

FOUR NEW PORCELLAIN CRABS FROM THE
EASTERN PACIFIC¹

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In the course of studies on west American Porcellanidae, the writer has recognized several new forms. It seems advisable to describe some of them in advance of the complete report, publication of which may be delayed several years.

All type material of the four species described below is deposited in the collections of the Allan Hancock Foundation. The illustrations are the work of Russell D. Cangialosi.

Pachycheles spinidactylus, new species

Plate 7, figs. 1-4

DESCRIPTION. — Carapace subquadrate, about as broad as long or slightly broader; surface faintly rugose, especially on postero-lateral margins, obscurely granular anteriorly; front with a tuft of plumose hairs and setae, and a few plumose hairs on proto-gastric regions and elsewhere anteriorly. Preorbital angles slightly produced; front narrow, rounded or sinuous in dorsal view, trilobate in frontal view. Postorbital angle produced into a low, broad tooth. Separated portion of lateral wall consists of one large piece and sometimes a number of fragments.

First movable segment of antenna with a lobe, sometimes spine-tipped, on anterior margin; second and third granular; flagellum naked. Outer maxillipeds faintly rugose.

Merus of chelipeds rugose dorsally; anterior margin with a broad, rugose, granulate-edged lobe; ventral surface smooth. Carpus armed on anterior margin with three spine-tipped teeth, a fourth occasionally present; dorsal surface covered with large conical tubercles, larger and more projecting toward posterior margin; from the bases of these tubercles arise tufts of long, stiff setae and short plumose hairs, and scattered between the tubercles are short setae; posterior margin sometimes with a fringe of long plumose hairs; ventral surface smooth. Chela covered dorsally with tubercles and hairs in an arrangement similar to that on carpus; granules along outer margin elongate and pointed, forming a serrate edge; ventral surface with flattened

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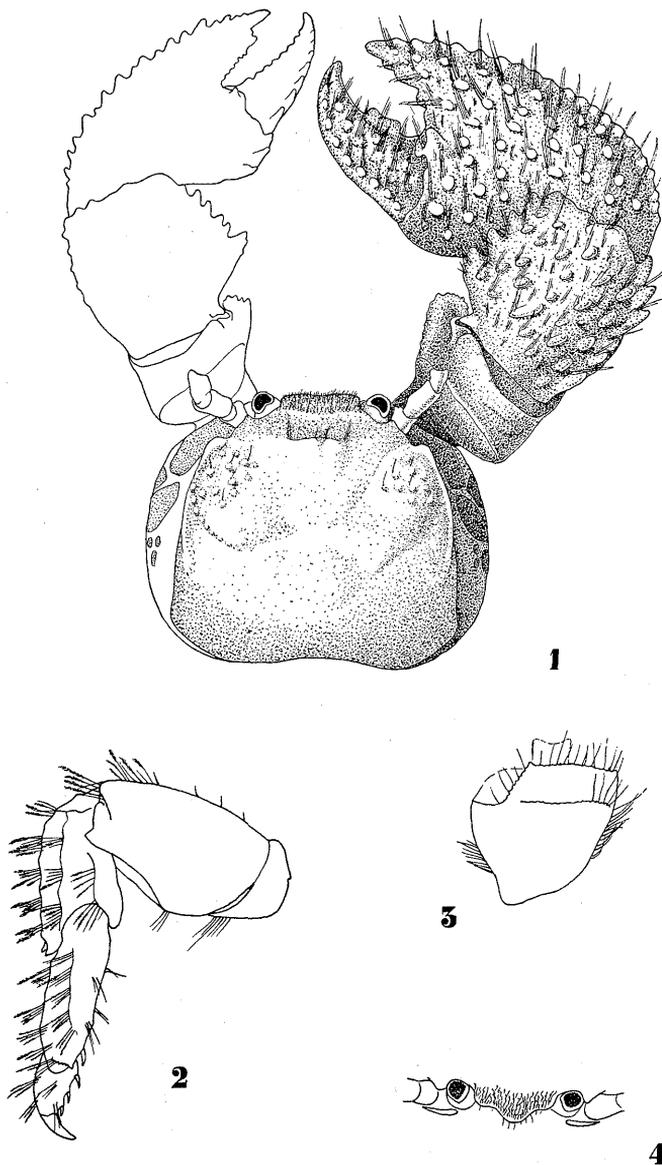


PLATE 7

Pachycheles spinidactylus, n. sp.: 1, Male holotype, X 5; 2, left first walking leg, X 7½; 3, basal segment of left antennule in ventral view, X 20; 4, front in anterior view, X 5.

granules, naked except for a few tufts of short setae along outer margin. Dactyl of major chela with a row of rounded or pointed tubercles near outer margin, tip slender and curved; pollex spined on outer margin; fingers gaping, not quite meeting at tips. Dactyl and pollex of minor chela margined with a row of spines, extending nearly to tips; fingers meet entire length and cross at tips. In both chelae, a few short setae and plumose hairs in gape of fingers.

