

REDESCRIPTION OF *ARCTURELLA LINEATA*  
(STEBBING) FROM SOUTH AFRICA  
(CRUSTACEA: ISOPODA: ARCTURIDAE)

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*Abstract.*—*Arcturella lineata*, a poorly known arcturid isopod from South Africa, is redescribed and fully figured, from fresh material. The confusion arising from vaguely defined generic diagnoses in the Arcturidae is demonstrated, as there appears to be little real difference between *Arcturella* and *Astacilla*.

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*Arcturella lineata* was described by Stebbing (1873) based on material from Algoa Bay, South Africa, and has since been recorded on five separate occasions. The species, however, has never been fully described, and the only figures available are those of a whole female in dorsal view (Stebbing 1873, pl. 3, fig. 3; Kensley 1978, fig. 7D). Fresh material, collected alive along with the host gorgonacean, provided the opportunity for full description and figures to be given, and the generic position to be reexamined.

*Arcturella lineata* Stebbing  
Figures 1, 2

*Arcturus lineatus* Stebbing, 1873:97, pl. 3 (fig. 3); 1875:187.

*Arcturus* (?) *lineatus*.—Barnard, 1914:207.

*Arcturella lineata*.—Barnard, 1920:392; 1940:509.—Day, Field, and Penrith, 1970:49.—Kensley, 1978:21, fig. 7D.

*Material examined.*—In addition to Barnard's material in the South African Museum collections, the following fresh material was examined: South African Museum, 2 ♂, TL 8.0–9.0 mm, 5 ovig. ♀, TL 7.0–8.0 mm, 1 ♀, TL 6 mm, 74 juveniles; Cape Point Nature Reserve, False Bay, South Africa, 34°20'S, 18°30'E, 10 m, on *Lophogorgia flammaea*, collected by Mr. W. R. Liltved, 29 May 1983.

*Description.*—Ovigerous Female: Body about 4.5 times longer than greatest width at pereonite 4; not usually geniculate. Integument with scattered very small rounded granules. Head with large well pigmented dorsolateral eyes; anterior margin deeply concave, with tiny rostral point; anterolateral lobes of head rounded, with short distolateral spine; dorsum convex; ventrolateral margins barely developed, mouthparts and pereopod 1 visible in lateral view. Pereonite 1 fused with head, line of fusion marked by shallow groove; coxal plate with 3 points, separated from ventrolateral margin of head by narrow slit; low middorsal tubercle present. Pereonite 2 shorter than pereonite 3, coxal plate rounded. Pereonite 4 almost as wide proximally as middorsal length, tapering posteriorly, somewhat dorsoventrally flattened, with strong rounded middorsal tubercle in proximal half, and smaller tubercle near posterior margin. Pereonites 5–7 decreasing in length and width posteriorly, coxal plates rounded; pereonite 7 with low rounded middorsal lobe. Marsupium formed by 3 pairs of oostegites on pereonites 2–4, oostegite 4 largest; marsupium containing 30 eggs. Pleon consisting of 2 weakly

