

out boss along the upper rim. On the basis of the present evidence Tchefuncte could hardly be regarded as the origin of these various pottery practices.

In my paper that will accompany the Yale University volume on Florida a more exhaustive comparative statement will be compiled for the ceramic and cultural sequence in the East Florida area. At present the St. Johns fiber-tempered pottery can be recognized as one of the oldest types in the southeast; it contributed decorative techniques and designs to later ceramic levels in the area.

LITERATURE CITED

- FORD, JAMES A., and GEORGE I. QUIMBY, JR. *The Tchefuncte culture, an early occupation of the Lower Mississippi Valley.* Amer. Antiq. 10 (3): pt. 2. 1945.
- GOGGIN, JOHN M. *The distribution of pottery ware in the Glades archaeological area of South Florida.* New Mexico Anthropol. 4 (2): 22-34. 1940.
- GRIFFIN, JAMES B. *An analysis and interpretation of the ceramic remains from two sites near Beaufort, South Carolina.* Bur. Amer. Ethnol. Bull. 133, Anthropol. Papers, No. 22: 155-168. 1943.
- . *Culture change and continuity in eastern United States archaeology.* Pap. Robert S. Peabody Foundation for Archaeol. 3. Andover, Mass., no date.
- HOLMES, WILLIAM H. *Earthenware pottery of Florida: Collection of C. B. Moore.* Journ. Acad. Nat. Sci. Philadelphia, no. 10: 105-129. 1894.
- MOORE, CLARENCE B. *Certain shell heaps of the St. John's River, Florida, hitherto unexplored.* Amer. Nat. 26: 912. 1892.
- . [Continuation of the above.] Amer. Nat., 27: 8, 113, 605, 708. 1893.
- . [Continuation of the above.] Amer. Nat. 28: 15, 26. 1894.
- . *Certain river mounds of Duval County, Florida.* Journ. Acad. Nat. Sci. Philadelphia (ser. 2) 10 (pt. 4): 449-502. 1896.
- WYMAN, JEFFRIES. *Fresh-water shellmounds of the St. John's River, Florida.* Mem. Peabody Acad. Sci. 1 (4): 1-94. 1875.

ZOOLOGY.—*Four new species of North American crabs of the genus Petrolisthes.*¹

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This paper describes three new species of *Petrolisthes* Stimpson from the Pacific and one from the Atlantic Ocean. Two of the species are new to the California coast but are neither obscure, rare, nor hard to obtain within their geographical limits. The new species from Panama, however, differs in this respect, its habitat being considerably restricted and local.

Petrolisthes manimaculis, n. sp.

Fig. 1

Not *Petrolisthes gracilis* Stimpson, Schmitt, Univ. California Publ. Zool. 23: 181, pl. 32, fig. 4. 1921.

Types.—Male, holotype, and female, allotype, U.S.N.M. no. 79393, collected by the author from Morro Bay, Calif., at low tide, February 2, 1939.

Diagnosis.—Carapace nude, or lightly pubescent, lightly punctate, lateral margins roughened, front triangular, postocular tooth short, obtuse, no epibranchial spine, regions defined.

Antennal flagellum smooth, blue. Carpus with sides subparallel, upper surface nearly smooth, or slightly roughened. Hands subsimilar, smooth, tuft of heavy pubescence in gape extending nearly to end on dactyl, less than half-way on pollex. Ambulatory legs with pubescence on upper margin of meri; merus of third leg twice as long as wide. In life, palp of maxillipeds blue, inner base of dactyl of cheliped orange, a median longitudinal row of blue dots on upper surface of palm.

Description.—Carapace in male slightly wider than long, female wider than male, depressed, regions defined, surface lightly punctate, punctae with microscopic pubescence, lateral regions lightly striate, no epibranchial spine, shoulders high, protogastric ridges divided by a median sulcus which deepens anteriorly, front triangular, slightly depressed, margins vertically sinuous, more than twice as wide as high, separated from upper orbital margin by a sulcus, upper margin roughened, tip blunt. Upper orbital margin elevated, no preocular tooth, postocular tooth obtuse, not

¹ Received March 14, 1945.

extending forward. First movable antennal peduncle armed with a cylindrical, tapered ridge, directed downward and outward, extending past distal extremity and slightly past proximal end of the cylindrical, smooth, second peduncle; flagellum smooth, almost nude, and more than twice the carapace width, color in life blue.