Walking legs faintly rugose, all segments with long plumose hairs and setae.

Sternum smooth; abdomen smooth or punctate, telson with seven plates.

No pleopods in male.

MEASUREMENTS. — Length of holotype, 7.3 mm; width, 7.7 mm.

TYPE. — Holotype, male, AHF 561, from Islas Las Tres Marietas, Bahía de Las Banderas, Mexico, shore; March 21, 1956; collected by Jens W. Knudsen.

COLOR. — In alcohol, recently collected specimens are reddish orange, the tips of the fingers white; the setae are straw-colored.

DISTRIBUTION. — Specimens in the collection of the Hancock Foundation range from Isla Isabel south to Acapulco, Mexico, and from shore to four fathoms.

HABITAT. — Taken under stones in the littoral, and from sponges.

REMARKS. — *Pachycheles spinidactylus* resembles *P. panamensis* Faxon, also a west American species, in having stiff setae on the chelipeds and walking legs, and seven plates in the telson of the abdomen. In *P. panamensis* there are no plumose hairs on the chelipeds and walking legs, the anterior margin of the carpus is armed with only two teeth, and a pair of pleopods is present in the male. The new species is more closely related to *P. pilosus* (H. Milne Edwards) from the Caribbean and to *P. barbatus* A. Milne Edwards from West Africa, both of which have only five plates in the telson of the abdomen.

Petrolisthes glasselli, new species

Plate 8, figs. 1-3

Petrolisthes amoenus Boone, 1932, Zoologica 14: 41, text-figs. 11-12. Not *P. amoenus* (Guérin).

DESCRIPTION. — Carapace a little longer than broad; covered with distinct piliferous striations, except on the frontal region, which is granulate, and the intestinal region, which is punctate; striae interrupted at the cervical and branchial grooves. Front faintly pubescent, triangular, deflexed and truncate at tip, with a deep median sulcus extending to protogastric lobes; a small preorbital spine, scarcely distinct in larger specimens. Orbits deep, their margins granulate; postorbital tooth broad and produced into a small spine. An epibranchial spine at cervical groove,

followed by a second spine on epibranchial region between cervical and mesobranchial grooves.

First movable segment of antenna with a small, spine-tipped, lamellar lobe; second and third nearly smooth; flagellum naked. Outer maxillipeds rugose.

Chelipeds covered dorsally and ventrally with piliferous striations, which are granulate on margins; striae less distinct on ventral surface. Merus with a large serrate tooth on anterior margin.

