Basal antennal segment scarcely reaching the front; the flagellum which is almost as long as the orbit; stands in the wide orbital hiatus. There are two strong oblique palatal ridges (*r*) which meet anteriorly in the middle line (fig. 31 *d* and *e*) but the more lateral palatal ridges characteristic of *Pilumnus* and *Heteropilumnus* are absent (see remarks).

Chelipeds not very unequal and of relatively small size the lesser being equal in length to the first walking-leg. Merus of the larger cheliped, which scarcely projects beyond the fourth antero-lateral lobe, with a few conical granules on the upper and lower inner borders. Carpus with 1-2 small conical granules at the inner angle and some larger granules and teeth on the upper and outer surfaces. The larger chela is represented in fig. 31 *d*; the palm is nearly twice as long as high, armed with 5 rows of teeth or spines more or less concealed by the short plumose setae; the fingers are white sharp pointed and short. The smaller chela is very similar to the larger but the setae are fewer in number and more evenly distributed on the outer surface.

The three anterior walking-*legs* subequal, the fourth a little shorter than the third; upper and lower borders of the meri and upper border of carpus granulate.

Setae. This specimen exhibits what will doubtless prove to be a characteristic arrangement of the numerous soft plumose setae. Those on the dorsal surface of the carapace are only represented diagrammatically on the left half, their distribution is shown rather more accurately by dots on the right half of the carapace (fig. 31*a*). There are a few short setae on the subhepatic and pterygostomial regions and on the external maxilliped there is a median band on the proximal three-fourths of the ischium. The walking-legs are all setose, especially along the upper and lower borders of the meri, on the carpus where the setae tend to be arranged in 3-4 longitudinal series, and on the two terminal segments; these setae are interspersed with longer bristles. On the larger chela the setae are arranged in 5-6 bands round the teeth, a few also occur on the inner surface of the palm where they are arranged in 3-4 rows; on the carpus they also tend to group themselves round the granules and teeth.

Measurements. — *l*. of carapace 6.2; *b*. of carapace 9.3; fronto-orbital border 6.0 mm.

Remarks. — I sent this specimen to Dr. Balss for examination and received the following reply « No. 67 möchte ich zu *Parapilumnus* stellen, wenn auch die Gaumenleisten fehlen (was ja auch bei *Heteropilumnus* vorkommt). Jedenfalls ist die Form in dem Habitus des Carapax sehr ähnlich den *Parapilumnus*-arten aber auch eine neue Art mit sehr characterischen Scheren » (20-III-34). While this specimen is certainly very similar in general appearance to the species referred to *Parapilumnus* by Balss in his recent excellent revision of the genus *Pilumnus* and allied forms (1933, pp. 38-39), the palate seems to be rather unusual. I have only been able to examine the specimens of *Parapi-*

lumnus verrucosipes (Stimpson) described by Miers (1881, p. 216, pl. XIII, fig. 5). In that species the palatal ridges are well developed posteriorly but do not extend forward to the anterior boundary of the buccal cavern (*r*, fig. 31*f*). In *P. leopoldi* these ridges appear to have become longer and more oblique, meeting in the middle line.

P. leopoldi differs from the previously described species in having (1) much less massive and unequal chelipeds with shorter fingers and a long narrow palm; (2) a more prominent outer-orbital angle and (3) a distinctive arrangement of the numerous setae on carapace and appendages.

Genus TRAPEZIA Latreille.

Trapezia cymodoce (Herbst).

Alcock, 1898, pp. 218 and 219.
Rathbun, 1907, p. 58.

Material. — Sorong (New Guinea), 2-III-29, 1 ♂, 1 ♀, 2 immature specimens; also 2 ex., Balss det.

Banda Neira, 5 m., 24-II-29, 1 ♂; also 25 ex., Balss det.

Trapezia cymodoce areolata Dana.

Rathbun, 1907, p. 59.
T. ferruginea var. *areolata* Alcock, pp. 218 and 221.