Chelipeds subsimilar, about three times the width of carapace in adult males, about two and a half times in females; merus with light transverse striae and a blunt, distal, inner lobe, not extending past inner margin of carpus; carpus nearly three times longer than wide in adult males, about two and a half times longer than wide in small specimens and females, margins subparallel, upper surface lightly roughened, a submedian, longitudinal elevation, outer margin rugose, with a sharp-pointed distal spine, some pubescence on the posterodistal half. Hands microscopically granular in adult males, more distinct in juveniles and females, inner margin an indistinct line of fine beading, outer margin blunt, sinuous, upper surface with a median, raised elevation, on which in life is a row of turquoise-blue dots. Dactyli unarmed, nearly as long as upper margin of palm, curved, sinuous, tips crossing pollex; a heavy felt of pubescence in gape which extends two-thirds the length of the underside of dactyl, and one-third the length of pollex; pollex unarmed.

Ambulatory legs with meri pubescent on upper crest, no posterodistal spine; merus of third leg twice as long as wide, other joints sparingly setose.

Sexual variation.—Female carapace wider, more areolate, rougher; carpus of cheliped more granulous, shorter; second antennal peduncle rough, granulated; ambulatory legs more pubescent; females smaller than males.

Color in life.—Ground color a rich brown, almost a red-chocolate, with large and small blue dots, giving the effect of blue lines, although they are actually a series of blue dots running together, this same effect being on the carpus and fingers of the hand. Median longitudinal ridge of the palm with a row of turquoise-blue spots. Legs a tan spotted with bluish white. Palp of maxillipeds margined with blue, inner proximal base of dactyl orange (Kirk).

Measurements.—Male holotype, carapace length 15.3 mm, width 16 mm; orbital width 8.5 mm; rostral width 3.5 mm, height 1.5 mm;

antennal flagellum length 35 mm; major cheliped, length of carpus 16.5 mm, width 5.9 mm, length of hand 29 mm, width 11.5 mm; minor cheliped, carpus length 16 mm, width 5.5 mm, length of hand 29 mm, width 10 mm; merus of third ambulatory leg, length 8.5 mm, width 4.2 mm. Fingers nearly the length of palm.

Range.—San Francisco to San Diego, Calif.

Material examined.—The type series consists of several hundred specimens of both sexes, taken by the author at Morro Rock, Morro Bay, Calif., at low tide, on February 2, 1939. A series of about 50 specimens of both sexes, from Moss Beach, San Mateo County, Calif., taken in the latter part of May and the early part of June 1939 by R. Fields and E. Benton, under the direction of Dr. S. F. Light, of the University of California. Also a series of 30 specimens, both sexes, taken by the author at Spindrif Beach, La Jolla, Calif., at low tide, December 8, 1938. With the exception of distributed material all these specimens are in the author's collection.

Habitat.—This species occupies the lower levels of the intertidal zone. Its vertical range may be assumed not to exceed the mean low-water level. It, like most members of the genus, demands the shelter of rocks and weeds, uninfluenced by drifting sands. North of Point Conception, Calif., this species occupies an ecological horizon between *P. cincitipes* (Randall), which is above it, and *P. eriomerus* Stimpson, which is below. As neither *P. cincitipes* nor *P. eriomerus* is found south of Point Conception (except for the northernmost of the Channel Islands, San Miguel, Santa Rosa, and Santa Cruz), the southern association is changed, and *P. eriomerus* is replaced by *P. rathbunae* Schmitt, 1921, and *P. cabrilla* Glassell (described as new in this paper) supplants *P. cincitipes*, although not in the same abundance.

Remarks.—This proposed species is allied to *P. eriomerus* Stimpson, 1871, but differs from that species in the following respects: (1) carapace without tubercles, (2) carpus two and a half to three times as long as wide, (3) carpus with upper surface smooth or slightly roughened, (4) inner base of dactyl of chelipeds orange (in *P. eriomerus* blue).

