DESCRIPTIONS OF NEW SPECIES OF CRABS OF THE FAMILIES GRAPSIDÆ AND OCYPODIDÆ.

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Four new species of Indo-Pacific crabs from various sources are here described. They are additional to those included in special faunal reports now in preparation A similar paper was published as No. 1971 of these Proceedings.

Family GRAPSIDÆ.

ERIOCHEIR LEPTOGNATHUS, new species.

Plate 33, figs. 2 and 3.

Type-locality.—Shanghai, China; received from E. Deschamps; 1 female, immature.

Type.—Cat. No. 45567, U.S.N.M.

Dimensions.—Type female, length 10.6 mm., width 11.6 mm.

The single specimen has been dried. Surface much more even than in the species already known; postfrontal and pregastric lobes slightly marked; a finely granulate ridge a little concave forward runs inward from the third lateral tooth; carapace bordered by a raised granulate line; front short, 3-lobed, middle lobe broad and straight (not emarginate) at the middle.

Antero-lateral margin arcuate, tridentate; the first or orbital tooth the longest, rectangular, separated by a U-shaped notch from the second tooth which is acute-angled and sharp; third tooth smaller, acute. The line forming the upper border of the declivous postero-lateral area is sinuous and does not quite reach the posterior margin; postero-lateral margins slightly convergent.

Ischium and merus of outer maxillipeds narrower and longer than in other species; gape correspondingly wider. No tooth on upper margin of arm; an acute tooth at inner angle of wrist; no hair on outer surface of palm; fingers tapering regularly to the slender tips.

The merus joints of the first three legs have an acute subdistal tooth; on the last leg the tooth is rectangular and inconspicuous.

This species differs from *E. japonicus* de Haan,[1] *E. sinensis* (Milne Edwards),[2] and *E. rectus* (Stimpson),[3] in its more even surface, shorter front with straighter margin, shallower orbits, and narrower maxillipeds.

PTYCHOGNATHUS JOHANNÆ, new species.

Plate 30.

Type-locality.—Johanna Island, Comoro Islands, Western Indian Ocean; collected by Hildebrandt; received in exchange from the Berlin Museum; 1 male.

Type.—Cat. No. 22799, U.S.N.M. (formerly No. 4598, Berlin Museum).

Dimensions.—Male, length 16.3 mm., width 19 mm.

Carapace flattened except anteriorly, slightly narrowed anteriorly, regions not delineated; surface punctate, mostly nongranulate; H-depression and postfrontal lobes well marked; front inclined, bimarginate, sinuous, lobes of lower margin projecting beyond those of upper margin; upper margin of orbit sinuous, directed backward and outward; tooth at angle of orbit obtuse; other lateral teeth blunt; teeth not well separated, second overlapping first, and third overlapping second, forming closed fissures and shallow sinuses; the vertical, postero-lateral area separated from the dorsal surface by a ridge only in the posterior half.

Antennules folded obliquely transversely. Epistome narrow, posterior edge crenate. Exognath very convex, its greatest width equaling that of the ischiognath; the latter increasing in width distally; lobe of merognath very large and extended laterally.

Chelipeds of male stout. In the single specimen the right one is much the smaller, perhaps due to regeneration. Upper and inner margins of arm with a scant fringe of hair; inner angle of wrist bluntly rectangular; a patch of hair below the outer angle; left palm about two and one-half times as high as its superior length; a very large patch of long hair on the outer face near the fingers and continued half way along the fingers; largest prehensile teeth near middle of immovable finger; on the outside of this finger near the tip there is a very inconspicuous Y-shaped fringe of short hair; within the spoon of both fingers are several small fascicles of hair.

Legs moderately hairy.

Abdomen of male triangular-oblong; on each side of the first segment there is a deep cavity which occupies about one-fourth of the segment.

[1] *Grapsus* (*Eriocheir*) *japonicus* de Haan, Fauna Japon., Crust., 1835, p. 59, pl. 17.

[2] *Eriochirus sinensis* Milne Edwards, Arch. Mus. Hist. Nat., Paris, vol. 7, 1854, p. 146, pl. 9, figs. 1–1c.