Material. — Sorong (New Guinea), 2-III-29, 2 small dried specimens.
Banda Neira, 5 m., 24-II-29, 1 ♀; also 1 ex., Balss det.

Trapezia cymodoce ferruginea Latr.

Rathbun, 1907, p. 58.
T. ferruginea Alcock, 1898, pp. 218 and 220.

Material. — Banda Neira, 6 dried specimens, all of small size.
Banda, 23-II-29, 6 dried specimens.
Sorong (New Guinea), 2-III-29, 4 dried specimens.
Banda Neira, 24-II-29, 1 immature ♂; also 4 ex., Balss det.

Trapezia cymodoce guttata Rüppell.

Trapezia ferruginea guttata Ortmann, 1897, Zool. Jahrb. Syst. X, p. 205 (*ubi bibl.*).
Trapezia guttata De Man, 1902, p. 640, pl. XXI, fig. 25.

Material. — Banda Neira, 24-II-29, 6 ex., Balss det.

Trapezia rufopunctata (Herbst) Latr.

Alcock, 1898, pp. 218 and 222.
Rathbun, 1907, p. 57.

Material. — Banda Neira, 5 m., 24-II-29, 1 ♀, 1 ♂.

Genus TETRALIA Dana.

Tetralia glaberrima (Herbst).

Alcock, 1898, p. 223.

Material. — Sarong door, 2-III-29, 3 ♀; also 2 ex., Balss det.
Banda Neira, 24-II-29, 1 immature ♂; also 34 ex., Balss det.

Genus DOMECIA Eydoux et Souleyet.

Domecia glabra Alcock.

Alcock, 1899, *J. Asiat. Soc. Beng.* Calcutta, vol. LXVIII, pt. 2, p. 117.
Alcock, 1901, *Illustrations Zoology* « *Investigator* », pt. *IX*, pl. LIV, fig. 3, 3*a*.

Material — Banda Neira, 24-II-29, 1 immature specimen; also 1 ♂ det. by Dr. Balss.

Family **PORTUNIDAE** Dana.

Genus CARUPA Dana.

Carupa laeviuscula Heller.

Alcock, 1899, pp. 10 and 26.

Material. — Banda Neira, 24-II-29, 1 ovigerous ♀.

Genus NEPTUNUS De Haan.

Neptunus (Achelous) granulatus (Edw.) A. Milne-Edwards.

Alcock, 1899, pp. 32 and 45.

Material. — Sorong (New Guinea), 2-III-29, 1 ♂.

Genus THALAMITA LATREILLE.

Thalamita admeta (HERBST) EDW.

ALCOCK, 1899, pp. 74 and 82.

MATERIAL. — Mansfield Eiland, 1-III-29, several small specimens probably belong to this species; also 3 ex., Balss det.

Thalamita crenata (LATR.) EDW.

ALCOCK, 1899, pp. 73 and 76.

MATERIAL. — Ambon, 21-II-29, 1 ♂.

REMARKS. — The chelipeds are missing but the proportion of length to breadth of carapace is just under two-thirds, so that the specimen would appear to belong to *Th. crenata* rather than to *Th. danae* Stimpson.

Thalamita integra DANA.

ALCOCK, 1899, pp. 74 and 85.

MATERIAL. — Eiland Weim, 26-II-29, 7 ex. juv., Balss det.

Thalamita sima EDW.

ALCOCK, 1899, pp. 74 and 81.

MATERIAL. — Mansfield Eiland, 1-III-29, 1 ex., Balss det.

Thalamita stimpsoni A. MILNE-EDWARDS.

ALCOCK, 1899, pp. 73 and 79.

MATERIAL. — Lampasing (Lampong), 12-IV-29, 1 ♂.

Genus THALAMITOIDES A. MILNE-EDWARDS.

Thalamitoides quadridens A. MILNE-EDWARDS.

Thalamita (*Thalamitoides*) *quadridens* A. MILNE-EDWARDS, 1869, p. 147, pl. VI, fig. 8-15.
Thalamitoides quadridens DE MAN, 1888, p. 332.
Thalamitoides quadridens RATHBUN, 1907, p. 64.

