

Boston Society of Natural History.

FROM

Mr. Walter Faxon

Received Nov. 15, 1895.

INVERT. ZOOLOGY
SECTION LIBRARY
LACM

SMITHSONIAN INSTITUTION.
UNITED STATES NATIONAL MUSEUM.

CATALOGUE OF THE CRABS OF THE FAMILY
MAIIDÆ IN THE U. S. NATIONAL MUSEUM.

BY

MARY J. RATHBUN,
Department of Marine Invertebrates.

From the Proceedings of the United States National Museum, Vol. XVI, pages 63-103.
(with Plates III-VIII).

[No. 927.]

WASHINGTON:
GOVERNMENT PRINTING OFFICE.

1893.

CATALOGUE OF THE CRABS OF THE FAMILY MAIIDÆ IN THE
U. S. NATIONAL MUSEUM.

BY
MARY J. RAHEEN,
Department of Marine Invertebrates.

(With Plates, III-VIII.)

In the following catalogue the same general plan has been followed as in the author's "Catalogue of Pericerida" published in the Proceedings of the Museum for 1892, No. 901. Of the 34 known genera, but 19 are represented in the collection and by 39 species only. This includes one new genus and 5 new species described below. Of the 39 species, 6 are European; 17 are North American, of which 7 are found only on the east coast, and 8 on the west coast, while 2 extend by the way of the Arctic Ocean from the Atlantic to the Pacific; 1 species is from the east coast of South America, 2 are confined to Japan, while 13 are found in various localities throughout the Indo-Pacific. At the close of the catalogue a list of 100 species and varieties not in the collection is given in the hope that they may be obtained in the future through gifts and exchange.

In an appendix are added descriptions by Dr. William Stimpson of Maiidæ collected by the North Pacific Exploring Expedition. Illustrations of 2 species not hitherto figured are published, the original drawings having been enlarged by Mr. A. H. Baldwin, who furnished also the other drawings for this catalogue.

MAIIDÆ.

Maioid brachyurans with eyes retractile in distinctly defined orbits which are often more or less incomplete below or marked with open fissures in their upper and lower margins. Basal antennal joint always more or less enlarged.

KEY TO SUBFAMILIES.

- A' Carapace usually subtriangular. Rostrum well developed. Anterior legs in male usually enlarged; fingers not excavate at tips *Maiina*
A'' Carapace broadly triangular or oval or nearly circular. Rostrum very short or obsolete. Anterior legs in male small, slender; fingers usually excavate at tips *Schizophrysina*

A¹ Carapace suboblong. Rostrum vertically or nearly vertically deflexed, usually broad, lamellate. Fingers acute at tips. Basal antennal joint very much enlarged. Eye peduncles long, geniculated, and laterally projecting. . . *Micippina*

KEY TO GENERA.

Majina.

- A Rostrum vertically compressed and blunt or notched at the extremity. Orbits shallow and very open above; eyes when retracted visible from above; eye peduncles short and thick.
- B Ambulatory legs extremely long and slender.
- C (Orbits with two fissures above and below) *Egeria*
- C (Orbits with one fissure above and below) *Chorilibinia*
- B Ambulatory legs of moderate length.
- C Ambulatory legs with the merus joints dilated in winglike expansions. . . *Hemus*
- C Ambulatory legs compressed and flattened. *Chionectes*
- C Ambulatory legs subcylindrical.
- D Second joint of antenna dilated. *Hyas*
- D Second joint of antenna slender, subcylindrical.
- E Rostrum with lateral margins involuted *Collocerus*
- E Rostrum with lateral margins not involuted. *Herbstia*
- A² Rostrum composed of two more or less distinct divergent spines. Orbits deep; eyes when retracted, concealed; eyes small; eye peduncles slender.
- B Orbits large, directed forward, usually very incomplete below; upper margin usually prominent, with two deep fissures and long spines.
- C Flagellum of antenna arising within the orbital cavity. *Maja*
- C Flagellum of antenna arising within the orbital margin, and separated from the cavity of the orbit by a narrow process of the basal joint.
- D Carapace pyriform.
- E (Rostral spines short) *Phycodes**
- E (Rostral spines long) *Oplopisa*
- D Carapace subtriangular.
- E Merus joint of outer maxillipeds notched for the insertion of the next joint.
- F Ambulatory legs spinose *Chlorinoides*
- F Ambulatory legs unarmed. *Paramithrax*
- E (Merus joint of outer maxillipeds with anterior margin entire). *Acanthophrys*
- B² Orbits small, directed outward. Orbital margin not prominent, with one or two hiatuses above and one below.
- C First ambulatory legs very long.
- D Spines of rostrum with an accessory spinule near the extremity. . . . *Naxia*
- D Spines of rostrum without an accessory spinule.
- E Basal antennal joint narrow, with or without a spine at the antero-external angle *Hyastenus*
- E (Basal antennal joint dilated and unarmed externally, unidentate posteriorly and in the middle) *Lepidonaxia*
- C First ambulatory legs of moderate length.
- D Praeocular spine present.
- E Rostral spines parallel or in contact to near their extremities *Pisa*
- E Rostral spines divergent.
- F Chelipeds much smaller than the ambulatory legs *Lepteces*
- F Chelipeds as large as the ambulatory legs
- G Ambulatory legs armed with spines *Nibilia*
- G Ambulatory legs unarmed.

*There is some doubt as to the proper position of this genus.

- H' Second and third joints of antennæ dilated *Scyra*
H'' Second and third joints of antennæ not dilated.
 K' (Palpi elongated) *Notolapas*
 K'' (Palpi robust) *Rochinia*
D' Preocular spine absent.
 E' Basal antennal joint elongated, its distal portion visible from above. *Pelia*
 E'' Basal antennal joint with its distal portion not visible from above.
 F' (Spines of rostrum subparallel) *Phoides*
 F'' Spines of rostrum laminate at base, slightly divergent *Euryome*
 F''' (Spines of rostrum deflexed) *Micippoides*

Schizophrysinæ.

- A' Fingers acute at tips *Tenonotus*
A'' Fingers excavate at tips.
 B' Spines of rostrum with one or more accessory spines *Schizophrys*
 B'' (Spines of rostrum simple) *Cyclac*

Micippina.

- A' Orbits very incomplete, defined above, open below.
 B' Orbits tubular.
 C' (Preocular spines small) *Criocarcinus*
 C'' (Preocular spines much enlarged) *Pterocerus*
 B'' Orbits not tubular *Pseudomicippa*
A'' Orbits narrowly oval, well defined *Micippa*
A''' (Orbits scarcely defined either above or below) *Paramicippa*

KEY TO SPECIES EXAMINED.

Hemus.

- Ambulatory legs with the merus joints dilated in winglike expansions *crystalipes*

Hyas.

- A' Carapace subtriangular; hepatic region not dilated laterally. Basal antennal joint subtriangular. *aracicus*
A'' Carapace lyrate; hepatic region dilated laterally. Basal antennal joint with sides nearly parallel.
 B' Posterior angle of hepatic projection rounded. Basal antennal joint without a large tubercle at the antero-external angle *coarctatus*
 B'' Posterior angle of hepatic projection subacute. Basal antennal joint with a large tubercle at the antero-external angle *lyratus*

Chionocetes.

- A' Carapace tuberculose; branchial regions flattened *opilio*
A'' Carapace spinose; branchial regions dilated *tanacri*

Herbstia.

- A' Inferior orbital margin not toothed. Legs not spinose *condyliata*
A'' Inferior orbital margin toothed. Legs spinose (*Herbstiella*) *camptacantha*

*The genus *Pleurophricus*, A. Milne Edwards, which Miers places in this division of the Maïide, is classed by Ortmann among the Corystoidea.

Calappa.

Carapace with six median spines..... *grandis*

Mia.

A Carapace spinose above. Chelipeds in male enlarged..... *squinado*

A Carapace tuberculose above. Chelipeds slender..... *verrucosa*

Paranithra.

A Chelipeds in male enlarged; hand compressed; carpus with two longitudinal ridges, the outer usually oblique..... Subgenus *Paranithra*

B Carpus with inner ridge smooth..... *paronii*

B Carpus with ridges spinulose..... *edwardsii*

B Carpus with inner ridge cut into lobes..... *latrillei*

B Carpus, including ridges, granulose..... *ternocostatus*

A Chelipeds in male elongated; hand and carpus subcylindrical; carpus not ridged..... Subgenus *Leptonithra*

B Carapace, meras, and carpus spinulose..... *australis*

B Carapace, meras, and carpus covered with flattened tubercles..... *longimanus*

Cetorinoides.

A Rostral horns bifurcate..... *spatulifer*

A Rostral horns not bifurcate..... *longispinus*

Pisa.

A Chelipeds in male with palms dilated; fingers arched, and meeting only at the ends..... *Acraonon*

A Chelipeds in male with palms elongated slender; fingers almost straight, and meeting along their inner edges..... *tribulus*

Lepletes.

Chelipeds much smaller than the ambulatory legs..... *ornatus*

Hystennus.

A Carapace smooth above, two-spined. Praeocular angle subacute..... *diacanthus*

A Carapace nearly smooth above, three-spined. Praeocular angle obtuse..... *caribbeanus*

A Carapace tuberculose or spinulose. Praeocular angle with a sharp spine.

B Subhepatic region with a prominent spine..... *Hystennus*, sp.

B Subhepatic region without a prominent spine..... *longipes*

Naria.

Carapace covered with strong spines. Rostral horns parallel for half their length..... *rostellardi*

Seyra.

Carapace with a tubercle at the postero-lateral angle..... *acutifrons*

Eurygnome.

Carapace triangular. Legs spinuliferous. Superior orbital fissure open..... *aspera*

Pelia.

- A Hands in male with margins tapering to the fingers, which have their edges meeting throughout.....*pacificæ*
 A Hands in male with margins subparallel; fingers gaping at base.
 B Basal antennal joint with its distal half visible from above.
 C Rostrum moderately deflexed.....*mutica*
 C Rostrum strongly deflexed.....*rotunda*
 B Basal antennal joint with only its extremity visible from above.....*Pelia*, sp.

Naiade.

- Articulatory legs armed with spines.....*crinacea*

Schizophora.

- Carapace covered with granules and small spines.....*aspera*

Pseudomacrippa.

- Carapace with prominent tubercles. Sternum without granulated crests.....*varians*

Micrippa.

- A Rostrum terminating in four spines.....*mascarenica*
 A Rostrum terminating in two lobes.
 B Lobes rounded externally, with the antero-internal angles acute.....*spinosa*
 B Lobes narrow or spinous.....*thalia*

Hemus cristulipes A. Milne Edwards.

Miss. Sci. au Mexique, pt. 5, I, p. 88, pl. XVI, fig. 1, 1875. Miers, Jour. Linn. Soc. London, XIV, p. 67, 1879. Aurivillius, K. Sv. Vet.-Akad. Hand., Bd. 23, I, p. 15, pl. 3, fig. 6, 1889.

Off Cape Catoche, Yucatan, lat. 22° 07' 30" N., long. 87° 06' W., 21 fathoms, white rock, coral; station 2363. U. S. Fish Commission steamer *Albatross*, 1885; one female (15167).

Length, 7; greatest width, 5.7^{mm}.

Previously recorded from the Gulf of Mexico and Central America.

Hyas araneus (Linné).

Cancer araneus Linné, (Syst. Nat., ed. 12, p. 1044, 1766).

Hyas araneus Leach (Mal. Podoph. Brit., pl. XXI A, 1815); Trans. Linn. Soc. London, XI, p. 328, 1815, and synonymy. Stimpson, Ann. Lye. Nat. Hist. N. Y., VII, p. 179, 1860. Packard, Mem. Boston Soc. Nat. Hist., I, p. 302, 1867 (*aranea*). Smith, Trans. Conn. Acad., V, p. 43, 1879. Carrington and Lovett, Zoölogist (3), V, p. 111, 1881. Miers, Challenger Rept., Zoöl., XVII, p. 47, 1886 (*aranea*), and synonymy. Scott, 6th Ann. Rept. Fishery Board for Scotland, pt. III, p. 255, 1888. Aurivillius, K. Sv. Vet.-Akad. Hand., Bd. 23, I, p. 45, pl. 1, figs. 1-5, 1889. G. Y. and A. F. Dixon, Proc. Roy. Irish Acad. (3), II, p. 30, 1891 (habits).

RECORD OF SPECIMENS EXAMINED.

Bjornen's Bay, Spitzbergen, 7 to 10 fathoms; Dr. Eckstein, U. S. Navy, U. S. S. *Alliance*, August 10, 1881 (4511).
 Kielerbucht, Germany; K. Mübius (3304).
 Hebrides; A. M. Norman (3317).
 Greenland; Dr. Pavy, Howgate Expedition (3571).
 Disco, Godhavn Harbor, Greenland; Ensign H. G. Dresel, U. S. Navy, July, 1883 (4990).
 Labrador; W. Henry (16280); L. M. Turner, November, 1882 (5814).
 L'Anse au Loup and Forteau Bay, Labrador, 15 to 25 fathoms, sand, kelp, and dirt; W. A. Stearns, 1882 (5212, 10031).
 St. Johns, Newfoundland; U. S. Fish Commission, 1885 (40138).
 Gulf of Maine; U. S. Fish Commission (3826).
 Gloucester, outer harbor, Mass., 8 to 10 fathoms; U. S. Fish Commission (2807).
 Off Cape Cod, Mass., 15 to 166 fathoms; U. S. Fish Commission.
 Eastern coast of New England; S. M. Johnson and Bro. (3319).
 Northeast coast of North America; U. S. Fish Commission steamer *Albatross*, 1885 and 1886:

| Cat. No. | Station. | Lat. N. | Long. W. | Bottom. | | Date. | Remarks. |
|----------|----------|----------|----------|---------|-------|-------------------------|------------------------|
| | | | | Fath. | Temp. | | |
| 10218 | 2431 | 43 00 00 | 53 47 30 | 120 | 53.5 | yl. S. bk. Sp. | June 23 |
| 10220 | 2437 | 43 36 00 | 53 05 00 | 37 | 55.8 | crs. brk. Sh. brk. Sh. | 24 |
| 10221 | 2438 | 43 36 00 | 53 03 30 | 37 | 56.8 | gn. S. bk. Sp. brk. Sh. | 24 |
| 10222 | 2433 | 43 37 00 | 49 56 30 | 36 | 57.8 | wh. S. bk. Sp. | 24 |
| 10224 | 2444 | 45 50 00 | 49 45 30 | 39 | 54.4 | wh. S. brk. Sh. | 25 |
| 10225 | 2445 | 46 09 30 | 49 48 30 | 39 | 53.5 | brk. Sh. | 25 |
| 10226 | 2436 | 46 20 00 | 49 52 00 | 39 | 55.3 | brk. Sh. | 25 |
| 10229 | 2452 | 47 04 00 | 50 48 00 | 89 | 23.7 | fine. gn. S. | 26 |
| 10230 | 2461 | 45 47 00 | 54 13 30 | 59 | 30 | fine. S. bk. Sp. | July 3 |
| 10231 | 2463 | 45 44 00 | 54 27 00 | 45 | 30 | brk. Sh. | 3 |
| 10232 | 2464 | 45 40 00 | 54 41 00 | 42 | 32 | wh. bk. S. brk. Sh. | 3 |
| 10233 | 2465 | 45 35 00 | 55 01 00 | 67 | 30 | bk. gy. S. | 3 |
| 10234 | 2466 | 45 29 00 | 55 24 00 | 67 | 30 | Co. | 3 |
| 10235 | 2467 | 45 23 00 | 55 41 00 | 38 | 35.8 | fine. wh. S. bk. Sp. | 3 |
| 10236 | 2467 | | | | | | 3 from stomach of cod. |
| 10237 | 2468 | 45 11 30 | 55 51 30 | 42 | 33 | fine. bk. S. | 3 |
| 10238 | 2472 | 44 27 30 | 57 10 45 | 137 | 40 | crs. S. G. | 4 |
| 10239 | 2474 | 44 28 30 | 57 10 45 | 133 | 40 | brd. | 4 |
| 10240 | 2490 | 45 27 30 | 58 27 45 | 50 | | G. P. | 6 |
| 10241 | 2492 | 45 22 00 | 58 43 45 | 75 | 33.3 | wh. S. | 6 |
| 10245 | 2496 | 45 07 30 | 59 27 45 | 44 | 32.2 | crs. yl. S. P. | 6 |
| 10247 | 2505 | 44 22 30 | 61 00 15 | 47 | 35 | P. | 7 |
| 11867 | 2698 | 45 07 00 | 55 09 00 | 90 | | gy. S. bk. Sp. P. | Aug. 22 |
| 11868 | 2699 | 45 04 00 | 55 23 00 | 72 | | Co. | 22 |
| 11870 | 2701 | 44 56 00 | 55 49 30 | 75 | | gy. S. bk. Sp. | 22 |

Gloucester donations, U. S. Fish Commission.

Grand Bank (3781).

St. Peters Bank (14456).

Banquereau, 50 fathoms.

South of Banquereau, 250 to 350 fathoms; one female with eggs (3790).

Off Little Hope Light, Nova Scotia, 35 to 60 fathoms (3783).

The largest specimen is that presented by S. M. Johnson & Bro., the exact locality unknown. Length of carapace, 94; width, 72 millimeters.

Besides the range indicated above, this species has been recorded from France, Norway, Iceland, and the sea of Okhotsk, by various authors (Smith, loc. cit.).

Hyas coarctatus Leach.

- Hyas coarctatus* Leach, (Mala. Podoph. Brit., pl. XXI B, figs. 1 and 2, 1815); Trans. Linn. Soc. London, XI, p. 329, 1815. Leidy, Jour. Phila. Acad., (2), III, p. 17, 1855. Stimpson, Boston Jour. Nat. Hist., VI, p. 150, 1857. Packard, loc. cit. (*coarctata*). Smith, Rept. U. S. Fish Comm. for 1871 and 1872 (1874), p. 548; Trans. Conn. Acad., V, p. 43, 1879; Rept. U. S. Fish Comm. for 1882-1884, p. 317; for 1885 (1887), p. 626. Lockington, Proc. Cal. Acad. Sci., VII, p. 65, 1876. Carrington and Lovett, Zoölogist (3), V, p. 115, 1881. Miers, Challenger Rept., Zool., XVII, p. 48, 1886. *coarctata*, and synonymy. Scott, op. cit., p. 256. Aurivillius, op. cit., p. 46, pl. I, fig. 6.
- Hyas latifrons* Stimpson, Proc. Phila. Acad. Nat. Sci., IX, p. 217, 1857. Lockington, op. cit., p. 64. Smith, Trans. Conn. Acad., V, p. 45, 1879. Murch. Rept. of Exped. to Point Barrow, Alaska, p. 137, 1855. Aurivillius, op. cit., p. 46, (Greenland).

Stimpson's species *latifrons* is based chiefly on the shorter, broader, less acute rostrum, the closed orbital fissures, and the broader anterior portion of the carapace as compared with *coarctatus*. A large number of specimens from many different localities along the Atlantic and Pacific coasts have been examined and the following observations made: In the specimens 2 inches or more in length from the Atlantic, ranging from Nova Scotia to Greenland and from shallow water to 81 fathoms, the rostral horns are short and blunt and the orbital fissures are closed, or in a few specimens very narrowly open, varying in different individuals from the same locality. The width of the anterior portion of the carapace is from 0.76 to 0.87 of the branchial width. From Bering Sea and the Arctic coast of Alaska vast numbers of large specimens have been obtained by various collectors, including an interesting series from off Bristol Bay collected by the Fish Commission steamer *Albatross* during the summer of 1890. They are not only variable in width, but the orbital fissures, while usually closed, are not uniformly so. The rostral horns are always rather short, broad, and obtuse. The width of the anterior portion of the carapace varies from 0.69 to 0.85 of the branchial width, the narrowest specimens being larger than any that have been obtained from the Atlantic. The two series of large specimens from the Atlantic and Pacific coasts are absolutely indistinguishable, as the minor characters mentioned by Stimpson, the swollen carapace, the number of tubercles, and the obtuseness of the angles, all vary with the individual.

