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ALLAN HANCOCK PACIFIC EXPEDITIONS

VOLUME 5

NUMBER 10

LITTORAL BRACHYURAN FAUNA
OF THE GALAPAGOS ARCHIPELAGO

(PLATES 49-87; 1 TEXT FIGURE)

by

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THE UNIVERSITY OF SOUTHERN CALIFORNIA
LOS ANGELES, CALIFORNIA

1946

REPORTS ON THE COLLECTIONS OBTAINED BY ALLAN HANCOCK PACIFIC EXPEDITIONS OF
VELERO III OFF THE COAST OF MEXICO, CENTRAL AMERICA, SOUTH AMERICA,
AND GALAPAGOS ISLANDS IN 1932, IN 1933, IN 1934, IN 1935,
IN 1936, IN 1937, IN 1938, IN 1939, AND IN 1940.

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(PLATES 49-87; 1 TEXT FIGURE)

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LITTORAL BRACHYURAN FAUNA OF THE GALAPAGOS ARCHIPELAGO

(Plates 49-87; 1 Text Figure)

By JOHN S. GARTH
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INTRODUCTORY REMARKS

The present study is essentially a report on the brachyuran Crustacea obtained in the Galapagos Islands by the Allan Hancock Expeditions of 1932, 33, 34, 35, and 1938. However, *Velero III* collections were found to represent so large a proportion of the known insular fauna that the scope of the work has been expanded to include references to the remainder, albeit without descriptions or figures which would have had to be duplicated from other sources.

It was thought that by publishing several short papers containing descriptions of new species as rapidly as discovered the work could be kept current and tedious descriptive material could be avoided at this writing. However, it has been found necessary in the interest of taxonomic clarity to designate as new one species in addition to those included in Rathbun (1933, 1935), Garth (1939), and Glassell (1940). Supplementary descriptions are given of two species previously known from one sex only and of one species heretofore represented solely by immature specimens. Several species known previously from unique types are listed in numbers and from several localities within the islands. A total of 44 species, 32 genera, and 5 families of Brachyura are recorded for the first time from the Galapagos area. New information on range, habitat, depth, variation, and relationship is presented concerning the 102 species, 77 genera, and 15 families represented among the nearly 15,000 specimens obtained by *Velero III* collectors, which with the 18 species of 10 genera not encountered by Hancock Expeditions increases the known Galapagos brachyuran fauna to 120 species, 87 genera, and 15 families.

Excluded from the present paper and from the above compilation are larval forms and species which, because of the depths at which they were taken, belong in the abyssal rather than in the littoral benthos. The latter include *Rochinia cornuta* (Rathbun), *R. vesicularis* (Rathbun), and *R.*

occidentalis (Faxon), dredged in over 300 fathoms; *Trachycarcinus corallinus* Faxon, dredged in over 600 fathoms; and *Ethusina gracilipes* Miers, dredged in over 800 fathoms, all by the *Albatross* (Rathbun, 1898, 1907; Faxon, 1893, 1895).

It is intended that the study be used in connection with the Rathbun monographs (Grapsoid, 1918; Spider, 1925; Cancroid, 1930; and Oxy-stome, 1937), to which it is assumed each worker will take recourse for full descriptions of families, genera, and previously known species. However, the introduction of two genera new to the Americas in the writer's *New Brachyuran Crabs from the Galapagos Islands* (1939) calls for the inclusion of their descriptions, which occur in scattered or generally unavailable publications rather than in the above accessible works. Simplified keys to species, sufficient only to distinguish known Galapagos congeners one from another, are introduced whenever two or more species of a genus are represented in the insular fauna. Keys to genera are not given, since they would be nearly as extensive as the Rathbun keys and should, in the opinion of the writer, be reserved for similar monographic reports.

References to literature have of necessity been limited to the original description, the first use of the name in its current combination, and the citation placing the organism in the Galapagos fauna, if not included in the above two. In cases of involved synonymy, the reader is referred to the appropriate Rathbun monograph; citations of the occurrence of the species in the Eastern Pacific subsequent to the publication dates of the respective monographs are, however, given in full.

The inconvenience experienced by *Velero III* workers in attempting to use lengthy descriptions under field conditions has resulted in the substitution of brief diagnoses of the outstanding characters of each species as observable without microscopic examination. These, with the aid of the keys and illustrations given, should enable the field collector to identify his specimens quickly and accurately, a task in which he will be greatly assisted by Mr. Anker Petersen's notes on living specimens based on Ridgway, *Color Standards and Color Nomenclature* (1912).

Since the publication in the Rathbun monograph (1937) of the oxy-stomatous and allied crabs taken on the Hancock Expeditions of 1933-34, approximately one half of the specimens so recorded have been returned by the U. S. National Museum to the Allan Hancock Foundation, and it has been possible to list such specimens herein, as well as to enumerate for the first time the oxystomes obtained on the 1935 and 1938 cruises. Subsequent to the publication of this paper a similar division of the non-oxystomatous crabs will be worked out, approximately one half of the specimens of each species to be returned by the Allan Hancock Foundation

to the U. S. National Museum. For this reason it has not been possible to assign permanent catalogue numbers to the collection beyond the Oxystomata.

The major problem in any Galapagos brachyuran fauna is how best to treat the 17 species collected by Cuming *circa* 1829 and reported upon by Bell (1835-36) with types attributed to the Galapagos Islands. Few of these have been collected there since, while practically all of them have been turned up along the mainland coast of South America from Santa Elena Bay, Ecuador, to the Bay of Panama, localities also visited by Cuming. Ten of the 18 species herein recorded as occurring in Galapagos waters but as not having been obtained there by Allan Hancock Expeditions are Bell species which have not been found in the islands by any collector subsequent to Cuming, if indeed he found them there. Eight of the 10, however, have been obtained by *Velero III* collectors at mainland or other insular stations. Since the writer's unpublished distributional studies have shown that mainland species, whether Peruvian, Panamanian, or Gulf of Californian, may occur sporadically in the Galapagos Islands, it cannot be stated categorically that the 10 Bell species were not collected in the archipelago, or that they may not be found there again. For this reason they are included in the fauna, with emphasis upon the fact that they have not been taken in Galapagos waters for 115 years.

The same situation does not obtain in the case of the Miers and Milne Edwards species, *Leptodius cooksoni* and *Eriphia granulosa*, or Mier's Chilean records of Bell's species, *Mithrax (Mithrax) bellii* Gerstaecker (name substituted for *Mithrax ursus* Bell) and *Mithrax (Mithraculus) nodosus*. Here it is the early mainland record which lacks recent specimen authentication, the species in question being otherwise Galapagos endemics.

Six new species, one species not previously illustrated, one species not recognizable from the existing illustration, one species known only from the young, the adult of which is represented for the first time, and two species known only from the female, the males of which are represented for the first time, are illustrated in pen and ink drawings by Mr. Anker Petersen, staff artist, Allan Hancock Foundation. The remaining species obtained by Hancock or other recent expeditions in the Galapagos are illustrated photographically. It has not been thought best, however, to draw upon Hancock collections from the mainland for illustrations of Galapagos species not obtained in the islands, since photographs of these will undoubtedly be included in forthcoming accounts of collecting on continental shores.

The writer wishes to acknowledge his indebtedness to Captain Allan Hancock, master of the *Velero III* and director of the expeditions, for

the opportunity of visiting the Galapagos Islands and of studying the collections, to Dr. Waldo L. Schmitt, former curator of marine invertebrates, U. S. National Museum, for assistance both in the field and in the laboratory, to the late Dr. Mary J. Rathbun, associate in zoology, U. S. National Museum, for assistance in the early stages of the work, to Dr. Isabella Gordon of the British Museum, Dr. Fenner A. Chace of the Harvard Museum of Comparative Zoology, and Miss Jocelyn Crane of the New York Zoological Society for comparison of specimens with types not easily accessible to the writer and for the loan of valuable specimens, to Mr. Steve A. Glassell, research associate, San Diego Society of Natural History, for the loan of rare publications, and to Messrs. Fred C. Zieshenne, Granville P. Ashcraft, and Anker Petersen, staff members of the Allan Hancock Foundation, for help in collecting, cataloguing, and color noting, respectively, the multitude of individual specimens.

Tribe BRACHYURA

Subtribe GYMNOPLEURA

Family RANINIDAE

Genus RANINOIDES Milne Edwards, 1837

Raninoides ecuadorensis Rathbun

Plate 49, Figs. 1-5

Raninoides ecuadorensis Rathbun, Proc. Biol. Soc. Washington, vol. 48, p. 1, 1935; Bull. 166, U.S. Nat. Mus., p. 15, pl. 80, figs. 5-7, 1937.

Type locality.—La Plata Island, Ecuador.

Type.—USNM No. 69319.

Range.—Previously known only from the type locality. Unpublished data on the Hancock collections in the possession of the writer show it to be an abundant member of the Gulf of California fauna.

Diagnosis.—Carapace barrel shaped, anterior portion roughened. Outer orbital tooth almost as advanced as outer rostral tooth. Three long spines on lower border of manus. Dactyls of legs 1-3 crescentic, of leg 4 suboval.

Material examined.—

795-38. Sullivan Bay, James Island, 35-40 fms, Jan. 21, 1938, 1 female (AHF no. 38001).

Measurements.—Male from the type series: length 20.1 mm, width 11.6 mm.

Color in life.—Ground color of carapace yellowish deep olive buff, entirely overcast with red, giving the appearance of light yellow orange.

Chelipeds and ambulatory legs lightly touched with red, appearing much lighter in color than the carapace. Eyes dark brown. Ventral side white. (Petersen) (Notes made from a Gulf of California specimen.)

Habitat.—Sand.

Depth.—35-55 fms.

Remarks.—Since this species was not taken by the earlier Allan Hancock Expeditions in the Galapagos Islands, it is not recorded in Rathbun (1937) as a member of the Galapagos fauna. The single female from Sullivan Bay, James Island, has been compared with the type series from La Plata Island, Ecuador, also dredged by *Velero III* collectors, and agrees in every particular.

R. ecuadorensis is now recorded from the Galapagos Islands. The specimen illustrated is, however, a paratype from La Plata Island, Ecuador.

Genus **RANILIA** Milne Edwards, 1837

Ranilia fornicata (Faxon)

Plate 60, Figs. 1, 2

Raninops fornicata Faxon, Bull. Mus. Comp. Zool., vol. 24, p. 162, 1893; Mem. Mus. Comp. Zool., vol. 18, p. 41, pl. 7, figs. 1, 1a, and 1b, 1895.

Ranilia fornicata Milne Edwards and Bouvier, Mem. Mus. Comp. Zool., vol. 47, p. 302, 1923. Rathbun, Bull. 166, U.S. Nat. Mus., p. 20, pl. 5, figs. 3 and 4, 1937.

Type locality.—Albatross station 3369.

Type.—MCZ No. 4506.

Range.—From Magdalena Bay, Lower California (Glassell), to La Plata Island, Ecuador (*Velero III*); Galapagos (*Velero III*).

Atlantic analogue.—*R. constricta* (A. Milne Edwards).

Diagnosis.—Carapace subcylindrical, punctate, narrowing abruptly forward of lateral angle. Rostral spine exceeding outer orbital. A terminal spine on merus and carpus of cheliped. Inner border of dactyl of leg 3 convex.

Material examined (24 specimens from 10 stations).—

147-34. Tagus Cove, Albemarle Island, 30 fms, Jan. 13, 1934, 1 male (USNM No. 69198).

183-34. James Bay, James Island, 50-70 fms, Jan. 24, 1934, 1 male (USNM No. 69341).

190-34. Lat. 0° 55' S, Long. 90° 30' W, 58-60 fms, Jan. 26, 1934, 2 females (USNM No. 69201).

191-34. Lat. 0° 55' S, Long. 90° 30' W, 70 fms, Jan. 26, 1934, 3 females (USNM No. 69200), 2 females (AHF no. 34001).

- 195-34. North of Charles Island, 70-80 fms, Jan. 29, 1934, 1 female (AHF no. 34002).
- 325-35. Off Tagus Cove, Albemarle Island, 80 fms, Dec. 10, 1934, 1 male (AHF no. 35001).
- 327-35. Tagus Cove, Albemarle Island, 12 fms, Dec. 10, 1934, 1 male, 2 females (AHF no. 35002).
- 792-38. Off Daphne Minor Island, 70-80 fms, Jan. 20, 1938, 1 female (AHF no. 38002).
- 814-38. North of Hood Island, 20-40 fms, Jan. 28, 1938, 1 male (photographed), 5 females, 2 fragments (AHF no. 38003).
- 816-38. North of Hood Island, 50-100 fms, Jan. 29, 1938, 1 male, 2 females (AHF no. 38004).

Measurements.—Largest specimen, male: length 12.6 mm, width 8.7 mm.

Color in life.—Ground color of carapace white, overcast with small patterns of various shades of pale dull yellow and striated with pale ochraceous orange. Eyestalks white, banded with ochraceous orange; eye apple green. Cheliped white with large spot of ochraceous orange at distal end of merus. Hand ochraceous orange, brighter on upper surface, fading on under side. First two ambulatory legs clear white, third and fourth with ochraceous orange along under side to dactyl, which is clear white. Ventral side clear white. (Petersen)

Habitat.—Sand, sand and mud, sand and nullipore; rock and sand; coral, nullipore, and rock.

Depth.—7-100 fms.

Remarks.—Judging from the number of Galapagos stations at which *R. fornicata* was taken, it, rather than the preceding *Raninoides ecuadorensis* Rathbun, is the abundant member of the family Raninidae in the archipelago. An excellent series of motion pictures, showing the manner in which this species buries itself in sand, is in the photographic library of the Allan Hancock Foundation.

The family Raninidae had not been recorded in the Galapagos Islands prior to the work of *Velero III* collectors.

Subtribe DROMIACEA
Family **DROMIIDAE**
Genus **DROMIDIA** Stimpson, 1858
Dromidia larraburei Rathbun
Plate 61, Figs. 1, 2

Dromidia sarraburei (by error) Rathbun, Proc. U.S. Nat. Mus., vol. 38, p. 553, pl. 48, fig. 4, 1910.

Dromidia larraburei Schmitt, Univ. California Publ. Zool., vol. 23, p. 183, pl. 33, fig. 1, 1921. Boone, Zoologica, vol. 8, no. 4, p. 285, fig. 102a, b, c, and d, 1927. Rathbun, Bull. 166, U.S. Nat. Mus., p. 35, pl. 7, figs. 4 and 5, text fig. 13, and synonymy, 1937. Crane, Zoologica, vol. 22, no. 7, p. 106, 1937.

Type locality.—Sechura Bay, Peru.

Type.—USNM No. 40475.

Range.—Monterey Bay, California (Weymouth), to Sechura Bay, Peru; Galapagos Islands (*Arcturus*).

Atlantic analogue.—*D. antillensis* Stimpson.

Diagnosis.—Carapace convex, hairy, broader than long. Frontal and marginal teeth stout and blunt. A well-marked branchial groove, behind it an acute tooth. Palm studded with rounded tubercles. Carries a sponge cover.

Material examined (32 specimens from 22 stations).—

- 147-34. Tagus Cove, Albemarle Island, 30 fms, Jan. 13, 1934, 1 young (AHF no. 34003).
- 148-34. Tagus Cove, Albemarle Island, 12-15 fms, Jan. 13, 1934, 1 young (AHF no. 34004).
- 149-34. Tagus Cove, Albemarle Island, 20 fms, Jan. 13, 1934, 1 male, 1 female (AHF no. 34005).
- 152-34. Tagus Cove, Albemarle Island, coral, Jan. 14, 1934, 1 male, 1 ovig. female, 1 young (USNM No. 69240).
- 154-34. Reef north of Tagus Hill, Albemarle Island, reef, Jan. 15, 1934, 1 male (USNM No. 70769).
- 155-34. Off Tagus Cove, Albemarle Island, 50-60 fms, Jan. 15, 1934, 1 young (AHF no. 34006).
- 157-34. Tagus Cove, Albemarle Island, 10-18 fms, Jan. 15, 1934, 2 males (USNM No. 69620), 1 male, 1 soft shell (AHF no. 34007).
- 167-34. Post Office Bay, Charles Island, 15 fms, Jan. 19, 1934, 1 male (USNM No. 70771).
- 169-34. Academy Bay, Indefatigable Island, 15-25 fms, Jan. 20, 1934, 1 female (AHF no. 34008).
- 177-34. Sullivan Bay, James Island, 5-20 fms, Jan. 23, 1934, 1 young (AHF no. 34009).
- 182-34. James Bay, James Island, 30 fms, Jan. 24, 1934, 1 young (USNM No. 69337).
- 183-34. James Bay, James Island, 50-70 fms, Jan. 24, 1934, 1 young (AHF no. 34010).
- 189-34. Cartago Bay, Albemarle Island, coral, Jan. 25, 1934, 1 ovig. female (AHF no. 34011).

- 197-34. Off Post Office Bay, Charles Island, 35-40 fms, Jan. 31, 1934, 1 female, 1 young (AHF no. 34012).
- 204-34. Gardner Bay, Hood Island, 30 fms, Jan. 31, 1934, 1 female (USNM No. 69242).
- 322-35. Tagus Cove, Albemarle Island, 10 fms, Dec. 10, 1934, 1 male, 1 young (AHF no. 35003).
- 326-35. Tagus Cove, Albemarle Island, 15 fms, Dec. 10, 1934, 1 young (USNM).
- 327-35. Tagus Cove, Albemarle Island, 12 fms, Dec. 10, 1934, 1 male (AHF no. 35004).
- 346-35. Between South Seymour and Daphne Islands, 55 fms, Dec. 13, 1934, 1 soft shell (AHF no. 35005).
- 795-38. Sullivan Bay, James Island, 35-40 fms, Jan. 21, 1938, 2 males, 1 female (AHF no. 38005).
- 796-38. Sullivan Bay, James Island, shore, Jan. 21, 1938, 1 male (AHF no. 38006).
- 800-38. Cartago Bay, Albemarle Island, shore, Jan. 22, 1938, 1 female (photographed), (AHF no. 38007).

Measurements.—Largest specimen, ovigerous female: length 21.8 mm, width 22.6 mm. This is one of the largest specimens of the species in Hancock collections.

Habitat.—A variety of bottoms, including sand and shell, coral, mulipore, and rock. *D. larraburei* was encountered also in shore collecting and even in *Pocillopora* coral.

Depth.—Shore to 60 fms.

Remarks.—*D. larraburei* is one of the few Galapagos brachyuran species occurring as far north as California waters. Rathbun (1937) records a specimen taken at Long Beach by H. N. Lowe, in territory familiar to the writer, as well as the Weymouth specimen from Monterey Bay. This dromid crab slips into and out of his sponge "house" with great facility.

Genus **HYPOCONCHA** Guerin, 1854

Hypoconcha panamensis Smith

Plate 61, Figs. 3, 4

Hypoconcha panamensis Smith, in Verrill, Amer. Nat., vol. 3, p. 249, 1869. Rathbun, Bull. 166, U.S. Nat. Mus., p. 47, pl. 9, figs. 6 and 7, and synonymy, 1937.

Type locality.—Panama.

Type.—In Peabody Mus., Yale.

Range.—From Angeles Bay, Gulf of California (Glassell), to Matapalo, Peru (Coker); Galapagos Islands (*Albatross*).

Atlantic analogue.—*H. arcuata* Stimpson.

Diagnosis.—Frontal and lateral margins expanded in a broad arc concealing eyes and antennules. Cardiac area paper thin. A distinct lobe at widest part of dorsum. Manus with 3 granulate tubercles near fingers. Last two pairs of legs prehensile.

Material examined (11 specimens from 7 stations).—

55-33. Lat. $1^{\circ} 03' 30''$ S, Long. $90^{\circ} 17' 30''$ W, 60 fms, Feb. 5, 1933, 1 female (USNM No. 68260).

147-34. Tagus Cove, Albemarle Island, 30 fms, Jan. 13, 1934, 1 female (USNM No. 69340), 2 males, 1 young (AHF no. 34013).

182-34. James Bay, James Island, 30 fms, Jan. 24, 1934, 1 female (USNM No. 69338).

190-34. Lat. $0^{\circ} 55'$ S, Long. $90^{\circ} 30'$ W, 58-60 fms, Jan. 26, 1934, 1 young (USNM No. 69251), 1 young (AHF no. 34014).

200-34. Off Black Beach, Charles Island, 25-40 fms, Jan. 30, 1934, 1 male (USNM No. 69245).

810-38. (D-2) Barrington Island, 73 fms, Jan. 26, 1938, 1 male (photographed) (AHF no. 38008).

816-38. North of Hood Island, 50-100 fms, Jan. 29, 1938, 1 male (AHF no. 38009).

Measurements.—Largest specimen, female: length 33.5 mm, width 36.0 mm.

Habitat.—Sand, sand and nullipore; coral, nullipore, and rock.

Depth.—3-100 fms.

Remarks.—Unlike the preceding species, *Dromidia larraburei* Rathbun, *H. panamensis* carries a shell "house" instead of a sponge. The shells selected are not always of the same species, but are always the single valve of a bivalve shell, pectens and clams being favorites. In this way they differ from the hermit crabs of the tribe Anomura, which invariably select a univalve, or gastropod, shell for their temporary abode.

Family *DYNOMENIDAE*

Genus *DYNOMENE* Latreille, 1825

Dynomene ursula Stimpson

Plate 61, Figs. 5, 6

Dynomene ursula Stimpson, Ann. Lyc. Nat. Hist. New York, vol. 7, p. 239 (111), 1860. Rathbun, Bull. 166, U.S. Nat. Mus., p. 54, pl. 12, figs. 1-4, 1937. Schmitt, Smithsonian Misc. Col., vol. 98, no. 6, p. 25, 1939.

Type locality.—Cape San Lucas, Lower California.

Type.—Not extant.

Range.—From Ensenada de los Muertos, Gulf of California (Glasell), to San Juan del Sur, Nicaragua (Lowe); Galapagos Islands (*Velero III*).

Diagnosis.—Carapace densely hairy, *Pilumnus*-like. Front triangular, notched at tip. Five anterolateral spines, excluding outer orbital. First 3 legs setose, nails black; legs of pair 4 reduced, dorsal in position.

Material examined (199 specimens from 35 stations).—

- 24-33. Gardner Bay, Hood Island, shore, Jan. 24, 1933, 1 female (AHF no. 33001).
27-33. Gardner Bay, Hood Island, shore, Jan. 25, 1933, 2 females (AHF no. 33002).
28-33. Gardner Bay, Hood Island, 2 fms, Jan. 25, 1933, 1 female (AHF no. 33003).
30-33. Gardner Bay, Hood Island, shore, Jan. 26, 1933, 2 males, 3 females (USNM No. 68313).
33-33. Black Beach, Charles Island, shore, Jan. 27, 1933, 6 males, 2 females (USNM No. 68314).
38-33. SE of Cormorant Point, Charles Island, shore, Jan. 29, 1933, 3 males, 1 female (AHF no. 33004).
48-33. Barrington Island, shore, Feb. 2, 1933, 1 female (USNM No. 68318).
65-33. Reef north of Tagus Hill, Albemarle Island, reef, Feb. 9, 1933, 1 male (USNM No. 68321).
69-33. Albemarle Point, Albemarle Island, shore, Feb. 11, 1933, 12 males, 10 females (AHF no. 33005).
71-33. James Bay, James Island, shore, Feb. 12, 1933, 1 male, 1 female (USNM No. 68323).
73-33. Cartago Bay, Albemarle Island, shore, Feb. 13, 1933, 10 males, 14 females (3 ovig.) (AHF no. 33006).
76-33. Cartago Bay, Albemarle Island, shore, Feb. 14, 1933, 8 males, 9 females (3 ovig.) (USNM No. 68316).
94-33. Darwin Bay, Tower Island, shore, Feb. 22, 1933, 1 male, 1 female (USNM No. 68324).
97-33. Darwin Bay, Tower Island, coral, Feb. 24, 1933, 1 male (AHF no. 33007).
148-34. Tagus Cove, Albemarle Island, 12-15 fms, Jan. 13, 1934, 1 female, 4 young (AHF no. 34015).
149-34. Tagus Cove, Albemarle Island, 20 fms, Jan. 13, 1934, 3 females (AHF no. 34016).

- 154-34. Reef north of Tagus Hill, Albemarle Island, reef, Jan. 15, 1934, 3 females (AHF no. 34017).
- 166-34. Black Beach, Charles Island, shore, Jan. 19, 1934, 1 young female (AHF no. 34018).
- 167-34. Post Office Bay, Charles Island, 15 fms, Jan. 19, 1934, 1 young (AHF no. 34019).
- 182-34. James Bay, James Island, 30 fms, Jan. 24, 1934, 1 young (AHF no. 34020).
- 183-34. James Bay, James Island, 50-70 fms, Jan. 24, 1934, 1 young (AHF no. 34021).
- 189-34. Cartago Bay, Albemarle Island, coral, Jan. 25, 1934, 1 young female (AHF no. 34022).
- 194-34. Post Office Bay, Charles Island, coral from Onslow Island crater, Jan. 27, 1934, 1 female (AHF no. 34023).
- 199-34. Black Beach, Charles Island, shore, Jan. 30, 1934, 1 male (AHF no. 34024).
- 202-34. Gardner Bay, Hood Island, shore, Jan. 31, 1934, 3 males (AHF no. 34025).
- 309-35. Marchena Island, 8 fms, Dec. 3, 1934, 1 young (AHF no. 35006).
- 311-35. Marchena Island, 20 fms, Dec. 3, 1934, 1 female (AHF no. 35007).
- 315-35. Opposite Gordon Rocks, Indefatigable Island, coral, Dec. 8, 1934, 1 female, 1 young (AHF no. 35008).
- 317-35. Opposite Gordon Rocks, Indefatigable Island, 25-30 fms, Dec. 8, 1934, 1 young (AHF no. 35009).
- 343-35. Sullivan Bay, James Island, shore, Dec. 12, 1934, 1 male, 3 females (1 ovig.), 1 young (AHF no. 35010).
- 344-35. Bartholomew Island near James Island, coral, Dec. 12, 1934, 4 females (AHF no. 35011).
- 784-38. Darwin Bay, Tower Island, shore, Jan. 17, 1938, 3 males, 2 females (AHF no. 38010).
- 789-38. South Seymour Island, shore, Jan. 19, 1938, 4 females (2 ovig.) (AHF no. 38011).
- 796-38. Sullivan Bay, James Island, shore, Jan. 21, 1938, 28 males, (1 photographed), 24 females, 3 young (AHF no. 38012).
- 800-38. Cartago Bay, Albemarle Island, shore, Jan. 22, 1938, 4 males, 4 females (AHF no. 38013).

Measurements.—Largest specimen, male: length 18.5 mm, width 23.2 mm; female: length 14.0 mm, width 17.8 mm.

Habitat.—Rocky shore; occasionally in *Pocillopora* coral.

Depth.—Shore to 30 fms; rarely to 70 fms.

Remarks.—With no other Galapagos species of Brachyura is the field collector so likely to be misled as to identity as with *D. ursula*. Unless he notices that the fourth pair of walking legs are reduced to minute size and carried dorsally, he will believe himself to have found a species of *Pilumnus*. In the preliminary sorting of the Hancock Brachyura, all *Dynomene* were placed with the Xanthidae and retained by the writer instead of being placed with the oxystome crabs consigned to the National Museum, and they had to be sent for later in order to be included in the Rathbun monograph of 1937.

In view of the fact that *D. ursula* is one of the very few oxystomatous and allied crabs taken commonly in shore collecting, it is surprising that it had not been collected in the Galapagos Islands previous to the Hancock Expeditions, which found it to outnumber such common nonoxystomatous species as *Herbstia edwardsi* Bell and *Ozius perlatus* Stimpson.

Subtribe OXYSTOMATA
Family **DORIPPIDAE**
Genus **ETHUSA** Roux, 1828
Ethusa lata Rathbun

Plate 60, Fig. 3

Ethusa lata Rathbun, Proc. U.S. Nat. Mus., vol. 16, p. 258, 1893; Bull. 166, U.S. Nat. Mus., p. 84, pl. 24, fig. 1, pl. 25, fig. 1, pl. 28, fig. 3, text fig. 19, and synonymy, 1937. Crane, Zoologica, vol. 22, no. 7, p. 105, 1937.

Type locality.—Gulf of California, 33 fms.

Type.—USNM No. 17483.

Range.—From 20 miles south of San Roque Island, Lower California (Glassell), to La Plata Island, Ecuador (*Velero III*); Galapagos Islands (*Velero III*).

Atlantic analogue.—*E. microphthalma* Smith.

Diagnosis.—First and second ambulatory legs stout, dactyls flattened, long as meri; last two pairs slight, dorsally placed, bearing hooked dactyli. Eyestalks very short, not extending beyond outer orbital spine. First 3 abdominal segments visible dorsally.

Material examined (13 specimens from 5 stations).—

147-34. Tagus Cove, Albemarle Island, 30 fms, Jan. 13, 1934, 1 young (USNM No. 69180).

201-34. Off Gardner Bay, Hood Island, 25-35 fms, Jan. 31, 1934, 1 male (AHF no. 34026).

792-38. Off Daphne Minor Island, 70-80 fms, Jan. 20, 1938, 6 young (AHF no. 38014).

814-38. North of Hood Island, 20-40 fms, Jan. 28, 1 male, 1 fragment (AHF no. 38015).

816-38. North of Hood Island, 50-100 fms, Jan. 29, 1938, 3 young (1 photographed) (AHF no. 38016).

Measurements.—Largest specimen, male: length 12.3 mm, width 12.0 mm, cheliped 17.0 mm, chela 7.3 mm, dactyl 4.0 mm.

Habitat.—Sand and shell, sand and mud; coral, nullipore, and rock.

Depth.—2-100 fms.

