

## TWO GENERA AND SPECIES OF ISOPODA NEW TO THE FAUNA OF THE NORTHERN ARABIAN SEA

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**ABSTRACT:** The paper is based on the new records of two genera - *Lanocira* Hansen and *Paranthura* Bate and Westwood and species *L. gardineri* Stebbing and *P. latipes* Barnard from the rocky intertidal zone of Karachi coast. Synonymies, diagnoses and geographical distribution of the genera are given. A list of the known species of the genus *Lanocira* is provided. Both the species are described and illustrated in detail.

**KEY WORDS:** *Lanocira gardineri* - *Paranthura latipes* - Isopoda - new records - Karachi.

### INTRODUCITON

While studying the intertidal isopod fauna of Karachi coast (Pakistan), the authors met with two species belonging to the genera *Lanocira* Hansen and *Paranthura* Bate and Westwood. Both genera as well as species are first to be recorded from Pakistan. They are being described here briefly to aid in the identification of isopod fauna from Pakistan coast.

### SYSTEMATIC ACCOUNT

#### Genus *Lanocira* Hansen, 1890

*Lanocira* Hansen, 1890, p.313; Stebbing, 1904: p.706; 1905, p.19; 1910, p.217; Barnard, 1914: p.359; Pillai, 1967, p.274; Kensley, 1978, p.75; Jones, 1982, p.73.

#### DIAGNOSIS:

Antennal bases hidden by rostrum in dorsal view. Maxilla 1 strongly falcate, mandible with elongated incisor, palp 3 articulated, article 2 longest, maxilliped palp 6 articulated, article 2 little longer than broad. Pereiopods 1-3 prehensile, pleopod peduncles 1-4 with 4-6 coupling spines on medial margins. All rami of all pleopods, except endopod of pleopod 5, setigerous. Male pleopod 2 with appendix masculina arising from proximomedial margin of endopod.

Type species: *Lanocira kroyeri* Hansen, 1890

*Lanocira* is a small genus including only eight known species in the world, as listed below:

*L. kroyeri* Hansen, 1890

*L. rapax* (Moore, 1902)

*L. gardineri* Stebbing, 1904

*L. rotundicauda* Stebbing, 1904

*L. zeylandica* Stebbing, 1905

*L. latifrons* Stebbing, 1910

*L. arrasicula* Jones, 1982

*L. glabra* Jones, 1982

#### DISTRIBUTION:

The geographical distribution of the genus is shown in Fig.1.

#### HABITAT:

All species appear to be associated with hard substrates in the sublittoral reigc.. with a depth range extending to 120 m. Although *Lanocira* are almost exclusively restricted to corals located in sheltered waters (Jones, 1982: 74), *L. gardineri* was found under stones at the low tide level of Manora Island (Karachi)

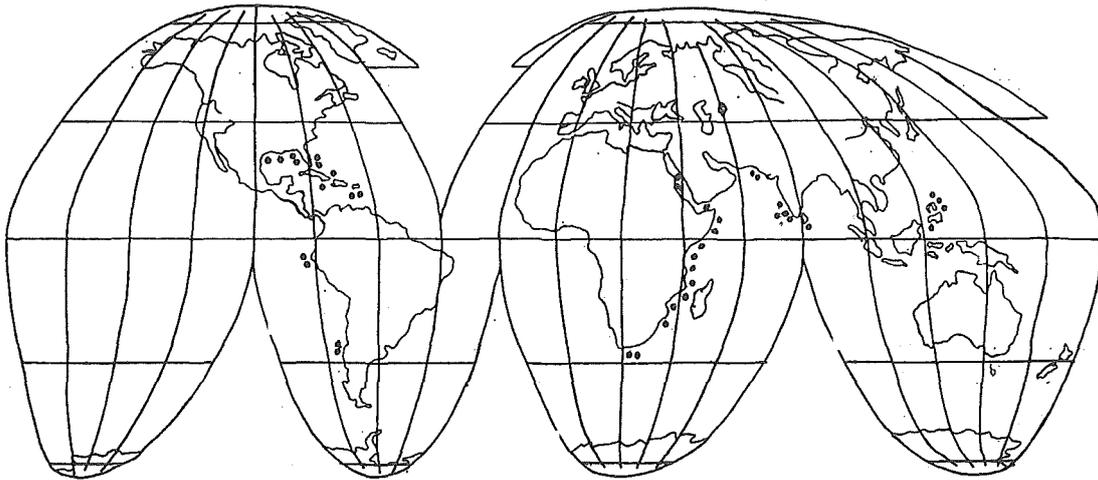


Fig.1. Distribution of *Lanocira*

*Lanocira gardineri* Stebbing, 1904  
(Figs.2 and 3)

*Lanocira gardineri* Stebbing, 1904, p.706; 1905, p.19; Nierstrasz, 1931, p.169, Pillai, 1954, p.7; 1967, p.274; Kensley, 1978, p.75; Jones, 1982, p.72.

