

## NEW BATHYPELAGIC AMPHIPODS OF THE GENERA

### *RHACHOTROPIS* AND *LEPECHINELLA* WITH KEYS TO THE GENERA<sup>1</sup>

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A single tow with an experimental model of an epibenthic dredge made by Mr. Robert Bieri in waters southwest of Catalina Island, off the coast of southern California, revealed two species of amphipods new to science. The equipment used was aboard the research vessel "E. W. Scripps" of Scripps Institution of Oceanography, La Jolla, California.

These specimens are of importance due to the poorly known bathypelagic amphipod fauna of the eastern Pacific Ocean and the fact that they were recovered on the deeply basined continental shelf where endemic bathypelagic species might occur. However, the precise depth of capture is unknown as the dredge fished from the surface to the bottom.

I am indebted to Mr. Bieri, now of Lamont Geological Observatory, Columbia University, for the donation of the specimens and to the Allan Hancock Foundation for the use of facilities.

#### *Rhachotropis* Smith

*Rhachotropis* Smith, 1883, Proc. U.S. Mus. 6: 222.

*Gracilipes* Holmes, 1908, Proc. U.S. Nat. Mus. 35: 526.

Below is a key to the existing species of the genus except for the following names:

*R. elegans* Bonnier has been fused with *R. grimaldii* by K. H. Barnard, 1916, Ann. So. African Mus. 16: 179.

*R. gracilis* Bonnier is poorly known. See Shoemaker, 1950, Contr. Canadian Biol. Fisheries NS 5 (10): 317.

*R. proxima* Chevreux, 1911, Bull. Inst. Oceanog. 204: 11.

The description of the armature of the pleon and pleonal epimera is not clear or lacking. However, this species is closely related to *R. faeroensis*.

*Gracilipes multicalceolus* Thorsteinson, 1941, Univ. Washington Publ. Oceanog. 4 (2): 85-86 has been transferred to the genus *Eusirella* by Birstein and Vinogradov, 1955, Trudy Inst. Okean. Akad. Nauk SSSR 12: 271.

<sup>1</sup>Contribution No. 185 from the Allan Hancock Foundation, University of Southern California.

KEY TO THE GENUS *RHACHOTROPIS*

- |   |                                 |
|---|---------------------------------|
| 1. Pleon segment 4 bears a dorsal tooth or teeth              | 2                               |
| 1. Pleon segment 4 lacks any dorsal teeth                     | 18                              |
| 2. Peraeon segment 7 bears a dorsal tooth                     | 3                               |
| 2. Peraeon segment 7 lacks a dorsal tooth                     | 7                               |
| 3. Pleon segments have more than one mediodorsal tooth        | <i>ACULEATA</i> (Lepechin)      |
| 3. Pleon segments have only one mediodorsal tooth             | 4                               |
| 4. Pleon segment 3 not tricarinate                            | <i>PLATYCERA</i> K.H. Barnard   |
| 4. Pleon segment 3 tricarinate                                | 5                               |
| 5. Telson not deeply cleft (less than $\frac{1}{4}$ )         | <i>LOBATA</i> Shoemaker         |
| 5. Telson deeply cleft (more than $\frac{1}{4}$ )             | 6                               |
| 6. Peraeopod 5 longer than the body                           | <i>MACROPUS</i> Sars            |
| 6. Peraeopod 5 not longer than the body                       | <i>HELLERI</i> (Boeck)          |
| 7. Pleon segment 3 lacks an acute mediodorsal tooth           | 8                               |
| 7. Pleon segment 3 bears an acute mediodorsal tooth           | 11                              |
| 8. Pleon segment 1 bears a dorsal tooth                       | <i>ANTARCTICA</i> K.H. Barnard  |
| 8. Pleon segment 1 lacks a well defined dorsal tooth          | 9                               |
| 9. Pleon segments 2-4 not tricarinate                         | <i>ANOMALA</i> K.H. Barnard     |
| 9. Pleon segments 2-4 tricarinate                             | 10                              |
| 10. Telson deeply cleft                                       | <i>PAENEGLABER</i> K.H. Barnard |
| 10. Telson not deeply cleft                                   | <i>ROSTRATA</i> Bonnier         |
| 11. Pleon segment 3 tricarinate                               | 12                              |
| 11. Pleon segment 3 not tricarinate                           | 17                              |
| 12. Telson deeply cleft                                       | 13                              |
| 12. Telson not deeply cleft                                   | 16                              |
| 13. Lateral carinae of pleon segment 3 obtuse                 | <i>HUNTERI</i> Nicholls         |
| 13. Lateral carinae of pleon segment 3 projecting into points | 14                              |
| 14. Ventral edge of third pleonal epimeron serrated           | <i>CERVUS</i> n. sp.            |
| 14. Ventral edge of third pleonal epimeron smooth             | 15                              |
| 15. Eyes small, pigmented, tooth of pleon segment 4 slender   | <i>LOMONSOVI</i> Gurjanova      |
| 15. Eyes unpigmented, tooth of pleon segment 4 stout          | <i>LEUCOPHTHALMA</i> Sars       |
| 16. Pleon segment 4 tricarinate*                              | <i>KERGUELENI</i> Stebbing*     |
| 16. Pleon segment 4 not tricarinate                           | <i>INTEGRICAUDA</i> Carausu     |

