

Fig. 3. *Antrocarcinus petrosus*, new genus and species. A, B, holotype male, cb 12.0 mm, cl 8.8 mm (MNHN); C, paratype female, cb 8.8 mm, cl 6.5 mm (ZRC). A, dorso-marginal view of cheliped; B, front view of right chela.

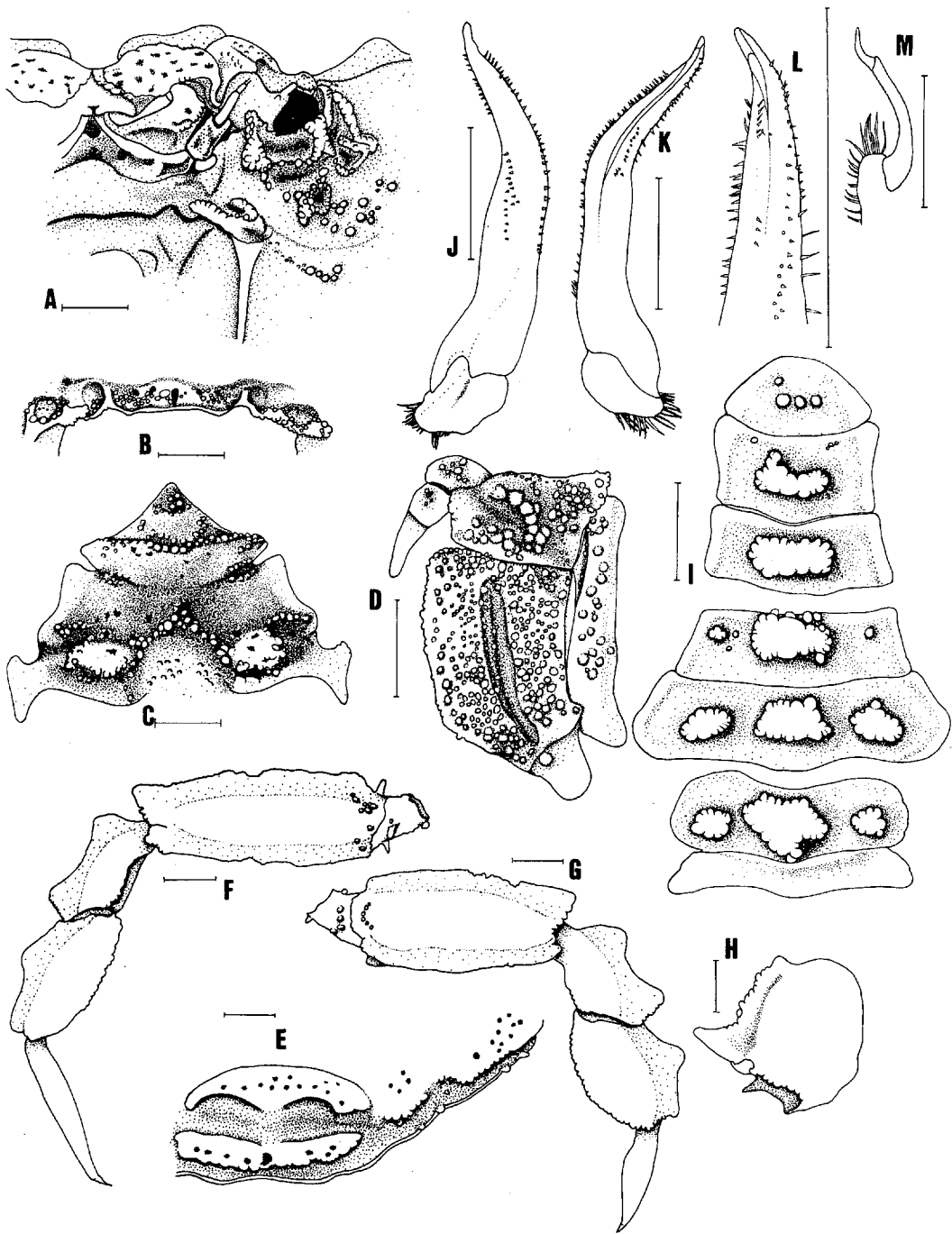


Fig. 4. *Antrocarcinus petrosus*, new genus and species. Holotype male, cb 12.0 mm, cl 8.8 mm (MNHN). A, face of carapace; B, posterior margin of epistome; C, anterior sternites; D, left third maxilliped; E, posterior part of carapace (dorsal view); F, third ambulatory leg; G, fourth ambulatory leg; H, carpus of right cheliped; I, abdomen; J-L, left male first pleopod; M, left male second pleopod. J, dorsal view; K, L, ventral view. Scales = 1.0 mm.

Diagnosis. - Frontal margin with deep, broad, V-shaped cleft, frontal lobes usually directed obliquely outwards, inner supraorbital lobes rounded, behind frontal lobes; anterolateral margin not strongly lamelliform and plate-like from frontal view; cardio-intestinal groove deep, cardiac region distinctly swollen but no cardiac fold evident, cardiac region not over-reaching cardio-intestinal groove from dorsal view. Dorsal margin of chela with inward folding crest lined with several spines or teeth, median part of inner surface gently convex. Length of ambulatory merus ca. 2.4 times width.

Description of male holotype. - Carapace dorsal surfaces distinctly punctate to rugose and eroded; regions well defined, grooves deep, prominent; cardiac region evenly swollen, forming low transverse median ridge at highest point; cardio-intestinal groove deep, but not overhung by cardiac region; intestinal region raised, plate-like, with distinct median longitudinal cleft. Pterygostomial, subhepatic, suborbital and sub-branchial regions with numerous rounded granules and granulated projections. Frontal margin with deep, broad, V-shaped cleft, frontal lobes usually directed obliquely outwards, inner supraorbital lobes low, rounded, behind frontal lobes, separated by distinct notch. Supraorbital