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The Porcellanid Crabs of the "Askoy" Expedition to the Panama Bight¹

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INTRODUCTION

From February through May of 1941, the "Askoy" Expedition of the American Museum of Natural History, under the direction of Dr. Robert Cushman Murphy, visited the Pacific coast of Panama, Colombia, and Ecuador, a region defined by Nichols and Murphy (1944, p. 221) as the Panama Bight. The expedition occupied 113 collecting stations. Anomuran crabs of the family Porcellanidae, which are the subject of the present report, were recovered at 13 stations from the Pearl Islands, Panama, south to Cape Santa Elena, Ecuador, and at a Panama City locality without station number. The majority of the material was taken from heads of *Pocillopora* coral.

The most important work dealing with Porcellanidae from the southern half of the Panamic province is that of Nobili (1901), based on collections made in Panama and Ecuador by Enrico Festa between 1895 and 1898. Among the Crustacea accumulated by Festa were 13 species of porcellanids, five of them new. Nobili gave detailed and lucid descriptions, but included no illustrations in his account; as a result of this, and the lack of subsequent work on porcellanids of the area, the status of at least some of them has remained uncertain. A recent opportunity to examine part of Festa's collection has greatly facilitated the preparation of the present report. Revision of some of Nobili's

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identifications, made possible in the light of present knowledge of the family, is discussed under the species accounts that follow.

Garth (1948), in his report on the brachyuran crabs of the "Askoy" expedition, discussed (pp. 10-11) the earlier history of carcinological collecting in the Panama Bight. Little or nothing has yet been published on porcellanids taken by most of the expeditions and individual collectors working in that area, only a few scattered records prior and subsequent to Nobili's paper having appeared. In the present report such records are listed in the synonymies and mentioned briefly under the appropriate species accounts.

The "Askoy" obtained 455 porcellanids divided among 21 species, none of which proved to be new. As a result of the work of the expedition, the known ranges of the majority of these species are extended southward along the Pacific mainland. This is not surprising in view of the fact that no comprehensive study of Porcellanidae from the Panama Bight has been made aside from that of Nobili, published at the turn of the century. Seven of the species have not been previously reported from the southern half of the Panamic province, although one of the latter group is known from the Galapagos Islands; one species is recorded for the first time from the Pacific coast. The range extensions may be summarized as follows:

SPECIES	RANGE EXTENDED	
	FROM	TO
<i>Pachycheles spinidactylus</i>	Mexico	Colombia
<i>Pachycheles mexicanus</i>	Mexico	Colombia
<i>Pachycheles vicarius</i>	Ecuador	Colombia
<i>Pachycheles biocellatus</i>	Gulf of California	Ecuador ¹
<i>Pachycheles crassus</i>	Panama	Colombia
<i>Pachycheles chacei</i>	Atlantic	Ecuador ² -Colombia
<i>Petrolisthes ortmanni</i>	Ecuador	Panama ²
<i>Petrolisthes lewisi</i>	Mexico	Colombia
<i>Petrolisthes hians</i>	Ecuador	Colombia
<i>Petrolisthes tridentatus</i>	Panama	Ecuador ²
<i>Petrolisthes edwardsi</i>	Panama	Ecuador ¹
<i>Petrolisthes agassizi</i>	Panama	Colombia
<i>Porcellana cancrisocialis</i>	Gulf of California	Ecuador
<i>Porcellana magdalenensis</i>	Panama	Colombia
<i>Megalobrachium garthi</i>	Mexico	Colombia

This report is one of a series of papers by the writer dealing with

¹ Known also from the Galapagos Islands.

² Collection of E. Festa.

the Porcellanidae of the eastern Pacific. Descriptions and more complete data on all the species treated herein will appear in a monographic review to be published at a future date. In the present report, synonymies are in most cases not complete, including only references to the original description; the first use of the name in its current combination; records from Panama, Colombia, and Ecuador; and records that define the known limits of range of the species.

The writer wishes to thank Dr. Dorothy E. Bliss, Assistant Curator of Invertebrates, the American Museum of Natural History, for the opportunity to study the "Askoy" collection. Through Prof. L. Pardi, Director, Istituto e Museo di Zoologia, Università di Torino, it was possible to examine part of the collection made by Enrico Festa for that institution. Dr. Frederick A. Aldrich, Assistant Curator of Limnology, Academy of Natural Sciences of Philadelphia, allowed the writer to examine the holotype of *Pachycheles mexicanus* Streets.