*Lanocira capensis* Barnard, 1914, p.359.

**MATERIAL EXAMINED:**

1 male, 8.0 mm, Manora Island, 7 November 1987; 1 male, 9.0 mm, Manora Island, 9 November 1988.

**TYPE LOCALITY:**

Maldives and Laccadive Archipelagoes - Mahlosmadulu Atoll at 20 fathoms.

**DESCRIPTION OF MALE FROM PAKISTAN:**

Cephalon (Figs.2A and B) with upturned rostrum and a longitudinal tubercle adjacent to each eye, surface between tubercles concave, eyes large and black, pereonites 1-4 glabrous, 5-7 with few setae on posterior margins, coxae 4-7 visible dorsally, coxae 2,3 lacking furrows, coxae 4-6 (Fig.2B) each with incomplete oblique furrow, that of 7 complete and oblique. Pleonite 1 entirely concealed by pereonite 7, pleonite 4 with postero-lateral margins moderately produced, posterior margins of pleonites 3-5 setose. Pleotelson wider than long, bearing setae over dorsal surface, apex broadly rounded, fringed with plumose setae and six spines. Postero-lateral margin straight and diverging anteriorly.

Clypeal region as illustrated in Fig.2C. Antenna 1 (Fig.2D) peduncle article 1 and 2 coalescent, article 3 a little shorter than articles 1 and 2 combined, flagellum composed of seven articles, each bearing a long aesthetas and several setae. Antenna 2 (Fig.2E) stout, peduncle article 4 equal to combined length of articles 1-3, article 5 shorter than 4, article 3 and 5 setose with small tuft of setae on antero-lateral angle, flagellum thickly setose, composed of 16 articles. Mandible (Fig.2F) without lacinia mobilis and molar process. Maxilla 1 (Fig.2G) stout and calcified, distal article forming a recurved hook with apex bearing three setae. Maxilla 2 (Fig.2H) short, article 3 slender and slightly shorter than article 2, bearing two setae apically.

Pereiopod 1 (Fig.3A) short, basis with three short setae at disto-medial angle, ischium with two setae at disto-medial angle and single seta at disto-lateral angle, merus wider than long, medial margin furnished with four peg like structures and single seta, disto-lateral angle with three setae, carpus short, sub-triangular and naked, propodus with 3 setae on disto-lateral and 5 setae and 2 spines on disto-medial margin, dactyl longer than propodus, unguis long and strongly curved. Pereiopod 2 (Fig.3B) stouter than pereiopod 1, ischium with 3 spines on disto-lateral angle, one of them strongly developed, other two sub-equal, disto-medial angle beset with two pegs, merus slightly narrower than that of pereiopod 1, carpus with 2 setae on medial and 2 on distal margin, propodus with 3 setae on disto-lateral margin and 4 stiff setae opposing dactyl. Pereiopod 3 similar to pereiopod 2. Pereiopods 4-7 becoming progressively longer. Pereiopod 7 (Fig.3C) basis with lateral margin without setae, disto-medial margin beset with 2 stiff setae, ischium medial margin with 3 group of spines, disto-lateral angle with a group of long setae, merus lateral margin without setae, disto-lateral margin with numerous long setae, medial margin with single spine at half way along its length, disto-medial margin with group of stiff setae, propodus longer than dactyl, medial margin with 2 groups of spines, disto-lateral angle with 4 long setae.

Penes short, separate to base, projecting anteriorly. Pleopod 1,2 peduncles (Figs.3D and E) with 5 coupling spines, pleopods 3,4 (Figs.3 F and G) with 4 coupling spines.