MATERIAL. — Banda Neira, 5 m., 24-II-29, 1 ♂ (Dr. H. Balss det.).

INCERTE SEDIS.

Genus HAPALOCARCINUS STIMPSON.

Hapalocarcinus marsupialis STIMPSON.

CALMAN, 1900, p. 43, pl. III, fig. 29-40.
BORRADAILE, 1902, p. 271.
STIMPSON, 1907, p. 170, pl. XIV, fig. 8.

MATERIAL. — Sorong (New Guinea), 2-III-29, 1 dried specimen from a gall in *Seriatopora* sp.

REMARKS. — Although this specimen is very small (carapace length scarcely exceeds 2 mm.) the narrowness of the abdomen and the unusually robust chelipeds and first walking-legs (1) would lead one to suppose that it is a male. Yet there appears to be a pair of genital openings on the sternum close to the base of the second walking-legs. Unfortunately the specimen is too brittle to permit of careful examination of the abdomen and pleopods, but it is most likely a very young female.

OXYRHYNCHA

FAMILY **PARTHENOPIDAE** ALCOCK.

SUBFAMILY **EUMEDONINAE** MIERS.

Flipse (1930, p. 29, in key) divided this subfamily into two groups according to the structure of the orbital border. In group A, comprising the genera *Zebrida* and *Eumedonus*, he states that the floor of the orbit (or inner orbital angle) is not in contact with the front and that the hiatus is more or less filled by the second antennal segment. Of group B, comprising the genera *Ceratocarcinus* and *Harrovia* he says « Boden der Augenhöhle in Kontakt mit der Stirn, sodass die Antennen ganz von der Augenhöhle getrennt sind ».

On re-examining the specimens of *Harrovia albolineata* and *Ceratocarcinus longimanus* (group B) in the « Samarang » collection (2) I found that, in both species, there is a distinct orbital hiatus; the inner orbital angle, especially in the latter, extends rather farther forward than is typical of group A (*cf.* fig. 33*a* and *c* with fig. 32*a* and *b*). The antenna, however, lies in a depression or groove (*g*) in the front although the third segment can be made to enter the

(1) Compared with a rather larger female from Torres Straits (CALMAN det.).

(2) The type specimens of the genotypes.

hiatus. Dana (1855, pl. VI, fig. 8*b*) figures a similar orbital hiatus in *Ceratocarcinus speciosus*. A. Milne-Edward's figure (1872, pl. XIV, fig. 2*a*), on the other hand, shows that there is complete separation of orbit and antenna in *C. dilatatus* (1). As a matter of fact the degree of separation of antenna from orbit is too variable in Flipse's group B to serve as the distinguishing character of the group. The variation would appear to be specific in some cases since

