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VOLUME XV—Part 2

Crustacea Macrura and Anomura of Porto Rico
and the Virgin Islands—*Waldo L. Schmitt*

The Amphipods of Porto Rico and the
Virgin Islands—*Clarence R. Shoemaker*



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CRUSTACEA MACRURA AND ANOMURA OF PORTO RICO AND THE VIRGIN ISLANDS

BY WALDO L. SCHMITT

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INTRODUCTION

In keeping with the general plan of these reports an endeavor has been made to include every species known from Porto Rico and the Virgin Islands, including St. Croix. For each there is given a brief recapitulation of specific characters except in the case of those belonging to genera represented by several species. In these instances the diagnostic keys provided will serve the same purpose. At least one species under each genus is figured. The several figures have been derived from various sources; a few are original. Due credit is given in all cases, and where a particular author's work does not appear in the synonymy of the species in question, it will be found in the bibliography accompanying this paper.

A *Crangon* (p. 145) represented by only a single chela has not been specifically determined, but has, for purposes of enumeration, been counted as a species. This chela is quite distinctive, but without more of the animal at hand has not warranted description. On the other hand, the several varieties and subspecies of *Synalpheus* are not counted apart from the species proper to which they are referable. Thus we are able to list from our region a total of 142 species, 68 genera, and 24 families of macruran and anomuran crustacea. In the collections of the Expedition, or assembled by the American Museum for this report, are nearly half the total number of species, 65, more than half the number of genera, 37, and two-thirds the number of families, 16—a very remarkable showing in view of the fact that only shore and shallow-water marine and freshwater collecting was undertaken. Four plates showing eight of the principal collecting localities will be found at the end of this part.

Four recently described species* are included in the above totals: *Synalpheus osburni*, *Periclimenes portoricensis*, *Gnathophylloides mineri*, *Paguristes tortuga*, as well as a fifth species, *Emerita portoricensis*, described in the present paper. Types of the first three are in the American Museum and of the last two in the United States National Museum,

* Four new species of decapod crustaceans from Porto Rico. By Waldo L. Schmitt, Amer. Mus. Novitates, Sept. 26, 1933, No. 662, pp. 1-9, 4 figs.

as they had been previously noted in collections belonging to this institution. In connection with the determination of the new *Emerita portoricensis*—the only *Emerita* so far found in Porto Rico—occasion has been taken to revise our knowledge of the known species with the rather surprising result that at least seven † species may now be recognized, of which six are found in the Western Hemisphere, four on the Atlantic coast of America, *E. benedicti*, *E. brasiliensis*, *E. portoricensis*, *E. talpoida*, and two on the Pacific coast, *E. analoga*, *E. rathbunæ*. Further, it appears that the Indo-Pacific form long known as *Emerita asiatica*, is that first named by Linnæus as *Cancer emerita*, and should now be known as *Emerita emerita*. Characters by which these species may be distinguished are given in the form of a diagnostic key, and in part shown on an accompanying plate. On page 210 the name *Lepidopa benedicti* is proposed for *L. scutellata* Benedict (1903).

Any new information contained in this report relative to range and distribution of species other than that derived from Expedition material will have been drawn from unpublished records contained in the United States National Museum.

Quite obviously the present report is based upon the earlier and very comprehensive reports on the Porto Rican crustacean fauna by Mary J. Rathbun and James E. Benedict, authors respectively of "The Brachyura and Macrura of Porto Rico," and "The Anomuran Collections made by the Fish Hawk Expedition to Porto Rico," Bull. U. S. Fish Commission for 1900 [1901]. Other useful works will be found in the accompanying bibliography.

Grateful acknowledgment is here made to Dr. Willard G. Van Name of the American Museum of Natural History for his preliminary identification of the greater part of the material upon which this report is based.