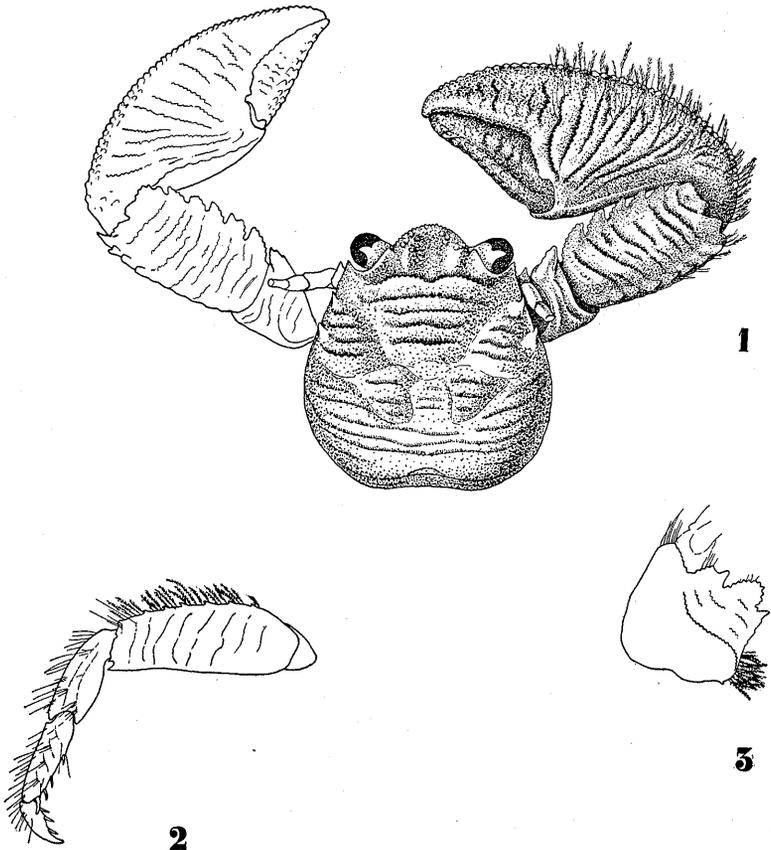


PLATE 8

Petrolisthes glasselli, n. sp.: 1, Male holotype, X 3; 2, left first walking leg, X 3½; 3, basal segment of left antennule in ventral view, X 10.

Carpus less than twice as long as wide; armed with a row of five serrate teeth on anterior margin, a sixth occasionally present; striations continue obliquely across dorsal surface. Striations on palm continue obliquely and unbroken across dorsal surface except on margins, where they break up into flattened tubercles; outer half of palm often with a fringe of plumose hairs. Rugae on pollex short, interrupted by a groove which runs down its center; rugae on dactyl interrupted near outer margin by a deep, broad groove extending from near tip to articulation with manus. Gape of fingers nearly smooth, without pubescence.

Walking legs faintly rugose on dorsal surface; all segments with long scattered setae, and merus with a fringe of plumose hairs on anterior margin. Merus of leg 1 with a row of six to eight spines on anterior margin; of leg 2, with eight to ten; of leg 3, with six or seven. A single posterodistal spine (a second rarely present) on merus of legs 1 and 2.

Sternum smooth; abdomen smooth or lightly rugose, telson with seven plates.

MEASUREMENTS. — Length of holotype, 11.0 mm; width, 10.1 mm. Length of largest female paratype, 10.2 mm; width, 9.5 mm.

TYPES. — Holotype, male, AHF 352, from station 435-35, Bahía Octavia, Colombia, taken from coral; January 28, 1935; collected by VELERO III. Paratypes, two males and six females (three ovigerous), same locality and date.

COLOR. — The color in life was not recorded. In alcohol most specimens are strikingly marked, having a strong stripe of deep purplish-red along each striation of the carapace, and stripes across the intestinal and frontal regions. The chelipeds are similarly striped, and the walking legs and abdomen are striped or spotted.

DISTRIBUTION. — Specimens in the collection of the Hancock Foundation range from Islas Las Tres Marias, Mexico, south to the type locality, and from shore to four fathoms. The specimens recorded by Boone (1932) as *Petrolisthes amoenus* were from the Galápagos Islands.

HABITAT. — This crab is occasionally found under stones in the littoral, but it occurs more frequently and abundantly in colonies of *Pocillopora* coral.

REMARKS. — *Petrolisthes glasselli* belongs to a group of closely related *Petrolisthes* characterized by the presence of strong transverse striations on the carapace, three to five teeth on the anterior margin of the carpus of the chelipeds, and a row of spines

on the anterior margin of the walking legs. It differs from all other eastern Pacific members of the group in having two epibranchial spines on each lateral margin instead of one.

That the late Steve A. Glassell was aware of the existence of this species and had intended to describe it is indicated by notes in his handwriting among papers and specimens in the Hancock Foundation. The present writer is pleased to dedicate the species to Mr. Glassell, in recognition of his many contributions to the knowledge of west American Porcellanidae.

Petrolisthes diffractus, new species

Plate 9, figs. 1-6

DESCRIPTION. — Carapace about as broad as long; covered with large, flattened granules, which are smaller on the frontal region, take the form of distinct plications on the lateral regions, and are absent only on the intestinal region, which is smooth or punctate; regions not distinct. Frontal region slightly depressed; front trilobate, the lobes strongly projecting, extending beyond eyes, the center lobe triangular and rounded at tip, the outer ones truncate; in dorsal view the three lobes appear about equal in length, but in frontal view the center lobe shows a long, acute, strongly deflexed extension. Orbits with margins straight, strongly oblique; on each side a small preorbital lobe separated by a notch from outer frontal lobe; postorbital tooth projecting at right angle to orbit, strongly produced. No epibranchial spine. Posterior portion of lateral wall broken up into numerous very small pieces, narrowly separated from each other by membrane.

