Phila. Acad., 1851, p. 250; U. S. Expl. Exped., Crust., p. 353, Pl. XXII, f. 10.*Balabac Straits* (Dana).**S. oblonga** Martens.*Sesarma oblonga* Martens, Monatsber. Akad. Wiss. Berlin, 1868, p. 611.*Philippines* (Martens).**S. obtusifrons** Dana.*Sesarma obtusifrons* Dana, Proc. Phila. Acad. 1851, p. 250; U. S. Expl. Exped., Crust., p. 355, Pl. XXII, f. 9 (1852).*Sandwich Is.* (Dana).**S. occidentalis** Smith.*Sesarma occidentalis* Smith, Trans. Conn. Acad., ii, p. 158 (1870).*West Coast of Central America* (Smith).**S. pentagona** Hutton (= ? *S. tetragona*).*Sesarma pentagona* Hutton, Trans. New Zealand Inst., 1875, p. 279.*New Zealand* (Hutton).

S. quadrata Milne-Edwards ex Fabricius.

Cancer quadratus Fabr., Suppl. Ent. Syst., p. 341 (1798).

Ocyroda plicata Bosc., op. cit., i, p. 198, 1802-3 (teste A. M.-Edw.).

Grapsus (Pachysoma) pictus et affinis De Haan, op. cit., pp. 61-66 (1835-37).

Sesarma quadrata Edw., Hist. Nat. Crust., ii, p. 75 (1837).

Sesarma picta Krauss, op. cit., p. 45 (1843).

Japan (De Haan); *New Caledonia* (A. M.-Edw.); *Zanzibar* (Hilgendorf).

S. recta Randall.

Sesarma recta Randall, Jour. Acad. Nat. Sci., Phila., viii, p. 123 (1839).

Surinam! (Randall).

S. reticulata, Say.

Sesarma reticulata Say, Jour. Acad. Nat. Sci., Phila., i, pp. 73, 76 et 442, Pl. IV, f. 6 (1818).

Sesarma cinerea De Kay, N. Y. Fauna, Crust., p. 15 (1842).

Virginia! to Florida!

S. ricordi Milne-Edwards.

Sesarma ricordi Edw., Ann. Sci. Nat., III, xx, p. 183 (1853).

Hayti (Edw.).

S. roberti Milne-Edwards.

Sesarma reticulata McLeay in Smith Zool. S. Africa, p. 65 (18), *via* Say.

Sesarma roberti Edw., Ann. Sci. Nat., III, xx, p. 182 (1853).

Gori! (Dr. Wilson); *So. Africa* (McLeay).

S. rotundata Hess.

Sesarma rotundata Hess, l. c., p. 149, Pl. VI, f. 9 (1865).

Sydney (Hess).

S. rotundifrons A. Milne-Edwards.

Sesarma rotundifrons A. M.-Ed., Bulletin, l. c. p. 30 (1869).

Samoan Is. (A. M.-Edw.).

S. rupicola Stimpson.

Sesarma rupicola Stimpson, Proc. Phila. Acad., 1858, p. 106.

Japan (Stimpson).

S. schüttei Hess.

Sesarma schüttei Hess, l. c., p. 150, Pl. VI, f. 11 (1865).

Sydney, Australia (Hess).

S. similis Hess (= *S. atrorubens*).

Sesarma similis Hess, l. c., p. 150 (1865).

Sydney (Australia).

S. sinensis Milne-Edwards.

Sesarma sinensis Edw., Ann. Sci. Nat., III, xx, p. 186 (1853).

China (Edw.).

S. smithii Milne-Edwards.

Sesarma smithii Edw., Ann. Sci. Nat., III, xx, p. 187 (1853); Arch. du Mus., vii, p. 149, Pl. IX, f. 2 (1854).

Natal (Edw.); *New Caledonia* (A. M.-Edw.).

S. sulcata Smith.

Sesarma sulcata Smith, Trans. Conn. Acad., ii, p. 156 (1870).

Corinto, Nicaragua! (J. A. McNeil, Peab. Acad.)

S. tæniolata Miers *ex* White MS.

Sesarma tæniolata White MS., Miers, Proc. Zool. Soc., London (1877),
p. 137.