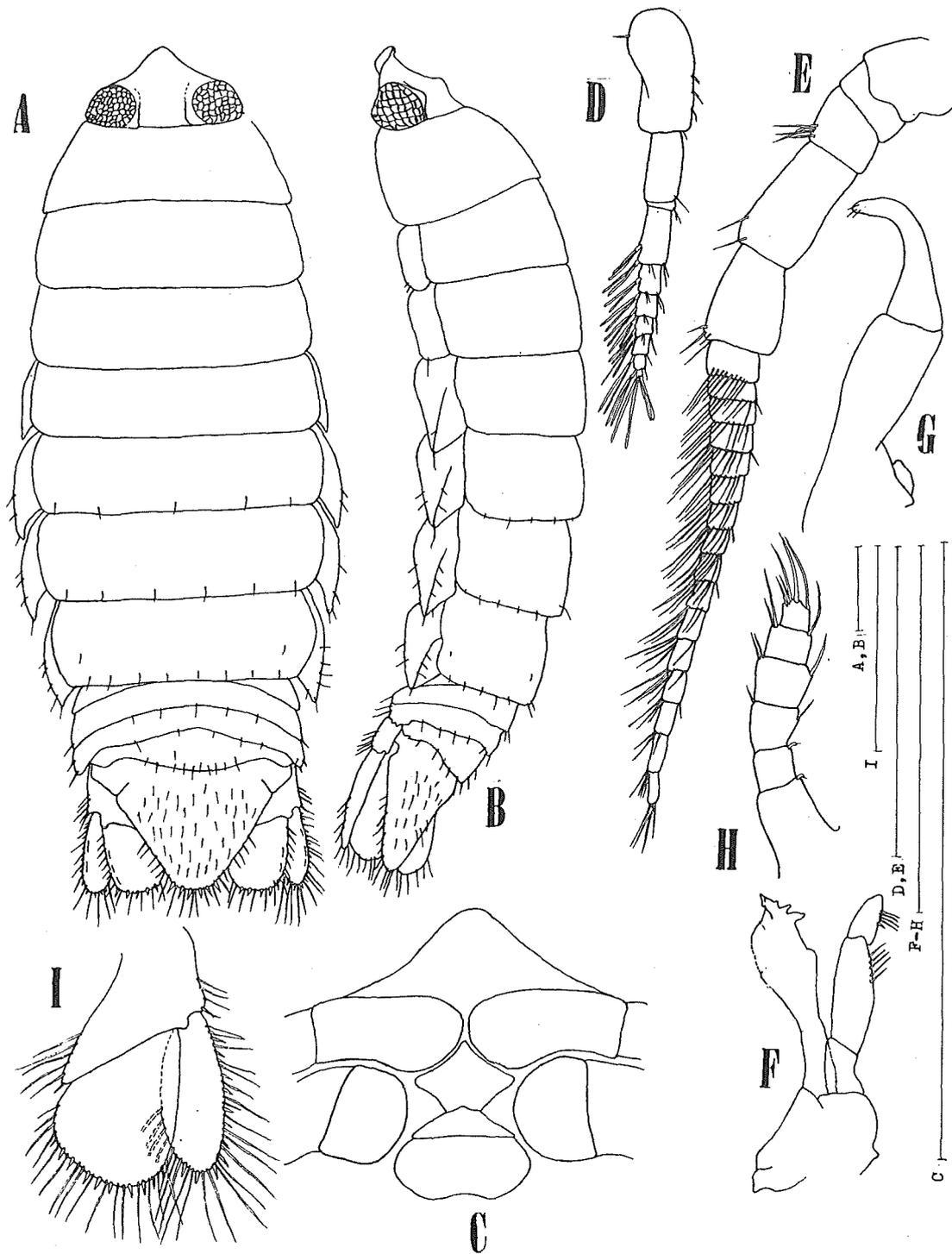


Fig.2. *Lanocira gardineri* Stebbing, 1904. Male, total length=9 mm, A: dorsal view, B: lateral view, C: clypeal region, D: antenna 1, E: antenna 2, F: mandible, G: maxilla 1, H: maxilliped, I: uropod (scale line = 1 mm).