[3] *Eriochirus rectus* Stimpson, Proc. Acad. Nat. Sci. Phila., vol. 10, 1858, p. 103 [49].

This species is closely related to *P. riedelii pilosa* de Man,[1] but differs in several important particulars. The form of the maxilliped is very different; the exognath is narrower, the ischiognath has not parallel sides, nor is the merognath elongate, but broader than long; the palm lacks the curved groove near the wrist which is characteristic of *riedelii* [2] and *r. pilosa;* the abdomen is broader and less triangular, the length of the sixth segment is less than half its proximal width.

SESARMA (SESARMA) TIOMANENSE, new species.

Plate 31.

Type-locality.—Pulo Tioman, Malay Peninsula; Dr. W. L. Abbott; October 14, 1900; 1 female, ovigerous.

Type.—Cat. No. 24806, U.S.N.M.

Dimensions.—Female, length, 34.7 mm.; greatest width, at third lateral tooth, 42 mm.; width between orbital angles, 40 mm.; width of front at level of eyes, 21 mm.; extreme length of propodus of cheliped, 35.2 mm.; superior length of same (spine excluded), 13.3 mm.; height of same (spine excluded), 19 mm.; length of movable finger, 23.7 mm.

Carapace very high, very convex antero-posteriorly; hepatic, mesogastric, cardiac and intestinal regions bordered by deep grooves; surface mainly covered with tufts of dark-colored bristles. The narrow part of the mesogastric region is traversed in its posterior half by a high, blunt median ridge, which is surmounted by a band of bristles. Postfrontal lobes deeply separated, the median furrow much deeper and wider than the outer furrows, which are continued backward to the widest part of the mesogastric region; lobes of the inner pair twice as wide as those of the outer pair; the inner lobes appear transverse in dorsal view, but curve downward toward the middle in front view; the outer lobes have an oblique edge, sloping downward to the inferior angles of the front. The surface of the front below the lobes is very shallow; the lower margin is cut into two broad lobes separated by an equally broad sinus, while the outer angles are produced outward and downward in a triangular and subacute tooth.

Superior margin of orbit transverse, deeply sinuous. Three acute lateral teeth, including the orbital tooth, each higher than the preceding, the second the longest, the third the shortest; margins denticulate. Side margins of carapace arcuate.

Epistome very deep, the lateral tooth of its lower border spiniform. Merus of outer maxillipeds considerably longer than ischium.

Chelipeds slightly unequal, distinguished by their spinous margins. Inner margin of ischium and merus armed with spines; instead of a large tooth near the distal end of the merus there are two small

[1] In Weber's Zool. Ergebnisse einer Reise in Niederländisch Ostindien, vol. 2, 1892, p. 323.

[2] *Gnathograpsus riedelii* A. Milne Edwards, Nouv. Arch. Mus. Hist. Nat., Paris, vol. 4, 1868, p. 182, pl. 27, figs. 1–5.

bispinous projections; outer margin of merus also spinous; upper margin bluntly denticulate with oblique rugose lines and armed subdistally with an acuminate spine. Upper surface of wrist covered with flattened tubercles, its inner distal margin spinous, the spines at the inner angle enlarged on the right or larger cheliped only; below the inner proximal margin there is a laminiform margin which is denticulate and terminates below the inner angle in a sharp spine; inner surface with a few spines and spinules. Outer surface of palm covered with flattened tubercles, of fingers with flattened granules; tubercles and granules are interspersed with horn-tipped spinules; upper and lower margins spinulous, the upper margin terminating distally in a spine; a few broken lines of fine granules parallel to the upper margin; inner surface of palm roughened irregularly, and without a transverse ridge. Fingers moderately gaping in female, prehensile edges irregularly toothed, a strong tooth on each finger just behind the spoon-shaped extremities; tips acute; a line of 11 or 12 horny-tipped spinules on upper margin of movable finger.

Ambulatory legs rather flat and broad, the third pair nearly three times as long as the carapace; merus joints with a sharp subdistal spine; merus of third pair about two and a half times as long as wide; dactyli broad and strongly curved, and a little longer than their respective propodi measured on the outer or upper margin.

