

The type, which is the only specimen known, was caught in a baited fish trap in Harrington Sound, in shallow water, April, 1901.

The specimen which approaches most nearly to the type of this variety is a cast shell, found on the shore (fig. 15) and of which only the carapace was preserved. I have included its measurement with variety *obesus*, however, as a matter of convenience, though it differs from that in having larger and more squarrose marginal teeth, of which the second and third are obtusely rounded; and in having a prominent and distinctly 4-lobed front, as in *minax*, from which it differs, therefore, chiefly in the shorter second and third teeth, and the narrower and more rounded carapace. The flanks were convex and the

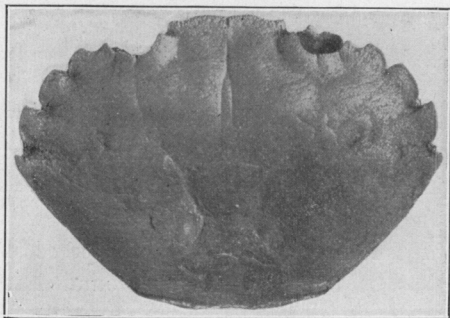


Figure 15.—*Eupanopeus Herbstii* variety *minax*. Carapace of No. 4023, $\times 1\frac{1}{2}$.
Phot. A. H. V.

granulation pretty fine, except on the front. Ratio of length to breadth, 1:1.4; length of carapace 30^{mm}; breadth 42^{mm}; front 14^{mm}.

E. americanus (Saus.)=*E. areolatus* Rath., figure 16, differs very little from some of the forms of this species. Although it averages slightly narrower, there are specimens of *Herbstii* (No. 470 in our collection, see table) as narrow as some of those from Brazil, referred to this species by Miss Rathbun (in Coll. Yale Mus.). The lateral marginal teeth are a little less oblique and less concave in front, but in some specimens this distinction fails; indeed, the teeth of opposite sides of one specimen may sometimes differ considerably in outline, or about as much as the species differ in this particular. But in this form the teeth are more thickened at base above, and are rather more granulous at the edges. The fourth and fifth teeth are more squarrose, and the tips are turned upward. The third tooth often differs but little from the others in size, but its tip bends forward and the outer margin is convex; it is not always as large as

the fourth; the fifth is often smaller than the fourth. The front is a little more produced in the middle and is more evidently 4-lobed, the outer small lobe being more distinct. The distal groove on the carpus is sometimes distinct, but ill-defined; in other cases it is lacking; this variation may occur on the two chelæ of an individual. A Brazilian specimen (No. 236, Yale Mus.), studied both by Prof. Smith and by Miss Rathbun, has the carapace 21^{mm} long; 28^{mm} wide; ratio 1:1.33.

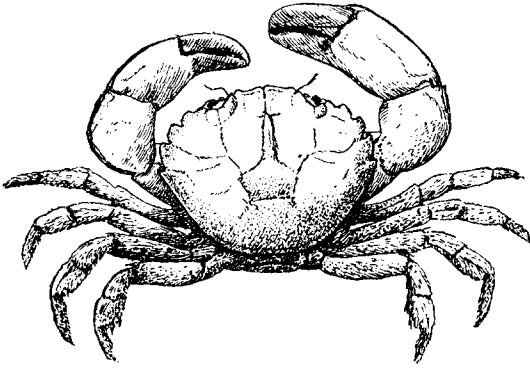


Figure 16.—*Eupanopeus americanus*, nat. size. After Benedict and Rathbun (as *P. arcotatus*).

Some of our Bermuda specimens may belong to this species, if it be really distinct.

***Eupanopeus occidentalis* (Saus.) Rathbun.**

Panopeus occidentalis H. de Saussure, Rev. et Mag. de Zoöl. (2), 9, p. 502, 1857; Mem. Soc. Phys. Genève, xiv, p. 431, pl. i, fig. 6, 1857. Stimpson, Amer. Jour. Sci. (2), 27, p. 446, 1859. S. I. Smith, Proc. Boston Soc. Nat. Hist., xii, p. 279, 1869. E. v. Martens, Arch. für Natur., xxxviii, p. 90, 1872. A. M.-Edw., Miss. Sci. au Mexique, pt. 5, i, p. 310, 1880; Bull. Mus. Comp. Zoöl., viii, p. 13, 1880. Benedict and Rathbun, Proc. Nat. Mus., xiv, p. 360, pl. xx, fig. 3; pl. xxiii, fig. 14, 1891.

