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DIAGNOSES OF NEW SPECIES OF MACRUROUS DECAPOD CRUSTACEA FROM THE SIBOGA-EXPEDITION

BY

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Family GLYPHOCRANGONIDAE.

Glyphocrangon pugnax n. sp.

Stat. 297. 10° 39′ S., 123° 40′ E. Between the islands of Rotti and Timor. 520 m. Bottom soft, grey mud with brown upper layer. 2 females of equal size without eggs.

The nearest allied form is Glyph. hastacauda Bate, the anterior half of the 3rd or dorso-lateral crest extending from near the cervical groove forward and continuous with the orbital spine. The rostrum, which is little shorter than the carapace and which reaches by two-fifths its length beyond the antennal scale, appears a little less broad in proportion to its length than that of Glyph. hastacauda: while in the latter the distance between the tip and the line, uniting the two spines of the posterior pair, is three times as long as the length of this line, in Glyph. pugnax it is four times as long. Lateral margins of the rostrum between the two pairs of spines running straight backward and parallel with one another, in Glyph. hastacauda they appear here concave. Orbital spine directed straight forward, when the carapace is looked at from above, and concealing in this position the branchiostegal spine.

Anterior moiety of dorsal crest divided into 6 or 7, posterior into 4 or 5 low, obtuse tubercles. Anterior moiety of the 2nd or

subdorsal crest broken up into 4 tubercles, posterior moiety, which in Glyph. hastacauda is smooth and entire, in Glyph. pugnax also divided into 4 or 5 low obtuse tubercles. Third and 4th crest like in Glyph. hastacauda, but the posterior half of the 3rd crest is anteriorly obtuse. As well on the gastric as on the cardiac and branchial regions numerous small granules are observed between all these crests and these granules, partly subacute, partly obtuse and of unequal size, are more or less distinctly arranged in longitudinal lines. Abdomen like in Glyph. hastacauda, but the small crests and tubercles, with which the somites are furnished, are a little more distinct and a little more prominent.

Eyes (in spirit) of a pale chestnut colour.

For the rest like Glyph. hastacauda.

Length 82 mm. (rostrum 17 mm., carapace 19 mm., abdomen 46 mm.).

Glyphocrangon assimilis n. sp.

Stat. 316. 7° 19'.4 S., 116° 49'.5 E. Bali Sea. 538 m. Bottom fine, dark brown sandy mud. 2 males and 3 females, one of which is ova-bearing.

A new species of small size, closely related to Glyph. Gilesii W.-Mas. Rostrum, orbital and branchiostegal spines like in this species. Anterior moiety of the dorsal crests that run parallel, divided into 6 or 7, posterior moiety into 3, rarely 4 or 5, low, obtuse tubercles. Anterior moiety of subdorsal crest broken up into 4 tubercles, of which the 1st or anterior is the largest, subacute and separated by a deeper and longer interspace from the 2nd than the others that are low, obtuse; posterior moiety formed by 3, 4 or 5 low, obtuse tubercles. Anterior moiety of the 3nd or dorso-lateral crest like in Glyph. Gilesii, but the carina does not reach backward to the cervical groove, but only to midway between the tooth-like anterior extremity and that groove, though it is followed backward by one or two small granules; sometimes the crest is still more reduced. Posterior moiety of 3nd crest smooth. Fourth or lateral crest like in Glyph. Gilesii.

Abdominal somites covered with numerous circular tubercles

of unequal size, that are rounded and obtuse on the 1st to 3rd somite and acute on the 5th and 6th, with the sharp tip turned backward. Toward the lower border of the pleura these tubercles or granules diminish in number and size. Median crest of abdomen rather prominent. Telson little longer than uropods, with only the extreme tip slightly curved upward.

Eyes (in spirit) dark-purple. Antennal scale elliptical, in the male almost twice, in the female two and one-third times as long as broad; its length measures in the male $\frac{1}{4,55}$, in the female $\frac{1}{3,8}$ the length of the carapace, rostrum included. Peraeopods like in *Glyph. Gilesii*, dactyli of 3rd and 5th pair almost half as long as the propodi, those of 4th pair two-thirds the penultimate joint.

Eggs few in number, greatest diameter 2 mm.

Length of larger male 55 mm., of the largest ova-bearing female 64 mm.