\*The original description and figures of *R. kergueleni* are unclear as to the tricarination of pleon segments 3-4, but Stebbing (1906, Das Tierreich 21: 349) affirms that they are.

17. Peraeopod 5, lower corner of article 2 angular, produced  
*FAEROENSIS* Stephensen
17. Peraeopod 5, lower corner of article 2 sloping,  
unproduced *DISTINCTA* (Holmes)
18. Pleon segment 3 lacks a mediodorsal tooth  
*INFLATA* (Sars)
18. Pleon segment 3 bears a mediodorsal tooth 19
19. Telson deeply cleft 20
19. Telson not deeply cleft 21
20. Peraeon segment 7 bears a dorsal tooth  
*OCULATA* (Hansen)
20. Peraeon segment 7 lacks a dorsal tooth  
*GRIMALDII* (Chevreux)
21. Peraeopod 5, article 2 with large posterior cusp  
*PALPORUM* Stebbing
21. Peraeopod 5, article 2 lacks posterior cusp 22
22. Rostrum short, pleon with small teeth, pleon  
segment 3 not tricarinate *NATATOR* (Holmes)
22. Rostrum long, pleon with large teeth, pleon  
segment 3 tricarinate *SIBOGAE* Plot

*Rhachotropis cervus*, new species

(Plate 3)

DIAGNOSIS. — Rostrum short, eyes absent; none of the peraeon segments dorsally toothed or carinate; each ventral corner of peraeon segment 7 produced backwards into a conical process; pleon segments 1-4 each with an acute, mediodorsal, backward pointing tooth; pleon segments 1-3 tricarinate, each lateral carina produced into a posterior cusp; pleon segment 1 with the lateral cusps, but the lateral carinae are not as evident as in segments 2 and 3.

Epimera of pleon segment 3 with ventral edges serrated, posterior edges smooth.

Telson split about  $\frac{1}{3}$  of its length.

Peraeopod 5: article 2 slightly serrated posteriorly, lower posterior corner not projecting.

Antenna 1 with a minute, uniarticulate accessory flagellum.

Male and female differ only by the female brood plates.

HOLOTYPE. — AHF No. 543, male 7 mm.

TYPE LOCALITY. —  $33^{\circ} 17' N$ ,  $118^{\circ} 22' W$ , epibenthic dredge, 0-1000 m (0-490 fms), Oct. 20, 1954, coll. R. Bieri.

MATERIAL EXAMINED. — Seven specimens from the type locality.

REMARKS. — This species is related to *R. leucophthalma* Sars (1893, Crustacea of Norway 1: 429, pl. 151, fig. 2) but differs in

the following respects: (1) the lower edges of the third pleonal epimera are serrated while posterior edges are smooth; (2) the lobe of article 5 of gnathopods 1-2 is slender; (3) peraeon segment 7 projects backward at each ventral edge; (4) the head lobes are more obtuse; (5) the telson is less deeply cleft.