Eupanopeus occidentalis Rathbun, Bull. Labr. Nat. Hist. Univ. Iowa, iv, p. 273, 1898; Proc. Wash. Acad., ii, p. 140, 1900; Crust. Porto Rico, p. 29, 1901.

FIGURE 17. PLATE XVI, FIGURE 2.

Antero-lateral teeth slightly elevated; their anterior margins truncate; the three posterior teeth are pointed; first tooth separated from the post-ocular tooth by a rather deep sinus, which, however, does not divide the coalesced tooth to its base. Front produced, thin, slightly depressed, with a median fissure, each lobe slightly

emarginate, giving the front a somewhat four-lobed appearance. Median lobes more produced; lateral lobes faint. Space between the two fissures of the upper orbital margin slightly rounded, interrupting the regular curve of the orbit; external hiatus widely V-shaped and deep. The inner suborbital angle forms a prominent tooth; a rather deep sinus divides this from the lobe which reaches to the external fissure; lower orbital margin produced.

Abdomen of the male wider than in *herbstii*, outline concave, penultimate segment widest at its distal end. Coxae of fifth pair of feet in broad contact with third abdominal segment. Seventh segment of sternum shows but little.

The marginal depression on the carpus near the articulation with the hand is wide and deep. In some specimens the carpus is finely

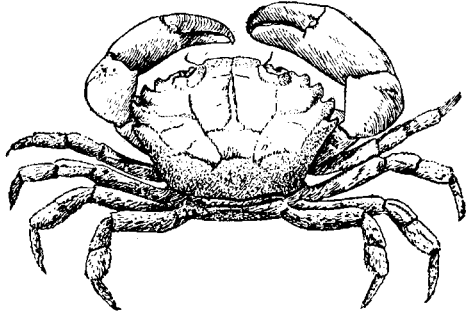


Figure 17.—*Eupanopeus occidentalis*, nat. size. After Benedict and Rathbun.

granulate; in others the granules are thrown up in slight rugae. The hand varies in much the same way; in some specimens finely granulate; in others, thrown up in rugae as on the carpus. In the latter case the hand is always much smoother than the carpus in the same specimen. Fingers brown or horn-color, shading to clear white at the tips. There is a large tooth at the base of the dactyl of the large hand.

The color on the immovable finger does not extend beyond the line of color on the movable finger; while in *Herbstii* it usually extends considerably beyond.

This species closely resembles *E. Herbstii*, as shown by the above description, and is easily confounded with it. The most important distinctive character seems to be the much more distinct distal groove on the carpus, but this varies. In *Herbstii* it is sometimes

evident on one cheliped and entirely lacking on the other, but it is always, when present, ill-defined. The marginal teeth have nearly the same outlines; the front edge is a little less concave, and consequently the tips are not so much incurved, but this character is also variable in both species. The marginal teeth are, however, thicker vertically. The front is a little more prominent in the middle, and the median notch is less distinct. The specimen figured (No. 3021) was identified and labelled as this species by Miss Rathbun, several years ago. It was collected at Hamilton by Dr. C. Hartt Merriam, April, 1881, and carried eggs. The ratio of length to breadth is 1:1.3.

Measurements.

No.	Sex	Carapace		Front between orbits	Chelæ		Locality
		length	breadth		length	height	
3021	♀	17.5	23.5	9	r. 18	10	Bermuda
3264	♂	16	23	8	{ r. 16 l. 14	{ 9.5 7.5	{ Florida Keys

This species is not common in Bermuda, and is not contained in most of the collections. It was first obtained by Dr. Merriam, in 1881 (see above).

Its range extends from S. Carolina through the West Indies to Pernambuco, Brazil.

Eupanopeus serratus (Saussure).