Glyphocrangon Sibogae n. sp.

Stat. 18. 7°28'.2 S., 115°24'.6 E. Bali Sea. 1018 m. Bottom fine grey mud. 1 adult, much mutilated specimen and 1 young female.

Stat. 45. 7°24′S., 118°15′.2 E. Flores Sea. 794 m. Bottom fine grey mud, with some radiolariae and diatomes. 6 females of different size, 2 of which are ovigerous.

A new species belonging to that Section, in which the anterior moiety of the 4th or lateral crest is divided into two parts produced anteriorly into moderate spines, the anterior of which falls far short of the anterior border of the carapace; both spines are sharp, the anterior more prominent laterally and therefore a little larger than the posterior. Rostrum like in Glyph. sicaria Faxon, but the upper surface is transversely corrugated in front of the anterior pair of spines and the lower surface is distinctly carinated in the middle line. The whole animal is covered with a close velvety tomentum. Orbital and branchiostegal spines like in Glyph. sicaria Faxon, but the branchiostegal is a little longer than the other and more strongly turned downward.

Dorsal and subdorsal crests conspicuous, divided into low, obtuse tubercles, that are not prominent; a few granules are observed

between the posterior moiety of the dorsal and the subdorsal crest, but there are no granules between the dorsal crest and its fellow. Anterior moiety of the dorso-lateral crest wanting, posterior moiety of this and of the 4th or lateral crest entire, prominent, obtuse at their anterior extremities. Branchial region smooth between these crests. All the tubercles and crests of the carapace, like most tubercles of the abdomen, show a corroded and eroded appearance.

Abdomen nearly as in *Glyph. sicaria*. Median crest interrupted on the 2nd and all the following somites, moderately prominent; on the three anterior somites the crest is rounded, obtuse, on the following it becomes gradually more compressed laterally. Lateral edges of the telson smooth.

Eyes in the adult blackish or mouse-coloured. Antennae and antennulae like in *Glyph. sicaria* Faxon, antennal scale almost twice as long as broad, the inner margin more strongly curved than the outer.

Second peraeopods reaching in the adult by the chela beyond the antennal scale, but at every age shorter than any of the three posterior legs. Dactyli of 3rd pair one-third, those of the two last pairs half as long as their propodi; the dactyli are lanceolate, of those of the 4th and 5th pair the upper surface is longitudinally ridged from the tip to the base.

Eggs few in number, large, 2,5—3 mm. broad.

Length of largest female 108 mm. (rostrum 24 mm., carapace 27 mm., abdomen 57 mm.).

Glyphocrangon megalophthalma n. sp.

Stat. 48. 8° 4′.7 S., 118° 44′.3 E. Flores Sea. 2060 m. Bottom fine, grey mud; partially green. 2 young females.

Stat. 76. 4°22′.1 S., 118°16′.9 E. Strait of Makassar. 2029 m. Bottom fine, grey mud. (Globigerina). 2 females, one of which is full-grown, ovigerous, the other of medium size.

Stat. 208. 5° 39′ S., 122° 12′ E. South of Muna Island. 1886 m. Bottom solid green mud. 1 adult male.

A new species, the nearest related forms of which are Glyph. longi-

rostris S. I. Smith and Glyph. vicaria Faxon (W. Faxon, in: Bull. Mus. Comp. Zool. Vol. XXX, No 3, Cambridge, Mass. 1896, p. 159, footnote).

Rostrum in the adult male one-fourth, in the full-grown female one-third shorter than the carapace, constantly shorter than in Glyph. vicaria Faxon, upper surface smooth on each side of the median ridge, while in the two other quoted species it is transversely corrugated. The rostrum is narrower in front of the anterior lateral spines than in Glyph. longirostris, but for the rest resembles that of this species (S. I. SMITH, Report Decap. Crust. Albatross Dredgings, Wash. 1886, Pl. VIII, Fig 2 and IX, Fig. 3), also as regards the form, size and position of the conical, acute, anterior tooth of the subdorsal crest. Orbital spine less strongly turned outward than in Glyph. longirostris. Dorsal and subdorsal crests of the carapace for the rest like in Glyph. Sibogae n. sp., but the tubercles a little more prominent and subacute; in Glyph. vicaria the tubercles are spiny and much more prominent than in Glyph. megalophthalma. Hepatic region with 2 small tubercles behind one another, posterior moieties of the 3rd and 4th crests straight, obtuse at the anterior extremity; anterior moiety of the 4th crest divided by a shallow notch into two parts, the anterior part forming a sharp spine or tooth, that falls far short of the anterior border of the carapace, the posterior part forming an obtuse angle, that is less prominent laterally than the anterior tooth. Abdomen as regards number and arrangement of the crests and tubercles like Glyph. Sibogae, but all the crests and tubercles are more or less distinctly carinated. Dorsal edges of telson smooth or nearly smooth at base.