Stimpson's description of *P. gracilis*, by its brevity, has caused considerable confusion;

however, in the light of all the collections I have examined, it now appears to be a more or less localized species, restricted to the Gulf of California.

Petrolisthes cabrilla, n. sp.

Fig. 4

Types.—Male, holotype, and female, allotype, U.S.N.M. no. 79391, collected by W. A. Kirk from Anaheim Landing, Calif., at low tide on October 11, 1939.

Diagnosis.—Carapace punctate, with light pubescence in punctae, striate on lateral margins; front triangular, obtuse, one-third as high as wide; postocular tooth short, obtuse, right-angled; no epibranchial spine; regions lightly indicated. Antennal flagellum ciliated, color ochre with purple edgings. Carpus about twice

as long as wide, a proximal, inner marginal lobe, otherwise margins subparallel, upper surface pubescent, granulated. Hands subsimilar, granulated, a heavy tuft of pubescence in gape extending only halfway or less on both fingers. Ambulatory legs with pubescence and setae on meri. In life, palp of maxillipeds a brilliant orange, as is inner base of dactyli.

Description.—Carapace transversely flattened, convex fore and aft, small punctae in median areas and anteriorly, laterally striate, punctae microscopically pubescent, more prominent on front; protogastric ridges low, no epibranchial spine, shoulders moderately high. Posterolateral margins parallel. Front triangular, obtuse, three times as wide as high, slightly depressed, margins granulated, median sulcus, back to protogastric region, shallow. Upper