First movable segment of antenna with a strongly projecting, finely granulate, lamellar lobe; second with a double row of large, strongly projecting nodules on anterior margin, and scattered smaller granules on sides and ventral surface; third nodular on anterior margin, more or less smooth; flagellum naked. Outer maxillipeds rugose.

Merus of chelipeds covered dorsally with flattened granules; armed with a small pointed lobe, only slightly projecting, on anterior margin; ventral surface smooth or punctate. Carpus one and a half to two times as long as wide; covered dorsally with rough, rounded granules, more projecting than those of carapace; armed on anterior margin with four strongly projecting teeth, denticulate on edges, the proximal one projecting at right angles to the carpus, others tilted progressively forward, with the distal tooth lying nearly parallel with the long axis of the carpus; posterodistal angle produced into a curved spine; dorsal surface

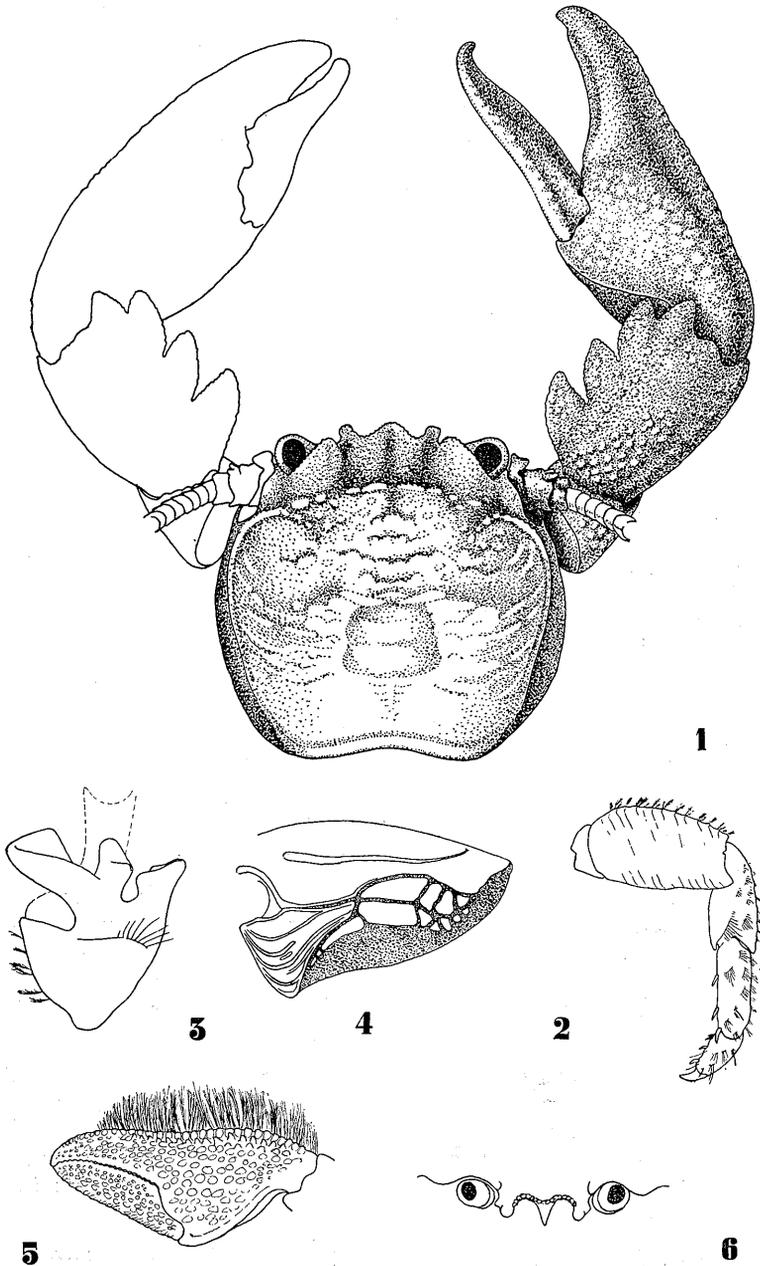


PLATE 9

Petrolisthes diffractus, n. sp.: 1, Male holotype, X 7; 2, right first walking leg, X 5; 3, basal segment of left antennule in ventral view, X 10; 4, left side wall of carapace, membrane indicated in stipple, X 5; 5, right chela of female in dorsal view, X 5; 6, front in anterior view, X 5.

usually with a fine pubescence, not obscuring the granules; ventral surface smooth or punctate, without pubescence. Chela covered dorsally with granules similar to those on carpus; faintly granular on ventral surface; outer margin of palm with a row of small granules, which are sometimes produced into spinules to about base of pollex; this same portion of outer margin often provided with a thick brush of soft hairs, usually present in females and absent in males. Fingers usually dissimilar in the two chelae: in one chela, they meet entire length, with a row of fine granules along cutting edges, dactyl strongly curved at tip; in the other, the fingers are shorter, blunt at tips, gaping, dactyl more evenly curving, its cutting edge with a large, rounded tooth and a row of smaller granules. In some specimens, fingers of the first type are present on both chelae. Only a slight trace of pubescence in gape of fingers.