Eyes (in spirit) light leather-coloured, not dark, of a large size, the proportion between the length of the carapace, including the rostrum, and the greatest diameter varying between 6,4:1 and 7,4:1.

Antennal scale twice as long as broad, both margins with a characteristic indentation, looking like a contusion, not far from the obtuse tip.

Second peraeopods shorter than any of the 3 posterior pairs, which resemble those of Glyph. Sibogae.

Greatest diameter of ova 3,5 mm.

Length of male, rostrum included, 73 mm., of ovigerous female 86 mm.

Glyphocrangon (Plastocrangon) Faxoni n. sp.

Stat. 12. 7°15'S., 115°15'.6 E. Bali Sea. 289 m. Bottom mud and broken shells. 1 adult female without eggs, of which the rostrum and the right half of the carapace are much mutilated.

Stat. 297. 10° 39′ S., 123° 40′ E. Between the islands of Rotti and Timor. 520 m. Bottom soft, grey mud with brown upper layer. 1 ovigerous female.

A new species, related to Glyph. (Plastocrangon) caecescens W.-Mas., differing from it by the hepatic area bearing a small obtuse tubercle, by the shape of the posterior moiety of the dorso-lateral crest and by the body not presenting a general crisp tuberculation.

Rostrum of the female from Stat. 297, which is the type, 11,5 mm. long, carapace 13 mm., abdomen 30,5 mm., entire length 55 mm. Surface of carapace and abdomen glabrous, naked. Rostrum reaching by a little more than one-third its length beyond the antennal scale, distal third curved upward. Median ridge not elevated above the lateral margins. Anterior pair of spines pointed, just reaching beyond the eyes, spines of the posterior pair smaller, obtuse, situated immediately behind the orbital margin. Orbital spine small, contiguous to the eye, branchiostegal spine twice as long, directed straight and horizontally forward. Anterior moiety of dorsal crest divided into 5 low, obtuse tubercles, of which the 1st or anterior is the longest, posterior moiety cut into two obtuse tubercles of equal length and a little longer than the 1st of the anterior moiety; 3 tubercles, like in other species, situated in a triangle between the anterior end of the dorsal crests and the shallow rostro-gastric groove, and 6 or 7 small granules between the two crests anteriorly. Both the anterior and the posterior moiety of the subdorsal crest are divided into 3 low, obtuse tubercles, of the 3 tubercles of the posterior moiety the middle one is the longest. A longitudinal blunt tubercle on the hepatic area, nearly midway between

the base of the branchiostegal spine and the hepatic groove, a small granule posteriorly near this groove. Posterior moiety of dorso-lateral crest divided into 3 obtuse lobes or tubercles, of which the anterior is half as long as the 2nd, which is as long as the 3rd. Of the 2 teeth of the anterior moiety of the lateral crest the anterior is acute and reaches as far forward as the margin between the orbital and the branchiostegal spine, the posterior is longer, obtuse; posterior moiety obsoletely notched at the posterior third.

Abdomen much resembling that of Glyph. (Plastocrangon) caeca W.-Mas., but the 4th, 5th and 6th terga are slightly longer with regard to their width and their tuberculation is different. Median crest of 2nd and 4th tergum hardly notched, that of 3rd entire; 6th tergum separated from the pleuron by a longitudinal row of 4 subacute tubercles, telson not crested anteriorly, though with a small, acute tooth at base.

Antennular peduncle reaching by the terminal joint, which is half as long as the 2nd, beyond the antennal scale; the latter twice as long as broad, as long as the antennal peduncle. Eyes (in spirit) of a drab colour. External maxillipedes just reaching beyond the scale. Peraeopods of 2nd pair much longer than the three following, projecting by the chela and one-third the carpus beyond the scale. The three posterior peraeopods nearly as in Glyph. (Plastocrangon) caeca W.-Mas.

