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A NEW SPECIES OF PENAEUS FROM THE AMERICAN
ATLANTIC

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Penaeus schmitti (1), new species.

Figures 1, 2 and 3.

Material: 1 male, 1 female, subadult. Types *B. O. C.* 128.

7 males, 6 females. Cotypes. *B. O. C.* 112. Kingston Bay, Jamaica; February 1, 1934.

51 males, 46 females, juvenile to subadult. *B. O. C.* 113.

Kingston, Jamaica; February 1, 1934.

185 males, 165 females, juvenile. *B. O. C.* 111. Colon, Panama; February 11, 1934.

2 males, 3 females, adult. Paratypes. *B. O. C.* 125. Rio de Janeiro, Brazil; May, 1934.

In addition to the above, a juvenile male from Caravellas, Bahia, Brazil, in the collection of the Department of Zoology of the Peabody Museum of Natural History, has been available; as well as two females from Port au Prince, Haiti, in the collection of the Department of Tropical Research of the New York Zoological Society.

Dimensions: Male type, carapace length excluding rostrum, 26 mm; female type, 29 mm. Largest Brazilian male, 31 mm; female, 38 mm. Largest Colon female, 22 mm. Largest Haitian female, 30.4 mm.

Diagnosis: Anterior portion of the ventral margin of the pleuron of the first pleonic somite distinctly concave rather than almost straight as in *Penaeus setiferus* (Linnaeus).

Anterolateral marginal ridges of the fourteenth sternite of the female not extending conspicuously mediad near the middle of the segment, so that the interrupted crescentic transverse ridge with concavity directed forward characteristic of *P. setiferus* is lacking. Posterior portion of the fourteenth sternite of the female without a conspicuous

(1) Named for Dr. W. L. Schmitt of the U. S. National Museum.

pair of fleshy protuberances, such as are present in *P. setiferus*. Posterior margin of the twelfth sternite of the female with a pair of lateral convexities which project well beyond the median portion of the margin, instead of ending almost level with it.

Petasma of the male without a diagonal ridge across the ventral face of the distolateral lobe (fig. 3, L), such as occurs in *P. setiferus*. Gape between the major lappet of the distomedian lobe of the petasma (fig. 3, M1) and the lobule lateral to it (fig. 3, M2) deeper and narrower than in the northern species. Crenellation of the distoventral lobe (fig. 3, V) of the petasma producing a squarish projection which does not overhang the less projecting lateral part of the distolateral lobe median to it, instead of the more elliptical lobe partially folded over upon the more median margin found in *P. setiferus*. Spines of the dorsal face of the petasma forming a very broad, dense band, with four or more spines abreast.

Discussion: In addition to the diagnostic features, the carina dorsally margining the antennal sulcus is usually more distinctly curved in *P. schmitti* than in *P. setiferus*. There is some degree of individual and local variation in certain of the diagnostic characters, but this is not of a nature to obscure the differences between the southern and the northern species.

In other characters than the above, *P. schmitti* very nearly resembles *P. setiferus*, of which an abundant material from the eastern and southern coasts of the United States, as well as a single subadult male from Jamaica, has been available for comparison. Juveniles of the two species are clearly distinguishable down to a carapace length of 20 mm at least. Although the differences between *P. setiferus* and *P. schmitti* are rather minute, the fact that each form maintains its diagnostic characters unchanged over a very considerable geographical range; that the ranges of the two forms overlap in the Caribbean without obliteration of the diagnostic differences, inasmuch as *P. setiferus* was taken side by side with the dominant *P. schmitti* in Jamaica; and that the differences between the two forms are sufficient to permit positive recognition of individuals without recourse to statistical analysis of populations seems to indicate that the southern and northern forms should rank as distinct species rather than as subspecies of *P. setiferus*.

It is probable that all previous records of *P. setiferus* from Brazil refer to *P. schmitti*. The record of the northern species from Ja-

maica by Rathbun, 1897 (1) is probably based in part or whole on *P. schmitti*. A detailed discussion of *P. setiferus* will be found in Burkenroad, 1934 (2); it may be noted that in figure 5 there given, of the thelycum, the posterior margin of sternite XII is hidden by the bases of the third legs; and that in figure 7 the petasma is not flattened as in figure 3 of the present paper, so that the distoventral lobe is represented as partially hiding the distolateral.

Distinguishing characters of the four previously recognized American species of Division I of *Penaeus*, with the exception of those of the petasma, have been given in some detail in a preceding paper (op. cit., p. 87). Features there mentioned as characteristic of *P. setiferus* also distinguish *P. schmitti*, with the exception that the «pair of small fleshy protuberances and the strong crescentic ridge of XIV» in *P. setiferus* are replaced by the pair of longitudinal ridges on the anterior part of XIV in the new species. A brief diagnosis of the petasmas differences, which have not previously been discussed, may be offered here. In the two Atlantic species (*P. schmitti* and *P. setiferus*) the lateral lobule of the distomedian lobe of the petasma (the small lappet lateral to the larger one which tops the cincinnulate median margin of the endopod) appears to spring from the ventral (posterior) face of the endopod. In the three Pacific species (*P. stylirostris* Stimpson, *P. occidentalis* Streets, and *P. vannamci* Boone), the distolateral lobe of the petasma is folded dorsally (anteriorly) in such a manner that the homologue of the lateral lobule of the distomedian appears to spring from the dorsal face of the petasma. In the two Atlantic species and in *P. stylirostris*, a vertical row of spines is present on the anterior face of the petasma, which is absent in *P. vannamci* and *P. occidentalis*.

In all of the species except *P. vannamci* (in which it is lower) the distolateral lobe extends higher than the distoventral. In the species other than *P. vannamci* and *P. stylirostris* (in which it is not represented) there is a transverse crest across the dorsal face of the distoventral lobe somewhat proximal to the distal margin. In *Penaeus occidentalis*, the distolateral lobe is much higher than the distomedian; in *P. setiferus* and *P. schmitti* it is somewhat higher; in *P. stylirostris* and *P. vannamci* the two lobes are subequal in height. Differences in petasma between *P. schmitti* and *P. setiferus* have been described in a preceding paragraph.

(1) Ann. Inst. Jamaica, 1.

(2) Bull. American Mus. Nat. Hist., LXVIII, 2, pp. 77 seq.

CAPTIONS OF FIGURES

1. Ventral margin of the pleuron of the first pleonic somite, X $\frac{11}{r}$.
 - a. *P. schmitti*, new species, female type.
 - b. *P. setiferus* (Linnaeus), adult Louisiana female.
2. *P. schmitti*, new species, female type.
Thelycum, X $\frac{11}{r}$.
3. *P. schmitti*, new species, male type.
Ventral surface of the distal portion of the left petasomal endopod,
flattened, X $\frac{26}{r}$.
M₁, M₂: lateral and median lobules of the distomedian lobe. L: dis-
tolateral lobe. V: distoventral lobe.