Remarks.—*E. lata* is another species which carries a protective armor dorsally. In this case it is neither a sponge, as with the *Dromidias*, nor a clam shell, as with the *Hypoconchas*, but a particle of a shell no bigger than the carapace, which leaves the long, slender legs protruding instead of tucked underneath, as in the other two.

With the exception of *Ethusina gracilipes* Miers, dredged by the *Albatross* in depths of from 885 to 1,360 fathoms, far below the limits of the littoral zone, no member of the family Dorippidae was known to inhabit Galapagos waters prior to the dredging operations of the *Velero III*.

Genus **CLYTHROCERUS** A. Milne Edwards and Bouvier, 1899

***Clythrocerus laminatus* Rathbun**

Plate 50, Figs. 1-7

Clythrocerus laminatus Rathbun, Proc. Biol. Soc. Washington, vol. 48, p. 2, 1935; Bull. 166, U.S. Nat. Mus., p. 115, pl. 80, figs. 1-4, 1937.

Type locality.—Wenman Island, Galapagos Islands, 100-150 fms.

Type.—USNM No. 69221.

Range.—Clarion Island, Mexico (*Velero III*); Galapagos Islands (*Velero III*).

Diagnosis.—Carapace wider than long. Frontal teeth broad, subacute; outer orbital tooth bluntly rounded. One lateral marginal tooth in front of widest part of carapace. Carpus of male bearing a large square plate on inner edge. Last two legs dorsal, prehensile; crab carries a bit of shell.

Material examined (48 specimens from 9 stations).—

143-34. Wenman Island, 100-150 fms, Jan. 11, 1934, 4 males, 2 females (USNM Nos. 69221 (the type), 69194, 69192, 69222, and 69193), 5 males, 2 females, 1 young (AHF no. 34027).

148-34. Tagus Cove, Albemarle Island, 12-15 fms, Jan. 13, 1934, 1 young (AHF no. 34028).

- 170-34. East of Wreck Bay, Chatham Island, 32 fms, Jan. 21, 1934, 2 males (1 illustrated), 2 females (USNM No. 69185), 5 males (AHF no. 34029).
- 177-34. Sullivan Bay, James Island, 5-20 fms, Jan. 23, 1934, 1 young (AHF no. 34030).
- 185-34. Cartago Bay, Albemarle Island, 32 fms, Jan. 25, 1934, 3 males, 3 females (USNM No. 69187), 8 females (1 illustrated in part) (AHF no. 34031).
- 187-34. Cartago Bay, Albemarle Island, 8-10 fms, Jan. 25, 1934, 3 females (AHF no. 34032).
- 190-34. Lat. 0° 55' S, Long. 90° 30' W, 58-60 fms, Jan. 26, 1934, 1 male (AHF no. 34033).
- 201-34. Off Gardner Bay, Hood Island, 25-35 fms, Jan. 31, 1934, 1 male, 3 females (AHF no. 34034).
- 323-35. Tagus Cove, Albemarle Island, 15 fms, Dec. 10, 1934, 1 female (AHF no. 35012).

Measurements.—Male: length 4.5 mm, width 5.0 mm; female: length 2.7 mm, width 3.3 mm.

Habitat.—Sand and rock, sand and coral, sand and nullipore; mud; coral, nullipore, and calcareous worm tubes.

Depth.—8-150 fms.

Remarks.—The range as given by Rathbun (1937), "Mexico to the Galapagos Islands," is very misleading, as it implies continuous distribution along the mainland shore. Actually, the only Mexican record is one of *Velero III* from Clarion Island, 600 miles off the Mexican coast. Obviously, we have here either a true Galapagos endemic species which has extended its range to Clarion Island, or a Clarion Island endemic species which has migrated to the Galapagos Islands. A parallel distribution is that of *Leptodius cooksoni* Miers. In neither case has the species established itself on continental shores.

No new records of the species were obtained on the Allan Hancock Expedition of 1938.

Family **LEUCOSIIDAE**

Subfamily **EBALIINAE**

Genus **EBALIA** Leach, 1817

Ebalia hancocki Rathbun

Plate 51, Figs. 1-6

Ebalia hancocki Rathbun, Proc. Biol. Soc. Washington, vol. 46, p. 183, 1933; Bull. 166, U.S. Nat. Mus., p. 128, pl. 36, figs. 6-8; pl. 82, figs. 1 and 2, 1937.

Type locality.—Charles Island, Galapagos Islands, 56 fms.

Type.—USNM No. 67988.

Range.—Braithwaite Bay, Socorro Island (*Velero III*); Galapagos Islands (*Velero III*).

Diagnosis.—Carapace broader than long, covered with large mushroom granules. Front divided into 2 blunt teeth. Hepatic and branchial regions elevated. A pterygostomial tooth. Posterior lobes broad and shallow. A triangular tooth on upper base of movable finger.

Material examined (44 specimens from 18 stations).—

- 55-33. Lat. $01^{\circ} 03' 33''$ S, Long. $90^{\circ} 17' 30''$ W, 60 fms, Feb. 5, 1933, 1 ovig. female (the type, USNM No. 67988).
- 147-34. Tagus Cove, Albemarle Island, 30 fms, Jan. 13, 1934, 1 male, 2 females (USNM No. 69278), 2 males, 2 females (1 illustrated in part) (AHF no. 33008).
- 148-34. Tagus Cove, Albemarle Island, 12-15 fms, Jan. 13, 1934, 1 male, 3 females (AHF no. 33009).
- 156-34. In channel off Tagus Cove, Albemarle Island, 80-100 fms, Jan. 15, 1934, 1 female (USNM No. 69744).
- 157-34. Tagus Cove, Albemarle Island, 10-18 fms, Jan. 15, 1934, 1 male, 3 ovig. females (USNM No. 67273).
- 170-34. East of Wreck Bay, Chatham Island, 32 fms, Jan. 21, 1934, 2 ovig. females (AHF no. 34035).
- 171-34. East of Wreck Bay, Chatham Island, 35-40 fms, Jan. 21, 1934, 2 females (USNM No. 69277).
- 173-34. South Seymour Island, 5 fms, Jan. 22, 1934, 1 young female (AHF no. 34036).
- 177-34. Sullivan Bay, James Island, 5-20 fms, Jan. 23, 1934, 2 females (AHF no. 34037).
- 183-34. Near Albany Island, James Island, 50-70 fms, Jan. 24, 1934, 1 male, 2 females (USNM No. 69275).
- 190-34. Lat. $0^{\circ} 55'$ S, Long. $90^{\circ} 30'$ W, 58-60 fms, Jan. 26, 1934, 2 females (USNM No. 69760).
- 193-34. Post Office Bay, Charles Island, 8-10 fms, Jan. 27, 1934, 1 male (AHF no. 34038).
- 197-34. Off Post Office Bay, Charles Island, 35-40 fms, Jan. 31, 1934, 2 females (AHF no. 34039).
- 201-34. Off Gardner Bay, Hood Island, 25-35 fms, Jan. 31, 1934, 1 male, 2 ovig. females (USNM No. 69281).
- 324-35. Tagus Cove, Albemarle Island, 45 fms, Dec. 10, 1934, 2 young (AHF no. 35013).
- 328-35. Tagus Cove, Albemarle Island, 14 fms, Dec. 10, 1934, 3 young males (AHF no. 35014).

792-38. Off Daphne Minor Island, 70-80 fms, Jan. 20, 1938, 1 male (illustrated) (AHF no. 38017).

814-38. North of Hood Island, 20-40 fms, Jan. 28, 1938, 1 male, 2 young (AHF no. 38018).

Measurements.—Female holotype: length 7.2 mm, width 8.0 mm.

Color in life.—General appearance pinkish cinnamon with a great number of granules lightly colored with red and vermilion. Some granules a shade darker and a few very highly colored. Eye greenish black. Ventral side same as dorsal but lighter. (Petersen)

Habitat.—Sand and rock, sand and shell, sand and coral; rock; coral, nullipore, and rock.

Depth.—5-100 fms.

Remarks.—This is another instance of a species common to the Galapagos Islands and the Revilla Gigedo group, but not to the adjacent mainland. This time it is Socorro Island, which is nearer the Mexican mainland than Clarion, but still over 400 miles offshore. The remarks made for the preceding species, *Clythrocerus laminatus* Rathbun, apply here as well.

Genus LITHADIA Bell, 1855

Lithadia cumingii Bell

Plate 62, Fig. 1

Lithadia cumingii Bell, Trans. Linn. Soc. London, vol. 21, p. 305, pl. 33, figs. 6 and 7, 1855. Rathbun, Bull. 166, U.S. Nat. Mus., p. 136, pl. 38, figs. 1 and 2, 7-15, 1937. Crane, Zoologica, vol. 22, no. 7, p. 102, 1937.

Type locality.—Potrero, Costa Rica.

Type.—In Mus. Bell.

Range.—From Magdalena Bay, Lower California (*Albatross*), to La Plata Island, Ecuador (*Velero III*); Galapagos Islands (*Velero III*).

Atlantic analogue.—*L. granulosa* A. Milne Edwards.

Diagnosis.—Skull like in appearance. Carapace with deep hollows and upstanding ridges, especially in male. Rostrum produced, narrow, upturned, bilobate at tip. A hepatic lobe or tooth, a posterior branchial lobe, and an intestinal pair closely approximated. Hand carinate.

Material examined.—

177-34. Sullivan Bay, James Island, 5-20 fms, Jan. 23, 1934, 1 male (photographed) (USNM No. 69418).

Measurements.—Young specimen, male: length 5.3 mm, width 5.4 mm.

Color in life.—Ground color of carapace olive buff. Granules of frontal and anterolateral portion reddish cadmium orange, those of other areas cadmium yellow to cadmium orange. Eye light yellowish olive. Chelipeds same as carapace but granules on merus and carpus reddish cadmium orange, on hand pale orange. Base of fingers light cadmium orange. Merus and carpus of ambulatory legs same as cheliped but a little more reddish; propodus and dactylus without color, very pale olive buff. Ventral side white. (Petersen)

Habitat.—Rock and sand.

Depth.—2-51 fms.

Remarks.—The single male recorded above appears to be the only Galapagos record for the species, which is common enough along the mainland coast from Lower California to Ecuador. *L. cumingii* is a variable species: not only is there considerable difference between the sexes in shape of carapace, but young specimens show sufficient differences from adults to raise the question as to whether or not more than one species might be present in a given series.

Genus **UHLIAS** Stimpson, 1871

Uhlias ellipticus Stimpson

Plate 60, Figs. 4, 5

Uhlias ellipticus Stimpson, Ann. Lyc. Nat. Hist. New York, vol. 10, p. 117, 1871. Rathbun, Bull. 166, U.S. Nat. Mus., p. 149, pl. 36, figs. 1 and 2, 1937.

Type locality.—Panama.

Type.—Not extant.

Range.—From San Jose Island, Gulf of California (Glassell), to Panama (Stimpson); Galapagos Islands (*Velero III*).

Atlantic analogue.—*U. limbatus* Stimpson.

Diagnosis.—Carapace thick, broadly elliptical, the expanded margin concealing eyes and antennules. Carapace covered with deep, round or oval pits. Legs cristate; dactyls close against a process of the propodi.

Material examined (8 specimens from 5 stations).—

73-33. Cartago Bay, Albemarle Island, shore, Feb. 13, 1933, 1 female (USNM No. 68261), 1 female (AHF no. 33010).

94-33. Darwin Bay, Tower Island, shore, Feb. 22, 1933, 1 female (USNM No. 68259).

789-38. South Seymour Island, shore, Jan. 19, 1938, 2 males (1 photographed), 1 female (AHF no. 38019).

796-38. Sullivan Bay, James Island, shore, Jan. 21, 1938, 1 male (AHF no. 38020).

811-38. Barrington Island, shore, Jan. 26, 1938, 1 female (AHF no. 38021).

Measurements.—Male: length 5.4 mm, width 8.1 mm; female: length 5.6 mm, width 8.6 mm.

Color in life.—Pure white.

Habitat.—Rocky shore.

Depth.—Shore

Remarks.—A minute species, but positively identifiable in the field because of its pure white, elliptical, eroded carapace. *U. ellipticus* is one of the few oxystomatous crabs not dredged, and like *Dynomene ursula* Stimpson was not known in the Galapagos Islands prior to the advent of *Velero III* collectors.

Subfamily PHILYRINAE

Genus **PERSEPHONA** Leach, 1817

Persephona edwardsii Bell

Persephona edwardsii Bell, Trans. Linn. Soc. London, vol. 21, p. 294, pl. 31, fig. 8, 1855. Rathbun, Bull. 166, U.S. Nat. Mus., p. 154, pl. 45, figs. 3, 4, and synonymy, 1937.

Type locality.—Galapagos Islands.

Types.—In Mus. Bell.

Range.—From Panama (Stimpson) to Cape San Francisco, Ecuador (*Velero III*); Galapagos Islands (Bell).

Diagnosis.—Three posteriorly directed carapace spines; subhepatic spines wanting. Length and breadth of carapace subequal, a distinct lateral line of granules. Palm high, width equal to more than half of length.

Material examined.—None from Galapagos. Hancock collections contain specimens from Pt. Piaxtla, Mexico, to Cape San Francisco, Ecuador, the first an unpublished record.

Genus **LEUCOSILIA** Bell, 1855

Leucosilia jurinei (Saussure)

Guaia (Ilia) jurinei Saussure, Rev. Mag. Zool., no. 8, p. 65 (12), pl. 13, fig. 4-4b, 1853.

Leucosilia jurinii Bell, Trans. Linn. Soc. London, vol. 2, p. 295, pl. 32, fig. 1, 1855.

Leucosilia jurinei Rathbun, Proc. U.S. Nat. Mus., vol. 38, p. 552, pl. 45, fig. 1, 1910; Bull. 166, U.S. Nat. Mus., p. 170, pl. 48, figs. 1-8, and synonymy, 1937.

Type locality.—Mazatlan, Mexico.

Type.—In Geneva Mus.

Range.—Mexico to Peru (Coker); Galapagos Islands (Bell).

Diagnosis.—Front bidentate. Carapace with single intestinal, double hepatic, and single subhepatic protuberances; carapace and chelipeds coarsely granulate. Sixth segment of male abdomen protruding backward over fifth.

Material examined.—None from the Galapagos Islands. The Hancock collections contain several specimens of this species from Sechura Bay, Peru.

Genus **RANDALLIA** Stimpson, 1857

Randallia agaricias Rathbun

Plate 62, Fig. 2

Randallia agaricias Rathbun, Proc. U.S. Nat. Mus., vol. 21, p. 614, pl. 44, figs. 7 and 7a, 1898; Bull. 166, U.S. Nat. Mus., p. 178, pl. 50, figs. 3 and 4, text fig. 40, 1937.

Type locality.—Off Cape San Lucas, Lower California, 31 fms.

Type.—USNM No. 21601.

Range.—From Thurloe Bay, Lower California (*Velero III*), to La Libertad, Ecuador (*Velero III*); Galapagos Islands (*Velero III*).

Diagnosis.—Carapace subglobular, a deep pit on either side of median ridge, 4 lobes on posterior border. Frontal margin with a blunt outer tooth. Dorsal tubercles mushroomlike, those of sternum and abdomen beadlike.

Material examined (2 specimens from as many stations).—

186-34. Cartago Bay, Albemarle Island, 32 fms, Jan. 25, 1934, 1 male (photographed) (USNM No. 69298).

187-34. Cartago Bay, Albemarle Island, 8-10 fms, Jan. 25, 1934, 1 male (USNM No. 69303).

Measurements.—Male specimen: length 6.3 mm, width 6.5 mm.

Habitat.—Sand and nullipore, sand and rock.

Depth.—3-55 fms.

Remarks.—The extreme northern and southern records of the occurrence of the species along the mainland coast of the Americas, as well as the Galapagos record, are the results of the work of Hancock Expedition collectors.

R. agaricias is now recognized as a member of the Galapagan fauna.

Family *CALAPPIDAE*
 Subfamily *CALAPPINAE*
 Genus *CALAPPA* Weber, 1795
Calappa convexa Saussure

Plate 62, Fig. 6

Calappa convexa Saussure, Rev. Mag. Zool., ser. 2, vol. 5, p. 362 (9), pl. 13, fig. 3, 1853. Rathbun, Zoologica, vol. 5, no. 14, p. 159, 1924; Bull. 166, U.S. Nat. Mus., p. 206, pl. 62, figs. 1-3, and synonymy, 1937.

Type locality.—Cape San Lucas, Lower California.

Type.—Not extant.

Range.—From Magdalena Bay, Lower California (Glassell), to Salinas, Ecuador (Schmitt), Galapagos Islands (Williams Expedition).

Atlantic analogue.—*C. flammea* (Herbst).

Diagnosis.—Carapace broad, one and one-half times as wide as long, rounded in front, surface low tuberculate, a series of transverse granulated ridges arising from the posterolateral borders. Chelipeds closely approximating carapace; hands with a high dentate crest.

Material examined (2 specimens from as many stations).—

170-34. East of Wreck Bay, Chatham Island, 32 fms, Jan. 21, 1934, 1 young (USNM No. 69334).

173-34. South Seymour Island, 5 fms, Jan. 22, 1934, 1 young (photographed) (USNM No. 69758).

Measurements.—Young specimen: length 7.0 mm, width 7.9 mm.

Color in life.—Carapace hazel on frontal and gastric areas, an undertone of Eugenia red on branchial areas, and white across carapace at cardiac level. A large Eugenia red patch on anterolateral area extending over branchial area but almost covered with small patterns of ochraceous orange and russet. Marginal teeth ochraceous orange. Eyestalks tawny; eye pale blue. Chelipeds same as carapace with a large Eugenia red spot across distal end of hand and base of movable finger. Fingers tawny olive shading to very light tips. (Petersen)

Habitat.—Sand.

Depth.—0-32 fms.

Remarks.—*C. convexa* is the commonly encountered "Shame-faced Crab" of the equatorial Pacific. It may be distinguished from the nearly related *C. saussurei* Rathbun by the short, transverse, granulated ridges on the posterolateral portions of the carapace, those of *C. saussurei* being extended beyond the margin of the carapace onto the teeth at the posterolateral angles. It is also taken at shallower depths.

Rathbun (1937) records *Calappa saussurei* from Wreck Bay, Chatham Island, 32 fms, Hancock Expedition of 1934. After examining this specimen, the writer is convinced that it is a young *C. convexa*; indeed, he is unable to distinguish it in any way from the South Seymour Island specimen and has recorded both above.

Genus **MURSIA** Leach, 1823

Mursia gaudichaudii (Milne Edwards)

Plate 62, Figs. 3, 4

Platymera gaudichaudii Milne Edwards, Hist. Nat. des Crustaces, vol. 2, p. 108, 1937.

Mursia gaudichaudii Rathbun, Bull. 166, U.S. Nat. Mus., p. 220, pl. 66, figs. 1-3, pl. 67, figs. 1-6, and synonymy, 1937. Crane, Zoologica, vol. 22, no. 7, p. 99, 1937.

Type locality.—Chile.

Type.—In Paris Mus.

Range.—From Farallon Islands (*Albatross*) to Valparaiso, Chile (type loc.); Galapagos Islands (*Velero III*).

Diagnosis.—Carapace transversely oval, anterolateral margins arcuate and minutely dentate, posterolateral margins sinuous, entire. A strong lateral spine directed outward; a similar spine at distal end of merus.

Material examined (27 specimens from 7 stations).—

191-34. Lat. 0° 55' S, Long. 90° 30' W, 70 fms, Jan. 26, 1934, 2 young (USNM No. 69224), 1 young (AHF no. 34040).

195-34. North of Charles Island, 70-80 fms, Jan. 29, 1934, 10 young (AHF no. 34041).

788-38. SE of Daphne Major Island, 55 fms, Jan. 19, 1938, 1 male (AHF no. 38022).

792-38. Off Daphne Minor Island, 70-80 fms, Jan. 20, 1938, 1 female, 4 young (AHF no. 38023).

795-38. Sullivan Bay, James Island, 35-40 fms, Jan. 21, 1938, 1 young (AHF no. 38024).

810-38. (D-2) Barrington Island, 73 fms, Jan. 26, 1938, 2 young (AHF no. 38025).

814-38. North of Hood Island, 20-40 fms, Jan. 28, 1938, 1 male (photographed), 4 young (AHF no. 38026).

Measurements.—Largest specimen, male: length 16.6 mm, width including lateral spine 35.2 mm, length of spine 6.8 mm, cheliped 22.8 mm, chela 11.0 mm, height of chela 8.5 mm, dactyl 5.8 mm.

Color in life.—Carapace light olive gray on frontal and anterolateral regions to pale olive gray on intestinal and posterolateral regions, covered with granules of orange red to dragon's blood red. Tubercles of carapace light orange to almost white tips. Eystalks with blotches of dark orange red; eye dark olive green. Color of carapace extending about one third on spine, blending into bright orange and fading to white at tip. A light touch of orange on marginal teeth. Distal meral spine of cheliped similar to lateral spine of carapace. Carpus darker than carapace with two spines of orange red. Hand pale dull gray above, crested with orange yellow shading to dull pale yellow on middle outer portion and white beneath. Ambulatory legs pale olive gray with touches of vinaceous purple; tips of dactyls white. (Petersen)

Habitat.—Sand, sand and coral, sand and mud, sand and rock, sand and shell.

Depth.—20-218 fms.

Remarks.—*M. gaudichaudii* has the greatest latitudinal range of all Galapagos brachyuran species, from San Francisco, California, to Valparaiso, Chile. This exceeds the range of the dromid, *Dromidia larraburei* Rathbun, which occurs from Monterey Bay, California, to Sechura Bay, Peru, *M. gaudichaudii* has also an extreme bathymetric range, 20-218 fathoms, exceeded by but one other Galapagos species, *Euchirograpsus americanus* A. Milne Edwards, found from 32-278 fathoms; the extreme depth in this case is an Atlantic record. Apparently *Mursia* is widely tolerant to changes in temperature and pressure.

The affinities of this species are with Japan and Australia, the genus not being found in the Atlantic Ocean. It is characterized by a long lateral spine, suggestive of the attenuated spine of the portunids, particularly *Portunus (A.) acuminatus* Stimpson (not Rathbun, 1930).

M. gaudichaudii was not previously recorded from the Galapagos Islands.

Genus **CYCLOËS** de Haan, 1837

Cycloës bairdii Stimpson

Plate 62, Figs. 7, 8

Cyclois bairdii Stimpson, Ann. Lyc. Nat. Hist. New York, vol. 7, p. 237 (109), 1860.

Cycloës bairdii Rathbun, Proc. U.S. Nat. Mus., vol. 21, p. 610, 1898; Bull. 166, U.S. Nat. Mus., p. 225, pl. 69, figs. 3 and 4, and synonymy, 1937. Crane, Zoologica, vol. 22, no. 7, p. 100, 1937.

Type locality.—Cape San Lucas, Lower California.

Types.—USNM No. 2001.

Range.—From Cape San Lucas, Lower California (Xantus), to La Libertad, Ecuador (*Velero III*); Galapagos Islands (Crocker Expedition); also occurs in the Atlantic.

Diagnosis.—Carapace circular except for slightly concave postero-lateral margins, length and breadth subequal. Anterolateral margins with beaded edge and a terminal denticle. Eyes large, orbits prominent, especially in young.

Material examined (69 specimens from 18 stations).—

- 25-33. Gardner Bay, Hood Island, 2 fms, Jan. 24, 1933, 3 young (USNM No. 68019).
- 57-33. Post Office Bay, Charles Island, 4 fms, Feb. 6, 1933, 2 young (AHF no. 33011).
- 81-33. Conway Bay, Indefatigable Island, 6 fms, Feb. 16, 1933, 1 soft shell (USNM No. 68018).
- 84-33. South Seymour Island, 13 fms, Feb. 18, 1933, 2 young (AHF no. 33012).
- 87-33. South Seymour Island, 15 fms, Feb. 19, 1933, 1 male, 2 young, soft shell (AHF no. 33013).
- 145-34. North end of Albemarle Island, 6-7 fms, Jan. 12, 1934, 3 males, 2 females (USNM No. 69165).
- 146-34. North end of Albemarle Island, shore, Jan. 12, 1934, 2 males (USNM No. 69172).
- 170-34. East of Wreck Bay, Chatham Island, 32 fms, Jan. 21, 1934, 2 young (AHF no. 34042).
- 173-34. South Seymour Island, 5 fms, Jan. 22, 1934, 5 young (USNM No. 69329).
- 196-34. North of Charles Island, 8-10 fms, Jan. 29, 1934, 1 young (AHF no. 34043).
- 204-34. Gardner Bay, Hood Island, 30 fms, Jan. 31, 1934, 3 females (AHF no. 34044).
- 329-35. Tagus Cove, Albemarle Island, 10 fms, Dec. 10, 1934, 1 young (AHF no. 35015).
- 360-35. Gardner Bay, Hood Island, 3 fms, Dec. 19, 1934, 4 young (AHF no. 35016).
- 783-38. Darwin Bay, Tower Island, 40-70 fms, Jan. 16, 1938, 1 male (AHF no. 38027).
- 785-38. Darwin Bay, Tower Island, 20-40 fms, Jan. 17, 1938, 13 young (1 photographed) (AHF no. 38028).
- 790-38. South Seymour Island, 10-20 fms, Jan. 19, 1938, 7 young (AHF no. 38029).
- 795-38. Sullivan Bay, James Island, 35-40 fms, Jan. 21, 1938, 1 young (AHF no. 38030).

807-38. Academy Bay, Indefatigable Island, 10-25 fms, Jan. 24, 1938, 1 male, 10 young (AHF no. 38031).

Measurements.—Male: length 20.4 mm, width 20.9 mm.

Color in life.—Ground color of carapace light olive gray with numerous deep purplish vinaceous spots. Ambulatory legs French gray with stripes of purplish lilac, salmon color at distal end of merus. Dactyls light amber yellow. Eyestalks French gray; eyes light green. (Petersen)

Habitat.—Sand, sand and coral, sand and rock.

Depth.—2-70 fms; 1 shore record, presumably extreme low tide.

Remarks.—*C. bairdii* is the only Galapagos oxystome to be found also in the Atlantic. It is even commoner in dredge hauls than the foregoing species, *Mursia gaudichaudii* (Milne Edwards), but has a much more normal range, both geographic and bathymetric. Its Pacific distribution coincides nicely with the belt of warm water extending from Lower California to Cape Santa Elena, Ecuador, its bathymetric range to the surface layers of warmer water also.

Subfamily MATUTINAE

Genus OSACHILA Stimpson, 1871

Osachila galapagensis Rathbun

Plate 52, Figs. 1-7

Osachila galapagensis Rathbun, Proc. Biol. Soc. Washington, vol. 48, p. 3, 1935; Bull. 166, U.S. Nat. Mus., p. 254, pl. 82, fig. 5; pl. 83, fig. 3, 1937.

Type locality.—Wenman Island, Galapagos Islands, 100-150 fms.

Type.—USNM No. 69215.

Range.—Known only from the Galapagos Islands.

Atlantic analogue.—Not *O. antillensis* Rathbun (see *Remarks* below).

Diagnosis.—Carapace granulate, length little more than three fourths width. Rostrum thick, bilobed. Anterolateral margin completely denticulate, teeth in clusters of 3. Postbranchial prominence high; outer branchial elevation extending both forward and backward of lateral angle. Leg surfaces nearly smooth, edges dentate.

Material examined (14 specimens from 6 stations).—

143-34. Wenman Island, 100-150 fms, Jan. 11, 1934, 1 male, 4 females (USNM No. 69215), the type series; 2 females (1 ovig., 1 illustrated) (AHF no. 34045).

147-34. Tagus Cove, Albemarle Island, 30 fms, Jan. 13, 1934, 1 male (USNM No. 69212).

155-34. Off Tagus Cove, Albemarle Island, 50-60 fms, Jan. 15, 1934, 1 male (illustrated in part) (AHF no. 34046).

157-34. Tagus Cove, Albemarle Island, 10-18 fms, Jan. 15, 1934, 1 young female (USNM No. 69213).

190-34. Lat. $0^{\circ} 55' S$, Long. $90^{\circ} 30' W$, 58-60 fms, Jan. 26, 1934, 1 female (USNM No. 69214), 1 female, 1 carapace (AHF no. 34047).

325-35. Outside of Tagus Cove, Albemarle Island, 80 fms, Dec. 10, 1934, 1 male (USNM).

Measurements.—Female: length 20.6 mm, width 24.7 mm.

Habitat.—Sand and shell, sand and nullipore; coral, nullipore and rock.

Depth.—10-150 fms.

Remarks.—*O. galapagensis* is not the true Pacific analogue of the Atlantic *O. antillensis* Rathbun (1916) as given by Rathbun (1937, p. 250). Another and better analogue has been proposed by the writer (1940) in *O. sona* Garth from the Panamanian mainland.

Osachila levis Rathbun

Plate 62, Fig. 5

Osachila levis Rathbun, Proc. U.S. Nat. Mus., vol. 21, p. 612, 1898; Bull. 166, U.S. Nat. Mus., p. 254, pl. 78, figs. 3 and 4, 1937.

Osachila lata Crane, Zoologica, vol. 22, no. 7, p. 100, 1937 (part: the female specimen, Sta. 150: D16, pl. 1, figs. 3 and 4).

Type locality.—Off Cape San Lucas, Lower California, 31 fms.

Type.—USNM No. 21598.

Range.—From off Cape San Lucas, Lower California (*Albatross*), to La Plata Island, Ecuador (*Velero III*); Galapagos Islands (*Velero III*).

Diagnosis.—Surface smooth and punctate, length almost as great as width. Front projecting, bilobate. Anterolateral margins dentate on anterior two-thirds only. Hand paved with sharp tubercles arranged in rows. Leg surfaces entirely smooth.