Walking legs rugose; all segments with tufts of setae, and merus fringed on anterior margin with plumose hairs. No anterior or posterodistal spines on merus.

Sternum and abdomen smooth; telson with five plates.

MEASUREMENTS. — Length of holotype, 6.3 mm; width, 5.7 mm. Length of largest female paratype, 8.3 mm; width, 8.6 mm.

TYPES. — Holotype, male, AHF 542, from station 2591-54, San Lorenzo Rocks, Acapulco, Guerrero, Mexico, shore; January 30, 1954; collected by J. S. Garth from VELERO IV. Paratypes, three males and four ovigerous females, same locality and date.

COLOR. — In alcohol, specimens are a pale reddish orange, the color somewhat darker on granules and tips of the fingers.

DISTRIBUTION. — In addition to the type series, the Hancock Foundation collection contains a single specimen from Bahía Tenacatita, Mexico.

HABITAT. — All the specimens were taken under stones in the littoral.

REMARKS. — Every female specimen examined had a brush of hair on the outer margin of the chela, as described above; with one exception, a young 3.2 mm individual, every male lacked this brush of hair. From the comparatively small sample now at hand, it appears that the presence of this hair is distinctly a female character.

Petrolisthes diffractus belongs to a homogenous group of which the only other members are *P. vanderhorsti* Schmitt and *P. nodosus* Streets, both from the Caribbean area. The three differ from all other *Petrolisthes* in having the side walls of the carapace

broken up into numerous small pieces. *P. diffractus* differs from both Atlantic species in having a more roughly granular carapace and chelipeds, and in the conformation of the frontal lobes. It is closer to *P. vanderhorsti*, from which it differs in having broader, less pointed carpal teeth.

The name is from the Latin *diffractus*, broken in pieces or shattered, in reference to the peculiar structure of the side walls of the carapace.

Megalobrachium garthi, new species

Plate 10, figs. 1-5

DESCRIPTION—Carapace about as broad as long, very strongly convex dorsoventrally, highest at gastric region, from which point it slopes abruptly downward; hepatic, protogastric, and sometimes cardiac areas slightly projecting, but regions not strongly marked except in young specimens; entire surface thickly covered with very small, shallow pits, visible only under a lens; lateral margins granulate; surface naked or with scattered plumose hairs. Front rounded in dorsal view; trilobate in frontal view, the outer lobes broad, straight or sinuous, scarcely projecting, the center lobe narrow, triangular, separated by a notch from outer lobes and slightly projecting beyond them; entire front projects like a shelf in front of basal segment of the antennules. Eyes small, partly visible in dorsal view.

Basal segment of antenna pitted like carapace; movable segments pitted and slightly granular, third with a long, narrow posterodistal projection; flagellum naked. Outer maxillipeds pitted like carapace.

Merus of chelipeds covered dorsally with pits and coarse granules; anterior margin with a broad, granular, strongly projecting lobe; ventral surface pitted like carapace. Carpus pitted and coarsely granular dorsally, the granules more projecting toward posterior margin; anterior margin with a small rounded lobe a little proximad of the center; surface naked or lightly pubescent, with two longitudinal grooves joined at proximal end; ventral surface covered with pits and coarse granules. Manus pitted and coarsely granular dorsally, naked or lightly pubescent, with three longitudinal crests, the first extending to base of dactyl, second to base of pollex, third onto pollex; these crests defined by broad grooves, in each of which is a row of deep pits; ventral surface with flattened or coarse granules and small pits like those of carapace. Fingers with small flattened or coarse granules dorsally, ventral surface smooth or lightly pitted; gaping in one chela, usually meeting entire length in other chela; gape without pubescence.