SYSTEMATIC ACCOUNT

FAMILY PORCELLANIDAE

Pachycheles spinidactylus Haig

Pachycheles spinidactylus HAIG, 1957, p. 31, pl. 7, figs. 1-4.

RANGE: From Isabel Island to Acapulco, Mexico; shore to 4 fathoms.

MATERIAL EXAMINED: Humboldt Bay, Colombia, Station 103, sample 404, May 18, 1941, 6-10 feet, one male.

MEASUREMENTS: Male specimen, length 4.5 mm.

HABITAT: Previously taken under stones in the littoral and from sponges. The "Askoy" specimen was recovered from coral.

REMARKS: This species closely resembles *Pachycheles panamensis* Faxon, which also occurs in the Panama Bight but was not taken by the "Askoy." *Pachycheles panamensis* was described from material taken at Panama (presumably Panama City) by the "Albatross," and was later collected by E. Festa at Santa Elena Bay, Ecuador.

The "Askoy" record extends the range of *P. spinidactylus* southward from Acapulco, Mexico, to Humboldt Bay, Colombia.

Pachycheles mexicanus Streets

Pachycheles mexicanus STREETS, 1871a, p. 225, pl. 2, fig. 1.

RANGE: Known only from the type locality, Gulf of Tehuantepec, Mexico.

MATERIAL EXAMINED: Thirty-three specimens from two stations: Panama: Guayabo Chiquito, Station 30, sample 79, March 4, 1941,

shore, four males, eight ovigerous females. *Colombia*: Limón Bay, Gulf of Cupica, Station 102, sample 400, May 17, 1941, shore, eight males, 13 females (eight ovigerous).

MEASUREMENTS: Largest specimen, male, length 6.9 mm.; largest non-ovigerous female, length 5.9 mm.; largest ovigerous female, length 6.1 mm.

HABITAT: The "Askoy" specimens were taken in the littoral.

REMARKS: These are the first specimens to be recorded since the type. The writer's studies on the Porcellanidae have revealed several new species of *Pachycheles* along the tropical west American coast, and from Streets's brief diagnosis and inadequate illustration it has been impossible to identify any one of them positively with *P. mexicanus*. Through examination of the holotype (A.N.S.P. No. 4139), the writer was able to identify the "Askoy" material listed above with this species.

The range of *P. mexicanus* is extended southward from the Gulf of Tehuantepec, Mexico, to the Gulf of Cupica, Colombia.

Pachycheles vicarius Nobili

P[achycheles] vicarius NOBILI, 1901, p. 19.

RANGE: Known only from the type locality, Santa Elena Bay, Ecuador.

MATERIAL EXAMINED: Eighteen specimens from two stations: *Colombia*: Humboldt Bay, Station 103, sample 404, May 18, 1941, 6-10 feet, one male; Gorgona Island, Station 89, sample 348, April 22-23, 1941, 2-3½ fathoms, nine males, seven ovigerous females, one young.

MEASUREMENTS: Largest specimen, male, length 4.2 mm.; largest ovigerous female, length 4.0 mm.

HABITAT: Coral.

REMARKS: These specimens are the first to be recorded since Nobili's types, a male and two females. The male and one ovigerous female type were examined by the writer.

The specimens obtained by the "Askoy" extend the range of the species northward from Santa Elena Bay, Ecuador, to Humboldt Bay, Colombia.

Pachycheles biocellatus (Lockington)

Petrolisthes (Pisosoma) biocellatus LOCKINGTON, 1878, pp. 396, 403.

Pisosoma aphrodita BOONE, 1932, p. 53, text figs. 17-18.

Pachycheles biocellatus, GLASSELL, 1937, p. 84. SCHMITT, 1939, pp. 16, 25.

RANGE: From off Arena Bank, Gulf of California, Mexico, to the Galapagos Islands; Clipperton Island; shore to 2½ fathoms.

MATERIAL EXAMINED: Twenty-four specimens from three stations:

Colombia: Humboldt Bay, Station 103, sample 404, May 18, 1941, 6–10 feet, one male, one ovigerous female; Gorgona Island, Station 89, sample 348, April 22–23, 1941, 2–3½ fathoms, seven males, six females (four ovigerous). *Ecuador*: La Plata Island, Station 80, sample 302, April 13, 1941, 3 fathoms, three males, two ovigerous females, four young.

MEASUREMENTS: Largest specimen, male, length 5.1 mm.; largest non-ovigerous female, length 3.5 mm.; largest ovigerous female, length 4.9 mm.