In smaller specimens the orbital fissures are usually open, the rostrum proportionally longer than in larger forms, and the anterior width is greater, varying from 0.86 to 0.92 of the branchial width. The only European specimens which I have at hand are seven from the Shetland Islands and one from Kielerbucht. The former are from 1 to 1½ inches in length, have a very long rostrum, wide orbital fissures, and are of medium width anteriorly. The merus joints of the ambulatory legs are unusually long. This form, which is probably the typical *coarctatus*, we find reproduced in large numbers on the Atlantic coast of

North America, except that the merus joints are rarely as long. Occasional specimens of small size, however, have a shorter rostrum and fissures narrow or almost closed. Small specimens from the Pacific coast, while having, as a rule, the orbital fissures open (this character being present even among Stimpson's types), more often exhibit narrower fissures than do individuals from Europe and Eastern North America. This variation of many of the small Pacific forms from the normal type is of no special significance, as the same variation occurs even on the Atlantic side. Specimens from Greenland, three-fourths of an inch long, with fissures very slightly open, are identical in form with others of the same size from Bering Sea; while it is impossible to separate specimens with open fissures found on Georges Bank from others found north of the Alaskan Peninsula.

Length of largest specimen, 80; greatest width, 64.5; length of cheliped, about 144 millimeters.

The following tables show the comparative width of the anterior and posterior portions of the carapace in various males from the Atlantic and Pacific oceans:

ATLANTIC.

| Locality. | Branchial width. | Hepatic width. | Ratio of branchial to hepatic width. |
|----------------------------|------------------|----------------|--------------------------------------|
| Greenland..... | 48.5 | 37 | 1:1.31 |
| Station 2469..... | 48 | 39 | 1:1.23 |
| Arsicuat, Nova Scotia..... | 53.5 | 37 | 1:1.45 |
| Labrador..... | 53.5 | 27 | 1:1.98 |
| Station 2455..... | 32 | 28 | 1:1.14 |
| Shetland..... | 22.5 | 18.5 | 1:1.22 |
| Off Cape Cod..... | 19 | 16.7 | 1:1.13 |
| Do..... | 19 | 16.5 | 1:1.15 |
| Off Georges Bank..... | 17 | 15.0 | 1:1.13 |
| Do..... | 16 | 14 | 1:1.14 |
| Off Cape Ann..... | 12 | 10.8 | 1:1.11 |
| Grand Manan..... | 10.5 | 9 | 1:1.17 |

PACIFIC.

| | | | |
|---|------|------|--------|
| Station 3251..... | 64.5 | 44.5 | 1:1.45 |
| Norton Sound..... | 59.3 | 43 | 1:1.37 |
| Station 3248..... | 57.3 | 42 | 1:1.36 |
| Plover Bay..... | 51 | 41 | 1:1.24 |
| Bering Sea (type of <i>latiporus</i>)..... | 51.5 | 44 | 1:1.22 |
| Plover Bay..... | 37.5 | 31 | 1:1.21 |
| Station 3251..... | 36 | 28.5 | 1:1.26 |
| Do..... | 39.5 | 24 | 1:1.64 |
| Plover Bay..... | 28.3 | 24 | 1:1.18 |
| Bering Sea (type of <i>latiporus</i>)..... | 27 | 23 | 1:1.17 |
| Plover Bay..... | 22 | 20 | 1:1.10 |
| Station 3251..... | 18.5 | 16.5 | 1:1.12 |
| Station 3288..... | 17 | 15 | 1:1.13 |
| Station 3252..... | 15.5 | 13.5 | 1:1.14 |
| Bering Strait..... | 15.5 | 14 | 1:1.11 |
| Do..... | 13 | 12 | 1:1.08 |

RECORD OF SPECIMENS EXAMINED.

Shetland: A. M. Norman (6370, 6359).

Kielerbucht, Germany: K. Möbbins (46280).

U. S. Fish Commission:

Off Chesapeake Bay, 18 to 373 fathoms.

Off Martha's Vineyard, 23 to 158 fathom.

Off Nantucket Shoals, 68 to 62 fathoms.

Off George's Bank, 35 to 903 fathoms.

Le Haye Bank, 45 fathoms.

Off Cape Cod, Massachusetts, 16 to 90 fathoms.

Massachusetts Bay, 45 to 63 fathoms.

Off Cape Ann, Massachusetts, 7 to 42 fathoms.

Gulf of Maine, 23 to 98 fathoms.

Grand Manan, New Brunswick.

Off Halifax, Nova Scotia.

Arichat Harbor, Cape Breton, Nova Scotia, 30 fathoms, stomach of cod; W. A. Stearns (15289).

Henley Harbor, Labrador, shallow water; W. A. Stearns (5410).

Greenland: Dr. Pavy, Howgate Expedition (5239).

Disco Harbor, Greenland: Ensign H. G. Dressel, U. S. Navy, Greely Relief Expedition (43588).

Lat. 70° 20' N., long. 56° W., 90 fathoms; Ensign C. S. McClain, U. S. N., U. S. S. *Albatross* (43759).

Stations of the U. S. Fish Commission steamer *Albatross*, 1885 and 1886:

| Cat. No. | Sta- tion. | Lat. N. | Long. W. | Bottom. | | Date. |
|----------|------------|----------|----------|-------------|----------------------|---------|
| | | | | Fath. Temp. | Materials. | |
| 10268 | 2455 | 47 21 00 | 54 38 30 | 81 | br. S. | June 20 |
| 10269 | 2456 | 47 29 00 | 52 18 00 | 84 | G. | July 2 |
| 10272 | 2460 | 45 50 00 | 51 00 00 | 67 | gy. S. Sh. | 3 |
| 10213 | 2503 | 45 34 00 | 71 27 00 | 45 | bk. Sh. | 3 |
| 10287 | 2465 | 45 29 00 | 55 24 00 | 57 | gy. | 3 |
| 10244 | 2496 | 45 27 30 | 58 27 45 | 59 | G. P. | 6 |
| 10215 | 2498 | 44 51 00 | 59 43 45 | 65 | fine br. S. | 6 |
| 10216 | 2507 | 44 52 30 | 61 04 15 | 47 | P. | 7 |
| 10117 | 25 9 | 44 30 00 | 63 18 00 | 43 | br. S. | 8 |
| 10218 | 2525 | 44 49 00 | 65 49 30 | 72 | S. G. bk. Sh. | 13 |
| 11872 | 2692 | 46 50 00 | 44 35 00 | 73 | gy. S. sand, bk. Sh. | Aug. 11 |
| 11875 | 2691 | 46 52 30 | 44 54 30 | 86 | gy. S. bk. Sp. | 11 |

Arctic and Pacific Oceans:

| Cat. No. | Locality. | Depth. | Materials. | Collector. |
|----------|--|--------|----------------|--------------------------------------|
| 7552 | Cape Smyth, Alaska | Beach. | | U. S. Signal Service. |
| 7578 | 10 miles west of Point Franklin | 133 | P. S. brk. Sh. | Do. |
| 14769 | 71° 02' 00" N., 157° 49' 00" W. | 49 | | U. S. R. S. Corwin. |
| 14768 | 66° 07' 00" N., 168° 26' 47" W. | 34 | | Do. |
| 14766 | 65° 49' 15" N., 169° 04' 00" W. | 23 | | Do. |
| 14729 | Off Point Hope, Alaska | 29 | | Do. |
| 14732 | Arctic Ocean | | | Do. |
| 14738 | Off Cape Sabine, Alaska | 15 | G. | W. H. Dall. |
| 14743 | 66° 45' 00" N., 166° 55' 00" W. | 49 | S. | Do. |
| 14739 | Cape Prince of Wales, Alaska | 23 | M. | Do. |
| 14737 | Bering Strait | 15 | G. | Do. |
| 14741 | 32 miles east of Kings Island | 17 | M. | Do. |
| 1474 | Plover Bay, Siberia | 10 25 | | Do. |
| 14741 | do | 15 20 | | Do. |
| 14741 | Rasi Cape, Siberia | | | Dr. R. White. |
| 14745 | 63° 37' 00" N., 165° 19' 00" W. | 42 | | Lieut. George M. Stoney, U. S. Navy. |
| 14734 | 62° 54' 00" N., 165° 38' 00" W. | 22 | | Do. |
| 14733 | 61° 22' 00" N., 168° 45' 00" W. | | | Do. |
| 210 | Bering Sea types of <i>Ididiocentrus</i> | | | North Pacific Exploring Expedition. |

Bering Sea; U. S. Fish Commission Steamer *Albatross*, 1890 and 1891:

| Cat. No. | Station. | Lat. N. | Long. W. | Bottom. | | | Date. | Remarks. |
|----------|----------|----------|-----------|---------|-------|---------------------|---------|-----------|
| | | | | Fath. | Temp. | Materials. | | |
| 15870 | 3246 | 58 26 30 | 161 36 00 | 17½ | 38 | G | June 9 | |
| 15871 | 3248 | 58 34 15 | 162 22 00 | 21 | 43 | fne. gy. S. G. | 13 | |
| 15872 | 3250 | 58 11 30 | 163 02 45 | 17½ | 46.2 | gy. S. | 13 | |
| 15873 | 3251 | 57 35 50 | 164 05 00 | 25½ | 37.5 | fne. gy. S. | 14 | Abundant. |
| 15874 | 3252 | 57 22 20 | 164 24 40 | 29½ | 44.8 | bk. M. | 14 | |
| 15875 | 3253 | 57 05 50 | 164 27 15 | 36 | 35 | M. S. | 14 | |
| 15876 | 3278 | 56 12 30 | 162 13 00 | 47 | 38.8 | fne. gy. S. | 28 | Do. |
| 15877 | 3279 | 56 25 40 | 162 39 15 | 41 | 37 | fne. gy. S. | 28 | |
| 15878 | 3280 | 56 27 00 | 162 08 00 | 30 | 41 | fne. gy. S. | 28 | |
| 15879 | 3281 | 56 14 00 | 161 41 15 | 36 | | gy. S. bk. Sp. | 28 | |
| 15880 | 3282 | 56 30 45 | 161 50 15 | 53 | 38.2 | fne. S. gn. M. | 29 | Do. |
| 15881 | 3283 | 56 28 00 | 161 16 30 | 39 | 40.3 | fne. gy. S. | 29 | |
| 15882 | 3284 | 56 16 30 | 161 53 00 | 25 | 43 | fne. G. | 29 | |
| 15883 | 3286 | 56 39 30 | 160 29 00 | 37 | 41.5 | fne. gy. S. Sh. Gr. | July 17 | Do. |
| 15884 | 3288 | 56 26 30 | 160 09 00 | 15 | 45.5 | bk. G. | 17 | Do. |
| 15885 | 3291 | 56 58 30 | 159 11 00 | 26 | 41.2 | bk. S. G. | 18 | |
| 15886 | 3292 | 57 14 00 | 159 35 00 | 32 | | bk. S. G. | 18 | |
| 15887 | 3293 | 57 30 00 | 159 33 00 | 30 | 40 | fne. gy. S. | 18 | |
| 15888 | 3294 | 57 16 45 | 159 03 30 | 30 | 41 | bk. G. | 18 | |
| 15889 | 3297 | 57 38 00 | 159 07 30 | 26 | 41.5 | gy. S. | 19 | |
| 15890 | 3302 | 57 45 45 | 160 12 15 | 30 | 40.2 | fne. gy. S. | 21 | |
| 15891 | 3303 | 57 27 00 | 160 21 30 | 33 | 39.5 | bk. S. | 21 | Do. |
| 15893 | 3304 | 58 02 30 | 161 13 45 | 28 | | fne. gy. S. | 21 | |
| 15892 | 3305 | 57 51 30 | 161 40 00 | 23 | 41.8 | fne. gy. S. | 22 | Do. |
| 15894 | 3306 | 57 24 30 | 161 17 00 | 33 | 38.9 | fne. gy. S. | 22 | |
| 17077 | 3438 | 57 06 30 | 170 22 30 | 20 | | fne. gy. S. Sh. | Aug. 3 | |
| 17078 | 3439 | 57 06 00 | 170 35 00 | 41 | 44 | fne. bk. S. | 3 | |

Hyas lyratus Dana.

Plate III.

Amer. Jour. Sci. (2), xi, p. 268, 1851; Crust. U. S. Expl. Exped, i, p. 86, pl. i, fig. 1, 1852. Stimpson, Jour. Boston Soc. Nat. Hist., vi, p. 450, 1857. Lockington, Proc. Cal. Acad. Sci., vii, p. 64, 1876. Miers, Challenger Rept., Zool., xvii, p. 47, 1886.

Large specimens of this species show characteristics somewhat different from the example figured by Dana. The carapace is very broad posteriorly, strongly tuberculate. The tubercle at the middle of the posterior margin is large and rounded. There is a subacute tubercle on the posterior margin of the wing-like expansion. The tubercle at the antero-external angle of the basal antennal joint is large, smooth, and constricted at base. Chelipeds long and strong; merus and carpus tuberculate; merus with a ridge of large, irregular tubercles above; hand slightly compressed, roughly granulate, ridged above. Ambulatory legs, slightly pubescent except the dactyls, which are densely so.

Dimensions of three largest males.

| Cat. No. | Length. | Branchial width. | Hepatic width. | Length of cheliped, about— | Length of first ambulatory leg, about— | Length of fourth ambulatory leg, about— |
|----------|---------|------------------|----------------|----------------------------|--|---|
| 5872 | 105 | 80 | 61 | 200 | 189 | 134 |
| 5243 | 100 | 78 | 60 | 200 | 189 | 132 |
| 15922 | 85 | 67 | 49.5 | 159 | 129 | 99 |

The collection in the Museum ranges from the extreme end of the Aleutian Islands eastward and southward to Puget Sound. Stimpson

says this species "inhabits deep water on the coast of Oregon, where it was found by the United States Exploring Expedition." Dana, on the contrary, in describing the Crustacea from that expedition, records this species only from Puget Sound.

RECORD OF SPECIMENS EXAMINED.

| Cat. No. | Locality. | Fathoms. | Materials. | Collector. | Remarks. |
|----------|---|----------|------------|---|-----------|
| 14720 | Chichagoff Harbor, Attu..... | 5-7 | S. G | W. H. Dall..... | Abundant. |
| 14721 | Kyska Harbor..... | 7-14 | S | do | |
| 14726 | Constantine Harbor, Amchitka..... | 6-10 | S. St. | do | |
| 14767 | Bay of Islands, Adakh..... | 9-16 | S. M. | do | |
| 14722 | Captains Harbor, Unalaska..... | 25-75 | ers. S | do | |
| 14724 | Belkoffsky Bay..... | 15-25 | Sh. Gr | do | |
| 12504 | Port Levasheff..... | | | do | |
| 14718 | Coal Harbor, Unga..... | 6-9 | S. St. M. | do | |
| 14727 | Chajafka Cove, Kadiak..... | 12-14 | S. M. | do | |
| 14719 | Off Marmot Island..... | | | do | |
| 12510 | Kachekmak Bay, Cook's Inlet..... | 20-60 | sdy. M. | do | Do. |
| 14725 | Port Etches..... | 5-18 | G. St. | do | |
| 14766 | Sitka Harbor..... | 15 | G. M. | do | Do. |
| 5243 | Wrangel..... | | | Dr. W. H. Jones, U. S. Navy. | |
| 14841 | Nakat Harbor..... | | | Lieut. Commander H. E. Nichols, U. S. Navy. | |
| 5872 | Port Wrangel..... | | | do | Do. |
| 16279 | Steamer Bay..... | | | do | |
| 5777 | Menzies Bay, Discovery Passage, B. C..... | 6 | soft..... | do | Do. |
| 15798 | Victoria, B. C..... | | | Dr. C. F. New- combe. | |
| 15530 | Kadiak, Alaska..... | | | U. S. Fish Com- mission. | Do. |
| 15541 | Port Townsend, Wash..... | | | do | |

Stations of the U. S. Fish Commission steamer *Albatross*, 1888 and 1890:

| Cat. No. | Station. | Lat. N. | Long. W. | Bottom. | | | Date. | Remarks. |
|----------|----------|----------|------------|---------|-------|----------------|---------|-----------|
| | | | | Fath. | Temp. | Materials. | | |
| 15531 | 2841 | 54 18 00 | 165 55 00 | 56 | 41 | P | July 23 | Abundant. |
| 15533 | 2842 | 54 15 00 | 166 03 00 | 72 | 41 | P | 23 | |
| 15532 | 2843 | 53 56 00 | 165 56 00 | 45 | 43.5 | brk. Sh. P | 28 | |
| 15537 | 2844 | 53 56 00 | 165 40 00 | 54 | 42 | gy. S. | 28 | |
| 15542 | 2847 | 55 01 00 | 160 12 00 | 48 | 42 | gy. gy. S | 31 | |
| 15534 | 2848 | 55 10 00 | 160 18 00 | 110 | 41 | gn. M. | 31 | |
| 15535 | 2849 | 55 16 00 | 160 28 00 | 69 | 43 | gn. M. | Aug. 2 | |
| 15543 | 2851 | 54 55 00 | 159 52 00 | 35 | 44.8 | gy. S. brk. Sh | 4 | |
| 15538 | 2852 | 55 15 00 | 159 37 00 | 53 | 41.8 | bk. S. | 4 | |
| 15540 | 2854 | 56 55 00 | 153 04 00 | 60 | 42.8 | bk. S. | 10 | |
| 15896 | 2855 | 57 00 00 | 153 18 00 | 69 | 44 | gn. M. | 10 | |
| 15536 | 2856 | 58 07 00 | 151 36 00 | 68 | 44 | gy. S. bk. sp. | Aug. 22 | |
| 15897 | 2857 | 58 05 00 | 150 46 00 | 51 | 44.6 | brk. Sh. gy. S | 22 | |
| 15898 | 3213 | 54 10 00 | 162 57 30 | 41 | | bk. S. | May 21 | Do. |
| 15899 | 3216 | 54 20 30 | 163 37 00 | 61 | | bk. S. M. | 21 | |
| 15900 | 3219 | 54 14 00 | 164 35 00 | 59 | 38 | bk. S. G. | 22 | |
| 15901 | 3220 | 54 15 00 | 165 06 00 | 34 | | G. brk. Sh. | 22 | |
| 15902 | 3222 | 54 20 10 | 165 30 00 | 50 | 39.7 | bk. S. P. Sh. | 22 | |
| 15903 | 3223 | 54 26 15 | 165 32 00 | 56 | 39 | bk. P | 22 | |
| 15904 | 3231 | 58 35 00 | 157 28 50 | 12 | | S | June 2 | Do. |
| 15905 | 3232 | 58 31 30 | 157 34 15 | 10½ | | P. St | 2 | |
| 15906 | 3233 | 58 23 45 | 157 42 45 | 7½ | 44.5 | S. P. | 2 | |
| 15907 | 3235 | 58 16 30 | 158 13 00 | 11 | | bk. S. | 7 | |
| 15908 | 3236 | 58 11 00 | 158 05 30 | 14½ | 39 | G. S. Sh | 7 | |
| 15509 | 3241 | 58 38 30 | 159 33 30. | 14 | 38 | bk. M. | 8 | |
| 15910 | 3257 | 54 49 00 | 165 32 00 | 81 | 39 | gy. S. G. | 24 | |
| 15911 | 3258 | 54 48 00 | 165 13 30 | 70 | 39 | bk. S. G. | 24 | |
| 15912 | 3259 | 54 40 50 | 165 05 30 | 41 | 40.6 | bk. S. G. | 24 | |
| 15913 | 3267 | 55 23 30 | 163 29 00 | 32 | 41 | bk. S. | 25 | |
| 15914 | 3272 | 55 31 40 | 163 07 00 | 31 | 42 | bk. rd. S. | 27 | |
| 15915 | 3277 | 55 58 45 | 161 46 30 | 18 | 43.2 | G. S. R. | 28 | |
| 15916 | 3278 | 56 12 30 | 162 13 00 | 47 | 38.8 | fne. gy. S. | 28 | |
| 15917 | 3279 | 56 25 40 | 162 39 15 | 41 | 37 | fne. gy. S. | 28 | |
| 15918 | 3280 | 56 27 00 | 162 08 00 | 36 | 41 | fne. gy. S. | 28 | |

Stations of the U. S. Fish Commission steamer *Albatross*, 1888 and 1890--Continued.

| Cat. No. | Station | Lat. N. | Long. W. | Bottom. | | | Date. | Remarks. |
|----------|---------|----------|-----------|---------|-------|------------------|---------|-----------|
| | | | | Bar. | Temp. | Materials. | | |
| 15015 | 3281 | 51 17 00 | 167 21 15 | 56 | 59.2 | gy. S. bk. sp. | June 28 | |
| 15016 | 3282 | 51 16 45 | 167 26 45 | 55 | 59.2 | bk. S. G. M. | 29 | |
| 15017 | 3283 | 51 20 00 | 167 34 30 | 55 | 59.2 | bk. gy. S. | 29 | |
| 15022 | 3284 | 51 20 30 | 167 31 00 | 55 | 59.2 | bk. Gy. S. | 29 | Abundant. |
| 15023 | 3286 | 51 20 30 | 167 27 30 | 57 | 61.1 | bk. gy. S. S. G. | July 17 | |
| 15024 | 3287 | 51 20 30 | 167 27 30 | 55 | 61.2 | bk. G. | 17 | |
| 15025 | 3291 | 51 28 30 | 168 01 00 | 50 | 61.2 | bk. S. G. | 18 | |
| 15026 | 3292 | 51 18 00 | 168 05 00 | 52 | 61.2 | bk. S. G. | 18 | |
| 15027 | 3295 | 51 20 30 | 168 01 00 | 50 | 61.2 | bk. gy. S. | 18 | |
| 15028 | 3297 | 51 13 45 | 168 05 00 | 50 | 61.2 | bk. G. | 18 | |
| 15029 | 3298 | 51 19 30 | 168 10 00 | 54 | 61.2 | bk. S. bk. Sp. | 19 | |
| 15030 | 3306 | 51 22 30 | 168 25 00 | 50 | 61.2 | P. | 23 | |
| 15031 | 3301 | 51 22 30 | 168 27 30 | 50 | 61.2 | bk. gy. S. | 20 | |
| 15032 | 3302 | 51 18 45 | 168 22 45 | 50 | 61.2 | bk. gy. S. | 21 | |
| 15033 | 3303 | 51 21 15 | 168 17 00 | 50 | 61.2 | bk. gy. S. | 22 | |
| 15034 | 3311 | 51 30 15 | 168 20 15 | 57 | 61.2 | bk. M. | Aug. 15 | |
| 15035 | 3313 | 51 31 30 | 168 27 30 | 58 | 62.7 | bk. bk. S. | 15 | |
| 15035 | 3319 | 51 40 30 | 167 50 00 | 52 | 61.8 | bk. S. | 18 | |
| 15036 | 3320 | 51 40 00 | 167 20 15 | 56 | 60.8 | bk. S. G. | 18 | |
| 15037 | 3325 | 51 58 45 | 168 20 25 | 53 | 60.8 | M. | 22 | |

Chionoectes opilio (O. Fabricius).