Eggs not numerous, of a rusty colour, greatest diameter 2,3 mm. The female from Stat. 12 belongs to a variety, distinguished by the blunt tubercle on the hepatic area being substituted by 2 small granules, by the anterior moiety of the dorsal crest being formed by 4 or 5 tubercles, of which the posterior but one is much larger and longer than the other ones, that are small, by the two posterior lobes of the posterior moiety of the dorso-lateral crest being hardly separated and by the median crests of the abdomen being more prominent, while those of the 2nd and 6th tergum are entire, not notched.

Family Crangonidae.

Aegeon (Risso) Guér.-Ménev.

Aegeon pennata (Bate), var. affinis Alcock.

Syn.: Aegeon affine, A. Alcock, A descr. Catal. Indian Deep-Sea Crustacea, Calcutta 1901, p. 118.

Illustrations Zool. "Investigator", Plate LI, Figs. 3, 4.

The examination of 7 typical specimens of A. pennata (Bate), collected by the "Siboga" in Lobetobi Strait and in Saleh Bay, Sumbawa, proved that A. affinis Alcock from off Bombay should be considered at least as a distinct local variety of Bate's species. Among the 7 typical specimens are two full-grown females of equal size, long 43 mm. from tip of rostrum to tip of telson, and one adult male long 37 mm. When the cited figures of A. affinis are indeed accurate and correct, the typical species differs by the body being less broad in proportion to the length: in fig. 3, representing the female of A. affinis, the body appears only four times as long as the 2nd somite of the abdomen is wide, in the full-grown typical females, however, five times, in the male of the variety five, in that of the typical form about six times. In the typical species the posterior moiety of the lateral crest of the carapace runs straight backward, parallel with its fellow, and one observes usually only one minute notch just behind the spine at the anterior extremity: in the variety affinis the posterior moiety of this crest is coarsely serrate along its whole length. In the adult male and in the adult female of the typical species the antepenultimate thoracic sternum is smooth, in the male the two posterior sterna are sharply carinated in the middle line, in the female also smooth; in the variety affinis, however, in the male the last three thoracic sterna are sharply carinated and in the female the carination of the antepenultimate sternum is distinct, but that of the last two is obsolescent.

In the typical species, finally, the 2nd peraeopods do not differ in the two sexes, reaching both in the male and in the female but a little beyond the carpal articulation of the hand of the anterior pair and the carpus is but little (in the full-grown female only one-sixth) longer than the chela: in the variety affinis, however, the 2nd legs are in the adult female almost as long as the 1st pair, whereas in the adult male, and in the young, they show the same length as in the typical form; in the adult female the carpus appears moreover relatively longer.

Aegeon propensalata (Bate), var. hilarula n.

Aegeon propensalata, Stanley Kemp, in: Records of the Indian Museum, Vol. XII, Part VIII, Calcutta 1916, p. 377 (ubi synon.). Illustrations Zool. "Investigator", Plate XLI, figs. 6, 6a.

Stat. 47. Bay of Bima, near south fort. 55 m. Bottom mud with patches of fine coral sand. 1 male.

Like in Aegeon media Alcock, which, according to Dr. Calman, is identical with A. propensalata (Bate), the abdominal pleura of this probably still young male are inferiorly truncate: this specimen, however, differs from that species by the following. The triangular rostrum, that reaches only to the middle of the eyestalks, is bidentate at apex and the tooth on either side of the base is rather small, not larger than the teeth at apex; the distance, measured in the middle line, between the line uniting the two teeth on either side of the base and that which unites the apical teeth, is one-fifth shorter than the distance between the tips of the two teeth at base and the latter is nearly 5-times as long as the distance between the tips of the two apical teeth.

All the processes with which the carapacial carinae are armed, are obtuse, blunt, those of the 1st or dorsal carinae, on each side of the middle, are a little more prominent than those of the other crests and the serration of the supra-marginal carina is very obscure.

Sculpturing of abdomen well developed, agreeing with the cited figures of the "Illustrations", but the tergum of the 2nd somite bears, on either side of the middle, two tubercles, separated by a vertical furrow, that reaches to near the median crest, like in A. pennata (Bate), A. Sibogae n. sp. and its variety intermedia n.

