

NOTES ON THE CRABS OF THE FAMILY INACHIDÆ IN
THE UNITED STATES NATIONAL MUSEUM.

By MARY J. RATHBUN,
Aid, Department of Marine Invertebrates.

IN THIS paper two new genera and eight new species are described. No attempt has been made to give a complete list of the specimens in the Museum. Only those described species are noticed for which it was possible to record new localities or add notes to supplement original descriptions and aid in identification. The repetition of matter which has already appeared in the proceedings of the Museum and the bulletins and reports of the U. S. Fish Commission has been avoided. The following is a list of species which appear in this paper. Those marked with a * are species described by Stimpson, the types of which were destroyed in the Chicago fire, and which were unknown from that time until rediscovered by the *Albatross*:

List of species.

Leptopodia sagittaria, (Fabricius).	Anamathia crassa, A. Milne-Edwards.
debilis, Smith.	hystrix, (Stimpson).
Metoporphaphis calcaratus, (Say).	umbonata, (Stimpson).
Achæus tuberculatus, Miers.	Trachymaia cornuta, A. Milne-Edwards.
trituberculatus, new species.	Lispognathus thomsoni, (Norman).
Podochela riisei, Stimpson.	HOLOPLITES armatus, (A. Milne-Edwards).
spatulifrons, A. Milne-Edwards.	Chorinus heros, (Herbst).
* hypoglypha, (Stimpson).	Trichoplatus huttoni, A. Milne-Edwards.
* lamelligera, (Stimpson).	Anomalothir furcillatus, (Stimpson).
macrodera, Stimpson.	* Mocosoa crebripunctata, Stimpson.
gracilipes, Stimpson.	Sphenocarcinus corrosus, A. Milne-Edwards.
spinifrons, new species.	Simocarcinus simplex, (Dana).
Collodes depressus, A. Milne-Edwards.	ECHINÆCUS pentagonus, new genus and species.
robustus, Smith.	Epialtus bituberculatus, Milne-Edwards.
leptocheles, new species.	productus, Randall.
(doubtfulspecies.)	(Antilibinia) dentatus, (Milne-Edwards).
* Batrachonotus fragosus, Stimpson.	marginatus, (Bell).
brasiliensis, new species.	nuttallii, (Randall).
nicholsi, new species.	Pugettia gracilis, Dana.
Euprognatha rastellifera, Stimpson.	richii, Dana.
rastellifera spinosa, new subspecies.	quadridens, (De Haan).
gracilipes, A. Milne-Edwards.	foliata, (Stimpson).
Arachnopsis filipes, Stimpson.	Acanthonyx petiverii, Milne-Edwards.
Apocremnus septemspinosus, A. Milne-Edwards.	Neorhynchus depressus, Bell.
Inachoides intermedius, new species.	Pyromaia cuspidata, Stimpson.
Anasimus latus, new species.	Loxorhynchus grandis, Stimpson.
Eurypodius latreillei, Guérin.	crispatus, Stimpson
Oregonia gracilis, Dana.	

Family INACHIDÆ.

Subfamily LEPTOPODIINÆ.

LEPTOPODIA SAGITTARIA, (Fabricius).

Cancer sagittarius, FABRICIUS, (Entom. Syst., II, p. 442, 1793).

Leptopodia sagittaria, LEACH, Zool. Misc., II, p. 16, pl. LXVII, 1815.—A. MILNE-EDWARDS, Crust. du Mexique, p. 172, 1878 (partim), and synonymy, except *L. sagittaria*, MILNE-EDWARDS and LUCAS, and *L. debilis*, SMITH.

Localities.

From off Cape Hatteras to the Caribbean Sea; U. S. Fish Commission steamer *Albatross*:

Cat. No.	Station.	Lat. N.	Long. W.	Bottom.			Date.
				Fath.	Temp.	Materials.	
6934	2142	9 30 15	76 20 30	42	.....	gn. M. S.	1884. Mar. 23
17524	2311	32 55 00	77 54 00	79	59.1	crs. S. bk. Sp.	1885. Jan. 5
9459	2315	24 26 00	81 48 15	37	.....	Co.	15
9464	2316	24 25 30	81 47 45	50	74	.....	15
9467	2317	24 25 45	81 46 45	45	75	Co.	15
9475	2318	24 25 45	81 46 00	45	75	Co.	15
14975	2354	20 59 30	86 23 45	130	.....	Co.	22
17401	2362	22 08 30	86 53 30	25	.....	Co. S.	30
17405	2363	22 07 30	87 06 00	21	.....	wh. R. Co.	30
17374	2365	22 18 00	87 04 00	24	.....	wh. R. Co.	30
9602	2370	29 18 15	85 32 00	25	.....	crs. gy. S. brk. Sh.	Feb. 7
9613	2372	29 15 30	85 29 30	27	.....	G.	7
14976	2373	29 14 00	85 29 15	25	.....	Co.	7
17525	2374	29 11 30	85 29 00	26	.....	S. G. brk. Sh.	7
9689	2387	29 24 00	88 04 00	32	.....	S. G. brk. Sh.	Mar. 4
17402	2390	29 27 30	87 48 30	30	.....	crs. S. bk. Sp. Sh.	4
17403	2405	28 45 00	85 02 00	30	.....	gy. S. brk. Co.	15
17375	2406	28 46 00	84 49 00	26	.....	crs. S. Co.	15
17404	2411	26 33 30	83 15 30	27	.....	fne. wh. S. bk. Sp.	18
11303	2413	26 00 00	82 57 30	24	.....	fne. S. bk. Sp. brk. Sh.	19
9862	2417	33 18 30	77 07 00	95	65.8	fne. gy. S.	Apr. 2
17373	2596	35 08 30	75 10 00	49	.....	gy. S.	Oct. 17
11219	2604	34 37 30	75 39 45	34	.....	yl. S. brk. Sh.	18
17526	2616	33 42 45	77 31 00	17	.....	S. P.	20
11227	2617	33 37 30	77 36 30	14	.....	crs. yl. S. brk. Sh.	20
11232	2621	33 34 00	77 42 00	9	.....	gy. S. brk. Co.	20
11379	2640	25 05 00	80 15 00	56	.....	Co. S.	1886. Apr. 9

St. Thomas; steamer *Albatross* (7653).

Brazil; Hartt Explorations:

Maranhão, 2 fathoms, pebbly; Derby and Wilmot, 1870.

Mar Grande, Bay of Bahia; Richard Rathbun, 1875-'77.

Periperi, Bay of Bahia; R. Rathbun.

Bay of Rio de Janeiro, dredged, shallow water; R. Rathbun.

LEPTOPODIA DEBILIS, Smith.

Leptopodia debilis, SMITH, Rept. Peabody Acad. Sci. for 1869 and 1870, p. 87, 1871.

Twenty specimens were collected by the steamer *Albatross* on the coast of Lower California.

These specimens agree in having the hand shorter and broader than in east coast specimens of *L. sagittaria*, and the fingers proportionally longer. The propodus is usually about twice the length of the dactylus and varies to $2\frac{1}{2}$ times that of the dactylus in the largest specimen; in *L. sagittaria* the propodus is usually about $2\frac{2}{3}$ times the length of the dactylus, but varies from $2\frac{1}{2}$ to $3\frac{1}{2}$ times. The ambulatory legs are

shorter in the west coast forms. Those of the first pair are from 6 to $7\frac{1}{2}$ times the length of the carapace, while in the Atlantic species they are from 8 to $8\frac{2}{3}$ times the length of the carapace. The rostrum is shorter in the specimens of *L. debilis* in this collection than in most of those of *L. sagittaria*. The rostrum is usually about the same length as the carapace or exceeds it but little, in two instances reaching a length of $1\frac{1}{2}$ times the carapace. Prof. Smith, however, describes the rostrum of *L. debilis* as about twice as long as the posterior portion of the carapace.

In our specimens the surface is more pubescent than in *L. sagittaria*, especially the chelipeds of adult forms, and the carapace is usually more swollen at the branchial regions and the rostrum more upturned.

A. Milne-Edwards considers the *Leptopodiæ* from the west coast of Mexico and Central America as the same species as those from the east coast, setting aside as distinct the Chilean form, the *L. sagittaria* of Milne-Edwards and Lucas, and calling it *L. modesta*; consequently his insertion on the same page of the *L. sagittaria* of Milne-Edwards and Lucas in the synonymy of *Leptopodia sagittaria* is erroneous. Some of the specimens from the Gulf of California so resemble the figure given in d'Orbigny's "Voyage" that it may be proved that a single species inhabits the west coast of America, which, in the present state of our knowledge, it seems best to consider distinct from *L. sagittaria*.

The following are the dredging stations at which this species was obtained:

Cat. No.	Station.	Lat. N.	Long. W.	Bottom.			Date.
				Fath.	Temp.	Materials.	
		° ' "	° ' "		° F.		1889.
17322	3002	25 02 15	110 43 30	17	-----	S. Sh.	Mar. 17
16024	3005	25 02 45	110 43 30	21	-----	S. Sh. Coralline.	17
18067	3014	28 28 00	112 04 30	29	62.9	gy. S.	23
15544	3026	31 22 00	114 07 45	17	65.2	G. brk. Sh.	25
17323	3041	24 35 30	112 05 00	27	64.5	fne. gy. S.	Apr. 9

METOPORHAPHIS CALCARATUS, (Say).

Leptopodia calcarata, SAY, Jour. Acad. Nat. Sci. Phila., I, p. 455, 1817.

Metoporphaphis calcarata, STIMPSON, Ann. Lyc. Nat. Hist. N. Y., VII, p. 198, 1860.—

SMITH, Rept. U. S. Commr. of Fish and Fisheries for 1885 (1887), p. 620 (*Metoporphaphis calcaratus*).—A. MILNE-EDWARDS, *op. cit.*, p. 174, 1878 (*calcaratus*).—MIERS, Challenger Rept., XVII, p. 4, 1886 (*Metoporphaphis*).

The specimens of *Metoporphaphis* examined represent eleven localities and agree in the characters given below.

Besides the four gastric tubercles and the large tubercle on the cardiac region, there is a postorbital tubercle remote from the orbit and slightly in advance of the gastric tubercles; two hepatic tubercles, one of which is marginal; three branchial tubercles, one marginal and the other two nearly longitudinal; a subbranchial tubercle in advance of the marginal tubercle; the pterygostomian ridge is provided with a

tubercle, and there is a granule in front of the angle of the buccal cavity. The rostrum bears four or five slender spines, which project outwardly in an alternate series from the opposite sides of the lower surface; they are not always apparent in small specimens; two of these spines are near together close to the extremity, and sometimes give the rostrum the appearance of being trifid at the extremity. The basal antennal joint has a spine below midway of its length and another at its outer distal angle. The two last segments of the abdomen in the male are coalesced; on the sternum, in front of the abdomen, are two or three spines on either side, which form converging lines parallel to the terminal segment of the abdomen. The second, third, and fourth segments in the female abdomen are very short and about equal in length; the last three segments are coalesced. The merus of the maxilliped is longer and less deeply cut than in A. Milne-Edwards's figure of *M. forficulatus*; the first joint of the palpus is also much longer.

Chelipeds in the male stout. The ischium and merus have sharp spines on the outer margin which become obsolete near the carpus; they have small spines on the inner lower margin, and the merus has one long spine at the end of its upper surface. The carpus has a series of sharp spines on its inner and outer margins, and one near each extremity of its upper surface. The manus is broad and inflated, with long spines above, and short ones below interspersed with long hairs. Fingers about as long as the palm; the prehensile edges are furnished with truncate denticulate teeth except at the extremities, where they become closely fitting triangular teeth. The chelipeds of the female are much feebler, the fingers much longer and more gaping, with sharp spines on the prehensile edges.

Measurements (of adult male):—Length of carapace and rostrum, 19.5 mm.; length of rostrum, 11; width, 8.2; length of cheliped about 21.5.

Localities.

- Off Cape Hatteras, N. C., lat. $35^{\circ} 08' 30''$ N., long. $75^{\circ} 10'$ W., 49 fathoms, gray sand, station 2596; U. S. Fish Commission steamer *Albatross*, 1885; 1 female with eggs (18068).
- Off Cape Fear, N. C., lat. $33^{\circ} 37' 30''$ N., long. $77^{\circ} 36' 30''$ W., 14 fathoms, coarse yellow sand, broken shells, station 2617; 1 male (18069).
- Middle Sound, near Wilmington, N. C.; U. S. Fish Commission, R. E. Earll, April 18, 1880; 1 male (4384).
- Key West, Fla.; U. S. Fish Commission steamer *Albatross*, Mar. 27, 1886; 1 male (11385).
- Marco, Fla.; U. S. Fish Commission schooner *Grampus*, Feb. 25, 1889; 1 female with eggs (15323); H. Hemphill, 1885; 1 female with eggs (18070).
- Charlotte Harbor, Fla.; Union College collection (767) 1 female.
- Sarasota Bay, Fla.; Union College collection (687) 4 males, 3 females.
- West Florida; Henderson and Simpson; 1 male, 2 females, 2 young (18071).
- Off Mobile Bay, Ala., lat. $29^{\circ} 24' 30''$ N., long. $88^{\circ} 01'$ W., 35 fathoms, yellow sand, black specks, station 2388; U. S. Fish Commission steamer *Albatross*, 1885; 1 male (9695).

ACHÆUS TUBERCULATUS, Miers.

Achæus tuberculatus, MIERS, Proc. Zool. Soc. London, p. 25, 1879.—ORTMANN, Zool. Jahrb., VII, 1, p. 34, 1893.

To this species I have referred a single, imperfect, dried specimen (No. 18072) from Japan, collected by the Rev. H. Loomis. The cardiac and gastric tubercles are granulate at the summit; there is a small low tubercle on the branchial region near the inner angle, and another near the posterior margin. The hepatic region is swollen; its projection is broad, granulate on the margin, and somewhat bilobate; from it a granulate ridge runs diagonally to the posterior extremity of the superior orbital border. The inferior surface of the carapace bears several tubercles and granules near the margin. The rostral teeth are granulate and curved inwards, so that the interspace is almost oval; rostral grooves deep. Second joint of antenna not quite equaling the rostrum. Eye-stalks stout, bearing a small tubercle above near the extremity. Abdomen of male very broad; terminal segment narrowing toward the proximal end, distal angle bearing a smooth prominence; distal margin arcuate in its middle half.