Pl. IV, Figs. 5-7

Cancer Phalangina O. Fabricius, Fauna Grœn., p. 234, 1780.*Cancer opilio* O. Fabricius, Kongelige Danske Vid. Selsk. Skr. nye Saml., III, 181, plate, 1788.*Chionoectes opilio* Krøyer, Natur. Tidsskrift (1. r.), p. 249, 1838 (in Gaimard, Voyages en Scandinavie, etc., Crust., pl. 1, 1833). Dana, Crust. U. S. Expl. Exped., 1, p. 38, 1852. Myers, Jour. Linn. Soc. London, XIV, p. 654, 1879. Smith, Trans. Conn. Acad., v, p. 11, 1879, and synonymy. Murdoch, Rept. of the International Polar Expedition to Point Barrow, Alaska, p. 137, 1885, and synonymy. Aurivillius, K. Sv. Vet.-Akad. Handl., 23, 1, p. 46, 1886.*Chionoectes phalanginus* Stimpson, Proc. Boston Soc. Nat. Hist., vi, p. 81, 1857; Jour. Boston Soc. Nat. Hist., vi, p. 149, 1857; Proc. Acad. Nat. Sci. Phila., IX, p. 217, 1857. Lockington, Proc. Cal. Acad. Sci., VI, p. 61, 1876.*Pelopiastus Pallasi* Gœrbecker, Archiv für Naturg., XXVI, 1, p. 105, pl. 1, fig. 1, 1856 (April 1857).

This well known species is represented in the collection by a large series ranging from the fishing banks off Newfoundland northward to Greenland and from the Arctic coast of Alaska southward through Bering Strait and along the eastern and western shores of Bering Sea to the Aleutian Islands, where it is found in abundance, and thence eastward and southward along the Alaskan coast to British Columbia. It ranges in depth from shallow water to 200 fathoms on the Atlantic coast and 121 fathoms on the Pacific. In many of the lots collected by the steamer *Albatross* along the Alaskan peninsula the spines of the ambulatory legs are sharper than in typical specimens. This is, however, the only difference observed.

The largest specimen is from southeastern Alaska (16292) and has a span of 2½ feet with the following dimensions: Length, 127; width, 135; length of cheliped, about 276; length of first ambulatory leg, about 340 millimeters.

Prof. S. L. Smith records this species on the Atlantic coast as far south as off Casco Bay, Maine.

RECORD OF SPECIMENS EXAMINED.

fishing banks off Newfoundland; U. S. Fish Commission steamer *Albatross*, 1885 and 1886:

| C. No. | Spec. No. | Lat. N. | Long. W. | Fath. Temp. | Bottom. | | Date. |
|--------|-----------|----------|----------|-------------|---------|----------------|---------|
| | | | | | Fath. | Materials. | |
| 1282 | 1151 | 47 10 00 | 51 02 00 | 82 | 29.7 | fm. M. bk. S. | June 26 |
| 1283 | 1152 | 47 13 00 | 52 21 00 | 85 | 29.5 | fm. S. | July 12 |
| 1284 | 1153 | 46 23 00 | 52 45 00 | 78 | 29.5 | fm. S. | 7 |
| 1285 | 1161 | 45 47 00 | 51 43 30 | 59 | 30 | fm. S. bk. Sp. | 3 |
| 1286 | 1207 | 47 29 00 | 47 53 30 | 29 | | fm. M. bk. S. | Aug. 13 |

Greenland to Bering Sea and British Columbia:

| C. No. | Locality. | Fathoms. | Material. | Collector. |
|--------|--|----------------|--------------|---------------------------------|
| 1287 | Godhavn, Greenland | | | Fish'n C. S. McClain, U. S. N. |
| 1288 | Greenland | | | Do. |
| 1289 | Wadgat Channel, N. Greenland | | | Do. |
| 1290 | Greenland | | | Copenhagen Museum |
| 1291 | Islands west of Pt. Franklin, Alaska | 15 | S. | U. S. Signal Service. |
| 1292 | Arctic Ocean | | | U. S. R. S. Corwin |
| 1293 | Arctic Ocean | | | Do. |
| 1294 | 60° Polar Hope, Alaska | 25 | | Do. |
| 1295 | 61° 30' to 53° N., 167° 13' to 168° 08' W. | 10-20 | | Do. |
| 1296 | 62° 25' to 28° N., 171° 11' to 20° W. | 61-11 | | Do. |
| 1297 | Bering Straits (types of <i>Ichthyocaris</i>) | | | North Pacific Expl. Exped. |
| 1298 | 61° 12' N., 168° 52' W. | | | Lieut. Geo. M. Stoney, U. S. N. |
| 1299 | 61° 37' N., 165° 19' W. | 12 | | Do. |
| 1300 | 61° 22' N., 168° 45' W. | | | Do. |
| 1301 | Mouth of Port Clarence, Poring Strait | 7-12 | | W. H. Dall |
| 1302 | Port Providence, Siberia | 8-20 | M. | Do. |
| 1303 | Ky-ka Harbor, Alaska | 9-12 | sg. M. | Do. |
| 1304 | Bay of Islands, Adak | 9-15 | S. M. | Do. |
| 1305 | N. Star Bay, Atka | 10-15 | S. | Do. |
| 1306 | Cast. in Bay, Unalaska | Beach | Sil. etc. | Do. |
| 1307 | Boat Anchorage, Captains Bay | | | Do. |
| 1308 | Captains Harbor | 6-10 | | Do. |
| 1309 | Captains Har. bet. S. Flat and W. Hd. | 20 | S. | Do. |
| 1310 | Captains Harbor, inside of ridge | 17-83 | S. M. | Do. |
| 1311 | Captains Harbor, ridge | 60 | S. | Do. |
| 1312 | Captains Harbor, outside of ridge | 25-75 | sg. S. | Do. |
| 1313 | Bladuk Harbor, Unalaska | 10 | Sidingle | Do. |
| 1314 | Bladuk | 14-15 | M. S. | Do. |
| 1315 | Bladuk, off Village | 15 | gy. S. | Do. |
| 1316 | Port Lavashoff, Unalaska | 10-20 | M. Sh. | Do. |
| 1317 | Between Pinnacle and Uklakla | 16 | | Do. |
| 1318 | Unalaska | Beach | | Do. |
| 1319 | Coal Harbor, Unal. | | | Do. |
| 1320 | do | 5 | Sidingle | Do. |
| 1321 | do | 8-9 | S. S. | Do. |
| 1322 | Old Round Island, Coal Harbor | 3-5 | M. | Do. |
| 1323 | Popoff Strait, Shimmagins | | | Do. |
| 1324 | Sarborn Harbor, Nagai | Shoal (waters) | Under stones | Do. |
| 1325 | Chikchi Islands | 20 | M. | Do. |
| 1326 | Chirikik Bay | 7-15 | S. | Do. |
| 1327 | Chigalik Cove, Kudlik | 15-20 | G. | Do. |
| 1328 | Chigalik Cove, Kudlik | 12-15 | M. S. | Do. |
| 1329 | Kuchekmik Bay, Cooks Inlet | 20-60 | sg. M. | Do. |
| 1330 | Port Etchus | 12-18 | | Do. |
| 1331 | Port Anghayis, Yakutat Bay | 6-11 | | Do. |
| 1332 | Sika Harbor | 15 | G. M. | Do. |
| 1333 | Kudlik | | | U. S. Fish Commission. |
| 1334 | Wrangell | | | Dr. W. H. Jones, U. S. N. |
| 1335 | Southwestern Alaska | | | Lieut. Comdr. H. E. Nichols, |
| 1336 | Wrangell | | | U. S. N. |
| 1337 | British Columbia | | | Do. |

Alaska; U. S. Fish Commission steamer *Albatross*, 1888, 1890, and 1891:

| Cat. No. | Station. | Lat. N. | Long. W. | Bottom. | | Date. | Remarks. | |
|----------|----------|----------|-----------|----------|-------------------|--------------------|----------|-----------------|
| | | | | Fathoms. | Temp. — Material. | | | |
| 15472 | H. 1166 | 54 00 00 | 163 45 00 | 45 | 41.7 | fine gy. S. | July 22 | Stomach of cod. |
| 15471 | 2844 | 55 56 00 | 165 40 00 | 54 | 42 | gy. S. | 28 | |
| 15475 | 2847 | 55 01 00 | 164 12 00 | 48 | 42 | fine gy. S. | 31 | |
| 15467 | 2848 | 55 40 00 | 160 48 00 | 110 | 41 | gn. M. | 31 | Abundant. |
| 15469 | 2849 | 55 46 00 | 160 28 00 | 69 | 41.7 | gn. M. | Aug. 2 | |
| 15476 | 2851 | 55 55 00 | 159 52 00 | 25 | 41.8 | gy. S. bk. Sh. | 4 | |
| 15470 | 2852 | 55 15 00 | 159 37 00 | 58 | 41.8 | bk. S. M. | 4 | |
| 15468 | 2855 | 57 00 00 | 153 48 00 | 69 | 44 | gn. M. | 10 | |
| 15826 | 3216 | 54 29 30 | 163 37 00 | 61 | ..... | bk. S. M. | May 21 | Very abundant. |
| 15827 | 3219 | 54 14 00 | 161 25 00 | 59 | 38 | bk. S. G. | 21 | |
| 15828 | 3224 | 54 42 50 | 165 37 00 | 121 | 38.7 | bk. S. G. | 22 | |
| 15829 | 3225 | 54 48 20 | 165 49 00 | 85 | 38.6 | bk. S. | 22 | Abundant. |
| 15830 | 3251 | 57 35 50 | 164 05 00 | 25 | 37.5 | fine gy. S. | June 14 | Do. |
| 15831 | 3252 | 57 22 20 | 164 24 30 | 29 | 41.8 | bk. M. | 14 | Very abundant. |
| 15832 | 3253 | 57 05 50 | 164 27 15 | 50 | 35 | gn. S. | 14 | Do. |
| 15833 | 3255 | 56 31 20 | 164 31 40 | 43 | 37 | gn. M. S. | 14 | Abundant. |
| 15839 | 3256 | 56 18 00 | 164 34 10 | 42 | 35 | gn. M. bk. Sh. | 14 | Do. |
| 15834 | 3257 | 54 49 00 | 165 12 00 | 81 | 39 | gy. S. G. | 24 | Do. |
| 15835 | 3258 | 54 48 00 | 165 13 30 | 77 | 39 | bk. S. G. | 24 | |
| 15836 | 3259 | 54 40 50 | 165 05 30 | 41 | 40.6 | bk. S. G. | 24 | |
| 15837 | 3263 | 55 04 00 | 165 04 00 | 61 | 39.5 | bk. M. | 24 | Do. |
| 15838 | 3272 | 55 31 40 | 163 07 00 | 31 | 42 | bk. rd. S. | 27 | |
| 15839 | 3278 | 56 12 30 | 162 13 00 | 47 | 38.8 | fine gy. S. | 28 | |
| 15840 | 3279 | 56 25 40 | 162 33 15 | 41 | 37 | fine gy. S. | 28 | |
| 15841 | 3280 | 56 27 00 | 162 08 00 | 30 | 41 | fine gy. S. | 28 | |
| 15842 | 3284 | 56 14 00 | 161 41 15 | 30 | ..... | gy. S. bk. Sp. | 28 | |
| 15843 | 3282 | 56 30 45 | 161 54 15 | 75 | 38.2 | fine bk. gn. M. | 29 | Very abundant. |
| 15844 | 3286 | 56 30 50 | 160 23 30 | 37 | 41.5 | fine gy. S. Sh. G. | July 17 | |
| 15845 | 3288 | 56 26 20 | 160 00 00 | 45 | 45.5 | bk. G. | 17 | |
| 15846 | 3306 | 57 24 50 | 161 17 00 | 33 | 38.9 | fine gy. S. | 22 | |
| 15847 | 3309 | 56 50 00 | 172 35 00 | 74 | 37.9 | gn. M. | Aug. 4 | |
| 15848 | 3310 | 53 56 51 | 166 28 50 | 58 | 41.5 | fine bk. S. M. | 15 | |
| 15849 | 3311 | 53 59 56 | 166 29 43 | 85 | 41 | gn. M. | 15 | Do. |
| 15850 | 3312 | 53 59 14 | 166 25 09 | 45 | 43 | fine S. M. | 15 | |
| 15851 | 3313 | 54 01 51 | 166 27 58 | 68 | 42.7 | fine bk. S. | 15 | Abundant. |
| 15852 | 3321 | 53 33 50 | 167 15 40 | 54 | 41.5 | bk. M. | 18 | |
| 15853 | 3333 | 53 53 35 | 166 20 15 | 49 | 43.9 | gn. M. | 22 | Very abundant. |
| 15854 | 3334 | 54 53 20 | 166 29 15 | 59 | 42.6 | M. S. | 22 | |
| 17073 | 3438 | 57 06 30 | 170 22 30 | 29 | ..... | fine gy. S. Sh. | Aug. 3 | |
| 17074 | 3439 | 57 06 00 | 170 25 00 | 41 | 44 | fine bk. S. | 3 | Abundant. |
| 17075 | 3440 | 57 05 00 | 170 41 00 | 48 | ..... | bk. M. Sh. | 3 | |
| 17076 | 3441 | 57 04 20 | 170 52 30 | 51 | 39 | bk. M. Sh. | 3 | |
| 17097 | 3442 | 57 49 00 | 170 47 15 | 47 | 40 | bk. M. Sh. | 3 | |

Chioniceetes tanneri, sp. nov.

Plate IV, Figs. 1-4.

There exists in the deeper waters on the Pacific coast of North America from Bering Sea to the southern extremity of California a species of *Chioniceetes* closely allied to *opilio*, but possessing striking differences.

The carapace is much swollen at the branchial regions, which are distended both vertically and laterally, concealing the lateral margin of the carapace. Between the two branchial regions along the median line there is a deep, narrow, triangular depression which widens out anteriorly and joins the depressions between the gastric and branchial regions. The carapace is covered with spines instead of granules or tubercles. The most conspicuous spines on the carapace are arranged in irregular rows, one of which extends transversely across the anterior part of the gastric region; a second row extends from behind the orbits diagonally backward across the branchial region; a third row extends from near the inner angle of the branchial region almost transversely

to the outer margin, from which point a row of long spines extends forward along the lateral margin and is continued on the pterygostomial regions. This marginal row of long spines, while forming the apparent lateral margin, really overhangs and conceals the real margin. This is a conspicuous difference between this species and *opilio*, in which the branchial region is flattened out so that the postero-lateral margin is visible in a dorsal view to a point just back of the cheliped. From the lateral row of long spines a small row of three or four spines extends up on the carapace near the anterior part of the branchial region. Small, sharp spines border the orbits, the outer margin of the postocular teeth and the infero-lateral and posterior margins.

The rostral horns are longer and narrower than in *opilio*, leaving a widely V-shaped notch between.

The second segment of the abdomen of the male is bent downward at the extremities in almost a right angle. There is a transverse ridge of spiny tubercles on the sternum in front of the abdomen. Anterior to this ridge the sternum is deeply excavated.

The posterior margin of the epistome is strongly deflexed in the center and arched at the sides. The external maxillipeds when in place do not fit closely into the buccal cavity as in *opilio*; merus joints strongly spinose on the margins. On removing the carapace from specimens of *tanneri* and *opilio* of equal size, the gills in the former are seen to be much larger than in the latter, being about two-fifths longer in *tanneri*. There are corresponding differences in the maxillipeds. The scaphognathite of the second maxilla is very much larger (pl. IV, figs. 2 and 5), and also the endopodite of the first maxilliped (figs. 3 and 6). The foliaceous part of the flabellum has about twice the area of the same in *opilio* (figs. 4 and 7).

The legs are armed with spines longer and stouter than those of *opilio*. In adult specimens the ambulatory legs are longer than in *opilio*, especially the merus joints, which are much narrower and in the males do not widen out at the proximal end as in *opilio*. The ambulatory legs of the female are shorter than those of the male, as is the case in *opilio*. In comparing young specimens of both species the difference in the length of the ambulatory legs and in the width of the merus joints is not evident.

The specimen figured is a very large one, in which the spines are more worn and blunt than in medium-sized specimens.