SYSTEMATIC DISCUSSION

PENÆIDÆ

Penæus Fabricius

Penæus brasiliensis Latreille

Penæus brasiliensis Latreille, 1817, Nouv. Dict. Hist. Nat., xxv, p. 156; Rathbun, 1901, Bull. U. S. Fish Comm. for 1900, xx, Pt. 2, p. 100; Milne Edwards and Bouvier, 1909, Mem. Mus. Comp. Zool., xxvii, No. 3, p. 235, Pl. VI, figs. 11-12, Text-figs. 64-67.

† Four are new, *E. portoricensis*, already mentioned above, and *E. benedicti*, *brasiliensis*, and *rathbunæ*.

Diagnosis.—Rostrum triangular, acute, sides slightly convex, finely and sharply granulated; upper surface concave; carapace behind rostrum with seven sharp longitudinal crests. Antennular peduncle very short, rostrum extending to middle of its last segment; antennal peduncle a trifle shorter than antennular; antennal scale, large, ovate, dentate on outer margin with four or five spiniform teeth, inner margin fringed with long setae. Abdomen narrower than carapace, gradually tapering posteriorly, smooth, punctate, slightly pubescent; telson longer than broad, rounded at extremity, sides obscurely bispinulous, dorsal surface partly spinulous.

GALATHEIDÆ

Munida Leach

- A¹. No spines on posterior margin of carapace. Only second (apparent first) somite of abdomen armed with spines. Eyes small, not reaching middle of basal article of antennular peduncle. Supraocular spines much shorter than rostral spine but exceeding the eyes.....*microphthalma*, p. 178
- A². Posterior margin of carapace armed. Second, third, and fourth abdominal somites spined. Eyes concealing or nearly concealing basal article of antennular peduncle.....
- B¹. Posterior margin of carapace with one or two spines.
- C¹. Fourth abdominal somite with a single spine on median line near posterior margin in addition to a pair of spines on the anterior margin. Supraocular spines shorter than rostral spine and equaling or exceeding eyes.....*affinis*, p. 176
- C². No median spine on fourth abdominal somite, anterior margin with one or two pairs of spines.....
- D¹. Supraocular spines longer than rostral spine, and exceeding the eyes.....*longipes*, p. 178
- D². Supraocular spines shorter than rostral spine, and not exceeding the eyes.....*stimpsoni*, p. 178
- B². Six or eight spines on posterior margin of carapace. Supraocular spines shorter than rostral spine, but exceeding eyes.....*evermanni*, p. 177

Munida affinis A. Milne Edwards

Munida affinis A. Milne Edwards, 1880, Bull. Mus. Comp. Zoöl., viii, p. 48; Milne Edwards and Bouvier, 1897, Mem. Mus. Comp. Zoöl., xix, No. 2, p. 53. Pl. III, fig. 14; Benedict, 1901, Bull. U. S. Fish Comm. for 1900, xx, Pt. 2, p. 147.

Type locality.—St. Kitts, 208 fathoms, *Blake* Sta. 148.

Distribution.—Also recorded from off Cuba, and in Mayagüez Harbor, Porto Rico; 118 to 290 fathoms.

Munida evermanni Benedict

Munida evermanni Benedict, 1901, Bull. U. S. Fish Comm. for 1900, xx, Pt. 2, p. 146, Pl. V, fig. 4.