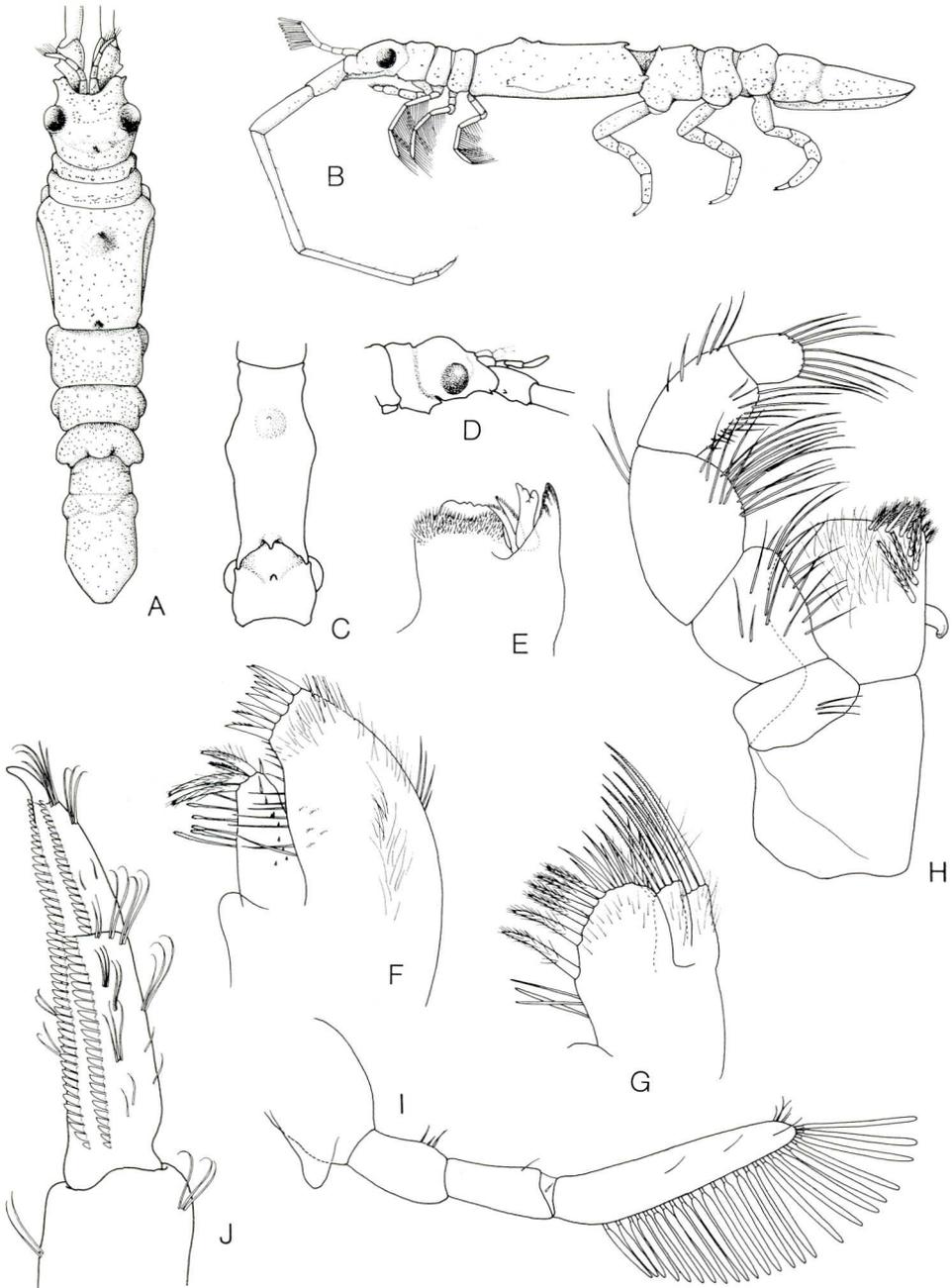


Fig. 1. *Arcturella lineata*: A, Ovigerous female in dorsal view; B, Male in lateral view; C, Pereonites 4 and 5 of male in dorsal view; D, Head of female in lateral view; E, Mandible; F, Maxilla 1; G, Maxilla 2; H, Maxilliped; I, Antenna 1; J, Flagellum of antenna 2.

indicated fused pleonites plus pleotelson; second fused pleonite with weak posterolateral 'shoulder,' seen in dorsal view; pleotelson dorsally evenly convex, pentagonal in outline, apex truncate in dorsal view.

