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ON THE TYPE SPECIMEN OF VANDERBILTIA ROSAMONDAE BOONE (CRUSTACEA DECAPODA MACRURA)

by

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In 1935 Lee Boone in Bulletin of the Vanderbilt Marine Museum vol. 6 (pp. 160-163, pls. 41, 42) described and figured a shrimp, which she thought to belong to a new genus and species of the Palaemonid subfamily Pontoniinae, and which she named *Vanderbiltia rosamondae*. Boone's figures and description show that the specimen cannot possibly be a Pontoniid shrimp, but it proves to be impossible from these data alone to place the species anywhere in the system. In my report on the Pontoniinae of the Siboga Expedition (Holthuis, 1952, p. 22), therefore, I listed *Vanderbiltia rosamondae* (misspelled *rosamundae* by me) under the "species described as Pontoniinae, but not belonging in this subfamily", and remarked that the species shows some resemblance to the Atyidae and that it might be juvenile. Though according to the description and figure *Vanderbiltia* in some characters resembles the Atyidae, in others (e.g., the shape of the chelae) it differs so much from any of the members of that family that it hardly could be placed there. The identity of *Vanderbiltia rosamondae* Boone, which species had not been recorded since the original publication, therefore remained a mystery that only could be solved by examination of the type specimen itself.

In April 1953 I had the pleasure of visiting the Vanderbilt Museum in Centerport, Long Island, New York. Mr. Woodhull B. Young, curator of the Museum, whom I am profoundly thankful for giving so much of his valuable time to show my company and myself around in the Museum, and for extending many courtesies to us, was good enough to allow me to take

the type specimen of *Vanderbiltia rosamondae* (or *Vanderbiltia mirabilis*, under which name it was exhibited in the Museum) with me to Washington, D.C., where I could study it at my ease in the U.S. National Museum. Because of the many errors contained in the original description and the figures given by Boone, it proved necessary to redescribe and to give new figures of the specimen, which shows to be nothing but a juvenile stage of *Atya serrata* Bate.

Description. The rostrum is short and depressed. It reaches about to the end of the eyes. In the distal part it is abruptly narrowed to the apex, and resembles thereby the rostrum of the type of *Atya brevirostris* De Man (1892), though the triangular tip is shorter than figured by De Man (1892, pl. 21 fig. 21). A broad and not very distinct longitudinal median dorsal carina is visible on the rostrum. The rostrum itself is somewhat downwards curved near the tip. This is the cause that Boone figured the apex of the rostrum as being emarginate. No teeth are present, neither on the upper nor on the lower surface. The anterior margin of the carapace has the antennal angle rather sharp, the pterygostomian angle is somewhat produced but blunt.

The pleurae of the first three abdominal segments are rounded, those of the fourth and fifth segments end posteriorly in a blunt angle. The sixth segment is somewhat longer than the fifth and is shorter than the telson. On the dorsal surface of the telson two pairs of spines were seen, the anterior is placed somewhat behind the middle of the telson, the posterior is situated about midway between the posterior margin of the telson and the anterior pair of spines. In Boone's figure these spines are altogether incorrectly placed. The posterior margin ends in a sharp median point and bears four pairs of spines. The outer pair is very short, the next pair is longest and the submedian pair is again shorter than the intermediate. The two long pairs (viz., the submedian and intermediate) have the spines provided with small denticles, exactly as in the juvenile specimen of *Atya ? africana* figured by me in the report on the Atlantide Caridea (Holthuis, 1951, p. 21, fig. 3d).

The eyes are large, with a rounded black cornea.

The antennulae have the stylocerite rather broad and short, ending in an angular point. A spine is present slightly before the middle of the lower inner margin of the basal segment. The second and third segments are of about equal length and much shorter than the first. Spinules are present at the anterolateral corners of the first and second segments. The two flagella are short and simple.

The scaphocerite reaches beyond the antennular peduncle. The lamella is strongly produced anteriorly and reaches with more than $^1/_3$ of its length