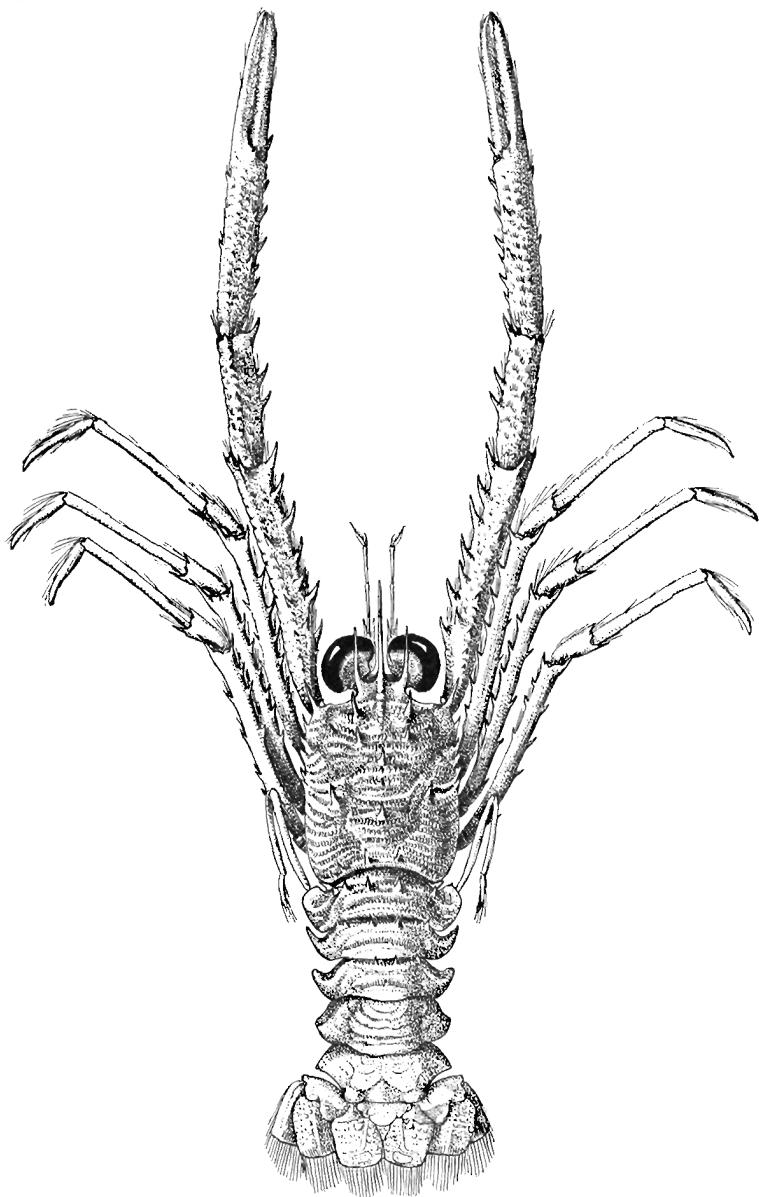


FIG. 41.—*Munida evermanni* (from Benedict)

Type locality.—Known only from Mayagüez Harbor, Porto Rico, 220-225 fathoms, *Fish Hawk* Sta. 6070.

***Munida longipes* A. Milne Edwards**

Munida longipes A. Milne Edwards, 1880, Bull. Mus. Comp. Zoöl., viii, p. 50; Milne Edwards and Bouvier, 1897, Mem. Mus. Comp. Zoöl., xix, No. 2, p. 44, Pl. III, figs. 9-13; Benedict, 1901, Bull. U. S. Fish Comm. for 1900, xx, Pt. 2, p. 147.

Type locality.—Barbados, 209 fathoms, *Blake* Sta. 274.

Distribution.—South Carolina to Curaçao; Porto Rico; 154 to 338 fathoms.

***Munida microphthalma* A. Milne Edwards**

Munida microphthalma A. Milne Edwards, 1880, Bull. Mus. Comp. Zoöl., viii, p. 51; Milne Edwards and Bouvier, 1897, Mem. Mus. Comp. Zoöl., xix, No. 2, p. 32, Pl. II, figs. 9-13.

Type locality.—St. Vincent, 573 fathoms, *Blake* Sta. 227.

Distribution.—From the Bahamas to Brazil; Kermadec Islands; Ascension; Culebra; 425 to 683 fathoms.

***Munida stimpsoni* A. Milne Edwards**

Munida stimpsoni A. Milne Edwards, 1880, Bull. Mus. Comp. Zoöl., viii, p. 47; Milne Edwards and Bouvier, 1897, Mem. Mus. Comp. Zoöl., xix, No. 2, p. 48, Pl. IV, figs. 1-13; Benedict, 1901, Bull. U. S. Fish Comm. for 1900, xx, Pt. 2, p. 147.