HABITAT: Under stones in the littoral, and in coral. All the "Askoy" specimens were taken from coral.

REMARKS: This species has been reported from the Gulf of California and from Clipperton Island. It was taken in the Galapagos Islands by the Presidential cruise of 1938 (Schmitt) and by William Beebe on the "Arcturus" Oceanographic Expedition. Boone described the specimens from the latter expedition as a new species, *Pisosoma aphrodita*.

Although the writer knows of several mainland records from the Panama Bight, the "Askoy" specimens listed above are the first such to be recorded. The mainland range of the species is extended southward from Arena Bank, Gulf of California, Mexico, to La Plata Island, Ecuador.

Pachycheles crassus (A. Milne-Edwards)

Porcellana (*Pachycheles*) *crassa* A. MILNE-EDWARDS, 1869, p. 128, pl. 26, fig. 12.

RANGE: Known only from the type locality, Pearl Islands, Panama.

MATERIAL EXAMINED: Gorgona Island, Colombia, Station 89, sample 346, April 20–21, 1941, 2½ fathoms, one ovigerous female; sample 348, April 22–23, 1941, 2–3½ fathoms, one ovigerous female.

MEASUREMENTS: Larger ovigerous female, length 4.1 mm., width 6.2 mm.

HABITAT: The "Askoy" specimens were taken from coral.

REMARKS: This species has been previously known only from the holotype, which presumably is or was in the Muséum National d'Histoire Naturelle, Paris. Although there has been no opportunity to compare the "Askoy" specimens with the type, there can be little doubt that their identification with *Pachycheles crassus* is correct. The hepatic regions of the carapace were described as being strongly produced laterally; this character, which is present in the "Askoy" specimens, does not occur in any other *Pachycheles* the writer has seen. In the

"Askoy" material the carapace is markedly broad in comparison to its length, as shown in the illustration of the type. Its pronounced width and shiny, smooth appearance give the carapace a striking resemblance to that of some species of *Polyonyx*.

The range of *Pachycheles crassus* is extended southward from the Pearl Islands, Panama, to Gorgona Island, Colombia.

Pachycheles chacei Haig

Pachycheles rudis, NOBILI, 1901, p. 18 (in part). Not *P. rudis* Stimpson.

Pachycheles chacei HAIG, 1956, p. 9, pl. 1.

RANGE: Atlantic coasts of Panama and Colombia.

MATERIAL EXAMINED: Humboldt Bay, Colombia, Station 103, sample 404, May 18, 1941, 6–10 feet, one female.

MEASUREMENTS: Non-ovigerous female, length 2.9 mm.

HABITAT: In the Atlantic the species has been collected in the littoral; the "Askoy" specimen was taken from coral.

REMARKS: The species has previously been known only from the Atlantic. The writer examined two of the seven specimens from Santa Elena Bay, Ecuador, recorded by Nobili as *Pachycheles rudis* Stimpson, and found them to be identical with the types of *P. chacei*. Thus it is possible to eliminate the Ecuadorian record for *P. rudis*, which properly belongs to the north temperate fauna.

The presence of *P. chacei* at Santa Elena Bay is now established, and the "Askoy" specimen extends its range northward along the Pacific coast to Humboldt Bay, Colombia.

Petrolisthes ortmanni Nobili

P[etrolisthes] *ortmanni* NOBILI, 1901, p. 16.

P[etrolisthes] sp., NOBILI, 1901, p. 16.

RANGE: Known only from the type locality, Santa Elena Bay, Ecuador.

MATERIAL EXAMINED: Gorgona Island, Colombia, Station 89, sample 348, April 22–23, 1941, 2–3½ fathoms, three males, five females (two ovigerous).

MEASUREMENTS: Largest specimen, male, length 5.2 mm.; largest non-ovigerous female, length 3.2 mm.; larger ovigerous female, length 3.8 mm.

HABITAT: The "Askoy" specimens were taken from coral.

REMARKS: The Gorgona Island specimens collected by the "Askoy" agree with two of Nobili's nine types from Santa Elena Bay, with which they were compared. Two specimens, collected by Enrico Festa at Flamenco Island, Panama, and believed by Nobili to be different

from *P. ortmanni*, were also examined by the writer and found to fall within the normal limits of variation of that species. The known range is therefore Flamenco Island, Panama, to Santa Elena Bay, Ecuador.