Material examined (8 specimens from 5 stations).—

155-34. Off Tagus Cove, Albemarle Island, 50-60 fms, Jan. 15, 1934, 1 male, 1 female (USNM No. 69754), 1 male (AHF no. 34048).

172-34. East of Wreck Bay, Chatham Island, 12 fms, Jan. 21, 1934, fragment of carapace (AHF no. 34049).

190-34. Lat. $0^{\circ} 55' S$, Long. $90^{\circ} 30' W$, 58-60 fms, Jan. 26, 1934, 1 female (AHF no. 34050).

792-38. Off Daphne Minor Island, 70-80 fms, Jan. 20, 1938, 2 young males (AHF no. 38032).

814-38. North of Hood Island, 20-40 fms, Jan. 28, 1938, 1 male (photographed) (AHF no. 38033).

Measurements.—Male: length 11.0 mm, width 12.6 mm.

Habitat.—Sand and shell, sand and nullipore, sand and mud; rock, coral, nullipore, and bryozoa.

Depth.—12-80 fms.

Remarks.—Before the Hancock Expeditions began their work in 1931 this species was known only from the unique type, an ovigerous female taken by the *Albatross* off Cape San Lucas, Lower California, in 1888. Its congener, *O. lata* Faxon, was known from but a single specimen, a male (MCZ No. 4497), taken by the *Albatross* off Tres Marias Islands, Mexico, in 1891. Because the disparity between the male and female of each species, as shown by specimens in Hancock collections, is greater than that between the males of both or the females of both, Crane (1937, pl. 1, figs. 1-4) mistakenly figured the male of one and the female of the other as one and the same species.

From a study of the extensive Hancock series of the 3 species, it would seem that *O. lata* is the Gulf of California-Mexican species, *O. galapagensis* Rathbun the Galapagos endemic species, and *O. levis* the widely distributed species of warmer equatorial waters.

Subtribe BRACHYGNATHA

Superfamily OXYRHYNCHA

Family MAJIDAE

Subfamily INACHINAE

Genus STENORYNCHUS Lamarck, 1818

Stenorynchus debilis (Smith)

Plate 63, Fig. 1

Leptodia sagittaria Milne Edwards and Lucas, d'Orbigny's Voy. l'Amer. Merid., vol. 6, pt. 1, p. 3, 1843; atlas, vol. 9, Crust., pl. 4, figs. 3-3c, 1847; not *L. sagittaria* Leach.

Leptodia debilis Smith, Rept. Peabody Acad. Sci. for 1869 and 1870, appendix, p. 87, 1871.

Stenorynchus debilis Rathbun, Proc. U.S. Nat. Mus., vol. 21, p. 568, 1898; Proc. Washington Acad. Sci., vol. 4, p. 283, 1902; Bull. 129, U.S. Nat. Mus., p. 18, pls. 4 and 5, and synonymy, 1925. Boone, Zoologica, vol. 8, no. 4, p. 131, fig. 34, 1927. Finnegan, Journ. Linn. Soc. London, vol. 37, p. 617, 1931. Crane, Zoologica, vol. 22, no. 3, p. 50, 1937.

Type locality.—Bay of Realejo, Nicaragua.

Type.—MCZ No. 3948.

Range.—From Magdalena Bay, Lower California (*Albatross*), to Chile (Milne Edwards and Lucas); Galapagos Islands (Hopkins-Stanford Expedition); low water to 50 fathoms (Crane).

Atlantic analogue.—*S. seticornis* (Herbst).

Diagnosis.—Rostrum as long as, or longer than, remainder of carapace, its lateral margins spinulose. A small spine located at end of basal article of antenna. Legs exceedingly long and slender.

Material examined (26 specimens from 12 stations).—

157-34. Tagus Cove, Albemarle Island, 10-18 fms, Jan. 15, 1934, 1 large male.

177-34. Sullivan Bay, James Island, 5-20 fms, Jan. 23, 1934, 1 male, 2 ovig. females.

186-34. Cartago Bay, Albemarle Island, 32 fms, Jan. 25, 1934, 1 young.

190-34. Lat. 0° 55' S, Long. 90° 30' W, 58-60 fms, Jan. 26, 1934, 1 male.

310-35. Marchena Island, 15 fms, Dec. 3, 1934, 1 male, 1 female.

311-35. Marchena Island, 20 fms, Dec. 3, 1934, 1 young.

322-35. Tagus Cove, Albemarle Island, 10 fms, Dec. 10, 1934, 1 male, 1 female.

326-35. Tagus Cove, Albemarle Island, 15 fms, Dec. 10, 1934, 1 young female.

330-35. Tagus Cove, Albemarle Island, 12 fms, Dec. 10, 1934, 1 male.

345-35. South Seymour Island, 30 fms, Dec. 13, 1934, 1 male, 1 female.

362-35. Hood Island, 20 fms, Dec. 19, 1934, 1 young.

795-38. Sullivan Bay, James Island, 35-40 fms, Jan. 21, 1938, 5 males, 5 females (1 ovig.). All but ovigerous female very young.

Measurements.—Largest male specimen: length, 20.0 mm, width 7.8 mm, cheliped 36.7 mm, chela 16.4 mm, first ambulatory leg 66.0.

Color in life.—Ground color of carapace a warm buff with faint orange tint. Rostrum bright apricot orange which becomes darker toward tip. Spines of carapace bright orange red. Stripes of carapace pale apricot orange with double dotted stripe on top. Four stripes of pale yellow on carapace. Ambulatory legs same color as carapace with tint of apricot orange which appears in irregular bands. Legs with numberless tiny spots of brownish black. Dactyl bright apricot orange; nail pale yellow. (Peter-
sen)

Habitat.—A variety of bottom conditions is recorded, including rock with sand patches, shell, nullipore, and mud.

Depth.—*S. debilis* has been taken by *Velero III* collectors from shore to 60 fms.

Remarks.—Because of their exceeding fragility and the fact that most of the specimens were obtained by the cotton swabs of the tangles, only a few of our *S. debilis* from the Galapagos Islands are in perfect condition. The series as a whole is remarkable for the minute size of the specimens. Only two may be considered at all well developed. These, being males, have enlarged and thickened palms, and one of them shows the supplementary spinules along the rostral spine and walking legs particularly well. The fingers of this specimen are hairy.

The vertical range of the species has been extended to 60 fathoms.

Genus ANOMALOTHIR Miers, 1879

Anomalothir hoodensis Garth

Plate 64, Figs. 1, 2

Anomalothir hoodensis Garth, Allan Hancock Pac. Exped., vol. 5, no. 2, pp. 9-11, pl. 1, figs. 1-4, 1939.

Type locality.—North of Hood Island, Galapagos Islands, 140-160 fms.

Type.—AHF no. 381.

Range.—Waters of the central and southern islands of the Galapagos group.

Atlantic analogue.—*A. frontalis* (A. Milne Edwards).

Diagnosis.—Postorbital spine longer than preorbital. Third and fourth legs of approximately equal length. A single spine on the carpus of the cheliped. Merus of the third leg entire. Carapace little produced posteriorly; no tubercle in front of posterior margin.

Material examined (8 specimens from 5 stations).—

792-38. Off Daphne Minor Island, 70-80 fms, Jan. 20, 1938, 2 males.

810-38. (D-1) Barrington Island, 48 fms, Jan. 26, 1938, 1 male, 1 female.

810-38. (D-2) Barrington Island, 73 fms, Jan. 26, 1938, 1 female.

814-38. North of Hood Island, 20-40 fms, Jan. 28, 1938, 1 male.

817-38. North of Hood Island, Lat. 1° 20' S, Long. 89° 40' W, 140-160 fms, Jan. 29, 1938, 1 male, 1 female (holotype, AHF no. 381).

Measurements.—Female holotype: length 10.8 mm, width 5.6 mm, cheliped 12.6 mm, first ambulatory leg 21.8 mm.

Color in life.—Carapace clear pearly gray with numerous orange red dots along midline and continued on rostrum. Eye dark purplish red with green highlights; a few red dots on eyestalk. Merus of ambulatory legs banded with similar dots. Chela with faint tint of orange along upper surface. (Petersen)

Habitat.—Sand, sand and shell, sand and mud.

Depth.—20-160 fms.

Remarks.—This species is the only representative of its genus thus far found on the Pacific side of the Isthmus of Panama. Its similarity to *A. frontalis* (A. Milne Edwards) (1879) of the Atlantic has been noted in the original description. Because of its wide bathymetric range, 20-160 fms, *A. hoodensis* belongs at once to both littoral and abyssal faunas.

Genus **PODOCHELA** Stimpson, 1860

KEY TO THE GALAPAGOS SPECIES OF THE GENUS *Podochela*

- A¹ Rostrum acuminate, typically bifurcate; a laciniate postorbital lobe *P. schmitti*
 A² Rostrum hood shaped; postorbital lobe lacking *P. margaritaria*

Podochela margaritaria Rathbun

Plate 64, Figs. 5, 6

Podochela margaritaria Rathbun, Proc. Washington Acad. Sci., vol. 4, p. 283, pl. 12, fig. 12, 1902; Bull. 129, U.S. Nat. Mus., p. 43, pl. 15; pl. 209, fig. 1, 1925.

Type locality.—Tagus Cove, Albemarle Island, Galapagos Islands.

Type.—USNM No. 24834.

Range.—Previously known only from the type locality, Tagus Cove, Albemarle Island (Hopkins-Stanford Expedition).

Diagnosis.—Rostrum broad, hood shaped. Postorbital lobe absent.

Material examined (50 specimens from 24 stations).—

66-33. Tagus Cove, Albemarle Island, 10-20 fms, Feb. 9, 1933, 1 female.

148-34. Tagus Cove, Albemarle Island, 12-15 fms, Jan. 13, 1934, 1 male, 1 female.

157-34. Tagus Cove, Albemarle Island, 10-18 fms, Jan. 15, 1934, 1 male.

161-34. Black Beach, Charles Island, 3 fms, Jan. 17, 1934, 1 large ovig. female.

167-34. Post Office Bay, Charles Island, 15 fms, Jan. 19, 1934, 1 ovig. female.

- 177-34. Sullivan Bay, James Island, 5-20 fms, Jan. 23, 1934, 2 males, 1 ovig. female.
- 182-34. James Bay, James Island, 30 fms, Jan. 24, 1934, 1 specimen.
- 183-34. James Bay, James Island, 50-70 fms, Jan. 24, 1934, 2 females.
- 193-34. Post Office Bay, Charles Island, 8-10 fms, Jan. 27, 1934, 1 ovig. female.
- 197-34. Off Post Office Bay, Charles Island, 35-40 fms, Jan. 29, 1934, 2 males, 1 female.
- 307-35. Marchena Island, 20 fms, Dec. 3, 1934, 2 large males.
- 310-35. Marchena Island, 15 fms, Dec. 3, 1934, 1 male, 2 females.
- 316-35. Opposite Gordon Rocks, Indefatigable Island, 20 fms, Dec. 8, 1934, 1 male.
- 318-35. Opposite Gordon Rocks, Indefatigable Island, 45 fms, Dec. 8, 1934, 1 female.
- 320-35. Academy Bay, Indefatigable Island, 8-10 fms, Dec. 8, 1934, 2 males.
- 327-35. Tagus Cove, Albemarle Island, 12 fms, Dec. 10, 1934, 1 female.
- 328-35. Tagus Cove, Albemarle Island, 14 fms, Dec. 10, 1934, 1 male, 1 female (photographed).
- 339-35. Sullivan Bay, James Island, 10 fms, Dec. 12, 1934, 1 ovig. female.
- 340-35. Sullivan Bay, James Island, 8 fms, Dec. 12, 1934, 1 male, 1 female.
- 341-35. Sullivan Bay, James Island, 20 fms, Dec. 12, 1934, 3 females.
- 355-35. Gardner Bay, Hood Island, 12 fms, Dec. 17, 1934, 3 males, 6 females (2 ovig.).
- 356-35. Gardner Bay, Hood Island, 12-15 fms, Dec. 17, 1934, 2 males, 2 ovig. females.
- 795-38. Sullivan Bay, James Island, 35-40 fms, Jan. 21, 1938, 1 male, 1 female.
- 814-38. North of Hood Island, 20-40 fms, Jan. 28, 1938, 1 female (color noted).

Measurements.—Largest female: length 15.6 mm, width 12.5 mm, first ambulatory leg 45.0 mm, cheliped 17.0 mm.

Color in life.—Frontal, gastric, and cardiac areas brick red. Branchial areas a little lighter and with a few light patches. Chela carrot red. Ventral side dark coral pink. Eye brownish black. (Petersen)

Habitat.—Rock, sand, shell, coral, and nullipore bottoms.

Depth.—3-70 fms.

Remarks.—Only the male of the species shows the granulate sternum and abdomen mentioned by Rathbun in the original description. The globular abdomen of the fully developed female is smooth and bare, and the small portion of the sternum left exposed consists of a series of convoluted ridges leading to the bases of the walking legs. The edges of these are cristate, the centers depressed, giving the whole the vermiculate appearance of the corresponding region in *Podochela vestita* Stimpson. But for the fact that in so many instances a male with granulate abdomen and a female with the bare ridges described above, obviously a pair, were taken together, one might be led to believe them two species.

The largest series, taken at two adjacent stations, consists of 13 specimens dredged in 12-15 fathoms in Gardner Bay, Hood Island. This shows not only the wide geographical range of the species within the archipelago but also indicates that the metropolis of the species may be in southern Galapagos waters.

This hooded decorator crab, heretofore believed to be the sole representative of its genus in the archipelago, makes way for a companion species, *P. schmitti* Garth, from which it must now be carefully distinguished by the points given in the above diagnosis.

P. margaritaria, hitherto known only from the type specimens of the Hopkins-Stanford Expedition taken at Tagus Cove, occurs throughout the Galapagos Islands at depths of from 5 to 70 fms.

***Podochela schmitti* Garth**

Plate 64, Figs. 3, 4

Podochela schmitti Garth, Allan Hancock Pac. Exped., vol. 5, no. 2, pp. 11-13, pl. 2, figs. 1-4, 1939.

Type locality.—North of Hood Island, Galapagos Islands, 20-40 fms.

Type.—AHF no. 382.

Range.—Waters surrounding the southern and central islands of the Galapagos group, 20-80 fms.

Diagnosis.—Rostrum acuminate, typically bifurcate. Postorbital spine laciniate. First ambulatory leg of male two and one-half times length of carapace.

Material examined (20 specimens from 10 stations).—

170-34. East of Wreck Bay, Chatham Island, 32 fms, Jan. 21, 1934,
1 male.

185-34. Cartago Bay, Albemarle Island, 32 fms, Jan. 25, 1934, 1 male,
2 females.

- 190-34. Lat. 0° 55' S, Long. 90° 30' W, 58-60 fms, Jan. 26, 1934, 1 male, 1 female.
 191-34. Lat. 0° 55' S, Long. 90° 30' W, 70 fms, Jan. 26, 1934, 1 male, 1 female.
 201-34. Off Gardner Bay, Hood Island, 25-35 fms, Jan. 31, 1934, 1 specimen.
 788-38. SE of Daphne Major Island, 55 fms, Jan. 19, 1938, 1 ovig. female.
 792-38. Off Daphne Minor Island, 70-80 fms, Jan. 20, 1938, 4 females.
 795-38. Sullivan Bay, James Island, 35-40 fms, Jan. 21, 1938, 1 large male.
 810-38. (D-2) Barrington Island, 73 fms, Jan. 26, 1938, 2 males.
 814-38. North of Hood Island, 20-40 fms, Jan. 28, 1938, 2 males, 1 female, including the male holotype (AHF no. 382).

Measurements.—Male holotype: length 12.8 mm, width 7.9 mm, cheliped 14.6 mm, first ambulatory leg 34.0 mm.

Color in life.—Deep olive buff. (Petersen)

Habitat.—Sand, sand and rock, sand and mud, sand and shell, sand and nullipore, sand and coral.

Depth.—20-80 fms.

Remarks.—The acuminate rostrum separates *P. schmitti* distinctly from hooded *P. margaritaria* Rathbun (1902), the other Galapagos member of the genus, and the two median tubercles on the first abdominal segment from *P. hemphillii* Lockington (1877) of the northern fauna, which has but one.

Genus **EUPROGNATHA** Stimpson, 1871

Euprognatha granulata Faxon

Plate 53, Figs. 1-6

Euprognatha granulata Faxon, Bull. Mus. Comp. Zool., vol. 24, p. 149, 1893; Mem. Mus. Comp. Zool., vol. 18, p. 6, pl. 1, figs. 1 and 1a, 1895. Rathbun, Bull. 129, U.S. Nat. Mus., p. 104, pl. 35, figs. 5 and 6, 1925.

Type locality.—Near Cocos Island, 52 fms.

Cotypes.—MCZ No. 4477.

Range.—Previously known only from the type locality, off Cocos Island, Costa Rica (*Albatross*).

Diagnosis.—Anterior margins of postorbital spines lacinated. Antennal spine reaching beyond horns of rostrum.

Material examined (104 specimens from 15 stations).—

- 55-33. Lat. $1^{\circ} 03' 30''$ S, Long. $90^{\circ} 17' 30''$ W, 60 fms, Feb. 5, 1933, 5 males (1 illustrated), 3 females (1 ovig.).
- 143-34. Wenman Island, 100-150 fms, Jan. 11, 1934, 1 male, 7 females.
- 170-34. East of Wreck Bay, Chatham Island, 32 fms, Jan. 21, 1934, 1 male.
- 183-34. James Bay, James Island, 50-70 fms, Jan. 24, 1934, 2 males.
- 185-34. Cartago Bay, Albemarle Island, 32 fms, Jan. 25, 1934, 6 males, 4 females.
- 190-34. Lat. $0^{\circ} 55'$ S, Long. $90^{\circ} 30'$ W, 58-60 fms, Jan. 26, 1934, 1 male, 2 females.
- 201-34. Off Gardner Bay, Hood Island, 25-35 fms, Jan. 31, 1934, 3 males, 1 female.
- 318-35. Off Gordon Rocks, Indefatigable Island, 45 fms, Dec. 8, 1934, 2 males, 4 females.
- 324-35. Tagus Cove, Albemarle Island, 45 fms, Dec. 10, 1934, 1 ovig. female.
- 346-35. Between South Seymour and Daphne Islands, 55 fms, Dec. 13, 1934, 1 male.
- 792-38. Off Daphne Minor Island, 70-80 fms, Jan. 20, 1938, 26 males, 21 females.
- 795-38. Sullivan Bay, James Island, 35-40 fms, Jan. 21, 1938, 1 male, 1 female.
- 795a-38. Sullivan Bay, James Island, 50-60 fms, Jan. 21, 1938, 1 large male.
- 810-38. (D-2) Barrington Island, 73 fms, Jan. 26, 1938, 2 females.
- 814-38. North of Hood Island, 20-40 fms, Jan. 28, 1938, 5 males, 2 females.

Measurements.—Largest male: length 10.0 mm, width 7.7 mm, cheliped 38.0 mm, chela 19.7 mm.

Color in life.—Frontal, cardiac, and gastric regions reddish garnet brown. Branchial region cream buff with numerous orange-red blotches, giving this portion of the carapace a light orange appearance. All spines pale yellow to white tips. Cheliped pearl gray with blotches of ochraceous buff to salmon; orange red at distal end of merus. Ambulatory legs like cheliped; blotches a little darker and light Van Dyke red at distal end of merus. (Petersen)

Habitat.—Sand, sand with shell, mud, nullipore, and coral; mud, mud with shell; rock and shell.

Depth.—20-150 fms.

Remarks.—The specimens obtained by the *Velero III* are the first since Faxon's types and include the only male specimens known.

This species was encountered sparingly until 1938, when a dredge haul made off Daphne Minor Island brought up 47 specimens. This might indicate either that the channel between James and Indefatigable Islands in which Daphne Minor is located may be the metropolis of the species, or simply that the depth of the haul, 70-80 fathoms, is more favorable than the relatively shallow depths at which most of the small boat dredging was done in earlier years.

The geographical range of *E. granulata* has been extended to include the entire Galapagos Archipelago, and its bathymetric range from 52 fathoms to 150 and shoalward to 20.

Description of the male.—The male of *Euprognatha granulata* differs from Faxon's description and figure of the female in the following particulars:

1. The ratio of length to breadth of carapace is greater, the male measuring 10.0 mm by 7.7 mm, the female 7 mm by 6 mm.

2. The chelipeds are elongated to almost four times the length of the carapace, or 38 mm, in the 10 mm male above. Of this length the chela occupies over half, or 18.9 mm.

3. The ambulatory legs are correspondingly attenuated and decrease regularly in length from first to last.

4. A third median spine is present in addition to the gastric and cardiac spines mentioned by Faxon and is located on the intestinal region.

5. The pterygostomian region is tumid and is clearly visible in dorsal view between the postorbital lobe and the hepatic spine.

6. The under side of the postorbital lobe is concave.

7. The outer maxilliped, described by Faxon only as granulated, has a triangular merus sharply produced at the anterointernal angle, broadened toward the anteroexternal angle, and but weakly grooved for the insertion of the thickened and compressed palpus. The exognath is also broad, particularly for its basal two-thirds.

8. The male abdomen is widest opposite the third segment and narrowest at the union of the fifth and sixth. The last two segments appear to be fused. A well-developed median spine is present on the first segment, and rudimentary spines on the following two, rather than three, segments.

Genus *DASYGYIUS* Rathbun, 1897

KEY TO THE GALAPAGOS SPECIES OF THE GENUS *Dasygyius*

- A¹ Carapace subglobular, rostrum bifid; first leg not appreciably shorter than others; tip of male abdomen triangular *D. gibbosus*

A² Carapace depressed, rostrum simple; first ambulatory leg shortest; tip of male abdomen rounded *D. depressus*

***Dasygyius gibbosus* (Bell)**

Microrynchus gibbosus Bell, Proc. Zool. Soc. London, vol. 3, p. 88, 1835; Trans. Zool. Soc. London, vol. 2, p. 41, pl. 8, figs. 1-1c, 1836.

Dasygyius gibbosus Rathbun, Proc. U.S. Nat. Mus., vol. 38, p. 571, 1910; Bull. 129, U.S. Nat. Mus., p. 138, pl. 274, figs. 1-4, 1925.

Type locality.—Galapagos Islands, 6 fms, sandy mud.

Type.—Not extant.

Range.—Known only from the Galapagos Islands (Bell).

Diagnosis.—Carapace subglobular, coarsely granulate, rostrum bifid. Male chelae moderately inflated, dactyl with a large basal tooth. Legs long, cylindrical, hairy, first leg not appreciably shorter than second. Tip of male abdomen narrowly triangular.

Material examined.—None.

Remarks.—See *Remarks* under the following *D. depressus*.

***Dasygyius depressus* (Bell)**

Microrynchus depressus Bell, Proc. Zool. Soc. London, vol. 3, p. 88, 1835; Trans. Zool. Soc. London, vol. 2, p. 42, pl. 8, figs. 2, 2d-f, 1836.

Dasygyius depressus Rathbun, Proc. U.S. Nat. Mus., vol. 21, p. 579, 1898; Bull. 129, U.S. Nat. Mus., p. 138, pl. 1; pl. 274, figs. 5-8, 1925. Crane, Zoologica, vol. 22, no. 3, p. 56, 1937.

Type locality.—Galapagos Islands, 6 fms, sandy mud.

Type.—Not extant.

Range.—Gulf of California (*Zaca*); Galapagos Islands (Bell); 6-60 fms (Crane).

Diagnosis.—Carapace depressed, finely granulate, rostrum simple. Chelae of male turgid, dactyl without large basal tooth. Legs long, cylindrical, hairy, first ambulatory shortest. A large conical spine on male first abdominal segment.

Material examined.—None from the Galapagos Islands.

Remarks.—The Hancock collections contain a long series of specimens obtained along the mainland from Concepción Bay, Gulf of California, to Port Utria, Colombia. All were dredged from mud of a type which was not found in the Galapagos Islands, as there are no rivers, with the exception of the small stream at Freshwater Bay, to provide a bottom rich in detritus. Since *D. depressus* has not been taken in Galapagos waters in

over 100 years, and since Cuming, who obtained the original specimens, also visited the mainland of Ecuador, it is possible that he may have confused the localities on this species. The same would hold true for *D. gibbosus* if its habits are at all similar.

Subfamily ACANTHONYCHINAE
Genus ACANTHONYX Latreille, 1825
Acanthonyx petiverii Milne Edwards
Plate 63, Fig. 4

Acanthonyx petiverii Milne Edwards, Hist. Nat. Crust., vol. 1 p. 343, 1834. Rathbun, Bull. 129, U.S. Nat. Mus., p. 142, pl. 44; pl. 222, figs. 1-6, and synonymy, 1925. Boone, Zoologica, vol. 8, no. 4, p. 137, fig. 38, 1927. Finnegan, Journ. Linn. Soc. London, vol. 37, p. 620, 1931. Hult, Arkiv för Zoologi, Band 30A, no. 5, p. 11, 1938.

Type locality.—The Antilles.

Type.—In Paris Mus.

Range.—From Magdalena Bay, Lower California, to Valparaiso, Chile (Dana); Galapagos Islands (Bell); occurs also in the Atlantic.

Diagnosis.—A large hepatic lobe and 2 small branchial lobes tufted with hair. Three tufted tubercles on gastric region, one cardiac, one intestinal.

Material examined (38 specimens from 12 stations).—

- 27-33. Gardner Bay, Hood Island, shore, Jan. 25, 1933, 1 male.
- 38-33. SE of Cormorant Point, Charles Island, shore, Jan. 29, 1933, 5 males, 7 females (3 ovig.), 7 young.
- 46-33. Barrington Island, 4-10 fms, Feb. 2, 1933, 2 females.
- 66-33. Tagus Cove, Albemarle Island, 10-20 fms, Feb. 9, 1933, 1 male, 1 female.
- 146-34. Albemarle Point, Albemarle Island, shore, Jan. 12, 1934, 1 male (photographed), 1 female.
- 147-34 to 151-34. Tagus Cove, Albemarle Island, Taylor's sargassum, Jan. 13, 1934, 1 specimen.
- 152-34. Tagus Cove, Albemarle Island, coral, Jan. 14, 1934, 2 ovig. females.
- 154-34. Reef north of Tagus Hill, Albemarle Island, reef, Jan. 15, 1934, 1 male, 1 female.
- 157-34. Tagus Cove, Albemarle Island, 10-18 fms, Jan. 15, 1934, 1 male.
- 161-34. Black Beach, Charles Island, 3 fms, Jan. 17, 1934, 2 males, 2 young.

166-34. Black Beach, Charles Island, shore, Jan. 19, 1934, 1 small male.

169-34. Academy Bay, Indefatigable Island, 15-25 fms, Jan. 20, 1934, 1 young.

Measurements.—Largest male: length 21.3 mm, width 14.0 mm, cheliped 22.0 mm, chela 11.1 mm, first ambulatory leg 26.0 mm.

Habitat.—Seaweeds.

Remarks.—This species, which has been known to occur in the Galapagos Islands since earliest times, is generally secured from marine plant washings.

A large series of tiny individuals was obtained, probably from algal washings, at a shore station at Cormorant Point, Charles Island. The series consisted of 5 male and 7 female specimens, of which 3 were ovigerous, and 7 young. It was possible to distinguish the sex quite readily on specimens 3 mm or more in length, and a 7.5 mm female was found carrying eggs. This is but one-third the length of the male the measurements of which are given above.

Genus EUPLEURODON Stimpson, 1871

Eupleurodon rathbunae Garth

Epialtus peruvianus Finnegan, Journ. Linn. Soc. London, vol. 37, p. 620, 1931.

Eupleurodon rathbunae Garth, Allan Hancock Pac. Exped., vol. 5, no. 2, p. 13, pl. 3, figs. 1-5, 1939.

Type locality.—Gardner Bay, Hood Island, Galapagos Islands.

Type.—USNM No. 77366.

Range.—Known only from the type locality.

Diagnosis.—Carapace foreshortened, wider between anterolateral than between posterolateral lobes. No preocular tooth. No small tooth on lateral margin between the two lobes. Distance between anterior lobes greater than distance from the tip of anterior lobe to middle of posterior border.

Material examined.—

27-33. Gardner Bay, Hood Island, shore, Jan. 25, 1933, female holotype (USNM No. 77366).

Measurements.—Female holotype: length of carapace including rostrum 7.1 mm, width 5.3 mm, length of rostrum 2.1 mm.

Habitat.—Among algae.

Remarks.—Although the writer has not seen the Crossland specimen referred to *Epialtus peruvianus* Rathbun by Finnegan (1931), a camera lucida drawing made by Dr. Isabella Gordon of the British Museum

proves it to be identical with the *Eupleurodon* under consideration. It is exceedingly unfortunate that three questionable species, *Eupleurodon trifurcatus* Stimpson (1871), *Epialtus peruvianus* Rathbun (1924) (which should be transferred to *Eupleurodon* and given another specific name), and *Eupleurodon rathbunae* Garth were all described from single specimens and that the type of the first no longer exists. Having found so little infiltration of the Peruvian crustacean fauna into the Galapagos Islands, the writer deemed it best to consider a specimen of doubtful affinities a distinct, endemic species, rather than to attribute to a mainland species, and particularly a sub-Antarctic one, an extension of range having far greater implications than are justified under the circumstances. To quote the pioneer carcinologist, Wm. Stimpson: "We have named it because we consider it far better for the interest of science to admit a slight risk of adding a synonym, than to refer a species to a locality at which it does not exist, which would tend to confuse our ideas upon geographical distribution, a knowledge of which constitutes one of the most important aims in our investigation of species." (Ann. Lyc. Nat. Hist. New York, vol. 7, p. 50 (178), 1860.)