Chelipeds very large. Merus much larger than the palm, spinulous on the margins and with a large lobe at the distal end of the outer surface. Carpus spinulous on inner margin, a few tubercles on proximal half of outer surface, and a tuberculous lobe at the articulation with the manus. Manus inflated, spinulous above; palmar portion exceeding the pollex but little; digits with a longitudinal sulcus on the outer surface, prehensile edges toothed and fitting together. The ambulatory legs are for the most part missing. The dactyl of the last pair is long and slightly curved.

Measurements.—Length of carapace, 13 mm.; width, 10.5; length of dactyl of fourth ambulatory leg, 6.

This individual corresponds to Miers's brief description taken from imperfect specimens, excepting that he defines the eye-peduncles as smooth. In the specimen at hand, the tubercle at the tip is so inconspicuous that it might have been overlooked.

ACHÆUS TRITUBERCULATUS, new species.

Carapace narrower than in *A. japonicus*, not constricted behind the orbital area; regions well marked but not protuberant; gastric and branchial regions smooth; cardiac region with three low tubercles, the posterior one on the median line; hepatic region with a broad obtuse prominence. Rostral lobes spinulous on the margin, separated by a V-shaped sinus which is narrower than either lobe. Rostral grooves deep. Eye-peduncle with a sharp-pointed tubercle on the upper side near the cornea. The peduncle widens toward the cornea, which is very oblique, directed downward and inward. Second joint of the antenna equaling the rostrum. The abdomen of the male is narrower than in the specimen I have named *A. tuberculatus*, and does not widen at the

terminal segment as in that species. The cheliped is of moderate size, spinulose. The palm is mutilated. The fingers have thin outer margins, concave surfaces, and denticulate inner edges. The first pair of ambulatory legs is nearly four times the length of the carapace, the second pair but little shorter than the first, third and fourth pairs nearly equal in length, the last pair a little more than twice as long as the carapace. The dactyli of the last two pairs are falciform.

Measurements.—Length, 10.5; width, 7.5 mm.

Locality.—Kanada Bay, Japan; dredged in 10 fathoms, mud; 1 male (14463).

This species approaches *A. lacertosus*, Stimpson, in having no spines on the carapace and in the form of the ambulatory legs, but that species is narrower, without tubercles on the gastric region, or a tubercle on the eye.

PODOCHELA RIISEI, Stimpson.

Podochela riisei, STIMPSON, Ann. Lye. Nat. Hist. N. Y., VII, p. 196, pl. II, fig. 6, 1860.—A. MILNE-EDWARDS, Crust. du Mexique, p. 193, pl. XXXV, fig. 1, 1879 (*riisei*).—MIERS, *Challenger Rept.*, Zool., XVII, p. 11, 1886.

Podonema riisei, STIMPSON, Bull. Mus. Comp. Zool., II, p. 126, 1870.—MIERS, Jour. Linn. Soc. London, XIV, p. 643, 1879.

Coryrhynchus riisei, KINGSLEY, Amer. Nat., XIII, p. 585, 1879; Proc. Acad. Nat. Sci. Phila., XXXI, p. 384, 1879.

The basal antennal joint is much more dilated at the postero-external angle than is represented in A. Milne-Edwards's figure.

Measurements.—Length (of male), 14.6 mm.; width, 11.2. Length (of female), 17.8; width, 13.8.

Localities.

Pensacola, Fla., 3 to 4 fathoms; James E. Benedict, July, 1893.

Gulf of Mexico and Caribbean Sea at the following stations of the steamer *Albatross*:

Cat. No.	Station.	Lat. N.			Long. W.			Fathoms.	Nature of bottom.	Date.
		°	'	"	°	'	"			
18147	2363	22	07	30	87	06	00	21	wh. R. Co.	1885. Jan. 30
15163	2390	29	27	30	87	48	30	30	crs. S. bk. Sp. Sh.	Mar. 4
18073	2405	28	45	00	85	02	00	30	gy. S. brk. Co.	15
9794	2406	28	46	00	84	49	00	26	crs. S. Co.	15

On account of the diversity of form presented by the rostra of the various species of this genus, it seems best not to retain the name *Coryrhynchus* as a subgeneric designation.

PODOCHELA SPATULIFRONS, A. Milne-Edwards.

Podochela spatulifrons, A. MILNE-EDWARDS, *op. cit.*, p. 192, pl. XXXIV, fig. 2, 1879.

The upper surface of the carapace resembles that of *P. riisei*; the prominences are tuberculiform and not spiniform, as in adult specimens of *P. riisei*. The basal antennal joint is rectangular at its anterior extremity and is of nearly equal width throughout its length, while in *P. riisei* it is narrowed and rounded anteriorly and expanded at the

postero-lateral margin. A tubercle in *P. spatulifrons* takes the place of the pterygostomian ridge in *P. riisei*. In the male the manus is swollen, and the fingers are slightly gaping. The sternum and abdomen are much like those of *P. riisei*.

Measurements.—Length (of male), 13 mm.; width, 9. Length (of female), 20; width, 16.

Localities.

Harbor Key, Florida; Union College Collection (813). Labeled *P. riisei*.

Marco; H. Hemphill, (15161).

Sarasota Bay, Florida; Union College Collection (646, 708). Labeled *P. riisei*.

PODOCHELA HYPOGLYPHA, (Stimpson).

Podonema hypoglypha, STIMPSON, Bull. Mus. Comp. Zool, II, p. 127, 1870.

Podochela hypoglypha, A. MILNE EDWARDS, *op. cit.*, p. 194, 1879.

Measurements.—Length (of male), 20; width, 14 mm.

Localities.

Key West, Florida; D. S. Jordan, Dec., 1883 (15162).

Cedar Keys, Florida; Lieut. J. F. Moser, U. S. N., U. S. Coast Survey steamer *Bache*, Feb. 1887 (18074).

West Coast of Florida; Henderson and Simpson (18075).

PODOCHELA LAMELLIGERA, (Stimpson).

Podonema lamelligera, STIMPSON, Bull. Mus. Comp. Zool., II, p. 126, 1870.

Podochela lamelligera, A. MILNE-EDWARDS, *op. cit.*, p. 193, 1879.

This species is readily distinguished from the foregoing. The rostrum is narrower and pointed, though hollow underneath. The basal antennal joint has a small acute tooth projecting forward from its antero-external angle; the laminiform margins are very prominent, especially the inner one, which is deepest at about the middle of its length, at which point there is a transverse crest on the joint. The partition between the antennular fossæ is prolonged downward at the middle in a sharp tooth. The two small tubercles present in the preceding species at the extremity of the epistome are in *P. lamelligera* much enlarged, forming large triangular laminiform projections, the anterior one not far behind the orbit, the posterior one lower down. The hepatic projection forms a slender spine. The angle of the buccal cavity is cristate and the pterygostomian crest bears a large tooth in the middle of its length. At the base of each cheliped there are two thin plates projecting downward and inward, and two on the sternum at the extremity of the male abdomen. The sternal plates are broad, thin, bearing spinules, their posterior margins turned downward and overlapping the next plate. The coxal joint of each ambulatory leg is furnished on the lower side with a cup-shaped expansion.

Measurements.—Length (of male), 18 mm.; width, 12.5; length of cheliped, about 18. Length (of female), 20; width, 16; length of cheliped, 23; length of first ambulatory leg, 60; length of merus, 20;

carpus, 7; propodus, 25; dactylus, 6; length of second ambulatory leg, 42; length of merus, 17; carpus, 7; propodus, 13; dactylus, 3.5; length of third ambulatory leg, 35; length of merus, 13.2; carpus, 6.5; propodus, 10; dactylus, 3; length of fourth ambulatory leg, 32; length of merus, 11.3; carpus, 6; propodus, 9; dactylus, 2.7.

This species was collected in the Gulf of Mexico and Straits of Florida by the steamer *Albatross*, 1885, as follows:

Cat. No.	Station.	Lat. N.	Long. W.	Fathoms.	Nature of bottom.
		° ' "	° ' "		
18076	2317	24 25 45	81 46 45	45	Co.
18077	2405	28 45 00	85 02 00	30	gy. S. brk. Co.

PODOCHELA MACRODERA, Stimpson.

Podocheila macrodera, STIMPSON, Ann. Lyc. Nat. Hist. N. Y., VII, p. 196, 1860.—A. MILNE-EDWARDS, *op. cit.*, p. 191, pl. XXXIV, fig. 3, 1879.

In this species the rostrum is thick, obtuse, short, and not hollow beneath. There is a white tubercle on the median line at the end of the first abdominal segment in the male; also two on the sternum in front of the abdomen. The hands are much inflated and the fingers gaping. The basal antennal joint in these specimens is narrower distally than in A. Milne-Edwards's figure, the lateral ridges are smooth and rounded and coalesced for their anterior third. There is a small tubercle on each side of the epistome.

Measurements.—Length (of male), 15.2 mm.; width, 11.

Localities.

Key West, Florida; D. S. Jordan; 1 male (6368).

St. Thomas, West Indies; U. S. Fish Commission steamer *Albatross*, 1884; 1 male (18078)

PODOCHELA GRACILIPES, Stimpson.

Podocheila gracilipes, STIMPSON, Bull. Mus. Comp. Zool., II, p. 126, 1870.—A. MILNE-EDWARDS, *op. cit.*, p. 192, pl. XXXV, fig. 1, 1879.

In the larger specimens the two small tubercles at either end of the epistome, and also the projecting angle of the buccal cavity are visible in a dorsal view.

Measurements.—Length of largest specimen, 12.5; width, 8 mm.

Localities.

Off South Carolina to the Gulf of Mexico and Caribbean Sea, U. S. Fish Commission steamer *Albatross*, 1884-1886, at the following stations:

Cat. No.	Station.	Lat. N.			Long. W.			Fathoms.	Nature of bottom.	Date.
		°	'	"	°	'	"			
7789	2142	9	30	15	76	20	30	42	gn. M. S.	Mar. 23
18079	2311	32	55	00	77	54	00	79	crs. S. bk. Sp.	Jan. 5
18080	2360	22	08	30	86	49	00	26	wh. Co.	30
18081	2363	22	07	30	87	06	00	21	wh. R. Co.	30
18082	2365	22	18	00	87	04	00	24	wh. R. Co.	30
18083	2370	29	18	15	85	32	00	25	crs. gy. S. brk. Sh.	Feb. 7
18084	2372	29	15	30	85	29	30	27	G.	7
18085	2373	29	14	00	85	29	15	25	Co.	7
18086	2388	29	24	30	88	01	00	35	yl. S. bk. Sp.	Mar. 4
18087	2390	29	27	30	87	48	30	30	crs. S. bk. Sp. Sh.	4
18088	2405	28	45	00	85	02	00	30	gy. S. brk. Co.	15
18089	2406	28	46	00	84	49	00	26	crs. S. Co.	15
18090	2407	28	47	30	84	37	00	24	Co. brk. Sh.	15
18091	2412	26	18	30	83	08	45	27	fne. gy. S. bk. Sp. brk. Sh.	19
18092	2413	26	00	00	82	57	30	24	fne. S. bk. S. brk. Sh.	19
18093	2414	25	04	30	82	59	15	26	fne. wh. S. brk. Sh.	19
11408	2639	25	04	50	80	15	10	56	Co. S.	Apr. 9

PODOCHELA SPINIFRONS, new species.

Carapace spinuliferous. Cardiac region with an erect spine; gastric region with a spine directed forward and a spiny tubercle in front of the latter. The rostrum is long and sharp, arched, with a median spiniferous crest. Orbits with an erect spinuliferous crest, bearing two slender spines. The antennal joint is largely visible from above and carries a spine at its anterior angle. There is an oblong laminiform postorbital tooth and behind and below it a flat triangular tooth; these two teeth correspond in position to the small tubercles present in *P. gracilipes* and other species. The hepatic spine is narrow, flattened and obtuse, and the pterygostomian region has a similar spine. The buccal cavity is conspicuously crested at its anterior angle. The antennal joint has a cristiform inner margin and an angular ridge on its posterior half. The sternal crests in the male are flat, tuberculous, and separated by deep sulci. The coxal joints of the legs bear crests similar to those in *P. lamelligera*, but less prominent. The anterior part of the sternum in the male is pubescent, and has two stout spines in front of the abdomen, which project downward and forward. The first segment of the abdomen bears a spiniform tubercle at its distal extremity. The chelipeds in both sexes are slender, hirsute and spinuliferous; fingers with prehensile edges in contact. Ambulatory legs very hairy, except the slender yellow horny tips of the dactyli. Propodal joints slender, dactyli slightly curved.

Measurements.—Length (of male), 22 mm.; width, 15; length of cheliped, 26; length of merus of first ambulatory leg, 25; carpus, 8.5; propodus, 34; dactylus, 11.5; length of merus of second ambulatory leg, 23; carpus, 10; propodus, 21; dactylus, 5.7; length of merus of third ambulatory leg, 20; carpus, 10.8; propodus, 15; dactylus, 4.5; length of

merus of fourth ambulatory leg, 18; carpus, 10; propodus, 13; dactylus, 4; length (of female), 24; width, 16.5. Length (of female), 21; width, 13.5; length of rostrum, 5.

Localities.

West Indies and Caribbean Sea; U. S. Fish Commission steamer *Albatross*, 1884, 1885, as follows:

Cat. No.	Station.	Lat. N.	Long. W.	Fathoms.	Nature of bottom.	Sex.	Date.
		° ' "	° ' "				
6945	2167	23 10 40	82 20 30	201	Co.....	1 ♀	May 1
9510	2337	23 10 39	82 20 21	199	Co.....	1 ♂	Jan. 19
18094	2354	20 59 30	86 23 45	130	Co.....	1 ♀	22

Subfamily INACHINÆ.

COLLODES DEPRESSUS, A. Milne-Edwards.

Collodes depressus, A. MILNE-EDWARDS, Crust. du Mexique, p. 176, pl. xxxii, fig. 4, 1878.—SMITH, Proc. U. S. Nat. Mus., vi, pp. 5, 8, 1883; Rept. U. S. Fish Commr. for 1885 (1887), p. 621.

Measurements.—Length (of largest male), 14; width, 11.5. Length (of largest female), 12; width, 9.7 mm.

Localities.