Panopeus serratus Saussure, Rev. et Mag. de Zoöl., (2), ix, p. 502, 1857: Mém. Soc. Phys. Genève, xiv, p. 432, pl. i, fig. 7, 1857. Stimpson, Amer. Jour. Sci. (2), xxvii, p. 446, 1859. Smith, Proc. Boston Soc. Nat. Hist., xii, p. 280, 1869. E. v. Martens, Arch. für Natur., xxxviii, 90, 1872. A. Milne-Edw., Miss. Sci. Mexique, pt. 5, i, p. 311, 1880; Bull. Mus. Comp. Zoöl., viii, p. 13, 1880. Benedict and Rathbun, The Genus Panopeus, Proc. U. S. Nat. Mus., xiv, p. 371, pl. xxiv, figs. 3, 4, 1891.

Panopeus Herbstii, var. *serratus* Miers, Rep. Voy. Chall., Zoöl., xvii, p. 129, 1886.

Eupanopeus serratus Rathbun, Bull. Labr. Nat. Hist. Univ. of Iowa, iv, p. 273, 1898.

FIGURES 14, d, 18. PLATE XVI, FIGURES 1, 5.

The following description is that of a young specimen:

Carapace convex, with rather well-marked areolets. Front very little produced, nearly straight, thin, with a line of granules on the edge, giving it a minutely denticulate appearance. Antero-lateral teeth sharp, the posterior three hooked forward. Sinus between the external angle of the orbit and the first tooth deep. External hiatus of orbit a large V-shaped opening. Subhepatic tubercle small but

well defined. Abdomen much like that of *occidentalis*. Seventh segment of sternum exposed. Coxæ of fifth pair of feet in contact with third abdominal segment. Length of carapace of a young specimen, 7^{mm}; width, 8^{mm}.

Carpus and hand coarsely and densely granulated, rugose above. Carpal spine sharp, pointing forward; fingers not gaping, a large tooth at the base of the dactyl on the large hand, and a tooth on the hand at the base of the dactyl. (Benedict and Rathbun, abridged.)

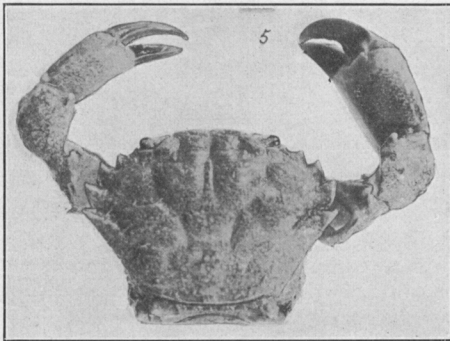


Figure 18.—*Eupanopeus serratus*, carapace and chelipeds of No. 3019, Yale Mus., \times about 1.10. Phot. A. H. V.

An unusually large male (No. 3019, pl. 16, fig. 5), which was collected by our Yale Exped. of 1898, has been studied by Miss M. J. Rathbun, who furnished the following notes :

“Length 19.3^{mm}, width 27^{mm}, exorbital width 15.9^{mm}. Color in formaline, light red and white mottled; upper part of chelipeds a darker red; fingers a light horny brown, terminal third white. Third segment of abdomen reaching the coxæ of the last pair of legs.

This specimen demonstrates conclusively the distinctness of this species from *E. occidentalis*; all the lateral teeth are narrower and sharper; the areolations strongly marked; the surface rougher, the short transverse granulated lines more prominent and more numerous. The chelipeds, also, are rougher, especially the carpus.”

A somewhat larger and still better male specimen was taken in 1901. (No. 4068, see pl. xvi, fig. 1.) This, after preservation for a few years in formol, and doubtless much faded, is pale flesh-color and yellowish white, with patches of brighter yellow on the carapace and chelipeds; the upper parts of the manus and carpus are pale

purple and yellow; hairs on the legs and carapace yellow; under parts and front of chelæ white; dactyl and thumb dark horn-color with pale tips.

The areolations of the carapace and the transverse granulated rugæ are even stronger than in the specimen just described, but otherwise the same; the marginal teeth are nearly the same, but a trifle larger and more acute. They are much thickened vertically at base and the posterior ones bend upward; their edges and bases are thickly covered with strong granulations which bear long hairs; the posterior tooth has a dorsal carina, granulated on its edge. The transverse ridges of the carapace and especially of the front are strongly granulated and bear long hairs in life. The frontal edge is convex, prominent, granulated, and divided by a narrow median notch; each lobe is slightly sinuous, with the smaller, faint, outer lobe rounded at the external angle. The outer orbital tooth is prominent and acute, but smaller than the next and well separated from it by a wide concave notch.