Type locality.—Off Saba Bank, lat. $17^{\circ} 31' N$, long. $69^{\circ} 43' 30'' W$, 150 fathoms, *Blake* Sta. 143.

Distribution.—Otherwise rather well distributed through the West Indies (Greater and Lesser Antilles) to Brazil; St. Thomas and St. Croix; 73 to 1105 fathoms.

***Munidopsis* Whiteaves**

A¹. Abdomen unarmed.

B¹. Posterior margin of carapace armed with spines; gastric area and lateral margins spined. Rostrum elongate triangular. *sharreri*, p. 180

B². Posterior margin of carapace not armed with spines.

C¹. Gastric area spined.....

D¹. Gastric area with two very short conical spines; lateral margins toothed and serrulate, antero-lateral spines or teeth of fair size. Rostrum very broad and flattened.

platirostris, p. 180

- D². Gastric area with a pair of long spines; lateral margins in addition to small antero-lateral spine, armed with but one spine either side behind cervical groove. Rostrum elongate, narrow.....*reynoldsi*, p. 180
- C². Gastric area without spines, except for antero-lateral spines; lateral margins of carapace unarmed.....
- D¹. Spine at antero-lateral angle very short. Rostrum gradually tapering. Meri of chelipeds spined throughout length as well as distally.....*sigsbeeii*, p. 181
- D². Spine at antero-lateral angle long. Rostrum laterally swollen or expanded toward middle of length. Meri of chelipeds with spines confined to distal extremity.....*armata*, p. 179
- A². Abdomen armed with spines or tubercles. Posterior margin of carapace not spined.....
- B¹. Rostrum armed with a single pair of lateral spines. Lateral margins and dorsum of carapace armed with strong spines. Abdomen with spines either side of median line paired.....*erinacea*, p. 179
- B². Rostrum without lateral spines very broadly triangular. Lateral margins, antero-lateral angles and dorsum of carapace unarmed. Pointed tuberculiform processes on abdomen medially placed..*longimana*, p. 179

Munidopsis armata (A. Milne Edwards)

Elasmonotus armatus A. Milne Edwards, 1880, Bull. Mus. Comp. Zoöl., viii, p. 61;
Milne Edwards and Bouvier, 1897, Mem. Mus. Comp. Zoöl., xix, No. 2,
p. 104, Pl. VIII, figs. 11-14.

Munidopsis armata Benedict, 1903, Proc. U. S. Nat. Mus., xxvi, p. 316.

Type locality.—St. Croix, 625 fathoms, *Blake* Sta. 137.

Distribution.—Also recorded from off Culebra and Sombrero Island; 390-683 fathoms.

Munidopsis erinacea (A. Milne Edwards)

Galathodes erinacea A. Milne Edwards, 1880, Bull. Mus. Comp. Zoöl., viii, p. 53.

Munidopsis erinacea Milne Edwards and Bouvier, 1897, Mem. Mus. Comp. Zoöl., xix, No. 2, p. 67, Pl. VII, figs. 9-12.

Type locality.—Saint Lucia, 422 fathoms, *Blake* Sta. 222.

Distribution.—West Indies: Cuba to Barbados; St. Croix; 151-496 fathoms.

Munidopsis longimana (A. Milne Edwards)

Elasmonotus longimanus A. Milne Edwards, 1880, Bull. Mus. Comp. Zoöl., viii, p. 60; Milne Edwards and Bouvier, 1897, Mem. Mus. Comp. Zoöl., xix, No. 2, p. 106, Pl. IX, figs. 1-6.

Munidopsis longimana Benedict, 1903, Proc. U. S. Nat. Mus., xxvi, p. 322.

Type locality.—Martinique, 502 fathoms, *Blake* Sta. 195.

Distribution.—West Indies: St. Croix to St. Lucia; and off Cape Catoche, Yucatan; 24-502 fathoms.