Off Cape Hatteras, N. C., to the Gulf of Mexico; U. S. Fish Commission steamer *Albatross*, as follows:

Cat.No.	Station.	Lat. N.	Long. W.	Bottom.			Date.
				Fathoms.	Temp.	Materials.	
		° ' "	° ' "		°F.		1885.
18095	2311	32 55 00	77 54 00	79	59.1	crs. S. bk Sp.....	Jan. 3
18096	2370	29 18 15	85 32 00	25		crs. gy. S. brk. Sh.....	Feb. 7
18097	2372	29 15 30	85 29 30	27		G.....	Feb. 7
18098	2374	29 11 30	85 29 00	26		S. G. brk. Sh.....	Feb. 7
9783	2405	28 45 00	85 02 00	30		gy. S. brk. Co.....	Mar. 15
18099	2413	26 00 00	82 57 30	24		fne. S. bk. Sp. brk. Sh....	Mar. 19
18100	2596	35 08 30	75 10 00	49		gy. S.....	Oct. 17

This species is probably identical with *C. trispinosus*, Stimpson.

COLLODES ROBUSTUS, Smith.

Collodes depressus, SMITH, Proc. U. S. Nat. Mus., iii, p. 414, 1881. (Not A. MILNE-EDWARDS).

Collodes robustus, SMITH, *op. cit.*, vi, p. 5, 1883.

Localities.

Off Chesapeake Bay at the following stations of the U. S. Fish Commission steamer *Albatross*:

Cat. No.	Station.	Lat. N.	Long. W.	Bottom.			Date.
				Fathoms.	Temp.	Materials.	
		° ' "	° ' "		°F.		1885.
9868	2420	37 03 20	74 31 40	104	47.7°	bk. S. M. G.....	April 5
10085	2421	37 07 00	74 34 30	64		fne. gy. S. P.....	June 3
15152	2422	37 08 30	74 33 30	85	52.5	crs. gy. S. bk. Sp. brk. Sh..	June 3

COLLODES LEPTOCHELES, new species.

Collodes robustus, Smith, of the Atlantic coast of North America, is replaced in the Gulf of Mexico by a closely allied species. The carapace is similar in shape to that of *C. robustus*. Surface tuberculous, without spines. Rostrum divided by a V-shaped notch into two acute teeth shorter than in *C. robustus*, their outer margin convex. Postorbital tooth broad and long, much exceeding the eyes. The abdomen of the male is broader than in *C. robustus*, constricted at the fifth segment; a small spine or tubercle on the first segment, and a long spine on the fifth directed downward and backward. The appendages of the first segment are more divergent than in *C. robustus*, and more slender at the tips. There is a small spine on the fifth segment in the female. The chelipeds are weak in both sexes, about as long as the carapace; manus slender, fingers as long as the palm. Ambulatory legs stouter than in *C. robustus*, the first and second pairs nearly equal in length, the second often exceeding the first, about twice as long as the carapace; dactylus of last two pairs longer than the propodus. The color in alcohol is a pale écreu, while *C. robustus* is yellowish.

Measurements.—Length of carapace (of male), 16.5 mm; width, 12.7; length of cheliped, 17; length of first ambulatory leg, 34.7; second, 35; third, 31.5; fourth, 30.7; length of propodus of third ambulatory leg, 6.5; dactylus, 7.2; length of propodus of fourth ambulatory leg, 6.7; dactylus, 7.7. Length of carapace (of female), 17.5; width, 13.2; length of cheliped, 17; length of first ambulatory leg, 31.5; second, 35; third, 32.5; fourth, 30.

Localities.

Five stations in the Gulf of Mexico, as follows:

Cat. No.	Station.	Lat. N.			Long. W.			Fathoms.	Nature of bottom.	Date.
		°	'	"	°	'	"			
18101	2378	29	14	30	88	09	30	68	gy. M	1885. Feb. 11
9748	2400	28	41	00	86	07	00	169	gy. M	Mar. 14
9751	2401	28	38	30	85	52	30	142	gn. M. brk. St	Mar. 14
18102	2402	28	36	00	85	33	30	111	gy. M	Mar. 14
18103	2403	28	42	30	85	29	00	88	gy. M	Mar. 15

COLLODES, doubtful species.

Four small dried specimens from the Gulf of California are intermediate between *C. tenuirostris* and *C. granosus*. They have a rostrum intermediate in length between the two, not fissured, but minutely bifid at the tip. There are two cylindrical spines on the gastric and cardiac regions, and a smaller more acute spine on the first abdominal segment. There are a few granules on the branchial and hepatic regions. The eyes are large, exceeding the postocular tooth. The carapace is proportionally wider at the hepatic regions than in *C. tenuirostris*.

Measurements.—Length (of male), 6.5; width at branchial regions, 4.5; width at hepatic regions, 3.6 mm.

Locality.—Lat. 29° 30' N., long. 112° 40' W., 45 fathoms; Lieut. Comdr. H. E. Nichols, U. S. N.; 2 males, 2 immature females (18104).

BATRACHONOTUS FRAGOSUS, Stimpson.

Batrachonotus fragosus, STIMPSON, Bull. Mus. Comp. Zool., II, p. 122, 1870.—A. MILNE-EDWARDS, *op. cit.*, p. 180, 1879.

Stimpson's description was made from a single specimen. The basal joint proves to have a terminal spine. The four protuberances of the carapace and also the first abdominal segment are each terminated by a spine in the males, and there are two large tubercles just above the posterior margin. In the females, of which there are two of smaller size than the males, but bearing eggs, the cardiac prominence is conspicuously rounded, granulous, without a spine; the first ambulatory leg is but very little longer than the second and about one and a half times the length of the carapace, while in the male it is more than twice as long as the carapace.

Measurements.—Length (of male), 7.8; width, 7. Length (of female), 5.3; width, 4.2 mm.

This species was collected by the *Albatross* at two stations in the Gulf of Mexico, as follows:

Cat. No.	Station.	Lat. N.	Long. W.	Fathoms.	Nature of bottom.	Date.
18105	2370	29 18 15	85 32 00	25	crs. gy. S. brk. Sh..	1885. Feb. 7
18106	2405	28 45 00	85 02 00	30	gy. S. brk. Co.....	Mar. 15

BATRACHONOTUS BRASILIENSIS, new species.

This species is unfortunately represented by a single female specimen with only three ambulatory legs present and those detached. The specimen resembles much the female of *B. fragosus*; the depressions of the carapace are more shallow; the raised portions are covered with granules, but are without spines. The postocular spine is very small, as in *B. fragosus*, and the hepatic region projects well beyond it, and has an acute marginal tubercle. The rostral teeth are short and rounded, not extending beyond the antennular fossæ, and separated by a rounded sinus as wide as each lobe. The inferior surface of the carapace and the abdomen are set with tubercles. The three ambulatory legs are very nearly the same length, less than one and a half times the length of the carapace; dactyli long and slender, as in the preceding species.

Measurements.—Length, 7 mm.; width, 6.

Locality.—Dredged off Rio Janeiro by Mr. Richard Rathbun during the Hartt explorations in 1875-'77; 1 female with eggs.

BATRACHONOTUS NICHOLSI, new species.

Female: Regions of carapace deeply marked, elevated portions with coarse tubercles unequal in size; a tubercle on the summit of each branchial region is larger than all others, resembling a short, stout spine. The depressions of the carapace are smooth. The short rostral teeth are slightly longer than in the preceding species and the interspace equals the tooth in width. Postorbital tooth shorter than the ocular peduncle, as in the genus. Hepatic region advanced, subrectangular, the anterior margin almost at right angles to the median line. On the margin there is a tubercle at the hepatic angle, one on the pterygostomian region and two or three on the branchial region. Ridges of the basal antennal segment tuberculous, the terminal spine blunt, curved, and more produced than in other species, in this respect approaching the genus *Euprognatha*. Inferior surface tuberculous. Chelipeds tuberculous, the tubercles becoming spiniform on the inner margin of the merus. The first ambulatory leg (the only one attached) is a little more than one and a half times the length of the carapace; the dactylus is long, nearly equaling the propodus.

Measurements.—Length, 5.3 mm.; width, 4.4.

This species is represented by two small dried specimens, females, from the Gulf of California, lat. 29° 30' N., long. 112° 40' W., 45 fathoms, collected by Lieut. Commander H. E. Nichols, U. S. Navy. (18107).

EUPROGNATHA RASTELLIFERA, Stimpson.

Euprognatha rastellifera, STIMPSON, Bull. Mus. Comp. Zool., II, p. 123, 1870.—A. MILNE-EDWARDS, *op. cit.*, p. 183, pl. XXXIII, fig. 2, 1879.—SMITH, Proc. U. S. Nat. Mus., III, p. 415, 1881, and VI, p. 9, 1883; Rept. U. S. Fish Comr. for 1882, p. 347, pl. I, figs. 3, 3a, 1884; *op. cit.* for 1885, p. 621, 1887.

Collected by the *Albatross* at the following stations not before recorded:

Cat. No.	Station.	Lat. N.	Long. W.	Bottom.			Date.
				Fathoms.	Temp.	Materials.	
7794	2152	2½ miles NW. of Havana Light.		387	°F. 49	Co	1884. Apr. 30
15153	2420	37° 03' 20"	74° 31' 40"	104	47.7	bk. S. M. G	1885. Apr. 5
15154	2421	37 07 00	74 34 30	64	.....	fne. gy. S P	June 3
10092	2422	37 08 30	74 33 30	85	52.5	ers. gy. S. bk. Sp. brk. Sh .	June 3
15155	2423	37 10 15	74 32 00	143	.....	gn. M. fne. S	June 3
18110	2642	25 20 30	79 58 00	217	42.6	gy. S	1886. Apr. 9

EUPROGNATHA RASTELLIFERA SPINOSA, new subspecies.

(See SMITH, Proc. U. S. Nat. Mus., VI, p. 11, 1883.)

Southern specimens of *E. rastellifera* are characterized by longer and more slender spines, noticeably the orbital spines, by the sharper and more prominent tubercles of the carapace, and by the unequal slender spines of the merus and carpus of the chelipeds. The spine on the eye is larger and more prominent than in typical *E. rastellifera*, and the

frontal region is more constricted behind the supraorbital spine. The meral joints of the ambulatory legs bear small spines.

Specimens from several stations off Havana agree in the above variations; also a small specimen from station 2313, off South Carolina. On the other hand, a male from station 2642, off Carysfort Reef, is typical in form, the dorsal prominences being reduced to tubercles. In a specimen from station 2152, 2½ miles northwest of Havana Light, the orbital spines are broad and triangular, as in typical *E. rastellifera*, but the remaining spines are long and slender, and the legs are spinous.

Measurements.—Length (of male), 9 mm.; width, 6.8; length of cheliped, about 14.5; of first ambulatory leg about 22. Length (of second male), 9.7; width, 7.6; length of cheliped about 16.2; length of second ambulatory leg about 19; third, 17; fourth, 15.

Localities.

Cat. No.	Station.	Lat. N.	Long. W.	Bottom.			Date.
				Fathoms.	Temp.	Materials	
7784	2164	23 10 39	82 20 29	192	.....	Co.....	1884. May 1
9441	2313	32 53 00	77 53 60	99	57.2	crs. S. bk. Sp. brk. Sh.....	1885. Jan. 5
18108	2342	23 10 39	82 20 21	201	.....	Co.....	Jan. 19
18109	2345	23 10 40	82 20 15	184	.....	fne. gy. wh. Co.....	Jan. 20
9884	2346	23 10 39	82 20 21	200	.....	Co.....	Jan. 20
9528	2347	23 10 39	82 20 21	216	.....	Co.....	Jan. 20
9529	2348	23 10 39	82 20 21	211	.....	Co.....	Jan. 20
9531	2349	23 10 40	82 20 15	182	.....	Co.....	Jan. 20

EUPROGNATHA GRACILIPES, A. Milne-Edwards.

Euprognatha gracilipes, A. MILNE-EDWARDS, *op. cit.*, p. 184, pl. XXXV, fig. 3, 1879.

This species has a deep median furrow on the rostrum. The præorbital teeth are directed upward and forward and are separated by deep grooves from the rostrum. The hepatic spine is larger and much more produced than the postorbital spine. The median and branchial spines are cylindrical and more prominent than in *E. rastellifera*. There are five tubercles in a transverse line on the gastric region, the outer and middle ones being most prominent. There are a spine and several tubercles on the margin of the branchial region; there is also a short pterygostomial spine, the tip of which is visible from above behind the hepatic spine.

Measurements.—Length (of male), 8 mm.; width, 6.2; length of cheliped, 10.2; length of first ambulatory leg, about 24; second 17; fourth, 12.

Localities.

Off Havana, Cuba; U. S. Fish Commission steamer *Albatross* at the following stations:

Cat. No.	Station.	Lat. N.	Long. W.	Fathoms.	Nature of bottom.	Date.
9483	2320	23 10 39	82 18 48	130	fne. Co.....	1885. Jan. 17
18111	2322	23 10 54	82 17 45	115	Co.....	Jan. 17
9504	2331	23 10 31	82 19 55	114	Co.....	Jan. 17
9509	2336	23 10 48	82 18 52	157	Co.....	Jan. 19
18112	2342	23 10 39	82 20 21	201	Co.....	Jan. 19

ARACHNOPSIS FILIPES, Stimpson.

Arachnopsis filipes, STIMPSON, Bull. Mus. Comp. Zool., II, p. 121, 1870.—A. MILNE-EDWARDS, *op. cit.*, p. 181, pl. XXXIII, fig. 1, 1879.

Localities.

Straits of Florida and Gulf of Mexico; U. S. Fish Commission steamer *Albatross*, as follows:

Cat. No.	Station.	Lat. N.	Long. W.	Bottom.			Date.
				Fathoms.	Temp.	Materials.	
		° ' "	° ' "				1885.
18113	2315	24 26 00	81 48 15	37	.....	Co	Jan. 15
18114	2317	24 25 45	81 46 45	45	75	Co	Jan. 15
18115	2318	24 25 45	81 46 00	45	75	Co	Jan. 15
18116	2370	29 18 15	85 32 00	25	.....	ers. gy. S. brk. Sh.....	Feb. 7
18117	2405	28 45 00	85 02 00	30	.....	gy. S. brk. Co.....	Mar. 15

APOCREMNUS SEPTEMSPINOSUS, A. Milne-Edwards.

Apocremnus septemspinosus, A. MILNE-EDWARDS, *op. cit.*, p. 185, pl. XXXV, fig. 5, 1879.

In the female the fingers are in contact throughout their length. The abdomen has a prominent median carina; the lateral portion is irregularly dotted with round pits, some of which touch each other; the terminal portion is tuberculous.

Localities.