An excellent ♀ specimen in the collection of Prof. Kincaid (1903), preserved with glycerine, is pale lemon-yellow with minute specks of red-brown on the carapace and chelæ; larger blotches of the same on the legs; two brown hepatic patches; a distal band of paler yellow on the manus; fingers smoky brown, pale at tips. The carapace in life was covered with rather sparse hairs and small tufts of longer ones; the legs are hairy and with longer hairs on the front edge. The areolation of the carapace is rather strong, with rather numerous transverse rugæ. The carpus has a deep distal groove and also a series of irregular oblique grooves and granulated broken ridges. The chelæ have a slight dorsal longitudinal groove and very minute granules. (See fig. 5, *b*, pl. xvi.)

Measurements of Bermuda specimens.

No.	Sex	Carapace		Front between orbits	Chelæ	
		length	breadth		length	height
3019	♂	19.3	27	9.5	{ r. 19.5 l. 18.5	11 8
1903a	♀	13	19	8	14	7.5
4068	♂	21	30	10.5	{ r. 24 l. 22	15 10

This appears to be a rather rare species at the Bermudas, or else it has been generally overlooked by collectors. Nor is it common in other regions.

Its known range is not extensive. Florida Keys (Benedict and Rathbun); St. Thomas (Smith).

Eupanopeus bermudensis (Ben. and Rathbun.) Rathbun.

Panopeus bermudensis Benedict and Rathbun, Proc. U. S. Nat. Mus., xiv, p. 376, pl. xx, fig. 2; pl. xxiv, figs. 14, 15, 1891. Rankin, Crust. Berm., p. 528.

Eupanopeus bermudensis Rathbun, Bull. Labr. Nat. Hist. Univ. Iowa, iv, p. 273, 1898; Proc. Wash. Acad. Sci., ii, p. 140, 1900; Braehy. and Maer. Porto Rico, p. 29, 1901.

Panopeus wurdemannii Ben. and Rathbun, The Genus *Panopeus*, op. cit., p. 372, pl. xxiv, figs. 6, 7, 1891 (*non* Gibbes t. M. J. Rathbun, 1900).

FIGURES 14, c, c'. PLATE XIV, FIGURE 9; PLATE XVI, FIGURES 3, 4.

This is a very common species, but small and easily overlooked. In life it is quite variable in colors. Many specimens were variegated with lighter and darker gray; others are olive-green or olive-brown, mottled with paler; some have red-brown patches, other were finely mottled with brown and gray on a whitish ground-color, so as to very closely imitate the color of the sand, etc. of its environment. A few were plain bright red-brown. The colors appear to be highly protective in most cases. The fingers are somewhat variable in color, but are usually pale, sometimes with a smoky brown tinge, especially on the proximal half.

The following is condensed from the detailed original description:

Carapace distinctly areolated, posteriorly as well as anteriorly; areolations with transverse lines and occasional small clusters of granules. Front much produced, rather deeply cleft in the center, the cleft rounding out into the median lobes which are produced at this point; outer angles of the front not produced in some specimens, and slightly in others; edge of front oblique, thickened, densely granulate, and showing a slight marginal groove; two fisures on the upper orbital margin.

First and second [post-orbital] teeth of the antero-lateral margin flat and thin; third and fourth thickened, with anterior margins concave and hollowed. The sulcus of the coalesced tooth varies greatly with the specimen. Second [post-orbital] tooth the largest, separated from the first by a wide and deep notch; its margin straight, pointing slightly forward and not at all hooked. The third tooth is much narrower than the second, and its posterior margin curves gradually backward to the bottom of the notch; fourth tooth much the smallest, sharp pointed, and directed nearly perpendicular to the median line.

Outline of male abdomen slightly concave. First and third segments comparatively narrow and of about equal width. Second

segment much narrower, showing the sternal plates. Coxæ of fifth pair of feet not in contact with anchylosed segment.