margin granulated, with 2 short, deep median fissures. Infraorbital margin strongly cristate, sub-lamelliform, heavily granulated. Anterolateral margin not strongly lamelliform and plate-like from frontal view, with 3 distinct teeth; first 2 teeth larger than third. Posterolateral margins distinctly separated from anterolateral margins, strongly converging; divided into anterior and posterior parts by swollen cardiac region and deep cardio-intestinal groove; anterior part of margin distinctly higher than posterior part, separated by rounded lobe. Antennular fossa oblique. Antenna free, does not fill orbital hiatus, reaching into orbit; basal segment rectangular. Eyes well developed, filling orbit; cornea distinct, pigmented. Anterior surface of epistome depressed; posterior margin appears entire because of 2 fused truncate median lobes, lobes; junction of pterygostomial region and epistome with strong granulated sub-lamelliform projection. Third maxillipeds quadrate, outer surfaces, especially ischium, merus and exopod strongly granulated; ischium rectangular, width ca. 65% length, inner margin granulated, median oblique sulcus deep, broad, granulated; merus squarish, antero-external angle expanded to form auriculiform structure; exopod just reaches antero-external edge of merus.

Chelipeds asymmetrical, right larger; outer surfaces gently rugose and punctate. Basis and ischium fused, suture visible. Merus short, proximal part of dorsal margin with broad lamelliform tooth. Carpus with strong, gently outwardly curving lamelliform tooth at inner distal angle and smaller sub-basal tooth, margins granulated. Outer surface of chela appears evenly convex, with three faint longitudinal ridges; inner surface gently convex, not swollen, dorsal margin of chela with inward folding crest lined with several spines or teeth. Fingers shorter than palm, stout, surfaces rounded, smooth, only distal part and cutting edges pigmented brown; cutting edges lined with numerous teeth and denticles.