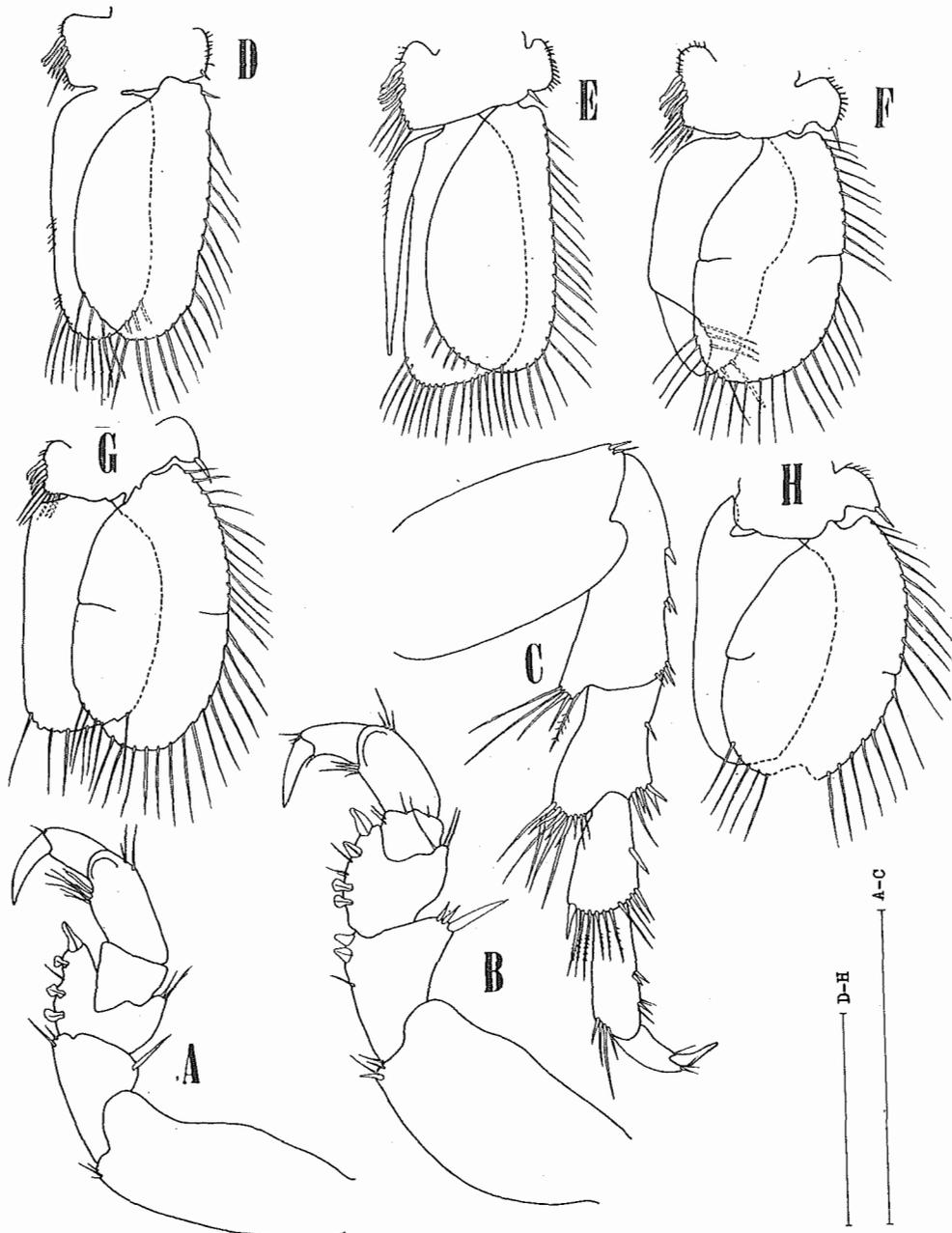


Fig.3. *Lanocira gardineri* Stebbing, 1904. Male, total length = 9 mm, A: pereiopod 1, B: pereiopod 2, C: pereiopod 7, D-H: pleopod 1-5, (scale lines = 1 mm).

Pleopod 2 (Fig.3E) with appendix masculina distinctly shorter than ramus, tapering gradually to a narrow apex, proximo-medial margin beset with row of setules. Pleopods 3-5 (Figs.3F and H) with partial sutures on exopods. Pleopod 5 (Fig. 3H) endopod without setae.

Uropods (Figs.2A and I) extending slightly beyond apex of pleotelson, exopod shorter than endopod, lateral margin with 9 spines inter-spersed among setae, medial margin with 2 spines, endopod broad with 10 marginal spines and setae, medial and lateral margins of peduncle setose.

#### FEMALE:

Not available in present collection. According to Kensley (1978) " female lacking rostrum and tubercles on cephalon, but concavity present ".

#### DISTRIBUTION:

Indo-Pacific: Philippines (Nierstrasz, 1931), Sri Lanka (Stebbing, 1905), Maldive and Laccadive Islands (Stebbing, 1904), Kerala, (Pillai, 1954, 1967), Kenya (Jones, 1982), South Africa (Barnard, 1914). Now its range extends to the northern Arabian Sea, Karachi, Pakistan.

#### REMARKS:

This species was described in fairly good details by Stebbing in 1904. In 1914, Barnard established a new species *L. capensis* from Southern Africa. Jones (1982: 72) treated Barnard's species as the synonym of *L. gardineri*. Stebbings material agrees very closely with the present material but Barnard's specimen (1914:359), differs in having pereonites 5-7 densely setose and appendix masculina (Barnard, fig.A, pl.31) extending much beyond the apex of endopod.

#### Genus *Paranthura* Bate and Westwood, 1868

*Paranthura* Bate and Westwood, 1868, p.163; Barnard, 1925, p.152; 1914, p.347; Miller and Menzies, 1952; Poore, 1980, p.63.