Table of measurements.

| <i>Chionoectes tucayi.</i> | | | | | | <i>Chionoectes opilio.</i> | | | | | | | |
|----------------------------|------|-------------------------------------|------------------------|---|--|--|----------|------|-------------------------------------|------------------------|---|--|--|
| Station. | Sex. | Length, from base of rostral horns. | Width, without spines. | Approximate length of first ambulatory leg. | Length of merus of first ambulatory leg. | Greatest width of merus of first ambulatory leg. | Station. | Sex. | Length, from base of rostral horns. | Width, without spines. | Approximate length of first ambulatory leg. | Length of merus of first ambulatory leg. | Greatest width of merus of first ambulatory leg. |
| | | <i>mm.</i> | <i>mm.</i> | <i>mm.</i> | <i>mm.</i> | <i>mm.</i> | | | <i>mm.</i> | <i>mm.</i> | <i>mm.</i> | <i>mm.</i> | <i>mm.</i> |
| 3101 | ♂ | 119 | 150 | 316 | 131 | 18.5 | 3252 | ♂ | 100 | 117.5 | 217 | 99 | 32 |
| 3307 | ♂ | 105 | 111 | 321 | 133 | 19 | 3253 | ♂ | 94 | 99 | 226 | 93 | 20 |
| 2923 | ♀ | | | | | | 3254 | ♂ | 91 | 91 | 220 | 90 | 17.5 |
| 2980 | ♀ | 73.5 | 89 | 177 | 72 | 19.5 | 3255 | ♂ | 75 | 78 | 183 | 74 | 16 |
| 2923 | ♀ | | | | | | 3256 | ♂ | 69 | 71 | 164 | 68 | 15 |
| 2980 | ♀ | 72.5 | 77 | 187 | 76 | 19 | 2848 | ♂ | 67 | 77.5 | 166 | 67 | 14 |
| 2980 | ♀ | 67.5 | 71.5 | 153 | 63 | 17 | 3319 | ♂ | 67 | 79 | 175 | 72 | 14 |
| 2871 | ♀ | 48 | 50 | 116 | 47 | 4.7 | 3218 | ♂ | 56 | 65 | 125 | 58.5 | 11.5 |
| 3342 | ♀ | 32 | 32 | 82 | 32 | 4.7 | 3311 | ♂ | 32 | 35 | 76 | 30 | 5.5 |
| 2928 | ♀ | 31 | 32.5 | 73 | 29 | 4 | 3256 | ♀ | 30 | 31 | 55 | 30 | 5 |
| 2923 | ♀ | 88 | 95 | 205 | 84 | 14 | 3263 | ♀ | 79 | 90 | 159 | 58 | 16 |
| 3183 | ♀ | 87 | 91 | 190 | 77 | 15 | 3216 | ♀ | 65 | 71 | 142 | 53 | 13 |
| 3188 | ♀ | 89 | 86 | 171 | 68 | 12.5 | 3310 | ♀ | 56 | 64 | 129 | 51 | 11 |
| 2923 | ♀ | 73.5 | 76 | 148 | 58 | 9 | 3311 | ♀ | 30.5 | 34 | 69.5 | 27 | 5.5 |
| 2980 | ♀ | | | | | | | | | | | | |
| 2870 | ♀ | 76.5 | 77 | 180.5 | 70.5 | 12.5 | | | | | | | |
| 3307 | ♀ | 69 | 74 | 162 | 64 | 13 | | | | | | | |
| 3342 | ♀ | 31 | 32 | 77 | 30 | 5 | | | | | | | |

RECORD OF SPECIMENS EXAMINED.

Bering Sea to southern California; U. S. Fish Commission steamer *Albatross*, 1888-1891 (stations arranged from north to south):

| Cat. No. | Station. | Lat. N. | Long. W. | Bottom. | | | Date. | Remarks. |
|----------|----------|----------|-----------|---------|-------|-----------------|----------|-----------|
| | | | | Fath. | Temp. | Materials. | | |
| 15862 | 3308 | 56 12 00 | 172 07 00 | 1625 | 35 | gn. Oz. | Aug. 4 | Abundant. |
| 15863 | 3349 | 55 26 00 | 155 26 00 | 695 | 36.8 | M. | 29 | |
| 15861 | 3307 | 53 55 00 | 170 50 00 | 1033 | 35.4 | gy. Oz. | 3 | |
| 15864 | 3342 | 52 39 30 | 132 28 00 | 1588 | 35.3 | gy. Oz. crs. S. | Sept. 3 | Do. |
| 15478 | 2860 | 51 23 00 | 130 34 00 | 876 | 36.5 | gn. M. | Aug. 31 | Do. |
| 15488 | 3073 | 47 28 00 | 125 15 00 | 477 | 49.2 | gn. M. | June 28 | Do. |
| 15865 | 3344 | 47 29 00 | 125 07 00 | 831 | 36.8 | gn. M. | Sept. 21 | |
| 15485 | 2871 | 46 55 00 | 125 11 00 | 559 | 38.4 | br. Oz. | 23 | |
| 15474 | 2870 | 46 44 00 | 124 32 00 | 58 | 46.5 | rky. | 23 | |
| 15866 | 3346 | 45 30 00 | 124 52 00 | 786 | 37.3 | gn. M. | 22 | |
| 15867 | 3348 | 39 02 40 | 124 06 15 | 455 | 47.6 | fine, gy. S. | 25 | |
| 15868 | 3349 | 38 57 45 | 124 03 05 | 239 | 41.1 | bk. S. | 25 | |
| 15860 | 3100 | 37 43 20 | 122 43 00 | 29 | 59.4 | crs. G. | Mar. 10 | |
| 15489 | 3104 | 37 23 00 | 123 08 00 | 391 | 49.8 | C. | 11 | Do. |
| 15493 | 3112 | 37 08 00 | 122 47 00 | 296 | 41.8 | fine, gy. S. | 12 | |
| 15491 | 3186 | 36 18 57 | 122 05 00 | 328 | 41.3 | bk. S. M. | Apr. 3 | |
| 15492 | 3388 | 36 08 15 | 121 49 49 | 316 | 45 | gn. M. | 3 | |
| 15483 | 2892 | 34 15 00 | 120 33 00 | 287 | 43.1 | yl. M. | Jan. 5 | |
| 15477 | 2980 | 33 49 45 | 119 25 30 | 603 | 38.9 | gn. M. | Feb. 12 | |
| 15482 | 2937 | 33 04 30 | 117 32 00 | 464 | 46.5 | gn. M. | 5 | |
| 15481 | 2928 | 32 47 30 | 118 10 00 | 417 | 41 | bk. S. G. | Jan. 23 | |
| 15484 | 2923 | 32 43 30 | 117 31 30 | 822 | 39 | gn. M. | 19 | Do. |
| 15486 | (2923) | | | | | | | Do. |
| 15487 | 2925 | 32 32 30 | 117 24 00 | 339 | 42.9 | M. | 19 | |
| 15480 | 2929 | 32 27 30 | 117 26 30 | 623 | | gn. M. | 26 | |
| 15479 | 2919 | 32 17 00 | 119 17 00 | 984 | 38 | gy. M. | 17 | |

Herbstia condyliata (Herbst).

Cancer condyliatus Herbst, Natur. der Krabben und Krebse, I, p. 246, pl. XVIII, figs. 99 A, B, 1790.

Herbstia condyliata Milne Edwards, Hist. Nat. Crust., I, p. 302, pl. XIV bis, fig. 6, 1834, and synonymy. Miers, Jour. Linn. Soc. London, XIV, p. 655, 1879; Challenger Rept. Zool., XVII, p. 49, 1886. Aurivillius, K. Sv. Vet.-Akad. Handl., Bd. 23, I, p. 47, 1889.

Naples, Italy; A. M. Norman (14509).

This Mediterranean species has also been recorded from the Canaries and Azores.

Herbstia (Herbstiella) camptacantha (Stimpson).

Herbstia parvifrons Stimpson, Ann. Lye. Nat. Hist. N. Y., VII, p. 185, 1860 (not Randall).

Herbstiella camptacantha Stimpson, op. cit., x, p. 94, 1871.

Herbstia camptacantha A. Milne Edwards, Miss. Sci. au Mexique, pt. 5, I, p. 78, pl. XVIII, fig. 3, 1875.

Mithracus armatus Lockington, Proc. Cal. Acad. Sci., VII, p. 79, 1876.

Herbstia (Herbstiella) camptacantha Miers, Jour. Linn. Soc. London, XIV, p. 655, 1879; Challenger Rept., Zool., XVIII, p. 49, 1886.

The specimens agree very well with Stimpson's description, except that instead of the blunt tooth near the base of the dactyl the edge is minutely serrulate along the gape.

The largest specimen is 13.5 millimeters long and 11 wide.

RECORD OF SPECIMENS EXAMINED.

Catalina Harbor, Cal.; beach (16320); 30 to 30 fathoms, sandy mud (16321); W. H. Dall.

Southern California; W. H. Dall (16322).

San Diego, Cal.; C. R. Orcutt (16323).

Off Magdalena Bay, Lower Cal.; U. S. Fish Commission, 1889.

| Cat. No. | Station. | Lat. N. | Long. W. | Bottom. | | | Date. | Sex. |
|----------|----------|----------|-----------|---------|-------|------------|--------|----------------|
| | | | | Fath. | Temp. | Materials. | | |
| 1636 | 2988 | 24 58 20 | 115 52 30 | 34 | 63.3 | Coralline | Mar. 2 | 1 ♀ with eggs. |
| 1635 | 2989 | 24 58 15 | 115 53 00 | 36 | 64.3 | Coralline | 2 | 1 ♂ |

Previously recorded from Acapulco, Mazatlan, and Cape Saint Lucas.

Cœlocerus grandis, sp. nov.

Plate v.

The carapace is oval-orbicular, very convex, armed with many stout, blunt spines, between the spines smooth, finely punctate; regions distinct. There are six spines on the median line, two on the gastric, one on the genital, two on the cardiac, and one on the intestinal region. There is an additional spine on the gastric region on either side and in advance of the first median spine. There is one spine on the upper

surface of the hepatic region and seven on each branchial region, arranged as follows: Two large, widely separated, in a line with the posterior margin of the gastric region; two near the cardiac region arranged almost longitudinally; two forming almost a parallelogram with the latter; and one near the posterior margin. There are five lateral spines, decreasing in size from the large, strong hepatic spine to the last one on the branchial region. On the right side there is an additional small spine above the last lateral spine.

Rostrum broad, upturned; margin thick, involuted. In the specimen in hand, the end of the rostrum is broken off, as are also the flagella of the antennae. Praeocular tooth prominent. Upper orbital fissure closed at its anterior end. Postocular angle dilated outwardly in a stout tooth. Basal antennal joint thick, broadest posteriorly, bearing two teeth on the orbit and two teeth below these, of which the posterior one points downward, outward, and forward and the anterior one, situated at the antero-exterior angle is very stout, rounded at the end, and projects horizontally forward and slightly inward. In a line with these last two teeth is one below the postocular tooth, pointing downward and another at the angle of the buccal cavity. There are two spines on the subhepatic region, arranged almost longitudinally.

Abdomen of female with a broad carina through the center, a median spine on the first and second segments, and a broad median tubercle on the third. At each end of the second segment there is a broad tubercle, the distal half of which is flattened horizontally.

Chelipeds of the female not so long as the first pair of ambulatory legs. Merus subcylindrical with two or three small spines on the upper surface. Carpus with two or three spiny tubercles. Palms compressed, about twice as long as broad, tapering slightly toward the distal end. Fingers evenly dentate, almost meeting when closed. Ambulatory legs stout, decreasing regularly in length, unarmed except for a tubercle at the upper distal end of the meral joints.

The maxillipeds, lower edge of the carapace, margins of the sternum and abdomen, and especially the anterior portion of the sternum are fringed with long hair. Legs hairy, except the distal two-thirds of the dactyls.

Length of carapace, without rostrum, 98; width, without spines, 87; length of cheliped about 104 millimeters.

One specimen collected by the U. S. Fish Commission steamer *Albatross*, in the Gulf of Mexico, lat. $29^{\circ} 34' 30''$ N., long. $88^{\circ} 01' W.$, 35 fathoms, yellow sand, black specks, station 2388, March 4, 1885 (9694).

Maia squinado (Herbst).

Cancer squinado Herbst, Natur. der Krabben und Krebse, III, part 3, p. 23, pl. LVI, 1803.

Maia squinado Latreille (Hist. Nat. Crust., VI, p. 93; Ency., pl. CCLXXVII, figs. 1 and 2). Milne Edwards, Hist. Nat. Crust., I, p. 327, 1834, and synonymy. Bell, Brit. Crust., p. 39, fig., 1853. Miers, Jour. Linn. Soc. London, XIV, p. 655, pl. XII, figs. 7, 8, 1879. Carrington and Lovett, Zoölogist (3), V, p. 416, 1881.

RECORD OF SPECIMENS EXAMINED.

Cornwall, England; A. M. Norman (15337).
 Channel Islands; Edward Lovett (6548).
 Jersey; A. M. Norman (6773, 6774).
 Greece (14484).
 Locality unknown (15371).

Maia verrucosa Milne Edwards.

Cancer squinado Herbst, op. cit., I, p. 214 (pars), pl. XIV, figs. 84, 85, 1790.
Maia squinado Bose, (Hist. Nat. Crust., t. I, pl. VII, fig. 3?). Andouin, (Crust. de l'Égypte, par M. Savigny, pl. VI, fig. 1).

Maia verrucosa Milne Edwards, Hist. Nat. Crust., I, p. 328, pl. III, 1834. White, Crust. Brit. Mus., p. 8, 1847. Capello, Jour. Sci. Lisboa, p. (2), 1873. Aurivillius, K. Sv. Vet.-Akad. Hand., Bd. 23, 1, p. 47, pl. IV, fig. 2, 1889.

Two male specimens of this Mediterranean species are contained in the collection, with the exact locality unknown; received from Henry A. Ward (16281).

Paramithrax peronii Milne Edwards.

Hist. Nat. Crust., I, p. 324, 1834. White, op. cit., p. 7. Jaquinot et Lucas, Voy. au Pole Sud, Zoöl., III, Crust., p. 10, pl. 1, fig. 3, 1853. Miers, Ann. Nat. Hist., (4), XVII, p. 219, 1876; Jour. Linn. Soc. London, XIV, p. 656, 1879. Haswell, Proc. Linn. Soc., N. S. Wales, IV, p. 440, 1879; Ann. Mag. Nat. Hist. (5), V, p. 146, 1880; Cat. Austral. Crust., p. 13, 1882. Filhol, Bull. Soc. Philom., IX, p. 26, 1885. Aurivillius, K. Sv. Vet.-Akad. Hand., Bd. 23, 1, p. 48, pl. IV, fig. 3, 1889.

Bluff Harbor, New Zealand; three males (16277). New Zealand; Otago Museum, one male (16284).

Found also in Australia.

Paramithrax edwardsii (de Haan).

Maja (*Paramithrax*) *edwardsii* de Haan, Fauna Japonica, p. 92, pl. XXI, fig. 2, 1839.

Paramithrax edwardsii Adams and White, Voy. Samarang, p. 14, 1848.

Paramithrax (*Leptomithrax*) *edwardsii* Miers, Ann. Nat. Hist. (4), XVII, p. 220, 1876.

Japan; H. Loomis; two males (16272).

Miers places this species in the subgenus *Leptomithrax*. The chelipeds, however, are not greatly elongated nor the palm subcylindrical. The carpus is similar in shape to those of *peronii* and *latreillei*, has two ridges, and is spinulose. In the larger specimen the fingers meet along their inner edges when closed; in a specimen about one and a half inches long, they are gaping at base, with a tooth on the dactyl. Our specimens of *longimanus* and *australis* have fingers gaping at base. This, therefore, can not constitute a subgeneric character. *Edwardsii* is allied also by the form of its carapace to the subgenus *Paramithrax*, in which the carapace is oblong ovate, while in *Leptomithrax* the carapace is triangular-ovate. In *edwardsii* the eyes reach the postocular spine, as in *Leptomithrax*.

Paramithrax latreillei Miers.

Paramithrax barbicornis Miers (not Latreille). Ann. Mag. Nat. Hist., (4), xvii, p. 219, 1876 (Cat. Crust. N. Z., p. 6, pl. 1, fig. 2, 1876); Ann. Mag. Nat. Hist., (5), iv, p. 8, 1879. Haswell, Proc. Linn. Soc. N. S. W., iv, p. 440, 1879; Ann. Mag. Nat. Hist., (5), v, p. 146, 1880; Cat. Austral. Crust., p. 43, 1882.

Paramithrax latreillei Miers, Ann. Mag. Nat. Hist., (4), xvii, p. 220, 1876.

Paramithrax cristatus Filhol, Bull. Soc. Philom., ix, p. 26, 1885; (Rec. Venus, iii, Abth. 2, p. 358, 1886).

Filhol (Bull. Soc. Philom.) shows that the specimens which in 1876 Miers referred to *barbicornis* are not identical with that species, and proposes for them the name *cristatus*, apparently not aware that Miers, in his preliminary description (Ann. Mag. Nat. Hist., (4), xvii, p. 219, 1876), designates the species as *latreillei*, if it should prove distinct from Latreille's *barbicornis*.

New Zealand; Otago Museum; two males (16283).

Paramithrax sternocostulatus A. Milne Edwards (*test* Miers).

Paramithrax sternocostulatus A. Milne Edwards. Miers, Ann. Mag. Nat. Hist., (5), iv, p. 9, 1879. Haswell, Proc. Linn. N. S. W., iv, p. 440, 1879; Ann. Mag. Nat. Hist., (5), v, p. 146, 1880; Cat. Austral. Crust., p. 43, 1882.

Paramithrax gaimardii Miers (not Milne Edwards), Cat. Crust. N. Z., p. 6, 1876.

Port Jackson, Australia; Australian Museum, Sydney; male and female (17013).

Found also in New Zealand.

Paramithrax (Leptomithrax) australis (Jacquinot).

Maia australis Jacquinot, in Jacquinot and Lucas, Voy. au Pole Sud, Zool., iii, Crust., p. 11, 1853.

Paramithrax (Leptomithrax) australis Miers, Ann. Mag. Nat. Hist., (4), xvii, p. 220, 1876; (Cat. Crust. N. Z., 1876).

One male specimen has been received from the Otago University Museum, Dunedin, New Zealand (16285). It is 93 millimeters long from the tip of the rostrum and 82.5 wide, without spines. The chelipeds are extremely long, about 223 millimeters; the hands are very long and strong.

Paramithrax (Leptomithrax) longimanus Miers.

Ann. Mag. Nat. Hist., (4), xvii, p. 220, 1876; (Cat. Crust. N. Z., 1876); Jour. Linn. Soc. London, xiv, p. 656, 1879.

Dunedin, New Zealand; Otago Museum; three males (16282).

The specimens do not agree exactly with Miers's description. Midway on the margin of the branchial region is a short, stout, blunt spine curved forward. The carapace is tuberculous rather than granulous. The length of the rostrum is only a little greater than half the width between the pre-orbital angles. Merus and carpus of cheliped tuberculous; manus conspicuously granulous inside, minutely so outside.

Chlorinoides longispinus (de Haan).

Maja (*Chorinus*) *longispina* de Haan, Fauna Japonica, p. 91, pl. xxiii, fig. 2, 1839.
Chorinus longispinus White, Crust. Brit. Mus., p. 123, 1847. Adams and White, Voy. Samarang, p. 12, 1848.
Chlorinoides longispinus Miers, Challenger Rept., Zool., xvii, p. 53, 1886.

Enoshima, Japan; P. L. Jouy (12345). Japan; H. Loomis (16274).

Chlorinoides spatulifer (Haswell).

Paramithrax spatulifer Haswell, Proc. Linn. Soc. N. S. W., vi, p. 540, 1884; Cat. Austral. Crust., p. 11, 1882. Miers, Crust. Alert., p. 191, 1884.
Chlorinoides spatulifer Miers, Challenger Rept., Zool., xvii, p. 52, 1886.

Port Stevens, Australia; Australian Museum, Sydney; one female 17014.

Pisa tetraodon (Pennant).

Cancer tetraodon Pennant (British Zoölogy, iv, pl. viii, fig. 15).
Pisa tetraodon Leach, (Malac. Podoph. Brit., pl. 20, 1815). Milne Edwards, Hist. Nat. Crust., I, p. 305, pl. xiv bis, fig. 1, 1831, and synonymy. Bell, Brit. Crust., p. 22, 1853. Carrington and Lovett, Zoölogist (3), v, p. 358, 1881. Miers, Challenger Rept., Zool., xvii, p. 54, 1886. Aurivillius, K. Sv. Vet.-Akad. Hand., Bd. 23, 1, p. 49, 1889.

Weymouth; A. M. Norman (6329). Channel Islands; Edward Lovett (6549). Locality unknown (16278).

Found also in the Mediterranean, Portugal, the Azores, and Teneriffe, 50 to 90 fathoms, and at Aden.

Pisa (*Arctopsis*) *tribulus* (Linnaeus).

Cancer tribulus Linnaeus (Syst. Nat., ed. 12, p. 1045, 1766).
Pisa gibbsii Leach, Trans. Linn. Soc., xi, p. 327, 1815. Carrington and Lovett, Zoölogist (3), v, p. 360, figs. 1 and 2, 1881.
Pisa (*Arctopsis*) *tribulus* Miers, Challenger Rept., Zool., xvii, p. 55, 1886, and synonymy.