***Petrolisthes lewisi* (Glassell), new combination**

Petrolisthes sinuimanus, NOBILI, 1901, p. 15. Not *Megalobrachium sinuimanus* (Lockington).

Pisosoma lewisi GLASSELL, 1936, p. 287. STEINBECK AND RICKETTS, 1941, p. 458.

RANGE: From Espiritu Santo Island, Gulf of California, to Tequepa Bay north of Acapulco, Mexico.

MATERIAL EXAMINED: Seventy-six specimens from two stations: *Panama*: Guayabo Chiquito, Station 30, sample 78, March 4, 1941, 24–64 meters, one male; sample 79, March 4, 1941, shore, 24 males, 22 females (21 ovigerous), plus one fragmented specimen. *Colombia*: Limón Bay, Gulf of Cupica, Station 102, sample 400, May 17, 1941, shore, eight males, 19 females (11 ovigerous), plus one fragmented specimen.

MEASUREMENTS: Largest specimen, male, length 7.3 mm.; largest non-ovigerous female, length 6.5 mm.; largest ovigerous female, length 6.2 mm.

HABITAT: The specimen from sample 78 was dredged on a bottom of gray mud at 24–64 meters. As the species is otherwise known only from the littoral, this datum is probably in error.

REMARKS: The writer has seen a long series of *P. lewisi* from several North, Central, and South American localities, and has found it to be an extremely variable species. These variations will be discussed in a future paper. The male and ovigerous female collected by Enrico Festa at Flamenco Island, Panama, and recorded by Nobili as *Petrolisthes sinuimanus* (Lockington) (= *Megalobrachium sinuimanus*), were examined and found to belong to *Petrolisthes lewisi*.

With reidentification of Nobili's specimens the range of the species is extended southward from Tequepa Bay, Mexico, to Flamenco Island, Panama; the "Askoy" material extends it still farther to the Gulf of Cupica, Colombia.

***Petrolisthes hians* Nobili**

P[etrolisthes] hians NOBILI, 1901, p. 17.

RANGE: Known only from the type locality, Santa Elena Bay, Ecuador.

MATERIAL EXAMINED: Humboldt Bay, Colombia, Station 103, sample 404, May 18, 1941, 6–10 feet, two ovigerous females.

MEASUREMENTS: Larger ovigerous female, length 3.5 mm.

HABITAT: In coral and under stones in the littoral. The "Askoy" material was taken from coral.

REMARKS: The two "Askoy" specimens, which were compared with two of Nobili's 12 types, extend the range of the species northward from Santa Elena Bay, Ecuador, to Humboldt Bay, Colombia.

Petrolisthes tridentatus Stimpson

Petrolisthes tridentatus STIMPSON, 1858, p. 227. SCHMITT, 1935, p. 187, text fig. 47.

Petrolisthes gracilis, NOBILI, 1901, p. 13. Not *P. gracilis* Stimpson.

RANGE: In the Pacific known only from Taboguilla Island, Panama. Also occurs in the Atlantic.

MATERIAL EXAMINED: Five specimens from two stations: *Panama:* Guayabo Chiquito, Station 30, sample 79, March 4, 1941, shore, one male, three females (one ovigerous). *Colombia:* Limón Bay, Gulf of Cupica, Station 102, sample 400, May 17, 1941, shore, one ovigerous female.

MEASUREMENTS: Largest specimen, ovigerous female, length 4.6 mm.; male, length 3.7 mm.; larger non-ovigerous female, length 4.0 mm.

HABITAT: Under stones in the littoral.

REMARKS: This Caribbean species was reported by Schmitt from the Pacific at Taboguilla Island, Panama. A single specimen collected by Enrico Festa at Santa Elena Bay, Ecuador, reported by Nobili as *P. gracilis* Stimpson, was examined and found to be *P. tridentatus*. Nobili himself had remarked on the similarity of his specimen to that species. Its recovery at two intermediate stations by the "Askoy" demonstrates that *P. tridentatus* is well established in the Panama Bight, although perhaps not abundant.

The range of the species in the Pacific is extended southward from Taboguilla Island, Panama, to Santa Elena Bay, Ecuador.

Petrolisthes holotrichus Nobili

Petrolisthes holotrichus NOBILI, 1901, p. 14.

RANGE: Known only from the type locality, Flamenco Island, Panama.

MATERIAL EXAMINED: Pacheca Island, Pearl Islands, Panama, Station 1, sample 2, February 10, 1941, shore, one female.