*Calamura* Boone, 1920.

*Endanthura* Boone, 1923.

#### DIAGNOSIS:

Pereonite 7 short, pleonites more or less distinct. Eyes present. Antenna 1 flagellum shorter than peduncle; antenna 2 flagellum flattened, very short, of 1 or more articles. Mandibular palp 3 articulated, article 3 with a comb of setae. Maxillipedal endite obsolete or small, palp 1-2 articulated, article 2 short, if present. Pereiopod 1 stout and subchelate, pereiopods 2 and 3 less well developed than pereiopod 1, pereiopods 4-7 with article 5 quadrate-linear, anterior and posterior margins subequal. Statocyst absent.

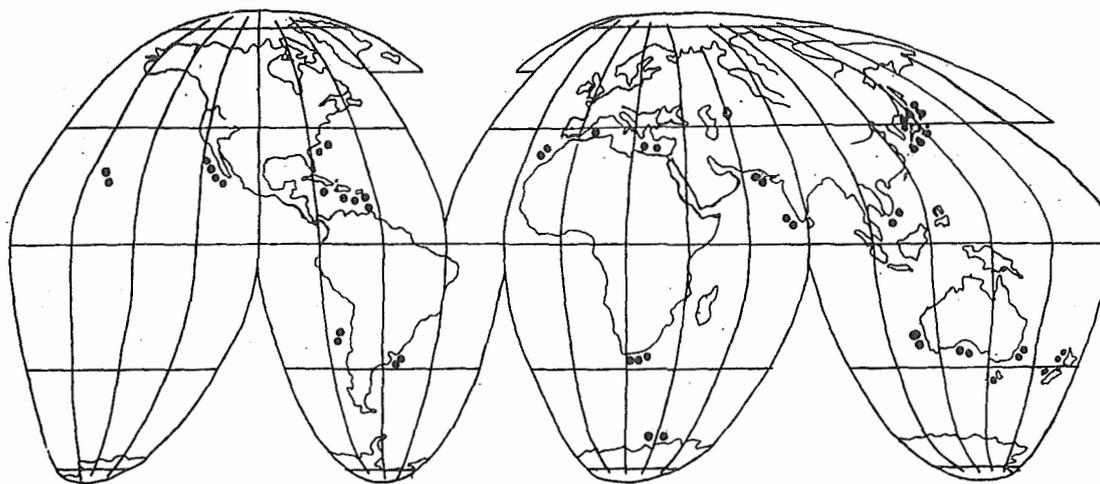


Fig.4. Distribution of *Paranthura*

Type species: *Paranthura costana* Bate and Westwood, 1868

There are thirty one species of *Paranthura* in the world, of which three are known to occur in Indian Ocean (Poore, 1980). Of these three, only one *P. latipes* has been collected from the Arabian Sea which provides the first record of the genus from this region.

#### DISTRIBUTION AND HABITAT:

The nearly global distribution of *Paranthura* is shown in Fig.4. The species of *Paranthura* inhabit between the tide marks in the major oceans, commonly found under rocks in sand particles.

*Paranthura latipes* Barnard, 1955  
(Figs. 5 and 6)

*Paranthura latipes* Barnard, 1955,p.51.

#### MATERIAL EXAMINED:

2 males, 5.0 and 6.7 mm., Buleji, 15 July 1987.

**TYPE LOCALITY:**

South Africa.

**DESCRIPTION OF MALE FROM PAKISTAN:**

As the specimens at hand, provide the first subsequent record of the species and the existing description and illustrations of the type are incomplete and inadequate it seems proper to describe and illustrate the available specimen in details.

Body (Fig.5A) smooth, glabrous, narrow in front than behind, cephalon slightly longer than broad. Pereonites 1-5 sub-equal in length. Pleonites 1-5 (Fig.5A) fused with distinct lateral sutures, pleonites 1-5 together longer than pereonite 7, telson longer than pleon, distally tapering to rounded apex, bearing marginal setae.

Antenna 1 (Fig.5B) peduncle 3 articulate, article 1 longest, articles 2 and 3 sub-equal, flagellum consists of 6 articles, proximal and distal articles bearing tufts of setae. Antenna 2 (Fig.5C) stout, peduncle 5 articulate, flagellum uni-articulate, bearing fringe of setae on distal and medial margins. Mouth parts (Fig.5D) and maxilliped of usual Paranthuran type.

