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VI. — DESCRIPTION OF A NEW SPECIES OF THE GENUS CALLIANASSA LEACH AND OF A SPECIES OF THE GENUS ALPHEUS FABR., BOTH FROM THE INDIAN ARCHIPELAGO.

BY Dr. J. G. DE MAN. — (WITH PLATE I).

Callianassa (Callichirus) vigilax n. sp.

Plate I, fig. 1—6.

One female without eggs, collected in 1863 by Mr. Ludeking at Amboina.

This new species is most closely related to *Callianassa (Callichirus) armata* A. M. - Edw. from the Fiji Islands, but may at first sight be distinguished by the shape of the abdomen, of the caudal fan and of the smaller cheliped, probably also by that of the larger, which, unfortunately, is wanting, like the flagella of the outer antennae.

This specimen is 85 mm. long from tip of rostrum to end of telson and therefore belongs to the larger species of this genus; the carapace which is 22 mm. long, measures about one-fourth the whole length and one-third the length of the abdomen. Rostrum (Fig. 2) broadly triangular, acuminate, reaching to just beyond the middle of 1st antennular article and to the distal third part of the ophthalmopods, just beyond the eyes; upper surface of rostrum slightly convex transversely and longitudinally, obliquely directed downward in a lateral view, while the acute rostral point is directed horizontally forward. Like in *Call. armata* (A. Milne Edwards, Nouv. Archives du Muséum. Mém. 1870, T. VI, Pl. I, fig. 1), the anterior margin of the carapace is armed, on either side of the rostrum, with a smaller acute spinule, just outside the eye-stalks; these spinules are directed obliquely inward and almost half as long as the rostrum, reaching as far as the distal margin of 1st antennal article. The gastric region (Fig. 1) which is twice as long as broad and strongly convex transversely, is separated anteriorly by a slight depression from the rostrum; cervical groove and lateral grooves, defining the gastric region, exactly as in *Call. armata*. Lineae thalassinicae straight, slightly converging in their anterior half, their posterior half running parallel.

Like in *Call. armata* the 6th somite of the abdomen (fig. 3) is the longest of all and presents precisely the same shape and characters as in this species. Next of length is the 2nd somite, which is but little, viz. one ninth, shorter than the 6th; while according to the figure, in *Call.*

armata, the 5th somite is not shorter than the 2nd, in *Call. vigilax* the 2nd appears distinctly longer than the 5th, about one and a half as long. The 3rd and the 4th somite show approximately the same relative length as in *Call. armata*, the 3rd measuring three-fourths of the 2nd and being one and a half as long as the 4th, which is half as long as the 2nd. While in *Call. armata* the 1st somite appears only half as long as the 2nd, in this new species the 1st somite is but little, viz. one-eighth shorter. Different from *Call. armata*, the abdominal pleura appear distinctly less high, in a lateral view of the animal; the convex posterior margin of the pleura of the 2nd somite makes an acute angle with their lower margin, in the following somites this angle appears less sharp and in the 5th it is rather obtuse. The concave posterior border of the 6th somite carries, on each side of the middle, two tufts of long hairs, that almost reach to the end of the telson, one at the rounded outer angle, the other between this tuft and the middle; there is also a tuft of hairs on the pleura of the preceding somites.

Telson short, not yet half as long as 6th somite and nearly as long as the 4th; it appears a little less broad with regard to its length than that of *Call. armata*, the width being in proportion to the length like 4 : 3, in *Call. armata*, however, like 4 : 2,35 according to Fig. 4 of the original paper. The lateral margins diverge at first very slightly backward, but soon curve inward converging to and passing into the rather narrow, rounded, posterior margin; the posterior converging part of the lateral margins appears about one and a half as long as the anterior and both parts are very slightly concave. The posterior margin is fringed with short hairs, hardly longer than 1 mm., but one observes moreover at either angle a tuft of longer hairs that are 4 mm. long; anteriorly and in the middle the upper surface is somewhat elevated and from here it gradually slopes down towards the posterior and lateral margins. Just in front of the middle the upper surface carries a tuft of hairs that reach to the posterior margin.

The basal joint of the uropods which are much longer than the telson, terminates at its postero-lateral angle in two acute, though minute teeth, situated close together and of which the outer is larger than the inner. Outer uropod triangular, one-fourth longer than broad; anterior margin somewhat S-like shaped, outer margin convex and passing with an almost regular curve into the slightly convex inner border, almost regular because there is a faint trace of an obtuse angle; both the outer and the inner margin are fringed with hairs. The outer apical margin bears a small notch somewhat nearer to the anterior than to the posterior margin; from this notch a straight ridge runs to the basal joint and this ridge is more prominent on the lower than on the upper surface,

of the uropod. Like in *Call. armata* an inner portion of the upper surface of the outer uropod appears rather much concave; on the ridge by which, close to the basal joint, this concavity is defined, one observes a minute acute spinule, followed close to it by a very small rounded tubercle. The inner uropod that extends to just beyond the middle of the outer, has also another form than in *Call. armata*: while in this species it appears lanceolate, presenting only an anterior and a posterior margin, in *Call. vigilax* it is distinctly triangular. The anterior margin is nearly straight, while the almost straight posterior margin passes with a regular curve into the short inner border. The upper surface is traversed, nearly in the middle, by a ridge that almost extends to the posterior margin; the latter is fringed with short hairs and there is a tuft of longer hairs close to and posterior to the obtuse apical angle.