Carpi, chelipeds, and bases of the dactyls finely granulate; carpal depression well defined along the margin, and extending around to the tooth on the inner angle. Large cheliped very deep and rather thick; fingers light brown; in some specimens white. Ambulatory feet slender; dactyls very slender and hairy. (Bened. and Rathbun, abridged.)

The larger specimens and many of the smaller ones have the areolations of the carapace very conspicuous, and the transverse ridges are high and sharply cut or nearly perpendicular on the anterior side, with the crest granulated; but in some specimens the ridges are obtuse with the front side sloping. The dorsal side of the carpus of the chelæ, especially of the smaller one, is grooved and roughened and often bears two or three rounded tubercles. The dactylus is strangely grooved above, or slightly bicarinate.

Measurements of Bermuda specimens.

No.	Sex	Carapace		Front between orbits	Cheleæ	
		length	breadth		length	height
4017a	♂	9	12	5.5	r. 10.5	5.5
4617b	♀	8	10.5	5	r. 7.5	4.5
—	♂	8	11	4.5	—	—
—	♀	6.5	8.5	4	6.5	3.5

Variety **sculptus**, nov. Plate xvi, figure 3.

The strongly sculptured specimens differ so much in appearance from the smoother ones that they might easily be mistaken for a distinct species, especially as they usually have also stronger marginal teeth, and the carpi of the chelipeds are rougher with about three small rounded tubercles, which are lacking in the smoother form.

The coalesced post-orbital tooth is often distinctly divided into two subequal denticles by a rounded notch; in others the notch is very shallow, while in some it is lacking so that the whole forms a rounded or subtruncate lobe. I have, however, found these extreme variations on the opposite sides of a single individual.

This little species is very common at Bermuda, under stones at low-tide and in shallow water dredgings. It is often associated with the young of *Leptodius floridanus*, of the same sizes, which it often closely resembles, in form, in the areolations, and in the mar-

ginal denticles. But the latter, even when not over 8 to 10^{mm} across the carapace, has the tips of the chelæ concave or spoon-like; the post-orbital tooth is not coalescent with the next, and the front is a little more evidently bilobed.

The original types of this species were from Bermuda (coll. Goode, 1877). It was in the collection of J. M. Jones, and has been obtained by nearly all later collectors. We found it abundant in 1898 and 1901, at low-tide, associated with the young of several other species. Some specimens taken in April carried eggs, although less than 8^{mm} long (see No. 3280*a*, fig. 4, pl. xvi).

Its range extends from Florida to Maceio, Brazil. (Porto Rico and Maceio, Rathbun.)

Eurytium limosum (Say) Stimpson.

Cancer limosa Say, Jour. Acad. Nat. Sci. Philad., i, p. 446, 1817.

Panopeus limosus Milne-Edw., Hist. Nat. des Crust., i, p. 404, 1834. De Kay, Crust. of N. Y., p. 5, 1844. Gibbes, Proc. Acad. Nat. Sci. Philad., v, p. 23, 1850. Lucas, Hist. nat. des Crust., p. 90, 1851. Benedict and Rathbun, op. cit., p. 379, 1891.

Eurytium limosum Stimpson, Ann. Lyc. Nat. Hist., vii, p. 56, 1859, Kingsley, Proc. Acad. Nat. Sci. Philad., p. 319, 1878; xxxi, p. 394, 1879. A. Milne-Edw., Miss. Sci. Mexique, pt. 5, i, p. 332, pl. lx, fig. 2, 2*a*, 1880. Miers, Voy. Challenger, Zool., xvii, p. 141, 1886 (Bermuda). M. J. Rathbun, Amer. Naturalist, xxxiv, p. 128, 1900. Brach. and Macr. Porto Rico, p. 41, 1901.

FIGURE 19. PLATE XIV, FIGURE 10.

Carapace very convex longitudinally, nearly straight transversely. Front much deflexed, composed of two lobes, the inner and outer angles alike and evenly rounded. A slight emargination in the coalesced tooth. Second tooth semi-lobate; third and fourth short, pointed, triangular. Carpal groove wanting. Fingers evenly dentate. In the larger cheliped there is a slight tooth on the dactyl, and also one on the manus. Appendages of male abdomen very much like those of *herbstii*.