Second legs short, reaching only with the fingers beyond the carpal articulation of the hand of the anterior pair, carpus slender, hardly longer than the chela, which is nearly 5-times as long as broad, fingers almost as long as palm. Third legs setaceous, resembling Bate's figures 2 and 3 in the Report on the Challenger Macrura, propodus as long as merus, carpus a little longer, dactylus half as long as propodus.

Carapace long 7,7 mm., measured in the middle line, abdomen 18 mm., entire length 25,7 mm. —

Aegeon Sibogae n. sp.

Stat. 15. 7° 2′. 6 S., 115° 23′. 6 E. Bali Sea, south of Kangeang. 100 m. Bottom fine coralsand. One female without eggs.

This species belongs to that section of the genus, in which the lateral carina of the carapace is interrupted by the well defined hepatic groove, and is closely related to A. pennata (Bate).

The huge spine at the anterior extremity of the lateral carina runs straight forward, with the tip but slightly turned outwards, much less than in A. pennata, the distance between the tips being even a little smaller than the greatest width of the carapace. Posterior moiety of lateral crest like in A. pennata (Bate), var. affinis Alcock (Illustr. Zool. "Investigator", Pl. LI, fig. 3), with anteriorly a sharp tooth and behind it 5 smaller ones. Supramarginal carina distinctly serrate by 13 or 14 processes, that are small, little prominent and that are all obtuse excepting the anterior which is acute: both in the typical A. pennata and its variety affinis the supra-marginal carina is smooth.

Antepenultimate thoracic sternum of the adult female armed, in the middle line, with a large, laterally strongly compressed tooth, the sharp tip of which is curved forward; penultimate with a similar tooth, that is, however, smaller and less strongly compressed; last thoracic sternum smooth. In the adult female of the typical A. pennata the three posterior thoracic sterna are smooth, unarmed, while in the variety affinis Alcock the carination of the antepenultimate is distinct, but that of the last two obsolescent.

Abdomen sculptured exactly after the same pattern as in the

typical *pennata*, but the sculpturing is more prominent and the point to which the pleura are vertically produced, appears *less sharp*, on the 1st and 2nd subacute, on the following rather blunt; the two submedian carinae of the 5th tergum are *entire*, whereas in the typical *pennata* they are armed with a small acute tooth just behind the middle.

Peraeopods of 1st pair of a stouter shape than those of A. pennata, so that the propodus appears in the latter four, in A. Sibogae only three times as long as broad in the middle. Second peraeopods reaching by the chela and half the carpus beyond the carpal articulation of the hand of the 1st pair, carpus a little more than one and a half as long as the chela, the latter 6-times as long as broad, in the typical A. pennata 4-times; fingers half as long as the palm.

Measured in the middle line, the carapace appears to be 13,3 mm. long, the abdomen 31,7 mm., entire length 45 mm.

Aegeon Sibogae, var. intermedia n.

Stat. 302. 10° 27′. 9 S., 123° 28′. 7 E. Between the islands of Rotti and Timor. 216 m. Bottom sand and coralsand. One female without eggs.

The female from Stat. 302 differs from the typical species by the following. The large spine at the anterior extremity of the lateral crest of the carapace is as much turned outwards as in the typical A. pennata (Bate). The antepenultimate thoracic sternum bears the same tooth as in the typical species, but the penultimate is only sharply carinated without a tooth and the last is also sharply carinated in the middle line.

On the 3rd abdominal tergum the ridge, on either side of the median carina, passes without an interruption into the subtransverse ridge near the posterior margin, in the typical A. Sibogae both are separated by a groove.

Length of carapace 11,7 mm., of abdomen 28,3 mm., entire length 40 mm.

This specimen is for the present considered as a variety, but may, of course, once prove to be a distinct species.

Aegeon Rathbuni nov. nom.

Egeon orientalis, M. J. Rathbun, in: U. S. Fish Commission Bulletin for 1903, Part III, Wash. 1906, p. 911, Pl. XXIII, fig. 3 (Nec Aegeon orientalis Henderson).

Stat. 89. Pulu Kaniungan Ketjil. 11 m. Bottom coral. 1 male.