MEASUREMENTS: Non-ovigerous female, length 3.8 mm.

HABITAT: The "Askoy" specimen was taken in the littoral.

REMARKS: The "Askoy" record is the first since the original description of the species. The female from Pacheca Island was compared with two of Nobili's three types.

The range of *P. holotrichus* is extended southward in Panama, from Flamenco Island near the opening of the Canal to the Pearl Islands.

Petrolisthes armatus (Gibbes)

Porcellana armata GIBBES, 1850, p. 190.

Petrolisthes armatus, STIMPSON, 1858, p. 227; 1859, p. 73. STREETS, 1871b, p. 240. LOCKINGTON, 1878, p. 399. RATHBUN, 1910, pp. 558, 599, pl. 41, fig. 3. BOONE, 1931, p. 151, text fig. 6; 1932, p. 35, text fig. 9. GARTH AND HAIG, 1956, p. 4.

P[etrolisthes] *armatus*, NOBILI, 1901, p. 11.

RANGE: From Mulege Bay, Gulf of California, Mexico, to Matapalo and Las Vacas, Peru; Galapagos Islands; shore to about 5 fathoms. Also occurs on both sides of the Atlantic.

MATERIAL EXAMINED: Two specimens from as many stations: *Panama*: Bellavista, Panama City, 1941, one male. *Ecuador*: Latitude 01° 07' N., longitude 79° 53' W., Station 87, sample 343, April 17, 1941, 9–27 meters, one young specimen, referred doubtfully to the above species.

MEASUREMENTS: Male, length 8.9 mm.

HABITAT: Found in a variety of situations, such as under and about stones, in oyster banks and mussel beds, around mangroves, and in corals and sponges. The habitat of the specimen from the unofficial "Askoy" station listed above was not indicated.

REMARKS: The earliest records of the species from the Pacific by Stimpson and Streets gave only the general localities "Panama" and "Isthmus of Panama." Enrico Festa collected several specimens at Flamenco Island, Panama, and at Santa Elena Bay and Point, Ecuador (Nobili). R. E. Coker took specimens in Peru in 1908, outside the limits of the Panamic province (Rathbun). The Harrison Williams Galapagos Expedition recovered it in the Galapagos Islands in 1923 (Boone, 1932). In 1926, W. G. Van Name and associates collected specimens at various stations in Panama, near the opening of the Canal and in the Pearl Islands; these were reported by Boone in 1931. Specimens were collected at Buenaventura, Colombia, by H. Brattström and E. Dahl on the Lund University Chile Expedition of 1948–1949 (Garth and Haig, 1956). The species is also known from several localities in Central America and the Gulf of California.

When the abundance of this crab almost everywhere within its range is considered, it is surprising that it is so poorly represented in the "Askoy" collection.

Petrolisthes robsonae Glassell

Petrolisthes robsonae Glassell, 1945, p. 227, text fig. 3.

RANGE: Known only from the type locality, Miraflores Locks, Panama Canal, Canal Zone, Panamá.

MATERIAL EXAMINED: Bellavista, Panama City, Panama, 1941, three males, two ovigerous females.

MEASUREMENTS: Largest specimen, male, length 7.8 mm.; larger ovigerous female, length 6.0 mm.

HABITAT: The types were taken inside the Canal locks; as noted by Glassell, this is an unusual circumstance, for there is a continuous change inside the locks from sea to nearly fresh water. However, Glassell had no specific ecological data for his specimens. No information in regard to habitat was provided with the unofficial "Askoy" station listed above.

REMARKS: The "Askoy" specimens are the first to be reported since the original description of the species.

Petrolisthes marginatus Stimpson

Petrolisthes marginatus STIMPSON, 1858, p. 227. SCHMITT, 1939, p. 16. HAIG, 1956, p. 26.

P[etrolisthes] marginatus, NOBILI, 1901, p. 12.

Petrolisthes galathinus, BOONE, 1932, p. 45. Not *P. galathinus* (Bosc).

?*Petrolisthes galathinus*, HULT, 1938, p. 10. Not *P. galathinus* (Bosc).

RANGE: From Costa Rica to Santa Elena Bay, Ecuador; Clipperton Island; Galapagos Islands; shore to 2½ fathoms. Also occurs in the Atlantic.