In the fresh state this species is readily recognized and separated from all other crabs by the color. Carapace, a brilliant purplish blue; carpus and hand, bluish; proximal upper half of the dactyls of chelipeds, pink; remainder of fingers, porcelain white; lower portion of chelipeds and carpal tooth, orange-yellow. (Benedict and Rathbun, abridged.)

Length of carapace of a large specimen, 28^{mm}; width, 42.5^{mm}. The ♂ specimen from Bahia (pl. xiv, fig. 9, No. 4028) has the carapace 9^{mm} long, 14^{mm} wide; front 5^{mm}; larger chela 10^{mm} long, 5^{mm} high.

This interesting species appears to be rare at Bermuda, but this may be due to its living in places seldom visited by collectors. It usually inhabits holes excavated in the muddy or marshy banks of inlets, about high-tide level. It was recorded from Bermuda by Miers, in Voyage "Challenger"; taken in the mangrove swamp at Hungry Bay. It was not in the earlier collections of Jones and Goode, nor was it taken by us, in 1898 and 1901. It is not in the later collections that I have examined.

Its range extends from New Jersey to Florida, and through the West Indies to Bahia, Brazil. S. Carolina (Stimpson); Sarasota Bay, Fla., (Kingsley); Bahia (R. Rathbun). New York to Brazil (Rankin; M. J. Rathbun). St. Augustine and Cedar Key, Fla. (Yale Mus.).

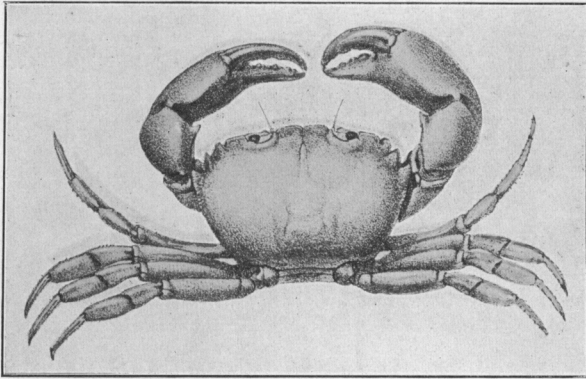


Figure 19.—*Eurytium limosum*, nat. size. After A. M.-Edw.

Lobopilumnus Agassizii (Stimp.) A. M.-Edw.

Pilumnus Agassizii Stimpson, Bull. Mus. Comp. Zool., ii, p. 142, 1870.

Lobopilumnus pulchellus A. M.-Edw., Exped. Miss. Sci. Mex., p. 299, pl. lii, fig. 5, 1880 (t. M. J. R.).

Lobopilumnus Agassizii M. J. Rathbun, Bull. Labr. Nat. Hist. Univ. Iowa, iv, p. 269, 1898; Amer. Naturalist, xxxiv, p. 139, 1900. Rankin, Crust. Bermuda I., p. 529.

PLATE XIV, FIGURES 1, 2 (Variety).

The typical form of this species is not common at the Bermudas. Some of our specimens, taken in 1898 and 1901, appear to belong to it.

According to Miss Rathbun (op. cit., p. 269), the form described and figured by A. M.-Edw., in 1880, as *L. pulchellus* is the typical form of *L. Agassizii*, while his *L. Agassizii* is the peculiar variety (*bermudensis*). The latter is the prevailing form at the Bermudas.

The types of Stimpson were from off the Tortugas, in 5 to 13 fathoms.

Lobopilumnus Agassizii (Stimp.), var. **bermudensis** Rathbun.

Lobopilumnus Agassizii A. M.-Edw., Miss. Sci. Mex., v, p. 298, pl. lii, figs. 4-4c, 1880 (t. Miss Rathbun). Rankin, op. cit., p. 529, 1900.

Lobopilumnus Agassizii, var. *bermudensis* M. J. Rathbun, Bull. Labr. Nat. Hist. Univ. Iowa, iv, p. 268, 1898.

PLATE XIV, FIGURES 1, 2.