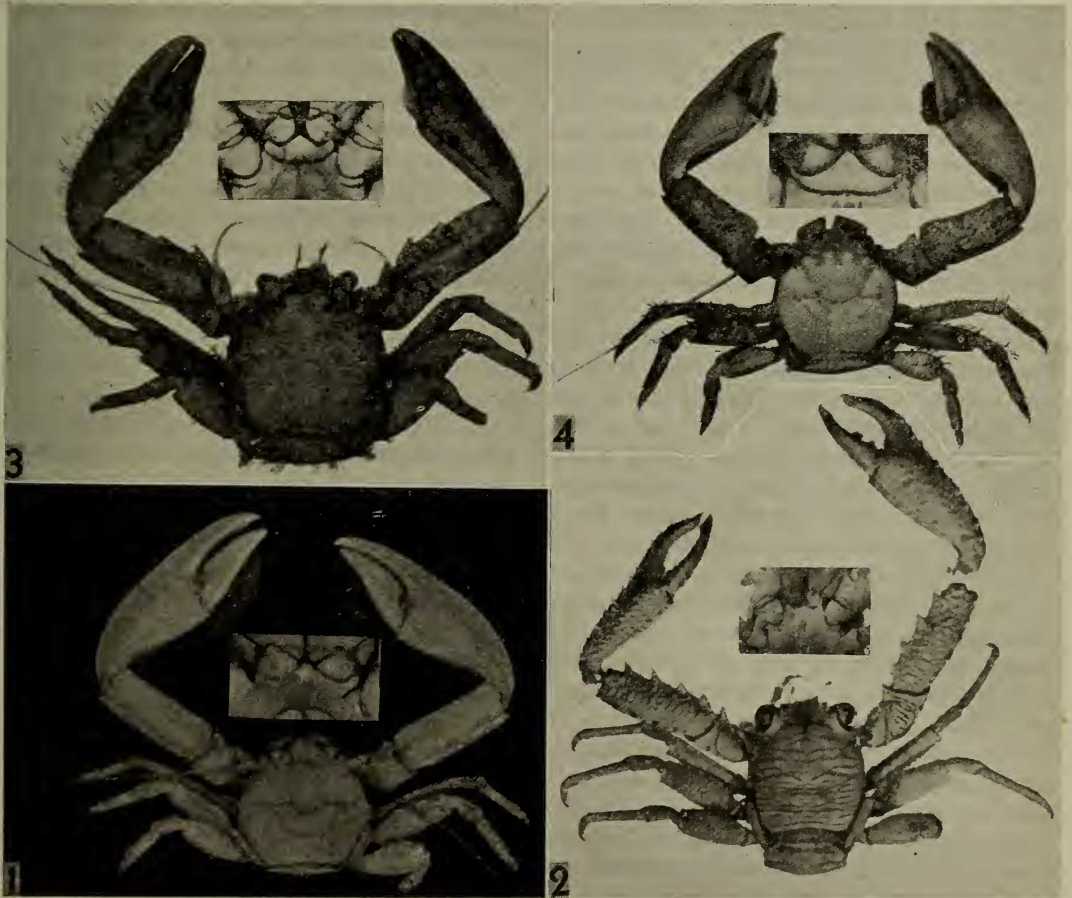


FIG. 1.—*Petrolisthes manimaculis*, n. sp., width of carapace 16 mm. FIG. 2.—*Petrolisthes tortugensis*, n. sp., width of carapace 11 mm. FIG. 3.—*Petrolisthes robsonae*, n. sp., width of carapace 8 mm. FIG. 4.—*Petrolisthes cabrilla*, n. sp., width of carapace 11 mm. Inserts, fourth thoracic sternite.

orbital margin slightly raised, no preorbital spine, postorbital tooth obtuse, right-angled. First movable antennal peduncle armed with a blunt lobe, second peduncle cylindrical, granulated, flagellum compressed, ciliated, twice as long as carapace.

Chelipeds subsimilar, about three times the width of carapace; merus distally armed on inner side with a short, subvertical lobe, not extending forward past inner margin of carpus, surface lightly pubescent; carpus about twice the median width, inner proximal one-fourth with a lamellar lobe, rest of margins subparallel, upper surface granulated and pubescent, a strong posterodistal spine; hands granulated, but not rough, nude, inner margin not distinctly crested or beaded, outer margin smooth, sinuous, undersurface of palm highly polished, lightly punctate; fingers with a tuft of pubescence in gape extending on both fingers for less than half their length.

Ambulatory legs stout; merus of third leg twice as long as wide, pubescent on upper half of outer surface, setaceous on lower; joints of all legs setaceous, no posterodistal spine on meri.

Sexual variation.—Female carapace wider, slope of front more distinct; carpus of cheliped more granulated, inner proximal lobe less distinct. Juveniles with longer pubescence on carapace.

Color in life.—Ground color of carapace dull orange, with striations and numerous spots of very pale greenish white. Margins pale lavender, which becomes darker toward and including the frontal region, where it is dark dusky purple. Antennal peduncles same color as carapace, flagellum ochre with purple edges. Basal segments of maxilliped striated with dull orange and brilliant green; palp brilliant orange. Ground color of carpus green, numerous granulations reddish brown, almost obscuring ground color; hand and finger same color but slightly darker, underside of finger pale, bright, turquoise blue; undersurface of hand much lighter, with green prominent. Merus and carpus of ambulatory legs with patterns and striations light tan to dark brown, propodus with a broad center band of yellowish tan; dactyl with center band of dark brown, tip bright purple, general appearance dark dusky green. Ventral side pale dull yellow with darker patterns on abdomen (Petersen).

Measurements.—The measurements (in mil-

limeters) are given for three specimens, respectively: the holotype male, the allotype female, and the largest female from Morro Bay. Length of carapace 11.4–10.1–12.1, width 11–10.5–13.1; orbital width 6.5–6.3–7.2; rostral width 3–3–3, height 0.9–0.6–1; length of flagellum 24–18–25; of major cheliped, length of carpus 10.2–7.7–9.6, width, proximal 4.8–3.6–5, median 4.2–3.6–4.3; length of hand 19–14.5–17.8, width at base of dactyl 8–6.2–7.6; of minor cheliped, length of carpus 9–7.1–9.5, width, proximal 4.2–3.5–4.8, median 4–3.3–4.3; length of hand 15.3–13–17.8, width 6.5–5.6–7.6; merus of third ambulatory leg, length 6.2–5.2–6.1, width 3.3–3.1–3.5.

Range.—From Point Conception, Calif., to Punta Banda, Baja California, Mexico (approximate).

Material examined.—The type series was taken at Anaheim Landing, Calif., and consists of 10 males and 10 females, some ovigerous.

