

XI. — DIAGNOSES OF SOME NEW SPECIES OF PENAEIDAE AND ALPHEIDAE WITH REMARKS ON TWO KNOWN SPECIES OF THE GENUS PENAEOPSIS A. M.-EDW. FROM THE INDIAN ARCHIPELAGO. BY Dr. J. G. DE MAN. — IERSEKE (HOLLAND).

*Penaeopsis Lysianassa* (de Man).

*Penaeus Lysianassa* J. G. de Man, in: Journal Linnean Soc. London, Zoology, XXII, 1888, p. 290, Pl. 19, figs. 1—11.

1 young male collected 1892 by Mr. Herbst at Bagan Api Api, Sumatra.

2 young males and 2 young females collected October 1911 by Dr. P. Buitendijk in the road of Samarang.

The specimens were compared by me with three full-grown cotypes from the Mergui Archipelago, 2 males and 1 female, preserved in my private collection. The examination revealed the remarkable fact, still unknown, that, like in *Penaeopsis spinulicauda* Stebb. from Durban Bay, the lateral margins of the telson are armed *with numerous little spines* up to a short distance from the acuminate tip; they seem to be 20—25 in number in the adult species, on the posterior half of the telson, and to increase in length from before backward, the posterior being  $\frac{1}{4}$  to  $\frac{1}{3}$  mm. long.

*Penaeopsis intermedia* (Kish.) var. *anchista* n. <sup>1)</sup>

*Penaeus intermedius* K. Kishinouye, Journal of the Fisheries Bureau, Vol. VIII, N<sup>o</sup>. 1, Tokyo, 1900, p. 21.

1 male and 1 female from the Kei-islands, Wertheim Expedition.

2 females from Ternate.

1 very young specimen, collected by Mr. Rutten at Balikpapan, East Borneo.

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1) ἄγχιοςτος = related, allied.

1 young female from Sangkapocera-roads, Bawean-island, collected by the Siboga Expedition at a depth of 12 m. Bottom mud. (Stat. 323).

1 young male collected July 1915 by Dr. P. Buitendijk at Pulu Weh.

These specimens differ from the Japanese *Penaeopsis intermedia* (Kish.) by the following. The rostrum is *obliquely directed upward* and armed with 9—11 teeth in addition to the isolated epigastric tooth; the two posterior of the 3 spinules with which the telson is armed at either side, are *shorter* than in the typical species, the posterior spinule reaching only *to the middle* of the distance between the insertion and the tip, while the anterior is only *half as long* as the posterior one.

In the largest specimen, a female from Ternate long 80 mm., the rostrum reaches a little beyond the 2<sup>nd</sup> joint of the antennular peduncle, in the male from the Kei-islands, long 77 mm., to the middle of this joint, in the young female from Stat. 323 almost to the middle, but in the very young specimen, long 16 mm., from Balikpapan it extends only to the corneae of the eyes. First, second and third abdominal terga rounded, the fourth obtusely carinated, except the anterior 3<sup>rd</sup> or a little more, fifth and sixth sharply carinated.

Petasma symmetrical, terminating distally at either side in an acuminate spout, between which are placed two shorter rounded lobes.

*Penaeopsis ensis* (de Haan) from Japan differs from both the typical *Pen. intermedia* and the variety *anchista* by an obtuse crest which from the hepatic spine runs backward to the posterior margin of the carapace and furthermore by the stronger carination of the abdomen: the posterior half of the 2<sup>nd</sup> tergum is crested, there is a distinct *flattened* keel on the 3<sup>rd</sup>, while the 4<sup>th</sup> to 6<sup>th</sup> terga are sharply carinated. In *Pen. ensis* the rostrum is slightly turned upward, the two posterior spinules of the telson are rather long like in the typical *intermedia*, but, like in the variety *anchista*, the anterior spinule is only half as long as the posterior. In *Pen. ensis*, finally, the pereopods of the 1<sup>st</sup> pair are also bispinose.

(These characters of *Pen. ensis* were communicated to me by Dr. R. Horst of the Leiden Natural History Museum, who kindly did examine the only still existing type specimen of this species).