Philippines! (Dr. Wilson, with White's label).

S. tetragona Milne-Edwards *ex* Fabricius.

Cancer tetragonon Fabricius, Suppl. Ent. Syst., p. 341 (1798).

Grapsus tetragonon Latr., Hist. Crust. et Ins., vi, p. 71 (1803-4).

Sesarma tetragona Edw., Hist. Nat. Crust., ii, p. 73 (1837).

Zanzibar (Hilgendorf) to *New Caledonia* (A. M.-Edw.).

S. trapezoida Milne-Edwards.

Sesarma trapezoida Edw., Hist. Nat. Crust., ii, p. 74 (1837).

Locality unknown.

S. ungulata Milne-Edwards.

Sesarma ungulata Edw., Ann. Sci. Nat. III, xx, p. 184 (1853).

Celebes (Edw.).

S. vestita Stimpson.

Sesarma vestita Stimpson, Proc. Acad. Nat. Sci. Phila., 1858, p. 106.

Japan (Stimpson).

S. villosum A. Milne-Edwards.

Sesarma villosum A. M.-Edw., Bulletin, l. c., p. 31 (1869).

Samoa Is. (A. M.-Edw.).

S. violacea Herklots.

Sesarma violacea Herklots, op. cit., p. 10, Pl. I, f. 9 (1851).

West Africa! (Du Chaillu).

Genus **ARATUS** M.-Edw., 1853.

Carapax trapezoidal, elongate, narrow behind, sides straight, entire; front deflexed, very broad. External maxillipeds as in *Sesarma*. Ambulatory feet compressed, the dactyli very short.

A. pisoni Milne-Edwards.

Sesarma pisoni Edw., Hist. Crust., ii, p. 76, Pl. XVI, f. 4-5 (1837).

Aratus pisoni Edw., Ann. Sci. Nat., III, xx, p. 187, 1853.

Carapax transversely arcuate, the branchial regions obliquely plicate. Front vertical, its margin two-lobed. Meros of chelipeds triquetral, the margins denticulate, the anterior one slightly expanded distally. Carpus externally granulate. Hands everywhere granulate, the fingers ornamented with pencils of stiff black hairs.

Florida! (H. E. Webster, Union College); *West Indies!* (many collectors and localities); *West Coast of Nicaragua!* (J. A. McNeil, Peab. Acad.); *Rio Janeiro* (Heller); *Praya, Brazil* (Martens).

Genus **CLISTOCÆLOMA** A. M.-Edwards, 1873.

Carapax sub-quadrate, sides dentate. Sub-ocular lobe large, united to the front and excluding the antennæ from the orbit. Meros of external maxillipeds short and rounded.

C. balansæ A. Milne-Edwards.

Clistocaloma balansæ A. M.-Edw., Nouv. Arch. du Mus., ix, p. 311, Pl. XVII, f. 1 (1873).

New Caledonia (A. M.-Edw.).

Genus **HELICE** De Haan (1835).

Carapax quadrate, front deflexed, sides straight, with one, two or three teeth behind the orbital angle. Antennæ entering the orbit. Meros of external maxillipeds as long as or longer than the ischium, its external distal angle prominent, its distal border truncate.

Synopsis of Species.

Lateral margin with three teeth behind the angle of the orbit.

Ambulatory feet with a single distal spine on the meros.

A transverse ridge on the branchial regions.

tridens.

No transverse crest on the branchial regions.

Hands smooth.

spinicarpa.

Hands roughened.

latreillei.

Meral joints of ambulatory feet with several spines.

dentipes.

Lateral margin two-toothed.

Hand strongly granulate.

gaudichaudi.

Hand nearly smooth.

Meral joints of ambulatory feet with a spine on the upper distal margin, the hands of the male with a pilose spot at the base of the fingers.

pilimana.

Meral joints without spines, hands of male without pilose spots.

crassa.

Lateral margin one-toothed.

gibba.

Imperfectly characterized.

leachii.

H. tridens De Haan.

Helice tridens De Haan, op. cit., p. 57, Pl. XI, f. 2, Pl. XVI, f. 6 (1835).