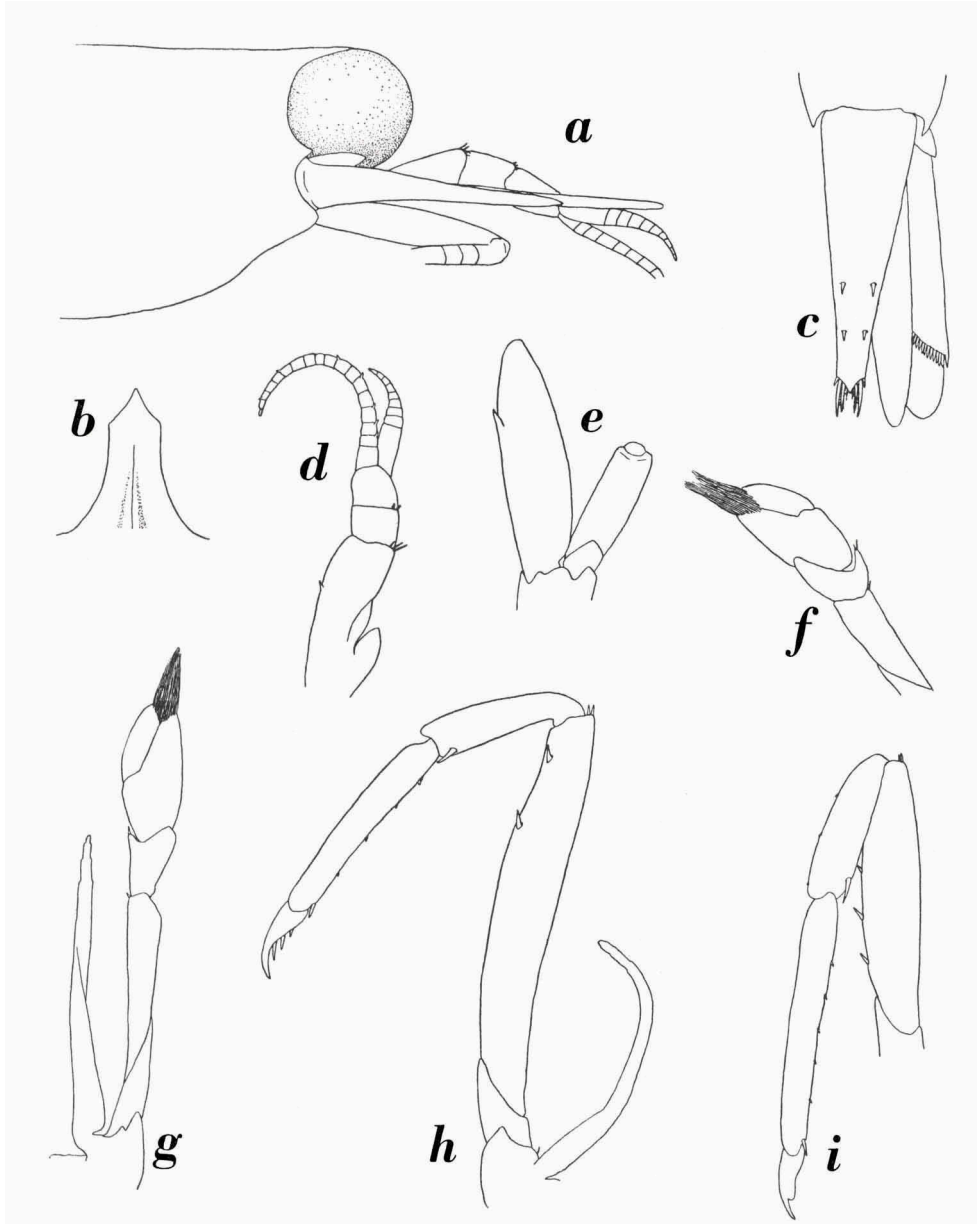

Fig. 1. *Vanderbiltia rosamondae* Boone, type. a, anterior part of body in lateral view; b, rostrum in dorsal view; c, telson and right uropod; d, antennula; e, antenna; f, first pereiopod; g, second pereiopod; h, third pereiopod; i, fifth pereiopod. a, b, × 28; c-e, × 20; f-i, × 35.

beyond the final tooth. It is more than three times as long as broad. The antennal peduncle reaches beyond the middle of the scaphocerite.