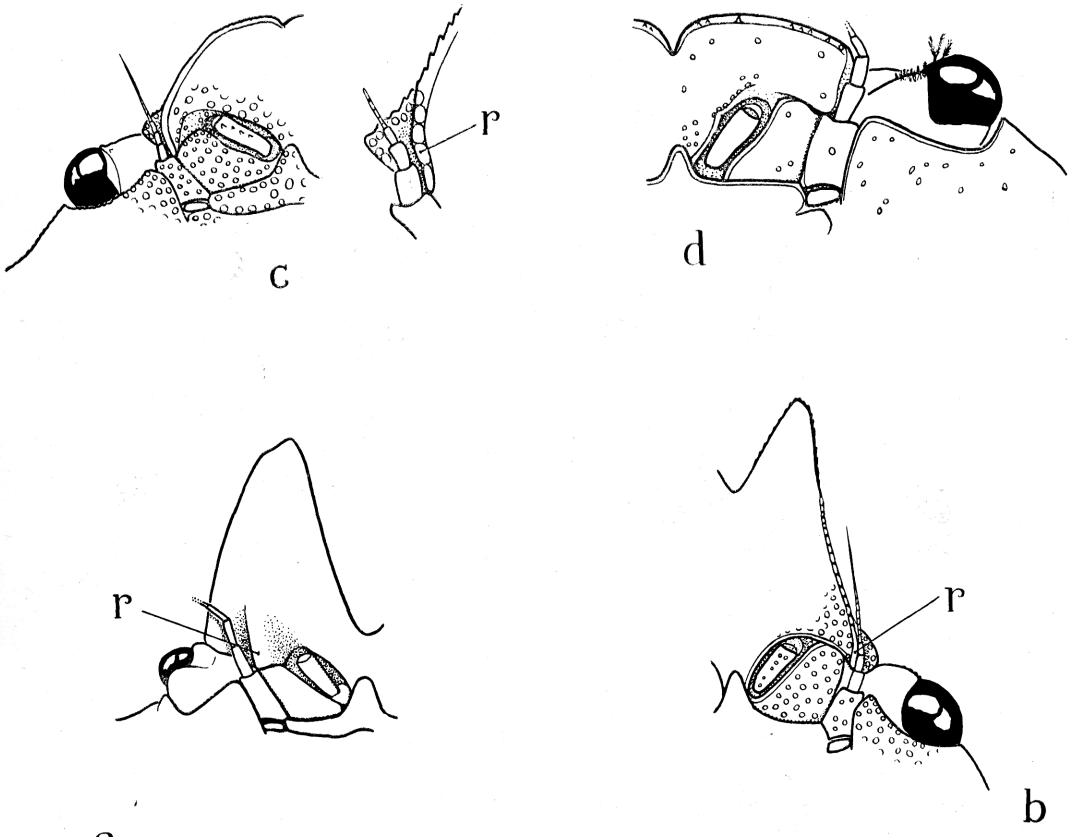

FIG. 32. — Front of carapace and orbit, in ventral aspect, of Group A.
a. Zebrida adamsi WHITE. — Holotype (total length of carapace 6.6 mm.). *b. Eumedonus zebra* ALCOCK. *c. Gonatonotus pentagonus* ADAMS and WHITE. — Holotype. Ridge *r* farther enlarged. *d. Calmania prima* LAURIE. — Holotype. *r.* Ridge on inner side of shallow antennal groove. (*b.*, *c.*×14, *d.*×20.)

(1) the type of *C. longimanus* is of approximately the same size as the « Challenger » specimen described by Miers (see footnote); (2) all specimens of *Harrovia albolineata* are similar in this respect. In *C. spinosus*, however, it depends on the age of the specimens. The holotype, which is very small, has a wide

(1) This is also true of two « Challenger » specimens of *C. dilatatus* that were not included in Miers' report as well as in the specimen referred by Miers (1886, p. 105) to *C. longimanus* but which probably also belongs to *C. dilatatus*.

orbital hiatus more or less filled by the second antennal segment (fig. 33*b*); in a much larger specimen from the Red Sea the inner orbital angle extends forward to, but does not fuse with, the base of the large rostral spine (fig. 33*b'*). The antenna, which normally lies in a very shallow groove bounded on the inner side by a low ridge (*r*) can pass into the narrow gap for a short distance as represented in the figure.