Ambulatory legs short, first and second pair longest. Coxa with blunt tubercle on outer distal angle; basis and ischium fused, basis with sharp median tubercle on ventral margin; ischium with 2-4 tubercles or spines on outer margin; merus broad, length ca. 2.4 times width, cristate, dorsal margin with high crest which slightly folds inwards, ventral margin with 2 parallel crests forming deep trough between them, margins of crests gently serrated to entire, proximal part of outer surface with row of tubercles; proximal edge of dorsal margin with large spine on legs 1-3 but absent on leg 4. Carpus with very high, bilobed crest on dorsal margin. Propodus short, with high dorsal crest. Dactylus relatively short, laterally flattened, blade-like, tip hooked, corneous.

Suture between sternites 1 and 2 undiscernible but segments marked by row of small granules, suture between sternites 2 and 3 distinct, shallow, marked by granules, suture between sternites 3 and 4 interrupted medially, lateral clefts deep; sternite 4 with low transverse median ridge, anterior part gradually sloping forwards.

Abdomen 7-segmented, sutures for all segments visible but segments 3-5 immovable; external surfaces of abdominal segments 2-4 with 3 large, transverse granulated swellings, median one largest, segments 5 and 6 with large median transverse granulated swelling, segment 7 with scattered rounded granules.

First male pleopod stout, proximal half almost straight, distal margins lined with short, strong spines, groove for second male pleopod ventral in position, tip gently bent upwards; second male pleopod relatively short, distal segment distinct, ca. 38% length of basal segment

Paratypes. - The female specimens agree with the holotype male in most respects, and all the female abdominal segments are free and movable. The external surfaces of the female abdominal segments 2-6 have the same arrangement of large, transverse granulated swellings as in the holotype male. There is some variation in the sculpture of the carapace and degree of punctation on the regions. In females, the carapace surface tends to be more eroded and more punctate in larger specimens. The form of the frontal margin also seems to vary somewhat, from being directed obliquely outwards to almost forwards.

Colour. - Dorsal surfaces generally bright orangish- to brick-red, with scattered patches of white, especially on cardiac region and legs (Fig. 10A).

Etymology. - The species name is derived from the Greek "petra" for rock, alluding to the appearance of the species.

Remarks. - See *Remarks* for the genus.

General biology. - The specimens were collected near a volcanic vent. Nothing else is known about their habits.

Glyptocarcinus Takeda, 1973

Harrovia:- Sakai, 1974: 86 (*partim*); Takeda, 1976: 105, 107 (*partim*) (*nec* Adams & White, 1849).
Glyptocarcinus Takeda, 1973: 31; Takeda, 1979: 68 (*partim*); Števčić *et al.*, 1988: 1311 (*partim*).

Type species. - *Glyptocarcinus lophopus* Takeda, 1973, by monotypy.

Diagnosis. - Carapace transverse, distinctly broader than long; regions poorly developed or distinct; front prominent, distinctly bilobed, with deep median fissure or cleft, no supraorbital lobe or tooth present, at best a small, indistinct lobule discernible; cardiac region swollen, posterior part expanded to form cardiac fold which covers very deep, cardio-intestinal groove from dorsal view, posterior part of cardiac fold broadly triangular in shape; intestinal region distinctly rectangular, plate-like; posterior margin of carapace distinctly raised above margin of last abdominal segment; anterolateral margin strongly lamelliform and plate-like from frontal view, with 3 lobiform teeth (usually sharp), second tooth largest; posterolateral margin distinctly converging, not continuous, anterior two-thirds straight, then curving sharply into metabranchial region forming distinct lamelliform flap. Posterior margin of epistome truncate,

median truncate lobes separated by deep grooves, not fused. Ischium of third maxilliped distinctly rectangular, width ca. 60% length; antero-external angle of merus distinctly auriculiform. Carpus of chelipeds with 1 large tooth on inner distal angle and 1 smaller sub-basal tooth, margins granulose; dorsal margin of chela slightly cristate, without spines or teeth, median part of inner surface gently convex, not swollen. Suture between sternites 2 and 3 prominent, lined with small granules; suture between sternites 3 and 4 interrupted medially; sternite 4 without obvious transverse median ridge but median part distinctly depressed. Male abdomen not known; surfaces of all female abdominal segments smooth. First and second male pleopods not known.