The ophthalmopods that are contiguous, reaching almost the distal end of 1st antennular article, are hardly longer than broad; their convex outer margin is slightly emarginate just in front of the eyes, so that they terminate anteriorly in a flattened rounded lobe which at its outer margin, near the emargination, is armed with a microscopical acute tooth. This minute tooth may easily be overlooked, but it is distinctly visible in a lateral view of the animal. In a lateral aspect of the ophthalmopods the rounded terminal lobe appears flattened, lamellate, much thinner than the rest of the stalk. Eyes rather convex, the dark-brown cornea situated as far forward as the rostral point, twice as far distant from this point as from the outer margin of the stalk.

Inner antennae 18,5 mm. long, little shorter than the carapace. Second antennular article hardly longer than broad and a little shorter than 1st article; 3rd article twice as long as 2nd, somewhat tapering distally. Flagella of equal length, twice as long as the peduncle, the thinner upper flagellum composed of about 60 joints, the lower of nearly 40; upper flagellum slightly widened not far from the extremity, lower tapering to the end. Like in *Call. armata* the antennal peduncle extends almost by the whole length of the terminal article beyond that of the inner antennae; terminal joint a little shorter than the penultimate.

External maxillipeds (Fig. 4) closely resembling those of *Call. armata*, but the ischium, 5,5 mm. long and 3,2 mm. broad, while the merus is 3,6 mm. long, appears a little longer in proportion to its width and in proportion to the length of the merus.

Smaller cheliped (Fig. 5), situated on the left side, of a more slender shape than that of *Call. armata*. Ischium slender, 5-times as long as broad in the middle, somewhat widening towards the distal extremity, less so towards the proximal; this joint, the upper margin of

which is straight, while the lower is slightly concave, appears rather much compressed and lamellar. Merus just as long as ischium, but broader, 2,5-times as long as wide; this joint is less compressed than the ischium, so that, while its inner surface is flattened, the outer appears rather much convex transversely and slightly also longitudinally; upper margin convex, lower running like a S. Carpus one-fourth longer than merus, elongate, appearing 2,7-times as long as wide, upper margin straight, lower arcuate; upper surface a little convex transversely. Chela one-fifth longer than carpus, slightly less broad; the palm, the outer surface of which is a trifle convex transversely, appears a little shorter than the pointed fingers, which are crossing one another. The margins of this leg are somewhat hairy and the fingers present the usual tufts of hair. The following legs apparently not differ from those of *Call. armata*. Propodus of third legs (Fig. 6) with the upper margin of the lobe straight, the posterior angle and the posterior margin rounded, the lower margin slightly concave.

Measurements in millimeters.

Length from tip of rostrum to end of telson.	85	Length of 6 th abdominal somite. . .	13,5
Length of carapace.	22	Width » » » »	10,25
Length of 1 st abdominal somite. . .	10,25	Length » telson.	5,75
Width » » » »	11	Width » »	7,5
Length » 2 nd » »	12	Length » ischium.	8,5
Width » » » »	12	Width » »	1,75
Length » 3 rd » »	8,5	Length » merus.	8,5
Width » » » »	13	Width » »	3,2
Length » 4 th » »	5,5	Length » carpus	10,5
Width » » » »	13	Width » »	3,9
Length » 5 th » »	7,5	Length » chela.	12,5
Width » » » »	12,5	» » palm	6
		» » fingers	6,5
		Width » palm	3,7