To the characters, mentioned by Miss Rathbun (l. c.), the following may be added. Rostrum terminating anteriorly in two slender, subacute teeth, separated by a broad interspace and with a smaller spine on either side at base; distance (0,5 mm.) between the line, long 0,72 mm., uniting the tips of the two basal teeth, and the line, long 0,4 mm., uniting the tips of the two apical teeth, only one-fourth longer than the length of the latter line. Antepenultimate thoracic sternum with a strongly compressed, acute tooth, the two posterior sterna sharply carinated, the carinae with subacute anterior extremity.

Telson little shorter than carapace, deeply grooved, with 2 pairs of microscopical spinules on the lateral borders of the groove. Abdominal sterna toothed in the middle line. Pleura of the 1st, 3rd and 4th somite truncate with rounded posterior margin, pleuron of 2nd very obtusely angulate or almost rounded inferiorly, 5th pleuron also rounded.

Antennular peduncle reaching about to the middle of the antennal scale, scale hardly longer than broad.

Carapace long 8 mm., abdomen 20 mm., entire length 28 mm.

Sabinea Owen.

Sabinea indica n. sp.

Stat. 65a. Very near Station 65. (7° 0′ S., 120° 34′. 5 E). North of Tanah Djampeah Island. From 400 m. Pale, grey mud, changing during haul into coral bottom. One female without eggs.

This species is very interesting, because no representatives of the genus Sabinea were until at present known to occur in the Indopacific, it differs moreover considerably from the three other species of the genus. Carapace, rostrum included, 12,5 mm. long, abdomen 35 mm., entire length 47,5 mm. Carapace of a stout shape, greatest width, 7,5 mm., as large as the greatest height, carapace about one and a half as long as broad. Rostrum acute, 3,5 mm. long, reaching slightly beyond basal antennular article, with the tip curved upward and with a slender spine at either side of the base. Middorsal line of carapace with two large, compressed, acute spines, the anterior or gastric not far behind the rostrum, the other near the posterior margin. Carapace at either side with two rather little prominent keels, the upper unarmed, the lower with two spines, situated close to and immediately behind one another, anterior spine nearly 3-times as long as the posterior and reaching just beyond the gastric spine.

Tergum of 3rd abdominal somite produced posteriorly to a distinctly compressed carina or gibbosity, the upper border of which is arched both longitudinally and transversely. The other somites are not carinated. Sixth somite as long as 4th, 5th hardly shorter than 4th, 4th measuring in the middle line two-thirds of the 3rd. Abdominal pleura smooth, unarmed, much resembling those of *Crangon vulgaris*, with the anterior and posterior margins rounded or obtuse. Telson 8,5 mm. long, a little more than one and a half as long as 6th somite, with 2 pairs of minute dorso-lateral spinules and 2 short spines at either side of the pointed apex.

Antennular peduncle reaching until the middle third part of the antennal scale, 2nd joint hardly longer than broad, 3rd half as long as 2nd; stylocerite acuminate, reaching to far end of basal article.

Antennal scale three-fifths the length of the carapace and 3,7-times as long as broad in the middle.

Merus of anterior legs strongly compressed laterally, upper margin with a spine at distal extremity, lower sharply carinated to a little beyond the middle, the carina lamelliform with small, sharp tooth at the far end. Chela, dactylus excluded, 3-times as long as broad in the middle.

Peraeopods of 2nd pair hardly reaching to the middle of the merus of 1st, dactylus measuring one-third the length of the

propodus, nearly twice as long as broad, the rounded extremity with four long pectinated setae, lateral margins parallel, glabrous. Third legs setiform, very thin. Peraeopods of 4th and 5th pair much stouter, subequal, dactyli styliform, those of 4th pair two-fifths of propodus, those of 5th pair slightly longer.

A long spine with concave surface between the peraeopods of 2nd pair.

Pleopods of 1st pair shaped like in Sab. septemcarinata (C. Spence Bate, Report Challenger Macrura, Pl. XC, Fig. 1 p.,) but the inner branch, which is 6-times as long as broad, with parallel lateral margins and rounded tip, measures three-fourths the length of the outer and the filamentous appendages on the inner margin of the endopodite and of the protopod are more numerous. The following pleopods all with stylamblys and the two branches of equal length.