Pereiopod 1 (Fig.6A) stout, unguis short propodus basally broad, triangular, palm bearing rows of setae, without basal spine, carpus short under-riding propodus, unarmed, bearing long setae on disto-lateral margin, ischium broad with two and one setae on disto-medial and disto-lateral margins, respectively. Pereiopod 2 (Fig.6B) narrower than pereiopod 1, unguis shorter than half length of dactyl, propodal palm bearing 7 spines and 5 setae, carpus short, triangular, under-riding propodus, merus broader than long, ischium and basis long, sub-equal in length. Pereiopod 3 almost similar to pereiopod 2, pereiopods 4-7 with carpus not under-riding propodus, pereiopod 4 (Fig.6C) carpus with a row of 4 spines and 3 long setae on lateral margin, propodus rectangular with 2 spines and few setae on lateral margin, dactyl long with fine setae and a spine on lateral margin. Pereiopod 7 (Fig.6D) basis broad, rounded with few setae, ischium broad but narrower than basis, merus triangular bearing setae on distal angles, carpus and propodus rectangular with 2 spines on lateral margin, latter with a row of fine setae between 2 spines, dactyl lacking secondary unguis.

Pleopod 1 (Fig.6E) with endopod shorter and much narrower than exopod, peduncle with 3 coupling spines. Pleopod 2 (Fig.6F) with sub-equal rami, exopod with complete transverse suture, peduncle bearing 2 coupling spines, appendix masculina with a stout spine, at proximal angle of lateral margin, distal portion lanceolate having a shallow concavity along medial margin.

Uropod exopod (Fig.5 A and E) folding dorsally over telson, medial margin densely setose, having a notch at disto-medial angle (Fig.5G), reaching beyond basis, endopod (Fig.5F) disto-lateral margin fringed with long setae.

**FEMALE:**

Not present in the collection.

**REMARKS:**

The original description of the species was based on a male, measuring 7.5 mm (Barnard, 1955: 52). Present material also consists of two males. They agree well with the description of the holotype except that the telson of South African specimen