This crab is easily recognized by its rough hairy carapace, sharp, divergent, marginal teeth, denticulated frontal lobes, and the thickly tuberculated chela. The larger granules, which occur in clusters on the dorsal eminences, around the bases of the marginal spines, and on the front, bear long hairs, while a thick close coating of short hairs covers the intervening spaces. When cleaned, the general color of fresh specimens is yellowish or salmon; the fingers are black.

When living the carapace and legs are often rather thickly covered, and sometimes almost concealed, by a coating of whitish calcareous mud and sand that adheres to the hairs that cover the back. This is evidently a good protection against its enemies. Some of our specimens, taken in April and May, carried eggs (Nos. 3123, 4010, 4011).

Measurements of Bermuda specimens.

No.	Sex	Carapace		Front between orbits	Chela	
		length	breadth		length	height
4010	♀ eggs	15	21	9.5	{ r. 14 l. 12	9 7
4011	♀ eggs	18	24	10	r. 15	9
3123*	♀ eggs	18.5	26	11	r. 17	11
3167	♂ dry	23	32	12	{ r. 26 l. 23	17 13
3136	♂ dry	16	22	9	r. 15.5	9
3031†	♀ dry, fig.	20	27	11	r. 19	11
4088	♂	25	34	--	{ r. 27 l. 24	18 14
1903	♂	23	29	12	r. 20	11.5

* This is the specimen figured on pl. xiv, fig. 2.

† This is the original of pl. xiv, fig. 1.

It is most frequently found under stones and dead corals. One specimen was taken from the base of a gorgonian (*Verrucella grandis*), brought up from over 100 feet of water, outside the reefs (No. 4012). Common, both on the reefs and rocky shores, at low-tide.

It was in the early collections of J. M. Jones and G. B. Goode, in the Yale Museum. Florida and Bermuda (A. M.-Edw., from coll. Yale Mus.), Bermuda (Miss Rathbun). It is also in the 1905 collection of the Field Mus. Nat. History, and in that of Prof. T. Kincaid, 1903.

Pilumnus spinipes (A. M.-Edw.) Rathbun.

Microptanope spinipes A. M.-Edw., Miss. Sci., Mexico, v, i, p. 326, pl. liv, figs. 3-3c, 1880. (Abrolhos Is., Brazil, 30 fath.).

Pilumnus spinipes Rathbun, Bull. Labr. Nat. Hist. Univ. Iowa, iv, p. 264, 1898. Verrill, these Trans., vol. v, p. 577 (Bermuda).

FIGURE 20. PLATE XXVI, FIGURE 1.

A male (No. 3119, Yale Mus., pl. xxvi, fig. 1) and a female of this rare species were taken by our party in 1898. They have been studied by Miss M. J. Rathbun, who furnished the following notes on them: "The ♂ is 7.2^{mm} long and 10.2^{mm} wide. The outer face of the hands in the male is almost entirely smooth, as in the ♀, only the upper and proximal portion being spinulose; the outer and upper surface of the wrists is entirely covered with spinules or sharp granules. The upper surface of the carapace is rough with scaly granules, which, on the hepatic region, are developed into sharper and higher projections. The lobes of the front slope backward a little from the middle, where they are separated by a V-shaped notch; the margins of the lobes are nearly straight, and the little tooth next the orbit is scarcely separated from the rest of the margin. The outer orbital tooth and the next antero-lateral tooth are very small, but plainly marked and acute; below and between them there is a sharp sub-hepatic tubercle; the last three antero-lateral projections are sharp subequal spines. The ambulatory legs are very slender."

To these characters it may be added that the front is strongly bent downward, and there is a narrow transverse ridge at the bend, nearly parallel with the edge; the upper margins of the orbits are minutely denticulate; the sharp granules of the carapace and chela bear hairs, while many much finer hairs arise between them; the legs are covered above with long slender hairs; their merus joints have a row of small sharp spines along the front edge; the carpal joint of the chelipeds has a distal transverse groove, and two sharp spines on the anterior edge; the manus of the smaller chela has a slight dorsal groove bordered by rows of sharp granules; the dactylus has two distinct dorsal grooves, and the thumb one on each side, below. On the larger chela, which is much stouter, the grooves are