#### *Penaeopsis Borradailei* de Man.

*Penaeopsis Borradailei* J. G. de Man, Siboga Exp., Monogr. 39a, Part I, Penaeidae, 1911, p. 73, Pl. VIII, fig. 24—24 b.

1 male collected Dec. 16<sup>th</sup> 1919 by Mr. Laurens on the reef of one of the Little Sunda Islands.

1 female collected April 1913 by Mr. E. Jacobson at Telok Berandang, Pulu Babi, near Sumatra ( $2^{\circ} 7' N.$ ,  $96^{\circ} 40' E.$ ), in the open sea.

Of the male, which was still unknown and which is 40 mm. long, the rostrum is 1 + 8 dentate and reaches to the far end of 2<sup>nd</sup> antennular article. Fourth abdominal tergum of the male with a shallow tomentose groove on either side and close to the middle line. Left branch of the petasma subacute at the tip, *somewhat shorter* than the right, by which it is *concealed* when the petasma is looked at from behind; right branch *obtuse* at the tip and *very convex* in the middle of its posterior surface. Female quite typical.

*Penaeopsis assimilis* n. sp.

13 males and 10 females collected by Dr. P. Buitendijk off Pulu Weh, near the north point of Sumatra.

A new species of the Akayebi-group, closely related to *Penaeopsis gallensis* (Pearson) from Ceylon, but distinguished by the petasma and the thelycum. (J. Pearson, On the Macrura, in: Report on the Pearl Oyster Fisheries of the Gulf of Manaar, 1905, p. 72, Pl. I, fig. 3).

Left branch of the petasma reaching *much farther* beyond the right than in *Pen. gallensis*; that part which projects beyond the right branch, looks more or less like a sugar-loaf, 3-times as long as broad or thick at base, and measures *one-sixth* the entire length of the left branch; this terminal part appears under the microscope *smooth* and *unarmed*. The right branch bears at the tip a small prominence turned toward the left and one observes on the anterior side of this branch, distally, a large, regularly rounded lobe.

A pair of ventral spines between the legs of the 2<sup>nd</sup> pair in the female. Between the coxae of the 4<sup>th</sup> pair one observes, like in *Pen. gallensis*, a transverse crest, acute in the middle and rounded laterally, but between this crest and the posterior wall of the thelycum, which shows also in the middle an acute point, are situated *three lobes*, one median and two lateral. Median lobe, placed immediately behind the transverse crest, just as long as broad anteriorly; both the anterior and the posterior border are emarginate, the antero-lateral angles are subacute and this median lobe seems to be composed of two obtuse ridges that converge backward but posteriorly again diverge. The two lateral lobes, placed between the 5<sup>th</sup> pair posterior to the median lobe, consist each of a transverse crest terminating laterally in a subacute tooth; the two crests are in the middle separated by a smooth interspace.

Rostrum as in *Pen. gallensis*, but the epigastric tooth much smaller than the 1<sup>st</sup> of the 6 or 7 rostral teeth; abdomen also as in this species, but the 6<sup>th</sup> somite almost twice as long as the 5<sup>th</sup>. External maxillipeds reaching along the two proximal third parts of the antennal scale. Peraeopods of 1<sup>st</sup> pair bispinose, those of 2<sup>nd</sup> unispinose.

Length of the largest male 35 mm. (rostrum 3,25 mm., carapace 6 mm.); for the largest female these numbers are 37 mm. (rostrum 3,5 mm., carapace 6,75 mm.).

*Athanas Stebbingii* n. sp.

1 egg-bearing female collected February 24/25, 1900 by the Siboga Expedition at Sangkapoera-roads, Bawean-island. Depth 12 m. Bottom mud. (Stat. 323).

A new species of the *Dimorphus*-group, closely related to *A. dimorphus* Ortm. and to the female of *A. polymorphus* Kemp.