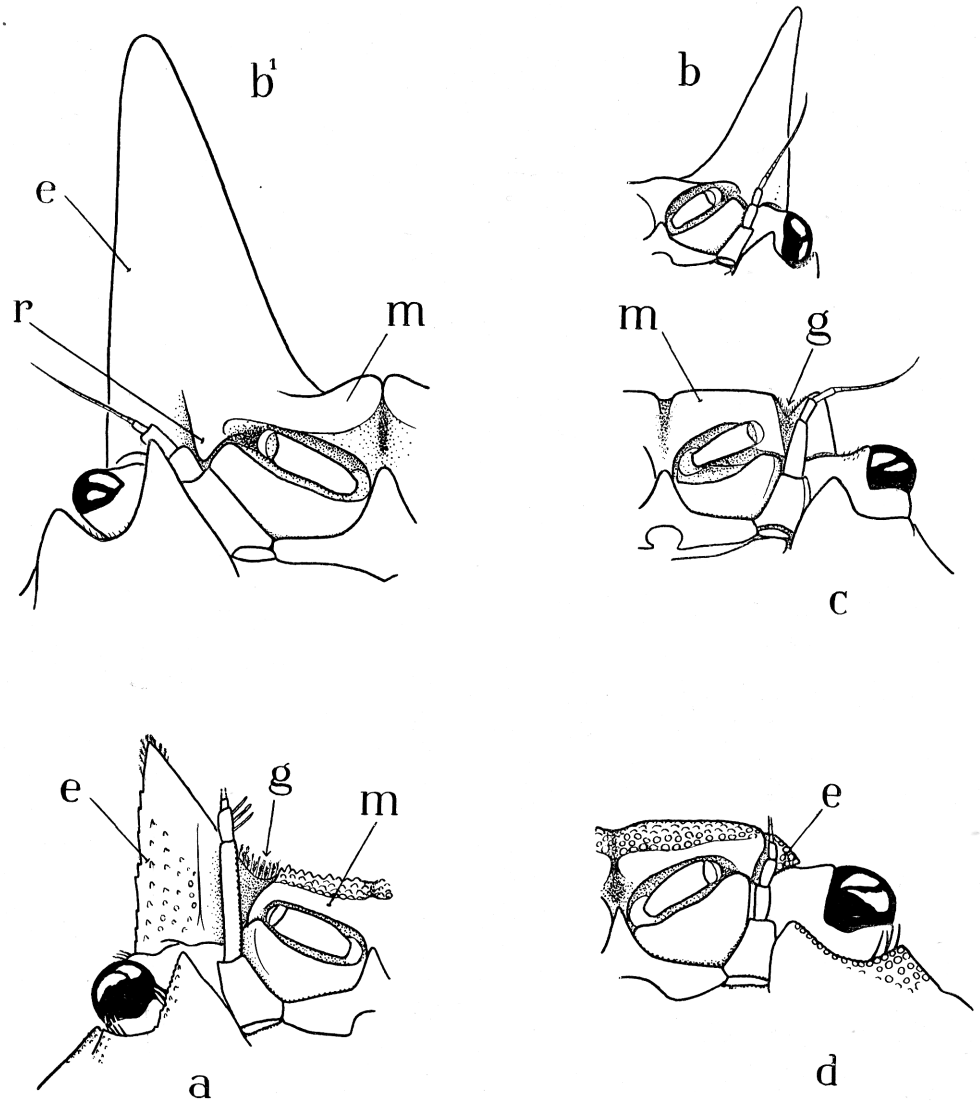

FIG. 33. — Front of carapace and orbit, in ventral aspect, of Group B.
a. Ceratocarcinus longimanus ADAMS and WHITE. Holotype. *b. Ceratocarcinus spinosus* MIERS. Holotype. *b*¹. A larger specimen of same species from Red Sea. *c. Harrovia albolineata* ADAMS and WHITE. Cotype. *d. Harrovia purpurea* n. sp. Holotype. *e.* Lateral lobe, *m.* median lobe of front. *g.* Antennal groove. *r.* Ridge on inner side of shallow antennal groove. (*a.*, *b.*×20; *b*¹.× circa 8; *c.*×14; *d.*×27.)

I have examined all the material of the subfamily Eumedoninae in the British Museum Collection, which, in addition to the types already mentioned, includes the original specimens for which the genera *Zebrida*, *Calmania* and *Gonatonotus* were established. Although this survey is not complete — *e. g.* the genus *Eumedonus* is represented by a single specimen of *E. zebra* Alcock presented by the Indian Museum — there appear to be two characters in which species in group A differs from those in group B, namely (1) rostrum; (2) walking-legs.

1. Rostrum. — In group A the rostrum — whether it be as short as in *Calmania* or as long as in *Eumedonus* and *Zebrida* (fig. 32*a* and *d*) — is divisible into two broad lobes or two or more less distinct horns. In *Calmania* there is no trace of an antennal groove (fig. 32*d*); in *Eumedonus* and *Gonatonotus* [1] there is a shallow depression bounded on the inner side by a low but distinct ridge (*r*, fig. 32*b* and *c*). In *Zebrida* the ridge is situated at a greater distance from the lateral border of the rostral spine (fig. 32*a*).