Carapax longitudinally strongly convex, punctate, front curved downward, its anterior border sinuate when viewed from above. Superior margin of the orbit sinuate, oblique; lateral margin with three teeth behind the orbital angle, the posterior tooth rudimentary. Branchial regions with an oblique ridge running inward from this tooth. Orbits coarsely erenulate below. Inferior borders of the meral joints of the chelipeds with small tubercles. Carpus spined on the inside. Hands externally

smooth, sub-cristate and granulate above, internally granulate; fingers excavate. Carpal and propodal joints of the first two pairs of ambulatory feet pilose in front.

Japan!

H. spinicarpa Edwards.

H. spinicarpa Edwards, Ann. Sci. Nat. III, xx, p. 190 (1853).

Locality unknown.

H. dentipes Heller.

Helice dentipes Heller, Novara Crust., p. 62, Pl. V, f. 5.

Ceylon (Heller).

H. latreillei Edwards.

Cyclograpsus latreillei Edwards, Hist. Nat. Crust., ii, p. 80 (1837).

Helice latreillei Edwards, Ann. Sci. Nat. III, xx, p. 190 (1853).

Mauritius (Edwards).

H. gaudichaudi Edwards.

Helice gaudichaudi Edwards, Ann. Sci. Nat. III, xx, p. 190, Pl. VII, f. 6 (1853).

Sumatra (Edwards).

H. pilimana A. Milne-Edwards.

Helice pilimana Alph. Milne-Edwards, Nouv. Arch. du Mus., ix p. 313, Pl. XVIII, f. 1 (1872).

New Caledonia (A. M.-Edw.).

H. crassa Dana.

Helice crassa Dana, Proc. Phila. Acad. (1851), p. 252—U.S. Ex. Exp., Crust., p. 367, Pl. XXIII, f. 8 (1853).

H. lucasii Edw., Ann. Sci. Nat. III, xx, p. 190 (1853).

Carapax closely resembling that of *H. tridens*, but with but two teeth behind the orbital angle. Carpus of cheliped without an internal spine, hands externally microscopically granulate, more coarsely so internally, the upper margin acute. Carpal and propodal joints of the first two pairs of ambulatory feet, pilose.

This is probably but a variety of *H. tridens*. Small females show the elevated line on the hand characterizing *H. lucasii*.

New Zealand! (Dr. Wilson); Auckland (Heller); Australia (Dana).

H. leachii Hess.

Helice leachii Hess, Archiv für Naturgeschichte, xxxi, p. 153 (1865).

Sydney, Australia (Hess).

Genus **CYCLOGRAPSPUS** Edw. (1837)(restrict). (*Gnathochasmus* McLeay.)

Carapax depressed, sides arcuate, entire front about half the width of the carapax. Antenna not excluded from the orbit. Meros of the external maxillipeds short, about as long as the ischium; its external angle well marked, the palpus articulating with the anterior margin.

C. punctatus Milne-Edwards.

Cyclograpsus punctatus Edw., Hist. Nat. Crust., ii, p. 78 (1837).

Gnathochasmus barbatus McLeay, in Smith, Zool. S. Africa, p. 65 (1838).

Sesarma barbata Krauss, Sud Af. Crust., p. 45, Pl. III, f. 3 (1843).

Cyclograpsus audouinii, lavauxii, whitei, granulosus et reynaudi Edw., Ann. Sci. Nat. III, xx, p. 197 (1853).

Cyclograpsus levis Hess, Archiv für Naturgeschichte, xxxi, p. 152 (1865).

Carapax smooth or slightly granulate; sides arenate in front, straight behind. Front broad, nearly straight. Orbits externally broadly emarginate, the emargination continuing backward as a groove for some distance. Hands externally smooth, internally with a prominent longitudinal ridge. Male abdomen triangular, regularly tapering from the third to the sixth joints, the seventh much narrower than the sixth.

New Zealand! (Guerin); *Australia!* (E. Wilson and Wilkes' Expedition); *Cape of Good Hope, Madras, Java* (Heller); *New Guinea* (Edw.).