Gulf of Mexico; U. S. Fish Commission steamer *Albatross*, as follows:

Cat. No.	Station.	Lat. N.	Long. W.	Fathoms.	Nature of bottom.	Date.
		° ' "	° ' "			1885.
15165	2372	29 15 30	85 29 30	27	G	Feb. 7
15164	2373	29 14 00	85 29 15	25	Co	Feb. 7
18118	2405	28 45 00	85 02 00	30	gy. S. brk. Co.....	Mar. 15

INACHOIDES INTERMEDIUS, new species.

Carapace entirely smooth above, punctate, regions well marked, cardiac, branchial, and gastric regions protuberant. Rostrum tipped with a spine, somewhat longer than in *I. obtusus*; base triangular, thick, with two ridges from which the sides are inclined downward, much as in *I. obtusus*. The postorbital tooth is very small. There is a tubercle on the margin of the hepatic region, and one also on the pterygostomian and the subbranchial region. Surface of abdomen of female smooth, punctate, with a median carina. Basal antennal joint unarmed except for a blunt tooth at the antero-external angle. Merus of maxillipeds deeply notched at the inner angle; inner lobe triangular, obtuse. Chelipeds in the female a little longer than the carapace. Merus somewhat angled, with a shallow tooth below near the carpal end. Manus swollen, unarmed. Fingers as long as palm, widely gaping. The first ambulatory leg is missing; the remaining legs decrease regularly in length; dactyli almost straight.

Measurements.—Length of carapace, 5.8 mm.; width, 4.2; approximate length of cheliped, 6.5; of second ambulatory, 10.7; third, 9.5; fourth 8.

Locality.—Dredged off Rio Janeiro by Mr. Richard Rathbun in the Hartt explorations of 1875-'77.

This species resembles *I. obtusus* and *I. lævis* in its thick rostrum, but it differs from all described species in its smooth dorsal surface, even the cardiac region being without a tubercle.

ANASIMUS LATUS, new species.

Carapace almost as broad as long, elevated on the median line, the posterior half semicircular in outline, the anterior half broadly triangular. Surface covered with tubercles unequal in size. There are five median spines; two gastric, the posterior the larger, one large on the cardiac region, one very small and pointing backward on the intestinal region, and one long acuminate spine directed backward at the distal end of the first abdominal segment. The anterior gastric median spine is one of a transverse row of five. In front of the extreme spines of this row are two longer and sharper. On the branchial region there are three small spines forming a triangle. There are three antero-lateral spines, one on the hepatic region and two on the branchial region above the base of the cheliped. The rostrum is short, sharp, triangular, and upturned. The supraorbital spines are prominent, separated by a deep depression. The postorbital spines are long, exceeding the eye in large specimens, much less conspicuous in small specimens. The basal antennal segment is long and narrow, terminating in a spine, and with a stout spine in front of the eye pointing downward and forward. The flagellum is short, its second joint not attaining the end of the rostrum. The pterygostomian region has a row of spines and spinules which is continued to the antennal segment and includes a long spine at the angle of the buccal cavity. The merus of the maxillipeds is strongly cordiform as in *A. fugax*. Sternum and abdomen tuberculous. Abdomen of female with median tubercles on the third and fourth segments.

The chelipeds in the male are a little more than twice the length of the carapace; ischium, merus, and carpus tuberculous; merus cylindrical; propodus swollen, palm shorter than the pollex, with fine scattered tubercles. Digits slender, curved inward, gaping at base only, their fine regular teeth in contact. In the female the chelipeds are a little longer than the carapace, are much smaller than in the male, and the fingers touch throughout their length. Ambulatory legs all very long, slender, cylindrical, armed except the dactyli with numerous small appressed spines; propodi and dactyli with a double fringe of hair.

Young individuals are narrower, with proportionally longer dorsal spines and rostrum and shorter postorbital spines.

Measurements.—Length (of large male), 25.5 mm.; breadth, 24; length of cheliped, 58; length of first ambulatory leg, 106; length (of young male), 11; breadth, 8.

Localities.

Off South Carolina to the Gulf of Mexico and Caribbean Sea, as follows:

Cat. No.	Station.	Lat. N.	Long. W.	Bottom.			Date.
				Fathoms.	Temp.	Materials.	
		° ' "	° ' "		° F.		1884.
6904	{2121	10 37 40	61 42 40	31	67	dk. slate-col. M ..	Feb. 3
	}2122	10 37 00	61 44 22	34	73	dk. slate-col. M ..	Feb. 3
							1885.
9437	2312	32 54 00	77 53 30	88	57.8	crs. S. bk. Sp.....	Jan. 5
18120	2317	24 25 45	81 46 45	45	77	Co.....	Jan. 15
18121	2318	24 25 45	81 46 00	45	75	Co.....	Jan. 15
9656	2378	29 14 30	88 09 30	68	.....	gy. M.....	Feb. 11
18122	2388	29 24 30	88 01 00	35	.....	yl S. bk. Sp.....	Mar. 4
18123	2404	28 44 00	85 16 00	60	.....	gy. S.....	Mar. 15
18124	2405	28 45 00	85 02 00	30	.....	gy. S. brk. Co.....	Mar. 15
18125	2406	28 46 00	84 49 00	26	.....	crs. S. Co.....	Mar. 15

This species can be distinguished from *A. fugax* by its greater breadth of carapace, shorter rostrum and epistome, and different arrangement of spines.

EURYPODIUS LATREILLEI, Guérin.

Eurypodius latreillei, GUÉRIN, (Mém. du Muséum, XVI, p. 354, pl. XIV, 1828); Icon. Crust. R. A., ii, pl. XI, fig. 1, 1829-44.—MIERS, Proc. Zool. Soc. London, 1881, p. 64, and synonymy.

Locality.—Laredo Bay, Straits of Magellan, January 22, 1888; U. S. Fish Commission steamer *Albatross*.

OREGONIA GRACILIS, Dana.

Oregonia gracilis, DANA, Crust. U. S. Expl. Exped., I, p. 106, pl. III, fig. 2, 1852.

Oregonia hirta, DANA, *op. cit.*, p. 107, pl. III, fig. 3.

Oregonia longimana, BATE, in Lord's Nat. in Brit. Col., II, p. 267, 1866.

This species is one of the most abundant of the North Pacific brachyurans. It was collected by the *Albatross* at 84 stations, from Bristol Bay, Bering Sea, to Oregon, and in depths ranging from 5 to 135 fathoms; and by Mr. William H. Dall and others as follows:

Localities.

Alaska; Dall collection:

Cat. No.	Locality.	Fathoms.	Nature of bottom.
14705	Anchorage, Cape Etolin, Nunivak Island....	8	St.
14707	Kyska Harbor	7-14	M. S.
14710	Bay of Islands, Adakh.....	9-16	M. S.
14770	Nazan Bay, Atka.....	10-16	S.
12540	Off Imagna Pinnacle, Captain's Bay, Unalaska	8-20	.....
•12496	Belkoffsky Bay.....	15-25	Sh. G.
14713	Port Levasheff .....	.....	.....
14703	Off Round Island, Coal Harbor, Unga.....	8-9	S. St.
14769	Popoff Strait .....	.....	.....
•14702	Sanborn Harbor, Nagai	low water.	.....
14709	Anchorage, Big Koniushi Island, Shumagins.	6-20	S. R.
14708	Port Möller	15	S.
13132	Semidi Islands	12-28	G.
14706	Chajafka Cove, Kadiak	12-14	M. S.
12501	Chajafka Cove, Kadiak	15-20	G.
12495	Chiniak Bay, Kadiak.....	.....	.....
14711	Kachekmak Bay, Cook's Inlet.....	20-60	sd. M.
14704	Port Etches	5-18	.....
14768	West side of Middleton Island	10-12	G. S.
14712	Lituya Bay.....	6-9	.....
12517	Granite Cove, Port Althorp.....	.....	.....
14771	Sitka Harbor.....	15	G. M.
14714	Sitka .....	.....	.....

Bering Island; L. Stejneger; young specimens (13510); N. Grebnitski (14716).
 Menzies Bay, Discovery Passage, B. C., 6 fathoms, soft bottom; Lieut. Comdr.
 H. E. Nichols, U. S. N., U. S. C. S. S. *Hassler* (5778).
 Port Orchard, Puget Sound; O. B. Johnson (14971).

ANAMATHIA CRASSA, (A. Milne-Edwards).

Plate I, fig. 4.

Amathia crassa, A. MILNE-EDWARDS, *op. cit.*, p. 203, Pl. XXVIII, fig. 2, 1879.
Amathia agassizii, SMITH, Bull. Mus. Comp. Zool., x, p. 1, pl. II, figs. 2, 3, 1882;
 Proc. U. S. Nat. Mus., VI, p. 3, 1883; Rept. U. S. Fish Commissioner for 1882,
 p. 346, 1884.
Anamathia agassizii, SMITH, Proc. U. S. Nat. Mus., VII, p. 493, 1885; Rept. U. S.
 Fish Commissioner for 1885, p. 624, 1887.

Several large specimens were dredged at station 2665. A female gives the following measurements in millimeters: Length of carapace, including rostral spines, 77; length of carapace, excluding rostral spines, 70; width, including spines, 59; width, excluding spines, 57; length of cheliped, 107; length of first ambulatory leg, 199; second, 164; third, 140; fourth, 132.

Localities.

Off the coast of South Carolina and Florida by the U. S. Fish Commission steamer *Albatross* as follows:

Cat. No.	Station.	Lat. N.	Long W.	Bottom.			Date.
				Fathoms.	Temp.	Materials.	
11213	2624	32 36 00	77 29 15	258	..... °F.	gy. S. bk. Sp.....	1885. Oct. 21
11392	2642	25 20 30	79 58 00	217	42.6	gy. S	1886. Apr. 9
11358	2665	29 47 00	80 05 45	263	45.2	fine. gy. S	May 4
11383	2666	30 47 30	79 49 00	270	48.3	gy. S.....	May 5
11397	2667	30 53 00	79 42 30	273	48.7	gy. S. bk. Sp.....	May 5

ANAMATHIA HYSTRIX, (Stimpson).

Amathia hystrix, STIMPSON, Bull. Mus. Comp. Zool., II, p. 124, 1870.—A. MILNE-EDWARDS, *op. cit.*, pp. 134, 200, pl. XXVIII, fig. 1, 1879; Bull. Mus. Comp. Zool., VIII, p. 2, 1880.

Anamathia hystrix, SMITH, Rept. U. S. Fish Commr. for 1885, p. 626 (1887).

Briefly characterized by Stimpson as bearing a close resemblance to *A. rissoana*, but differing in having four instead of three spines on the gastric region. The specimen at hand is the same species as that figured by A. Milne-Edwards, but differs in having much longer spines and in the greater divergence of the rostral horns.

Locality.—Two and a half miles northwest of Havana light, 387 fathoms, coral, temperature 49°, April 30, 1884, station 2152, steamer *Albatross*; one immature female (6940).

Measurements.—Length, measured from between rostral horns, 16 mm.; length of horns, 17.5; width without spines, 12; width with spines, 27; distance between tips of horns, 13.

ANAMATHIA UMBONATA, (Stimpson).

Plate I, Figs. 1-3.

Scyra umbonata, STIMPSON, Bull. Mus. Comp. Zool., II, p. 115, 1870.—A. MILNE-EDWARDS, Crust. du Mexique, p. 87, 1875, pl. XXXI A, fig. 5, 1880; Bull. Mus. Comp. Zool., VIII, p. 2, 1880.

Scyramathia umbonata, A. MILNE-EDWARDS, Comptes Rendus, XCI, p. 356, 1880. (See Sars, Den Norske Nordhavs-Expedition, XIV, Crustacea, I, p. 7, 1885; also SMITH, Rept. U. S. Fish Commr. for 1885, p. 625, 1887).

At Station 2415, off Georgia, were found four specimens of Stimpson's *Scyra umbonata*. The protuberances of the carapace are as described by him. The rostrum is composed of two slender divergent horns. The basal antennal joint is concave beneath, rather narrow and unarmed, except for the blunt tooth at the antero-external angle. The surface is covered with a dense coat of broad setæ similar to those described by Sars as occurring on *Scyramathia carpenteri*. The legs are bordered by longer club-shaped setæ, while the gastric region and the margins of the rostrum and branchial regions are furnished with long slender hairs curved at the tips. There is a prominent præorbital spine and a post-orbital lobe.

The four specimens in the haul are alike in all essential particulars. Three are females, two of them bearing eggs, and the fourth is a small male. In the latter the rostral horns are more divergent. The largest female has a total length of 29 mm.

Three other specimens occur at station 2668, off Fernandina, Florida. The ambulatory legs of all are longer and more cylindrical than in the individuals from station 2415. One (which I will call A) is a male, 26.5 mm. long. This also is a typical *umbonata* as regards the orbits and ornamentation of the carapace, and is apparently mature, the chelipeds being elongate, about 1½ times the length of the carapace, the propodus much longer than the merus and strong, its margins thin and sub-parallel; fingers gaping for their basal half, dactylus with a basal tooth. Ambulatory legs with the club-shaped setæ reduced in size.

The largest specimen (C) from this station is an ovigerous female, 31 mm. long. The carapace is much swollen and smoother than in those above described. There are but three flat-topped protuberances, the cardiac and anterior branchial; their flattened tops are smaller than their bases. The other prominences are simply tubercles, the gastric one being elongate and smoothly rounded. The marginal spines are tapering, and not broad and flat as in the specimens from station 2415, the hepatic spine not erect but directed outward and slightly forward and upward, and the branchial spine directed not forward but outward and slightly upward. The ambulatory legs are conspicuously clothed with long slender bristles among the short setæ.