A single female from Morro Bay, Calif. (see under *Measurements*), collected by the author at low water, February 2, 1939. A series of 50 males and 50 females, from Corona Del Mar, Calif., collected by the author December 9, 1938, low water. A series of 5 males and 5 females, from Malaga Cove, Palo Verde Hills, Calif., collected by Dr. Olga Hartman, February 2, 1939, low water. Also a number of small series of both sexes, taken by the author at the following localities: Point Dume, Calif., January 5, 1939; Topango Canyon, Calif., February 16, 1939; Sesquit Canyon, Calif.; March 4, 1939. All the above contained more than 10 specimens of both sexes. A series of 8 males and 6 females, collected by Paul Rich from the Star and Crescent Pier at San Diego, Calif., February 2, 1939. All the above material is in the author's collection.

Habitat.—Occupies the midtidal zone under shelter of rocks and is more tolerant of sand and muddy water than any of the other California species of this genus.

Remarks.—This proposed species has an affinity with *P. cinctipes* (Randall), 1839, but differs from that species in the following respects: (1) the ambulatory legs have their meri pubescent and setose, instead of nude; (2) the carpus of the chelipeds is twice as long as wide, the proximal lobe small, the margins otherwise subparallel, instead of being one and one-half times as long as wide, margins converging dis-

tally; (3) the carapace is pubescent in juveniles, instead of nude.

Named for Juan Rodriguez Cabrillo, a Portuguese navigator in the service of the King of Spain, who in ill-fitted boats on an uncharted sea discovered a golden empire, and left his bones in an unmarked grave on the wind-swept island of San Miguel, anno 1542. *Un hombre valiente, saludes.*

***Petrolisthes robsonae*, n. sp.**

Fig. 3

Types.—Male, holotype, and female, paratype, U.S.N.M. no. 79396, collected by Elinor D. Robson from Miraflores Locks, Panama Canal, Canal Zone; March 26, 1937.

Diagnosis.—Carapace lightly roughened, lightly pubescent; front broadly triangular, horizontal; an epibranchial spine. Chelipeds with inner margin of carpus armed with two spines; manus with outer margin concave, spined. Posterodistal end of meri of first and second ambulatories with two spines, upper distal end of carpi with one spine.

Description.—Carapace slightly longer than wide, sides rounding, margin behind the single, sharp, epibranchial spine forming a sharp, indistinctly beaded ridge. Surface very lightly rugose, with or without very light pubescence. Front subhorizontal, slightly advanced, broadly triangular, subentire, a median shallow sinus running back onto the gastric regions dividing the protogastric ridges. The upper ocular margin is lightly beaded, the postorbital tooth a right-angle. First antennal peduncle with a horizontally compressed, distal lobe armed with a single large spine and several smaller spines, the distal end of this lobe rounded and extending past the articulation of the second peduncle, which has a crested ridge, the proximal end the highest. Flagellum nude, two and a half times the length of the carapace.

Chelipeds subequal in the female, differing in the adult male, surfaces lightly roughened with short lines of rugae; merus with an inner distal lobe and a single marginal spine on the upper edge near the outer side; carpus nearly two and a half times as long as wide, subhorizontal on upper surface with a longitudinal median ridge, inner margin armed with two spines, the proximal the largest, the second located in a submedian position, the margin microscopically serrate. In young specimens there is an indica-

tion of a third tooth near the distal end, but this is obsolete even in half-grown specimens. Outer margin armed with a sharp, posterodistal spine, a single distal marginal spine, and one or two subdistal outer marginal spines. Manus triangular, rather flattened in the female, rounded in the male, the inner margin revolute, the outer concave and armed with long, sharp-pointed spines extending onto the pollex in the female, ending before the pollex in the male. In addition to these spines there is a fringe of cilia and pubescence covering the outer half of the lower surface of the palm and a dense felt of pubescence extending half the length of the fingers. Major hand of the male with the fingers gaping, blunt, tips not crossing. Minor hand in the male and both hands in the female with fingers approximated for their length, the tips crossing.

Ambulatory legs with their meri lightly crested with pubescence, the remaining joints with sparse setae; a single, sharp, long, flat-lying spine on the upper crest, one-third the distance from the distal end; two spines, one above the other, at the posterodistal end of the meri of the first and second legs. A distal spine on the upper crest of the carpus in all three legs. Propodi in the first two pairs bent forward.