Genus **TALIEPUS** A. Milne Edwards, 1878

Taliepus marginatus (Bell)

Epialtus marginatus Bell, Proc. Zool. Soc. London, vol. 3, p. 173, 1835;
Trans. Zool. Soc. London, vol. 2, p. 62, pl. 11, fig. 4, 4i-k; pl. 13,
1836.

Taliepus marginatus Rathbun, Bull. 129, U.S. Nat. Mus., p. 164, pls. 52
and 53; pl. 220, fig. 2; pl. 221, and synonymy, 1925.

Type locality.—"Ad oras Brasiliae."

Type.—Not extant.

Range.—From Independencia Bay, Peru (Coker) to Guaiacan, Chile (Lenz); Galapagos Islands (Bell); Brazil (Bell).

Diagnosis.—Carapace smooth, broadly oval. A preorbital but no post-orbital tooth. A small hepatic and large anterolateral tooth. An inferior distal tooth on the propodus of each ambulatory leg. Chelipeds of adult male large and powerful.

Material examined.—None from the Galapagos Islands. The Hancock collections contain specimens from Independencia and San Juan Bays, Peru.

Genus *SPHENOCARCINUS* A. Milne Edwards, 1875*Sphenocarcinus agassizi* Rathbun

Plate 63, Fig. 2

Sphenocarcinus agassizi Rathbun, Proc. U.S. Nat. Mus., vol. 16, p. 231, 1893; Bull. 129, U.S. Nat. Mus., p. 188, pl. 63; pl. 223, figs. 1 and 2, 1925. Faxon, Mem. Mus. Comp. Zool., vol. 18, p. 7, pl. 1, figs. 3 and 3a, 1895. Crane, Zoologica, vol. 22, no. 3, p. 58, 1937.

Type locality.—Gulf of California, 14 fms.

Type.—USNM No. 17343.

Range.—From Cape Tepoca, Gulf of California (*Albatross*), to Panama (*Albatross*); 14 to 71 fms.

Atlantic analogue.—*S. corrosus* A. Milne Edwards.

Diagnosis.—Rostrum formed of 2 blunt spines contiguous to tips. Lateral margins of carapace coarsely dentate.

Material examined (5 specimens from 2 stations).—

792-38. Off Daphne Minor Island, 70-80 fms, Jan. 20, 1938, 1 male, 3 young.

810-38. Barrington Island, 48-73 fms, Jan. 26, 1938, 1 female (photographed).

Measurements.—Largest specimen, female: length 24.6 mm, width 18.8 mm, rostrum 10.0 mm, cheliped 19.2 mm, chela 8.5 mm, first ambulatory leg 26.8 mm.

Color in life.—Ground color of carapace pink with grayish hue. A pair of broad bands of vinaceous rufous extending from behind front to intestinal region, one on either side of median line. Median frontal portion light cerulean blue. Anterolateral teeth yellow orange. Cheliped orange buff at base to yellow cinamon buff on hand and fingers. First three ambulatory legs pale orange cinnamon, last leg yellow cinnamon buff banded with vinaceous rufous. (Petersen)

Habitat.—Sand, mud and sand.

Depth.—14-80 fms.

Remarks.—The finding of this species in 1938 and not in previous years is attributable to the deeper dredging attempted. *S. agassizi* is common enough in the Gulf of California but has not before been taken in the Galapagos Islands.

No particular significance is attached to the circumstance of taking the Daphne Minor specimens in association with a holothurian, as none of the subfamily Acanthonychinae, to which *Sphenocarcinus* belongs, are known to the writer to be commensal in habitat.

Subfamily **PISINAE**
Genus **PELIA** Bell, 1835
Pelia pulchella Bell

Pelia pulchella Bell, Proc. Zool. Soc. London, vol. 3, p. 170, 1835;
Trans. Zool. Soc. London, vol. 2, p. 45, pl. 9, figs. 2, 2d-f, 1836.
Rathbun, Bull. 129, U.S. Nat. Mus., p. 284, pl. 241, figs. 1-4, 1925.

Type locality.—Galapagos Islands, 6 fms, sandy mud.

Type.—Not extant.

Range.—Known only from the original specimen collected by Cuming in 1829.

Diagnosis.—Carapace pyriform, hairy, regions well defined. Rostrum deeply cleft, equal to nearly one-half of carapace length. Male chelipeds long, carinated, gap of movable finger closed by a tooth on pollex. Basal article of antenna exposed in dorsal view. (Based on Bell's description.)

Material examined.—None.

Genus **PISOIDES** Milne Edwards and Lucas, 1843
Pisoides edwardsii (Bell)

Hyas edwardsii Bell, Proc. Zool. Soc. London, vol. 3, p. 171, 1835;
Trans. Zool. Soc. London, vol. 2, p. 49, pl. 9, fig. 5, 1836.

Pisoides edwardsii Dana, U.S. Expl. Exped., vol. 13, Crust., p. 87, 1852;
atlas, pl. 1, figs. 2a-b, 1855. Rathbun, Bull. 129, U.S. Nat. Mus.,
p. 285, pl. 236, and synonymy, 1925.

Type localities.—Valparaiso and Galapagos Islands.

Type.—Not extant.

Range.—From Panama (A. Milne Edwards) to Straits of Magellan; Galapagos Islands (Bell).

Diagnosis.—Carapace broadly triangular, longer than wide, gastric and cardiac regions prominent. Rostrum deflected, horns broad and divergent. Basal antennal article broad, a spinulose tubercle at its outer angle; succeeding articles wide, depressed, hairy. A large, acute postorbital spine.

Material examined.—None from Galapagos. The Hancock collections contain specimens from the bays of San Juan and San Nicolas, Peru.

Genus **HERBSTIA** Milne Edwards, 1834

KEY TO THE GALAPAGOS SPECIES OF THE GENUS *Herbstia*

- A¹ Posterior margin of carapace strongly produced; ambulatory legs longer than chelipeds *H. pyriformis*
A² Posterior margin of carapace rounded; ambulatory legs shorter than cheliped of adult male *H. edwardsii*

***Herbstia edwardsii* Bell**

Plate 65, Figs. 1, 2

Herbstia edwardsii Bell, Proc. Zool. Soc. London, vol. 3, p. 170, 1835 (1836); Trans. Zool. Soc. London, vol. 2, p. 46, pl. 9, figs. 3, 3g-i, 1836. Rathbun, Bull. 129, U.S. Nat. Mus., p. 300, pl. 105, figs. 3 and 4; pl. 240, figs. 1-4, 1925. Boone, Zoologica, vol. 8, no. 4, p. 145, fig. 42, 1927. Finnegan, Journ. Linn. Soc. London, vol. 37, p. 623, 1931. Sivertsen, Med. fra det Zool. Mus., Oslo, nr. 38, p. 11, 1933, part; not the 2 mm specimen. Hult, Arkiv för Zoologi, Band 30A, no. 5, p. 11, 1938.

Type locality.—Galapagos Islands, 6 fms, coral sand.

Type.—Not extant.

Range.—Galapagos Islands, shore to 6 fms.

Diagnosis.—Carapace rounded behind, narrowing before, lateral margin with a few spinules. Chelipeds of adult male longer than ambulatory legs; 2 teeth in gape of movable finger. Meri of ambulatory legs spinulose above.

Material examined (180 specimens from 29 stations).—

- 27-33. Gardner Bay, Hood Island, shore, Jan. 25, 1933, 4 males, 4 females.
30-33. Gardner Bay, Hood Island, shore, Jan. 26, 1933, 2 females.
33-33. Black Beach, Charles Island, shore, Jan. 27, 1933, 6 males, 4 females.
38-33. SE of Cormorant Point, Charles Island, shore, Jan. 29, 1933, 1 female.
69-33. Albemarle Point, Albemarle Island, shore, Feb. 11, 1933, 1 female.
73-33. Cartago Bay, Albemarle Island, shore, Feb. 13, 1933, 3 males, 4 females, 4 young.
76-33. Cartago Bay, Albemarle Island, shore, Feb. 14, 1933, 1 male, 4 females.
80-33. Duncan Island, coral, Feb. 15, 1933, 6 males, 6 females.
82-33. Conway Bay, Indefatigable Island, shore, Feb. 17, 1933, 2 females (1 ovig.).
94-33. Darwin Bay, Tower Island, shore, Feb. 22, 1933, 1 male, 2 ovig. females.
97-33. Darwin Bay, Tower Island, shore, Feb. 24, 1933, 1 female.
98-33. Darwin Bay, Tower Island, shore, Feb. 25, 1933, 3 males, 1 female.
166-34. Black Beach, Charles Island, shore, Jan. 19, 1934, 3 males, 3 females.

- 168-34. Academy Bay, Indefatigable Island, shore, Jan. 20, 1934, 2 females.
- 199-34. Black Beach, Charles Island, shore, Jan. 30, 1934, 3 males, 5 females.
- 313-35. Black Beach, Charles Island, shore, Dec. 6, 1934, 10 males, 7 females (6 ovig.).
- 315-35. Opposite Gordon Rocks, Indefatigable Island, coral, Dec. 8, 1934, 3 males, 3 females.
- 333-35. James Bay, James Island, shore, Dec. 11, 1934, 1 male.
- 343-35. Sullivan Bay, James Island, shore, Dec. 12, 1934, 3 males, 3 females.
- 350-35. South Seymour Island, shore, Dec. 13, 1934, 1 female.
- 351-35. South of Black Beach, Charles Island, shore, Dec. 14, 1934, 1 male, 2 females.
- 359-35. Osborn Island in Gardner Bay, Hood Island, shore, Dec. 19, 1934, 3 males, 4 females (1 ovig.).
- 784-38. Darwin Bay, Tower Island, shore, Jan. 17, 1938, 2 males, 3 females.
- 789-38. South Seymour Island, shore, Jan. 19, 1938, 10 males (1 photographed), 10 females.
- 796-38. Sullivan Bay, James Island, shore, Jan. 21, 1938, 10 males, 15 females, 1 young.
- 800-38. Cartago Bay, Albemarle Island, shore, Jan. 22, 1938, 3 females (1 ovig.).
- 803-38. Black Beach, Charles Island, shore, Jan. 23, 1938, 3 males, 1 female.
- 804-38. Onslow Island, off Charles Island, coral, Jan. 23, 1938, 1 male, 1 female.
- 811-38. Barrington Island, coral, Jan. 26, 1938, 2 females, 1 young.

Measurements.—Largest male: length 15.8 mm, width 13.9 mm, cheliped 30.0 mm, chela 15.2 mm.

Color in life.—Chelae dusky dark brown, fingers white. Carapace light bluish gray. (Petersen). General appearance pink to magenta, the lightest coloring about the leg joints. Chelipeds much darker, almost black, dactyls pure white. A series of 17 remarkably uniform. (Garth)

Habitat.—Holes in narrow rock shelf and cave. (Finnegan)

Depth.—Shore to 6 fms.

Remarks.—This species, nowhere abundant, was occasionally obtained from coral, but more generally from ordinary rocky shore. Its flatness and slender, naked chelae serve to distinguish it from the sponge-covered young of *Mithrax (Mithrax) bellii* Gerstaecker, the species with which it is most readily confused in the field.

The largest series, consisting of 17 specimens, was collected at Black Beach, Charles Island. It was noticed that an unusually large proportion of the females were ovigerous, 6 of the 7 having a full complement of eggs.

Herbstia pyriformis (Bell)

Plate 63, Fig. 3

Rhodia pyriformis Bell, Proc. Zool. Soc. London, vol. 3, p. 170, 1835 (1836); Trans. Zool. Soc. London, vol. 2, p. 44, pl. 9, figs. 1-1c, 1836.

Herbstia pyriformis Stimpson, Ann. Lyc. Nat. Hist. New York, vol. 10, p. 93, 1871. Rathbun, Bull. 129, U.S. Nat. Mus., p. 301, pl. 104, figs. 2 and 3; pl. 240, figs. 5-8, 1925.

Type locality.—Galapagos Islands, 6 fms, coral sand.

Type.—Not extant.

Range.—Known only from the type locality and from James Island (Hassler Expedition).

Diagnosis.—Carapace pyriform, posterior margin strongly produced, lateral margin with 4 spines. Ambulatory legs longer than chelipeds. A spine on palm. Meri of ambulatory legs without spines, red banded.

Material examined (14 specimens from 7 stations).—

27-33. Gardner Bay, Hood Island, shore, Jan. 25, 1933, 1 young female.

30-33. Gardner Bay, Hood Island, shore, Jan. 26, 1933, 1 male, 3 young females.

154-34. Reef north of Tagus Hill, Albemarle Island, reef, Jan. 15, 1934, 1 large female.

194-34. Post Office Bay, Charles Island, coral from Onslow Island crater, Jan. 27, 1934, 2 females.

343-35. Sullivan Bay, James Island, shore, Dec. 12, 1934, 3 males (1 photographed).

796-38. Sullivan Bay, James Island, shore, Jan. 21, 1938, 2 females.

800-38. Cartago Bay, Albemarle Island, shore, Jan. 22, 1938, 1 female.

Measurements.—Largest specimen, female: length 26.0 mm, width 19.7 mm, cheliped 26.3 mm, chela 11.8 mm, second ambulatory leg (the longest) 35 mm; largest male: length 21.4 mm, width 16.0 mm, cheliped 20.0 mm.

Color in life.—Carapace light ochre red on gastric and cardiac areas. Branchial and frontal portions Van Dyke red; marginal teeth white. A white triangular spot on postbranchial and intestinal regions. Merus of cheliped light vinaceous fawn with bands of vivid Van Dyke red. Dark

Van Dyke red bands at distal ends of merus and on carpus. Hand Pompeian red; movable finger carmine, tip orange yellow. Fixed finger similar, fading to white at tip. Ambulatory legs same as merus of cheliped. Propodus a shade darker with bands of Indian lake. Dactyl Indian lake; nail yellow. (Petersen)

Habitat.—Rocky shore.

Remarks.—*H. pyriformis* was considered a rarity by Hancock Expedition collectors, who were always on the alert for its telltale "peppermint stick" legs. The species had been known previously by the type specimen collected by Cuming *circa* 1829, no longer extant, and by the *Hassler* specimen, collected in 1872. Both of these specimens were males.

The young of the species are very hairy, this feature being especially noticeable on the last three segments of the ambulatory legs. The smallest specimen in the series measures 7 mm in length.

The female of *H. pyriformis* is now known and the range of the species is hereby extended to include six of the islands of the Galapagos group.

Genus **LISSA** Leach, 1815

Lissa aurivilliusi Rathbun

Plate 65, Figs. 3, 4

Lissa aurivilliusi Rathbun, Proc. U.S. Nat. Mus., vol. 21, p. 575, pl. 41, fig. 4, 1898; Proc. Washington Acad. Sci., vol. 4, p. 284, 1902; Bull. 129, U.S. Nat. Mus., p. 333, pl. 246, fig. 2, 1925. Crane, Zoologica, vol. 22, no. 3, p. 59, 1937.

Type locality.—Off Cape San Lucas, 31 fms.

Type.—USNM No. 21575.

Range.—From Magdalena Bay, Lower California (*Albatross*), to Cape San Lucas (*Albatross*); Galapagos Islands (Hopkins-Stanford Expedition); to 35 fms (Crane).

Atlantic analogue.—*L. bicarinata* Aurivillius.

Diagnosis.—Gastric elevation angular, continued posterolaterally as a sharp branchial crest. Posterior margin doubly concave; a cardiac elevation.

Material examined (18 specimens from 12 stations).—

167-34. Post Office Bay, Charles Island, 15 fms, Jan. 19, 1934, 1 young female.

169-34. Academy Bay, Indefatigable Island, 15-25 fms, Jan. 20, 1934, 1 female (photographed).

183-34. James Bay, James Island, 50-70 fms, Jan. 24, 1934, 2 young males.

- 187-34. Cartago Bay, Albemarle Island, 8-10 fms, Jan. 25, 1934, 1 young female.
- 193-34. Post Office Bay, Charles Island, 8-10 fms, Jan. 27, 1934, 2 females.
- 201-34. Off Gardner Bay, Hood Island, 25-35 fms, Jan. 31, 1934, 1 male, 3 females.
- 204-34. West of Gardner Bay, Hood Island, 30 fms, Jan. 31, 1934, 1 male, 1 female.
- 308-35. Marchena Island, 3-5 fms, Dec. 3, 1934, 1 male.
- 322-35. Tagus Cove, Albemarle Island, 10 fms, Dec. 10, 1934, 1 female.
- 328-35. Tagus Cove, Albemarle Island, 14 fms, Dec. 10, 1934, 1 female.
- 341-35. Sullivan Bay, James Island, 20 fms, Dec. 12, 1934, 1 male.
- 356-35. Gardner Bay, Hood Island, 12-15 fms, Dec. 17, 1934, 1 female.

Measurements.—Photographed specimen: length 8.7 mm, width 7.4 mm.

Color in life.—From Gulf of California specimen: entire dorsal surface of carapace dull yellow orange with numerous indistinct darker small spots. Chelipeds as carapace, finger tips white. Ambulatory legs white with but little color. Ventral side pale gray with light touches of dull orange. (Petersen)

Habitat.—Rock, frequently covered with red algae; rock and sand; rock and shell; sand.

Depth.—3-70 fms.

Remarks.—A single specimen taken on a reef north of Tagus Hill by the Hopkins-Stanford Expedition appears to be the only previous Galapagos record for the species. It is now known to occur throughout the archipelago to a depth of 70 fms.

All Galapagos *Lissas* were subjected to careful scrutiny in the hope that some of them might prove to be *L. tuberosa*, encountered by Hancock Expeditions from the Gulf of California to Colombia along the mainland. However, none had the cristate legs and double crests on the carpus characteristic of this species.

Both sponge and bryozoan encrustations were observed on Galapagos specimens.

Subfamily **MAJINAE**
 Genus **THOE** Bell, 1835
Thoe erosa Bell

Thoe erosa Bell, Proc. Zool. Soc. London, vol. 3, p. 171, 1835; Trans. Zool. Soc. London, vol. 2, p. 48, pl. 9, figs. 4, 4k-o, 1836. Rathbun, Bull. 129, U.S. Nat. Mus., p. 351, pl. 249, figs. 1-6 and synonymy, 1925.

Type locality.—Galapagos Islands, 7 fms, sandy mud.

Type.—Not extant.

Range.—Bay of Santa Elena, Ecuador (Nobili); Galapagos Islands (Bell).

Diagnosis.—Carapace depressed, posteriorly and laterally rounded, tuberculous. Rostrum minute, bifurcate. Only one anterior lobe on basal antennal article. Both rows of rectangular excavations on merus of cheliped fully developed. Fingers slender and widely gaping; a single tooth at basal third of movable finger.

Material examined.—None.

Remarks.—Judging from the writer's experience in collecting *Thoe sulcata* Stimpson at Socorro Island, Mexico, and in collecting *T. panamensis* Nobili on the mainland from Costa Rica to Gorgona Island, Colombia, *T. erosa* would most probably be encountered among sponge-covered rocks at extreme low tide. Since the type of collecting which yielded the two former species was the type most frequently pursued by *Velero III* collectors in the Galapagos Islands, it is difficult to understand why the Bell species, if present, was not uncovered.

Genus **PITHO** Bell, 1835

KEY TO THE GALAPAGOS SPECIES OF THE GENUS *Pitho*

- A¹ Five anterolateral teeth, the second and third united at bases *P. quinquedentata*

 A² Six acute anterolateral teeth, the second and third separated at bases *P. sexdentata*

Pitho quinquedentata Bell

Pitho quinquedentata Bell, Proc. Zool. Soc. London, vol. 3, p. 172, 1835. Rathbun, Bull. 129, U.S. Nat. Mus., p. 361, pl. 250, figs. 1-4, and synonymy, 1925.

Type locality.—Galapagos Islands, sandy mud, 6 fms.

Type.—Not extant.

Range.—Panama (A. Milne Edwards); Galapagos Islands (Bell).

Atlantic analogue.—*P. lherminieri* (Schramm).

Diagnosis.—Male carapace anteriorly broad, posteriorly narrow; female carapace broadened posteriorly as well. Front wide, rostral and inner orbital teeth in the same transverse line. Five lateral teeth, excluding outer orbital, the second and third fused at base, the fourth and fifth reduced in the male, in the female the fifth only.

Material examined.—None from the Galapagos Islands. The Hancock collections contain a considerable series of this species from Isabel Island, Mexico, to Bahia Honda, Panama.

Pitho sexdentata Bell

Pitho sexdentata Bell, Proc. Zool. Soc. London, vol. 3, p. 172, 1835. Rathbun, Bull. 129, U.S. Nat. Mus., p. 367, pl. 130, fig. 1; pl. 250, figs. 5-9, and synonymy, 1925. Sivertsen, Med. fra det Zool. Mus. Oslo, no. 38, p. 11, 1933. Crane, Zoologica, vol. 22, no. 3, p. 60, 1937.

Type locality.—Galapagos Islands, sandy mud, 6 fms.

Type.—Not extant.

Range.—From Santa Inez Bank, Gulf of California (Crane), to Galapagos Islands (Bell).

Atlantic analogue.—*P. mirabilis* (Herbst).

Diagnosis.—Carapace broadly rounded in both sexes, granulate and hairy. Front narrow, rostral teeth acute. Six lateral marginal teeth, exclusive of outer orbital, all acute, separated at their bases, the sixth reduced in size and at a higher level.

Material examined.—A cast from Galapagos Islands. The Hancock collections contain specimens from Manta and Cape San Francisco, Ecuador.

Remarks.—A cast of *P. sexdentata* was picked up by a crew member while beach combing. Since several days elapsed before it came to the attention of the carcinologists, it was impossible to assign to it a more exact locality than Galapagos.

Genus MITHRAX Latreille, 1817

KEY TO THE GALAPAGOS SPECIES OF THE GENUS *Mithrax*

- A¹ Carapace without oblique branchial furrows (Subgenus *Mithrax*)
 B¹ Rostral spines long, divergent; carapace longer than broad,
 spinulose *M. (Mithrax) spinipes*
 B² Rostral horns short, tuberculate or subtruncate; carapace
 broader than long

- C¹ Carapace paved with smooth, flat granules; rostrum tuberculate; size large *M. (Mithrax) bellii*
 C² Carapace with 2 rows of lateral marginal spines, rostrum subtruncate; size small *M. (Mithrax) pygmaeus*
 A² Carapace with oblique branchial furrows (Subgenus *Mithraculus*)
 B¹ Three large anterolateral lobes; inner margin of entire cheliped laminated *M. (Mithraculus) nodosus*
 B² Two acute tubercles and a spine on anterolateral margin; carpus only of cheliped, laminated
 *M. (Mithraculus) denticulatus*

Subgenus MITHRAX

Mithrax (Mithrax) spinipes (Bell)

Plate 65, Figs. 5, 6

Pisa spinipes Bell, Proc. Zool. Soc. London, vol. 3, p. 171, 1835 (1836);
 Trans. Zool. Soc. London, vol. 2, p. 50, pl. 9, figs. 6, 6s-u, 1836.

Mithrax (Mithrax) spinipes Rathbun, Bull. 129, U.S. Nat. Mus., p. 391,
 pl. 136, figs. 3 and 4; pl. 262, fig. 5, 1925. Boone, Zoologica, vol. 8,
 no. 4, p. 154, fig. 48, 1927. Sivertsen, Med. fra det Zool. Mus., Oslo,
 nr. 38, p. 12, 1933. Crane, Zoologica, vol. 22, no. 3, p. 60, 1937.

Mithrax (Mithrax) mexicanus Glassell, Zoologica, vol. 21, no. 17, p.
 213, 1936.

Type localities.—Galapagos Islands, 16 fms; Santa Elena, 6 fms.

Types.—Not extant.

Range.—From Gulf of California (*Albatross*) to Santa Elena, Ecuador, and the Galapagos Islands (Bell); 2½-33 fms.

Atlantic analogue.—*M. acuticornis* Stimpson.

Diagnosis.—Based on immature specimens: carapace elongate oval, spinulose, rostral horns long and divergent. A series of anterolateral spinules which develop into 5 lateral spines in the adult. Paired mesogastric tubercles of adult not always apparent in young specimens. No lateral angle, as in older specimens.

Material examined (3 specimens from as many stations).—

155-34. Tagus Cove, Albemarle Island, 50-60 fms, Jan. 15, 1934, 1 male.

814-38. North of Hood Island, 20-40 fms, Jan. 28, 1938, 1 male (photographed).

817-38. North of Hood Island, 140-160 fms, Jan. 29, 1938, 1 male.

Measurements.—Young male: length 11.3 mm, width 6.5 mm.

Color in life.—Carapace olive buff with yellowish tint. Touches of red around bases of spines. Eye dull dark purple. Cheliped pale cream buff with a few blotches of vermilion and green. Legs pale cream buff banded with deep olive buff with orange-red margins. (Petersen)

Habitat.—Sand, sand and shell; also one varied bottom marked "rock, coral, nullipore, and bryzoa."

Depth.—2½-160 fms.

Remarks.—*M. (M.) spinipes* is a companion species, in point of habitat, with *Anomalothir hoodensis* Garth, being encountered in both deep and shallow dredging. A depth of 160 fms, recorded on the 1938 cruise, represents a valuable extension of bathymetric range, the Albemarle Island record a new locality within the archipelago.

A Galapagos specimen of *M. (M.) spinipes* has been compared with the type of *M. (M.) mexicanus* Glassell (1936) by Miss Jocelyn Crane of the New York Zoological Society, who finds them identical. Miss Crane allows herself to be quoted to the effect that she has seen examples clearly intermediate in development of anterolateral spines, shape of carapace, and development of paired anteromesogastric tubercles between the two, which would indicate *M. (M.) mexicanus* to be the young of *M. (M.) spinipes*.

Mithrax (Mithrax) bellii Gerstaecker

Plate 66, Figs. 1, 2

Mithrax ursus Bell, Proc. Zool. Soc. London, vol. 3, p. 171, 1835 (1836) (not *Cancer ursus* Herbst, 1788); Trans. Zool. Soc. London, vol. 2, p. 52, pl. 10, figs. 2, 2c-e, 1836.

Mithrax bellii Gerstaecker, Arch. für Naturg., vol. 22, pt. 1, p. 112, 1856; name substituted for *M. ursus* Bell (not Herbst).

Mithrax (Mithrax) bellii Rathbun, Bull. 129, U.S. Nat. Mus., p. 403, pls. 142 and 143, 1925. Boone, Zoologica, vol. 8, no. 4, p. 155, fig. 49, 1927. Hult, Arkiv. för Zoologi, Band 30A, no. 5, p. 11, 1938.

Type locality.—Galapagos Islands.

Type.—Not extant.

Range.—Galapagos Islands, shore to a depth of 6 fms, (Bell); Chile (Miers).

Atlantic analogue.—*M. (M.) verrucosus* Milne Edwards.

Diagnosis.—Carapace paved with flat, round granules. Five tubercles on inner margin of wrist. Margin broken into numerous irregular tubercles.

Material examined (76 specimens from 28 stations).—

33-33. Black Beach, Charles Island, shore, Jan. 27, 1933, 2 males, 2 females.

- 38-33. SE of Cormorant Point, Charles Island, shore, Jan. 29, 1933, 1 large male.
- 48-33. Barrington Island, shore, Feb. 2, 1933, 1 young female.
- 65-33. Reef north of Tagus Hill, Albemarle Island, reef, Feb. 9, 1933, 2 males.
- 68-33. South of Cape Berkeley, Albemarle Island, shore, Feb. 10, 1933, 2 small males.
- 73-33. Cartago Bay, Albemarle Island, shore, Feb. 13, 1933, 1 male.
- 76-33. Cartago Bay, Albemarle Island, shore, Feb. 14, 1933, 3 females (1 photographed).
- 85-33. North Seymour Island, shore, Feb. 18, 1933, 1 male.
- 154-34. Reef north of Tagus Hill, Albemarle Island, reef, Jan. 15, 1934, 1 female, 1 young.
- 163-34. Black Beach, Charles Island, shore, Jan. 18, 1934, 1 large male.
- 166-34. Black Beach, Charles Island, shore, Jan. 19, 1934, 3 males, 3 young.
- 168-34. Academy Bay, Indefatigable Island, shore, Jan. 20, 1934, 1 large male.
- 173-34. South Seymour Island, 5 fms, Jan. 22, 1934, 1 male.
- 175-34. North Seymour Island, shore, Jan. 22, 1934, 2 young.
- 188-34. Cartago Bay, Albemarle Island, shore, Jan. 25, 1934, 1 male.
- 199-34. Black Beach, Charles Island, shore, Jan. 30, 1934, 1 male.
- 202-34. Gardner Bay, Hood Island, shore, Jan. 31, 1934, 1 male.
- 313-35. Black Beach, Charles Island, shore, Dec. 6, 1934, 2 males, 2 females.
- 314-35. Academy Bay, Indefatigable Island, shore, Dec. 7, 1934, 1 male.
- 350-35. South Seymour Island, shore, Dec. 13, 1934, 1 young.
- 351-35. South of Black Beach, Charles Island, shore, Dec. 14, 1934, 1 male.
- 359-35. Osborn Island in Gardner Bay, Hood Island, shore, Dec. 19, 1934, 2 males, 2 females, 2 young.
- 784-38. Darwin Bay, Tower Island, shore, Jan. 17, 1938, 1 male, 2 females.
- 789-38. South Seymour Island, shore, Jan. 19, 1938, 3 males, 3 females, 3 young.
- 796-38. Sullivan Bay, James Island, shore, Jan. 21, 1938, 1 female, 2 young.
- 800-38. Cartago Bay, Albemarle Island, shore, Jan. 22, 1938, 6 males, 7 females.

803-38. Black Beach, Charles Island, shore, Jan. 23, 1938, 1 female, 1 young.

804-38. Onslow Island, off Charles Island, coral, Jan. 23, 1938, 1 young.

Measurements.—Largest female: length 53.7 mm, width 56.6 mm, cheliped 60.0 mm, chela 28.9 mm.