Remarks. - The history of the genus *Glyptocarcinus* has already been discussed. Two species are recognised in the genus as redefined, *G. lophopus* Takeda, 1973 (Japan) and *G. politus*, new species (New Caledonia). The differences between *Glyptocarcinus* and other antrocarcinine genera are outlined in Table 1 and in the key. It is unfortunate that only female specimens are known for both species and many useful characters (e.g. male abdomen and male pleopods) cannot be ascertained.

Glyptocarcinus lophopus Takeda, 1973

(Figs. 5, 6)

Glyptocarcinus lophopus Takeda, 1973: 31, fig. 1 (off Yome-shima Island, Ogasawara Islands, Japan). *Harrovia truncata* - Sakai, 1974: 86, Frontispiece 1 (coast of Wagu, Shima Peninsula, Japan); Sakai, 1976: 299, colour frontispiece [1], text fig. 167 (no new record); Takeda, 1976: 105, 107 (no new record) (*nec* Rathbun, 1906). *Glyptocarcinus lophopus* - Takeda, 1979: 68 (no new record); Števíć *et al.*, 1988: 1311 (list only).

Material examined. - Holotype - female (cb 12.2, cl 8.6 mm) (NSMT-Cr. 1167), off Yome-shima Island, Ogasawara Islands, Japan, 180 m depth, coll. S. Kihara, 12.viii.1969.

Diagnosis. - Carapace surface covered with small granules or pits, especially on epibranchial, gastric and branchial regions, forming semi-reticulated pattern (more pronounced in smaller specimens); regions defined by shallow grooves; anterolateral margins horizontal, flat, margins not upturned; cardiac region swollen, posterior part expanded into broadly triangular fold which covers anterior part of cardio-intestinal groove; intestinal region with distinct longitudinal groove. Carpus of cheliped with pitted inner surfaces, inner angle with a large, sharp tooth and smaller sub-basal tooth. Fourth ambulatory merus stout, length ca. 1.8 times width.

Colour. - Dorsal anterior half of carapace, external surfaces of chelipeds orange-brown, margins of carapace, inner surfaces of chelipeds and posterior parts of the carapace white to cream; ambulatory legs beige with white flecks (*vide* Sakai, 1974: frontispiece [1]).

Remarks. - This species was described from one small female 12.2 by 8.6 mm (Takeda, 1973: 34). Sakai (1974, 1976) subsequently reported a larger female specimen (23.0 by 15.5 mm) (under the Japanese name "Hiraashi-Komachigani") from the coast of Wago in the Shima Peninsula, Japan. No males are known. Sakai (1976: 299), in his material examined, listed only one male collected by N. Yamashita in November 1973. For the caption of his figure of the species however, (Sakai, 1976: text fig. 167), he stated that the specimen was a female. It is evident that Sakai's (1976: 299-300) record of the species was based on only one specimen, and it is the same one he reported in 1974, the male reported in his 1976 study been the result of a typographical error.