Abdomen heavily fringed between the first four segments. Telson with seven plates, the terminal pair distally separated by a wide V-shaped commissure.

Color in alcohol.—In those specimens on which the pubescence remains the color is a dark brown; in rubbed specimens a distinct pink tone is noted.

Measurements.—Male holotype: length of carapace 8.6 mm, width 8 mm, length of carpus 7.4 mm, width not including teeth 2.8 mm, length of major hand 12.6 mm, width at base of dactyl 5 mm, length of minor hand 12.1 mm, width 4.2 mm, length of major dactyl from joint to tip 4.5 mm, of minor dactyl 5 mm, length of antennal flagellum 21 mm.

Range.—Known only from type locality.

Material examined.—A series of 17 males and 20 females, some ovigerous, all collected at the same time and locality by Mrs. Robson.

Habitat.—Mrs. Robson, after whom the species is named, informs me that it has so far been taken only inside the canal locks during one of their periodic cleanings. It is amazing to me to consider this location as suitable for

Petrolisthes, as I am informed that the water within these locks is continuously being changed, its saline content varying from almost fresh to that of sea water. This change from salt to fresh water argues for an almost unbelievable tolerance on the part of this species to fresh water, a substance lethal to other species of the genus within a short period of time, usually half an hour or more, during which time the membranes are ruptured by osmosis.

Exact information, however, as to the ecology and as to the salinity of the water at the place of capture is not yet available.

Remarks.—This proposed species is allied to *P. armatus* (Gibbes), 1850, but differs from that species in the following respects: (1) by having only two carpal spines, (2) by having only one spine on the upper crest of the meri of the ambulatory legs, (3) by the underside of the hands being half covered with hair, (4) and by the outer margin of the hands being concave and fringed with hair.

This proposed species is dedicated to Mrs. Elinor D. Robson, who has shown a marked interest in the fauna of the Canal Zone.

***Petrolisthes tortugensis*, n. sp.**

Fig. 2

Types.—Male, holotype, U.S.N.M. no. 79395, collected by Dr. Waldo L. Schmitt, at Tortugas, Fla., 8.5 fathoms, July 19, 1924. Three paratypes, 2 males and 1 female, in the author's collection. All other paratypes in the U. S. National Museum (see under *Material examined*).

Diagnosis.—Carapace longer than wide, transversely striate, an epibranchial spine, a branchial spine, lateral margins spined, rostrum obtusely triangular, spined, depressed. Chelipeds long and narrow; upper inner carpal margin 4-spined, lower inner margin with one or two; hands narrow, with spinate outer margins; fingers distorted, with spooned apices, gaping. Ambulatory legs with propodi one-fifth shorter than meri; meri spine crested, numbers 1 and 2 with two posterodistal spines, number 3 with one. Antennal flagellum slender, nonciliate, more than three times carapace length.

Description.—Carapace longer than wide, transversely striate, transversely convex, with an epibranchial spine, a postocular spinule,

three lateromarginal, forward- and upward-pointing spines and one on the carapace inside of these and nearer to the third or proximal marginal spine. Rostrum medially depressed, obtusely triangular, and armed on and upon its anterior margin with spines and spinules as follows: an ocular spine, a preocular spine, then two marginal spines, followed by two inner marginal spines, then an upward- and inner-curving spine, and lastly one or two more smaller spines and spinules at the apex. A shallow median sulcus running backward by the subobliterated protogastric lobes. Eyes large and black, their width about one-fifth the carapace length. First movable antennal segment armed on its inner margin with a long, vertically compressed, median spine and a smaller distal spine, the second segment granulous, the third smooth, the flagellum nude, slender, hairlike, and over three times the carapace length.