Color in life.—Frontal, gastric, and cardiac areas, tips of marginal teeth, and spines of carapace pansy purple. Branchial and hepatic regions dahlia purple. Cheliped light brick red at base to pansy purple at extremity; hand Pompeian red, tips of fingers white. Ambulatory legs similar to cheliped; nail cadmium orange. (Petersen)

Habitat.—Rocky shore.

Depth.—Shore to 6 fms.

Remarks.—Young individuals are invariably sponge encrusted, sometimes so heavily as to be totally unrecognizable. The sponge seems always to be of the same light gray color and delicate texture. Older specimens are completely naked and of the bright shades of red described above.

A small male from a reef north of Tagus Hill, Albemarle Island, compares in an interesting manner with a specimen of similar size of *Mithrax (Mithrax) spinipes* (Bell) from San Francisco Island, Gulf of California, Allan Hancock Expedition of 1936. This young male is spinulous: the rostral and orbital horns are acute like those of *spinipes* but are of relatively smaller size. On a key like Rathbun (1925, p. 380), based upon adult characters, the young *bellii* keys to *spinipes*. A 17.5 mm specimen clearly shows the transition from spines to the tubercles and granular pavement of the adult carapace. It is quite possible that a similar transition takes place in the case of *spinipes*, as indicated in the discussion of that species. However, we do not yet possess specimens of *spinipes* of size comparable to the tuberculate and granulate adults of *bellii*; that is, not unless the adults have been given another specific name, such as *Mithrax (Mithrax) orcutti* Rathbun, of which the young in turn are unknown.

Mithrax (Mithrax) pygmaeus Bell

Mithrax pygmaeus Bell, Proc. Zool. Soc. London, vol. 3, p. 172, 1835;

Trans. Zool. Soc. London, vol. 2, p. 55, pl. 11, figs. 3, 3f-h, 1836.

Mithrax (Mithrax) pygmaeus Rathbun, Bull. 129, U.S. Nat. Mus., p. 406, pl. 262, figs. 1-4, 1925. Finnegan, Journ. Linn. Soc. London, Zool., vol. 37, no. 255, p. 624, 1931.

Type locality.—Panama, 10 fms, sand.

Type.—Not extant.

Range.—Perlas Islands, Panama (Garman); Galapagos Islands (Crossland).

Diagnosis.—Carapace smooth, depressed, broadly oval. Frontal lobes subtruncate, separated by a distinct V. Two rows of lateral marginal spines. Eyes prominent, a minute preocular spine. Basal antennal article broad, marginal teeth 2, flagellum half as long as carapace.

Material examined.—None from the Galapagos Islands. Hancock collections contain specimens from Bahia Honda, Panama, to La Plata Island, Ecuador.

Subgenus **MITHRACULUS**

Mithrax (Mithraculus) nodosus Bell

Plate 68, Fig. 1

Mithrax nodosus Bell, Proc. Zool. Soc. London, vol. 3, p. 171, 1835 (1836; Trans. Zool. Soc. London, vol. 2, p. 53, pl. 11, figs. 1-lb, 1836.

Mithrax (Mithraculus) nodosus Rathbun, Bull. 129, U.S. Nat. Mus., p. 429, pl. 155, and synonymy, 1925. Boone, Zoologica, vol. 8, no. 4, p. 158, fig. 50, 1927. Finnegan, Journ. Linn. Soc. London, vol. 37, p. 625, 1931. Sivertsen, Med. fra det Zool. Mus., Oslo, nr. 38, p. 12, 1933. Hult, Arkiv för Zoologi, Band 30A, no. 5, p. 12, 1938. Schmitt, Smithsonian Misc. Col., vol. 98, no. 6, p. 25, 1939.

Type locality.—Galapagos Islands.

Type.—Not extant.

Range.—Galapagos Islands (Bell); Chile (Miers).

Diagnosis.—Carapace with smooth, oblique, branchial furrows. Three large anterolateral lobes. Inner margin of cheliped laminated.

Material examined (850 specimens from 57 stations).—

- 11-32. Conway Bay, Indefatigable Island, Jan. 12, 1932, 1 male.
- 24-33. Gardner Bay, Hood Island, shore, Jan. 24, 1933, 15 males.
- 27-33. Gardner Bay, Hood Island, shore, Jan. 25, 1933, 20 males, 16 females (6 ovig.).
- 30-33. Gardner Bay, Hood Island, shore, Jan. 26, 1933, 11 males, 20 females (15 ovig.).
- 33-33. Black Beach, Charles Island, shore, Jan. 27, 1933, 11 males, 6 females (4 ovig.).
- 38-33. SE of Cormorant Point, Charles Island, shore, Jan. 29, 1933, 7 males, 6 females (2 ovig.).
- 42-33. Opposite Kicker Rock, Chatham Island, shore, Jan. 31, 1933, 3 males, 7 females (5 ovig.).
- 48-33. Barrington Island, shore, Feb. 2, 1933, 7 males, 9 females (1 ovig.).

- 49-33. Academy Bay, Indefatigable Island, shore, Feb. 3, 1933, 15 males, 12 females (5 ovig.).
- 52-33. Academy Bay, Indefatigable Island, shore, Feb. 4, 1933, 8 males, 6 females (2 ovig.).
- 56-33. Flamingo Bay, Charles Island, shore, Feb. 5, 1933, 8 males.
- 62-33. Black Bight, Albemarle Island, shore, Feb. 8, 1933, 2 males, 1 female.
- 65-33. Reef north of Tagus Hill, Albemarle Island, reef, Feb. 9, 1933, 3 males, 3 females.
- 69-33. Albemarle Point, Albemarle Island, shore, Feb. 11, 1933, 5 males, 4 females.
- 71-33. James Bay, James Island, shore, Feb. 12, 1933, 16 males, 8 females (2 ovig.).
- 73-33. Cartago Bay, Albemarle Island, shore, Feb. 13, 1933, 6 males, 9 females (6 ovig.).
- 76-33. Cartago Bay, Albemarle Island, shore, Feb. 14, 1933, 34 males, 22 females (15 ovig.).
- 82-33. Conway Bay, Indefatigable Island, shore, Feb. 17, 1933, 9 males, 6 females.
- 85-33. North Seymour Island, shore, Feb. 18, 1933, 6 males, 1 female.
- 88-33. South Seymour Island, shore, Feb. 19, 1933, 9 males, 2 females.
- 93-33. Darwin Bay, Tower Island, shore, Feb. 22, 1933, 2 females, 2 young.
- 96-33. Darwin Bay, Tower Island, shore, Feb. 24, 1933, 11 males, 17 females (5 ovig.).
- 98-33. Darwin Bay, Tower Island, shore, Feb. 25, 1933, 7 males, 7 females (5 ovig.).
- 101-33. Darwin Bay, Tower Island, shore, Feb. 26, 1933, 7 males, 11 females (4 ovig.).
- 153-34. Mangrove Point, Narborough Island, shore, Jan. 14, 1934, 2 females.
- 154-34. Reef north of Tagus Hill, Albemarle Island, reef, Jan. 15, 1934, 2 males, 1 female.
- 161-34. Black Beach, Charles Island, 3 fms, Jan. 17, 1934, 2 males, 1 female.
- 163-34. Black Beach, Charles Island, shore, Jan. 18, 1934, 4 males, 8 females.
- 166-34. Black Beach, Charles Island, shore, Jan. 19, 1934, 13 males, 8 females.
- 168-34. Academy Bay, Indefatigable Island, shore, Jan. 20, 1934, 16 males, 19 females.

- 174-34. South Seymour Island, shore, Jan. 22, 1934, 2 males.
175-34. North Seymour Island, shore, Jan. 22, 1934, 3 males, 6 females.
179-34. Bartholomew Island, James Island, shore, Jan. 23, 1934, 18 males, 14 females.
188-34. Cartago Bay, Albemarle Island, shore, Jan. 25, 1934, 1 female.
199-34. Black Beach, Charles Island, shore, Jan. 30, 1934, 2 males, 8 females (6 ovig.).
202-34. Gardner Bay, Hood Island, shore, Jan. 31, 1934, 15 males, 13 females.
306-35. Marchena Island, shore, Dec. 2, 1934, 6 males, 3 females.
312-35. Black Beach, Charles Island, shore, Dec. 5, 1934, 1 specimen.
313-35. Black Beach, Charles Island, shore, Dec. 6, 1934, 8 males, 6 females (3 ovig.).
314-35. Academy Bay, Indefatigable Island, shore, Dec. 7, 1934, 14 males, 22 females (7 ovig.).
315-35. Opposite Gordon Rocks, Indefatigable Island, coral, Dec. 8, 1934, 2 males, 1 female.
333-35. James Bay, James Island, shore, Dec. 11, 1934, 9 males, 7 females (2 ovig.), in poor condition.
342-35. Bartholomew Island near James Island, shore, Dec. 12, 1934, 1 specimen.
343-35. Sullivan Bay, James Island, shore, Dec. 12, 1934, 22 males, 13 females (7 ovig.).
350-35. South Seymour Island, shore, Dec. 13, 1934, 8 males, 6 females (4 ovig.).
351-35. South of Black Beach, Charles Island, shore, Dec. 14, 1934, 6 males, 4 females (1 ovig.).
354-35. Wreck Bay, Chatham Island, shore, Dec. 15, 1934, 1 male.
358-35. Gardner Bay, Hood Island, shore, Dec. 17, 1934, 8 males, 3 females (1 ovig.).
359-35. Osborn Island in Gardner Bay, Hood Island, shore, Dec. 19, 1934, 23 males, 14 females (10 ovig.).
782-38. Darwin Bay, Tower Island, shore, Jan. 16, 1938, 5 males, 1 female, 11 young.
784-38. Darwin Bay, Tower Island, shore, Jan. 17, 1938, 5 males, 4 females (1 ovig.).
789-38. South Seymour Island, shore, Jan. 19, 1938, 5 males, 12 females (8 ovig.), 5 young.
796-38. Sullivan Bay, James Island, shore, Jan. 21, 1938, 18 males, 17 females (16 ovig.), 6 young.

800-38. Cartago Bay, Albemarle Island, shore, Jan. 22, 1938, 7 males, 3 females (2 ovig.), 1 young.

803-38. Black Beach, Charles Island, shore, Jan. 23, 1938, 2 young.

804-38. Onslow Island, off Charles Island, coral, Jan. 23, 1938, 1 female.

-38. Academy Bay, Indefatigable Island, shore, Jan. 25, 1938, 1 male, Karl Kübler, collector.

Measurements.—Largest male: length 30.1 mm, width 38.2 mm, cheliped 57.0 mm, chela 30.9 mm, dactyl 18.6 mm, height of gape 3.6 mm.

Color in life.—Uniform purplish brown. Hairs on legs and about antennae yellow, in sunlight yellow green. (Garth)

Habitat.—Shore, both in coral and under rocks.

Depth.—Although predominately a shore species, *M. nodosus* has been recorded to 12 fms.

Remarks.—*M. nodosus* was collected at a greater number of stations than any other species excepting *Teleophrys cristulipes* Stimpson. It is the most abundant spider crab in the Galapagos Islands, being taken both in coral and in ordinary rock turning at low tide. In the *Pocillopora* coral colony it occupies an analogous situation to *M. (Mithraculus) areolata* Lockington of the Bay of Panama, both in relative abundance and as the sole representative of its subgenus. From the experience of the Allan Hancock Expeditions, *M. nodosus* may be considered a true Galapagos endemic species, none having been encountered on the mainland coast as far south as the bays of San Juan and San Nicolas, Peru, well within the limits of the Chilean fauna.

***Mithrax (Mithraculus) denticulatus* Bell**

Mithrax denticulatus Bell, Proc. Zool. Soc. London, vol. 3, p. 172, 1835; Trans. Zool. Soc. London, vol. 2, p. 54, pl. 11, fig. 2, 1836.

Mithrax (Mithraculus) denticulatus Rathbun, Bull. 129, U.S. Nat. Mus., p. 428, pl. 154, figs. 2-3, and synonymy, 1925.

Type locality.—Galapagos Islands, under stones.

Type.—Not extant.

Range.—From Cape San Lucas, Lower California (Xantus), to Ecuador (Nobili); Galapagos Islands (Bell).

Atlantic analogue.—*M. (Mithraculus) coryphe* (Herbst).

Diagnosis.—Carapace wide, breadth exceeding length by nearly one half. Two acute tubercles and a spine on lateral margin, the latter opposite greatest width of carapace. Inner margin of carpus laminate.

Material examined.—None from the Galapagos Islands. The Hancock collections contain a long series of this species ranging from Espiritu Santo Island, Gulf of California, to Manta, Ecuador.

Genus **TELEOPHRYS** Stimpson, 1860**Teleophrys cristulipes** Stimpson

Plate 68, Figs. 5, 6

Teleophrys cristulipes Stimpson, Ann. Lyc. Nat. Hist., New York, vol. 7, p. 190 (62), pl. 2, fig. 2, 1860. Rathbun, Proc. Washington Acad. Sci., vol. 4, no. 8, p. 284, 1902; Bull. 129, U.S. Nat. Mus., p. 441, pl. 159, figs. 1, 2, and 7; pl. 262, fig. 7, and synonymy, 1925. Finnegan, Journ. Linn. Soc. London, vol. 37, p. 625, 1931. Crane, Zoologica, vol. 22, no. 3, p. 61, 1937. Schmitt, Smithsonian Misc. Col., vol. 98, no. 6, p. 25, 1939.

Teleophrys diana Boone, Zoologica, vol. 8, no. 4, p. 162, fig. 52, 1927. Sivertsen, Med. fra det Zool. Mus. Oslo, nr. 38, p. 13, 1933. Hult, Arkiv för Zoologi, Band 30A, no. 5, p. 12, 1938.

Teleophrys tumidus Rathbun, Bull. 129, U.S. Nat. Mus., p. 442, part (the Galapagos specimen), 1925. Boone, Zoologica, vol. 8, no. 4, p. 166, 1927.

Type locality.—Cape San Lucas, Lower California.

Type.—MCZ No. 1226.

Range.—From Arena Bank, Gulf of California (*Zaca*), to Gorgona Island, Colombia (Crossland); Galapagos Islands (Hopkins-Stanford Expedition).

Atlantic analogue.—*T. pococki* Rathbun.

Diagnosis.—Carapace rotund, front low and arching, hepatic region prominent, margins spinulose. Second antennal segment long and cylindrical.

Material examined (1,231 specimens from 62 stations).—

27-33. Gardner Bay, Hood Island, shore, Jan. 25, 1933, 30 males, 49 females (38 ovig.).

28-33. Gardner Bay, Hood Island, 2 fms, Jan. 25, 1933, 10 males, 11 females (10 ovig.), 1 young.

30-33. Gardner Bay, Hood Island, shore, Jan. 26, 1933, 54 males, 94 females (73 ovig.), 26 young.

31-33. Gardner Bay, Hood Island, 4 fms, Jan. 26, 1933, 1 male, 1 female, 4 young.

33-33. Black Beach, Charles Island, shore, Jan. 27, 1933, 7 males, 7 ovig. females.

38-33. SE of Cormorant Point, Charles Island, shore, Jan. 29, 1933, 6 males, 5 ovig. females, 3 young.

46-33. Barrington Island, 4-10 fms, Feb. 2, 1933, 4 males (1 photographed), 3 females (2 ovig.).

- 47-33. Barrington Island, 2 fms, Feb. 2, 1933, 11 males, 6 females (4 ovig.), 8 young.
- 48-33. Barrington Island, shore, Feb. 2, 1933, 1 male.
- 33. Post Office Bay, Charles Island, fish trap, Feb. 5, 1933, 1 male.
- 59-33. Off Cormorant Bay, Charles Island, 13 fms, Feb. 6, 1933, 17 males, 12 females (7 ovig.), 32 young.
- 33. Post Office Bay, Charles Island, "roach" trap on fish trap, Feb. 6, 1933, 1 male.
- 62-33. Black Bight, Albemarle Island, shore, Feb. 8, 1933, 4 males, 1 female.
- 69-33. Albemarle Point, Albemarle Island, shore, Feb. 11, 1933, 129 males, 131 females (114 ovig.), 4 young, 1 fragment.
- 73-33. Cartago Bay, Albemarle Island, shore, Feb. 13, 1933, 4 males, 10 females (8 ovig.).
- 76-33. Cartago Bay, Albemarle Island, shore, Feb. 14, 1933, 4 males, 9 ovig. females.
- 80-33. Duncan Island, coral, Feb. 15, 1933, 12 males, 12 females (8 ovig.).
- 85-33. North Seymour Island, shore, Feb. 18, 1933, 3 young males.
- 94-33. Darwin Bay, Tower Island, coral, Feb. 22, 1933, 7 males, 8 females (7 ovig.).
- 96-33. Darwin Bay, Tower Island, shore, Feb. 24, 1933, 3 males.
- 97-33. Darwin Bay, Tower Island, coral, Feb. 24, 1933, 7 males, 4 females (3 ovig.).
- 98-33. Darwin Bay, Tower Island, shore, Feb. 25, 1933, 6 males, 6 females (5 ovig.).
- 101-33. Darwin Bay, Tower Island, shore, Feb. 26, 1933, 1 ovig. female.
- 101a-33. Darwin Bay, Tower Island, coral, Feb. 26, 1933, 4 males, 1 female.
- 152-34. Tagus Cove, Albemarle Island, shore, Jan. 14, 1934, 18 males, 16 females (9 ovig.), 5 young.
- 154-34. Reef north of Tagus Hill, Albemarle Island, reef, Jan. 15, 1934, 6 males, 6 ovig. females.
- 161-34. Charles Island, 3 fms, Jan. 17, 1934, 3 males, 5 females (4 ovig.), 2 young.
- 166-34. Black Beach, Charles Island, shore, Jan. 19, 1934, 4 males, 12 females (11 ovig.).
- 167-34. Post Office Bay, Charles Island, 15 fms, Jan. 19, 1934, 1 male.
- 168a-34. Academy Bay, Indefatigable Island, coral, Jan. 20, 1934, 2 males, 3 females (2 ovig.).

- 180-34. Sullivan Bay, James Island, 3 fms, Jan. 23, 1934, 2 males, 1 female.
- 189-34. Cartago Bay, Albemarle Island, coral, Jan. 25, 1934, 3 males, 1 young.
- 194-34. Post Office Bay, Charles Island, coral from Onslow Island crater, Jan. 27, 1934, 2 males, 5 females (4 ovig.).
- 199-34. Black Beach, Charles Island, shore, Jan. 30, 1934, 2 males.
- 202-34. Gardner Bay, Hood Island, shore, Jan. 31, 1934, 4 males, 12 females (10 ovig.).
- 309-35. Marchena Island, 8 fms, Dec. 3, 1934, 2 specimens.
- 310-35. Marchena Island, 15 fms, Dec. 3, 1934, 1 young female.
- 313-35. Black Beach, Charles Island, shore, Dec. 6, 1934, 12 males, 4 females.
- 314-35. Academy Bay, Indefatigable Island, shore, Dec. 7, 1934, 1 ovig. female.
- 315-35. Opposite Gordon Rocks, Indefatigable Island, coral, Dec. 8, 1934, 11 males, 20 females (15 ovig.).
- 322-35. Tagus Cove, Albemarle Island, 10 fms, Dec. 10, 1934, 1 ovig. female.
- 333-35. James Bay, James Island, shore, Dec. 11, 1934, 11 males, 2 females.
- 340-35. Sullivan Bay, James Island, 8 fms, Dec. 12, 1934, 2 males, 1 female.
- 341-35. Sullivan Bay, James Island, 20 fms, Dec. 12, 1934, 1 male.
- 343-35. Sullivan Bay, James Island, shore, Dec. 12, 1934, 23 males, 17 females (11 ovig.), 1 young.
- 344-35. Bartholomew Island near James Island, coral, Dec. 12, 1934, 1 male, 3 ovig. females.
- 351-35. South of Black Beach, Charles Island, shore, Dec. 14, 1934, 1 male, 1 female.
- 355-35. Gardner Bay, Hood Island, 12 fms, Dec. 17, 1934, 2 males, 3 females (2 ovig.).
- 356-35. Gardner Bay, Hood Island, 12-15 fms, Dec. 17, 1934, 1 male, 2 ovig. females, 2 young.
- 357-35. Gardner Bay, Hood Island, coral, Dec. 17, 1934, 3 males, 2 females.
- 359-35. Osborn Island in Gardner Bay, Hood Island, shore, Dec. 19, 1934, 26 males, 19 females (12 ovig.).
- 782-38. Darwin Bay, Tower Island, shore, Jan. 16, 1938, 4 males, 2 ovig. females, 2 young.

- 783-38. Darwin Bay, Tower Island, 40-70 fms, Jan. 16, 1938, 2 ovig. females.
- 784-38. Darwin Bay, Tower Island, shore, Jan. 17, 1938, 7 males, 5 females (3 ovig.).
- 785-38. Darwin Bay, Tower Island, 20-40 fms, Jan. 17, 1938, 2 males, 2 females (1 ovig.).
- 789-38. South Seymour Island, shore, Jan. 19, 1938, 25 males, 18 females (15 ovig.).
- 790-38. "Velero Bay," South Seymour Island, 10-20 fms, Jan. 19, 1938, 1 male.
- 796-38. Sullivan Bay, James Island, shore, Jan. 21, 1938, 17 males, 10 females (3 ovig.).
- 800-38. Cartago Bay, Albemarle Island, shore, Jan. 22, 1938, 5 males, 4 females (3 ovig.).
- 804-38. Charles Island, coral from Onslow Island crater, Jan. 23, 1938, 5 males, 6 females (5 ovig.), 1 young.
- 811-38. Barrington Island, coral, Jan. 26, 1938, 23 males, 27 females (17 ovig.).
- 811a-38. Barrington Island, *Pavona* coral, Jan. 26, 1938, 3 males, 4 females.

Measurements.—Male: length 12.0 mm, width 13.4 mm, cheliped 20.0 mm, chela 10.8 mm.

Color in life.—Ground color of carapace a rich dull magenta purple. Lacelike designs on frontal and branchial regions white tinged with red. Ground color of chelipeds and ambulatory legs creamy white; patterns similar to those of carapace but much paler. Crest of hand dark magenta purple. Fingers banded with various shades of orange, tips white. Legs also have blotches of dull yellow. Dactyls golden. (Petersen)

Habitat.—Rocky shore or *Pocillopora* coral.

Depth.—Shore to 20 fms; exceptionally 40-70 fms.

Remarks.—This most abundant spider crab was taken at a greater number of stations than any other Galapagos brachyuran. It is exceeded in number of individual specimens only by two of the Xanthidae, the free-living *Leptodius cooksoni* Miers and the *Pocillopora*-dwelling *Trapezia cymodoce ferruginea* Latreille.

The remarks of Finnegan (1931) concerning the variability of this species and the difference between those collected ashore and those taken in corals are pertinent in the light of the experience of *Velero III* collectors. The larger specimens which stray beyond the protecting branches of the *Pocillopora* are almost invariably smooth legged and lumpy of carapace, while smaller individuals cracked from coral have cristate legs and spinous lateral margins.

Since *Teleophrys tumidus* (Cano) has been twice recorded as from the Galapagos Islands, once by Rathbun (1925, p. 443) and once by Boone (1927, p. 166), it was assumed that specimens of this species would be found among the 1,231 specimens from 62 collecting stations which constitute the *Velero III* Galapagos series of *Teleophrys*. Indeed, in the early years of this study specimens thought to be *tumidus* were taken to the U.S. National Museum for comparison with material determined by Miss Rathbun. Substantial agreement was found between them and the Hopkins-Stanford Expedition specimen (USNM Cat. No. 25678) upon which the first Galapagos record of *tumidus* rests, and on this basis the Hancock series was laboriously separated into "*cristulipes*" and "*tumidus*" fractions, not, however, without an inseparable residue.

The introduction of new material obtained by Hancock Expeditions of 1935 and 1938 in Peru, Cano's type locality, revealed differences between Galapagan and Peruvian specimens which are based upon structural, rather than superficial characters. The Hopkins-Stanford specimen, re-examined in this light, proved to be no more than a particularly cristate *cristulipes*, which was indeed the original Rathbun determination (1902). As a result, the entire Hancock Galapagos series is now referred to *cristulipes*, and doubt is expressed concerning the occurrence of *tumidus* outside of Peruvian waters.

The differences between *cristulipes* and *tumidus*, as represented by Galapagan and Peruvian specimens, respectively, are, in the order of relative importance, (1) the long, cylindrical second free antennal segment of *cristulipes* as compared to the short, broad segment of *tumidus*, (2) the low, arched front of the adult *cristulipes* as compared to the elongated front and closely approximated rostral horns of *tumidus*, (3) the less prominent branchial and more prominent hepatic region of *cristulipes*, giving it a rotund carapace as compared to the more triangular one of *tumidus*, and (4) the absence of a lateral propodal flange in *cristulipes*, although its place is sometimes occupied by a low tubercle in Galapagos specimens. The remaining characters mentioned by Rathbun (1925, p. 442), such as number of anterolateral spines or spinules, proportionate number of tubercles and granules on the carapace, and entire or dentate margin of the basal antennal article, are subject to considerable variation even among adult specimens.

Genus **STENOCIONOPS** (Leach MS.) Desmarest, 1823

KEY TO THE GALAPAGOS SPECIES OF THE GENUS *Stenocionops*

- A¹ 9 median spines and 3 lateral spines *S. triangulata*
 A² 8 median spines and 4 or 5 lateral spines *S. ovata*

***Stenocionops triangulata* (Rathbun)**

Plate 67, Figs. 1, 2; Plate 68, Fig. 2

Pericera triangulata Rathbun, Proc. U.S. Nat. Mus., vol. 15, p. 246, pl. 32, fig. 1, 1892.

Stenocionops triangulata Rathbun, Proc. U.S. Nat. Mus., vol. 21, p. 577, 1898; Bull. 129, U.S. Nat. Mus., p. 461, pl. 165, fig. 1; pl. 266, fig. 1, 1925.

Type locality.—Gulf of California, 29 fms.

Type.—USNM No. 16066.

Range.—West coast of Lower California, Gulf of California (*Albatross*); Bay of Panama (*Albatross*); 13-51 fms.

Diagnosis.—From young specimens: nine median spines and a hepatic spine; 3 marginal spines; rostrum one-sixth carapace length, horns strongly divergent.

Material examined (8 specimens from 6 stations).—

143-34. Wenman Island, 100-150 fms, Jan. 11, 1934, 1 large male (photographed, pl. 67).

170-34. East of Wreck Bay, Chatham Island, 32 fms, Jan. 21, 1934, 1 young male (photographed, pl. 68).

317-35. Off Gordon Rocks, Indefatigable Island, 25-30 fms, Dec. 8, 1934, 1 female.

328-35. Tagus Cove, Albemarle Island, 14 fms, Dec. 10, 1934, 1 male.

355-35. Gardner Island, Hood Island, 12 fms, Dec. 17, 1934, 2 specimens.

356-35. Gardner Bay, Hood Island, 12-15 fms, Dec. 17, 1934, 2 males.

Measurements.—Largest male: length 40.0 mm, width 32.9 mm, width between preorbital spines 14.8 mm, cheliped 33.5 mm, chela 14.9 mm, rostrum 5.2 mm.

Habitat.—Sand and coral, coral and nullipore.

Depth.—12-150 fms.

Remarks.—From the standpoint of previous records, the reasonable expectation was that *Stenocionops ovata* (Bell) would be found, since its type locality is Galapagos Islands. However, the smaller specimens all fit the description of *S. triangulata* (Rathbun) much better. The measured specimen from Wenman Island, of moderately large size, differs from the young in ways characteristic for the members of the genus. Sufficient difference between it and mainland *S. triangulata* of like size has been noted to suggest the possibility that it may be the adolescent *S. ovata*, which is known only from the description and figure of a young specimen.

In the absence of long series showing growth changes, the writer prefers to refer all Hancock-collected *Stenocionops* from the Galapagos Islands to *S. triangulata*, while calling attention to this discrepancy.

Stenocionops ovata (Bell)

Pericera ovata Bell, Proc. Zool. Soc. London, vol. 3, p. 173, 1835; Trans. Zool. Soc. London, vol. 2, p. 60, pl. 12, figs. 5, 5o-q, 1836.

Stenocionops ovata Rathbun, Proc. U.S. Nat. Mus., vol. 38, p. 574, 1910; Bull. 129, U.S. Nat. Mus., p. 459, pl. 264, figs. 5-7, 1925.

Type locality.—Galapagos Islands.

Type.—Not extant.

Range.—Known only from the Galapagos Islands (Bell).

Diagnosis.—Eight median spines and a hepatic spine; 4 or 5 marginal spines. Rostrum one-fifth carapace length, horns strongly divergent. (From Bell's description.)

Material examined.—None, unless the Wenman Island specimen mentioned above should prove to be of this species.

Remarks.—See *Remarks* under the preceding *S. triangulata*.

Genus **MICROPHRYS** Milne Edwards, 1851

KEY TO THE GALAPAGOS SPECIES OF THE GENUS *Microphrys*

- A¹ No flattened, imbricated lobes on the lateral margins of the carapace *M. triangulatus*
 A² Two flattened, imbricated lobes on the lateral margins of the carapace
 B¹ Carapace considerably longer than broad; 2 spines at widest part of branchial region *M. platysoma*
 B² Carapace little longer than broad, hairy; 4 spines on each branchial region *M. aculeatus*

Microphrys aculeatus (Bell)

Plate 63, Fig. 5

Pisa aculeata Bell, Proc. Zool. Soc. London, vol. 3, p. 171, 1835 (1836); Trans. Zool. Soc. London, vol. 2, p. 50, pl. 9, fig. 7, 1836.