***Munidopsis platirostris* (A. Milne Edwards and Bouvier)**

Orophorhynchus platirostris A. Milne Edwards and Bouvier, 1894, Ann. Sci. Nat., Zool., (7), xvi, p. 287; 1897, xix, p. 114, Pl. IX, figs. 12-15, Pl. X, fig. 3;

Benedict, 1901, Bull. U. S. Fish Comm. for 1900, xx, Pt. 2, p. 148.

Munidopsis platirostris Benedict, 1903, Proc. U. S. Nat. Mus., xxvi, p. 324.

Type locality.—Off Sandy Bay, Barbados, 75-100 fathoms, *Hassler* Stations 1-4. The station numbers given by Milne Edwards and Bouvier, 1897, Mem. Mus. Comp. Zool., XIX, No. 2, are not in agreement with the "List of Dredging Stations. . ." published as Part 1 of the Bull. M.C.Z., VI, 1879, where stations 1-4 are given for Barbados, 100 fathoms, and not 27-30 which lie off the coast of Argentina south of Bahia Blanca and have a depth range of but 17 to 30 fathoms.

Distribution.—Otherwise only known from Mayagüez Harbor, Porto Rico, and off Curaçao, 220 to 250 fathoms.

***Munidopsis reynoldsi* (A. Milne Edwards)**

Galathodes reynoldsi A. Milne Edwards, 1880, Bull. Mus. Comp. Zool., viii, p. 56.

Munidopsis reynoldsi Milne Edwards and Bouvier, 1897, Mem. Mus. Comp. Zool., xix, No. 2, p. 80, Pl. VI, figs. 1-5.

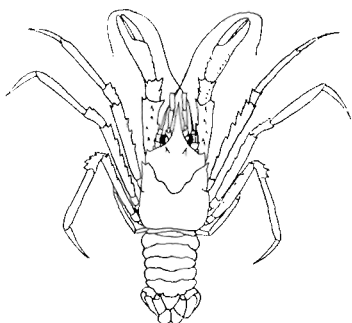


FIG. 42.—*Munidopsis reynoldsi*
(after Milne Edwards and Bouvier)

Type locality.—Known only from specimens taken off St. Croix, 2,376 fathoms, *Blake* Sta. 138.

***Munidopsis sharreri* (A. Milne Edwards)**

Orophorhynchus sharreri A. Milne Edwards, 1880, Bull. Mus. Comp. Zool., viii, p. 59.

Munidopsis sharreri Milne Edwards and Bouvier, 1897, Mem. Mus. Comp. Zool., xix, No. 2, p. 71, Pl. VII, figs. 2-5.

Type locality.—St. Croix, 248 fathoms, *Blake Sta.* 134.

Distribution.—Otherwise recorded only from off the Grenadines, 163 fathoms.

***Munidopsis sigsbei* (A. Milne Edwards)**

Galathodes sigsbei A. Milne Edwards, 1880, Bull. Mus. Comp. Zoöl., viii, p. 56,

Munidopsis sigsbei Milne Edwards and Bouvier, 1897, Mem. Mus. Comp. Zoöl., xix, No. 2, p. 83, Pl. V, figs. 8-26.

Type locality.—Martinique, 472 fathoms, *Blake Sta.* 200.

Distribution.—Gulf of Mexico and West Indies, to Brazil; St. Croix; 450-878 fathoms.

***Ptychogaster* Milne Edwards**

***Ptychogaster spinifer* A. Milne Edwards**

Ptychogaster spinifer A. Milne Edwards, 1880, Bull. Mus. Comp. Zoöl., viii, p. 64; Milne Edwards and Bouvier, 1897, Mem. Mus. Comp. Zoöl., xix, No. 2,

p. 118, Pl. IX, figs. 16-22, Pl. X, figs. 4-16.