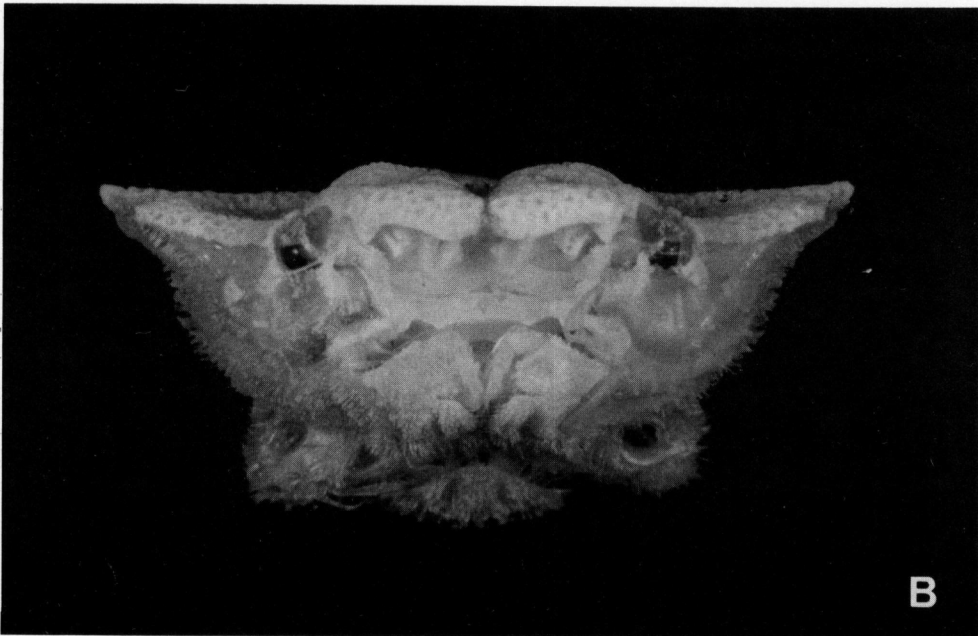
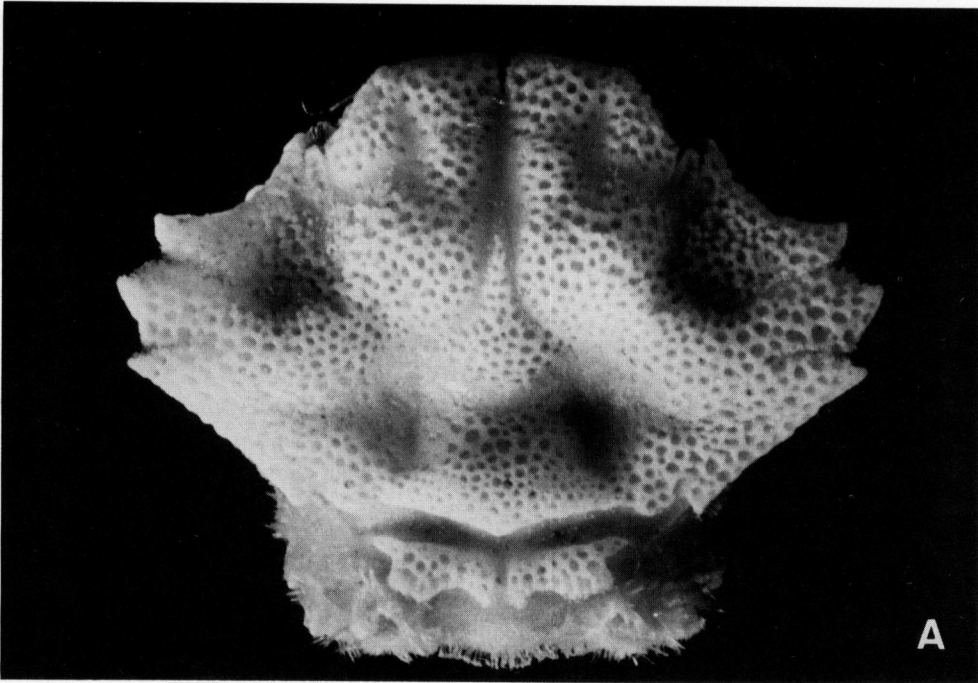


Fig. 5. *Glyptocarcinus lophopus*. Holotype female, cb 12.2 mm, cl 8.6 mm (NSMT-Cr. 1167). A, dorsal view; B, frontal view.

There appears to be age and size-related variation in the degree of erosion and punctation on the regions of the carapace in *G. lophopus*, with smaller specimens (e.g. the holotype) being more eroded and punctate. In the larger specimen reported by Sakai (1974, 1976), the regions are generally smoother. This seems to be in contrast to *Antrocarcinus petrosus*, in which the carapaces of larger specimens tend to be more pitted.

General biology. - Very little is known about the biology of this species. Takeda's (1973: 34) specimen was collected from a depth of 180 m while Sakai (1974: 86) obtained his from the refuse of a commercial lobster net. Sakai (1976: 300) commented that the habitat of this species was "... Rocky bottoms, 35 to 70 metres deep. Whether this crab is associated with *Comanthus* species as in other congeners, or not is unknown".