C. granulatus Dana.

Cyclograpsus granulatus Dana, Proc. Acad. Nat. Sci. Phila., 1851, p. 251; U. S. Ex. Exp. Crust., p. 361, Pl. XXIII, f. 4 (1852).

Sandwich Is. (Dana).

C. cinereus Dana.

Cyclograpsus cinereus Dana, Proc. Acad. (1851), p. 251; U. S. Ex. Exp. Crust., p. 360, Pl. XXIII, f. 3 (1852).

Cyclograpsus eydouxi Edw., Ann. Sci. Nat., III, xx, p. 198 (1853).

Valparaiso and Sandwich Is. (Dana).

C. longipes Stimpson.

Cyclograpsus longipes Stimpson, Proc. Acad. Nat. Sci. Phila. (1858), p. 105.

Bonin Is. (Stimpson).

C. integer Milne-Edwards.

Cyclograpsus integer Edw., Hist. Nat. Crust., ii, p. 79 (1837).

Florida! (A. S. Packard, Jr., Peab. Acad.); *Brazil* (Edw.).

Genus **CHASMAGNATHUS** DeHaan, 1835. (*Paragrapsus* Edw.).

Carapax convex, sides arcuate, dentate, front curved downward. Antenna not excluded from the orbit. Meros of external maxillipeds longer than broad, widest distally, its anterior border slightly excavate, the palpus medially articulated.

Synopsis of Species.

Lateral margin with three teeth behind the orbital angle, the posterior tooth inconspicuous.	<i>convexus.</i>
Lateral margin with two teeth.	
Front rounded.	<i>urvillei.</i>
Front nearly straight.	<i>gaimardi.</i>
Front excavate.	
Carapax and chelipeds granulate.	<i>granulatus.</i>
Carapax and chelipeds smooth.	
Epigastric lobes prominent.	<i>lævis.</i>
Epigastric lobes inconspicuous.	<i>subquadratus.</i>
Lateral margin with one post orbital tooth.	<i>quadridentatus.</i>

C. convexus DeHaan.

Chasmagnathus convexus DeHaan, Fauna Japonica, p. 56, Pl. VII, f. 5 (1835).

Japan (DeHaan); *Eastern Seas* (Adams and White).

C. subquadratus Dana.

Chasmagnathus subquadratus Dana, Proc. Acad. Nat. Sci. Phila., 1851, p. 251; U. S. Ex. Exp., Crust., p. 363, Pl. XXIII, f. 5 (1852).

New Zealand? Australia? (Dana).

C. lævis Dana (= ? *C. subquadratus*.)

Chasmagnathus lævis Dana, Proc. Acad., p. 252; Ex. Exp., p. 365, Pl. XXIII, f. 7 (1852).

Paragrapsus verreauxi Edw., Ann. Sci. Nat., III xx, p. 195 (1853).

Paragrapsus lævis Heller, Novara Crust, p. 55 (1865).

Carapax slightly convex, punctate; regions not defined. Epigastric lobes prominent. Front deeply excavate in the middle, when viewed from above. Antero-lateral teeth separated by narrow fissures. Chelipeds everywhere smooth. Anterior surface of carpus and propodus of first pair of ambulatory feet tomentose.

Australia! (Guerin; *New Zealand* (Miers).

C. urvillei Kingsly ex Milne-Edwards.

Paragrapsus urvillei Edw., Ann. Sci. Nat., III, xx, p. 196 (1853).

Vanikoro I. (Edw.).

C. granulatus Dana.

Chasmagnathus granulatus Dana, Proc. Acad., 1851, p. 251; U. S. Ex. Exp., Crust., p. 364, Pl. XXIII, f. 6 (1852).

Helice granulata Heller, Novara Crust., p. 61 (1865).

Carapax convex, distinctly areolate, granulate; the granules on the branchial regions being larger; epigastric lobes obsolete. Front curved downward and, viewed from above, deeply excavate.

Sides of carapax acute, the fissures between the teeth being very slight; all of the border of the carapax finely crenulate. Chelipeds externally granulate. Carpus produced internally; the inner surface of the hand with a patch of granules on the inner surface. Carpal joints of the ambulatory feet longitudinally sulcate.