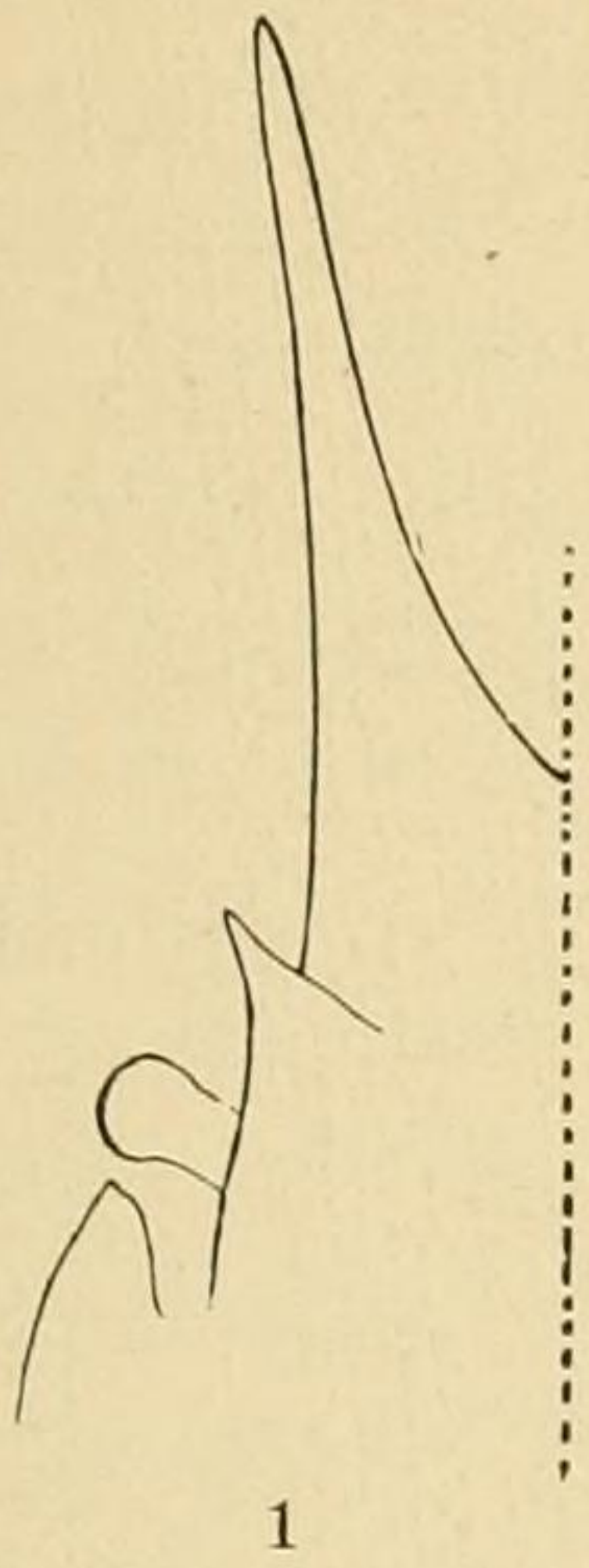
These characters are sufficient to make this specimen specifically distinct from those described above, were it not that the third specimen (B) from this dredge haul is intermediate in character. It is a male, 28 mm. long, but with the chelipeds not strongly developed. The protuberances of the dorsal surface are as in C, excepting that the flattened tops of the three prominences overhang their bases. The marginal spines are as in A. The ambulatory legs are as in C, and the carapace has more long fine bristles than in any other specimens.

In C (fig. 3) the orbits are widely open, more so than in *A. crassa* (fig. 4); there is in fact no upper surface to the orbit. The outer surface of the postorbital lobe is flat, and it is directed forward or in a line almost parallel to the median line. The præorbital spine is directed well outward; its posterior or outer margin is concave, directed strongly inward from the tip and then slightly outward. In A (fig. 1) the outer margin of the postorbital lobe is inclined strongly inward; the outer margin of the præorbital spine is directed slightly inward from the tip and is convex posteriorly. This disposition of the orbital spines necessarily makes the opening of the orbit narrower as seen from above, especially at the posterior end where the narrow sinus gives it an appearance similar to that seen in *A. carpenteri*, which Prof. Sars considered to be allied to the genus *Hyastenus* (see fig. 5, *H. longipes*). In the orbits of B (fig. 2) the intermediate character is again seen, the postorbital lobes resembling those of A, the præorbital spines those of C.

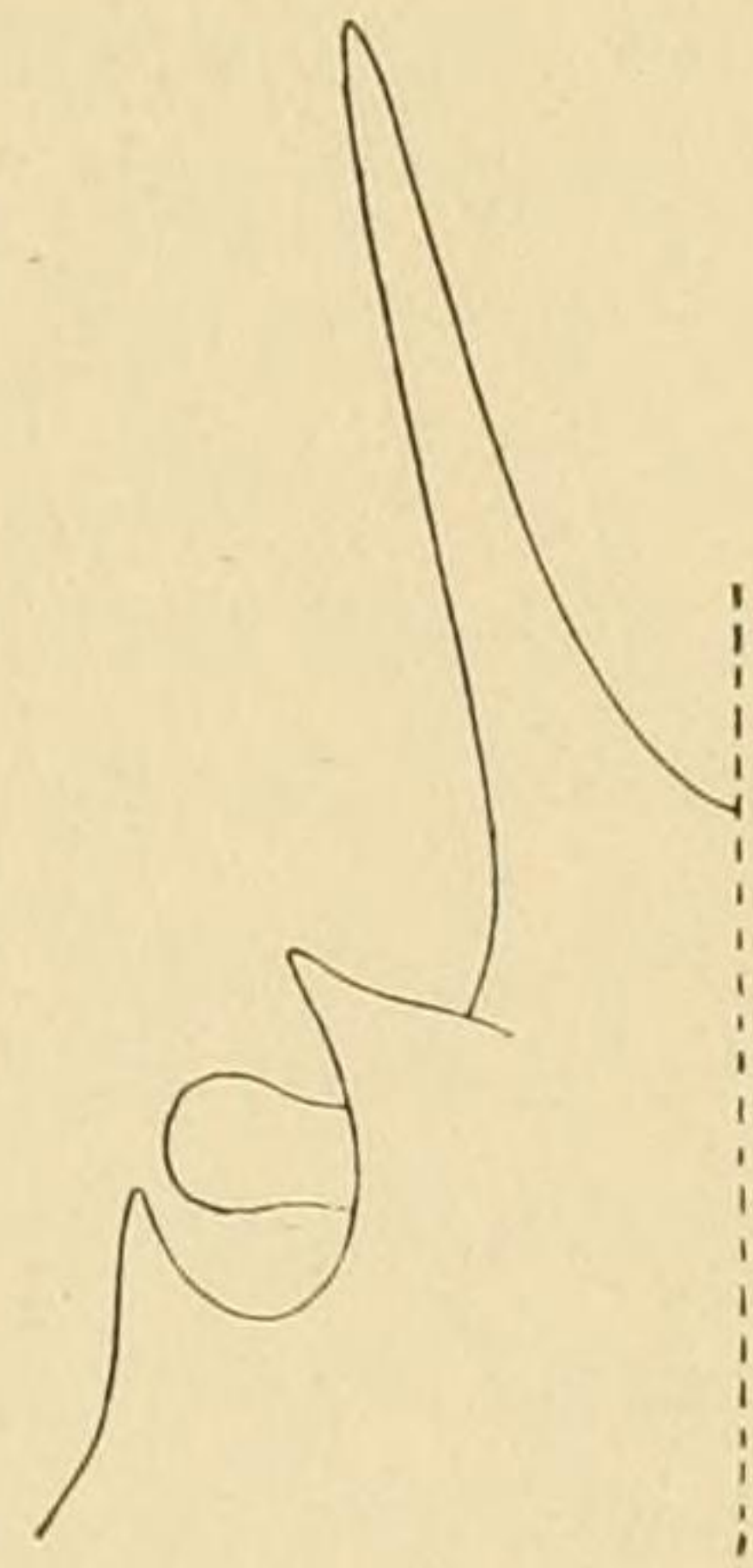
A. carpenteri (Norman) is more pyriform than *A. umbonata*, narrower anteriorly, and the præorbital spine is reduced to a lobule.

Measurements in millimeters.

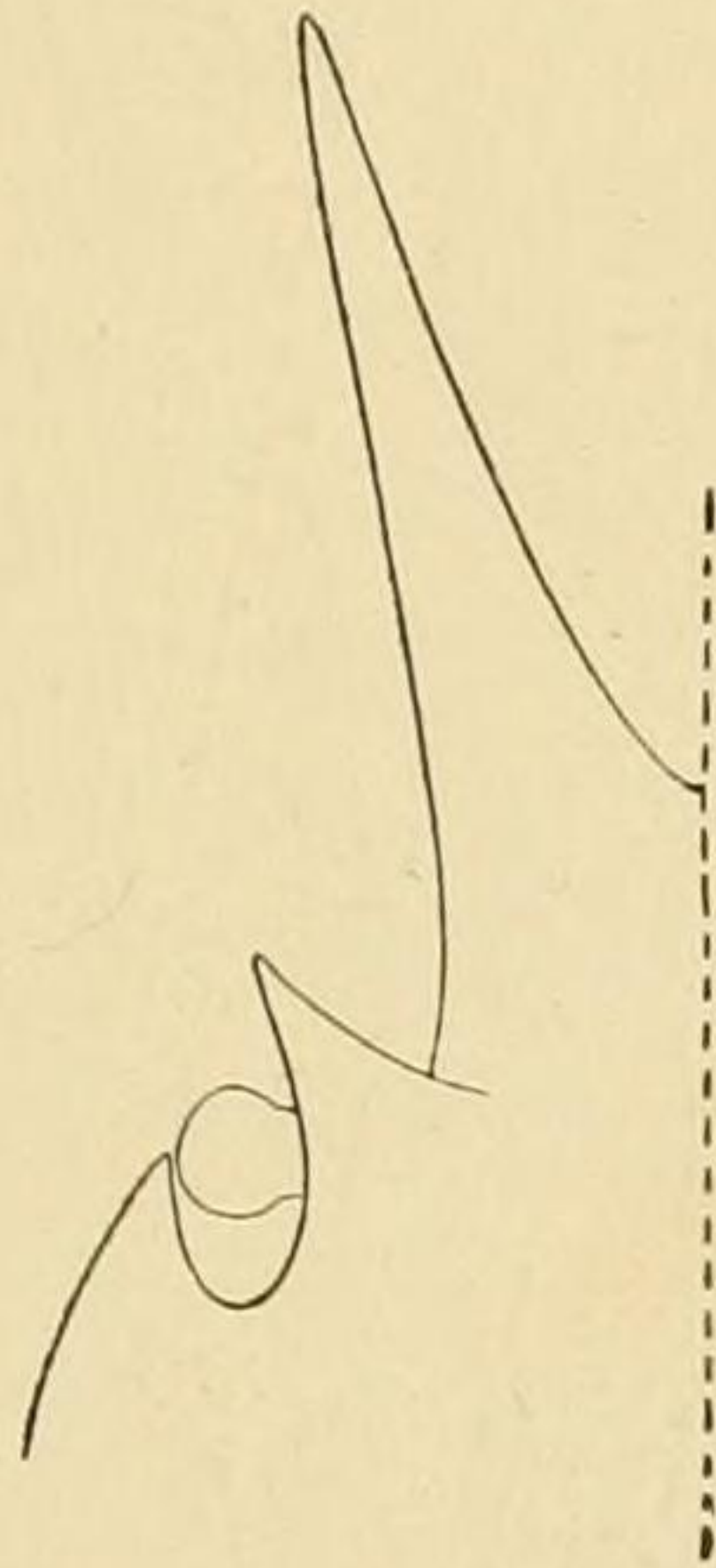
Sex.....	♂ (A)	♀ (C)	♀
Station.....	2668	2668	2415
Total length of carapace.....	25.6	31	29
Length of rostral spine, inside measure.....	7.3	7	6.8
Total width of carapace.....	19	20	22
Width without spines.....	15	17.5	17.5
Length of cheliped.....	41.5	30	26
Length of first ambulatory leg.....	42	49	38
Length of second ambulatory leg.....	33	40	31
Length of third ambulatory leg.....	27.5	34	27
Length of fourth ambulatory leg.....	26	32	26