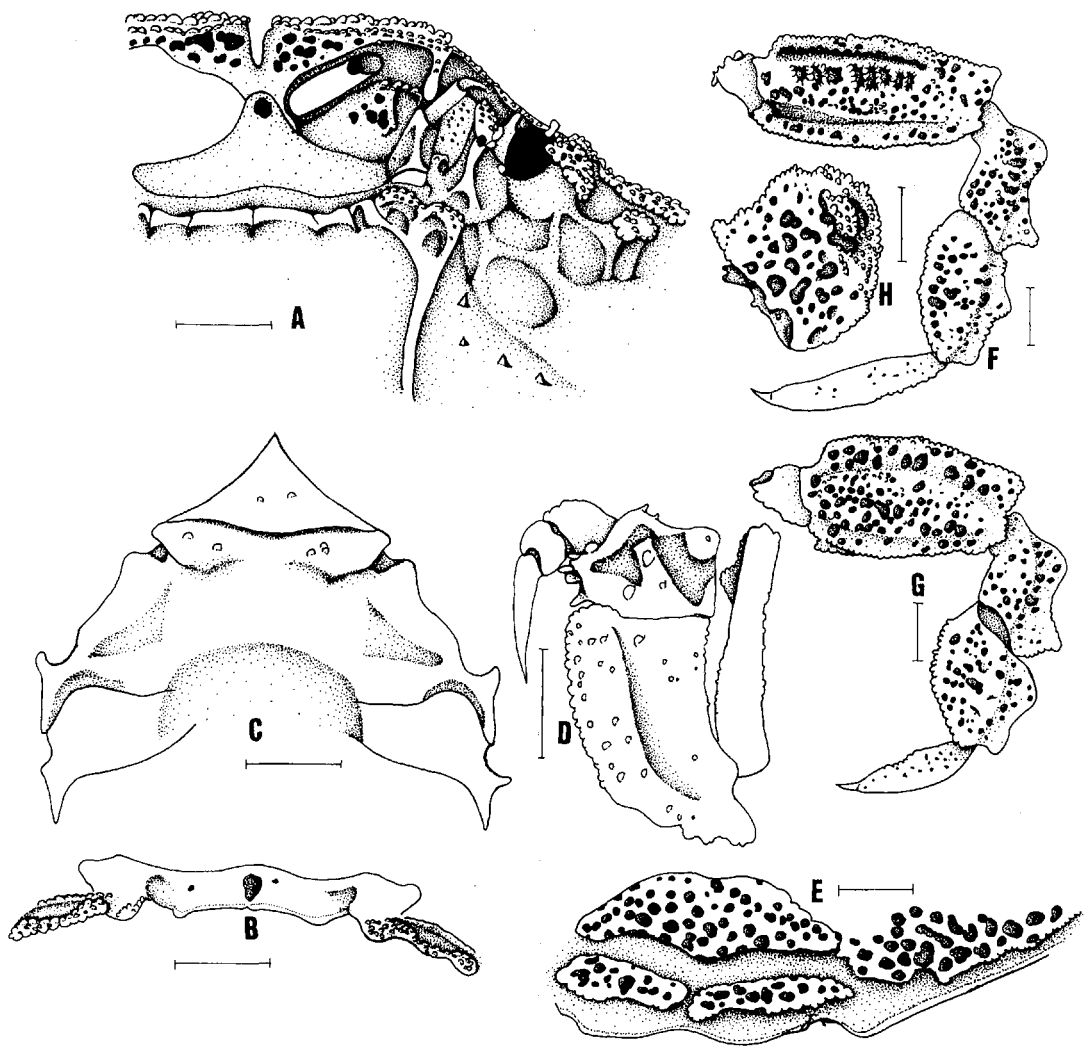


Fig. 6. *Glyptocarcinus lophopus*. Holotype female, cb 12.2 mm, cl 8.6 mm (NSMT-Cr. 1167). A, face of carapace; B, posterior margin of epistome; C, anterior sternites; D, left third maxilliped; E, posterior part of carapace (dorsal view); F, third ambulatory leg; G, fourth ambulatory leg; H, carpus of right cheliped. Scales = 1.0 mm.