Microphrys aculeatus A. Milne Edwards, Crust. Reg. Mex., p. 63, 1875. Rathbun, Bull. 129, U.S. Nat. Mus., p. 500, pl. 271, fig. 1, and synonymy, 1925. Boone, Zoologica, vol. 8, no. 4, p. 169, fig. 55, 1927. Sivertsen, Med. fra det Zool. Mus., Oslo, nr. 38, p. 13, 1933.

Type locality.—Galapagos Islands.

Type.—Not extant.

Range.—Ecuador (Nobili) ; Peru (Coker) ; Galapagos Islands (Bell).

Diagnosis.—Two imbricated, flattened lobes on the side walls of the carapace. Typically 4 anterolateral spines. No lobe on basal antennal article below the acuminate spine.

Material examined (14 specimens from 9 stations).—

- 27-33. Gardner Bay, Hood Island, shore, Jan. 25, 1933, 1 female (photographed).
33-33. Black Beach, Charles Island, shore, Jan. 27, 1933, 1 ovig. female.
169-34. Academy Bay, Indefatigable Island, 15-25 fms, Jan. 20, 1934, 1 male.
199-34. Black Beach, Charles Island, shore, Jan. 30, 1934, 1 ovig. female.
313-35. Black Beach, Charles Island, shore, Dec. 6, 1934, 1 female.
314-35. Academy Bay, Indefatigable Island, shore, Dec. 7, 1934, 5 specimens.
315-35. Opposite Gordon Rocks, Indefatigable Island, coral, Dec. 8, 1934, 1 male, 1 young.
351-35. South of Black Beach, Charles Island, shore, Dec. 14, 1934, 1 male.
789-38. South Seymour Island, shore, Jan. 19, 1938, 1 female.

Measurements.—Largest female: length 15.6 mm, width 14.0 mm, cheliped 12.8 mm, chela 6.4 mm.

Habitat.—Rocky shore.

Remarks.—*M. aculeatus* is a rarely encountered shoreline species. Its discovery by *Velero III* collectors never failed to arouse comment because of the beauty and variety of its bryozoan and coralline encrustations.

Known previously from Tagus Cove and Hood and Charles Islands, its range has been extended to Indefatigable and adjacent South Seymour Islands. *M. aculeatus* is one of the very few species common to the Galapagos Islands and Peru.

***Microphrys triangulatus* (Lockington)**

Plate 63, Fig. 6

Mithraculus triangulatus Lockington, Proc. California Acad. Sci., vol. 7, p. 73 (11), 1876 (1877).

Microphrys triangulatus Rathbun, Proc. U.S. Nat. Mus., vol. 21, p. 578, 1898; Bull. 129, U.S. Nat. Mus., p. 505, pl. 177, 1925.

Microphrys branchialis Rathbun, Proc. Washington Acad. Sci., vol. 4, p. 285, 1902 (part: Galapagos specimens).

Type locality.—Gulf of California.

Type.—Not extant.

Range.—From Agua Verde Bay to Cerralvo Island, Gulf of California (*Albatross*); Galapagos Islands (Rathbun, as *M. branchialis*); shallow water to 10 fms.

Diagnosis.—Carapace short, broad, nodose. Basal article of antenna with 3 marginal teeth. Branchial region swollen.

Material examined (57 specimens from 12 stations).—

148-34. Tagus Cove, Albemarle Island, 12-15 fms, Jan. 13, 1934, 1 male, 5 females (4 ovig.).

149-34. Tagus Cove, Albemarle Island, 20 fms, Jan. 13, 1934, 1 male, 2 females.

167-34. Post Office Bay, Charles Island, 15 fms, Jan. 19, 1934, 5 males, 4 females, 1 carapace.

169-34. Academy Bay, Indefatigable Island, 15-25 fms, Jan. 20, 1934, 1 male, 1 female, 1 young.

177-34. Sullivan Bay, James Island, 5-20 fms, Jan. 23, 1934, 4 males (1 photographed), 2 females.

193-34. Post Office Bay, Charles Island, 8-10 fms, Jan. 27, 1934, 5 males, 6 females, 3 young.

197-34. Off Post Office Bay, Charles Island, 35-40 fms, Jan. 29, 1934, 1 male.

341-35. Sullivan Bay, James Island, 20 fms, Dec. 12, 1934, 1 male, 1 female.

352-35. Wreck Bay, Chatham Island, 35 fms, Dec. 15, 1934, 1 male.

355-35. Gardner Island, Hood Island, 12 fms, Dec. 17, 1934, 3 males.

356-35. Gardner Bay, Hood Island, 12-15 fms, Dec. 17, 1934, 4 specimens.

795-38. Sullivan Bay, James Island, 35-40 fms, Jan. 21, 1938, 3 males, 2 females.

Measurements.—Largest male: length 14.5 mm, width 13.8 mm, cheliped 25.9 mm, chela 13.2 mm, dactyl 6.2 mm, height of gape 1.8 mm.

Color in life.—Carapace carmine, slightly more intense on frontal areas. Antenna banded with same color. Eye dark green. A few white spots scattered on carapace, especially around spines. Cheliped also carmine with a few white spots. Fingers carmine, white banded. Ambulatory legs also carmine, banded with white. (Petersen)

Habitat.—Rock, frequently with red algae attached; rock and sand; one record of coral, nullipore, and rock.

Depth.—Shoal water to 40 fms.

Sex variation.—Adult male has well-developed chelipeds, broad fingers, wide gape.

Remarks.—*Velero III* records considerably extend the range of this species within the insular group, it being known previously from but two specimens taken at Tagus Cove, Albemarle Island, by the Hopkins-Stanford Expedition. *M. triangulatus* is the commonly dredged *Microphrys* of the Galapagos Islands, *M. aculeatus* the shore-dwelling species.

The known depth is hereby increased from 10 to 40 fms.

***Microphrys platysoma* (Stimpson)**

Plate 68, Figs. 3, 4

Milnia platysoma Stimpson, Ann. Lyc. Nat. Hist. New York, vol. 7, p. 180, 1860.

Microphrys platysoma A. Milne Edwards, Crust. Reg. Mex., p. 62, 1875. Rathbun, Bull. 129, U.S. Nat. Mus., p. 497, pl. 176, figs. 1 and 2, and synonymy, 1925. Crane, Zoologica, vol. 22, no. 3, p. 63, 1937. *Not* Rathbun, Proc. Washington Acad. Sci., vol. 4, no. 8, p. 285, 1902.

Type locality.—Cape San Lucas, Lower California.

Type.—Not extant.

Range.—From Patos Island, Gulf of California (California Academy of Sciences), to Panama (Meek and Hildebrand); Salinas, Ecuador (Schmitt, unpublished); low tide to $4\frac{1}{2}$ fms.

Atlantic analogue.—*M. antillensis* Rathbun.

Diagnosis.—Two imbricated, flattened lobes on the sides of the carapace. Two branchial spines on each side in the same transverse line. A lobe on the basal antennal article below the single spine.

Material examined.—

783-38. Darwin Bay, Tower Island, 40-70 fms, Jan. 16, 1938, 2 young (1 photographed).

Measurements.—Young specimen: length 6.3 mm, width 5.0 mm.

Habitat.—White sand and rock.

Depth.—Low tide to 70 fms.

Remarks.—In view of the fact that *M. aculeatus* is invariably a shore-collected species, Miss Rathbun (1925) was undoubtedly right in referring the Hopkins-Stanford "*platysoma*" to that species, since it was collected on a reef north of Tagus Hill, a shore locality. The Hancock specimens were dredged in 40-70 fms, and, although not mature, show the two imbricated lobes clearly. Because of the depth at which they were obtained, they could scarcely be *aculeatus*, and the only other Pacific *Microphrys* with two imbricated lobes is *platysoma*.

Genus **TYCHE** Bell, 1835**Tyche lamellifrons** Bell

Plate 54, Figs. 1-6

Tyche lamellifrons Bell, Proc. Zool. Soc. London, vol. 3, p. 173, 1835 (1836); Trans. Zool. Soc. London, vol. 2, p. 58, pl. 12, figs. 3, 3f-j, 1836. Rathbun, Bull. 129, U.S. Nat. Mus., p. 508, pl. 273, figs. 1-6, and synonymy, 1925. Crane, Zoologica, vol. 22, no. 3, p. 64, 1937.

Type locality.—Panama.

Type.—In Brit. Mus.

Range.—Gulf of California (*Albatross*) to Panama (Bell); to a depth of 29 fms (Crane).

Atlantic analogue.—*T. emarginata* White.

Diagnosis.—Preorbital horns divergent, exceeding rostral horns. Posterior margin of carapace faintly trilobate. Orbits concealing eyestalks to extremities.

Material examined (6 specimens from 6 stations).—

69-33. Albemarle Point, Albemarle Island, shore, Feb. 11, 1933, 1 female (illustrated).

167-34. Post Office Bay, Charles Island, 15 fms, Jan. 19, 1934, 1 male (illustrated in part).

311-35. Marchena Island, 20 fms, Dec. 3, 1934, 1 young.

343-35. Sullivan Bay, James Island, shore, Dec. 12, 1934, 1 male.

355-35. West of Gardner Island, Hood Island, 12 fms, Dec. 17, 1934, 1 male.

784-35. Darwin Bay, Tower Island, shore, Jan. 17, 1938, 1 young.

Measurements.—Largest specimen, female: length 29.0 mm, width 18.0 mm; male: length 24.2 mm, width 15.0 mm, cheliped 19.0 mm, chela 9.1 mm.

Color in life.—A young specimen: carapace uniform sudan brown. Eyestalk amber, eye buff yellow. Cheliped same as carapace but hand a tone lighter, color fading gradually to very pale tips. Ambulatory legs lighter than carapace; nail of dactyl clear pale amber. (Petersen)

Habitat.—Sandy bottom (Bell) with weed (Crane). *Velero III* specimens were all taken either on rocky shore, or with tangles, indicating rocky bottom.

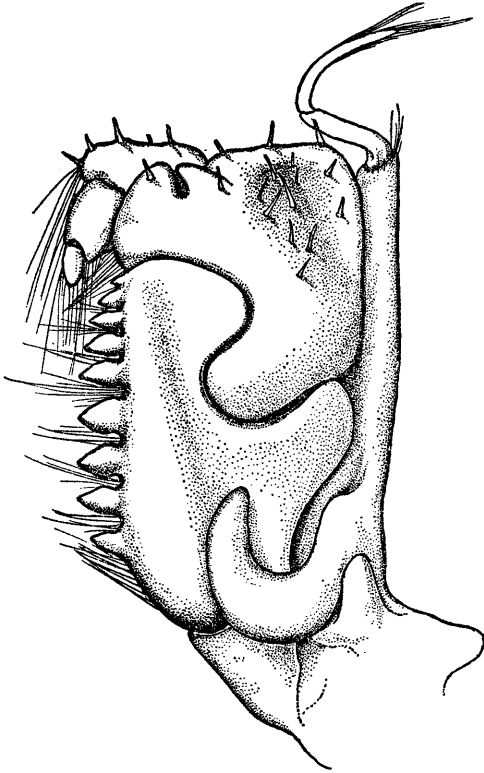
Depth.—Shore to 29 fms.

Remarks.—An adult female, measuring 29 mm in length by 18 mm in width, appears to be the largest specimen on record. The preorbital horns exceed the rostral and are strongly divergent, as in the Atlantic species, *T. emarginata* White, thus differing from the diagnostic char-

acters given by Rathbun (1925, p. 509) and requiring supplementary description which can best be given by a point-by-point comparison with the Atlantic species.

In comparing the above-mentioned female of *Tyche lamellifrons* with a female specimen of *T. emarginata* loaned by the U.S. National Museum (Cat. No. 46770) and a male with loaned male No. 46772, the following differences became apparent:

1. The rostral horns are parallel in *lamellifrons* and are almost joined half way to their extremities by protuberances which almost, if not actually, touch one another on the midline. The rostral horns of *emarginata*, on the other hand, are strongly divergent from their bases and have no suggestion of such protuberances.



TEXT FIG. 1
Left outer maxilliped of *Tyche emarginata* White

2. The orbital horns of both species are divergent, although less strongly so in *T. lamellifrons*, and in both they extend beyond the rostral horns. Lines drawn through their long axes would cross at the gastric level in *emarginata* and at the cardiac level in *lamellifrons* because of the more divergent angle taken by them in the former species.

3. The posterior margin of the carapace of *lamellifrons* is faintly trilobate, that of *emarginata* strongly bilobate and lamellate.

4. Because of these posterior lobes and the greater length of the rostral and orbital horns, the proportion of length to breadth of carapace appears greater in *emarginata* than in *lamellifrons*, particularly in adult male specimens.

5. The ambulatory legs of *lamellifrons* are shorter and stouter than those of *emarginata*.

6. The exopodite of the third maxilliped of *emarginata* has a basal protuberance which recurves to cover the base of the ischium. The merus inserts deeply into the outer distal portion of the ischium by a similar, but less developed tongue or flange. The inner margin of the ischium is strongly dentate. (See text fig. 1.)

In *lamellifrons* the basal projection of the exopodite does not recurve to cover the base of the ischium, the merus does not insert so deeply into the ischium, the inner margin of which is nondentate.

7. The first free antennal segment in *lamellifrons* is flattened, in *emarginata* it is cylindrical.

8. The sternal plastron of *emarginata* is deeply indented and there are 2 strong tubercles, one on either side of the base of the last abdominal segment in the male. The sternum of *lamellifrons* is flat with but a slight tubercle opposite the last abdominal segment.

T. lamellifrons is now recorded from the Galapagos Islands.

Family *PARTHENOPIDAE*
 Subfamily *PARTHENOPINAE*
 Genus *PARTHENOPE* Weber, 1795

KEY TO THE GALAPAGOS SPECIES OF THE GENUS *Parthenope*

- A¹ Chelipeds more than twice as long as carapace; carapace broadly triangular, sides rounded . . . (Subgenus *Platylambrus*)
 B¹ Three large tubercles on posterior margin, one of which is median *P. (Platylambrus) exilipes*
 A² Chelipeds less than twice as long as carapace
 (Subgenus *Pseudolambrus*)
 B¹ Anterolateral margins without an abrupt angle; upper border of chela with 8 or 9 strong teeth *P. (Pseudolambrus) triangula*

Subgenus *PLATYLAMBRUS* Stimpson, 1871
Parthenope (Platylambrus) exilipes (Rathbun)
 Plate 69, Fig. 2

Lambrus (Parthenolambrus) exilipes Rathbun, Proc. U.S. Nat. Mus., vol. 16, p. 234, 1893.

Lambrus exilipes Rathbun, Proc. U.S. Nat. Mus., vol. 21, p. 581, 1898.

Parthenope (Platylambrus) exilipes Rathbun, Bull. 129, U.S. Nat. Mus., p. 523, pls. 184 and 185; pl. 277, figs. 1-2, and synonymy, 1925.
 Crane, Zoologica, vol. 22, no. 3, p. 64, 1937.

Type locality.—Off San Domingo Point, Lower California.

Type.—USNM No. 17365.

Range.—West coast of Lower California (*Albatross*) to Panama (*Albatross*); Galapagos Islands (*Albatross*).

Atlantic analogue.—*P. (Platylambrus) pourtalesii* (Stimpson).

Diagnosis.—Carapace one-third broader than long, branchial regions expanded and inflated, a median tubercle on posterior margin. Lateral teeth short and blunt.

Material examined (100 specimens from 12 stations).—

55-33. Lat. 1° 03' 30" S, Long. 90° 17' 30" W, 60 fms, Feb. 5, 1933, 3 males, 3 young.

170-34. East of Wreck Bay, Chatham Island, 32 fms, Jan. 21, 1934, 1 female.

171-34. East of Wreck Bay, Chatham Island, 35-40 fms, Jan. 21, 1934, 2 females, 1 young.

185-34. Cartago Bay, Albemarle Island, 32 fms, Jan. 25, 1934, fragments.

- 190-34. Lat. 0° 55' S, Long. 90° 30' W, 58-60 fms, Jan. 26, 1934, 4 females (1 ovig.) (photographed), 14 young.
- 201-34. Off Gardner Bay, Hood Island, 25-35 fms, Jan. 31, 1934, 2 specimens.
- 318-35. Off Gordon Rocks, Indefatigable Island, 45 fms, Dec. 8, 1934, 1 female.
- 346-35. South Seymour Island, 55 fms, Dec. 13, 1934, 1 male, 1 female.
- 792-38. Off Daphne Minor Island, 70-80 fms, Jan. 20, 1938, 38 young.
- 810-38. (D-2) Barrington Island, 73 fms, Jan. 26, 1938, 1 male, 2 females.
- 814-38. North of Hood Island, 20-40 fms, Jan. 28, 1938, 5 males, 2 females, 17 young.
- 816-38. North of Hood Island, 50-100 fms, Jan. 29, 1938, 1 male, 1 female, 1 young.

Measurements.—Largest female: length 16.3 mm, width 19.5 mm, cheliped 42 mm, chela 18.9 mm.

Habitat.—Sand, sand and mud, sand and shell, sand and coral; mud and shell.

Depth.—20-100 fms (one shore record).

Remarks.—*P. exilipes* is the most abundant of Galapagos parthenopids, occurring throughout the archipelago at medium depth, 20-100 fms.

Subgenus **PSEUDOLAMBRUS** Paulson, 1875

Parthenope (Pseudolambrus) triangula (Stimpson)

Plate 69, Fig. 1

Lambrus triangulus Stimpson, Ann. Lyc. Nat. Hist. New York, vol. 7, p. 201, 1860.

Parthenope (Pseudolambrus) triangula Rathbun, Bull. 129, U.S. Nat. Mus., p. 528, pl. 278, figs. 1-3. Crane, Zoologica, vol. 22, no. 3, p. 65, pl. 5, fig. 18, 1937.

Type locality.—Cape San Lucas, Lower California.

Type.—Not extant.

Range.—Known only from the type locality, Cape San Lucas, and from San Lucas Bay (*Zaca*).

Diagnosis.—Chelipeds less than twice as long as carapace. Carapace an equilateral triangle, definitely widest at posterolateral angle; anterolateral margin nearly straight, multidenticulate; 8 or 9 strong teeth on upper margin of chela.

Material examined (44 specimens from 17 stations).—

- 25-33. Gardner Bay, Hood Island, 2 fms, Jan. 24, 1933, 1 male.
59-33. Off Cormorant Bay, Charles Island, 13 fms, Feb. 6, 1933, 1 female.
87-33. South Seymour Island, 15 fms, Feb. 19, 1933, portion of left cheliped.
173-34. South Seymour Island, 5 fms, Jan. 22, 1934, 2 males.
177-34. Sullivan Bay, James Island, 20 fms, Jan. 23, 1934, 1 male (photographed).
187-34. Cartago Bay, Albemarle Island, 8-10 fms, Jan. 25, 1934, 1 male.
204-34. Gardner Bay, Hood Island, 30 fms, Jan. 31, 1934, 1 male.
310-35. Marchena Island, 15 fms, Dec. 3, 1934, 1 male.
339-35. Sullivan Bay, James Island, 10 fms, Dec. 12, 1934, 1 young male.
341-35. Sullivan Bay, James Island, 20 fms, Dec. 12, 1934, 1 male.
355-35. Gardner Bay, Hood Island, 12 fms, Dec. 17, 1934, 1 male, 1 female.
356-35. Gardner Bay, Hood Island, 12-15 fms, Dec. 17, 1934, 1 male.
360-35. Gardner Bay, Hood Island, 3 fms, Dec. 19, 1934, 3 young.
361-35. Gardner Bay, Hood Island, 12 fms, Dec. 19, 1934, 1 male.
782-38. Darwin Bay, Tower Island, shore, Jan. 16, 1938, 1 young.
783-38. Darwin Bay, Tower Island, 40-70 fms, Jan. 16, 1938, 5 males, 3 females.
785-38. Darwin Bay, Tower Island, 20-40 fms, Jan. 17, 1938, 7 males, 8 females, 2 young.

Measurements.—Largest male: length 16.3 mm, width 20.6 mm, cheliped 34.0 mm, chela 14.7 mm, dactyl 8.1 mm.

Color in life.—Ground color of carapace pale dull yellow overcast with numerous tiny orange blotches among which appear tiny dark carmine spots. A broad band of dark tourmaline pink on raised branchial area. Raised portion on gastric, cardiac, and intestinal areas with broad bands of pale orange yellow. Eye light nickel green. Ground color of cheliped same as carapace. A large orange-red spot on distal end of merus. Carpus darker than merus or hand, the teeth of which are white. Fingers deep orange, blending into rich brownish purple to dull yellow at tips. Ambulatory legs pale dull yellow with bands of vinaceous purple. Dactyls pale yellowish white. (Petersen)

Habitat.—Sand, sand and rock, sand and coral; rock.

Depth.—2-70 fms.

Remarks.—A specimen sent Miss Rathbun in 1933 was returned with the notation "*Parthenope*, n. sp., nr. *P. guerini* (Brito Capello)." Examination of a specimen of the latter (USNM No. 55783) in 1937 revealed that the Galapagos specimens were not even of the same subgenus, their shorter chelipeds placing them in *Pseudolambrus* Paulson (1875) rather than in *Platylambrus* Stimpson (1871). By this time most of the Hancock mainland material had been identified, Stimpson's *P. triangula* rediscovered, both in the north and in adjacent Ecuadorean waters (unpublished records), and it was realized that the Galapagos specimens were referable to this species.

P. triangula is now recorded from the Galapagos Islands.

Genus DALDORFIA Rathbun, 1904

Daldorfia Rathbun, Proc. Biol. Soc. Washington, vol. 17, p. 171, 1904.

The name *Daldorfia* was proposed to replace *Lambrus* Leach, retired as a synonym of *Parthenope* Weber. Besides the type species, *D. horrida* (Linnaeus), the genus now contains *D. semicircularis* (Flipse) and the following *D. garthi* Glassell.

Daldorfia garthi Glassell

Plate 55, Figs. 1-11

Parthenope (Pseudolambrus) excavata Boone, Zoologica, vol. 8, no. 4, p. 173, fig. 58, 1927.

Daldorfia garthi Glassell, Allan Hancock Pac. Exped., vol. 5, no. 3, p. 67, pl. 17, figs. 1-11, 1940.

Type locality.—Sullivan Bay, James Island, Galapagos Islands.

Type.—AHF no. 3811.

Range.—Cape San Lucas, Lower California, to Colombia (*Velero III*); Galapagos Islands (*Velero III*).

Diagnosis.—Carapace triangular, deeply eroded, anterolateral margins spined, posterolateral margin straight. Meri of ambulatory legs with overlapping teeth, propodi with 2 denticles on lower margin. Chelipeds massive, unequal. A semiovoid sternal pit.

Material examined (11 specimens from 4 stations).—

312-35. Black Beach, Charles Island, shore, Dec. 5, 1934, 1 female.

313-35. Black Beach, Charles Island, shore, Dec. 5, 1934, 1 female.

343-35. Sullivan Bay, James Island, shore, Dec. 12, 1934, 1 male.

796-38. Sullivan Bay, James Island, shore, Jan. 21, 1938, 1 male (holotype, AHF no. 3811); also 6 males and one female (paratypes).

Measurements.—Male holotype: length 31 mm, width 47 mm, merus of cheliped 29 mm, carpus 13 mm, manus including pollex 46 mm.

Habitat.—Under rocks at extreme low tide.

Depth.—Shore.

Remarks.—This large and striking species, the only Pacific parthenopid commonly encountered at low tide, has suffered at the hands of taxonomists, having been referred to *Parthenope (Pseudolambrus) excavata* (Stimpson) by Boone (1927) and to *Thyrolambrus erosus* Rathbun (1898) by the author of that species, although not in print, in an identification made in 1933. While at the National Museum in 1939, the writer compared for Mr. Glassell a specimen from Cape San Lucas with the type of *T. erosus* (USNM No. 21577) and reported that the San Lucas specimen was undoubtedly a new species. The Hancock material was turned over for description to Mr. Glassell, who selected his types from among James Island, Galapagos, material.

Daldorfia is an Indo-Pacific genus reaching the Hawaiian Islands, where it is represented by *D. horrida* (Linnaeus), but not known to occur heretofore in the Americas.

Genus SOLENOLAMBRUS Stimpson, 1871

Solenolambrus arcuatus Stimpson

Plate 69, Figs. 3, 4

Solenolambrus arcuatus Stimpson, Ann. Lyc. Nat. Hist. New York, vol. 10, p. 101 (128), 1871. Rathbun, Bull. 129, U.S. Nat. Mus., p. 538, and synonymy, 1925. Finnegan, Journ. Linn. Soc. London, vol. 37, p. 625, 1931.

Type locality.—Panama.

Type.—Not extant.

Range.—Panama (Stimpson, Finnegan).

Atlantic analogue.—*S. typicus* Stimpson.

Material examined (5 specimens from 4 stations).—

55-33. Lat. 1° 03' 30" S, Long. 90° 17' 30" W, 60 fms, Feb. 5, 1933, 1 young.

204-34. Gardner Bay, Hood Island, 30 fms, Jan. 31, 1934, 2 young females.

322-35. Tagus Cove, Albemarle Island, 10 fms, Dec. 10, 1934, 1 male.

328-35. Tagus Cove, Albemarle Island, 14 fms, Dec. 10, 1934, 1 male (photographed).

Measurements.—Largest male: length 11.5 mm, width 14.4 mm, cheliped 24.7 mm, chela, 12.2 mm.

Color in life.—Ground color pale olive buff to white. Rostrum cadmium orange, gastric region olive gray with white spots and streaks showing through. Anterolateral margins white. Other areas overcast with

patterns of deep livid brown and dark vinaceous purple. Ambulatory legs white with tone of cadmium yellow and touches of vinaceous purple on upper surfaces of merus, carpus, and propodus; tip of dactyl yellow. Cheliped like carapace with patterns of vinaceous purple in broad bands; two on merus and one on chela. Fingers white. (Petersen)

Habitat.—Sand.

Depth.—10-60 fms.

Remarks.—*S. arcuatus* is one of very few species of which no specimen was available for illustration in the Rathbun monograph (1925). Known previously only from Panamanian specimens, it is now recorded from the Galapagos Islands in several widely separated localities.

Genus **MESORHOEA** Stimpson, 1871

Mesorhoea bellii (A. Milne Edwards)

Plate 69, Figs. 5, 6

Solenolambrus bellii A. Milne Edwards, Crust. Reg. Mex., p. 163, pl. 29, figs. 6-6d, 1878.

Mesorhoea bellii Rathbun, Bull. 129, U.S. Nat. Mus., p. 548, pl. 201; pl. 280, figs. 1-4, and synonymy, 1925. Crane, Zoologica, vol. 22, no. 3, p. 65, 1937.

Type locality.—Mexico.

Type.—In Paris Mus.

Range.—From Abreojos Point, Lower California (*Albatross*), to Panama Bay, including the Gulf of California; 9 to 71 fms.

Atlantic analogue.—*M. sexspinosa* Stimpson.

Material examined (8 specimens from 5 stations).—

55-33. Lat. 1° 03' 30" S, Long. 90° 17' 30" W, 60 fms, Feb. 5, 1933, 1 young female.

190-34. Lat. 0° 55' S, Long. 90° 30' W, 58-60 fms, Jan. 26, 1934, 1 young female.

792-38. Off Daphne Minor Island, 70-80 fms, Jan. 20, 1938, 2 males, 1 female.

810-38. (D-2) Barrington Island, 73 fms, Jan. 26, 1938, 1 young.

814-38. North of Hood Island, 20-40 fms, Jan. 28, 1938, 1 male (photographed), 1 female.

Measurements.—Largest specimen: length 11.0 mm, width 14.6 mm, cheliped 21.0 mm, chela 8.7 mm.

Color in life.—Ground color of carapace pale ochraceous buff. Frontal areas a tone darker and a little more yellow; pattern on frontal area deep olive buff. Chela pale ochraceous buff, fading on fingers to white tips.

Numerous tiny and larger red spots appear in groups and scattered on carapace, but none on ambulatory legs, which are nearly white; merus banded with chrome orange, nail of dactyl yellow. (Petersen)

Habitat.—Sand, sand and shell, sand and nullipore, sand and coral.

Depth.—9-80 fms.

Remarks.—*M. bellii* is now recorded from the Galapagos Islands.

Genus **AETHRA** Leach, 1816

Aethra scruposa scutata Smith

Plate 70, Figs. 1, 2

Aethra scutata Smith, Amer. Journ. Sci., ser. 2, vol. 48, p. 120, 1869.

Oethra scruposa, var. *scutata* A. Milne Edwards, Crust. Reg. Mex., p. 170, pl. 31, figs. 2-2e, 1878.

Aethra scruposa scutata Rathbun, Bull. 129, U.S. Nat. Mus., p. 552, pl. 195, and synonymy, 1925.

Type locality.—La Paz, Lower California.

Type.—In Yale Univ. Mus.

Range.—From La Paz, Lower California (Smith), to Mazatlan (A. Milne Edwards).

Diagnosis.—Carapace transversely elliptical, margins thin, expanded to conceal legs and cut by closed fissures into numerous broad teeth. Margins of chelipeds and ambulatory legs produced, dentate.

Material examined (4 specimens from 2 stations).—

28-33. Gardner Bay, Hood Island, 2 fms, Jan. 25, 1933, 1 male.

796-38. Sullivan Bay, James Island, shore, Jan. 21, 1938, 1 male, 2 females (1 photographed).

Measurements.—Largest specimen, male: length 63.0 mm, width 97.1 mm, cheliped (rigid) coxa to elbow 34 mm, elbow to tip of dactyl 42 mm, chela 36.3 mm, dactyl 23.4 mm.

Color in life.—The appearance of the carapace is that of a much eroded rock encrusted with coralline algae.

Habitat.—Under rocks at low tide.

Depth.—Strictly a shoreline species.