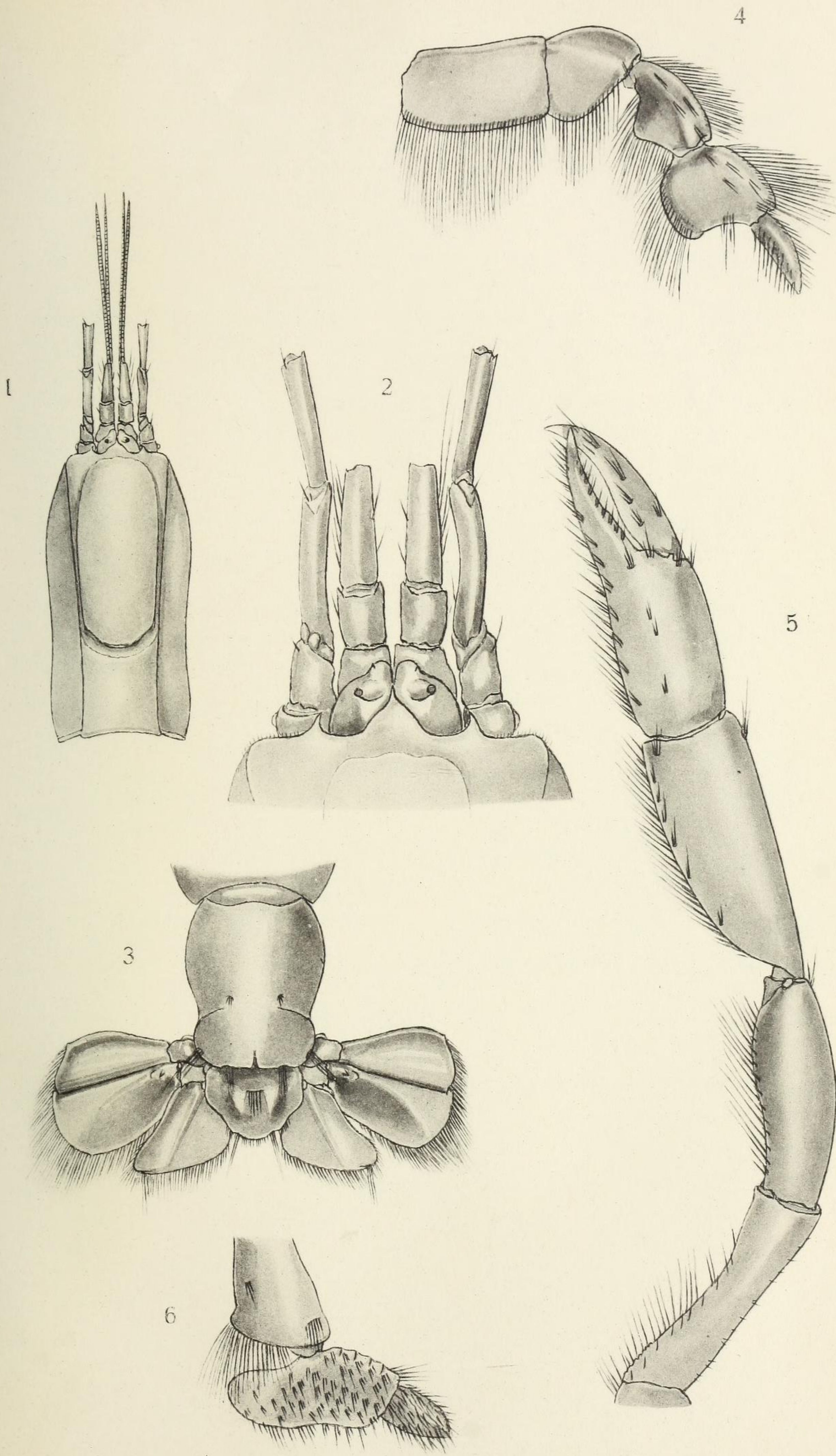
Alpheus crassimanus Heller.

Alpheus crassimanus C. Heller, Crustaceen der Novara-Reise, 1865, p. 107, Pl. X, fig. 2.

Alpheus crassimanus J. G. de Man, The Decapoda of the Siboga Expedition, Part II, Family Alpheidae, Leyden, 1911, p. 417.

One young male, collected by Mr. Buitendijk, Nov. 1910, at Poeloe Weh.

This specimen, 14 mm. long from tip of rostrum to end of telson, quite well agrees with the young male from Stat. 60, described in my work on the Alpheidae collected by the Siboga Expedition. The smaller



chela is 5 mm. long and 1,36 mm. high, 3,7-times as long as high, while the fingers are as long as the palm; grooves on outer and inner surface still hardly developed. Merus of 2nd legs 7,3-times as long as broad, in the young male from Stat. 60, which is 13,5 mm. long, the proportion between length and width of the merus is 7,5. Carpal segments, in the male from Poeloe Weh, 1 mm., 0,92 mm., 0,33 mm., 0,32 mm. and 0,5 mm. long, the chela 0,94 mm., fingers as long as palm; the 1st segment is 5-times as long as thick at its distal extremity, the 2nd 4,6-times as long as wide in the middle. In the young male from Stat. 60 the 1st segment appears to be 4,54-times as long as thick at distal extremity, the 2nd just 4-times as long as thick in the middle. Merus of 3rd legs in the male from Poeloe Weh 4-times, in that from Stat. 60 4,55-times as long as wide in the middle, presenting in the last mentioned specimen already nearly the same proportion as in adult individuals; propodus of 3rd legs in the male from Poeloe Weh 5,7-times as long as broad in the middle, in the male from Stat. 60 6-times.

Alpheus crassimanus, which is distributed throughout the Indian Archipelago and also known from Djibouti, at the southern extremity of the Red Sea, was discovered in 1865 by the Novara Expedition at the Nicobar Islands, in the immediate neighbourhood of Poeloe Weh.

EXPLANATION OF PLATE I.

- Fig. 1. *Callianassa* (*Callichirus*) *vigilax* n. sp. Carapace and both pairs of antennae, \times 2.
Fig. 2. Anterior part of carapace with the eye-stalks and the two pairs of antennae, \times 6.
Fig. 3. Caudal fan, 6th somite and posterior end of 5th, \times 2.
Fig. 4. Right maxilliped of 3rd pair, \times 4.
Fig. 5. Left leg of 1st pair, \times 4.
Fig. 6. Distal part of carpus, propodus and dactylus of right leg of 3rd pair, \times 4.
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