Well developed exopods are present on the first four legs. Boone, who incorrectly employs the name epipodites for the exopods, makes a mistake when stating that these lack in the fourth legs. Both first and second legs have typically Atyid chelae. The fingers are slightly longer than the palm, their tips are blunt and provided with a long and dense tuft of hairs. The chelae are of the *Ortmannia* type. The carpus of the first pair of legs is very short and deeply excavate anteriorly; it is shorter than broad. The merus is shorter than the chela. The second leg has the chela very similar to that of the first. The carpus is longer, being more than 1.5 times as long as broad, it is excavate anteriorly, but far less deeply so than in the first leg. The merus is longer than the chela. In Boone's figures of the first and second legs the tufts of hairs have not been recognised as such; they are shown as a prolongation of the fingers. In Boone's figure of the first leg these prolongations are spiny, in the second they are smooth with a few small teeth on the cutting edge near the tip. The third leg has the dactylus slender with some spines on the posterior margin. It is slightly more than $^1/_3$ of the length of the propodus. The propodus bears a fairly large spine in the distal part of the posterior margin and a few spinules on the rest of that margin. The carpus measures $^2/_3$ of the length of the propodus and bears a large distal spine in the posterior region. The merus is about as long as carpus and propodus combined. In the distal part of the posterior margin it bears two spines, while two smaller spines are placed in the antero-distal part. The fourth leg is similar to the third. The fifth leg has the dactylus without posterior teeth, only a lobe is present on the posterior margin. The propodus is three times as long as the dactylus and is similarly armed as in the third leg. The carpus is less than $^2/_3$ of the length of the propodus and, as in the third leg, bears a posterodistal spine. Some small spinules are visible on the anterior margin of the carpus. The merus is about as long as the propodus and bears several spinules on the posterior margin.

The first pleopods, figured by Boone, are no longer present in the specimen. The uropods have the endo- and exopods elongate. The outer margin of the exopod ends in a tooth, while a row of similar teeth is placed on the diaeresis.

The total length of the specimen is about 10 mm.

The locality at which the specimen was secured is given as: Venus Point Reef, Tahiti, Society Islands, in coral, August 15, 1931, World Cruise of the "Alva", William K. Vanderbilt, Commanding.

Remarks. The shape of the first two pereiopods, and especially that of

the chelae, clearly shows that the specimen is an Atyid shrimp. The shape of the rostrum, of the carapace, and that of the legs leave little doubt that the specimen is a juvenile of *Atya* in the *Ortmannia* form. The presence of a distinct palmar portion in the chelae, namely, shows that the specimen is not a typical *Atya* but belongs to the *Ortmannia* form. Of only two Indo-West Pacific *Atya* species is the *Ortmannia* form known, namely of *Atya serrata* Bate (with *Ortmannia alluaudi* Bouvier) and of *Atya bisulcata* Randall (with *Ortmannia henshawi* Rathbun). The size of the type specimen of *Vanderbiltia rosamondae* and several of its characters show that it is juvenile; this makes it rather difficult to fix the specific identity. In my opinion, however, there is little doubt that we have here to do with a very young specimen of the *Ortmannia alluaudi* form of *Atya serrata* Bate, a species very common in Tahiti and the neighbouring islands. I regret not to have juveniles of *Ortmannia alluaudi* at my disposal for direct comparison. However, most of the characters found in the present specimen, as the down-curved rostrum, the small number of spines on the dactyli of the walking legs, the number of spines on the posterior margin of the telson, and the shape of the chelae, strongly resemble those described and figured by Bouvier (1925, p. 272, figs 626-629, 634-639) for a juvenile *Ortmannia alluaudi*; it seems possible that the present specimen is still younger than that figured by Bouvier, which may account for the few differences between the two forms, as that in the shape of the dactylus of the fifth leg.

Boone's description and figures of *Vanderbiltia rosamondae* are highly misleading and the many errors in both the description and the figures are the cause that the identity of the species until now has not been recognised. Especially the figures of the rostrum and of the first two legs made it impossible to identify the species. In its crucial points the description is vague and does not help to find the mistakes in the drawings. Another point which helped to conceal the fact that the specimen is an Atyid shrimp is the locality given by Boone: "from coral, Venus Point Reef, Tahiti". The family Atyidae, namely, is characteristically a group inhabiting fresh water, and the records of Atyidae from marine surroundings are extremely few and generally not trustworthy; particularly the record of an Atyid shrimp from a coral reef is highly unusual. It is possible that Boone's specimen was incorrectly labelled as to the locality, and actually was collected in brackish or even in fresh water. This is the more probable since William K. Vanderbilt (1933, p. 120) says in the explanation of a textfigure that a „river ..... runs from Tuauru Valley through Venus Point to the sea", while the explanation of the next figure (p. 121) states that the "base of

operations for collecting specimens was near the mouth of the river". However, we have to keep in mind that during the Danish Atlantide Expedition 1945-1946 to West Africa juvenile stages of a species of *Atya,* probably *A. africana* Bouvier, were found in pure sea water, and that these West African specimens had the spines on the posterior margin of the telson similar to those of *Vanderbiltia rosamondae,* and different from slightly older specimens of *Atya ? africana* from brackish or fresh water.

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