Remarks.—For five years a single, very large male from Hood Island was the only representative of this species in Hancock collections, despite repeated collecting over the same territory. Then, in 1938, an exceptional tide at Sullivan Bay gave *Velero III* collectors three more specimens, including females, along with more of the equally desirable *Glyptoxanthus hancocki* Garth (1939) and *Daldorfia garthi* Glassell (1940), all three of which occupy extremely low tide levels.

A. scruposa scutata is now recorded from the Galapagos Islands.

Superfamily **BRACHYRHYNCHA**Family **PORTUNIDAE**Subfamily **THALAMITINAE**Genus **PORTUNUS** Weber, 1795KEY TO THE GALAPAGOS SPECIES OF THE GENUS *Portunus*

- A¹ A spine at posterior angles of the carapace; merus of swimming leg unarmed *P. (Achelous) tuberculatus*
- A² No spine at posterior angles of the carapace; a spine at postero-distal angle of merus of swimming leg
- B¹ Carapace with numerous areolations; lateral spine as long as width of 3 adjacent teeth *P. (Achelous) stanfordi*
- B² Carapace flat and smooth; lateral spine no longer than largest of anterolateral spines *P. (Achelous) angustus*

Subgenus **ACHELOUS** de Haan**Portunus (Achelous) stanfordi** Rathbun

Plate 71, Fig. 1

Portunus (Achelous) brevimanus Rathbun, Proc. U.S. Nat. Mus., vol. 21, p. 593, 1898; vol. 38, p. 578, 1910 (part: the Galapagos specimens).

Portunus (Achelous) stanfordi Rathbun, Proc. Washington Acad. Sci., vol. 4, p. 282, pl. 12, fig. 11, 1902; Bull. 152, U.S. Nat. Mus., p. 69, pl. 31, text fig. 11, 1930. Boone, Zoologica, vol. 8, no. 4, p. 178, fig. 60, 1927.

Type locality.—Tagus Cove, Albemarle Island.

Type.—USNM No. 24833.

Range.—Tagus Cove, Albemarle Island (Hopkins-Stanford Expedition), and Hood Island (*Arcturus*); known only from the Galapagos Islands.

Diagnosis.—Carapace with numerous lumpy elevations. Lateral spine almost transverse, its length equal to the width of the two adjacent teeth. A spine at the posterodistal angle of the merus of the fourth leg.

Material examined (234 specimens from 40 stations).—

9-32. Tagus Cove, Albemarle Island, Jan. 6, 1932, surface at light, 1 female.

55-33. Lat. 1° 03' 30" S, Long. 90° 17' 30" W, 60 fms, Feb. 5, 1933, 1 young male.

78-33. Conway Bay, Indefatigable Island, surface at light, Feb. 15, 1933, 2 males, 2 females.

- 84-33. South Seymour Island, 13 fms, Feb. 18, 1933, 1 specimen and fragments.
- 143-34. Wenman Island, 100-150 fms, Jan. 11, 1934, 1 female.
- 147-34. Tagus Cove, Albemarle Island, 30 fms, Jan. 13, 1934, 2 males, 4 ovig. females.
- 148-34. Tagus Cove, Albemarle Island, 12-15 fms, Jan. 13, 1934, 1 male, 3 young.
- 149-34. Tagus Cove, Albemarle Island, 20 fms, Jan. 13, 1934, 2 young females, 1 fragment.
- 155-34. Tagus Cove, Albemarle Island, 50-60 fms, Jan. 15, 1934, 1 male, 1 female.
- 157-34. Tagus Cove, Albemarle Island, 10-18 fms, Jan. 15, 1934, 4 males, 2 females, 2 young.
- 170-34. East of Wreck Bay, Chatham Island, 32 fms, Jan. 21, 1934, 30 young.
- 171-34. East of Wreck Bay, Chatham Island, 35-40 fms, Jan. 21, 1934, 8 young.
- 173-34. South Seymour Island, 5 fms, Jan. 22, 1934, 4 males, 2 females. Also 1 atypical specimen doubtfully referable to the above.
- 177-34. Sullivan Bay, James Island, 5-20 fms, Jan. 23, 1934, 1 young.
- 182-34. James Bay, James Island, 30 fms, Jan. 24, 1934, 3 young, 1 carapace.
- 185-34. Cartago Bay, Albemarle Island, 32 fms, Jan. 25, 1934, 2 young.
- 186-34. Cartago Bay, Albemarle Island, 32 fms, Jan. 25, 1934, 2 young and fragments.
- 190-34. Lat. $0^{\circ} 55' S$, Long. $90^{\circ} 30' W$, 58-60 fms, Jan. 26, 1934, 18 young.
- 195-34. North of Charles Island, 70-80 fms, Jan. 29, 1934, 1 large male, 2 ovig. females.
- 197-34. Off Post Office Bay, Charles Island, 35-40 fms, Jan. 29, 1934, 7 young.
- 198-34. NW of Post Office Bay, Charles Island, 55-65 fms, Jan. 29, 1934, 4 young.
- 201-34. Off Gardner Bay, Hood Island, 25-35 fms, Jan. 31, 1934, 1 large male, 5 young.
- 204-34. Gardner Bay, Hood Island, 30 fms, Jan. 31, 1934, 5 young.
- 318-35. Off Gordon Rocks, Indefatigable Island, 45 fms, Dec. 8, 1934, 4 young.
- 322-35. Tagus Cove, Albemarle Island, 10 fms, Dec. 10, 1934, 1 male, 1 female, 8 young.

- 324-35. Tagus Cove, Albemarle Island, 45 fms, Dec. 10, 1934, 1 male, 2 females (1 ovig.), 6 young.
- 326-35. Tagus Cove, Albemarle Island, 15 fms, Dec. 10, 1934, 2 males (1 photographed), 1 female, 6 young.
- 327-35. Tagus Cove, Albemarle Island, 12 fms, Dec. 10, 1934, 1 male, 15 young.
- 328-35. Tagus Cove, Albemarle Island, 14 fms, Dec. 10, 1934, 2 males, 8 young.
- 330-35. Tagus Cove, Albemarle Island, 12 fms, Dec. 10, 1934, 4 young.
- 345-35. Between Daphne and South Seymour Islands, 30 fms, Dec. 13, 1934, 1 young.
- 346-35. Between South Seymour and Daphne Islands, 55 fms, Dec. 13, 1934, 5 young.
- 347-35. South Seymour Island, 3 fms, Dec. 13, 1934, 3 young.
- 362-35. Gardner Bay, Hood Island, 20 fms, Dec. 19, 1934, 17 young.
- 790-38. South Seymour Island, 10-20 fms, Jan. 19, 1938, 1 young.
- 792-38. Between South Seymour and Daphne Islands, 70-80 fms, Jan. 20, 1938, 1 male, 1 female, 4 young.
- 795-38. Sullivan Bay, James Island, 35-40 fms, Jan. 21, 1938, 1 male, 1 female.
- 813-38. Gardner Bay, Hood Island, surface at light, Jan. 27, 1938, 1 male.
- 814-38. North of Hood Island, 20-40 fms, Jan. 28, 1938, 4 males, 4 females, 7 young.
- 816-38. North of Hood Island, 50-100 fms, Jan. 29, 1938, 2 males, 1 female, 1 young.

Measurements.—Large female: length 26.7 mm, width 45.6 mm, cheliped 60.0 mm, chela 27.8 mm, dactyl 14.6 mm; largest male: length 28.0 mm, width 48.4 mm, cheliped 78.0 mm, chela 35.0 mm, dactyl 16.7 mm.

Color in life.—Ground color of carapace pale olive buff. Granules on all raised areas cadmium orange to bright red and carmine on edges. Anterolateral teeth with a cluster of orange-yellow dots at bases; lateral tooth edged with carmine. Cheliped with carmine on large spines. Fingers carmine, banded with white. Ambulatory legs with delicate pale lavender tint becoming more intense distally. Merus of swimming leg faintly tinted with yellow. (Petersen)

Habitat.—The bottom, where noted, is sandy in every case but one which is marked "very rocky" and one marked "gray mud and shell." Red algae were frequently present in the haul.

Depth.—5-150 fms; also pelagic at night.

Remarks.—All were dredged specimens except four which came to the gangway light. *P. (A.) stanfordi* may be distinguished from *P. (A.) angustus* Rathbun (1898) by the rough carapace and the strong lateral spine, both unmistakable in even the smallest specimens. Hancock specimens have been compared with the type (USNM No. 24833).

The range of the species has been extended to include the northernmost island, Wenman, and the known depth increased to 150 fms.

Portunus (Achelous) angustus Rathbun

Plate 71, Figs. 3, 4

Portunus (Achelous) angustus Rathbun, Proc. U.S. Nat. Mus., vol. 21, p. 594, pl. 44, fig. 2, 1898; Proc. Washington Acad. Sci., vol. 4, p. 282, 1902; Bull. 152, U.S. Nat. Mus., p. 70, pl. 32, 1930. Finnegan, Journ. Linn. Soc. London, vol. 37, p. 629, 1931.

Type locality.—Off Hood Island, Galapagos Islands, 20 fms.

Type.—USNM No. 21587.

Range.—Hood Island (*Albatross*) and Tagus Cove, Albemarle Island (Hopkins-Stanford Expedition); known only from the Galapagos Islands.

Atlantic analogue.—*P. ordwayi* (Stimpson).

Diagnosis.—Carapace flat and smooth, except for low transverse granulate ridges. Lateral spine short, no larger than largest of anterolateral spines. A spine at the posterodistal angle of the merus of leg 4. Anterolateral spines alternately large and small, as in *Cronius*.

Material examined (128 specimens from 31 stations).—

66-33. Tagus Cove, Albemarle Island, 10-20 fms, Feb. 9, 1933, fragments.

86-33. South Seymour Island, surface at light, Feb. 18, 1933, 2 young.

87-33. South Seymour Island, 15 fms, Feb. 19, 1933, 2 young.

149-34. Tagus Cove, Albemarle Island, 20 fms, Jan. 13, 1934, 1 male.

157-34. Tagus Cove, Albemarle Island, 10-18 fms, Jan. 15, 1934, 2 males.

167-34. Post Office Bay, Charles Island, 15 fms, Jan. 19, 1934, 5 young.

168a-34. Academy Bay, Indefatigable Island, coral, Jan. 20, 1934, 1 young.

169-34. Academy Bay, Indefatigable Island, 15-25 fms, Jan. 20, 1934, 11 young.

- 173-34. South Seymour Island, 5 fms, Jan. 22, 1934, 1 young.
177-34. Sullivan Bay, James Island, 5-20 fms, Jan. 23, 1934, 2 males, 2 females (1 ovig.) (photographed), 9 young.
193-34. Post Office Bay, Charles Island, 8-10 fms, Jan. 27, 1934, 17 young.
196-34. Post Office Bay, Charles Island, 8-10 fms, Jan. 29, 1934, chela.
197-34. Off Post Office Bay, Charles Island, 35-40 fms, Jan. 29, 1934, 3 young.
204-34. Gardner Bay, Hood Island, 30 fms, Jan. 31, 1934, 28 young.
326-35. Tagus Cove, Albemarle Island, 15 fms, Dec. 10, 1934, 2 females, 1 young.
327-35. Tagus Cove, Albemarle Island, 12 fms, Dec. 10, 1934, 1 female.
328-35. Tagus Cove, Albemarle Island, 14 fms, Dec. 10, 1934, 1 male.
330-35. Tagus Cove, Albemarle Island, 12 fms, Dec. 10, 1934, 1 male.
336-35. Sullivan Bay, James Island, 20 fms, Dec. 12, 1934, 1 male, 2 females, 2 young.
339-35. Sullivan Bay, James Island, 10 fms, Dec. 12, 1934, 1 male, 1 female.
340-35. Sullivan Bay, James Island, 8 fms, Dec. 12, 1934, 1 young and fragment.
341-35. Sullivan Bay, James Island, 20 fms, Dec. 12, 1934, 5 females (1 ovig.), 3 young.
347-35. South Seymour Island, 3 fms, Dec. 13, 1934, 1 young.
348-35. South Seymour Island, 15 fms, Dec. 13, 1934, 1 young.
361-35. Gardner Bay, Hood Island, 12 fms, Dec. 19, 1934, 3 males.
362-35. Gardner Bay, Hood Island, 20 fms, Dec. 19, 1934, 2 males, 1 young.
788-38. SE of Daphne Major Island, 55 fms, Jan. 19, 1938, 1 male.
795-38. Sullivan Bay, James Island, 35-40 fms, Jan. 21, 1938, 3 young.
799-38. Cartago Bay, Albemarle Island, 15-18 fms, Jan. 22, 1938, 1 female.
807-38. Academy Bay, Indefatigable Island, 10-25 fms, Jan. 24, 1938, 2 males, 2 young.
809-38. Academy Bay, Indefatigable Island, surface at light, Jan. 25, 1938, 1 female.

Measurements.—Largest male: length 24.1 mm, width 34.6 mm, cheliped 46 mm, chela 21.6 mm, dactyl 12.8 mm.

Habitat.—As given for *P. (A.) stanfordi*.

Depth.—3-55 fms.

Remarks.—While *P. (A.) angustus* was taken in a number of the same dredge hauls as *P. (A.) stanfordi* Rathbun (1898), none of the former were encountered at depths greater than 55 fms, while the latter was dredged six times at depths of over 55 fms to depths as great as 150 fms.

The reduction in size of the alternate anterolateral spines, suggestive of the genus *Cronius*, is diagnostic of the species, together with the smooth, flat carapace and the short lateral spine.

***Portunus (Achelous) tuberculatus* (Stimpson)**

Plate 71, Fig. 2

Achelous tuberculatus Stimpson, Ann. Lyc. Nat. Hist. New York, vol. 7, p. 223 (95), 1860.

Portunus (Achelous) tuberculatus Rathbun, Proc. U.S. Nat. Mus., vol. 21, p. 596, 1898; Bull. 152, U.S. Nat. Mus., p. 90, pl. 44, and synonymy, 1930. Finnegan, Journ. Linn. Soc. London, vol. 37, p. 629, 1931. Crane, Zoologica, vol. 22, no. 3, p. 68, 1937.

Type locality.—Cape San Lucas, Lower California.

Types.—Cotypes in Brit. Mus., MCZ, and USNM, No. 19679.

Range.—From Cape San Lucas (*Xantus*) to Panama (*Albatross*); Gorgona Island, Colombia (*Crossland*); 3-29 fms (*Crane*).

Diagnosis.—Carapace with many tubercles, a spine at posterior angles. Lateral spine exceedingly long, not at all forward directed. No spine at posterodistal angle of merus of fourth leg.

Material examined (5 specimens from 4 stations).—

66a-33. Tagus Cove, Albemarle Island, "roach" trap, attached to fish trap, Feb. 9, 1933, 1 young.

87-33. South Seymour Island, 15 fms, Feb. 19, 1933, 1 ovig. female (photographed).

783-38. Darwin Bay, Tower Island, 40-70 fms, Jan. 16, 1938, 1 ovig. female.

785-38. Darwin Bay, Tower Island, 20-40 fms, Jan. 17, 1938, 1 male, 1 female.

Measurements.—Ovigerous female: length 7.9 mm, width including lateral spines 16.6 mm, cheliped 16.0 mm, chela 7.5 mm, dactyl 4.2 mm.

Habitat.—White sand, sand and rock, sand and coral.

Depth.—3-70 fms.

Remarks.—This rarest of swimming crabs in the Galapagos Islands may be distinguished from the two commoner species, *P. (A.) stanfordi* Rathbun and *P. (A.) angustus* Rathbun, by the paired spine on the posterior margin of the carapace, although it may be incipient in young specimens.

P. (A.) tuberculatus is now recorded from the Galapagos Islands. Its vertical range has been increased to 70 fms.

Genus **CRONIUS** Stimpson, 1860

Cronius ruber (Lamarck)

Plate 72, Figs. 3, 4

Portunus ruber Lamarck, Hist. Nat. Anim. sans Vert., vol. 5, p. 260, 1818.

Cronius ruber Stimpson, Ann. Lyc. Nat. Hist. New York, vol. 7, p. 225 (97), 1860. Rathbun, Zoologica, vol. 5, no. 14, p. 159, 1924; Bull. 152, U.S. Nat. Mus., p. 139, pls. 62 and 63, and synonymy, 1930. Boone, Zoologica, vol. 8, no. 4, p. 182, fig. 62, 1927. Finnegan, Journ. Linn. Soc. London, vol. 37, p. 630, 1931. Sivertsen, Med. fra det. Zool. Mus., Oslo, nr. 38, p. 13, 1933.

Type locality.—Brazil.

Type.—Not located.

Range.—From Port San Bartholomé, Lower California (*Albatross*), to Païta, Peru (Schmitt); Galapagos Islands (Williams Expedition); 4-10 fms; also occurs in the Atlantic.

Diagnosis.—All spines tipped with black; 4 spines on manus. Basal lobe of antenna prolonged into orbital hiatus.

Material examined (11 specimens from 10 stations).—

- 33-33. Black Beach, Charles Island, shore, Jan. 27, 1933, 2 males.
- 96a-33. Darwin Bay, Tower Island, fish trap, Feb. 24, 1933, 1 large male.
- 101-33. Darwin Bay, Tower Island, shore, Feb. 26, 1933, 1 male.
- 163-34. Black Beach, Charles Island, shore, Jan. 18, 1934, 1 large ovig. female.
- 167-34. Post Office Bay, Charles Island, 15 fms, Jan. 19, 1934, chela.
- 34. Charles Island, fish trap, Jan. 19, 1934, 1 ovig. female.
- 177-34. Sullivan Bay, James Island, 5-20 fms, Jan. 23, 1934, 1 male.
- 313-35. Black Beach, Charles Island, shore, Dec. 6, 1934, 1 male (photographed).
- 339-35. Sullivan Bay, James Island, 10 fms, Dec. 12, 1934, 1 specimen.
- 359-35. Osborn Island in Gardner Bay, Hood Island, shore, Dec. 19, 1934, 1 male.

Measurements.—Largest male: length 56 mm, width 84 mm, cheliped 115 mm, chela 60 mm, dactyl 31.5 mm.

Habitat.—Rocky shore and shoal water.

Depth.—4-20 fms.

Remarks.—This largest of swimming crabs in the Galapagos Islands was obtained once in a dredge haul, twice by shore parties, and three times in lobster traps. Four spines on the hand serve to distinguish the young of this species from *P. (A.) angustus* Rathbun.

Subfamily **PODOPHTHALMINAE**
Genus **EUPHYLAX** Stimpson, 1860
Euphylax dovii Stimpson

Plate 72, Figs. 1, 2

Euphylax dovii Stimpson, Ann. Lyc. Nat. Hist. New York, vol. 7, p. 226 (98), pl. 3 (not 5), figs. 5 and 5a, 1860. Rathbun, Bull. 152, U.S. Nat. Mus., p. 147, pl. 65, 1930.

Type locality.—West coast of Central America.

Type.—Not extant.

Range.—West coast of Mexico? (A. Milne Edwards), Panama (Ward), Talcahuano, Chile (MCZ).

Diagnosis.—Orbits occupying whole of anterior border of carapace except for narrow front. Eyes borne on long stalks. Anterolateral margins 5-spined.

Material examined.—

9-32. Tagus Cove, Albemarle Island, surface at light, Jan. 6, 1932, 12 specimens (1 photographed).

Measurements.—Largest specimen, male: length 32 mm, width 52 mm, cheliped 83 mm, chela 42 mm, dactyl 23 mm.

Habitat.—Pelagic.

Depth.—Surface.

Remarks.—*E. dovii* undoubtedly occurs in great numbers in the Galapagos Islands during the seasonal invasion of the warmer waters of El Niño current from the Bay of Panama. Countless numbers of these periscopic-eyed swimmers were observed at Cocos Island in 1938. They were being gathered by fishermen into bait tanks to be released later as chum for tuna in lieu of sardines.

E. dovii is now recorded from the Galapagos Islands.

Family **ATELECYCLIDAE**Genus **KRAUSSIA** Dana, 1852*Kraussia* Dana, Amer. Journ. Sci. and Arts, vol. 13, no. 37, p. 120, 1852.*Kraussia* Alcock, Journ. Asiatic Soc. Bengal, vol. 68, pt. 2, no. 3, p. 97, 1899.*Carapax paulo transversus, margine postero-laterali breve, fronte denticulato, medio emarginato. Antennae internae obliquae. Pedes 8 postici natatorii, tarso falciformi. Articulatus maxillipedis externi 3tius vix oblongus.* (Dana).

Carapace not much broader than long, not concealing the first three abdominal terga even in the male, subcircular but with the antero-lateral borders much longer than the postero-lateral, and the latter rather strongly convergent and slightly concave: the regions not defined.

Front well separated from and prominent beyond the inner supra-orbital angles, almost horizontal, cut into two lobes which may, or may not, be again divided into two lobules.

The antennules fold alongside their basal joint, much nearer the longitudinal than the transverse.

The basal antenna-joint touches the front and occupies all the space between the antennular pits and the orbit: the flagellum, which is short and slender, stands in the orbital hiatus.

Buccal cavern squarish, a little elongate: the external maxillipeds—of which the merus is not elongate—slightly overlap the epistome, which though short and sunken is well enough defined. No ridges on the palate to define the efferent branchial channels.

Cheliped massive, short and stumpy with particularly stumpy fingers.

Legs short and stout, ending in blade-like dactyli.

The abdomen of the male consists of 5 segments, the 3rd-5th terga being fused.

Sternum narrow. (Alcock)

The writer follows Rathbun (1911, p. 211) and Balss (Journ. Roy. Soc. Western Australia, vol. 21, 1934-35, p. 132) in assigning the genus *Kraussia* to the family Atelecyclidae.***Kraussia americana* Garth**

Plate 73, Figs. 1, 2

Kraussia americana Garth, Allan Hancock Pac. Exped., vol. 5, no. 2, p. 19, pl. 7, figs. 1-4, 1939.*Type locality*.—Puerto Refugio, Angel de la Guardia Island, Gulf of California.

Type.—AHF no. 371.

Range.—From Angel de la Guardia Island, Gulf of California, to Secas Islands, Panama (*Velero III*); Galapagos Islands (*Velero III*).

Diagnosis.—Front bilobed, subtruncate; lobes arched. Carapace one and one-third times as broad as long. Anterolateral margin greatly exceeding posterolateral margin. Orbits reduced to slits dorsally; eyes small. Fingers of nearly equal length, gaping in a broad oval. First segment of palpus of third maxilliped inflated and horizontally compressed. Margins of carapace and legs fringed with long, cylindrical, golden hairs.

Material examined (10 specimens from 8 stations).—

46-33. Barrington Island, 4-10 fms, Feb. 2, 1933, 1 young.

66-33. Tagus Cove, Albemarle Island, 10-20 fms, Feb. 9, 1933, 1 male.

149-34. Tagus Cove, Albemarle Island, 20 fms, Jan. 13, 1934, 1 young.

177-34. Sullivan Bay, James Island, 5-20 fms, Jan. 23, 1934, 1 female.

187-34. Cartago Bay, Albemarle Island, 8-10 fms, Jan. 25, 1934, 1 young.

193-34. Post Office Bay, Charles Island, 8-10 fms, Jan. 27, 1934, 1 young.

204-34. Gardner Bay, Hood Island, 30 fms, Jan. 31, 1934, 2 males.

795-38. Sullivan Bay, James Island, 35-40 fms, Jan. 21, 1938, 1 male, 1 female.

Measurements.—Male holotype: length of carapace 10.9 mm, width 14.7 mm, of front 6.3 mm, chela 8.3 mm, manus 5.0 mm, movable finger 6.3 mm, immovable finger 3.7 mm, height of gape 2.3 mm.

Color in life.—From Gulf of California specimen: carapace pale apricot orange, a triangular red space on branchial region. Chelae pale cream color with a few touches of red. Fingers light bone brown, fading on tips. Ambulatory legs light cream buff, semitransparent, and with a few touches of bright red. Ventral side clear white. (Petersen)

Habitat.—On clean white sand.

Depth.—4-40 fms.

Remarks.—Because both are white and hairy, *Kraussia americana* may be confused with *Acidops fimbriatus* Stimpson, of the family Xanthidae. The minute orbits of the former, contrasted with the long eye stalks of the latter, and the peculiar, curved fingers of *Kraussia* with their imbedded brushes of hair serve readily to distinguish one from the other.

The existence of *Kraussia*, an Old World genus, in the Galapagos Islands, along with *Maldivia*, *Daldorfia*, and others, indicates a trans-pacific origin of a proportion of the Galapagos crustacean fauna which will undoubtedly increase as exploration continues.

Family *XANTHIDAE*Genus *CARPILODES* Dana, 1851*Carpilodes cinctimanus* (White)

Plate 74, Figs. 1-4

Carpilius cinctimanus White, in Jukes, Narrative Voy. H.M.S. Fly, vol. 2, append. no. 8, p. 336, pl. 2, fig. 3, 1847.

Carpilodes cinctimanus Miers, Ann. Mag. Nat. Hist., ser. 5, vol. 5, p. 234, 1880. Rathbun, Bull. 152, U.S. Nat. Mus., p. 242, pl. 100, and synonymy, 1930. Crane, Zoologica, vol. 12, no. 3, p. 69, 1937.

Liomera cocosana Boone, Zoologica, vol. 8, no. 4, p. 184, fig. 63, 1927.

Type locality.—Indian Ocean and Eastern Seas.

Type.—Not in Brit. Mus.

Range.—From Arena Bank, Gulf of California (*Zaca*), to Maria Madre Island, Mexico (Contreras); Galapagos Islands (*Arcturus*); occurs also in Australia, Japan, and islands of the Pacific.

Diagnosis.—Carapace twice as broad as long, cut into 3 large lobes. Wrists banded with black in adult male.

Material examined (190 specimens from 24 stations).—

- 30-33. Gardner Bay, Hood Island, shore, Jan. 26, 1933, 5 males, 7 females (2 ovig.), 24 young.
- 38-33. SE of Cormorant Point, Charles Island, shore, Jan. 29, 1933, 1 female.
- 47-33. Barrington Island, 2 fms, Feb. 2, 1933, 1 male.
- 48-33. Barrington Island, shore, Feb. 2, 1933, 9 young.
- 69-33. Albemarle Point, Albemarle Island, shore, Feb. 11, 1933, 4 males, 25 young.
- 73-33. Cartago Bay, Albemarle Island, shore, Feb. 13, 1933, 1 male, 1 female, 3 young.
- 76-33. Cartago Bay, Albemarle Island, shore, Feb. 14, 1933, 6 males, 1 female, fragment.
- 80-33. Duncan Island, coral, Feb. 15, 1933, 1 male, 1 young.
- 82-33. Conway Bay, Indefatigable Island, shore, Feb. 17, 1933, 1 young.
- 94-33. Darwin Bay, Tower Island, coral, Feb. 22, 1933, 3 males, 4 females (1 ovig.), 10 young.
- 96-33. Darwin Bay, Tower Island, shore, Feb. 24, 1933, 2 males.
- 97-33. Darwin Bay, Tower Island, coral, Feb. 24, 1933, 6 males, 7 females (1 ovig.), 11 young.
- 98-33. Darwin Bay, Tower Island, shore, Feb. 25, 1933, 1 male, 1 female, 1 young.

- 101-33. Darwin Bay, Tower Island, shore, Feb. 26, 1933, 3 males, 2 females.
- 101a-33. Darwin Bay, Tower Island, coral, Feb. 26, 1933, 1 male, 2 females (1 ovig.).
- 166-34. Black Beach, Charles Island, shore, Jan. 19, 1934, 1 male.
- 168-34. Academy Bay, Indefatigable Island, shore, Jan. 20, 1934, 2 females.
- 194-34. Post Office Bay, Charles Island, coral from Onslow Island crater, Jan. 27, 1934, 1 male, 2 females, 1 young.
- 202-34. Gardner Bay, Hood Island, shore, Jan. 31, 1934, 1 male.
- 315-35. Opposite Gordon Rocks, Indefatigable Island, coral, Dec. 8, 1934, 2 young.
- 343-35. Sullivan Bay, James Island, coral, Dec. 12, 1934, 1 male.
- 359-35. Osborn Island in Gardner Bay, Hood Island, shore, Dec. 19, 1934, 4 males, 7 females (including the photographed pair), 2 fragments.
- 789-38. South Seymour Island, shore, Jan. 19, 1938, 2 males.
- 811-38. Barrington Island, coral, Jan. 26, 1938, 10 males, 6 females, 3 young.

Measurements.—Largest male: length 23.0 mm, width 42.5 mm, cheliped 36.0 mm, chela 20.0 mm, dactyl 11.9 mm; largest female: length 20.7 mm, width 38.3.

Color in life.—Carapace claret brown shading into dragon's blood red on marginal lobes. Appendages dragon's blood red with a band of claret brown on each segment. Chelae black. Dactyls of walking legs white, nail yellow.

Habitat.—*Pocillopora* coral clumps.

Depth.—Shoal water.

Remarks.—*C. cinctimanus* belongs to the *Pocillopora* coral fauna, and, when occasional specimens are encountered under rocks at low tide level, a diligent search seldom fails to reveal coral nearby.

Growth.—An interesting growth series has been arranged, showing complete intergradation between pure white young and pure red adult with black banded wrists. The color appears at first as a delicate pink which gradually deepens, rather than as a series of widening bands, as in *Actaea dovii* Stimpson (pl. 79, fig. 2). The 2.7 mm specimen described by Crane (1937) was thought to be of the latter species until a single banded *Carpilodes* was noted among *Velero III* collections also.