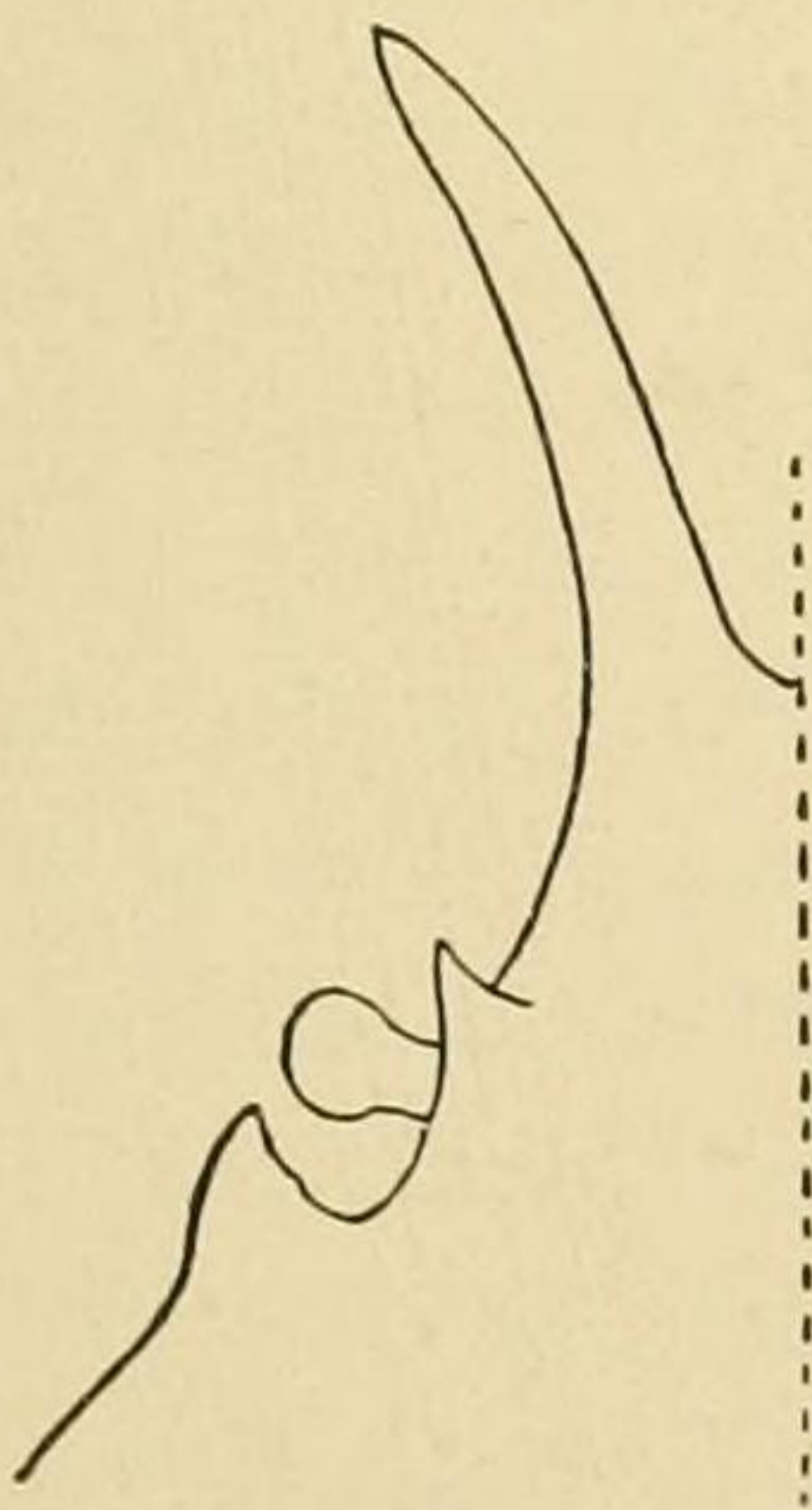
1



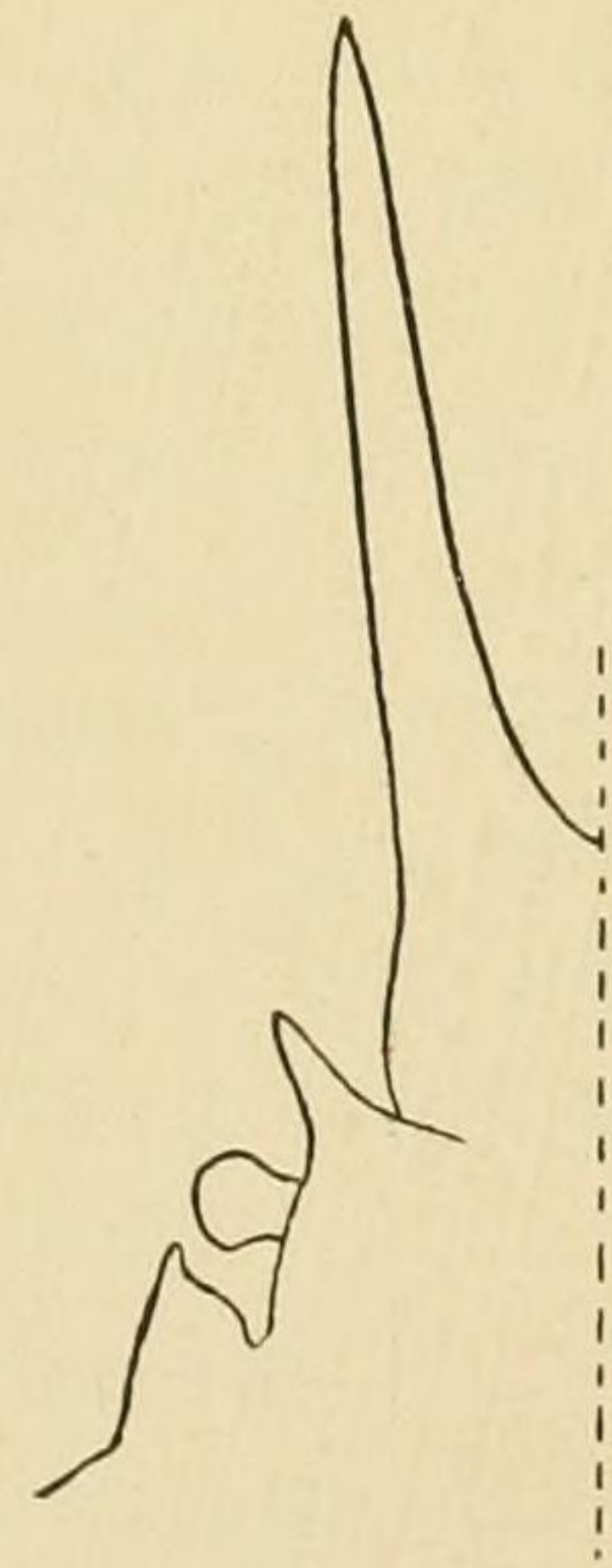
3



2



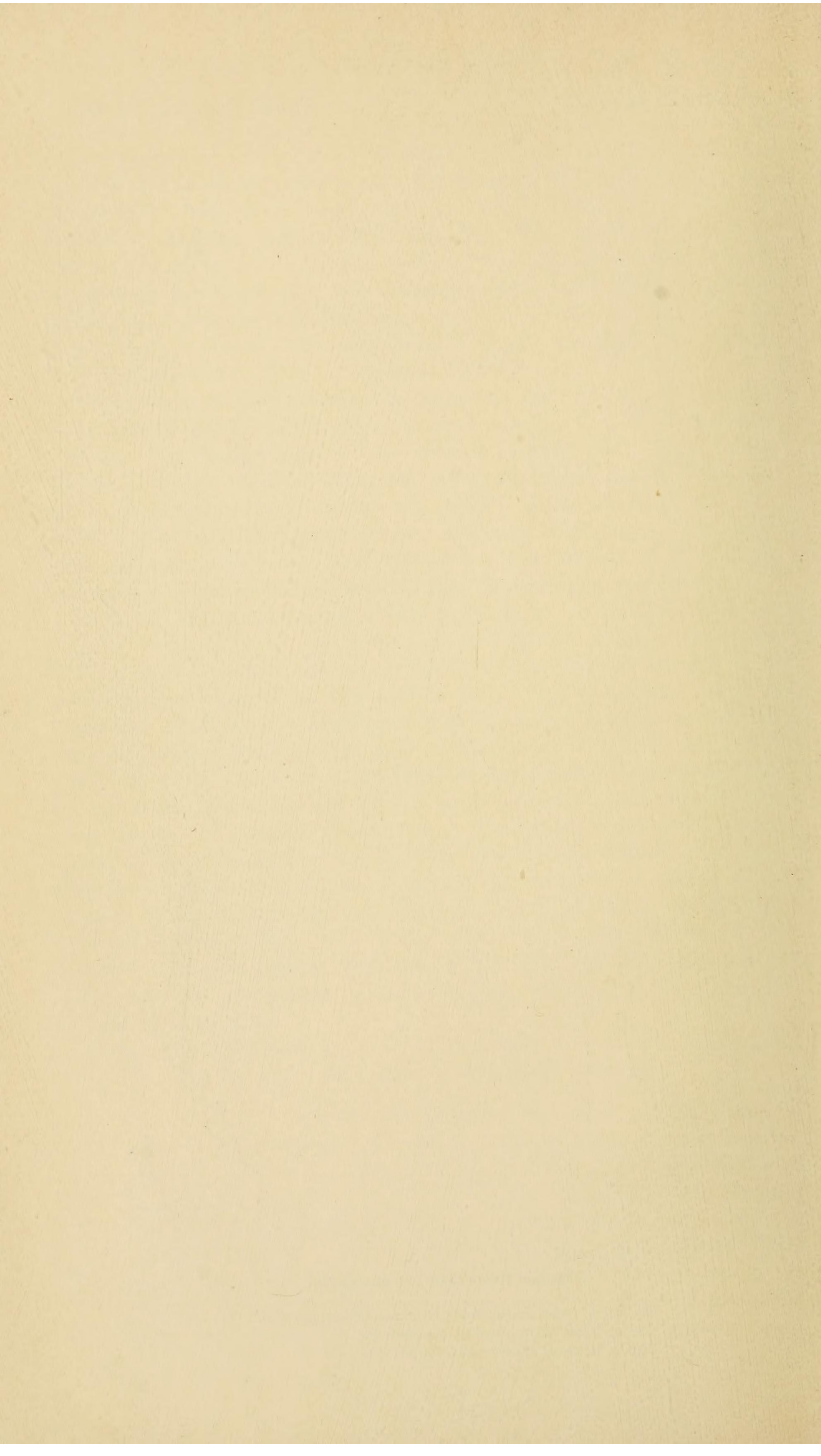
4



5

ORBITAL VARIATIONS OF ANAMATHIA.

- FIGS. 1-3. Orbit and rostrum of *Anamathia umbonata* $\times 3\frac{1}{2}$.
FIG. 4. Same of *Anamathia crassa* $\times 1\frac{3}{8}$.
FIG. 5. Same of *Hyastenus longipes* $\times 1\frac{3}{8}$.



TRACHYMAIA CORNUTA, A. Milne-Edwards.

Trachymaia cornuta, A. MILNE-EDWARDS, Crust. du Mexique, I, p. 352, pl. XXXI A, fig. 2, 1880.

The single specimen collected by the *Albatross* is larger than that figured by A. Milne-Edwards. The carapace is rough with spinules, and covered with soft bristles. The four spines on the gastric region form a transverse diamond; there are two median spines close together on the cardiac region; five spines on the branchial region, three near the inner margin and two near the outer; one hepatic and one subhepatic spine. On the posterior margin of the carapace is a line of twenty-five small spines terminating above the first ambulatory leg; of this row the median spine and two near the middle are larger than the others. On the margin of the branchial region there is a line of four spines extending forward from above the first ambulatory leg. On the pterygostomian region there is a cluster of four spines. The rostral spines are longer, more slender, and more divergent than in A. Milne-Edwards's figure. The præorbital spine is acuminate; the postorbital is long, projecting laterally much beyond the eye. The eyes are large and flattened almost in a horizontal direction. There is a large suborbital spine, and a spine at the angle of the buccal cavity. The basal antennal segment bears a terminal and one lateral spine; the second joint of the flagellum reaches half way to the end of the rostral spines, while the remaining portion of the flagellum exceeds the rostrum by half its length. In the abdomen of the male the first segment has three spinules transversely arranged; the second has two median and one lateral; the third and fourth have a median tubercle. Sternum with four spinules in front of the abdomen.

The chelipeds are nearly twice the length of the carapace; ischium, merus, and carpus spiny. Manus broad; upper margin with a small spine near the carpus and at a little distance a minute spinule visible with the glass; lower margin with a tooth near the articulation. Fingers flattened laterally, broad, toothed on the prehensile edges, acute, narrowly gaping for half their length. Ambulatory legs slender, with scattered bristles, the first nearly three times the length of carapace, the fourth about one-half the length of the first. Other legs missing.

Measurements.—Length, 18 mm.; width, without spines, 13; length of rostral horns, 3.2; length of cheliped 33.5; length of first ambulatory leg, 52; length of fourth, to articulation of dactylus, 21.

Locality.—Little Bahama Bank, lat. $27^{\circ} 22'$ N., long. $78^{\circ} 07' 30''$ W., 338 fathoms, gray sand, temp. 47.5° , May 2, 1886, station 2655; one male (11400).

I have examined three small specimens from the *Blake* collection in the Museum of Comparative Zoölogy and find that they agree with the one above described in the very slender rostral spines and the relative length of the antennal joints, and also possess spinules on the upper margin of the manus.

LISPOGNATHUS THOMSONI, (Norman).

Dorynchus thomsoni, NORMAN, in Thomson, Depths of the Sea, p. 174, cut, 1873.

Lispognathus thomsoni, A. MILNE-EDWARDS, (Arch. Miss. Sci. Litt., IX, pp. 16, 39, 1882). MIERS, *Challenger Rept.*, Zool., XVII, p. 28, Pl. v, fig. 2 (variety), 1886, and synonymy.—SMITH, Rept. U. S. Commr. of Fisheries for 1885, p. 622, 1887, and synonymy.

Locality.—Off Georgia, lat. 30° 44' N., long. 79° 26' W., 440 fathoms, coral, coarse sand, shells and foraminifera, temperature 45.6°, April 1, 1885, station 2415, U. S. Fish Commission steamer *Albatross*; 1 male, 1 female (18119).

These specimens have been compared with a female from station 2262, off Martha's Vineyard (Smith, *loc. cit.*). They are about the same size and apparently the same species.

HOLOPLITES, new genus.

Carapace pyriform, covered with sharp spines of unequal length. Rostrum composed of two long, slender, divergent horns. Præorbital spines long. Orbits open, spinous. Basal antennal segment very narrow, spinous. Antero-internal angle of the merus of the maxillipeds oblique, not notched for the articulation of the palpus. Abdomen of female with the fourth, fifth, and sixth segments coalesced. Chelipeds and meral joints of ambulatory legs spinous.

This genus resembles *Echinoplax*, Miers, in many respects, but does not possess accessory spinules on the rostrum. It differs from *Nibilia* in the very incomplete orbits, the narrow basal antennal segment, the number of abdominal segments in the female, as well as in the form of the maxillipeds.

HOLOPLITES ARMATUS, (A. Milne-Edwards).

Nibilia armata, A. MILNE-EDWARDS, Crust. du Mexique, p. 348, pl. XXXI A, fig. 3, 1880.

One specimen (18126), a female with eggs, from station 2152, two and a half miles northwest of Havana Light, 387 fathoms, coral, temperature 49°.

The spine above the orbit is nearer the postorbital than the præorbital, and is longer than represented in A. Milne-Edwards's figure. There is also a subhepatic spine. The rostrum of the *Albatross* specimen is longer proportionally than the one figured and is not divided to its base. The first three segments of the abdomen in the female are very narrow and have each a median spine, diminishing in length from the first to the third; the second and third segments have lateral spinules, which are almost imperceptible on the third; fourth segment very large and smooth; terminal segment broadly rounded at the extremity. The abdomen has scattered hairs like the rest of the surface.

Measurements.—Length, including rostrum, 23.5 mm.; length of rostral spines, 8; width, without spines, 11; width, including spines, 16.

CHORINUS HEROS, (Herbst).

Cancer heros, HERBST, Natur. Krabben und Krebse, II, p. 165, pl. XLII, fig. 1, pl. XVIII, fig. 102, 1796.

Chorinus heros, LEACH (Latreille, Encyc., t. 10, p. 139).—A. MILNE-EDWARDS, *op. cit.*, p. 86, and synonymy.

Localities.—San Domingo, W. M. Gabb, 1878 (4176). Rio Vermelho, Bahia, Brazil, February 6; Richard Rathbun, Hartt Explorations, 1875-77.

TRICHOPLATUS HUTTONI, (A. Milne-Edwards).

Trichoplatus huttoni, A. MILNE-EDWARDS, (Ann. Sci. Nat. (6), IV, art. 9, pp. 1-3, pl. X, 1876), *vide* Zool. Rec., 1877.—MIERS, Jour. Linn. Soc. London, XIV, p. 647, 1879, (*Erichoplatus*).