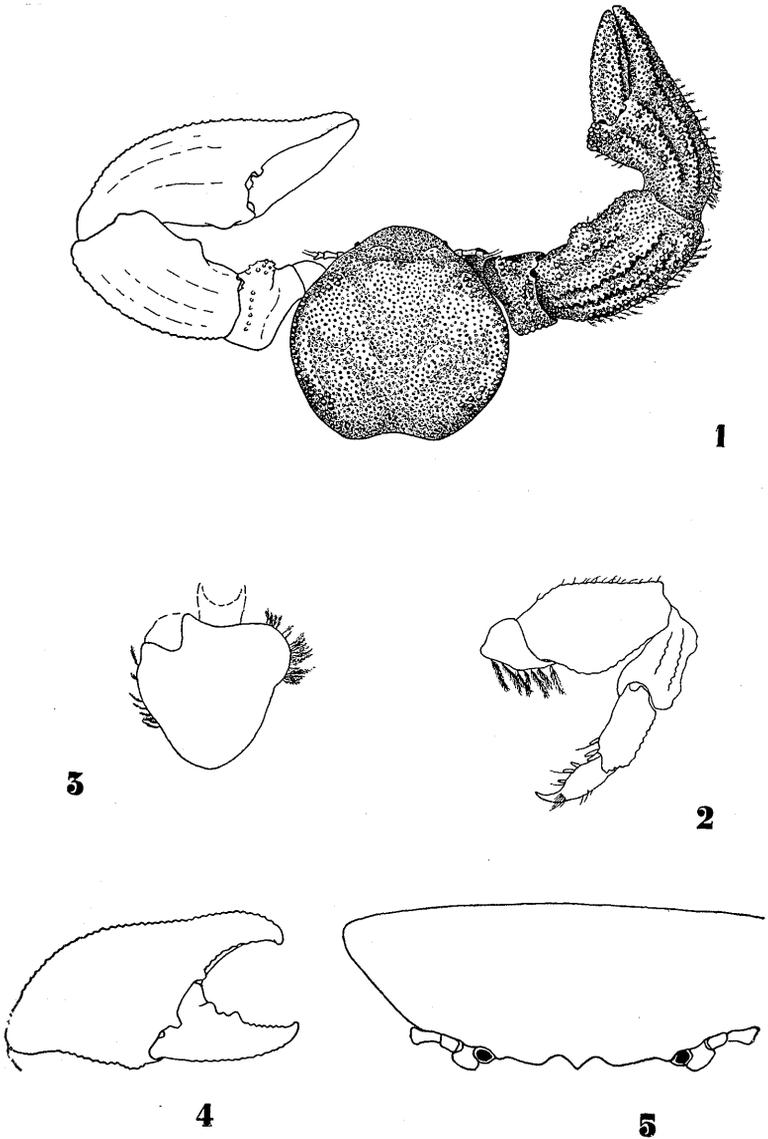


PLATE 10

Megalobrachium garthi, n. sp.: 1, Male holotype, X 3½; 2, right first walking leg, X 7½; 3, basal segment of left antennule in ventral view, X 20; 4, left chela of holotype in dorsal view, X 3½; 5, front in anterior view, X 7½.

Walking legs covered dorsally and ventrally with pits like those of carapace. Merus, carpus, and propodus with crests on anterior margins; carpus and propodus crested on dorsal surface.

Sternum pitted, divided into two parts by a deep longitudinal suture. Abdomen pitted, telson with five plates.

MEASUREMENTS. — Length of holotype, 7.8 mm; width, 7.9 mm. Length of female paratype, 6.6 mm; width, 6.6 mm.

TYPES. — Holotype, male, AHF 409, from station 1042-40, Isla Turner south of Isla Tiburón, Gulf of California, Mexico, shore; January 24, 1940; collected by VELERO III. Paratype, one female, same locality and date.

COLOR. — In alcohol, recently collected specimens are pale orange brown. The tips of the fingers are white, and there is a broad longitudinal white stripe on the carapace.

DISTRIBUTION. — Specimens in the collection of the Hancock Foundation range from the type locality in the Gulf of California south to Bahía Tangola-Tangola, Mexico, and from shore to four fathoms.

HABITAT. — Specimens were occasionally taken under stones in the littoral, and more commonly from sponges and coral.

REMARKS. — *Megalobrachium garthi* resembles *M. sinuimanus* (Lockington) in having a lobe on the anterior margin of the carpus. It is pitted like *M. erosa* (Glassell), but in that species much of the surface is strongly eroded. Both *M. sinuimanus* and *M. erosa* have seven plates in the telson of the abdomen.

The new species is named in honor of Dr. John S. Garth of the Allan Hancock Foundation, who has added greatly to the knowledge of Pacific American Crustacea.