Chelipeds dissimilar, slender, striate both above and below, their length about three times that of the carapace; ischium armed on its inner ventral margin with a row of three or four spines, the proximal pair the largest; merus with a prominent, sharp spine at its distal, inner, dorsal angle and another below this on the ventral margin, the upper, transverse margin armed with two well-spaced spines; carpus almost three times as long as wide, measured without the spines, its upper surface lightly convex and lacking a longitudinal median ridge, the inner margin armed with four large, sharp-pointed teeth and a distal spinule, their proximal margins longer than their distal, the ventral inner margin armed with one or two spurlike spines on its distal two-thirds, the upper outer margin armed with a row of five short, upward- and forward-pointing spines; the hands dissimilar, that of the major one-third as wide as long, that of the minor one-fourth, their outer margins concave and armed with spinules, the inner margins with light beading, terminating over the base of the movable finger in a sharp spine, the pollices outwardly convex, their tips longitudinally truncate and spooned, the dactylus of the major hand ending in a curved tip that crosses an outer spine on the apex of the pollex, armed on its inner proximal half with two compressed, truncate teeth, which do not engage

the pollex, as in both hands the fingers are widely gaping, the minor dactylus twisted, armed on its upper crest with a row of spinules ending in a falcate tip which crosses the spooned tip of its pollex, its prehensile edge unarmed and the widely spread gape setaceous. The spoon-shaped tips of the fingers with pectinate margins.

Ambulatory legs relatively slender and nude except for a few scattered setae; meri crested with a row of short spines, the distal postero-angle of numbers 1 and 2 are armed with two spines, of number 3 with one spine, in length more than twice their width; the propodi cylindrical, slightly bent, and one-fifth shorter than their meri; the dactyli corneous-tipped and one-half the length of their propodi. Telson composed of 7 segments, in the male apparently formed with 8, the proximal, median triangular portion being transversely divided by a ridge, these two parts, however, coalesced as in *P. galathinus* (Bosc), with which it is associated.

Color in alcohol.—Ground color cream, suffused with rose-pink, especially on all striations and squamae. Ambulatory legs rose-pink, with a median, transverse band of cream on meri and propodi; the distal ends of all segments tipped with cream.

Measurements.—A male paratype, carapace length 6.8, width 6.5; major cheliped 23.5, carpus length 6.5, width without spines 2.4, manus length 10.5, width at base of finger 3.8; minor cheliped, carpus 6, width 2.3, manus 10, width 2.6; first ambulatory leg, length 11, merus 3.7, carpus 1.7, propodus 3.3, dactylus 2; width of eye 1.2; length of antennal flagellum 24 (all measurements in millimeters).

Range.—Known only from type locality (see under *Types*).

Material examined.—A series of 23 specimens: 10 males, 11 females (mostly ovigerous), 2 juveniles. All collected in and around Tortugas, Fla., by Dr. Waldo L. Schmitt, and mostly during the month of June 1931.

Sexual variation.—In the female the chelipeds are much narrower than in the male and are more similar to each other, as in the juveniles of both sexes; however, the dactylus of the major cheliped is the only one of the two which has teeth in the gape.

Habitat.—Taken from *Porites* clumps from extreme low water to a depth of 11 fathoms, mostly from 8 to 11 fathoms.

Remarks.—This proposed species resembles in some respects those placed in the genus *Petrocheles* Miers, in that the lateral margins are spined, the chelipeds long and narrow, the fingers gaping, and rostrum spinate; however, it would seem that there is reason to believe that *Petrocheles* should not have been elevated to full generic standing but left as Miers intended it, as a subgenus of *Petrolisthes*, a course which, from lack of comparative material, I am inclined to follow. It is not allied to many of the American *Petrolisthes*, from all of which it differs in the peculiar spoon-shaped finger tips, reminiscent of a number of forms among the Galatheidae, which in addition display the compressed, truncate teeth that arm the dactylus of the major chela, a character that few if any of the *Petrolisthes* possess.

It is the Atlantic analogue of *P. sanfelipensis* Glassell (Trans. San Diego Soc. Nat. Hist. 8 (21): 281. 1936) from the upper end of the Gulf of California. Both have slender chelipeds, spines on the lateral margins of the carapace, and a spinate rostrum, but the present species differs in that (1) the fingers are spoon-tipped, gaping, and twisted, instead of close-fitting, falcate-tipped, and unarmed in the major dactylus, (2) the line of the rostrum from the ocular spine to its apex is subentire instead of emarginate below the preocular tooth, (3) the inner ventral margin of the carpus of the chelipeds is armed with teeth, instead of being unarmed, and (4) the posterodistal angle of the merus of the third ambulatory leg is spined instead of being unarmed.