Genus **PLATYPODIA** Bell, 1835KEY TO THE GALAPAGOS SPECIES OF THE GENUS *Platyrodia*

- A¹ Mesogastric region linear, protogastric lobule bifid *P. rotundata*

 A² Mesogastric region broadened anteriorly, protogastric lobule
 entire *P. gemmata*

Platyrodia gemmata Rathbun

Plate 79, Fig. 1

Platyrodia gemmata Rathbun, Proc. Washington Acad. Sci., vol. 4, p. 279, pl. 12, figs. 5 and 6, 1902; Bull. 152, U.S. Nat. Mus., p. 249, text fig. 40, 1930. Finnegan, Journ. Linn. Soc. London, vol. 37, p. 633, 1931. Sivertsen, Med. fra det Zool. Mus., Oslo, nr. 38, p. 15, 1933. Schmitt, Smithsonian Misc. Col., vol. 98, no. 6, p. 25, 1939.

Type locality.—Albemarle Island, Galapagos Islands.

Type.—USNM No. 24850.

Range.—Galapagos Islands, Albemarle (Hopkins-Stanford Expedition); Bay of Panama, Taboga Island (Crossland).

Diagnosis.—Carapace rotund, areolate, margin cristate. Mesogastric region broadened anteriorly. Palm with transverse ridges; superior crest high.

Material examined (82 specimens from 26 stations).—

- 24-33. Gardner Bay, Hood Island, shore, Jan. 24, 1933, 1 male, 1 ovig. female.
 30-33. Gardner Bay, Hood Island, shore, Jan. 26, 1933, 1 young.
 38-33. SE of Cormorant Point, Charles Island, shore, Jan. 29, 1933, 1 young.
 59-33. Off Cormorant Bay, Charles Island, 13 fms, Feb. 6, 1933, 1 female.
 65-33. Reef north of Tagus Hill, Albemarle Island, reef, Feb. 9, 1933, 1 male, 1 large female.
 71-33. James Bay, James Island, shore, Feb. 12, 1933, 2 males, 1 female.
 76-33. Cartago Bay, Albemarle Island, coral, Feb. 14, 1933, 10 males, 9 females.
 82-33. Conway Bay, Indefatigable Island, shore, Feb. 17, 1933, 2 females.
 85-33. North Seymour Island, shore, Feb. 18, 1933, 3 young.
 93-33. Darwin Bay, Tower Island, shore, Feb. 22, 1933, 2 males, 2 females.

- 96-33. Darwin Bay, Tower Island, shore, Feb. 24, 1933, 1 ovig. female.
- 101-33. Darwin Bay, Tower Island, shore, Feb. 26, 1933, 2 ovig. females.
- 152-34. Tagus Cove, Albemarle Island, coral, Jan. 14, 1934, 3 males, 1 female, 1 young.
- 154-34. Reef north of Tagus Hill, Albemarle Island, reef, Jan. 15, 1934, 3 males, 1 female, 1 young.
- 168-34. Academy Bay, Indefatigable Island, shore, Jan. 20, 1934, 1 male, 1 female.
- 174-34. South Seymour Island, shore, Jan. 22, 1934, 1 male, 1 young.
- 175-34. North Seymour Island, shore, Jan. 22, 1934, 1 male, 1 female.
- 306-35. Marchena Island, shore, Dec. 2, 1934, 1 specimen.
- 316-35. Opposite Gordon Rocks, Indefatigable Island, 20 fms, Dec. 8, 1934, 1 ovig. female.
- 333-35. James Bay, James Island, shore, Dec. 11, 1934, 2 specimens.
- 359-35. Osborn Island in Gardner Bay, Hood Island, shore, Dec. 19, 1934, 7 males, 3 females.
- 361-35. Gardner Bay, Hood Island, 12 fms, Dec. 19, 1934, 1 specimen.
- 782-38. Darwin Bay, Tower Island, shore, Jan. 16, 1938, 1 male, 4 females.
- 784-38. Darwin Bay, Tower Island, shore, Jan. 17, 1938, 1 male, 1 young female.
- 789-38. South Seymour Island, shore, Jan. 19, 1938, 2 young males.
- 804-38. Onslow Island, off Charles Island, coral, Jan. 23, 1938, 2 males.

Measurements.—Largest male: length 13.0 mm, width 18.2 mm, cheliped 17.4 mm, chela 9.2 mm, dactyl 5.2 mm.

Color in life.—Ground color of carapace reddish naphthalene violet. Tubercles and margin dark dull purple. Outer side of cheliped light brilliant neutral red extending slightly on movable finger. Fingers dull dark yellow, lighter toward tip. Ambulatory legs Brazil red. Color extends half way on dactyl, which is dull yellow. Nail banded with brown at root, bright yellow at tip. Ventral side jasper red; abdomen brick red; legs scarlet beneath. (Petersen)

Habitat.—In circular depressions, particularly in sponges.

Depth.—An intertidal species; occasionally to 15 or 20 fms.

Remarks.—These *Platypodias* fit so snugly into the circular depressions which they have hollowed out for themselves that they are likely to be overlooked. They were most abundant in rocks near a sandy shore where a clump of dead trees forms a conspicuous landmark a few miles north of the anchorage at Cartago Bay, where 19 were found.

From the fact that Finnegan (1931) records the mainland species, *P. rotundata* (Stimpson) (1860) from the Galapagos Islands, it might be expected that some of the Hancock series would prove to be of that species also. However, comparison of selected pairs with the type of *P. gemmata* (USNM No. 24830) and with the Rathbun photographed specimen of *rotundata* (No. 4079) collected by Capt. Dow at Panama conclusively shows all Hancock Galapagos *Platypodias* to be *gemma*, none having the linear mesogastric or bifid protogastric region of *rotundata*.

Platypodia rotundata (Stimpson)

Atergatis rotundatus Stimpson, Ann. Lyc. Nat. Hist. New York, vol. 7, p. 202 (74), 1860.

Platypodia rotundata Rathbun, Proc. U.S. Nat. Mus., vol. 38, p. 584, 1910; Bull. 152, U.S. Nat. Mus., p. 248, pl. 102, figs. 1-3, and synonymy, 1930. Finnegan, Journ. Linn. Soc. London, Zool., vol. 37, no. 255, p. 633, 1931.

Type locality.—Cape San Lucas, Lower California.

Types.—Cotypes in MCZ.

Range.—From La Paz, Gulf of California (Lockington), to Pta. Santa Elena, Ecuador (Schmitt); Galapagos Islands (Crossland).

Atlantic analogue.—*P. spectabilis* (Herbst).

Diagnosis.—Carapace rotund, areolate, margin cristate. Mesogastric region narrowed anteriorly, protogastric region divided into two distinct lobules.

Material examined.—None from the Galapagos Islands. The Hancock collections contain a long series of this species from Escondido Bay, Gulf of California, to Santa Elena Bay, Ecuador.

Remarks.—Since Finnegan (1931) recorded both *P. gemmata* and *P. rotundata* from among Galapagos material collected by Crossland on the *St. George* Expedition, it is presumed that she was familiar with the distinguishing features of both species. However, her inclusion of *P. gemmata*, regarded heretofore as a Galapagos endemic species, in the Taboga Island, Bay of Panama, fauna, where *rotundata* would be expected, suggests that she may have placed too much emphasis upon the presence or absence of hair in the depressions of the carapace, a feature given as diagnostic by Rathbun (1930), and not enough upon the shape of the proto- and mesogastric regions, which is the structural basis for separation of the two species.

Genus *ACTAEA* de Haan, 1833KEY TO THE GALAPAGOS SPECIES OF THE GENUS *Actaea*

- A¹ Carapace covered with raised smooth nodules, deeply separated
 *A. sulcata*
- A² Carapace areolate, areoles granulate and not deeply separated
 B¹ Carapace narrow, areoles covered with bead granules . . .
 *A. angusta*
- B² Carapace wider, areoles sharp granulate
 C¹ Areoles inconspicuous, scarcely elevated above general
 carapace level; granules minute; leg joints granulous
 *A. dovii*
- C² Areoles conspicuous on anterior two-thirds of carapace;
 granules increasing in size toward anterolateral mar-
 gins; leg joints spinulous *A. crosslandi*

Actaea dovii Stimpson

Plate 79, Figs. 2, 6

Actaea dovii Stimpson, Ann. Lyc. Nat. Hist. New York, vol. 10, p. 104, 1871. Rathbun, Proc. Washington Acad. Sci., vol. 4, no. 8, p. 281, 1902; Bull. 152, U.S. Nat. Mus., p. 254, pl. 104, figs. 1-2, 1930. Boone, Zoologica, vol. 8, no. 4, p. 203, fig. 71, 1927. Finnegan, Journ. Linn. Soc. London, vol. 37, p. 632, 1931. Sivertsen, Med. fra det Zool. Mus., Oslo, nr. 38, p. 15, 1933. Schmitt, Smithsonian Misc. Col., vol. 98, no. 6, p. 25, 1939.

Type localities.—San Salvador and Panama.

Type.—MCZ No. 1021.

Range.—From Arena Bank, Lower California (*Zaca*), to Ecuador (Nobili); Galapagos Islands (Hopkins-Stanford Expedition).

Atlantic analogue.—*A. setigera* (Milne Edwards).

Diagnosis.—Areoles inconspicuous, granulate. Carapace covered with fine hairs.

Material examined (250 specimens from 41 stations).—

- 28-33. Gardner Bay, Hood Island, 2 fms, Jan. 25, 1933, 1 male, 1 female, 1 young.
- 30-33. Gardner Bay, Hood Island, shore, Jan. 26, 1933, 16 males, 2 females, 9 young, 1 fragment.
- 33-33. Black Beach, Charles Island, shore, Jan. 27, 1933, 6 males, 3 females (1 ovig.).
- 47-33. Barrington Island, 2 fms, Feb. 2, 1933, 1 male, 1 female, 1 young.

- 48-33. Barrington Island, shore, Feb. 2, 1933, 13 males, 1 ovig. female.
- 59-33. Off Cormorant Bay, Charles Island, 13 fms, Feb. 6, 1933, 6 young.
- 69-33. Albemarle Point, Albemarle Island, shore, Feb. 11, 1933, 17 males, 4 females, 5 young.
- 71-33. James Bay, James Island, shore, Feb. 12, 1933, 1 male, 1 female.
- 73-33. Cartago Bay, Albemarle Island, shore, Feb. 13, 1933, 4 males, 2 females, 3 young.
- 76-33. Cartago Bay, Albemarle Island, shore, Feb. 14, 1933, 3 males.
- 80-33. Duncan Island, coral, Feb. 15, 1933, 7 males, 5 females, 3 young.
- 94-33. Darwin Bay, Tower Island, coral, Feb. 22, 1933, 4 males, 1 young.
- 96-33. Darwin Bay, Tower Island, shore, Feb. 24, 1933, 2 females.
- 97-33. Darwin Bay, Tower Island, coral, Feb. 24, 1933, 2 males, 1 female, 1 young.
- 98-33. Darwin Bay, Tower Island, shore, Feb. 25, 1933, 1 female.
- 101-33. Darwin Bay, Tower Island, shore, Feb. 26, 1933, 4 males, 1 female.
- 148-34. Tagus Cove, Albemarle Island, 12-15 fms, Jan. 13, 1934, 1 female.
- 152-34. Tagus Cove, Albemarle Island, coral, Jan. 14, 1934, 1 male, 1 young.
- 154-34. Reef north of Tagus Hill, Albemarle Island, reef, Jan. 15, 1934, 1 young.
- 166-34. Black Beach, Charles Island, shore, Jan. 19, 1934, 1 young.
- 168-34. Academy Bay, Indefatigable Island, shore, Jan. 20, 1934, 3 males, 2 females.
- 194-34. Post Office Bay, Charles Island, coral from Onslow Island crater, Jan. 27, 1934, 8 males, 4 females.
- 202-34. Gardner Bay, Hood Island, shore, Jan. 31, 1934, 2 males.
- 310-35. Marchena Island, 15 fms, Dec. 3, 1934, 1 male, 1 female.
- 313-35. Black Beach, Charles Island, shore, Dec. 6, 1934, 1 young.
- 315-35. Opposite Gordon Rocks, Indefatigable Island, coral, Dec. 8, 1934, 1 male, 1 female, 3 young.
- 333-35. James Bay, James Island, shore, Dec. 11, 1934, fragments.
- 343-35. Sullivan Bay, James Island, shore, Dec. 12, 1934, 10 males, 4 females, 2 young.

- 344-35. Bartholomew Island near James Island, coral, Dec. 12, 1934, 5 males, 2 females, 6 young.
350-35. South Seymour Island, shore, Dec. 13, 1934, 1 male, 1 female, 2 young.
357-35. Gardner Bay, Hood Island, coral, Dec. 17, 1934, 2 young.
359-35. Osborn Island in Gardner Bay, Hood Island, shore, Dec. 19, 1934, 11 males, 5 females, 1 young, fragment.
782-38. Darwin Bay, Tower Island, shore, Jan. 16, 1938, 1 male.
784-38. Darwin Bay, Tower Island, shore, Jan. 17, 1938, 1 male, 1 female, 1 young.
789-38. South Seymour Island, shore, Jan. 19, 1938, 5 males, 1 female.
792-38. Off Daphne Minor Island, 70-80 fms, Jan. 20, 1938, 1 young.
796-38. Sullivan Bay, James Island, shore, Jan. 21, 1938, 13 males.
800-38. Cartago Bay, Albemarle Island, shore, Jan. 22, 1938, 1 male, 1 female.
803-38. Black Beach, Charles Island, shore, Jan. 23, 1938, 1 female.
804-38. Onslow Island, near Charles Island, coral, Jan. 23, 1938, 1 female, 2 young.
811-38. Barrington Island, coral, Jan. 26, 1938, 2 males.

Measurements.—Large male: length 15.6 mm, width 21.4 mm, cheliped, coxa to elbow 10.7 mm, elbow to tip of dactyl 14.0 mm, chela 12.2 mm, dactyl 7.0 mm.

Color in life.—Carapace and cheliped light neutral red, fingers dark dusky brown fading toward tip. Tubercles on carapace and cheliped cameo brown. Ambulatory legs vinaceous buff with reddish tint, netted with neutral red. Dactyls with blotches of neutral red at base, nail yellow. (Petersen)

Habitat.—*Pocillopora* coral and free living, under rocks.

Depth.—Shore and shoal water; occasionally to 12 or 15 fms; 1 record to 80 fms.

Remarks.—While *A. dovii* is found in the *Pocillopora* colony, it is by no means restricted to living coral but may be found on rocky shore or while diving at moderate depths. The posteriorly converging, reddish-brown bands of the carapace of the young (pl. 79, fig. 2) serve to separate them from immature *Carpilodes cinctimanus* (White), which occurs with them in the coral. In life the eye is bright begonia rose.

***Actaea angusta* Rathbun**

Plate 75, Figs. 1, 2

Actaea angusta Rathbun, Proc. U.S. Nat. Mus., vol. 21, p. 582, pl. 42, fig. 2, 1898; Bull. 152, U.S. Nat. Mus., p. 256, pl. 104, figs. 7 and 8, text fig. 42, 1930.

Type locality.—Off Hood Island, Galapagos Islands.

Type.—USNM No. 21578.

Range.—Known only from the type locality.

Atlantic analogue.—*A. bifrons* Rathbun.

Diagnosis.—Carapace narrow, covered with bead granules; margin cut into 4 well-defined teeth. A small species.

Material examined.—

201-34. Off Gardner Bay, Hood Island, 25-35 fms, Jan. 31, 1934, 1 young (photographed).

Measurements.—Length 4.3 mm, width 5.8 mm.

Habitat.—"Mostly rock." (Probably with sand patches.)

Depth.—20-35 fms.

Remarks.—Apparently this distinctive species is destined to remain a great rarity in collections, as repeated dredging over the type locality has yielded but one specimen in five expeditions, the first since the type. This specimen has been compared with the holotype (USNM No. 21578) and is identical in size and appearance. The pearly granules of the carapace and cheliped distinguish it from the remaining Galapagos members of the genus.

Actaea sulcata Stimpson

Plate 77, Fig. 1

Actaea sulcata Stimpson, Ann. Lyc. Nat. Hist. New York, vol. 7, p. 203 (75), 1860. Rathbun, Bull. 152, U.S. Nat. Mus., p. 259, pl. 105, figs. 3 and 4, 1930. Finnegan, Journ. Linn. Soc. London, vol. 37, p. 632, 1931. Crane, Zoologica, vol. 22, no. 3, p. 69, 1937.

Type locality.—Cape San Lucas, Lower California.

Type.—Not extant.

Range.—From Arena Bank, Gulf of California (Crane), to Gorgona Island, Colombia (Crossland); 2½-15 fms.

Atlantic analogue.—*A. rufopunctata nodosa* Stimpson.

Diagnosis.—Carapace covered with raised nodules, deeply separated.

Material examined (44 specimens from 22 stations).—

28-33. Gardner Bay, Hood Island, 2 fms, Jan. 25, 1933, 1 young.

30-33. Gardner Bay, Hood Island, shore, Jan. 26, 1933, 1 male, 1 female, 2 young.

48-33. Barrington Island, shore, Feb. 2, 1933, 1 female, 1 young.

56-33. Flamingo Bay, Charles Island, shore, Feb. 5, 1933, 5 specimens.

59-33. Off Cormorant Bay, Charles Island, 13 fms, Feb. 6, 1933, 1 male, 2 young.

- 65-33. Reef north of Tagus Hill, Albemarle Island, reef, Feb. 9, 1933, 1 male.
- 69-33. Albemarle Point, Albemarle Island, shore, Feb. 11, 1933, 2 young males.
- 73-33. Cartago Bay, Albemarle Island, shore, Feb. 13, 1933, 3 males.
- 76-33. Cartago Bay, Albemarle Island, shore, Feb. 14, 1933, 2 males, 1 fragment.
- 94-33. Darwin Bay, Tower Island, coral, Feb. 22, 1933, 1 male, 2 females (1 ovig.).
- 96-33. Darwin Bay, Tower Island, shore, Feb. 24, 1933, 1 male.
- 154-34. Reef north of Tagus Hill, Albemarle Island, reef, Jan. 15, 1934, 1 female.
- 167-34. Post Office Bay, Charles Island, 15 fms, Jan. 19, 1934, 1 female.
- 194-34. Post Office Bay, Charles Island, coral from Onslow Island crater, Jan. 27, 1934, 1 female.
- 199-34. Black Beach, Charles Island, shore, Jan. 30, 1934, 1 female.
- 344-35. Bartholomew Island near James Island, coral, Dec. 12, 1934, 2 males.
- 356-35. Gardner Bay, Hood Island, 12-15 fms, Dec. 17, 1934, 1 young.
- 357-35. Gardner Bay, Hood Island, coral, Dec. 17, 1934, 2 females.
- 784-38. Darwin Bay, Tower Island, shore, Jan. 17, 1938, 1 female.
- 789-38. South Seymour Island, shore, Jan. 19, 1938, 1 male (photographed).
- 796-38. Sullivan Bay, James Island, shore, Jan. 21, 1938, 1 male, 2 females.
- 800-38. Cartago Bay, Albemarle Island, shore, Jan. 22, 1938, 1 male, 2 females.

Measurements.—Largest specimen, female: length 11.0 mm, width 17.0 mm, cheliped 14.0 mm, chela 7.5 mm, dactyl 4.3 mm.

Color in life.—General appearance neutral red with bluish tinge. Raised nodules on gastric, cardiac, and intestinal regions pale yellowish white. Cheliped and legs neutral red. Fingers warm Van Dyke brown, a touch of bright lavender at base of movable fingers, tips almost white. Dactyls of ambulatory legs orange yellow at base fading to near white. Nail pale yellow. (Petersen)

Habitat.—*Pocillopora*, or free living under rocks.

Depth.—Shore to 15 fms.

Remarks.—Like *A. dovii*, this species is found most frequently in living coral, but may be picked up from under rocks or dredged in 12-15 fms. It is less abundant than *A. dovii* in the proportion of about 1:5.

A. sulcata is now recorded from the Galapagos Islands.

Actaea crosslandi (Finnegan), new comb.

Plate 56, Figs. 1-4

Xanthias crosslandi Finnegan, Journ. Linn. Soc. London, vol. 37, p. 638, 1931.

Type locality.—Tagus Cove, Galapagos Islands.

Type.—In Brit. Mus.

Range.—Known only from the type locality.

Diagnosis.—Carapace areolate on anterior two-thirds only. Hepatic region coarsely granulate. Anterolateral margin with 4 tuberculated teeth, excluding exorbital cluster; first depressed, second largest. Last three ambulatory segments spinulose.

Material examined (100 specimens from 21 stations).—

- 143-34. Wenman Island, 100-150 fms, Jan. 11, 1934, 1 young, fragment.
- 147-34. Tagus Cove, Albemarle Island, 30 fms, Jan. 13, 1934, 3 young.
- 148-34. Tagus Cove, Albemarle Island, 12-15 fms, Jan. 13, 1934, 4 males, 3 females.
- 149-34. Tagus Cove, Albemarle Island, 20 fms, Jan. 13, 1934, 5 males, 8 females (4 ovig.).
- 166-34. Black Beach, Charles Island, shore, Jan. 19, 1934, 1 male.
- 167-34. Post Office Bay, Charles Island, 15 fms, Jan. 19, 1934, 6 males, 2 females.
- 168a-34. Academy Bay, Indefatigable Island, coral, Jan. 20, 1934, 2 males.
- 169-34. Academy Bay, Indefatigable Island, 15-25 fms, Jan. 20, 1934, 9 males, 5 females.
- 170-34. East of Wreck Bay, Chatham Island, 32 fms, Jan. 21, 1934, 4 young.
- 182-34. James Bay, James Island, 30 fms, Jan. 24, 1934, 2 males, 3 females.
- 190-34. Lat. 0° 55' S, Long. 90° 30' W, 58-60 fms, Jan. 26, 1934, 2 young.
- 193-34. Post Office Bay, Charles Island, 8-10 fms, Jan. 27, 1934, 3 males, 1 ovig. female.
- 196-34. Post Office Bay, Charles Island, 8-10 fms, Jan. 29, 1934, 1 female, 1 young.
- 197-34. Off Post Office Bay, Charles Island, 35-40 fms, Jan. 29, 1934, 8 males, 10 females.
- 198-34. NW of Post Office Bay, Charles Island, 55-65 fms, Jan. 29, 1934, 1 male.

- 199-34. Black Beach, Charles Island, shore, Jan. 30, 1934, 1 male.
316-35. Gordon Rocks, Indefatigable Island, 20 fms, Feb. 8, 1934,
1 male.
317-35. Gordon Rocks, Indefatigable Island, 25-30 fms, Feb. 8, 1934,
2 females (1 ovig.).
792-38. Off Daphne Minor Island, 70-80 fms, Jan. 20, 1938, 1 male.
795-38. Sullivan Bay, James Island, 35-40 fms, Jan. 21, 1938, 5 males,
4 females (2 ovig.).
810-38. (D-1) Barrington Island, 48 fms, Jan. 26, 1938, 1 young.

Measurements.—Male: length 10.3 mm, width 15.1 mm; female: length 10.1 mm, width 15.0 mm.

Color in life.—Carapace reddish salmon orange, slightly darker on frontal region and entirely covered with red spots, which become lighter toward the frontal and hepatic regions, where they almost disappear. Chela lighter than carapace, with spots much in evidence on carpus and propodus. Dactyl yellow to white tip. Legs as chelae with pale yellow hairs. (Petersen)

Habitat.—Rock, rock and sand, rock and algae; sand, sand and coral, sand and nullipore; coral, nullipore and worm tubes.

Depth.—From shore to 150 fms.

Remarks.—A pair of specimens from the type locality were sent to the British Museum for comparison with the type and were returned labeled "*Xanthias crosslandi* Finnegan" by Dr. Isabella Gordon. As restricted by Odhner (1925), only one American species, *X. inornatus* (Rathbun) (1898), belongs in this genus, and the writer proposes its transfer to the genus *Actaea* de Haan.

Genus **GLYPTOXANTHUS** A. Milne Edwards, 1879

***Glyptoxanthus hancocki* Garth**

Plate 76, Figs. 1, 2

Glyptoxanthus labyrinthicus Rathbun, Bull. 152, U.S. Nat. Mus., p. 266, part (the Galapagos specimen), 1930.

Glyptoxanthus hancocki Garth, Allan Hancock Pac. Exped., vol. 5, no. 2, p. 15, pl. 4, fig. 1; pl. 5, figs. 1a, 2a, 3a, 1939.

Type locality.—Sullivan Bay, James Island.

Type. AHF no. 383.

Range.—Known only from the Galapagos Islands.

Diagnosis.—Elevations of carapace sparsely pitted. Gastric areole independent of inner protogastric. Front separated from rest of carapace by a transverse furrow joining orbits.

Material examined (22 specimens from 10 stations).—

- 33-33. Black Beach, Charles Island, shore, Jan. 27, 1933, 1 male.
 101-33. Darwin Bay, Tower Island, shore, Jan. 26, 1933, 2 males.
 313-35. Black Beach, Charles Island, shore, Dec. 6, 1934, 1 male.
 333-35. James Bay, James Island, shore, Dec. 11, 1934, 1 male, carapace.
 343-35. Sullivan Bay, James Island, shore, Dec. 12, 1934, 1 male, chela.
 350-35. South Seymour Island, shore, Dec. 13, 1934, 1 specimen.
 782-38. Darwin Bay, Tower Island, shore, Jan. 16, 1938, 1 male.
 796-38. Sullivan Bay, James Island, shore, Jan. 21, 1938, 2 males, 8 females (the type series, including the female holotype, AHF no. 383).
 800-38. Cartago Bay, Albemarle Island, shore, Jan. 22, 1938, 1 female.
 803-38. Black Beach, Charles Island, shore, Jan. 23, 1938, 1 male, 2 females.

Measurements.—Largest specimen, female, not holotype: length 25.8 mm, width 38.0 mm; male allotype: length 18.6 mm, width 26.9 mm.

Color in life.—Dark areas on carapace a rich violet carmine, a little more reddish on branchial and posterior areas. Light areas cadmium orange on frontal, gastric, and cardiac regions; branchial and intestinal regions same color but lighter hue. Chela violet carmine on dark areas; fingers very dark seal brown, fading toward tips, which are almost white. Ambulatory legs burnt lake on dark areas and light cadmium orange on light areas. Nail of dactyl amber. Eyestalk pale orange-yellow; eye blackish brown. (Petersen)

Habitat.—Under rocks at low tide.

Depth.—Shore.

Remarks.—As set forth in the diagnosis of the species, *G. hancocki* differs from *G. labyrinthicus* (Stimpson) (1860) of the Bay of Panama in having the gastric areole independent of the inner protogastric, the orbits joined by an open, transverse furrow, and the vermiculations sparsely pitted. Exceptionally low tides are necessary to uncover this brilliant red and orange xanthid crab, which is found in company with *Aethra scruposa scutata* Smith and *Daldorfia garthi* Glassell.

Genus **DAIRA** de Haan, 1833***Daira americana*** Stimpson

Plate 82, Figs. 1, 2

Daira americana Stimpson, Ann. Lyc. Nat. Hist. New York, vol. 7, p. 212 (84), 1860. Rathbun, Bull. U.S. Nat. Mus., p. 268, pl. 110, figs. 1 and 2, 1930. Hult, Arkiv. för Zoologi, Band 30A, no. 5, p. 12, 1938. Crane, Zoologica, vol. 22, no. 3, p. 70, 1937.

Type locality.—Cape San Lucas, Lower California.

Type.—MCZ No. 1275.

Range.—From Arena Bank, Gulf of California (*Zaca*), to Ecuador (Nobili); Galapagos Islands (Hult).

Diagnosis.—Regions subdivided into numerous rounded lobules, interspersed with tufts of hair. Fingers pointed at tips, not spoon shaped.

Material examined (431 specimens from 35 stations).—

- 27-33. Gardner Bay, Hood Island, shore, Jan. 25, 1933, 16 males, 6 females (3 ovig.), 30 young.
- 28-33. Gardner Bay, Hood Island, 2 fms, Jan. 25, 1933, 8 males, 10 females (7 ovig.), 22 young.
- 30-33. Gardner Bay, Hood Island, shore, Jan. 26, 1933, 3 males, 13 females (8 ovig.), 14 young.
- 33-33. Black Beach, Charles Island, shore, Jan. 27, 1933, 5 males, 10 females (7 ovig.), 5 young.
- 38-33. SE of Cormorant Point, Charles Island, shore, Jan. 29, 1933, 1 young.
- 47-33. Barrington Island, 2 fms, Feb. 2, 1933, 1 young.
- 69-33. Albemarle Point, Albemarle Island, shore, Feb. 11, 1933, 6 males, 4 females, 4 young.
- 73-33. Cartago Bay, Albemarle Island, shore, Feb. 13, 1933, 4 males, 8 females (1 ovig.).
- 76-33. Cartago Bay, Albemarle Island, shore, Feb. 14, 1933, 1 female.
- 94-33. Darwin Bay, Tower Island, coral, Feb. 22, 1933, 2 males, 4 young.
- 96-33. Darwin Bay, Tower Island, shore, Feb. 24, 1933, 1 male, 1 female, 3 young.
- 97-33. Darwin Bay, Tower Island, coral, Feb. 24, 1933, 1 male, 2 young.
- 98-33. Darwin Bay, Tower Island, shore, Feb. 25, 1933, 7 males, 5 females (4 ovig.), 4 young.
- 101-33. Darwin Bay, Tower Island, shore, Feb. 26, 1933, 2 males, 3 females (2 ovig.), 4 young.
- 101a-33. Darwin Bay, Tower Island, shore, Feb. 26, 1933, 5 males, 1 ovig. female, 2 young.
- 154-34. Reef north of Tagus Hill, Albemarle Island, shore, Jan. 15, 1934, 1 male.
- 161-34. Black Beach, Charles Island, 3 fms, Jan. 17, 1934, 1 male.
- 163-34. Black Beach, Charles Island, shore, Jan. 18, 1934, 3 females.
- 166-34. Black Beach, Charles Island, shore, Jan. 19, 1934, 19 males, 33 females (13 ovig.) (1 photographed).