In group B the rostrum is always divisible into four parts : (1) two median lobes (*m*) which are broad in *Harrovia* but may be very narrow and inconspicuous as in *Ceratocarcinus spinosus* (fig. 33*a* and *b'*) and (2) two lateral lobes (*e*) which are sometimes narrow and but little advanced, if at all, beyond the median lobes, sometimes large and spiniform (*cf.* fig. 33*c*, *d* with *a*, *b*, *b'*) [2].

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[1] This genus differs from *Eumedonus* only as regards the rostrum which is much shorter and unforked at the apex and should probably be included in *Eumedonus* (see Balss, 1922, p. 136).

[2] There is considerable variation in the terminology applied by various authors to the front or rostrum in the sub-family, especially in group B, as the following examples show :

AUTHOR.	GENUS.	LATERAL PART.	MEDIAN PART.
De Man, 1887-1888, p. 22..	*Harrovia.*	Intra orbital tooth.	Frontal lobes.
Alcock, 1895, p. 288.....	*Ceratocarcinus.*	Rostral spine.	Median lobes referred to as « wide interspace ».
Rathbun, 1906, p. 886...	*Harrovia.*	Orbital angles.	Frontal lobe.
Balss, 1922, p. 136.....	*Harrovia.*	Die Frontalhörner.	Stirnrand.
Flipse, 1930, p. 5	*Harrovia.*	Intra orbital tooth.	Lateral (rostral) tooth.
Flipse, 1930, p. 5, fig. 5.	*Ceratocarcinus.*	Der antoculare Dorn.	Septum antennulo-orbitale, Seitlicher Rostralzahn.

In such closely allied genera, it is desirable that the same terms be applied to corresponding parts as far as the marked differences in the form of the rostrum will permit. With regard to the terminology used by Flipse (1930, p. 5, fig. 5), in *Ceratocarcinus spinosus* it is likely that the rostral horn includes, in addition to the antocular spine proper, a large part of the median lobe — probably that referred to as the antennulo-orbital septum. In group B I have used the rather general terms « lateral and median lobes » but it is obvious that in *Harrovia* most of the rostrum goes to the median, in *Ceratocarcinus* to the lateral, lobe.

In group B there is often a deep well-defined antennal groove (*g*, fig. 33*a* and *c*); it is very shallow in *Harrovia purpurea* n. sp. and in *Ceratocarcinus spinosus* there is a short ridge (*r*), resembling that found in *Zebrida*, on the inner side of the shallow depression (fig. 33*d* and *b'*).

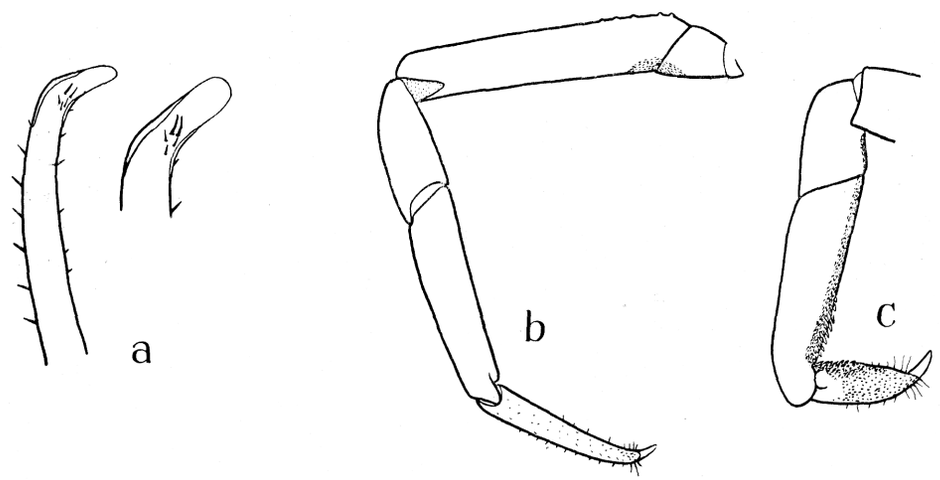

FIG. 34. — *Harrovia purpurea* n. sp. Holotype. — *a*. Apex of first pleopod. *b*. First walking leg ventral side. *c*. Distal segments of third walking leg from dorsal side. (*a*. ×60 and 100; *b*., *c*. ×15.)