Rostrum triangular acuminate, reaching just beyond the 2<sup>nd</sup> joint of the antennular peduncle, measuring one-third the rest of the carapace. Supra-corneal spines wanting. Extra-corneal spine acute, reaching to the middle of the eyes. Infra-corneal angle *rounded*, reaching almost as far forward as the extra-corneal spine. *No spine* near the rounded antero-lateral angle of the carapace. Abdomen about one and a half as long as the carapace, the telson respectively the rostrum included; telson measuring one-fourth the rest of the abdomen,  $1\frac{3}{4}$ -times as long as the greatest width at base, distance between the postero-lateral angles nearly half the width at base.

Second antennular article measuring one-third of the first, the third *one-third longer* than the second, a trifle less broad. Fused part of the outer antennular ramus composed of 3 joints of which the 1<sup>st</sup> or proximal is as long as the two following that are subequal, taken together. Stylocerite large, reaching almost to the middle of 3<sup>rd</sup> antennular article. Scaphocerite almost twice as long as broad, a little longer than the antennular peduncle.

Peraeopods of 1<sup>st</sup> pair very nearly equal, projecting by the chela and half the carpus beyond the antennal scale. Carpus *slightly shorter* than the merus, the proportion being like 15 : 17, carpus 5-times as long as thick at the distal extremity; *chela only a trifle shorter than the carpus*, fingers measuring *three-fifths* of the palm.

The three posterior legs regularly diminish in length and stoutness. Carpus of 3<sup>rd</sup> pair three-fifths of the merus, 4-times as long as thick distally; propodus almost twice as long as the carpus, 9-times as long

as wide; dactylus *simple*, measuring *one-third* of the propodus and 6-times as long as broad at its base.

Ova small, 0,5 mm. long.

Length 9,66 mm. from tip of rostrum to tip of telson (carapace 3,7 mm. long, abdomen 5,96 mm.).

*Synalpheus Sluiteri* n. sp.

1 full-grown egg-bearing female and 1 younger specimen, collected by Prof. C. Ph. Sluiter in the Bay of Batavia.

A new species of the *Neomeris*-group, closely related to *Syn. paraneomeris* Cout. and its varieties.

Rostrum rather slender,  $2\frac{1}{2}$ -times as long as broad at base, as long as basal antennular article, subacute; lateral teeth triangular, one-fourth shorter, with the acute tips slightly turned inward. Antennular peduncle *stout*, only *three* times as long as wide, 2<sup>nd</sup> article *just as long as wide*, 2<sup>nd</sup> and 3<sup>rd</sup> together almost one and a half as long as the visible part of 1<sup>st</sup>. Upper angle of basicerite *subacute, a little prominent*, though not spiniform. Carpocerite 3,85-times as long as wide, projecting beyond the antennular peduncle by the whole length of 3<sup>rd</sup> article; terminal spine of scaphocerite *a little shorter* than the carpocerite, the lamella nearly as long as the peduncle of the upper antennae.

Telson as in *Syn. paraneomeris*, but the dorso-lateral spinules are implanted *nearer* to the lateral margins.

Upper border of the merus of the larger cheliped, (the smaller is wanting), terminating distally *in a small acute tooth*, chela like in *Syn. paraneomeris*. First segment of the carpus of 2<sup>nd</sup> pair *a little longer* than the sum of the four following, 2<sup>nd</sup> and 3<sup>rd</sup> segment equal, 4<sup>th</sup> *a little shorter* than 3<sup>rd</sup>, chela as long as the sum of the four last joints of the carpus. Merus of 3<sup>rd</sup> legs unarmed, 3,86-times as long as wide, propodus 6-times as long as wide, with 4 spinules, long 0,15—0,17 mm., on the lower margin besides the two at the distal extremity; relative measurements: merus 2,24, carpus 1, propodus 1,95, dactylus (measured to the tip of the ventral hook) 0,42; dactylus of a *rather stout* shape, the width at the base being *two-fifths* the length, dorsal hook a little longer than ventral, its thickness at the base two-thirds that of the ventral hook.

Ova few in number, large, 1,3—1,35 mm. long.

Length 13 mm.

*Synalpheus hastilicrassus* Cout., var. *acanthitelsoniformis* n.