Abdomen of female subcircular, broader than long, the terminal segment a little broader than long and so deeply set in the preceding segment that its distal end projects very slightly beyond the latter.

This species has much in common with *S. indicum* Milne Edwards, 1837.[1] See the description by de Man.[2] It differs most strikingly in possessing a median ridge on the mesogastric region, and in the shape of the lower border of the front, which has a broad, shallow median sinus instead of the narrow, deep one of *indicum*.

Family OCYPODIDÆ.

TYMPANOMERUS DESCHAMPSI, new species.

Plate 32; plate 33, fig. 1.

Type-locality.—Shanghai, China; E. Deschamps; 10 males, 4 females; 1 male is the type.

Type.—Cat. No. 44527, U.S.N.M.

Additional locality.—Korea; Dr. N. M. Ferebee, U. S. N.; June, 1884; 3 males, 1 female.

Dimensions.—Type male, length 6.8 mm., width 10.6 mm.

General appearance like that of *T. stapletoni* de Man.[3] Carapace thick, convex, subrectangular, the orbital margin being nearly

[1] *Sesarma indica* Milne Edwards, Hist. Nat. Crust., vol. 2, 1837, p. 74.

[2] Notes Leyden Museum, vol. 5, 1883, p. 166.

[3] Rec. Indian Mus., vol. 2, 1908, p. 212, pl. 18, fig. 1.

transverse (somewhat sinuous and slightly sloping backward to the outer tooth); the sides of the carapace subparallel along the lower margins, upper margins convergent posteriorly; a blunt-pointed triangular antero-lateral tooth, followed by a triangular sinus, behind which the carapace attains its greatest width; surface roughened by short rugose lines from which arise short setæ; some of the rugæ, as on the postbranchial region, are granulous. Front at greatest or superior width, over one-fourth as wide as the carapace; margin arcuate, bordered by a smooth raised line; surface with a broad longitudinal groove. A transverse raised line parallel to the posterior margin; close behind the ridge there is a row of punctæ.

The merus of the maxilliped projects laterally beyond the outer border of the ischium, and bears an L-shaped groove anteriorly. Chelipeds about twice as long as carapace; carpus short, the four sides of its dorsal surface subequal, inner angle rounded; palm higher than its horizontal length, and longer than the fingers, nearly smooth, upper margin finely granulated; above the lower margin a prominent crest extends the length of the palm and finger; lower edge of propodal finger horizontal, bimarginate; the prehensile edge of the dactylus has a long, low prominence on its basal half; the opposite surface of the fixed finger is deeply channeled. Merus joints of the first three legs broad and furnished with a tympanum occupying more than half its length; dactyli nearly as long as propodi.

First segment of male abdomen subequal in width (or transverse dimension) to third, anterior margin concave; second segment subequal in length to first, both measured on median line, and shortened at each end to a minute round lobe; third and fourth segments of equal length, sides separately arcuate, the fourth segment narrower, fifth a little broader than long, strongly constricted near the proximal end; sixth subrectangular, broader than long; seventh triangular with tip rounded.

Differs from *T. stapletoni* in its wider carapace; front rounded instead of angled; palm with a strong ridge on outer surface; finger with a basal prominence; and in the different proportions of the abdominal segments. (See de Man's fig. 1 *d*.)

EXPLANATION OF PLATES.

PLATE 30.

Ptychognathus johannæ.

Fig. 1. Type male. Front view, × 2.
2. Type male. Dorsal view, × 2.
3. Type male. Ventral view, × 2.

PLATE 31.

Sesarma (Sesarma) tiomanense.

Fig. 1. Type female. Front view, slightly reduced.
2. Type female. Dorsal view, slightly reduced.
3. Type female. Ventral view, slightly reduced.

PLATE 32.

Tympanomerus deschampsi.

Fig. 1. Type male. Front view, × 3.
2. Type male. Dorsal view, × 3.
3. Type male. Ventral view, × 3.

PLATE 33.

Fig. 1. *Tympanomerus deschampsi.* Abdomen of male, × 3.
2. *Eriocheir leptognathus*, type female. Dorsal view, × 3.
3. *Eriocheir leptognathus*, type female. Ventral view, × 3.