Channel Islands; Edward Lovett (6532). Guernsey; A. M. Norman (6315).

Found in the Mediterranean to 75 fathoms, and ranging to the Cape Verde Islands, 38 fathoms.

LEPTECES, gen. nov.

Carapace subpyriform or triangulate, slightly convex, tuberculous. Preocular spine present. Rostral horns divergent. Orbits with two hiatuses above and one below. Abdomen in both sexes seven jointed. Antennae with a spine at the antero-external angle of the basal joint, the flagellum visible in a dorsal view at the sides of the rostrum. Exterior maxilliped with the antero-external angle produced and rounded, the inner angle notched. Chelipeds more slender than the ambulatory legs; palms very long and slender; fingers meeting along their inner edges. Ambulatory legs of moderate length, the anterior pair much the longer; joints spinous.

Lepteces ornatus, sp. nov.

Plate VI, Fig. 1.

Entire surface, except the hands, granulous. Carapace ornamented with tubercles of two kinds; first and most prominent, raised mushroom-like tubercles, each surmounted by a flat, circular disk, granulous and spinulous on the margins. Tubercles of this character, with disks overlapping, surround the cardiac region and outline the inner margin of the branchial region; there is one on the posterior edge of the gastric, four follow the postero-lateral margin, two are arranged transversely on the intestinal region, while a line of four runs almost transversely across each hepatic region and up on the gastric. There are many additional smaller tubercles of this character. The second variety of tubercle is smaller, but slightly more elevated than the first, spheroidal at the summit, granulous, and surmounted by a few long hairs. There are four such tubercles on the gastric region, two of which are on the median line, six on the branchial region, two or three on the cardiac region, and three on the posterior margin. The entire surface between and beneath the raised tubercles is crowded with stellar granules, varying in size.

The rostrum is composed of two regularly tapering, divergent spines, with long hairs, especially on the inner margins. Preocular spine strongly curved upward, at an angle of about 45° with the rostrum; acute, bearing a few long hairs near the tip.

Basal joint of antenna with the outer margin convex and tuberculous; a stout spine at the antero-lateral angle, pointing forward. Flagellum exceeding the rostrum. Posterior margin of the epistome directed abruptly backward near the center, then turning again almost transversely to form a shallow V at the median line. The depressions between the abdominal segments in the male are continued in grooves on the sternum.

Chelipeds in both sexes weak, slender, much shorter than the first pair of ambulatory legs; merus strongly and irregularly tuberculous; carpus feebly so; hands smooth, extremely slender, tapering to the fingers, which are in contact; prehensile edges finely dentate. Ambulatory legs stout, somewhat angled; anterior pair much the longest, armed with an irregular row of long spines above, a series of shorter spines on the inferior outer margin, and a few scattered spines. Proximal half of dactyls spinulose, extremities horny.

Length, including rostrum, 17; width, 9 millimeters.

Two males and six females of this unique form were collected by the U. S. Fish Commission steamer *Albatross* off Arrowsmith Bank, Yucatan, lat. $20^\circ 59' 30''$ N., long. $86^\circ 23' 45''$ W., 130 fathoms, coral, station 2354, 1885 (9546).

Hyastenus diacanthus (de Haan).

Pisa (*Nacia*) *diacantha* de Haan, Fauna Japonica, p. 96, pl. XXIV, fig. 1, and pl. G, 1839.
Nacia diacantha White, Crust. Brit. Mus., p. 6, 1847. Adams and White, Voy. Samarang, Crust., p. 19, 1848. Stimpson, Proc. Acad. Nat. Sci. Phila., IX, p. 218, 1857. Heller, Reise Fregatte Novara, II, 3, p. 3, 1868. Auriyillius, K. Sv. Vet.-Akad. Handl., Bd. 23, I, p. 51, pl. II, fig. 5, 1889.

Hyastenus diacanthus A. Milne Edwards, Nouv. Arch. de Mus., VIII, p. 250, 1872. Miers (Cat. Crust. N. Z., p. 9, 1876; Proc. Zool. Soc. London, p. 26, 1879; Crust. Mori, pp. 191, 182, 1881; Challenger Rept., Zool., XVII, pp. 56, 57, 1886. Haswell, Proc. Linn. Soc. N. S. Wales, IV, p. 112, 1879; Cat. Austral. Crust., p. 29, 1882. Walker, Jour. Linn. Soc. London, XX, p. 109, 1887. De Man, Arch. f. Naturg., LI, p. 229, 1887. Cano, Boll. Soc. Nat. Napoli (1), III, p. 178, 1889.

Hyastenus vericantii A. Milne Edwards, loc. cit.

Japanese seas; U. S. S. *Palos*; two females (16288, 16289).

Japan; H. Loomis; three males, five females (16273).

Sydney Harbor, New South Wales; William E. Langley (5740).

Distributed throughout the Indo-Pacific region.

Hyastenus caribbeus, sp. nov.

Plate VI, Fig. 2.

Carapace triangular-ovate, with a stout spine on the summit of the posterior portion of the branchial region, and another on the infestinal region just above the posterior margin. Regions distinct. There are three inconspicuous tubercles on the gastric, and one at the inner angle of each branchial region. Carapace covered with a short, close pubescence, with scattered bunches of hair. Rostrum nearly as long as the carapace, entire for about one-fourth its length; horns slender, slightly divergent; margins hairy. Basal antennal joint without a spine. Flagellum not so long as the rostrum.

Chelipeds slender, unarmed; merus subcylindrical; manus long, compressed, narrowest near the carpus, widening slightly to the base of the fingers; dactyl arched, with a tooth near the base; fingers gaping at the base when closed. Ambulatory legs very slender, the first pair longer than the chelipeds.

Length of carapace, exclusive of rostrum, 13; width, 10.5; length of rostrum, 9.5; length of cheliped, about 24 millimeters. A specimen with a total length of 14 millimeters has comparatively a much shorter rostrum and spines than the one described above.

Sabanilla, United States of Colombia; U. S. Fish Commission steamer *Albatross*, 1881; two males (16315). This is the first species of *Hyastenus* recorded from the Atlantic Ocean.

Hyastenus longipes (Dana).

Plate VII.

Chorilla longipes Dana, Amer. Jour. Sci. (2), XI, p. 269, 1851; Crust. U. S. Expl. Exped., I, p. 91, pl. 1, fig. 5, 1852. Stimpson, Jour. Boston Soc. Nat. Hist., VI, p. 155, 1857. Lockington, Proc. Cal. Acad. Sci., VII, p. 69, 1876.

Hyastenus (*Chorilla*) *longipes* Miers, Jour. Linn. Soc. London, XIV, p. 658, 1879; Proc. Zool. Soc., London, p. 27, 1879.

Hyastenus japonicus Miers, Proc. Zool. Soc. London, p. 27, pl. 1, fig. 2, 1879; Challenger Rept., Zool., xvii, p. 56, 1886.

Hyastenus longipes Miers, Challenger Rept., Zool., xvii, p. 56, 1886.

This species ranges from 57° north latitude, off Kadiak, Alaska, to 32° north latitude, off San Diego, Cal., and in depth from 27 to 603 fathoms. It exhibits wide variations from Dana's types, especially in more southern latitudes, where, as a rule, the carapace is very much swollen at the branchial regions, making the width much greater in proportion to the length; the second and third joints of the antennae are much more slender; the hepatic region is furnished with a sharp spine; and, lastly, the tubercles of the carapace are more numerous and some of them spinous. These characteristics, if uniform, would be specific, but the two extremes intergrade to such an extent as to render impossible even a varietal separation. The broad form is with one exception confined to deep water; the typical *longipes* ranges from 27 fathoms in the north to 456 in the south. Variations exist in specimens from the same locality; for example: The broad forms may possess a hepatic spine or a tubercle; the antennal joints are narrow in some individuals and wide in others. Occasional specimens of the narrow form have a sharp hepatic spine. An examination of the branchia of the broad and narrow forms shows that they are larger in the former. Corresponding differences exist in the size of the maxillipeds, the flabella being larger, as well as the scaphognathite of the second maxilla. The endopodite of the first maxilliped, however, which is seen to be so different in the two species of *Chionectes*, is the same size and shape in the two forms of *Hyastenus longipes*.

The width of the typical form ranges from 0.71 to 0.8 of its length; of the wider form, from 0.82 to 0.9 of its length; the length being measured from between the bases of the cornua. The measurements are taken of male specimens, with one exception. In the following tables the stations are arranged from north to south:

Table of measurements.

| Station. | Length of | Width of | Proportion of length to width. |
|----------|------------|------------|--------------------------------------|
| | carapace. | carapace. | |
| | <i>mm.</i> | <i>mm.</i> | |
| 2862 | 21 | 15 | 1: .71 |
| 2862 | 25.5 | 19 | 1: .74 |
| 2882 | 33 | 25 | 1: .76 |
| 3112 | 20 | 15 | 1: .75 |
| 3112 | 28 | 21.5 | 1: .77 |
| 3112 | 19.5 | 15 | 1: .77 |
| 3114 | 18 | 14 | 1: .78 |
| 3126 | 27 | 21.5 | 1: .8 |
| 2960 | 35 | 28 | 1: .8 |
| 2979 | 46 | 41.5 | 1: .9 |
| 2896 | 23 | 18 | 1: .78 |
| 2896 | 18 | 13 | 1: .72 |
| 2980 | 29 | 24 | 1: .83 |
| 2980 | 35.5 | 30 | 1: .84 |
| 2936 | 53.5 | 46 | 1: .86 |
| 2936 | 55.5 | 50 | 1: .9 |
| 2928 | 47 | 40 | 1: .85 |
| 2927 | 31.5 | 26 | 1: .82 |
| 2927 | 38 | 31.5 | 1: .83 |
| 2934 | 28.5 | 23.5 | 1: .82 |

RECORD OF SPECIMENS EXAMINED.

From Kadiak to San Diego; U. S. Fish Commission steamer *Albatross*, 1888-1891:

| Cat. No. | Station. | Lat. N. | Long. W. | Bottom. | | Materials. | Date. | Remarks. |
|----------|----------|----------|-----------|---------|-------|----------------------|----------|---|
| | | | | Fath. | Temp. | | | |
| 15496 | 2855 | 57 00 00 | 153 18 00 | 69 | 44 | gn. M. | Aug. 19 | Typical form. |
| 15497 | 2862 | 56 49 00 | 157 36 30 | 258 | 41.7 | gy. S. P. | Sept. 1 | Do. |
| 15498 | 2877 | 48 33 00 | 124 53 00 | 59 | 45.5 | bk. S. M. | Sept. 25 | Do. |
| 15499 | 2875 | 48 30 00 | 124 57 00 | 27 | 50.2 | R. Sh. | Sept. 24 | Do. |
| 15498 | 2449 | 48 20 10 | 124 40 10 | 135 | ..... | gy. S. G. | Aug. 28 | Do. |
| 15495 | 2454 | 48 27 50 | 124 42 10 | 152 | 41.2 | gy. S. rky. | Sept. 1 | Do. |
| 15494 | 2451 | 48 25 10 | 124 37 50 | 105 | 45 | G. S. | Aug. 28 | Do. |
| 15497 | 2459 | 48 24 20 | 124 24 40 | 123 | 41.5 | gy. S. P. | Sept. 2 | Do. |
| 15498 | 2466 | 48 18 30 | 124 22 00 | 56 | 48.5 | gy. S. Sh. rky. | Sept. 2 | Do. |
| 15499 | 2445 | 48 16 00 | 124 45 05 | 109 | 44 | rky. | Aug. 27 | Do. |
| 15494 | 2865 | 48 12 00 | 122 49 00 | 40 | 51.7 | P. | Sept. 6 | Do. |
| 15493 | 2882 | 46 00 00 | 124 22 50 | 68 | 45.8 | gy. S. | Oct. 15 | Do. |
| 15496 | 2685 | 44 29 30 | 124 17 00 | 42 | 46 | fine. gy. S. | Sept. 2 | Do. |
| 15476 | 2889 | 43 59 00 | 124 56 00 | 46 | 47.7 | C. Sh. | Oct. 19 | Typical form, but with hepatic spine. |
| 15490 | 3050 | 38 58 10 | 122 57 05 | 75 | 48.4 | fine. S. M. | Sept. 25 | Typical form. |
| 15493 | 3112 | 37 08 00 | 122 47 00 | 296 | 41.8 | fine. gy. S. | Mar. 12 | Do. |
| 15512 | 3114 | 37 06 00 | 122 32 00 | 62 | ..... | M. | Mar. 12 | Do. |
| 15511 | 3205 | 36 55 10 | 122 23 50 | 240 | 43.7 | bk. S. R. | Apr. 12 | Do. |
| 15516 | 3126 | 36 49 20 | 122 12 30 | 456 | 52.8 | gn. M. | Mar. 13 | Intermediate in width, otherwise typical. |
| 15577 | 3187 | 36 14 00 | 124 58 40 | 298 | 41.1 | yl. S. M. | Apr. 3 | Typical form. |
| 15511 | 3193 | 35 25 50 | 124 09 10 | 160 | 44.4 | gn. M. | Apr. 5 | Do. |
| 15506 | 2893 | 34 12 30 | 124 32 30 | 145 | 48.6 | fine. gy. S. M. | Jan. 5 | Do. |
| 15508 | 2960 | 34 10 45 | 120 16 45 | 267 | 48 | gn. M. | Feb. 9 | Intermediate in width, otherwise typical. |
| 15507 | 2956 | 33 57 30 | 120 18 30 | 52 | 53.1 | fine. gy. S. R. | Feb. 8 | Typical form. |
| 16031 | 2979 | 33 56 30 | 119 22 30 | 388 | ..... | gn. M. | Feb. 12 | Broad form. |
| 15509 | 2896 | 33 55 30 | 120 28 00 | 376 | 42.8 | yl. M. | Jan. 6 | Typical form. |
| 15502 | 2960 | 33 49 45 | 119 24 30 | 603 | 38.9 | gn. M. | Feb. 12 | Broad form; 9 specimens with hepatic spine, 1 without. |
| 15510 | 2982 | 33 24 45 | 119 07 00 | 178 | 46.7 | S. M. G. | Feb. 13 | Broad form. |
| 15505 | 2937 | 33 04 30 | 117 42 00 | 464 | 46.5 | gn. M. | Feb. 4 | Do. |
| 15514 | 2936 | 32 49 00 | 117 27 30 | 359 | 49 | M. | Feb. 4 | Broad form. Second article of antenna wide in some specimens. |
| 15504 | 2928 | 32 47 30 | 118 10 00 | 417 | 44 | bk. S. G. | Jan. 23 | Do. |
| 15503 | 2927 | 32 43 00 | 117 51 00 | 313 | 43.3 | gn. M. | Jan. 23 | Broad form. Some specimens with hepatic tubercle. |
| 15506 | 2934 | 32 33 30 | 117 46 00 | 36 | 58.2 | gy. S. | Jan. 26 | Do. |

Hyastenus japonicus Miers (*loc. cit.*) is apparently identical with *longipes*, as the length and divergence of the rostral spines, the length of the antennal spines, and the spines on the merus are variable characters in *longipes*.

Hyastenus, sp.

Two small and immature specimens from Lower California have been referred to this genus. The species is distinct from *longipes*, but its characters can not be distinctly determined without larger and more numerous specimens. The surface is pubescent. As in *longipes* the carapace is tuberculous and spinulous, but broader anteriorly. The epibranchial spine is slender. There is a prominent hepatic spine as in the southern form of *longipes*; the postorbital spine is slender and between it and the hepatic spine there is a shorter subhepatic spine visible from above. Præorbital spine present. The front is broader than in *longipes*, the slender rostral horns not so divergent, fringed with long hairs on the inner margin. Basal antennal joint with a slender

spine at the antero-external angle, and a spinule further back on the margin. The larger specimen, a female, has slender chelipeds; merus and carpus spinuliferous, as is also the manus on the upper margin near the carpus. Ambulatory legs slender; meral joints spinulous above, dactyli spinulous beneath.

Length, including rostrum, 8; width 4.5 millimeters. The smaller specimen is only 5 millimeters long.

Lat. 24° 58' 15" N., long. 115° 53' W., 36 fathoms, temperature 64.3°, coralline; station 2989, U. S. Fish Commission steamer *Albatross*, 1888 (17380).

Naxia robillardi Miers.

Proc. Zool. Soc. London, p. 330, pl. xx, fig. 1, 1882; Challenger Rept., Zool., XVII, pp. 60, 61, 1886; Pöeck, Ann. Mus. Nat. Hist., 6., v., p. 79, 1890.

Mauritius; H. A. Ward: one female (16316). This species has been taken, at 30 fathoms, off Mauritius.

Scyra acutifrons Dana.

Amer. Jour. Sci., 2., XI, p. 139, 1851; Cruise, U. S. Expl. Exped., 1, p. 95, pl. II, fig. 2, 1852; Stimpson, Jour. Boston Soc. Nat. Hist., VI, p. 155, 1857; Lockington, Proc. Cal. Acad. Sci., VII, p. 69, 1876; Miers, Jour. Linn. Soc., London, XIV, p. 663, 1879; Challenger Rept., Zool., XVI, p. 62, 1886; Smith, Rept. Geol. Survey Canada for 1878-79, p. 210 B (1880).

A large series of specimens serves to confirm Prof. Smith's supposition that Dana's description was based on immature individuals. In large males the carapace is very nodulous, the rostrum wide, and the chelipeds strongly developed. In females the regions are much less elevated, the gastric region evenly rounded, without tubercles.

RECORD OF SPECIMENS EXAMINED.

Kadiak, Alaska; W. G. W. Hartford (14801).

Victoria, B. C.; Dr. C. F. Newcombe (15793).

Port Orchard, Puget Sound; O. B. Johnson (14966).

Puget Sound; D. S. Jordan (33099).

Monterey, Cal.; D. S. Jordan (16291); Dr. Canfield (3419).

Southern California; W. H. Dall (16290).

From Vancouver Island to Santa Barbara, Cal.; U. S. Fish Commission steamer *Albatross*, 1888-1890:

| Cat. No. | Station. | Lat. N. | Long. W. | Bottom. | | Date. |
|----------|----------|----------|-----------|------------|-------|--------------------------|
| | | | | Fath. | Temp. | |
| | | | | Materials. | | |
| 16344 | 3881 | 49 00 00 | 125 48 00 | 34 | 52.3 | gy. S. Sept. 26 |
| 16345 | 3879 | 48 55 00 | 125 53 00 | 34 | 50.3 | Rocks 26 |
| 16620 | 3874 | 48 50 00 | 124 57 00 | 37 | 50.3 | R. Sh. 24 |
| 15513 | 3121 | 36 55 10 | 122 04 00 | 21 | 52.3 | rky Mar. 15 |
| 16341 | 3961 | 51 22 45 | 119 40 30 | 21 | ..... | gm. M. Feb. 11 |
| 16342 | 3969 | 51 20 40 | 119 37 45 | 26 | 52.0 | gy. S. P. St. 11 |

Following out the suggestion of Mr. Miers, I have placed *Scyra umbonata* Stimpson among the Inachidae.

Eurynome aspera (Pennant).

Cancer asper Pennant (Brit. Zool., iv, t. x, f. 3, p. 13).

Eurynome aspera Leach (Malac. Brit., t. xvii, 1815). Guérin, Icon. Règne Anim., II, pl. vii, fig. 4. Milne Edwards, Hist. Nat. Crust., t. i, p. 351, pl. xv, fig. 18, 1831, and synonymy. Bell, Brit. Crust., p. 16, fig., 1853. Miers, Jour. Linn. Soc. London, xiv, p. 659, 1879. Carrington and Lovett, Zoologist (3), v, p. 118, 1881. Scott, 6th Ann. Rept. Fishery Board for Scotland, pt. iii, p. 256, 1888. Aurivillius, K. Sv. Vet.-Akad. Handl., Bd. xxiii, t. i, p. 51, pl. 1, figs. 7, 8, 1889. Cano, Boll. Soc. Nat. Napoli (1), iii, p. 178, 1889. Osorio, Jour. Sci. Lisboa (2), t. i, p. 53, 1889.