2. WALKING-LEGS. — In all the species of group A that I have examined the first walking-legs do not differ appreciably from the succeeding pairs (1). They are subequal to, or rather shorter than, the second legs; all four pairs have subequal and similar dactyli.

In group B, on the other hand, the first pair of walking-legs is usually much longer and more slender than the succeeding pairs; the proprodus is less compressed and the dactylus is longer and subcircular in cross section. The propodus and dactylus in the last two pairs are distinctly compressed (*cf.* fig. 34*c* and *b*); the second pair may be similar to the third or intermediate between the first and third pairs but the dactylus is always short. In *Ceratocarcinus spinosa* the first is not much longer or more slender than the second pair of legs but the propodus is more slender while the dactylus is distinctly longer and subcylindrical.

Provisionally the two groups may be separated as follows :

A. — Rostrum bipartite consisting of two broad lobes or two more or less distinct horns (fig. 32); walking legs with subequal and similar dactyli.

Genera : 1. *Calmania;* 2. *Eumedonus;* 3. *Gonatonotus;* 4. *Zebrida.*

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(1) A study of the figures of other species seems to bear out the difference in the walking legs in the two groups; in certain figures, however, the first dactylus is much foreshortened.

B. — Rostrum quadripartite (fig. 33); first pair of walking legs usually longer and more slender than the succeeding pairs, always with a longer narrower and subcylindrical dactylus (fig. 34*b*).

Genera : 1. *Harrovia;* 2. *Ceratocarcinus* (perhaps should be united with 1).

Genus HARROVIA ADAMS and WHITE.

Harrovia purpurea nov. spec.

MATERIAL. — Sorong (New Guinea), 2-III-29, 1 ♂, holotype (carapace *l.* = 3.6, *b.* = 4.9 mm.).

DESCRIPTION. — *Carapace* flattened, pentagonal, with a short conical spine at junction of antero- and postero-lateral borders (fig. 35). Areolation fairly distinct but masked (1) by the setose covering and (2) by the underlying colour pattern (to be described later). The most prominent regions are the gastric which is faintly trilobed and the cardiac.

Rostrum very short, slightly convex and deflexed, double-edged, granulose; divided into two wide median and two narrow lateral (1) lobes. Antero-lateral border faintly trilobed.

Orbital hiatus wide, partially filled by the second antennal segment (fig. 33*d*); antennal groove very shallow as compared with that of *Harrovia albolineata* (*cf.* fig. 33*d* and *c*).

Appendages. Chelipeds much more massive than the walking-legs; right somewhat larger than the left which is represented in fig. 35; carpus unarmed.

First pair of walking-legs long and slender, reaching to about the middle of the palm of the cheliped; dactylus very long and almost circular in cross section (fig. 34*b*). The succeeding pairs shorter stouter and more compressed; dactyli subequal (fig. 34*c*), the third rather longer than the second pair. Apex of first pleopod as represented in fig. 34*a*.

Setae. A close felt of short clubbed brownish setae covers the entire dorsal surface with the exception of the granular antero-lateral and rostral edges. Seen from above under low magnification they are circular or oval in outline with a darker centre. The setae are continued on to the abdomen and thoracic sternum but become smaller on the ventral surface; setae are also present external to the base of each cheliped. Much shorter setae occur on the ventral margin and on the dactyli of each of the three posterior pairs of walking-legs (2-4); the distal half of the propodi and the dactyli also bear several rows of what appear to be short spines (fig. 34*c*).

(1) Orbital angle of Rathbun and equivalent to the antocular spine of Flipse.