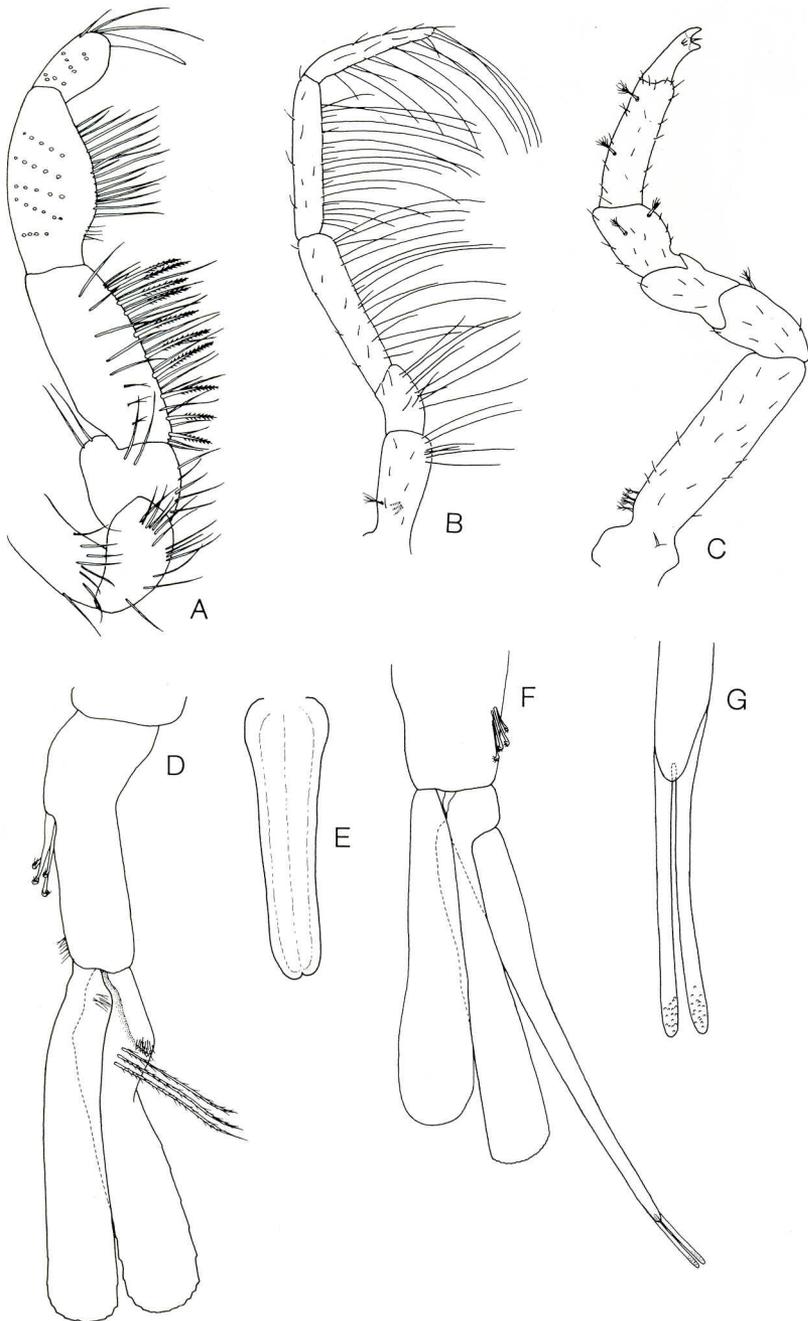


Fig. 2. *Arcturella lineata*: A, Pereopod 1, some setae omitted; B, Pereopod 4; C, Pereopod 7; D, Male pleopod 1; E, Penis; F, Male pleopod 2; G, Apex of copulatory stylet enlarged.

Antenna 1 with basal peduncle segment having ventrodistal rounded lobe-flange; segment 2 about half width and  $\frac{2}{3}$  length of segment 1; segment 3 slightly narrower and subequal in length to segment 2; flagellum consisting of very short

partly obscured dorsal segment plus elongate distal article bearing 24 ventral aesthetascs.

Antenna 2, basal peduncular segments  $\frac{2}{3}$  length of segment 2, latter with lateral tooth; segment 3 twice length of but narrower than segment 2; segments 4 and 5 narrow, cylindrical, each almost twice length of segment 3; flagellum of 2 articles, basal article 1.6 times length of distal article, each with 2 ventrolateral rows of flattened scale-spines; distal article tipped with short claw.

Mandible lacking palp; sclerotized incisor of 4 cusps; lacinia stout, with several distal cusps; 2 fringed spines in spine-row; molar stout, distally truncate and sclerotized, with serrate margins.

Maxilla 1, inner ramus half width of outer, with 1 short and 3 elongate fringed setae distally; outer ramus with 9 distal simple and serrate spines.

Maxilla 2, inner ramus broadly rounded, with numerous fringed spines on mediolateral margin; inner lobe of outer ramus bearing 5 elongate sparsely fringed and distally serrate spines; outer lobe with 4 elongate fringed and serrate spines.

Maxillipedal endite with single coupling hook, 10 or 11 fringed spines on mediolateral margin; 5-segmented palp with numerous setae on mesial margins; segment 3 longest and broadest.

Pereopod 1, all segments bearing setae on inner and medial surfaces; carpus longest segment, armed with 10 fringed spines in addition to setae on medial margin; propodus and dactylus densely setose; dactylus with stout apical claw.

Pereopods 2-4 similar, becoming longer posteriorly; dactyli lacking; propodi, carpi, meri, ischia, and bases armed with elongate setae on posterior margins.

Pereopods 5-7 similar, stout, prehensile; dactylus biunguiculate, 2 corneous claws subequal.

Uropods with outer ramus triangular, fringed with setules; inner ramus half length and half basal width of outer ramus, apically with 3 elongate fringed spines.