1 male collected July 9/11, 1899, by the Siboga Expedition at the east side of Pajunga Island, Kwandang-bay, on the reef (Stat. 115).

The pleopod of the 2<sup>nd</sup> pair bears neither an appendix masculina nor a stylamblys and also in the other pleopods a stylamblys does not occur: therefore this specimen is considered to be a male (H. Coutière, Les „Alpheidae”, 1899, p. 296). This specimen differs from the typical species by the spiniform postero-lateral angles of the telson projecting *by half their length beyond the posterior margin*, exactly as in *Syn. acanthitelsonis* Cout., furthermore by the longer terminal spinules of the telson projecting by three-fourths of their length beyond the posterior margin, measuring two-thirds the width of the latter.

Length about 10 mm.

*Alpheus anchistus* n. sp. <sup>1)</sup>.

*Alpheus* sp., J. G. de Man, Siboga Exp. Mon. 39a, Alpheidae, 1911, p. 383, Pl. XIX, figs. 85—85 b.

1 male and 1 egg-bearing female collected by the Siboga Expedition off Ambon at a depth of 54 m.

The nearest related species are *A. tenuicarpus*, *A. tenuipes* and *A. rapacida*, described in my work on the Siboga Alpheidae. The two specimens belong to the same species as the male <sup>2)</sup> from Stat. 51, described by me (l. c.) as *Alpheus* sp. The two pairs of antennae agree with the figure 85, but in both specimens the antennal peduncle is just as long as the peduncle of the upper antennae. Merus of the small cheliped of the female 5-times as long as broad, upper margin unarmed at distal extremity, infero-external margin serrulate by about 25 serrulations, infero-internal margin with 5 movable, aciculiform spinelets and a small acute tooth at the distal end; palm 3,25-times as long as broad, a little shorter than the fingers, proportion between their length like 13:16.

Relative measurements of the 3<sup>rd</sup> leg of the male: merus 2,2; carpus 1; propodus 1,44; dactylus 0,75. Merus 7,7-times as long as broad, carpus 4-times as long as thick, propodus almost 10-times as long as broad in the middle. Relative measurements of the 4<sup>th</sup> leg in the male: merus 1,9,

1) ἄγχιςτος = related, allied.

2) The specimen from Stat. 51 was reexamined by me and proved to be a male, the 2<sup>nd</sup> pleopod bearing a stylamblys and a setose appendix masculina.

carpus 1, propodus 1,45, in the female: merus 1,8, carpus 1, propodus 1,4, dactylus 0,75. Telson 4-times as long as the posterior margin is wide, dorso-lateral spinules large, 0,26 mm. long.

Length of both specimens 20 mm.

*Alpheus eurydactylus* n. sp.

1 adult male and 1 ova-bearing female from Java.

Closely resembling *A. Euphrosyne* de Man from the Java Sea, the Flores Sea and Bangkok, but distinguished by the following. Rostrum *a little shorter*, not yet reaching to the middle of the visible part of 1st antennular article. Rostral carina *distinct*, separated by *broad, rather deep* grooves from the orbital hoods, rounded above and passing at the end of the hoods into the smooth surface of the carapace. Telson like in *A. Euphrosyne*, but the anterior pair of dorso-lateral spinules implanted *a little before* the middle, the posterior pair also *a little more forward* and the uropods *slightly longer* in proportion to their width. Antennae and antennulae exactly like in *A. Euphrosyne*, also the external maxillipeds. Larger cheliped only differing from that of *A. Euphrosyne* by the palm of the chela being *a little higher* in proportion to the length. Fingers of the small chela of the male almost *quite as long* as the palm and the flattened upper surface of the dactylus *comparatively broader, half as broad as long*. Palm and fingers of the small cheliped of the female *less high* in proportion to their length: in the adult female of *A. Euphrosyne* the small chela is 16,5 mm. long, the palm 6 mm. long and 3,8 mm. high, in the female of *A. eurydactylus* these numbers are, in the same succession, 14 mm., 6 mm., 3 mm.

Male long 40 mm., female 45 mm. from apex of rostrum to tip of telson.

Ierseke, January 1920.