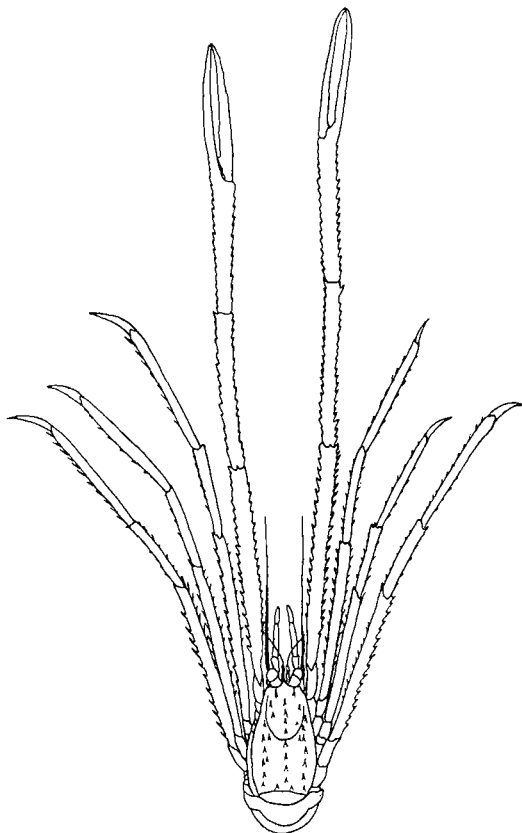


FIG. 43.—*Ptychogaster spinifer* (after Milne Edwards and Bouvier)

Type locality.—Guadeloupe, 183 fathoms, *Blake* Sta. 67.

Distribution.—From off Cape Hatteras to Barbados; St. Croix; 107 to 202 fathoms.

Diagnosis.—Carapace narrow, glabrous, and very spinose; a row of well developed spines marks the median line. Rostrum a very slender spine, slightly longer than the eyes. Chelipeds long, slender, cylindrical, about five times the length of the carapace, covered with longitudinal rows of small spines.

Uroptychus Henderson

A¹. Rostrum about twice as long as the eyes. Carpus of first legs or chelipeds about three times as long as greatest width.....*nitidus*

A². Rostrum scarcely if at all longer than eyes. Carpus of chelipeds nearly or a little more than four times as long as greatest width.....*uncifer*

Uroptychus nitidus (A. Milne Edwards)

Diptychus nitidus A. Milne Edwards, 1880, Bull. Mus. Comp. Zoöl., viii, p. 62; Milne Edwards and Bouvier, 1897, Mem. Mus. Comp. Zoöl., xix, No. 2, p. 134, Pl. IX, figs. 21, 22, Pl. XII, figs. 10-16.

Uroptychus nitidus Benedict, 1903, Proc. U. S. Nat. Mus., xxvi, p. 332.

Type locality.—Gulf of Mexico, lat. 25° 33' N., long. 84° 35' W., 539 fathoms, *Blake* Sta. 44.

Distribution.—Gulf of Mexico and West Indies, Culebra and Sombrero to Barbados; St. Croix; 88 to 625 fathoms; and in the tropical Pacific and Indian Oceans in 800-1070 fathoms.

Uroptychus uncifer (A. Milne Edwards)

Diptychus uncifer A. Milne Edwards, 1880, Bull. Mus. Comp. Zoöl., viii, p. 62. Milne Edwards and Bouvier, 1897, Mem. Mus. Comp. Zoöl., xix, No. 2, p. 134, Pl. XI, figs. 21, 22, Pl. XII, figs. 10-16.

Uroptychus uncifer Benedict, 1901, Bull. U. S. Fish Comm. for 1900, xx, Pt. 2, p. 148.

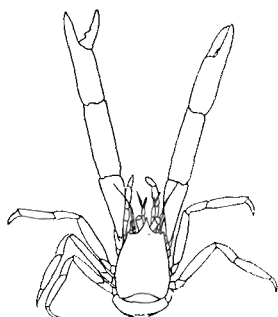


FIG. 44.—*Uroptychus uncifer*
(after Milne Edwards and Bouvier)

Type locality.—St. Vincent, 124 fathoms, *Blake* Sta. 269.

Distribution.—Bahamas to Barbados; Porto Rico; 97 to 263 fathoms.