Eurynome spinosa Hailstone, Mag. Nat. Hist., viii, pp. 549, 638, 1835.

Guernsey; A. M. Norman (6314). Channel Islands; Edward Lovett (6567).

Recorded from the British Isles, France, and the Mediterranean.

Pelia mutica (Gibbes).

Pala nautica Gibbes, Proc. Amer. Assoc. Adv. Sci., iii, p. 171, 1859.

Pelia mutica Stimpson, Ann. Lyc. Nat. Hist. N. Y., vii, p. 177, 1860. Smith, Rept. U. S. Commr. of Fisheries for 1871 and 1872, p. 548 (1871). A. Milne Edwards, Miss. Sci. au Mexique, pt. 5, t. i, p. 73, pl. xvi, fig. 2, 1875. Kingsley, Proc. Acad. Nat. Sci. Phila., xxxi, p. 385, 1879.

I find this species extremely variable in the divergence of the rostrum and in the antero-external angle of the basal joint, which is sometimes unarmed and sometimes armed with a small spine. The species ranges from Vineyard Sound to the west coast of Florida, and the more northern specimens, that is, from Vineyard Sound to Beaufort, are those most likely to present the antennal spine, while the southern forms have usually a blunt angle at that point. There is no constancy in this occurrence, however, and no accompanying characteristic that is invariable.

RECORD OF SPECIMENS EXAMINED.

Vineyard Sound, Mass., low water to 12 fathoms; U. S. Fish Commission.
Virginia (Union College Coll.).

Beaufort, N. C. (Union College Coll.).

Caldogue Sound, S. C.; U. S. Fish Commission (16350, 16773).

Florida:

Florida Bay (Union College Coll.).

Marco; H. Hemphill (16999).

Charlotte Harbor; W. H. Dall (17002).

Sarasota Bay; H. Hemphill (16208).

Goodland Point; H. Hemphill (17000).

Cedar Keys; Lient, J. F. Moser, U. S. Navy (16207); H. Hemphill (6119), on coral, one fathom (17001).

Pelia rotunda A. Milne Edwards.

Miss. Sci. au Mexique, Pt. 5, t. i, p. 74, pl. xvi, fig. 4, 1875.

Two males from off the Rio de la Plata, one in lat. 36° 42' S., long. 56° 23' W., 11½ fathoms, sand, broken shells, station 2764, U. S. Fish Commission steamer *Albatross*, 1888 (16317), and the other in lat. 36° 47' S., long. 56° 23' W., 10½ fathoms, sand, broken shells, station 2766 (17321).

A. Milne Edwards records this species in the text as *rotunda*, while in the description of the figure it is designated as *rotundata*. The types are from off Patagonia and Brazil.

In characterizing the two specimens at hand, I have compared them with specimens of *mutica* of equal length from South Carolina, and have made the following observations: The width at the branchial regions is the same, but *rotunda* is wider at the hepatic regions. The gastric and cardiac regions are a little more swollen in this species. The rostrum is the same length in both species, but in *mutica* the horns are strongly divergent, while in *rotunda* the outer margins are subparallel. The rostrum is more deflexed and wider at the base in *rotunda* and there is a corresponding width underneath across the basal antennal joints. The fingers do not differ essentially from those of *mutica*. It is very probable that a large series of specimens of *rotunda* would show that the above-mentioned characters are not constant, but offer individual variations as in *mutica*.

Pelia pacifica A. Milne Edwards.

Miss. Sci. au Mexique, Pt. 5, 1, p. 73, pl. XVI, fig. 3, 1875.

RECORD OF SPECIMENS EXAMINED.

California:

Catalina Harbor; W. H. Dall (16204).

Southern California; W. H. Dall (16203); many specimens.

San Diego, 10 fathoms; H. Hemphill (6385). C. R. Orcutt (16205, 16206); Ross Smith (16998).

Gulf of California; U. S. Fish Commission, 1889:

Off Adair Bay, Mexico, lat. 31° 22' N., long. 114° 07' 45" W., 17 fathoms, gravel, broken shells, temperature 65.2°, station 3026 (16319); one female, with rostral horns a little more divergent than in typical specimens, but otherwise corresponding.

The types are from the Bay of Panama.

Pelia. sp.

Much like *pacifica*. The single male specimen, however, has chelipeds very strongly developed. Manus wide and swollen, fingers arched. The first ambulatory leg is longer than in *pacifica*, the merus joint nearly reaching the extremity of the rostrum; the penult joint is longer and more slender than in *pacifica*. The rostrum has its horns converging, but is deformed, as the two sides are of unequal length.

Off Magdalena Bay, Lower California, lat. 24° 58' 15" N., long. 115° 53' W., 36 fathoms, coralline, temperature 64.3°; station 2989, U. S. Fish Commission steamer *Albatross*, 1889 (16348).

Nibilia erinacea A. Milne Edwards.*

Herbstia Schramm (Crust. de la Guadeloupe, p. 17, pl. VII, fig. 23, 1867).

Nibilia erinacea A. Milne Edwards, Miss. Sci. au Mexique, Pt. 5, 1, p. 133, pl. XXV 1878. Smith, Rept. Commur. of Fisheries for 1885, p. 627 (1887).

**Nibilia armata* A. Milne Edwards belongs properly among the Inachidae.

RECORD OF SPECIMENS EXAMINED.

Off Cape Hatteras, N. C., and Gulf of Mexico; U. S. Fish Commission steamer *Albatross*, 1884-1885:

| Cat. No. | Sta- tion. | Lat. N. | Long. W. | Bottom | | Date. | Sex. | |
|----------|---------------|----------|----------|--------|-------|-----------------|------------|----------|
| | | | | Fath. | Temp. | | Materials. | ♂ |
| 2256 | 2501 | 35 41 30 | 75 05 00 | 59 | 75 | crs. S. bk. sp. | Oct. 21 | 1 ♀ |
| 14991 | 2505 | 35 0 00 | 75 05 50 | 61 | | gy. S. bk. Sh. | 17 | 1 ♀ |
| 9688 | 2586 | 29 15 00 | 68 06 00 | 66 | 61.8 | br. M. | Mar. 4 | 1 young. |

With eggs.

Recorded from the Caribbean Sea.

Schizophrys aspera (Milne Edwards).

Mithrac asper Milne Edwards, Hist. Nat. Crust., t. p. 320, 1831. Dana, Crust. U. S. Expl. Exped., t. p. 97, pl. 11, fig. 4, 1852.

Maja (Dione) affinis de Haan, Fauna Japonica, Crust., p. 91, pl. XXII, fig. 4, 1839. Adams and White, Voy. Samarang, p. 15, 1818. Stimpson, Proc. Acad. Nat. Sci. Phila., IX, p. 218, 1857.

Schizophrys serratus White, Crust. Brit. Mus., p. 9, 1817; Proc. Zool. Soc., London, XV, p. 223, fig., 1817; Ann. Mag. Nat. Hist. (2), II, p. 283, fig., 1848. Adams and White, op. cit., p. 16.

Schizophrys spiniger White, loc. cit. Adams and White, op. cit., p. 17.

?? *Mithrac quadridentatus* Mac Leay, in Smith, Annulosa, Zool. South Africa, p. 58, 1849.

Schizophrys affinis Stimpson, Amer. Jour. Sci., XXIX, p. 133, 1860.

Schizophrys aspera Stimpson, loc. cit. A. Milne Edwards, Nouv. Arch. Mus. Hist. Nat., VIII, p. 231, pl. X, figs. 1-1 f, 1872. Miers, Jour. Linn. Soc. London, XIV, p. 660, 1879; Crust. H. M. S. Alert, p. 197, 1884; Challenger Rept., Zool., XVII, p. 67, 1886. Haswell, Proc. Linn. Soc. N. S. W., IV, p. 417, 1879; Ann. Mag. Nat. Hist. (5), V, p. 147, 1880; Cat. Austral. Crust., p. 22, 1882. De Man, Jour. Linn. Soc. London, XXII, p. 20, 1887; Archiv für Natur., LIII, p. 226, 1887. Walker, Jour. Linn. Soc. London, XX, p. 113, 1887. Aurivillius, op. cit., p. 51. Cano, op. cit., p. 179.

Schizophrys serrata Stimpson, loc. cit.

Schizophrys spinigera Stimpson, loc. cit.

Mithrac spinifrons A. Milne Edwards, Ann. Soc. Entom. France (4), VII, p. 263, 1867.

Mithrac affinis Capello, Jor. Sci. Lisboa, p. 261, pl. IIIA, fig. 4, 1871.

Mithrac (Schizophrys) triangularis Kossmann, (Crust. Reise Küsten. Rothen Meeres, pp. 11, 13, 1887).

M. (S.) triangularis var. *africanus* Kossmann, (op. cit., pp. 11, 14).

M. (S.) triangularis var. *indicus* Kossmann, (loc. cit.).

Japan; H. Loomis; four males and one female (16319) of the typical form, and corresponding to the figure by de Haan.

Samoa; H. A. Ward; one male and one immature female (16318) of the variety *spinifrons* (A. Milne Edwards).

This species is widely distributed throughout the Indo-Pacific region.

Pseudomicippa ? *varians* Miers.

Ann. Mag. N. H. (5), iv, p. 12, pl. ix, fig. 8, 1879; Crust. Alert, pp. 182, 197, 1881; Challenger Rept., Zool., xvii, p. 68, 1886.

Port Jackson, Australia; Australian Museum; one female (17015).

Micippa mascarenica (Leach).

Micippa philypa Leach (not Herbst), Zool. Misc., iii, p. 16, 1817. Guérin, Icon. Crust., pl. viii bis, fig. 1. Milne Edwards, Hist. Nat. Crust., t. p. 330, 1831. Adams and White, Voy. Samarang, p. 15, 1818. A. Milne Edwards, Nonv. Arch. Mus. Hist. Nat., viii, p. 239, pl. xi, fig. 2, 1872. Richters, in Mëllin (Meeresfauna Mauritius u. Seychellen), p. 143, pl. xv, figs. 6, 7, 1880. Miers, Crust. Alert, pp. 198, 182, 1881.

Micippa philypa var. *mascarenica* Kossmann, op. cit., p. 7, pl. iii, fig. 2. Lenz and Richters, Abh. Senck. Natur. Ges., xii, p. 121, 1881. Miers, op. cit., p. 525.

Micippa saporelliosa Haswell, Proc. Linn. Soc. N. S. W., iv, p. 116, pl. xxvi, fig. 2, 1879; Ann. Mag. N. H. (5), v, p. 117, 1880; Cat. Austral. Crust., p. 25, 1882, var. Miers, op. cit., p. 199.

Paramicippa asperidactylus Miers, op. cit., pp. 525, 517, var.

Micippa mascarenica Miers, Ann. Mag. Nat. Hist. (5), xv, p. 7, 1885; Challenger Rept., Zool., xvii, p. 69, 1886. Walker, Jour. Linn. Soc., London, xx, p. 169, 1887.

Mauritius; H. A. Ward; one male specimen of the typical form (16317). Length to base of rostrum, 18 millimeters; width, 16; length of rostrum, 9; length of cheliped, about 20; length of first ambulatory leg, about 22 millimeters.

Chelipeds smooth, covered with indistinct, light-colored spots. Palm slightly compressed, not dilated. Fingers with a very narrow hiatus at base when closed.

A common East Indian species.

Micippa spinosa Stimpson.

Micippa spinosa Stimpson, Proc. Acad. Nat. Sci. Phila., ix, p. 218, 1857. Haswell, Cat. Austral. Crust., p. 26, 1882. Miers, Ann. Mag. N. H. (5), xv, p. 8, 1885; Challenger Rept., Zool., xvii, p. 70, pl. viii, fig. 2, 1886.

Paramicippa spinosa Miers (Cat. Crust. N. Z.), p. 9, 1876; Crust. Alert, pp. 182, 199, 1884. Haswell, Proc. Linn. Soc. N. S. W., iv, p. 117, 1879; Ann. Mag. N. H. (5), v, p. 117, 1880.

Port Jackson, Australia; two males and two females; Australian Museum, Sydney (17016).

Inhabits New Zealand also.

Micippa thalia aculeata (Bianconi).

Pisa (*Micippa*) *thalia* de Haan, Fauna Japon., Crust., p. 98, pl. xxiii, fig. 3, and pl. G, 1839 (non *Cancer thalia* Herbst).

Micippa aculeata Bianconi (Mem. Accad. Bologna, iii, p. 103, pl. x, fig. 2, 1851); Hilgendorf, Monats. K. Akad. Wiss. Berlin, p. 786, 1878.

Micippa haanii Stimpson, Proc. Acad. Nat. Sci., Phila., p. 217, 1857; de Man, Jour. Linn. Soc. London, xxii, p. 20, 1887.

Micippa thalia var. *aculeata* Kossmann, (Malac. in Zool. des R. Meeres, p. 8, pl. iii, fig. 5, 1877); Miers, Ann. Mag. N. H. (5), xv, p. 11, 1885.

Micippa thalia var. *haanii* Miers, Crust. Alert., pp. 524, 517, 1881.

Japan; H. Loomis. Recorded also from Chinese Seas and Indian Ocean.

LIST OF SPECIES OF MAHDIÆ NOT REPRESENTED IN THE COLLECTION OF THE U. S. NATIONAL MUSEUM.

EASTERN ATLANTIC OCEAN.

| | |
|--|---|
| <i>Herbstia orata</i> (Stimpson) | Cape Verde Islands, 20 fathoms |
| <i>rubra</i> A. Milne Edwards | Cape Verde Islands |
| <i>violacea</i> (A. Milne Edwards) | Cape Verde Islands; West Africa; etc. |
| <i>erythra</i> Rochebrune | Senegambia |
| <i>baucayi</i> Ozorio: <i>Fide</i> Archiv für Naturg., 11, 2, 1889 | Eastern Atlantic |
| <i>Mala galziana</i> Oliviera | Portugal |
| <i>Plagodes antennarius</i> A. Milne Edwards | St. Vincent |
| <i>Pisa barbicornis</i> Herbst | Mediterranean; Aden; also East Indies (Herbst) |
| <i>crinitum</i> Miers | Canaries; Senegambia |
| <i>Scaphopops albatoma</i> Latreille | Mediterranean; also East Indies (Adams and White) |

EAST COAST OF AMERICA.

| | |
|---|--|
| <i>Herbstia</i> (<i>Herbstiella</i>) <i>depressa</i> Stimpson | St. Thomas, Brazil, 30 to 350 fathoms |
| <i>Calocanus spinosus</i> A. Milne Edwards | Florida, 49 fathoms |
| <i>Opiopisa spinipes</i> A. Milne Edwards | Florida Straits, deep water |
| <i>Pisa antilocapra</i> Stimpson | Off Florida, 52 to 118 fathoms |
| <i>pratonga</i> Stimpson | Off Florida, 118 to 121 fathoms |
| <i>crinacea</i> A. Milne Edwards | Florida Straits, 37 fathoms |
| <i>Notolepas brasiliensis</i> Miers | Bahia, 7 to 20 fathoms |
| <i>Rochinia gracilipes</i> A. Milne Edwards | Cape Corrientes; mouth Rio Negro, 30 fathoms; near Patagonia, 11 fathoms. |
| <i>Tomnomolus granulatus</i> A. Milne Edwards | Barbados, 100 fathoms |
| <i>simplex</i> A. Milne Edwards | Barbados, 100 fathoms |

WEST COAST OF NORTH AMERICA.

| | |
|--|---|
| <i>Chorilibinia angusta</i> Lockington | Gulf of California |
| <i>Herbstia pubescens</i> Stimpson | Manzanillo, Mexico |
| (<i>Herbstiella</i>) <i>tumida</i> (Stimpson) | Manzanillo, Mexico |
| (<i>Herbstiella</i>) <i>parvifrons</i> Randall | West Coast of America, Cape St. Lucas |
| <i>Notolepas lamellatus</i> Stimpson | Panama; Manzanillo |

WEST COAST OF SOUTH AMERICA.

| | |
|--|---|
| <i>Chionoetes chilensis</i> Streets | Chile |
| <i>Herbstia pyriformis</i> (Bell) | Galapagos Islands |
| (<i>Herbstiella</i>) <i>edwardsii</i> (Bell) | Galapagos Islands |
| <i>Pisoides edwardsii</i> Bell | Panama; Galapagos Islands; Chile; Straits of Magellan |
| <i>Pelia pulchella</i> Bell | Galapagos Islands |

EAST INDIAN REGION.

| | |
|--|---|
| <i>Egeria arachnoides</i> (Rumph) | Australian, Indian, Malaysian, and Chinese seas, to 49 fathoms. |
| <i>Chorilibinia gracilipes</i> Miers | N. and NE. Australia; New Guinea |
| <i>Herbstia crassipes</i> (A. Milne Edwards) | Australia |
| <i>Mala spinigera</i> de Haan | Japan; East Indies |
| <i>edwardsii</i> Walker | Singapore |
| <i>rossii</i> Audouin | Egypt |
| <i>Paralichthys ursus</i> (Herbst) | "South Sea" |
| <i>verrucosipes</i> (Adams and White) | Eastern seas |
| <i>barbicornis</i> (Latreille) | Australia; New Holland |

| | | |
|---|-------|---|
| <i>Paramithrax gaimardii</i> Milne Edwards | ..... | New Zealand |
| <i>spinosus</i> Miers | ..... | Norfolk Island |
| <i>minor</i> Philhol. | ..... | Cook Strait, New Zealand |
| (<i>Leptomithrax</i>) <i>australicus</i> Miers | ..... | Tasmania |
| (<i>Leptomithrax</i>) <i>brevicastris</i> Miers | ..... | Locality unknown |
| (<i>Leptomithrax</i>) <i>compressipes</i> Miers | ..... | Canton |
| (<i>Leptomithrax</i>) <i>spinulosus</i> Haswell | ..... | Tasmania; King George's Sound |
| <i>Chlorinoides longispinus bituberculatus</i> Miers | ..... | Aniwaite and Providence groups, 19 to 22 fathoms |
| <i>acanthonotus</i> (Adams and White) | ..... | Borneo |
| <i>aculeatus</i> (Milne Edwards) | ..... | Seas of Asia |
| <i>aculeatus armatus</i> (Miers) | ..... | N. and NE. Australia, 3 to 11 fathoms |
| <i>halimoides</i> (Miers) | ..... | Oriental seas |
| <i>coppingeri</i> (Haswell) | ..... | N. and E. Australia; Japan |
| <i>tenuirostris</i> (Haswell) | ..... | Torres Strait |
| <i>filholi</i> (A. Milne Edwards) | ..... | Stewart Island |
| <i>Acanthophrys cristimanus</i> A. Milne Edwards | ..... | Noukabiwa; Marquesas |
| <i>paucaispina</i> Miers | ..... | Ovalau, Fiji Islands |
| <i>Pisa brevicornis</i> A. Milne Edwards | ..... | Madagascar |
| <i>acutifrons</i> A. Milne Edwards | ..... | Zanzibar |
| <i>Hypstenus aries</i> (Latreille) | ..... | Coronandel |
| <i>spinosus</i> A. Milne Edwards | ..... | Archipel Viti; Mozambique |
| <i>scha</i> White | ..... | Philippines; Amboina; Indian Ocean |
| <i>planicius</i> (Adams and White) | ..... | Chinese Seas; N. and NE. Australia; Singapore. |
| <i>plione</i> (Herbst) | ..... | Oriental Seas; Mergui Archipelago |
| <i>orger</i> A. Milne Edwards | ..... | Philippines; Australia; New Caledonia; Singapore; Providence Island. |
| <i>gracilirostris</i> Miers | ..... | Fiji Islands |
| <i>oratus</i> (Dana) | ..... | Sandwich Islands; African or Eagle Islands, 10 fathoms; Poivre Island or Isle des Roches. |
| <i>sinope</i> Adams and White | ..... | China Sea; Philippine Islands |
| <i>concerus</i> Miers | ..... | Port Moller, N. E. Australia, 14 fathoms |
| <i>hilgendorfi</i> de Man | ..... | Mergui Archipelago |
| <i>brockii</i> de Man | ..... | Amboina |
| <i>tennicornis</i> Pocock | ..... | China Sea, 25 to 30 fathoms |
| <i>fascicularis</i> (Krauss) | ..... | Natal |
| <i>Lepidonaria defilippii</i> Fargioni-Tozzetti | ..... | Java |
| <i>Scyra compressipes</i> Stimpson | ..... | Japan, 6 to 50 fathoms |
| <i>Naxia serpulifera</i> Milne Edwards | ..... | N. and W. Australia |
| <i>hirta</i> A. Milne Edwards | ..... | East Africa; Indian Ocean |
| <i>hystrix</i> Miers | ..... | Moluccas, Amboina, 100 fathoms |
| <i>elegans</i> (Miers) | ..... | Near Ki Islands, 140 fathoms |
| <i>taurus</i> Pocock | ..... | China Sea, 32 fathoms |
| <i>Micippoides angustifrons</i> A. Milne Edwards | ..... | Fiji |
| <i>longimanus</i> Haswell | ..... | Port Jackson, Australia |
| <i>Eurynome longimana</i> Stimpson | ..... | Cape of Good Hope, 10 fathoms |
| <i>crasa</i> A. Milne Edwards | ..... | Samoa |
| <i>stimpsonii</i> Miers | ..... | Providence Reef, Mascarenes |
| <i>Schizophrys dama</i> (Herbst) | ..... | ?W. Australia; ?America |
| <i>Cyclax perryi</i> Dana | ..... | Pitts Island, Kingsmill Group |
| <i>spinicinctus</i> Heller | ..... | Red Sea |
| (<i>Cyclonaiia</i>) <i>suborbicularis</i> (Stimpson) | ..... | Gaspar Straits |
| (<i>Cyclonaiia</i>) <i>margaritata</i> A. Milne Edwards | ..... | W. Australia; New Caledonia; Sandwich and Viti Islands. |

| | |
|--|--|
| <i>Euplocerinus superciliosus</i> Milne Edwards..... | New Caledonia |
| <i>Pagurus armatus</i> A. Milne Edwards..... | New Caledonia |
| <i>Palaemonippa nodosa</i> Heller..... | Red Sea |
| <i>longipes</i> A. Milne Edwards..... | Indian Ocean |
| <i>Melippa cristata</i> (Linné)..... | Indo-Malaysian Seas; Philippine Islands; Java |
| <i>philyra</i> (Herbst)..... | Indo-Pacific; Red Sea |
| <i>thalia</i> (Herbst) typical..... | Indo-Pacific; Red Sea; Natal |
| <i>thalia miliaris</i> (Gerstaecker)..... | Red Sea |
| <i>spinosa affinis</i> Miers..... | Bass Strait; East Moneour Island; New Zealand to 38 fathoms. |
| <i>cartispina</i> Haswell..... | N. and NE. Australia; Singapore |
| <i>Palaemonippa tuberculosa</i> Milne Edwards..... | S. Australia |