MATERIAL EXAMINED: One hundred and seventeen specimens from seven stations: *Panama*: Contadora Island, Pearl Islands, Station 110, sample 431, May 25, 1941, 5–5½ fathoms, one ovigerous female; Saboga Island, Pearl Islands, Station 111, sample 432, May 26, 1941, 2 fathoms, four males, eight females (five ovigerous), one young; Guayabo Chiquito, Station 104, sample 410, May 20–21, 1941, 4½–5½ fathoms, three males, five females (three ovigerous). *Colombia*: Humboldt Bay, Station 103, sample 404, May 18, 1941, 6–10 feet, two males, three ovigerous females; Utria Bay, Station 100, sample 397, May 15, 1941, shore, one male, and sample 398, May 15, 1941, 8 feet, two males; Gorgona Island, Station 89, sample 346, April 20–21, 1941, 2½ fathoms, two ovigerous females, and sample 348, April 22–23, 1941, 2–3½ fathoms, 24 males,

46 females (34 ovigerous), two young. *Ecuador*: La Plata Island, Station 80, sample 302, April 13, 1941, 3 fathoms, three males, 10 females (eight ovigerous).

MEASUREMENTS: Largest specimen, male, length 7.4 mm.; largest non-ovigerous female, length 6.3 mm.; largest ovigerous female, length 7.3 mm.

HABITAT: Under stones in the littoral, and in coral. The "Askoy" specimen from sample 397 at Utria Bay was taken at low tide under stones; the others were recovered from coral.

REMARKS: *Petrolisthes marginatus* was described from the Atlantic coast, and was reported subsequently from several localities in the Caribbean area. The first record of the species from the Pacific coast was that of Nobili, based on specimens collected by E. Festa at Flamenco Island and Santa Elena Bay. It was taken in the Galapagos Islands in 1925 by William Beebe during the "Arcturus" Oceanographic Expedition and reported by Boone as *Petrolisthes galathinus* (Bosc). (Specimens collected in the Galapagos by Rolf Blomberg in 1934, reported by Hult as *P. galathinus*, should probably be referred to *P. marginatus* also, as *P. galathinus* appears to be restricted to Panama on the Pacific coast.) Records from Panama, Colombia, and the Galapagos Islands, based on material collected by the Allan Hancock Foundation's research vessel "Velero III," were briefly mentioned by Haig (1956). Reported Pacific localities outside the Panama Bight and Galapagos Islands include Clipperton Island and Costa Rica.

The "Askoy" specimens, while not extending the known geographic range of the species, emphasize its status as one of the commonest porcellanids of the Panama Bight and of the *Pocillopora* colony. They slightly extend its bathymetric range from 2½ to 5½ fathoms.

Petrolisthes edwardsi (Saussure)

Porcellana edwardsii SAUSSURE, 1853, p. 366, pl. 12, fig. 3.

Petrolisthes edwardsii, STIMPSON, 1858, p. 227. SCHMITT, 1924, p. 170. BOONE, 1932, p. 39, text fig. 10. STEINBECK AND RICKETTS, 1941, p. 456, pl. 22, fig. 2. Not Boone, 1931, p. 152, text fig. 7.

Petrolistes edwardsii, NOBILI, 1901, p. 11.

RANGE: From Cape San Lucas, Gulf of California, Mexico, to Flamenco Island, Panama; Galapagos Islands; shore to 2½ fathoms.

MATERIAL EXAMINED: Sixty-seven specimens from five stations: *Panama*: Saboga Island, Pearl Islands, Station 111, sample 432, May 26, 1941, 2 fathoms, four males, four females (one ovigerous); Guayabo Chiquito, Station 104, sample 410, May 20–21, 1941, 4½–5½ fathoms, 11 males, 11 females (three ovigerous), 12 young. *Colombia*: Utria Bay,

Station 100, sample 398, May 15, 1941, 8 feet, two males, two females (one ovigerous); Gorgona Island, Station 89, sample 346, April 20–21, 1941, 2½ fathoms, two ovigerous females, two young, and sample 348, April 22–23, 1941, 2–3½ fathoms, five males, seven females (four ovigerous). *Ecuador*: La Plata Island, Station 80, sample 302, April 13, 1941, 3 fathoms, two males, three young.

MEASUREMENTS: Largest specimen, male, length 11.6 mm.; largest non-ovigerous female, length 9.8 mm.; largest ovigerous female, length 9.3 mm.

HABITAT: Under stones in the littoral, and in coral. All the "Askoy" specimens were obtained from coral.