Rio Janeiro! (Wilkes' Expedition); *Rio Grande, Brazil!* (Capt. Harrington Peabody Academy).

C. gaimardi Milne Edwards.

Cyclograpsus gaimardi Edw., Hist. Nat. Crust., ii, p. 79 (1837).

Paragrapsus gaimardi Edw., Ann. Sci. Nat. III, xx, p. 196 (1853).

Australia (Edwards).

C. quadridentatus Kingsley *ex* Milne-Edwards.

Paragrapsus quadridentatus Edw., Ann. Sci. Nat., III, xx, p. 195 (1853).

Australia (Edw.).

Sub family **Plagusinæ** Dana.¹

Carapax flattened, antennulæ longitudinally plicate, lodged in sinuses of the front, and visible from above.

Genus **PLAGUSIA** Latr., 1806 (restrict).

Meros of external maxilliped well developed, as broad as the ischium.

P. speciosa Dana.

Carapax areolate, covered everywhere with squamiform tubercles, the inter spaces being clothed with a short pubescence, these tubercles being similar in their arrangement to those of *P. depressa* Say, but much more depressed than in that species. The margins of the inter-antennular portion of the front is simple. Inferior margin of the orbit acute, minutely denticulate. Sides of carapax with two equal acute spiniform teeth behind the angle of the orbit. Feet closely resembling those of *P. depressa*, the ornamentation being similar, but not so prominent. The hands, however, are externally marked by six longitudinal impressed lines, the lowest of them being on the inferior margin. The fingers are widely gaping, the extremities deeply excavate. The dentiform process

¹ This sub family having recently been revised by Mr. Miers (Annals and Magazine of Natural History, V, ix, pp. 147-154, February, 1878), and as I agree with his determinations and ideas of specific limits, I omit the synopsis of species from this paper, merely giving a few notes on the more uncommon forms.

on the coxa of the third pair of ambulatory feet is minutely denticulate. The only additional character in the female is that the squamæ of the carapax are more depressed.

Mr. Miers (l. c., p. 151) remarks: "Only a carapax of this species is known." The carapax referred to, Dana's type, was destroyed in the Chicago fire. The Academy possesses two specimens, male and female, sent by Mr. Andrew Garrett, from Tahiti.

Genus **LEILOPHUS** ¹ Miers, 1876. (*Acanthopus* DeHaan.)

Meros of external maxillipeds very small, and much narrower than the ischium.

L. pilimanus Miers *et* A. M.-Edw.

Specimens of this rare species are in the museum of the Academy, from the Sandwich Is. (J. K. Townsend) and Tahiti (A. Garrett). So far as I am aware, the only other specimen, in any collection, is the type in Jardin des Plantes at Paris. The British Museum has no specimens.

I am unable, either from the poorness of the descriptions, or possible inaccuracy of the figures, to assign the following species to their proper generic positions.

Cyclograpsus ? tasmanicus Jacquinot et Lucas, Voyage Astrolabe et Zélee, Crustacés, p. 76, Pl. VI, f. 6 (1842-53).

Tusmania (J. et L.).

Cyclograpsus minutus J. et L., l. c., p. 75, Pl. VI, f. 8 (1842-53).

Chili (J. et L.).

Grapsus inornatus Hess, Archiv für Naturgeschichte, xxxi, p. 148, Pl. VI, f. 11 (1865).

Sydney, Australia (Hess).

Grapsus huzardi Desmarest, Consid. sur les Crust., p. 131 (1825).

Senegal (Desmarest).

Cancer tridens Fabricius, Suppl. Ent. Syst., p. 340 (1798).

E. Indies (Fabricius).

Cancer hispanus Herbst, Pl. XXXVII, f. 1 (1796).

Goniograpsus pulcher Lockington, Proc. Cal. Acad., vii, p. 152 (1876).

Lower California (Lockington).

M. Henri Milne-Edwards (Archives du Museum, vii, p. 158, 1854) mentions a genus *Holograpsus*, possibly intending *Holomeopus*.

¹ In the dismemberment of the genus *Plagusia* of Latreille, the name *Plagusia* should have been retained for this section.