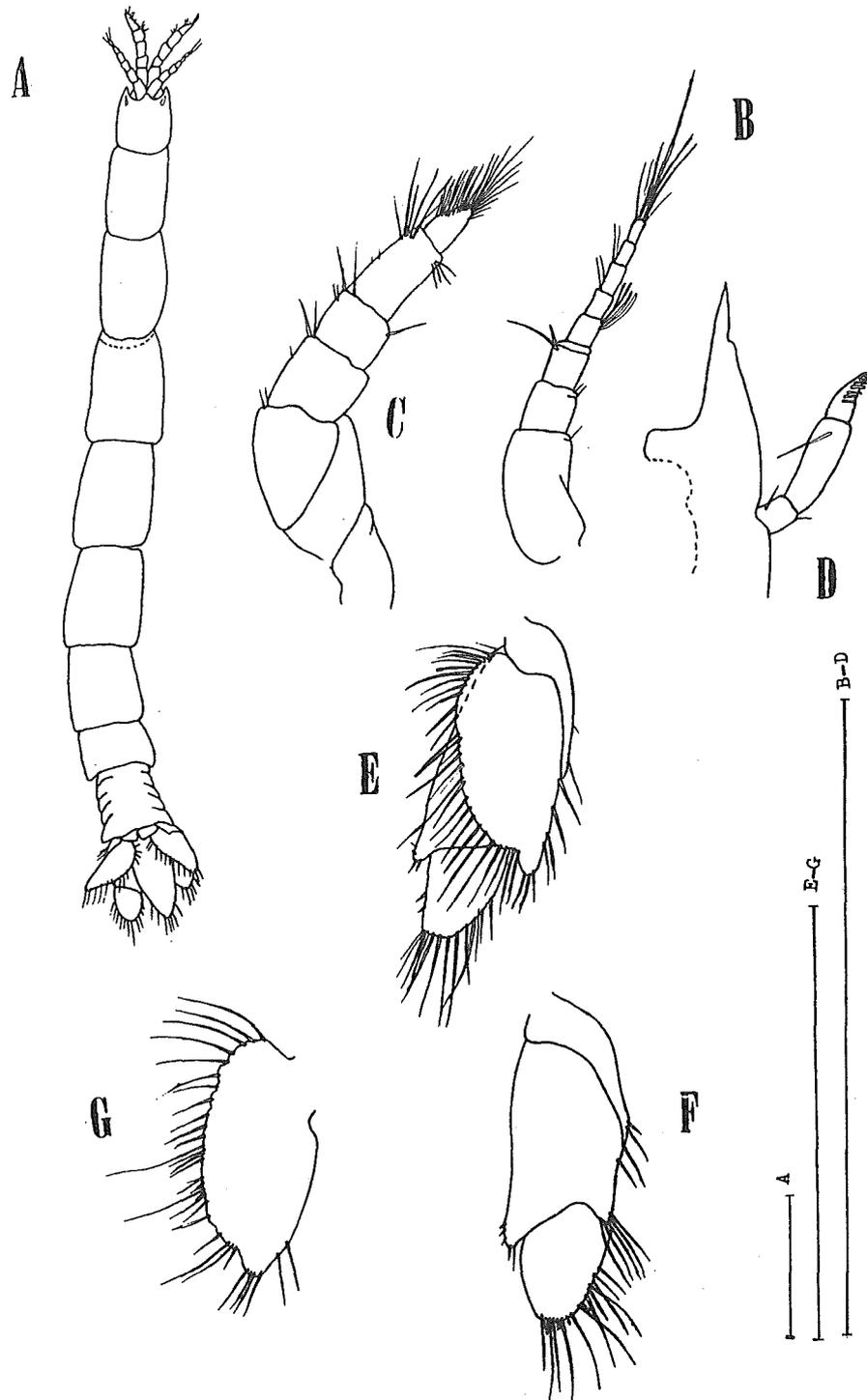


Fig.5. *Paranthura latipes* Barnard, 1955. Male, total length = 6.7 mm, A: dorsal view, B: antenna 1, C: antenna 2, D: mandible, E: uropod, F: uropod exopod, G: uropod endopod (scale lines = 1 mm).