Halimus hectori, MIERS, Ann. N. H. (4), XVII, p. 219, 1876; Cat. Crust. New Zealand, p. 4, 1876.

In a male from New Zealand, presented by the Otago University Museum (16224), the chelipeds are very robust; in another from Bluff Harbor, New Zealand (18127), the right cheliped is short and slender, the left long and robust.

Subfamily ACANTHONYCHINÆ.

ANOMALOTHIR FURCILLATUS, (Stimpson).

Anomalopus furcillatus, STIMPSON, Bull. Mus. Comp. Zool., II, p. 125, 1870.—A. MILNE-EDWARDS, Crust. du Mexique, p. 188, pl. XXXV, fig. 4, 1879.

Anomalothir furcillatus, MIERS, Jour. Linn. Soc., London, XIV, p. 648, 1879.

Localities.

Collected by the *Albatross* at the following stations:

Cat. No.	Station.	Lat. N.	Long. W.	Fathoms.	Nature of Bottom.	Date.
		° ' "	° ' "			1885.
15166	2346	23 10 39	82 20 21	200	Co.	Jan. 20
18127	2401	28 38 30	85 52 30	142	gn. M. brk. Sh.	Mar. 14
18128	2601	34 39 15	75 33 30	107	gy. S.	Oct. 18
15156	2319-50	Off Havana, Cuba.		33-279	Co.	Jan. 17-20

MOCOSOA CREBRIPUNCTATA, (Stimpson).

Mocosoa crebripunctata, STIMPSON, Bull. Mus. Comp. Zool., II, p. 128, 1870.—A. MILNE-EDWARDS, *op. cit.*, p. 137, 1878.

The large immovable eyes completely fill the circular orbits which are provided with a small, inconspicuous tooth on the outer side. The area above the orbit is thickened and protuberant, but without a præ-ocular spine. The third, fourth, and fifth segments of the abdomen in the male are coalesced. The chelipeds are stout, elongate; merus cylindrical; manus slightly compressed, widening distally; fingers very short and stout, little gaping, dentate. The surface of the crab is everywhere punctate.

Measurements.—Length, 7; width, 6.2 mm.

Locality.—Gulf of Mexico, lat. 29° 15' 30'' N., long. 85° 29' 30'' W., 27 fathoms, gravel, station 2372, steamer *Albatross*, Feb. 7, 1885; one male (18129).

SPHENOCARCINUS CORROSUS, A. Milne-Edwards.

Sphenocarcinus corrosus, A. MILNE-EDWARDS, *op. cit.*, p. 136, pl. xvii, fig. 5, 1878.

One female with eggs, from off Cape Fear, North Carolina, lat. 33° 20' N., long. 77° 05' W., 90 fathoms, gray sand, temperature 65.8°, April 2, 1885 (15183).

In this specimen the rostrum is longer than in A. Milne-Edwards's figure and the horns are divergent for their terminal half. The supraorbital margin terminates anteriorly in a rounded lobe more prominent than is indicated in the figure. The protogastric lobes are larger and more broadly joined to the mesogastric. The middle portion of the cardiac lobe is also deeper than represented in the figure.

SIMOCARCINUS SIMPLEX, (Dana).

Huenia simplex, DANA, Crust. U. S. Expl. Exped., I, p. 133, pl. 6, fig. 3, 1852, male.

Huenia brevirostrata, DANA, *op. cit.*, p. 134, pl. 6, fig. 4, female.

Simocarcinus simplex, MIERS, Ann. Mag. Nat. Hist. (5), IV, p. 6, 1879.

Locality.—Western Indian Ocean; W. L. Abbott, 1 male (18130).

The rostrum is much longer and narrower than in the example figured by Dana.

ECHINÆCUS, new genus.

Carapace subpentagonal, very convex in the antero-posterior direction. Rostrum triangular, flattened horizontally, strongly deflexed. Eyes small, in circular orbits, concealed by the carapace and situated at the indentation formed by the meeting of the antero-lateral and rostral margins. Antennæ very small, covered by the rostrum, the basal segment narrow. Maxillipeds with the merus notched at its antero-internal angle. Abdomen of female with 7 segments. Legs short.

ECHINÆCUS PENTAGONUS, new species.

Carapace almost smooth, convex in both directions, especially so in the antero-posterior directions; posterior margin straight, forming oblique angles with the postero-lateral margins, which are directed forward and outward. Antero-lateral angles rounded. Surface punctate. There are a few round shallow depressions between the areas, and seven or eight small low tubercles on the cardiac region. The rostrum is nearly as long as its breadth at base, thin-edged, obtuse and slightly indented at the tip. The eyes are withdrawn into small nearly circular orbits which are bordered below by the small narrow basal antennal segment. The flagellum is short, not reaching to the middle of the rostrum and is entirely concealed by it. The antennulæ are nearly longitudinal. Epistome short. The lower surface of the carapace is conspicuously punctate. Maxillipeds punctate; inner margin of merus convex, antero-internal angle with a slight notch. Abdomen of female much longer than wide.

Chelipeds short and stout, punctate; ischium with a low tooth on inner margin; merus trigonal, widening distally, with a stout tooth on each margin near the carpus; carpus with two teeth on inner margin.

When the chelipeds are folded close to the carapace, one carpal tooth is just in front of the antero-lateral angle, the other just behind it. Propodus deep, especially toward the fingers, where the upper margin is produced much above the dactyl. Fingers short, irregularly and feebly toothed along their prehensile edges which are in contact, the tips crossing. Ambulatory legs unarmed, somewhat flattened; meral joints rectangular; propodal joints tapering towards the dactyli which are stout, and hairy beneath, with curved horny tips.

Measurements.—Length of carapace, 15 mm.; width at antero-lateral angles, 14.3; posterior width, 8; width at orbits, 5.5; length of rostrum, 4.8; length of cheliped, 14; lower margin of propodus, 7; greatest depth of propodus, 3.7; length of first and second ambulatory legs, 15; third, 13.2; fourth, 12.5.

Locality.—Port Lloyd, Bonin Islands; from the anal end of the intestinal canal of *Echinothrix calamaria*; one adult female (13889).

This species with its smooth broad carapace and short legs is adapted for commensalism, and resembles superficially certain of the Pinnotheridæ of similar habit.

EPIALTUS BITUBERCULATUS, Milne-Edwards.

Epialtus bituberculatus, MILNE-EDWARDS, Hist. Nat. Crust., I, p. 345, pl. xv, fig. 11, 1834.—A. MILNE-EDWARDS, *op. cit.*, p. 139, pl. xxvii, figs. 1, 2, and 3, 1878, and synonymy.

Epialtus dilatatus, A. MILNE-EDWARDS, *op. cit.*, p. 140, pl. xxvii, fig. 4.

Represented in the collection by 10 specimens from 9 localities. A larger series would probably show that *E. sulcirostris* and *E. longirostris* Stimpson and *E. minimus* Lockington are variations of the same species.

Sabanilla, United States of Colombia; U. S. Fish Commission; 1 male (18131) of the form shown by A. Milne-Edwards, *op. cit.*, pl. xxvii fig. 3.

Pernambuco (?), Brazil; Richard Rathbun, Hartt Explorations, 1875-'77; 1 male, 1 female, also of the *brasiliensis* form, and the male with the heavy chelipeds figured by Dana.

Bird Key, Florida; U. S. Fish Commission schooner *Grampus*, April, 8, 1889; one female with eggs (15204) of the *dilatatus* form, the anterior lateral lobes being more rounded than in A. Milne-Edwards's figure, and the rostrum narrower at base and less tapering.

Dry Tortugas, Florida; Dr. Edward Palmer; one immature female (18132) of the *dilatatus* form, with lobes like the last.

Florida (?); one small male, (14465) with lobes intermediate between typical *bituberculatus* and *dilatatus*.

West coast of Florida; Henderson and Simpson; one immature female (18133), with elongate, emarginate rostrum and rather prominent lateral lobes, the anterior rounded, with its anterior margin sloping backward and outward, the posterior lobe with a prominent tubercle on its anterior margin.

Key West, Florida; D. S. Jordan, December, 1883; one male (18134), with rostrum similar to the last, and with acute somewhat spiniform lateral lobes.

Panama (?) ; one small female (18135) with eggs, with entire rostrum, and prominent lateral lobes, the anterior being rounded and its anterior margin sloping backward and outward, the posterior lobe smaller and acute.

Southern California; W. H. Dall; one male (18136); this specimen shows a greater divergence from typical forms than any of those hitherto described; the rostrum is broad and flat, widening toward the extremity which is broadly emarginate; the præorbital lobes are small but acute; the hepatic lobes are enormously developed, their anterior margins directed forward, outward and upward, their extremities being more advanced than the eyes. The postero-lateral projections are stout, acute teeth. The palms of the chelipeds are very long and terminate in a strong prominence behind the dactyl. Length 11.3 mm., width 9 mm.

EPIALTUS PRODUCTUS, Randall.

Epialtus productus, RANDALL, Jour. Acad. Nat. Sci. Phila., VIII, p. 110, 1839.—GIBBES, Proc. Amer. Assoc. Adv. Sci., III, p. 173, 1850.—DANA, *op. cit.*, I, p. 133, pl. 6, fig. 2, 1852.—STIMPSON, Proc. Acad. Nat. Sci. Phila., IX, p. 219, 1857; Bost. Jour. Nat. Hist., VI, p. 457, 1857.—RICHARD RATHBUN, Fisheries Industries of U. S., Sec. I, p. 778, pl. 268, 1884.

Localities.

Alaska:

Kyska Harbor, 9 to 12 fathoms, sandy mud; W. H. Dall (14797).

British Columbia:

Barclay Sound; U. S. Fish Commission (15521).

Beaver Harbor; U. S. Fish Commission (15519).

Victoria; C. F. Newcombe (15796).

Washington:

Straits of Fuca; D. S. Jordan (3064).

Port Ludlow; W. H. Dall (14796).

Port Orchard; O. B. Johnson (14974); U. S. Fish Commission (15518).

California:

Tomales Bay (14853).

San Francisco; D. S. Jordan (3095).

San Francisco (?); U. S. Exploring Expedition (2366).

Point Loma; U. S. Fish Commission (15522).

Monterey; A. S. Taylor (2054); D. S. Jordan (3129); H. Hemphill (2289, 3292).

Monterey Bay; U. S. Fish Commission (15520).

Santa Barbara; Shoemaker (2316); D. S. Jordan (3048).

San Pedro; D. S. Jordan (3088).

Catalina Harbor, beach; W. H. Dall (14793).

San Diego; D. S. Jordan (3560); Rosa Smith (7633); Rosa S. Eigenmann (14652); H. Hemphill (18137).

Southern California; W. H. Dall (14794).

West coast North America; North Pacific Railroad Survey (2139).

EPIALTUS (ANTILIBINIA) DENTATUS, (Milne-Edwards).

Epialtus dentatus, MILNE-EDWARDS, Hist. Nat. Crust. 1, p. 345, 1834.—BELL, Trans. Zool. Soc. London, II, p. 62, 1835.

Epialtus (Antilibinia) dentatus, MIERS, Jour. Linn. Soc. London, XIV, p. 650, 1879.

Localities.

Panama (?); J. M. Dow; 1 female (2402).

West Coast of South America; Dr. H. E. Ames, U. S. N.; 1 female (18138).

Callao, Peru; U. S. Exploring Expedition; 1 female (2365).

Valparaiso, Chili; U. S. Exploring Expedition; male and female (2367).

The specimens collected by the United States Exploring Expedition, although labeled by Dana, were omitted from his report.

EPIALTUS (ANTILIBINIA) MARGINATUS, (Bell).

Epialtus marginatus, BELL, *op. cit.*, p. 62, pl. XI, fig. 4 (♀), pl. XIII (♂).—A. MILNE-EDWARDS, *op. cit.*, p. 138, 1878.

Epialtus (Antilibinia) marginatus, MIERS, *loc. cit.*

Locality.—Valparaiso; U. S. Exploring Expedition; male and female (2372). Labeled but not recorded by Dana.

EPIALTUS (ANTILIBINIA) NUTTALLII, (Randall).

Epialtus nuttallii, RANDALL, Jour. Acad. Nat. Sci. Phila., VIII, p. 109, pl. III, 1839.

Localities.

Santa Barbara, Cal.; D. S. Jordan, 1880 (3108).

San Diego, Cal.; H. Hemphill; 7 young females (18139).

Southern California; W. H. Dall; 1 young female (14798).

PUGETTIA GRACILIS, Dana.

Pugettia gracilis, DANA, *op. cit.*, I, p. 117, pl. 4, fig. 3.—STIMPSON, *op. cit.*, p. 456.

LOCKINGTON, Proc. Cal. Acad. Sci., VII, p. 76, 1876.—MIERS, Jour. Linn. Soc. London, XIV, p. 650, 1879; *Challenger Rept.*, Zool., XVII, p. 40, 1886.

Pugettia lordii, SPENCE BATE, in Lord's Nat. in Brit. Col., I, p. 265, 1866.

Pugettia quadridens var. *gracilis*, ORTMANN, Zool. Jahrb., VII, 1, p. 43, 1893.

In many specimens the wing-like lateral expansion is strongly upturned, and there are four tubercles on each branchial region, one in line with the cardiac tubercle, one further back but nearer the median line, while the other two are further forward on the branchial region. The upper surface and margins of the rostral horns and the inner margin of the præorbital teeth are marked with lines of curled setæ. The carpus of the cheliped, besides the two carinæ above, has a strong carina on the inner margin, and is irregularly ridged on the outer surface. In large males, the hands are very wide, compressed, with the upper carina very thin and prominent; fingers gaping at base, with a short, stout tooth on the dactyl.

The color of dried specimens recently received from Dr. Newcombe is red and green above, and red beneath.

Measurements.—Length of largest specimen, 53 mm.; branchial width, including spines, 40; length of cheliped, about 86; width of hand, 18.

There is nothing in the description or figure of *P. lordii* Spence Bate to indicate that it differs from *P. gracilis*. It is said to range southward to San Francisco.

This species differs from *P. quadridens* in its greater proportionate width at the hepatic regions. In *P. quadridens* the carapace is obviously triangular, being much wider posteriorly than anteriorly, while in *P. gracilis* the carapace is very little wider at the branchial regions than at the hepatic. The anterior lateral expansion has its posterior lobe produced much further forward than in *P. quadridens*; its outer or posterior margin is very convex, while in *P. quadridens* it is concave except near the end of the lobe. The præorbital lobes are wider and the orbital sinus narrower in *P. gracilis* than in *P. quadridens*. In *P. gracilis* the four gastric tubercles (the anterior one is obsolete in old specimens) form a Latin cross; in *P. quadridens* they form a rectangle. The ambulatory legs are more slender in *P. quadridens*.