Male: Body elongate-cylindrical, 7 times longer than greatest width at pereonite 4. Head, antennae, and mouthparts as in female. Pereonite 4 twice longer than wide, with slight dorsoventral flattening, widening just anterior to midlength, with low rounded middorsal tubercle in anterior half, hook-like middorsal spine on posterior margin. Pereonite 5 with subacute middorsal tubercle near anterior margin. Remaining pereonites and pleon as in female. Penis reaching to base of rami of pleopod 1, apically bilobed.

Pleopod 1, basis with 4 coupling hooks; rami subequal in length, longer than basis, with elongate plumose setae on distal rounded margins; exopod with proximal notch and 3 elongate fringed setae.

Pleopod 2, basis with 4 coupling hooks on medial margin; exopod shorter than endopod; latter with copulatory stylet articulating near base; copulatory stylet tapering, slender, reaching well beyond rami, distally having 2 slender processes sheathed basally by rounded lobe; processes with several scale-spines distally.

*Color.*—All the specimens were a bright wine-red, matching very closely the color of the host gorgonacean *Lophogorgia flammea*. The color derives from evenly and densely arranged integumental chromatophores. The animals were observed alive for a short time, and while a few specimens had a geniculate appearance (clinging to the host by the posterior three pairs of pereopods, the body flexed between pereonites 4 and 5) most, including ovigerous females, crawled about in a non-geniculate position.

*Remarks.*—Apart from allowing a redescription of a poorly known species, the

fresh material from False Bay also stimulated a reexamination of the generic position.

Monod (1925) cast doubt on the validity of the generic placement of some species of *Arcturella*. He was of the opinion that, in spite of the relatively short length of pereonite 4 in several species, some *Arcturella* species should be placed in *Astacilla*. Only those species having a well calcified and dorsoventrally flattened pereonite 4 should be placed in *Arcturella*.

The type-species of *Arcturella*, *A. dilatata* (Sars, 1882, and originally described as an *Astascilla*) agrees with many of the features used to define *Astacilla* (sensu Lew Ton, pers. comm.). These include the presence of a strong dactylar claw on pereopod 1, lack of dactyli on pereopods 2–4, a notch in the exopod of the male pleopod 1, and an apically trifid copulatory stylet on the male pleopod 2 endopod.

Clearly, present separation of *Astacilla* and *Arcturella* is ill-defined. Until the already commenced generic revision of the Arcturidae is completed (Poore and Kensley, in prep.), it would be of little benefit to place the present species in *Astacilla*. Nevertheless, redescription of the present species serves a cautionary note for future generic placements within the Arcturidae.

#### Acknowledgments

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#### Literature Cited

- Barnard, K. H. 1914. Contributions to the Crustacean Fauna of South Africa. 1. Additions to the Marine Isopoda.—Annals of the South African Museum 10:197–230.
- . 1920. Contributions to the Crustacean Fauna of South Africa. 6. Further Additions to the List of Marine Isopoda.—Annals of the South African Museum 17:319–438.
- . 1940. Contributions to the Crustacean Fauna of South Africa. 12. Further Additions to the Tanaidacea, Isopoda, and Amphipoda, together with Keys for the Identification of the hitherto Recorded Marine and Fresh-water Species.—Annals of the South African Museum 32:381–543.
- Day, J. H., J. G. Field, and M. J. Penrith. 1970. The Benthic Fauna and Fishes of False Bay, South Africa.—Transactions of the Royal Society of South Africa 39:1–108.
- Kensley, B. 1978. Guide to the Marine Isopods of Southern Africa.—Trustees of the South African Museum: Cape Town. 173 pp.
- Monod, T. 1925. Tanaidaces et Isopodes Aquatiques de l'Afrique Occidentale et Septentrionale.—Bulletin de la Société des Sciences Naturelles du Maroc 5:61–85.
- Sars, G. O. 1882. Oversigt af Norges Crustaceer med forelobige Bemaerkninger over de nye eller mindre bekjendte Arter. I. (Podophthalmata, Cumacea, Isopoda, Amphipoda).—Christiania Videnskabselskabs Forhandling 18:1–124.
- Stebbing, T. R. R. 1873. A Sphaeromid from Australia, and Arcturidae from South Africa.—Annals and Magazine of Natural History 12(4):95–98.
- . 1875. On some new exotic Sessile-eyed Crustaceans.—Annals and Magazine of Natural History 15(4):184–188.

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