Glyptocarcinus politus, new species

(Figs. 7-9, 10B, C)

Material examined. - Holotype - female (cb 15.3 mm, cl 11.4 mm) (right anterolateral margin damaged) (MNHN), VOLSMAR: station DW 48, 21°00.1'S, 170°03.3'E, New Caledonia, 150-200 m depth, coll. B. Richer de Forges, 4.vii.1989.

Paratype - 1 young female (cb 8.2 mm, cl 5.9 mm) (ZRC), station DW 156, 24°46.13'S, 168°08.14'E, New Caledonia, 262-275 m depth, coll. B. Richer de Forges, 28.i.1993.

Diagnosis. - Carapace surface appears almost smooth, indistinct pits present only on gastric and branchial regions; anterolateral margins horizontal, flat, not upturned; cardiac region with anterior part gently concave, not distinctly demarcated, confluent with posterior part of branchial regions to form low transverse ridge; posterior part expanded to triangular fold without cleft; cardio-intestinal groove almost completely overhung by cardiac fold, posterior part entire, without longitudinal groove or cleft. Carpus of cheliped with inner surfaces smooth, inner angle with a large, sharp tooth and smaller sub-basal tooth. Fourth ambulatory merus broad, length ca. 2.1 times width.

Description of female holotype. - Carapace dorsal surfaces smooth, mildly pitted or slightly rugose; regions poorly demarcated; postorbital regions gently depressed; progastric regions slightly raised, clearly separated from fused meso- and metagastric regions by shallow grooves; metabranchial regions sunken; urogastric region swollen, continuous with raised cardiac region; posterior part of cardiac region swollen, forming distinct broadly triangular cardiac fold which overhangs and covers most of very deep cardio-intestinal groove from dorsal view; intestinal region narrow, raised, plate-like, not divided longitudinally by grooves or clefts, posterior margin trilobulated, median lobe mildly granulated, gently sinuous, lateral lobes granulated. Pterygostomial, subhepatic, suborbital and sub-branchial regions with scattered small rounded granules; subhepatic region with 1 large granulated projection. Front divided into 2 truncate lobes by deep, narrow, median fissure, margin strongly deflexed and then curving inwards, frontal margin uneven, gently convex; external edge of each lobe with very low, indistinct lobule. Supraorbital margin granulated, with 2 short, deep fissures. Infraorbital margin cristate, lamelliform, with 2 large granulated tooth-like projections. Anterolateral margin with 3 distinct, sharp teeth; first 2 teeth acutely triangular, second tooth larger than first; third tooth smallest; edges of margin cristate, granulated, gently folding downwards, forming narrow overhang. Posterolateral margins distinctly separated from anterolateral margins, strongly converging; divided into anterior and posterior parts by broad cardiac fold and deep cardio-intestinal groove; anterior part distinctly higher than posterior part, separated from posterior part by small but distinct granulated lobe. Antennular fossa slightly oblique. Antenna free, does not fill orbital hiatus, reaching into orbit; basal segment rectangular. Eyes well developed, filling orbit; cornea distinct, pigmented. Anterior surface of epistome gently depressed; posterior margin divided into 2 truncate lobes, separated by deep median cleft; junction of pterygostomial region and epistome with strong granulated sub-lamelliform projection. Third maxillipeds quadrate, outer surfaces smooth; ischium rectangular, width ca. 60% length; inner margin uneven, median oblique sulcus deep, broad; merus squarish, antero-external angle expanded to form auriculiform structure; exopod just reaches antero-external edge of merus.

Chelipeds asymmetrical, right slightly larger; outer surfaces smooth to rugose, not granulose or eroded. Basis and ischium fused, suture visible; ischium with distinct distal tooth on dorsal margin. Merus short, proximal part of dorsal margin with broad, lamelliform tooth. Carpus