Localities.

Alaska; William H. Dall:

- Chichagoff Harbor, Attu, 5 to 7 fath., gravel, sand (14756).
- Kyska Harbor, in pass, 10 fath. (14759).
- Nazan Bay, Atka, low water (14757).
- Off Imagna Pinnacle, Captain's Bay, Unalaska, 8 to 20 fath. (12538).
- Amaknak Island, shores (13131).
- Belkoffsky Bay, 15 to 25 fath. (14754).
- Popoff Strait, Shumagins, 6 fath. (14753).
- Chirikoff Island, beach (15375).
- Middleton Island, west side, 10 to 12 fath., gravel, stones (14758).
- Port Mulgrave, Yakutat Bay, 6 to 40 fath. (14763).
- Lituya Bay, 6 to 9 fath. (14764).

Alaska; other collectors:

- Unalaska; S. Applegate (12050).
- Kadiak; W. J. Fisher (5747); U. S. Fish Commission (15571).
- Sitka; Commander L. A. Beardslee, U. S. N. (3171); F. Bischoff (2178).
- Ward Cove, Revilla Gigedo Island; Dr. T. H. Streets, U. S. N. (14761).
- Alert Bay, Cormorant Island, beach; Dr. W. H. Jones, U. S. N. (5815).

British Columbia:

- Tledoo Village, near Susk, northwest coast of Graham Island, Queen Charlotte group; James G. Swan (6611).
- Barclay Sound; U. S. Fish Commission (15570).
- Victoria; Dr. C. F. Newcombe (15795).

Washington:

- Straits of Fuca (3400); D. S. Jordan (3077).
- Neah Bay; J. G. Swan (2396, 5771).
- Port Angeles; U. S. Fish Commission (18140).
- Port Townsend; U. S. Fish Commission (16033).
- Port Ludlow; S. Bailey (14762); W. H. Dall (14755).
- Puget Sound; D. S. Jordan (3097).
- Port Orchard; O. B. Johnson (14967).

PUGETTIA RICHII, Dana.

Pugettia richii, DANA, *op. cit.*, I, p. 118, pl. 4, fig. 4.—STIMPSON, *op. cit.*, p. 457.—
LOCKINGTON, *loc. cit.*—MIERS, *loc. cit.*

This species is not larger than *P. gracilis*, and in adult specimens the hands and fingers do not differ in the two species. *P. richii* is, however, readily distinguished by the bilobate lateral expansion, the posterior lobe of which is slender and almost transverse, and the anterior lobe more transverse than in *P. gracilis*. The merus has a few irregular teeth above instead of the prominent carina of *P. gracilis*. Carpus with a single carina above and one on the inner margin, and between them but a slight trace of the diagonal ridge so prominent in *P. gracilis*. Ambulatory legs more slender and cylindrical than in *P. gracilis*.

Localities.

British Columbia

Barelay Sound; U. S. Fish Commission (15572).

Victoria; Dr. C. F. Newcombe.

California:

Monterey Bay; U. S. Fish Commission (15573).

Monterey; H. Hemphill (2276); D. S. Jordan (3058).

San Diego; Rosa Smith (14765).

PUGETTIA QUADRIDENS, (de Haan).

Pisa (Menæthius) quadridens, DE HAAN, Fauna Japon., Crust., p. 97, pl. XXIV, fig. 2, male, and pl. G, 1850.

Pisa (Menæthius) incisus, DE HAAN, *op. cit.*, p. 98, pl. XXIV, fig. 3, female, and pl. G.

Menæthius quadridens, ADAMS and WHITE, Voy. Samarang, Crust., p. 20, 1848.

Menæthius incisus, ADAMS and WHITE, *loc. cit.*

Pugettia quadridens, STIMPSON, Proc. Acad. Nat. Sci. Phila., IX, p. 219, 1857.—

MIERS, Proc. Zool. Soc. London, p. 23, 1879; Challenger Rept., Zool., xvii, p. 40, 1886.

Pugettia incisa, STIMPSON, *loc. cit.*—MIERS, *loc. cit.*

After careful study of a large series of specimens of this genus from Japan I find it necessary to unite De Haan's two species. There are specimens in the collection as distinct as those figured by De Haan. In a lot of four examples from Yokohama Bay three represent the typical *P. incisa*, while one has the hepatic expansion more projecting and more concave on the margin. Rev. H. Loomis has recently presented to the Museum 60 dried specimens from Japan, exact locality not given. Of these about 25 have the strongly produced lateral expansion with a deep sinus separating the postorbital tooth from the sharp posterior tooth. About 10 specimens have the narrower carapace, almost truncate lateral expansion with a rounded posterior angle. The remainder of the specimens are intermediate in width, with the hepatic margin more or less concave and its posterior angle subacute. The prominence of the median tubercles varies with the individual.

In male specimens of both varieties 25 mm. long the chelipeds are identical; the palms are slightly constricted behind the fingers, which are evenly dentate and in contact for nearly their whole length. There

are no larger examples of the *P. incisus* type in the collection, but specimens of the *P. quadridens* type and of the intermediate grade, about 35 mm. long, have chelipeds proportionally much larger, hands of nearly equal width throughout, fingers dentate for nearly their entire length, in contact for their terminal half, gaping at base, and without the two prominent isolated teeth at the base of the dactyl represented in De Haan's figure of *P. quadridens*.

Aside from the characters on which De Haan's two species were founded—the shape of the carapace and the development of the chelipeds—there seem to be no specific differences.

Localities.

Yokohama Bay, Japan, 7 fathoms, kelp (13918).

Japan; H. A. Ward (18141); H. Loomis (18142); Dr. F. C. Dale, U. S. S. *Palos* (13720, 13726).

Fusan, Corea; P. L. Jouy (12400).

PUGETTIA FOLIATA, (Stimpson).

Mimulus foliatus, STIMPSON, Ann. Lyc. Nat. Hist. N. Y., VII, p. 200, 1860.

There seems to be no good reason for placing this in a genus distinct from *Pugettia*. The antennæ have the basal joint as in that genus and the flagellum flattened and exposed at the sides of the rostrum. The lateral expansion is bilobate, but the carapace is wider than in other species of *Pugettia*. The breadth of the carapace does not always exceed the length, as, for instance, in the specimen from Barclay Sound, where the dimensions are: Length, 12.5 mm.; width, 12 mm. The chelipeds present nothing distinctive; the manus is very broad and has thin upper and lower margins. The maxillipeds, abdomen, sternum, and ambulatory legs are almost exactly as in *P. gracilis*.

Localities.

Off Imagna Pinnacle, Captain's Bay, Unalaska, 8 to 20 fathoms; W. H. Dall (14894).

Barclay Sound, B. C.; U. S. Fish Commission (15548).

Monterey, Cal.; H. Hemphill (3291).

ACANTHONYX PETIVERII, Milne-Edwards.

Acanthonyx petiverii, MILNE-EDWARDS, Hist. Nat. Crust., I, p. 343, 1834.—A. MILNE-EDWARDS, *op. cit.*, p. 143, pl. XXVII, fig. 7, and synonymy.

Localities.

Mar Grande, Bay of Bahia, Brazil, Richard Rathbun, Hartt explorations 1875-'77; one female.

Pernambuco (?), same collector; male and female.

Subfamily MICRORHYNCHINÆ.

NEORHYNCHUS DEPRESSUS, (Bell).

Microhynchus depressus, BELL, Trans. Zool. Soc. Lond., II, p. 42, pl. 8, fig. 2, 1835.
Neorhynchus depressus, A. MILNE-EDWARDS, *op. cit.*, p. 187, 1879.

Hitherto only the female of this species has been known. The abdomen of the male has a long, acute, horizontal spine on the first segment as in the female; the outer margins of the fifth and following segments are nearly parallel; terminal segment rounded; sixth and seventh anchylosed. The abdomen figured by Bell is that of an immature female; in mature females the fifth or anchylosed segment is much wider than long, the distal margin slightly concave. The chelipeds of the male are weak as in the female. Of the ambulatory legs the second pair is the longest and the first the shortest, fringed with long hairs; second pair less hairy, third and fourth pairs slightly hairy. Last pair shorter than the third. The basal antennal joint has the inner margin irregularly dentate, the antero-internal tooth blunt, not so far advanced as the antero-external, which is slightly incurved, rounded.

Measurements.—Length of carapace (of largest specimen, a female), 18; width, 17; length to tip of abdominal spine, 23 mm. Length of carapace (of male), 12.5; width, 11.5 mm.

Locality.—Gulf of California, lat. $24^{\circ} 16'$ N., long. $119^{\circ} 22'$ W., 21 fathoms, gray sand, broken shells, April 30, 1888; station 2822, U. S. Fish Commission steamer *Albatross* (18143).

PYROMAIA CUSPIDATA, Stimpson.

Pyromaia cuspidata, STIMPSON, Bull. Mus. Comp. Zool., II, p. 110, 1870.—A. MILNE-EDWARDS, *op. cit.*, p. 177, pl. XXXVI, fig. 2, 1879.

Apiomaia cuspidata, VON MARTENS, Zool. Rec., 1871, p. 182.—MIERS, Jour. Linn. Soc. London, XIV, p. 651, 1879.

The *Albatross* specimens of this species are much larger than those described by Stimpson and A. Milne-Edwards. The dorsal spines are not short and tuberculous, but slender and prominent; of those on the median line, the posterior gastric, the anterior cardiac, the posterior, and the abdominal spine are longer than the others. There is an acute triangular interantennular spine, pointing forward. The chelipeds of the adult male are stouter than those figured by A. Milne-Edwards and are spinulous. Merus with longitudinal rows of short spines with one longer and very slender spine at its distal upper extremity. All the spinules or spines of the carpus are short. The basal portion of the propodus is tumid, longer than the fingers, which touch almost to their base where there is a slight opening. The ambulatory legs are spinulous; the meral joints have an erect spine near the ischial joint, and short spines on the condyles articulating with the carpal joints.

In females and young the ambulatory legs are almost smooth to the touch, but the spinules can be seen with the lens. A female, 27 mm. long, bearing eggs, from station 2601, is unique in having no spine at

the base of the merus of the ambulatory legs, a character which is present in all other specimens of all sizes, more than thirty of which have been examined.

Measurements.—Entire length of carapace (of male), 45; width, without spines, 35; length of cheliped, 73; propodus, 33.5; pollex, 15; depth of propodus, 8.5; length of first ambulatory leg, 152; second, 144; third, 136.5; fourth, 123.

Localities.

Off Cape Lookout, N. C., to the Gulf of Mexico; U. S. Fish Commission steamer *Albatross*, as follows:

Cat. No.	Station.	Lat. N.	Long. W.	Bottom.			Date.
				Fathoms.	Temp.	Materials.	
		° ' "	° ' "		° F.		1885.
9649	2377	29 07 30	88 08 00	210	67	gy. M.	Feb. 11
9745	2399	28 44 00	86 18 00	196	51.6	gy. M.	Mar. 14
18144	2400	28 41 00	86 07 00	169	.....	gy. M.	Mar. 14
9750	2401	28 38 30	85 52 30	142	.....	gn. M. brk. Sh.	Mar. 14
9758	2402	28 36 00	85 33 30	111	.....	gy. M.	Mar. 14
18145	2601	34 39 15	75 33 30	107	.....	gy. S. P.	Oct. 18
18146	2602	34 38 30	75 33 30	124	.....	S. R.	Oct. 18

LOXORHYNCHUS GRANDIS, Stimpson.

Loxorhynchus grandis, STIMPSON, Jour. Boston Soc. Nat. Hist., VI, p. 452, pl. XIX, fig. 1, pl. XXII, fig. 1, 1857.

Localities.

California:

Near San Francisco; Trowbridge (15376).

Off Santa Barbara, lat. 34° 19' 30" N., long. 119° 44' 15" W., 68 fathoms, green mud, temperature 54°, February 11, 1889, station 2973; U. S. Fish Commission steamer *Albatross* (17379).

San Diego; Dr. Kennerly (17572).

LOXORHYNCHUS CRISPATUS, Stimpson.

Loxorhynchus crispatus, STIMPSON, Jour. Boston Soc. Nat. Hist., VI, p. 453, pl. XXII, figs. 2, 3, and 4, 1857.

In a large male the nine most prominent spines or tubercles are covered, excepting at the top, with very thick short hair, which makes them appear hemispherical in shape with small shining points emerging from the hair. There are three less prominent spines arranged transversely on the postfrontal region, and a number of smaller spines scattered on the carapace. Rostrum covered above with stout curled hair, which extends back from each horn across the gastric region; the line is then broken and reappears lower down, and is continued along the branchial region. Chelipeds covered with short hair, except the fingers and places where the hair has been worn off; merus midway between the joints, almost rectangular; upper margin armed with two stout spines widely separated and a smaller one near the ischium; upper surface with a large tubercle at the distal end between the condyles; carpus with five or six spiny tubercles above; hand with two

spines above, one near the carpus on the upper margin, and the other at a little distance just below the margin on the inside of the hand; occasionally there are one or two additional spines on the margin; fingers gaping at base with a large tooth on the dactyl in the gape and about 15 small even teeth on each finger along their prehensile edges.

Smaller males have the spines of the chelipeds much less marked.

In the female the carapace shows twelve tubercles of about equal size, those corresponding to the nine largest ones of the male, being smaller in the female. Chelipeds small and weak; fingers slightly gaping at base, with about 20 small teeth, the proximal one on the dactyl being slightly enlarged. The female is much more hairy on the legs and underneath the abdomen and margins of the legs being thickly set with long club-like setæ.

Specimens in the National Museum collection show the following measurements: Length of largest specimen, a male, from end of rostrum to overhanging posterior protuberance, 122 mm.; width, 84; length of cheliped, about 272; of first ambulatory leg, about 205. Length of largest female measured to posterior margin, the intestinal spine not overhanging, 90; width, 57; length of cheliped, 95; of first ambulatory leg, 80.

Localities.

California:

Monterey; D. S. Jordan (5876).

Santa Barbara; D. S. Jordan (3050).

Island of San Miguel; Trowbridge (2083).

Off southern California, 26 to 53 fathoms, at nine stations of the U. S. Fish Commission steamer *Albatross*.