PORCELLANIDÆ

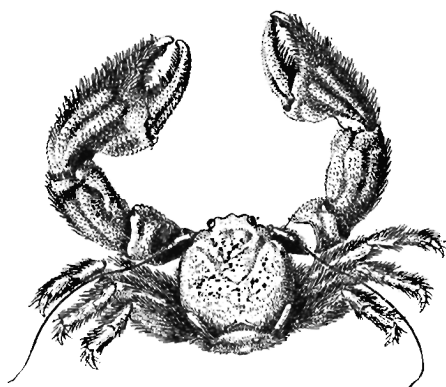
Megalobrachium Stimpson

Megalobrachium poeyi (Guérin)

Porcellana poeyi Guérin, 1856 [1857], in La Sagra's Hist. Cuba, Pt. 2, vii, Crustaceos, p. XVI; viii, atlas, Pl. II, fig. 4.

Megalobrachium poeyi Benedict, 1901, Bull. U. S. Fish Comm. for 1900, xx, Pt. 2, p. 136, Pl. III, fig. 8; Milne Edwards and Bouvier, 1923, Mem. Mus. Comp. Zool., xlvii, No. 4, p. 297.

FIG. 45.—*Megalobrachium poeyi*
(from Benedict)



Type locality.—Cuba.

Distribution.—Bahamas to Colombia; St. Thomas; to a depth of 25 fathoms.

Specimens collected.—Ensenada: eastern side Harbor entrance, 1; Salinas Cove, 1.

Diagnosis.—Carapace rounded; surface pubescent, along front, between and a little behind eyes, and along antero-lateral region, sharply granular. Front with three lobes that extend but little beyond the eyes, median lobe rounded, not noticeably larger and but a trifle in advance of the lateral lobes, which are more angular. Chelipeds characterized by depressions, two on carpus and three on the palm; surface more or less hairy, and coarsely granulated; hair on lower portion of palm and on the fingers long and coarse, and often covered with dark slime.

Pachycheles Stimpson

A¹. Chelipeds thickly covered with tufts of short, stout bristles. Carapace about as long as broad. *pilosa*