REMARKS: A single specimen of *P. edwardsi* was taken by Enrico Festa at Flamenco Island, Panama, and reported by Nobili. In the Galapagos Islands it was collected by the Harrison Williams Galapagos Expedition (Schmitt) and by William Beebe on the "Arcturus" Oceanographic Expedition (Boone, 1932). Other records are from the southern part of the Gulf of California and vicinity.

The "Askoy" specimens extend the range on the mainland southward from Flamenco Island, Panama, to La Plata Island, Ecuador.

Petrolisthes agassizi Faxon

Petrolisthes agassizi FAXON, 1893, p. 174; 1895, p. 69, pl. 15, figs. 1, 1a.

Petrolisthes edwardsii, BOONE, 1931, p. 152, text fig. 7. Not *P. edwardsi* (Saussure).

RANGE: Known only from the type locality, Panama.

MATERIAL EXAMINED: Five specimens from two stations: *Panama*: Saboga Island, Pearl Islands, Station 111, sample 432, May 26, 1941, 2 fathoms, three males, one ovigerous female. *Colombia*: Utria Bay, Station 100, sample 397, May 15, 1941, shore, one ovigerous female.

MEASUREMENTS: Largest specimen, ovigerous female, length 5.7 mm.; largest male, length 5.5 mm.

HABITAT: Under stones in the littoral, and in coral.

REMARKS: Faxon gave the type locality as "on the reef at Panama," by which Panama City presumably was meant. A specimen taken on Saboga Island, Pearl Islands, by Mrs. S. D. Sturgis and W. G. Van Name was reported by Boone as *P. edwardsii* (Saussure). The writer examined this specimen in the collections of the American Museum of Natural History and found it to be *P. agassizi*. This record was duplicated by the "Askoy."

The specimens obtained by the "Askoy" extend the range southward to Utria Bay, Colombia.

Petrolisthes glasselli Haig

Petrolisthes amoenus, BOONE, 1932, p. 41, text figs. 11-12. Not *P. amoenus* (Guérin).

Petrolisthes glasselli HAIG, 1957, p. 33, pl. 8, figs. 1-3.

RANGE: Tres Marias Islands, Mexico, to Octavia Bay, Colombia; Galapagos Islands; shore to 4 fathoms.

MATERIAL EXAMINED: Seventy-one specimens from two stations: *Panama*: Saboga Island, Pearl Islands, Station 111, sample 432, May 26, 1941, 2 fathoms, one young specimen. *Colombia*: Gorgona Island, Station 89, sample 346, April 20-21, 1941, 2½ fathoms, two males, one young, and sample 348, April 22-23, 1941, 2-3½ fathoms, 25 males, 37 females (27 ovigerous), five young.

MEASUREMENTS: Largest specimen, male, length 9.2 mm.; largest non-ovigerous female, length 6.2 mm.; largest ovigerous female, length 9.0 mm.

HABITAT: Under stones in the littoral, and in coral. The "Askoy" material was all taken from coral.

REMARKS: Two specimens taken in the Galapagos Islands by the "Arcturus" Oceanographic Expedition were reported by Boone as *Petrolisthes amoenus* (Guérin). It was obtained in the Panama Bight by the "Velero III." The species was only recently described, although it appears to be very common along the tropical west American mainland, particularly in *Pocillopora* coral.

The "Askoy" specimens extend the range southward in Colombia from Octavia Bay to Gorgona Island.

A related form not taken by the "Askoy" is *Petrolisthes galathinus* (Bosc), which has been collected a few times in Pacific Panama and is common and wide-ranging along the Atlantic coast.

Porcellana cancrisocialis Glassell

Porcellana cancrisocialis GLASSELL, 1936, p. 292; 1937, p. 86.

RANGE: Gulf of California, Mexico, from Punta Peñasco, Sonora, to Arena Bank; shore to 35 fathoms.

MATERIAL EXAMINED: Three miles west of Cape Santa Elena, Ecuador, Station 76, April 10, 1941, 41 meters, one male.

MEASUREMENTS: Male specimen, length 7.0 mm.

HABITAT: In the Gulf of California it has been taken to a depth of 35 fathoms on a bottom of sand with weed; it has also been found in the littoral, commensal with a large hermit crab, *Petrochirus californiensis* Bouvier. The "Askoy" specimen was dredged from a sandy bottom at 41 meters.

REMARKS: This species is known to the writer from many unpublished records throughout the Panamic province. The "Askoy" specimen, the first to be reported in the literature outside the Gulf of California, extends the range southward to Cape Santa Elena, Ecuador.