EXTRACT FROM AN UNPUBLISHED REPORT OF DR. WILLIAM STIMPSON,
ON THE CRUSTACEA OF THE NORTH PACIFIC EXPLORING EXPEDITION,
1853 TO 1856.

Leptopus longipes* (Herbst) Latreille.

Canis longipes Herbst (non Lin.).

Leptopus longipes Latreille; Guérin, Icon., pl. x, fig. 3.

Egeria herbstii Milne Edwards, Hist. Nat. des Crust., t. p. 292.

Egeria longipes Adams and White, Voy. Samarang, Crust., p. 7.

Among a large number of examples of this species collected by the expedition there are two adult males which differ so much in the size and character of the chelopoda from the specimens ordinarily found and those hitherto figured and described, that they might well be taken for a distinct species. The carapax of one of these specimens is 1 inch long and 0.85 inch broad. Proportion of breadth to length, 1 : 1.17. The chelopoda are large and robust, 1.8 inches in length. Hands much inflated; fingers gaping posteriorly; movable one with a large tooth at its inner base.

In nine-tenths of the male specimens taken, many of which are at least two thirds as large as that above described, the hands are slender and weak, like those of the female; this (immature) form is that represented by Guérin's figure. In the sterile females, which occurred in equal numbers with the ordinary females and the males, the abdomen is flattened and only two-thirds as wide as the sternum.

In all of our specimens the preorbital tooth is very small; the orbits are interrupted above by two deep fissures, and below by one wide fissure divided into two by a small tooth. The projections of the carapax are rather tubercles than spines. In color, the body is light reddish above, mottled with white; below, white; feet, whitish annulated with red. The figure given by Milne Edwards in the "Règne Animal" is less characteristic of our specimens than that of Guérin.

Dredged in the Harbor of Hong Kong, China, on a muddy bottom, at the depth of 6 fathoms.

* A synonym for *Egeria arachnoides* (Rumph.).—M. J. R.

Chionæctes Behringianus Stimpson.

Chionæctes Behringianus Stimpson, Proc. Bost. Soc. Nat. Hist., vi, 81, Feb., 1857;
Bost. Jour. Nat. Hist., vi, 449, 1857.

Peloplastus Pallasii Gerstaecker, Archiv für Naturgeschichte, xxii, 105, Taf. 1, fig. 1.

Gerstaecker has given an excellent figure of this species in the Archiv für Naturgeschichte for 1856, but his paper does not appear to have been published before April, 1857; our name has therefore priority. The entomologist of Berlin does not seem to have been acquainted with Krøyer's genus *Chionæctes*, to which the species certainly belongs; in fact it is most closely allied to the type *C. opilio*.

This species was found in Behring Straits, and northward as far as the expedition penetrated; many specimens having been dredged by Capt. Rodgers. It also occurred to southward of the straits, as far as Mavi Island. It is found only in deep water, and on bottoms more or less muddy. In a living state it was of a light brick-red color above, often iridescent; below, yellowish-white; sides of feet shining white. The posterior feet are short. The dimensions of the carapax of a large female are—length, 2.57; breadth, 2.72 inches.

In Gerstaecker's figure the surface of the carapax posteriorly, and the upper sides of the ambulatory feet, are represented as much more rugose than in any of our specimens.

Chionæctes is evidently nearest allied to *Hyas*, although probably a higher form. In young specimens the resemblance to *Hyas* is easily noticed. *Hyas chilensis* should probably belong to it. It has considerable resemblance in general appearance to *Salacia* of the opposite extremity of the American continent, of which it may be considered the analogue.

Hyas latifrons Stimpson.†

Hyas coarctatus Stimpson (non Leach), Bost. Jour. Nat. Hist., vi, p. 450, 1857.

This species differs from *H. coarctatus* of the North Atlantic in the following characters, which are found to be constant upon examination of numerous specimens of both forms. The body is thicker and much broader anteriorly across the post-orbital apophyses; the angles are all more obtuse. The dorsal surface is marked with fewer tubercles, which are also much larger and more obtuse, most of them being rather swellings than warts. The rostrum is shorter and less acute; and the superior fissure of the orbit is always closed, its margins overlapping.

It is subject to considerable variation in some of its characters, particularly in the greater or less approximation of the forks of the rostrum, which may be so closely appressed against each other as to overlap, or may diverge so as to leave a narrow V-shaped space between. They diverge most in the young. The feet and inferior surface of the body are densely hirsute in some individuals and quite smooth in others.

† Equivalent to *Chionæctes opilio* (O. Fabricius).—M. J. R.

‡ See page 69.

The color is a dusky brick-red above; whitish below. The dimensions of a male from the Arctic Ocean, north of Bering Straits, are: Length of carapax, 2.85; greatest breadth, 2.12; greatest post-orbital breadth, 1.75; breadth at constriction, 1.59 inches.

This species was found by us in great numbers in all parts of the North Pacific Ocean north of the parallel of 50°. The following localities may be mentioned: Sea of Ochotsk; Avatscha Bay and off Chepoonski Noss, coast of Kamtschatka; off Matwi Island; in Behring Straits, and in the Arctic Ocean. It occurred on all kinds of bottom, from low-water mark to a depth of 50 fathoms or more. Among several hundred specimens of this species, not one of *H. aranea* was found, although this latter species is said by Brandt to occur in the sea of Ochotsk.

The specimens from the waters of Avatscha Bay, which are somewhat brackish, do not differ from those taken in the open sea.

Brandt, in the *Zoölogy of Middendorff's Reise in den Sibiriens*, Part I, page 78, describes a *Hyas* from the Sea of Ochotsk, which he considered a variety (*alutaceus*) of *H. coarctatus*. He states, however, that it differs from the Atlantic form in the somewhat more strongly granulated (*stärker chagrinierte*) upper surface of the carapax; in the broader posterior side of the body, and in the broader hands. These characters are certainly not those of our species, and for this reason we have not applied to the Pacific form the name *alutaceus*. In some of the larger specimens the surface is indeed granulated to some extent, particularly at the summits of the swellings; but specimens of ordinary size are always much smoother than any from the Atlantic. It is not impossible, therefore, that there is still another species in the North Pacific.

GENUS **MICROPISA** Stimpson.*

It has been found necessary to institute a new genus for the reception of a small *Pisa*-like crustacean which was taken in considerable numbers at the Cape de Verde Islands. It has a short and broad ovate carapax and flattened rostrum. The orbits are much less complete than in *Pisa*, and have a single fissure above. It resembles *Seyra* in many respects, but the external antennæ are not concealed beneath the rostrum. The outer maxillipeds resemble somewhat those of *Pisa*; but the outer angle of the almost heart-shaped third joint is strongly projecting, and there is no notch for the reception of the fourth joint; the palpus is broad.

Micropisa ovata Stimpson.

Proc. Acad. Nat. Sci., Phila., ix, p. 217, 1857.

In this little crab the carapax is rather depressed, and but little longer than broad. The regions are sufficiently prominent, but generally smooth and rounded; there are, however, three inconspicuous pro-

*Not distinct from *Herbstia*.—M. J. R.

tuberances on the genital, and three on each branchial region. Surface pubescent, the more prominent portions often surmounted by a few curled setae. The antero-lateral margin is swollen, but without teeth, except that immediately behind the postorbital tooth, and a small conical one at the lateral extremity of the branchial region. The chelopoda of the adult male are robust; the merus toothed along the angles; the hand smooth, somewhat compressed, and surmounted above by a ridge. Posterior four pairs of feet pubescent, the merus with a small tooth at the summit and one or two near the base. Length of carapax, 0.4; width, 0.38 inch.

Several specimens were taken in the harbor of Porto Praya, Cape de Verde Islands. They were dredged on a nullipore bottom at the depth of 20 fathoms.*

Micippa spinosa Stimpson.†

Body depressed; proportions of the carapax, breadth to length, as 1 to 1.3; upper surface uneven, crowdedly tuberculated and setose. Spines of the back few in number, but long and slender, with blunt extremities. There are three spines on the median line, two of which are on the gastric region, and one, the largest of all, on the cardiac. A large spine on each side on the branchial region, between which and the postorbital tooth on the lateral margin, there are nine spines, irregular in size and distance. Posterior margin spinulose, three or four spines near the middle being larger than the others. Rostrum inclined at an angle of 45° and bent at its extremity into the vertical plane; it is dilated at the extremity, the corners being broadly rounded and minutely crenulated; at the middle there are two diverging teeth. Ocular peduncles rather short, in length little more than twice their diameter. Orbit with two fissures above, the inner one closed, the outer open, separating the postorbital tooth. The pterygostomial (regions) are full convex, tuberculated, and not setose. The third joint of the outer maxillipeds is greatly expanded at its antero-exterior angle; the second joint is marked with a longitudinal furrow near its outer margin. The basal joint of the outer antennae is very broad, its anterior tooth short, with nearly smooth margin; second joint oblong, compressed, with the margin ciliated with long hairs. Chelopoda equaling the carapax in length, smooth and glossy, fawn colored, with white bases; carpus and hand minutely and obsoletely granulated; fingers with black tips. Ambulatory feet compressed, thickly hairy, the merus with a small terminal spine above. Color of the body pale reddish, rendered indistinct by an accumulation of sordes retained by the setae.

* A. Milne Edwards (Nouv. Arch. Mus. d' Hist. Nat., iv, p. 51, pl. xvi, fig. 1, 1868) represents this species with several unequal lateral teeth, and the ambulatory legs regularly tuberculose.—M. J. R.

† See page 92.—M. J. R.

Dimensions: Length of the carapax, 0.75; greatest breadth, 0.59; distance between tips of postorbital teeth, 0.15; length of first pair of ambulatory feet, 0.86 inch.

Specimens of this species were dredged on a muddy bottom in 6 fathoms in the harbor of Sidney or Port Jackson, Australia.

Micippa hirtipes Dana.

Micippa hirtipes, Dana; U. S. Exploring Expedition, Crust. I. p. 90, pl. 1, fig. 4. 1852.

The following description is drawn up from specimens preserved in spirits; it may be useful, as Dana's specimens were dried: The body is moderately depressed; carapax minutely and somewhat unequally tuberculated above, without spines, except a small one at the branchial region on each side and a marginal one in front of this; these are continuous with the series of teeth on the antero-lateral margin. The posterior margin is denticulated with granular tubercles somewhat larger than those of the surface; the median two being larger and dentiform. The antero-lateral margin curves upward a little and shows nine minute teeth, two of which in the depression between the hepatic and branchial regions are much larger than the others. The superior margin of the orbit is two-fissured. The eye peduncles are exposed throughout their length and fully reach the tips of the teeth formed by the external angle of the orbit. Rostrum broader than long; its upper surface with two convex ridges; extremity broader than the base and four-toothed, the middle teeth being short, triangular, and blunt, the lateral ones sharp and curved upward. The movable part of the antennæ is at the base of the rostrum, separated from the orbit only by the narrow projecting terminal edge of the basal joint, which, seen from above, forms a slender tooth. Below the surface of this basal joint is smooth.

The upper surface of the body is hairy, the ambulatory feet densely so; hectognathopoda also hairy. First pair of ambulatory feet long. Dactyli much curved. The dimensions of a female specimen are as follows: Length of the carapax, 0.59; greatest breadth, 0.48 inch; proportion, 1: 1.23; length of first pair of ambulatory feet, 0.64 inch.

Our specimens differ somewhat from Dana's figure in the greater prominence of the tooth of the basal joint of the antennæ, which projects so as to appear conspicuously above. The species is, however, undoubtedly the same. It approaches *M. phillyra* in character, but is more hairy, the margins with smaller teeth, the teeth of the rostrum shorter and the outer ones recurved, and the movable part of the antenna not widely separated from the orbit. It has also some resemblance to *M. platipes* Ruppell, but has not the sharp terminal rostral teeth of that species.

Our specimens were taken at the islands of Loo Choo and Ousima. Those of the Exploring Expedition are from Tongatabu.

Micippa Haanii Stimpson.

The Japanese specimens of this species are said by De Haan to differ from the original specimens of *Cancer thalia* described by Herbst in wanting the two spines on the posterior margin of the carapax, and in having a spine on the merus of the ambulatory feet near its superior extremity. In all of our specimens from the Chinese Sea the characters are the same as those found in De Haan's figure and description, while none present the above-mentioned characters of *C. thalia*. Nor do they agree with the description of Herbst's specimen given by Gerstaecker in the *Archiv für Naturgeschichte*, vol. xxii, p. 109. Under these circumstances we have been led to consider the species distinct, and to propose a new name for De Haan's crustacean.

M. thalia Krauss, which inhabits the coast of South Africa, seems also distinct from the Herbstian species.

Naxia dicantha De Haan.[†]

In living specimens of this species the body is covered with sordes; when cleaned it is found to be of a yellowish-brown color above and below, the feet annulated with pale purplish-brown. There is a great diversity in the size of the hand and the shape of the fingers, shown between large males and those of ordinary or small size, as mentioned by De Haan.

The diversity in the shape of the rostrum in *Naxia serpulifera* and *N. dicantha* does not seem of sufficient importance to warrant a generic separation. The deep orbits, with peculiar fissures widening at the bottom, are characteristic of both; although in *N. dicantha* the inferior fissure is much broader than in the other species. There is, however, in the Japanese species a notch in the margin of the merus of the hectognathopod at the insertion of the carpus; while in *N. serpulifera*, judging from Guérin's figure, that margin is entire.

Naxia dicantha was taken by the expedition at the following localities: Hong Kong Harbor, abundant on shelly bottoms in 10 fathoms; northern China Sea in 20 fathoms; Kagosima Bay, Japan, in 20 fathoms, shelly bottom.

Scyra compressipes Stimpson.

Proc. Acad. Nat. Sci. Phila., ix, p. 218, 1857.

Carapax irregularly ovate, proportion of breadth to length 1:1.27 (rostrum and lateral spines included). It is rather depressed posteriorly, well contracted between the hepatic and branchial regions. Gastric region ample, rounded above, and nearly smooth, with the exception of two or three minute tubercles along the median line and

[†] Equivalent to *Micippa thalia aculeata* (Bianconi). See page 92.—M. J. R.

[†] See page 85.

one on either side posteriorly. There is a sharp tubercle on each side at the hepatic region, and a short, sharp spine, extending horizontally and somewhat curving forward, at the summit of each branchial region. Cardiac and intestinal regions rather small and only moderately elevated. Posterior margin with a slightly prominent tubercle at the middle. Rostrum scarcely as long as broad, laminiiform, scarcely contracted at base; horns shorter and less acuminate than in *S. acutifrons*. Preorbital tooth prominent and acute, but rather short. Parts about the head below much as in *S. acutifrons*. The tooth forming the external angle of the orbit is deeply concave below, leaving the orbit at that point widely interrupted. Margin of the pterygostomian region with three small, obtuse, lobe-like teeth; a deep sinus separates this margin from that of the side of the carapax. Feet all much compressed. Merus of chelopoda four-sided or prismatic, obtusely tuberculated along the angles; superior edge with blunt teeth near the base, and one prominent sharp tooth near the extremity, being one of three large teeth surrounding the insertion of the carpus. Superior and inferior edges of ambulatory feet somewhat setose; the penultimate joints of these feet, however, are smooth and slender. In this and the other known species of the genus the setae are stout and clavate in form. The dimensions of a sterile female are: Length of carapax, 0.65; greatest breadth, 0.51 inch.

This species was dredged in the Harbor of Hakodadi, Island of Jesso, Japan, on a bottom of weedy sand, at the depth of 6 fathoms.

Only one other species of the genus is known, *S. acutifrons* Dana, which inhabits the opposite coast of the North Pacific.

Dione affinis de Haan.*

The only specimen taken is young; the dimensions of the carapax being, length, 0.57; greatest breadth, 0.41; breadth between preorbital spines, 0.35 inch. Proportion of this interorbital breadth to the length, 1:1.63. This proportion, in de Haan's figure, is 1:1.93. Our specimen differs from those described by de Haan in its more depressed form, its narrower and smoother carapax and broader front. There is no tooth within at the base of the movable finger, and none on the outer base of the hand. The horns of the rostrum are longer than in the adult *D. affinis*, and the abdomen of the male is not dilated near the base.

Having no opportunities of comparing our specimen with the young of the species to which it is here referred, we do not venture to consider it distinct.

It was taken in a harbor on the northwest coast of the Island of Ousima.

*Equivalent to *Schizophrys aspera* (Milne Edwards). See page 91.—M. J. R.

Mithrax suborbicularis Stimpson.

Plate VIII, Fig. 2.

Proc. Acad. Nat. Sci. Phila., IX, p. 248, 1857.

This species belongs to the division *Mithrax transversare* of Milne Edwards. The following description is taken from a sterile female, the only specimen found: Carapax rounded, not narrowed anteriorly; length and breadth equal; margins dentated with teeth of moderate size. Gastric region broad and convex. Upper surface with about thirty small, nearly equidistant, prominent warts, the interspaces granulated. Rostrum formed of two small, sharp, triangular, diverging horns, outside of which on either side project three slender spines belonging to the anterior margin of the basal joint of the antennae. Eyes large. Superior margin of orbit with two deep fissures, and three teeth, the middle one of which is short, truncate, with a trifid clove-like apex. The tooth at the external angle of the orbit is rather long and sharp, curving forward; immediately behind this there are two teeth on the antero-lateral margin just in front of the hepatic constriction. Behind this constriction on the lateral margin of the carapax there are six teeth, the posterior ones very small, and placed rather above than on the margin. At the posterior extremity of the shell there are two small, blunt submarginal teeth. Outer pterygostomian regions with granulated surface upon which arise a few tubercles. Hectognathopoda and the adjoining triangular surface smooth and ungranulated. Fossae of the inner antennae excavated in the inferior side of the horns of the rostrum. Chelopoda small, slender, smooth, and glossy. Ambulatory feet hairy above; three of the joints spinulose; below smooth. Those of the posterior pair nearly smooth above.