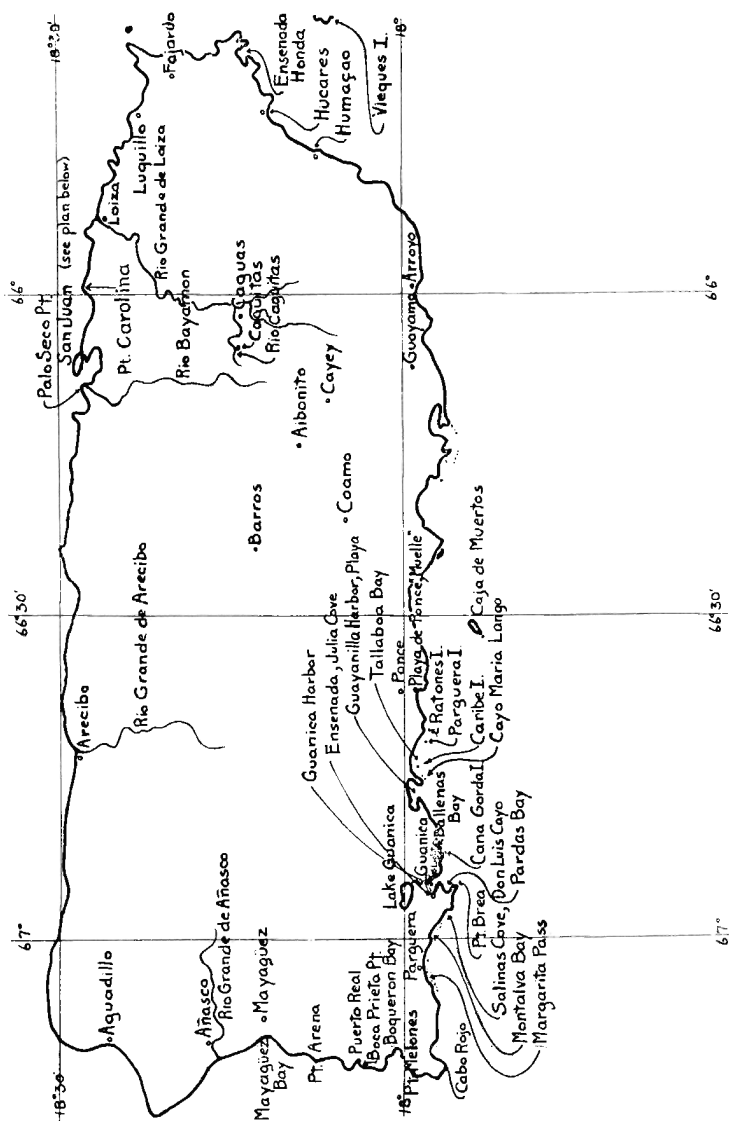


FIG. 79.—Sketch map, Porto Rico and vicinity of San Juan, showing principal localities where collections were made by expeditions of the New York Academy of Sciences in 1914 and 1915, and by the U. S. Fish Commission steamer *Fishhawk* in 1899.

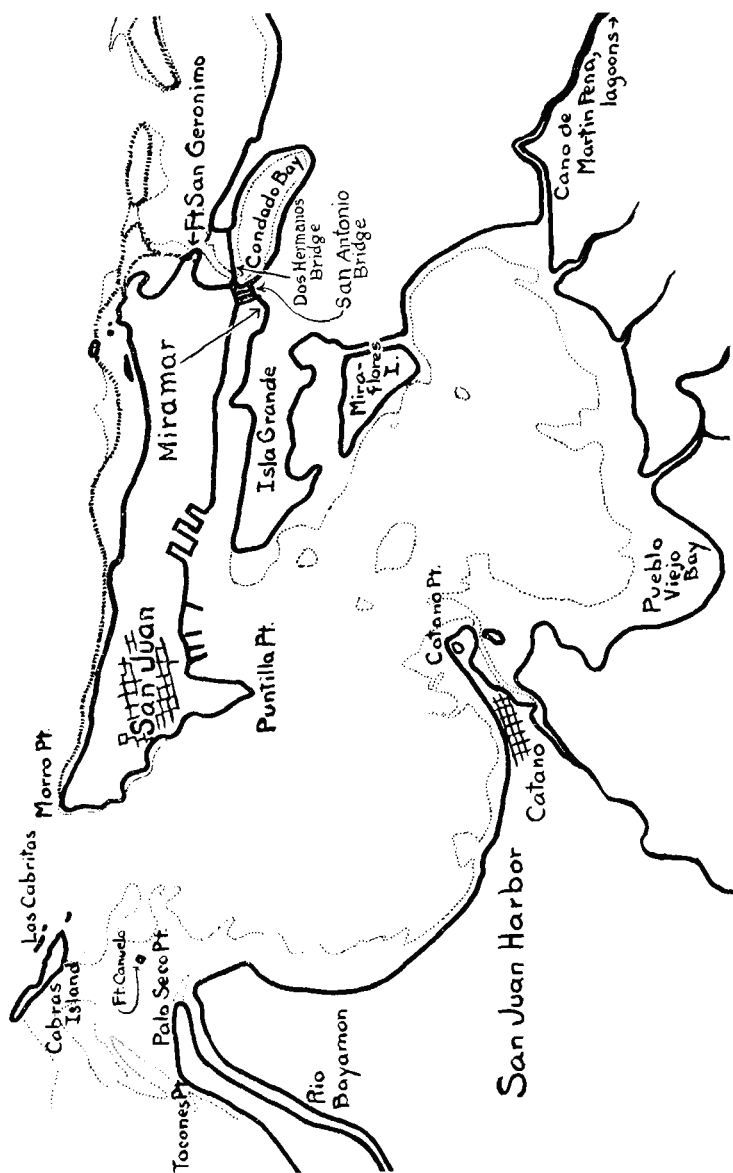


FIG. 80.—San Juan Harbor in detail.

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