Porcellana magdalenensis Glassell

Porcellana magdalenensis GLASSELL, 1936, p. 295; 1938, p. 431, pl. 32.

RANGE: From Magdalena Bay, Baja California, Mexico, to Perico Island, Panama; to 12 fathoms.

MATERIAL EXAMINED: Thirteen specimens from four stations: *Panama*: Contadora Island, Pearl Islands, Station 110, sample 431, May 25, 1941, 5–5½ fathoms, six males, two ovigerous females; Saboga Island, Pearl Islands, Station 111, sample 432, May 26, 1941, 2 fathoms, three females (two ovigerous). *Colombia*: Utria Bay, Station 100, sample 397, May 15, 1941, shore, one female; Málaga Bay, Station 40, sample 129, March 19, 1941, 5 fathoms, one male.

MEASUREMENTS: Largest specimen, male, length 4.1 mm.; largest non-ovigerous female, length 2.9 mm.; largest ovigerous female, length 3.1 mm.

HABITAT: The types were taken among sponges and corallines. The "Askoy" material came from under stones in the littoral; coral; and bottom of black mud and gray sand.

REMARKS: The only specimen to be reported from the Panama Bight was obtained by the "Albatross" at Perico Island, Panama. The "Askoy" material extends the range southward from that point to Málaga Bay, Colombia.

Megalobrachium garthi Haig

Megalobrachium garthi HAIG, 1957, p. 39, pl. 10, figs. 1–5.

RANGE: From Turner Island south of Tiburon Island, Gulf of California, Mexico, to Tangola-Tangola Bay, Mexico; shore to 4 fathoms.

MATERIAL EXAMINED: Humboldt Bay, Colombia, Station 103, sample 404, May 18, 1941, 6–10 feet, one young female.

MEASUREMENTS: Immature female specimen, length 3.1 mm.

HABITAT: Under stones in the littoral, and in sponges and coral.

REMARKS: A related Caribbean species, *M. poeyi* (Guérin), has been reported on two occasions from the Pacific coast, one of the localities being Taboguilla Island, Panama. It was not taken by the "Askoy."

The "Askoy" specimens extend the range of *M. garthi* from Tangola-Tangola Bay, Mexico, southward to Humboldt Bay, Colombia.

Porcellanopsis tuberculipes (Lockington)

Pachycheles tuberculipes LOCKINGTON, 1878, pp. 396, 404.

Polyonyx tuberculipes, NOBILI, 1901, p. 21.

Pisonella tuberculipes, GLASSELL, 1938, p. 440, pl. 32, fig. 1.

Porcellanopsis tuberculipes, CHACE, 1942, p. 100.

RANGE: From Punta Peñasco, Sonora, Gulf of California, Mexico, to Santa Elena Bay, Ecuador.

MATERIAL EXAMINED: Two specimens from as many stations: *Panama*: Saboga Island, Pearl Islands, Station 111, sample 432, May 26, 1941, 2 fathoms, one male. *Colombia*: Humboldt Bay, Station 103, sample 404, May 18, 1941, 6–10 feet, one ovigerous female.

MEASUREMENTS: Male, length 2.5 mm.; ovigerous female, length 2.2 mm.

HABITAT: On sea-fans and in coral and sponges. Both "Askoy" specimens were taken from coral.

REMARKS: Outside the Gulf of California, this species has been known only from Santa Elena Bay, Ecuador, where a single male was collected by Enrico Festa and reported by Nobili. This specimen was compared with individuals from the Gulf of California, including the neotype created by Glassell, and found to be identical with them. The two specimens obtained by the "Askoy" help to fill in the large gap between the Gulf of California and Ecuador.

In the writer's opinion, the apparent scarcity of individuals where the species has been collected is due to the fact that its principal habitat is sponges rather than corals, as is the case with its east coast congener, *Porcellanopsis soriata* (Say).

A related species not included in the "Askoy" collection is *Porcellanopsis festai* (Nobili), taken by Enrico Festa at Santa Elena Bay, Ecuador. The locality was not specified in Nobili's description, but appears on the label of the type as "Baia S. Elena Ecuador." The species was described as *Porcellanides festae*; the generic name was preoccupied and has been replaced by *Porcellanopsis*, and the specific name must be spelled *festai* in accordance with current nomenclatorial practice. The writer has seen additional material from north of the Panama Bight. Like *P. tuberculipes*, it seems to occur most commonly in sponges.

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