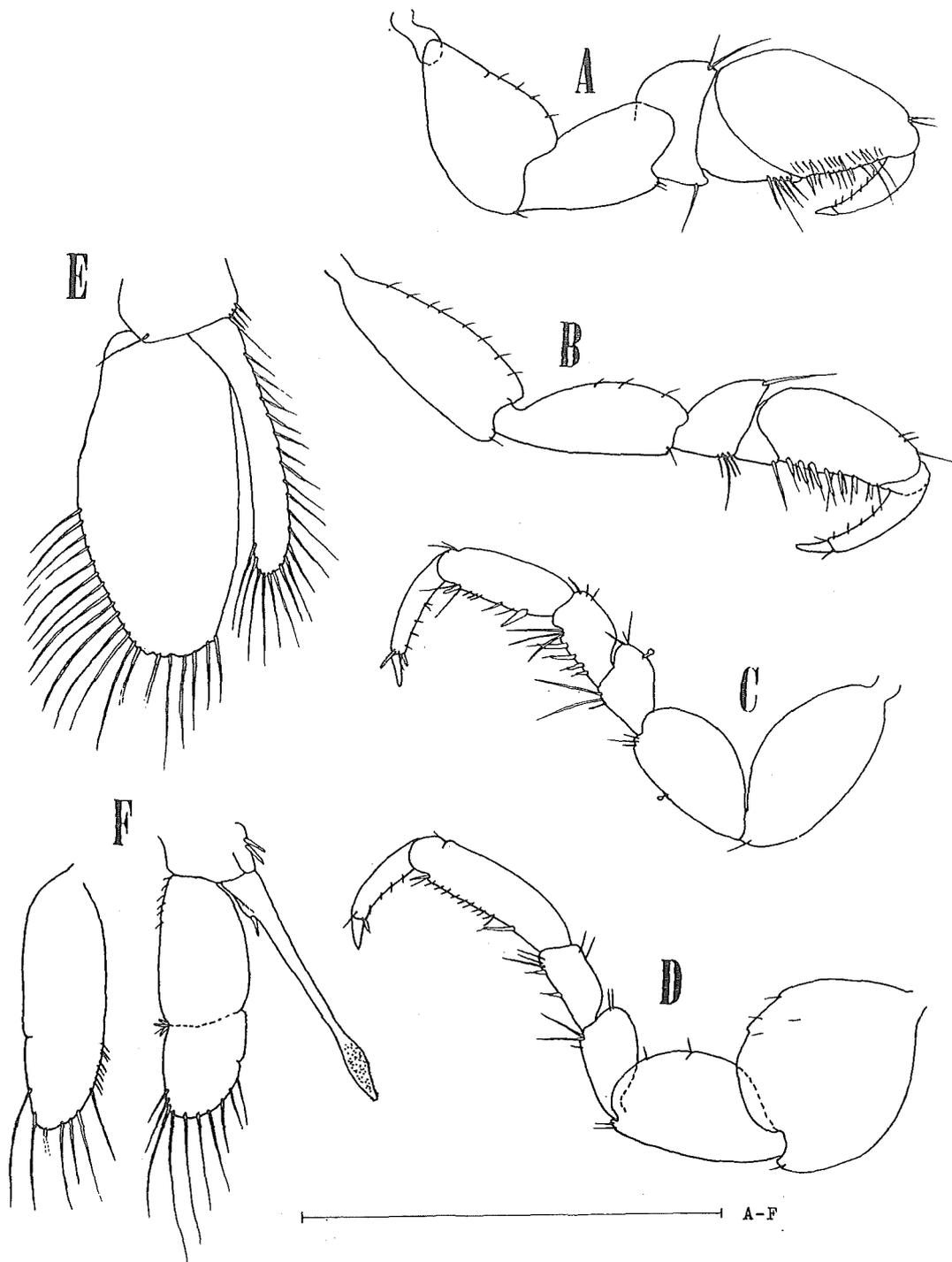


Fig.6. *Paranthura latipes* Barnard, 1955. male, total length = 6.7 mm, A: pereiopod 1, B: pereiopod 2, C: pereiopod 4, D: pereiopod 7, E: pleopod 1, F: pleopod 2 (scale lines = 1 mm).

(Barnard, 1955:51, Fig.24 C) is more densely setose as compared to present material and appendix masculina is with a spine on proximo-lateral margin (Fig.6F) which is not shown in the figure given by Barnard (1955).

#### DISTRIBUTION:

*Paranthura latipes* was so far known only from the South Africa (Barnard, 1955:52). Now its range extends to Northern Arabian Sea, Karachi, Pakistan.

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#### REFERENCES

- Barnard, K.H. 1914. Contribution to the Crustacean Fauna of South Africa 3. Additions to the marine Isopoda with notes on some previously incompletely known species. *Annals of the South Museum* 10: 325-442.
- Barnard, K.H. 1925. A revision of the Family Anthuridae (Crustacea Isopoda), with remarks on certain morphological peculiarities. *Journal of the Linnean Society* 36: 109-160.
- Barnard, K.H. 1955. Additions to the Fauna List of South African Crustacea and Pycnogonida. *Annals of the South African Museum* 43: 1-107.
- Bate, C.S. and J.O. Westwood. 1868. A history of British sessile eyed Crustacea, *John Van Voorst*, London 2: 257-304.
- Boone, P.L. 1920. *Calamura porteri*, a new genus and species of Isopod from Chile. *Revista Chilena de Historia Natural* 24: 25-31.
- Boone, P.L. 1923. New marine tanaid and Isopod Crustacea from California. *Proceedings of the Biological Society of Washington* 36: 147-156.
- Hansen, H.J. 1890. Cirolanidae et familiae nonnullae propinquae, *Musei Hauniensis Vidensk Selsk. Skr.* 5: 237-426.
- Jones, D.A. 1982. New Isopods of the genus *Lanocira* (Corallanidae) from the Indian Ocean region. *Crustaceana* 42: 65-75.
- Kensley, B. 1978. *Guide to the marine Isopods of Southern Africa*. South African Museum, Cape Town. Pp.1-173.
- Miller, M.A. and R.J. Mensies. 1952. The Isopod Crustacea of the Hawaiian Islands III, Super-family Flabellifera, Family Anthuridae. *Occasional papers of Bernice. P. Bis.* 21:1-15.
- Nierstrasz, H.F. 1931. Die Isopoden der Siboga - Expedition 3. Isopoda Genuina 2. Flabellifera. *Siboga Expedition Monographs* 32C: 123-233.
- Pillai, N.K. 1954. A preliminary note on the Tanaidacea and Isopoda of Travancore. *Bulletin of the Central Research Institute, University of Travancore* 3: 1-21.
- Pillai, N.K. 1967. Littoral and Parasitic Isopods from Kerala: Families Eurydicidae, Corallanidae and Aegidae-2. *Journal of the Bombay Natural History Society* 64: 267-283.

- Poore, G.C.B. 1980. A revision of the genera of the Paranthuridae (Crustacea: Isopoda: Anthuridea) with a catalogue of species. *Zoological Journal of Linnean Society* 68: 53-67.
- Stebbing, T.R.R. 1904. Marine Crustacean. XII. Isopoda, with description of a new genus. In: Gardiner, J.S. the fauna and Geography of the Maldives and Laccadive Archipelagoes 2: 699-721, Cambridge.
- Stebbing, T.R.R. 1905. Report on the Isopoda collected by Professor Herdman at Ceylon in 1902. In: Report to the Government of Ceylon on the pearl oyster fisheries in the Gulf of Manaar, London: Royal Society.
- Stebbing, T.R.R. 1910. Reports on the marine biology of the Sudanese Red Sea XIV. On the Crustacea Isopoda and Tanaidacea. *Journal of Linnean Society, London, (Zool.)* 31: 215-230.