The color in the preserved specimen is white, tinged with reddish brown. Dimensions: Length of carapax, 0.8; greatest breadth, the same; breadth between tips of the larger spines of the antennae, 0.4; between tips of the spines at outer angle of orbit, 0.57 inch.

It was taken at Selio Island, Gaspar Straits, by Mr. L. M. Squires of the steamer *John Hancock*.

Eurynome longimana Stimpson.

Plate VIII, Fig. 1.

Proc. Acad. Nat. Sci. Phila., IX, p. 220, 1857.

Carapax with the regions distinct but not deeply separated; proportion of breadth to length, 1:1.38. Upper surface rugose, the rugosities consisting of rounded, flattened warts, somewhat irregular in size, and sometimes confluent. A large triangular tooth behind the orbit at the hepatic region: five teeth on the branchial region, four of which are

¹*Cyclomaia suborbicularis* Stimpson, Amer. Jour. Sci., XXIX, p. 133, 1860.

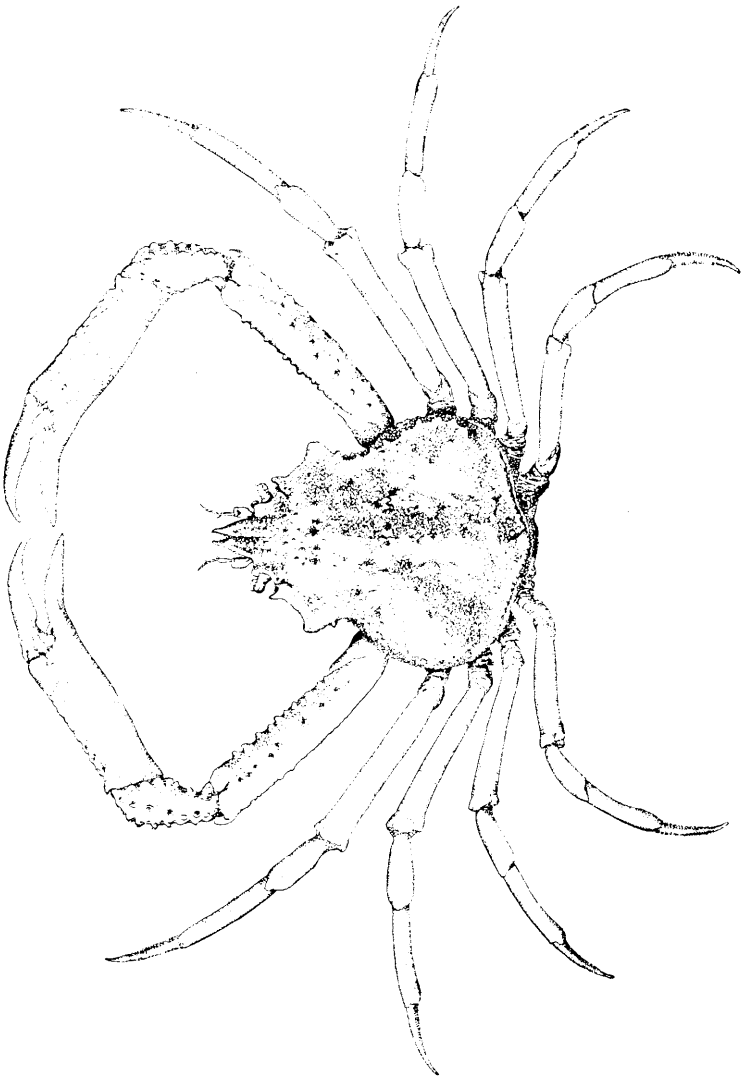
Cyclax (*Cyclomaia*) *suborbicularis* Miers, Jour. Linn. Soc. London, XIV, p. 660, 1879.—M. J. R.

marginal or submarginal, and one erect at the center of the region. Two small spines on the gastric region. Cardiac region rather prominent, oblong. Posterior margin with a slight protuberance on each side. Rostrum deeply bifid; horns long and sharp, somewhat divergent. Orbits and antennæ much as in *E. aspera*, except that the superior orbital fissure is not open. Hectognathopoda roughly granulated. Chelopoda of male nearly twice as long as the carapax, granulated and somewhat spinous; hand rather slender, with three or four stout spines toward extremity on superior inner margin. Pincers deflexed. Ambulatory feet bicarinate above, the carinæ most distinct on the merus, where they are each 3-4 toothed.

In the female the carapax is pubescent and more convex than in the male; the chelopoda are very short, and the hand scarcely twice as long as broad.

Colors: Carapax above dull red; feet whitish, or variegated with pale red. Eyes small, black. Dimensions of ♂, length of carapax, 0.47; breadth, 0.34; length of rostrum, 0.12; of chelopod, 0.8 inch; of ♀, length of carapax, 0.39; of chelopod, 0.3 inch.

Dredged in 10 fathoms, on a rocky bottom, among *Gorgonia*, etc., in False Bay, Cape of Good Hope.



Thys ligectus Dana - C. S. 17.

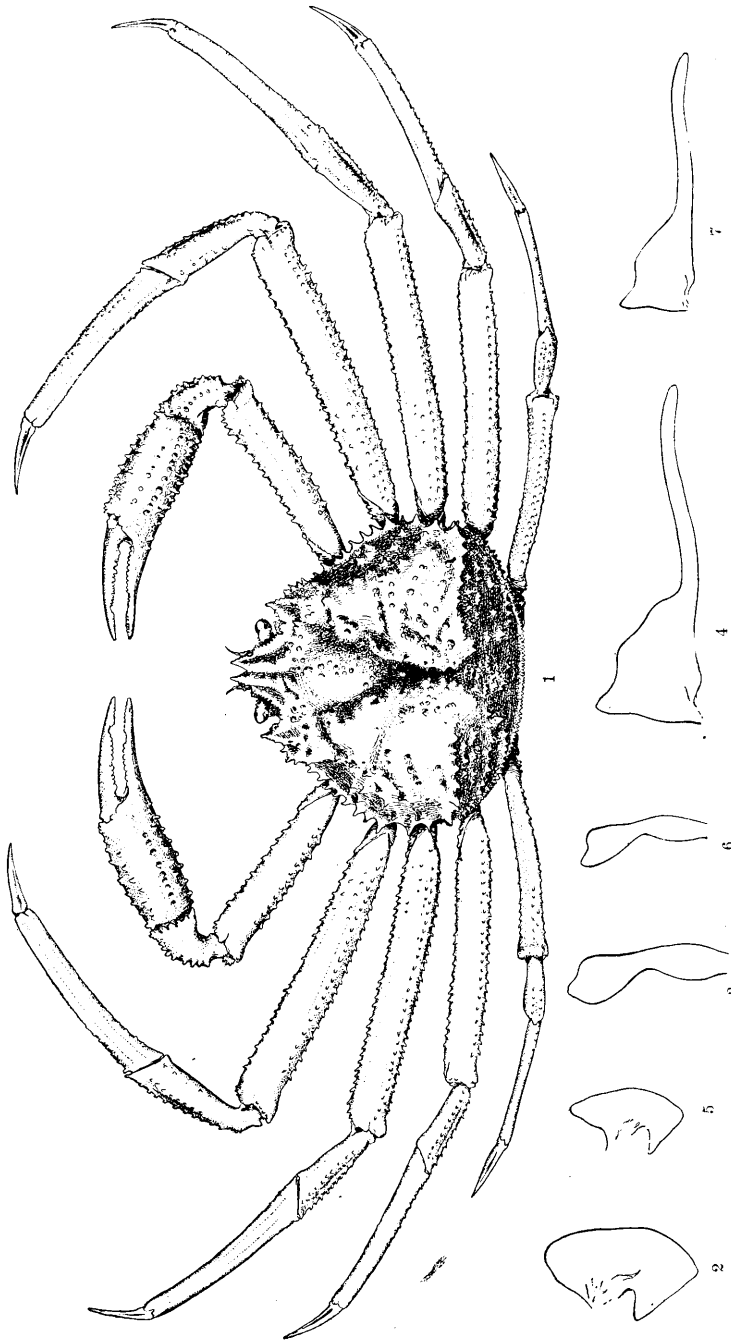
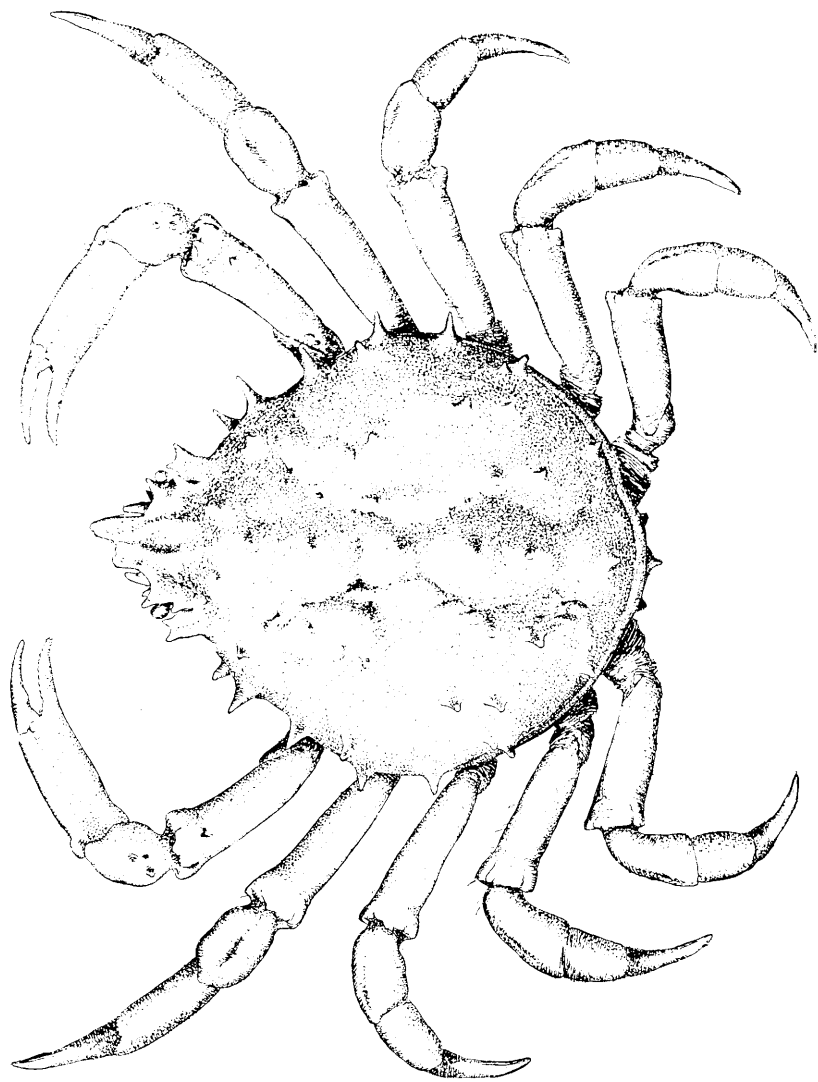


Fig. 1. *Chionæctes tanneri*, sp. nov., ♂, x $\frac{1}{16}$.
 Fig. 2. *C. tanneri*, scaphognathite of second maxilla, natural size.
 Fig. 3. *C. tanneri*, endopodite of first maxilliped, $1\frac{1}{2}$ natural size.
 Fig. 4. *C. tanneri*, flabellum of first maxilliped, natural size.

Fig. 5. *C. opilio*, scaphognathite of second maxilla, natural size.
 Fig. 6. *C. opilio*, endopodite of first maxilliped, $1\frac{1}{2}$ natural size.
 Fig. 7. *C. opilio*, flabellum of first maxilliped, natural size.



Cyclocerpes grandis, sp. nov., fig. 1.

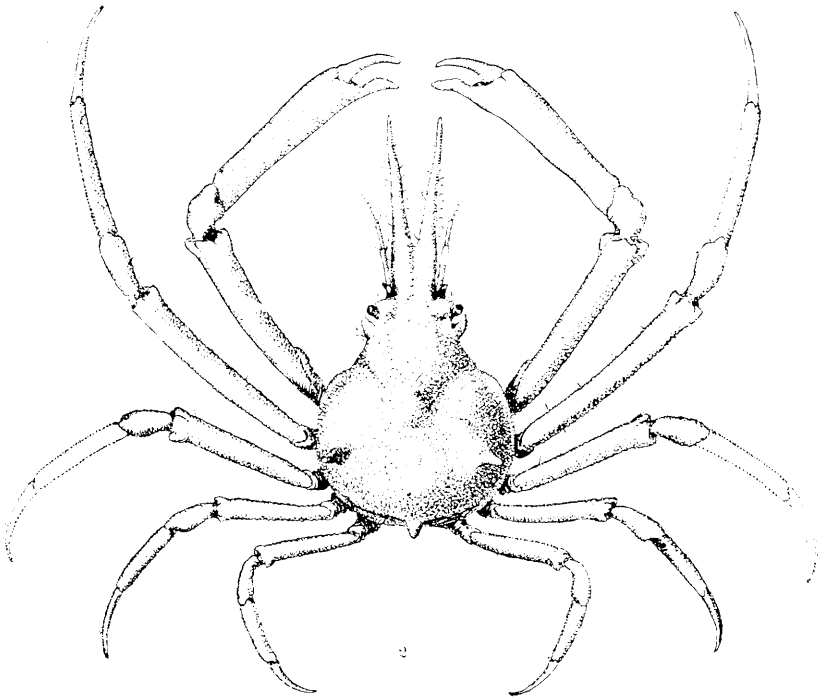
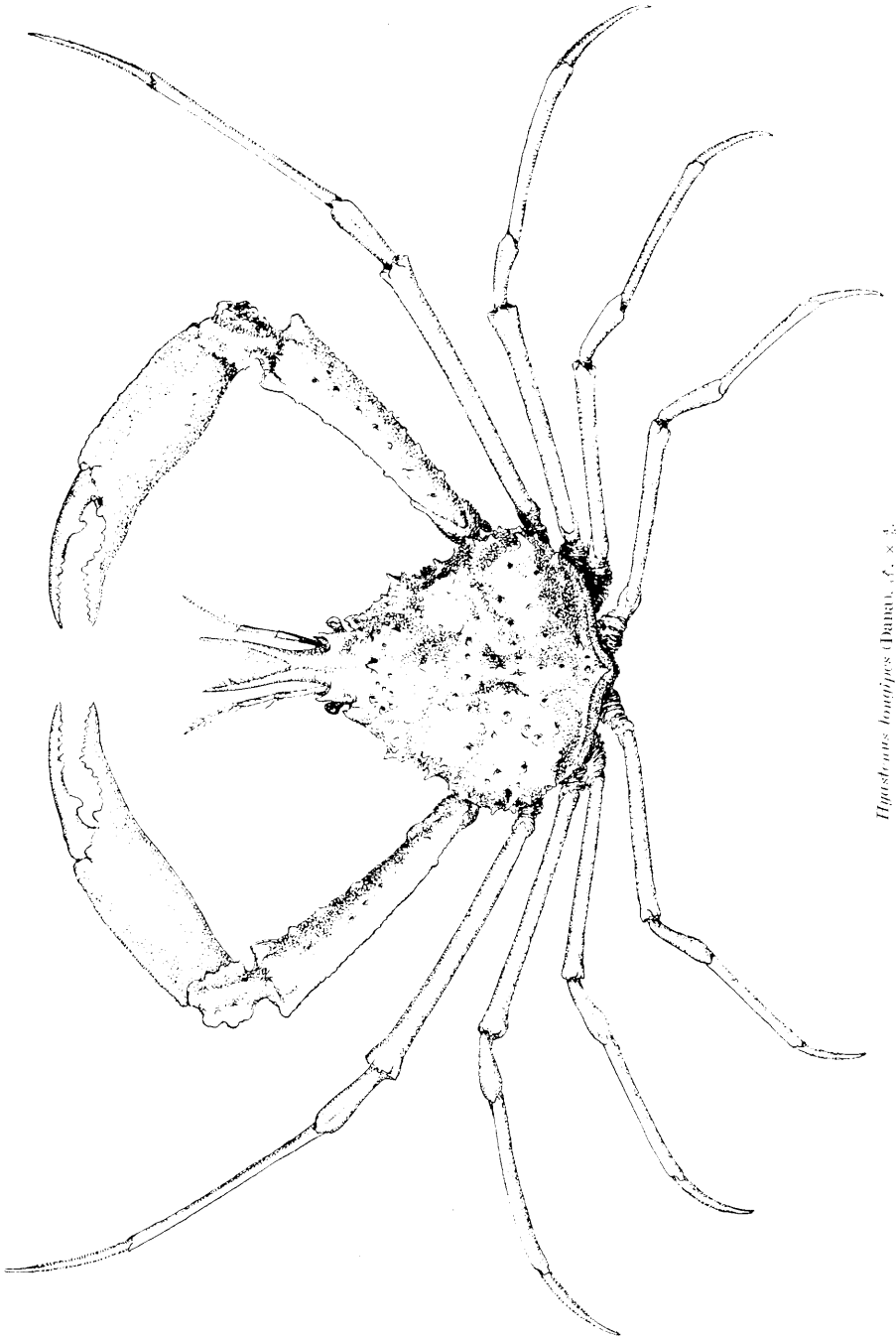


Fig. 1. *Lepteces ornatiss*, gen. et sp. nov., ♂, × 25.

Fig. 2. *Hyastenus caribbicus*, sp. nov., ♂, × 25.



Hyposthenus longipalpus Dana, *z.* 3.

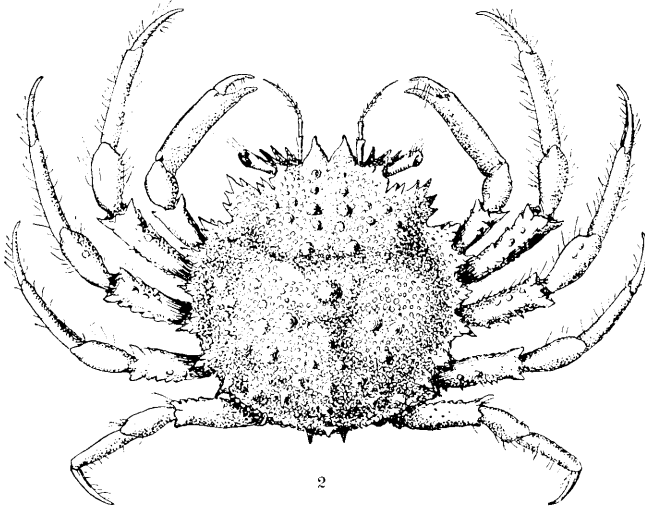
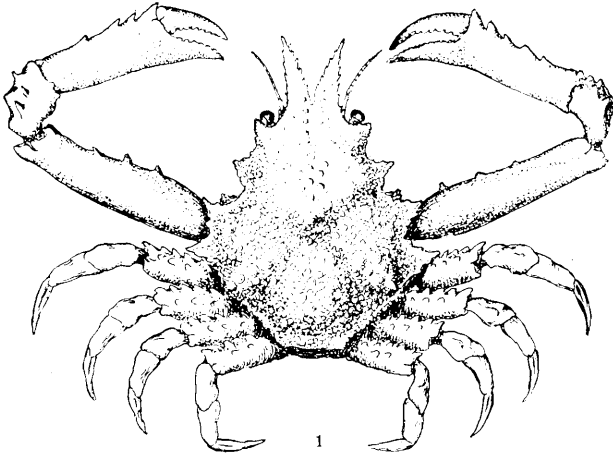


Fig. 1. *Euryome longimana* Stimpson, ♂, × 3½.

Fig. 2. *Cyclas (Cyclonata) suborbicularis* (Stimpson), ♀, × 2.