The new species is also related to *R. lomonsovi* Gurjanova (1934, Zool. Anzeiger 108: 124, fig. 2) but differs by: (1) lack of visible eyes; (2) more obtuse lateral head lobes; (3) lack of posterior serrations and presence of ventral serrations on third pleonal epimera; (4) less deeply cleft telson; (5) the posteroventral projections of peraeon segment 7; (6) the less acute first coxae.

### *Lepechinella* Stebbing

*Lepechinella* Stebbing, 1908, Jour. Linn. Soc. London, Zool. 30:191. *Dorbanella* Chevreux, 1914, Bull. Inst. Oceanog. 296:1.

#### KEY TO THE GENUS *LEPECHINELLA*

- |  |                                |
|--|--------------------------------|
| 1. Coxa 1 bifid  | 2                              |
| 1. Coxa 1 not bifid  | 3                              |
| 2. Head processes long, pleon segments 1-3 with<br>2 teeth only                                | <i>ARCTICA</i> (Schellenberg)* |
| 2. Except for rostrum, head processes short or absent,<br>pleon segments 1-3 with 3 teeth each | <i>CHRYSOTHERAS</i> Stebbing   |
| 3. Peraeon segments 1-7 lack acute dorsal teeth  | <i>CETRATA</i> K.H. Barnard    |
| 3. Peraeon segments 1-7 bear acute dorsal teeth  | 4                              |
| 4. Peraeon segment 1 with one short dorsal process   | <i>DRYGALSKII</i> Schellenberg |
| 4. Peraeon segment 1 with two long dorsal processes  | 5                              |
| 5. Coxa 1 very long and attenuated   | <i>ECHINATA</i> (Chevreux)     |
| 5. Coxa 1 moderately long, scarcely attenuated   | 6                              |
| 6. Dorsal pleonal processes much larger than peraeonal,<br>head processes short                | <i>CURVISPINOSA</i> Pirlot     |
| 6. Dorsal pleonal processes similar to peraeonal, head<br>processes long                       | <i>BIERII</i> n. sp.           |

### *Lepechinella bierii*, new species

(Plates 4, 5)

DESCRIPTION OF FEMALE. — Head with a medial, erect, and slender rostral process, each side of head bears 2 forward projections; eyes absent.

Antenna 1: article 2 about twice the length of article 1, article 3 shorter than 1 and bearing a short, unarticulate accessory flagellum.

\*Senior synonym of *L. schellenbergi* Stephensen



## PLATE 3

*Rhachotropis cervus*, n. sp.

Female, 10 mm. Fig. a, body; b, maxilla 2; c, g, antennae 1-2; e, h, i, q, peraeopods 5, 4, 3, 2; f, r, 1, uropods 1-3; j, o, gnathopods 1-2; k, accessory flagellum; m, upper lip; n, mandible; p, coxa 3; s, telson; t, maxilla 1; u, molar of right mandible; v, lower lip, part; w, maxilliped.

Male, 6 mm. Fig. d, antenna 2.



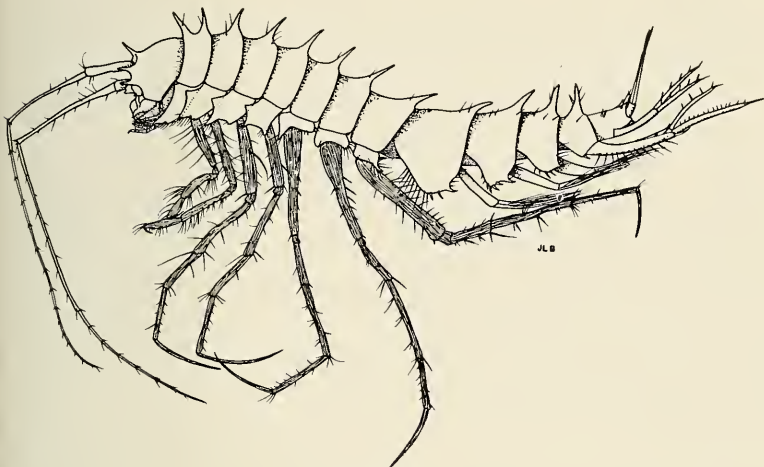


PLATE 4

*Lepechinella bierii*, n. sp.

Female, 6 mm, holotype. Lateral view.

Antenna 2 slightly longer than 1, article 5 of peduncle not quite twice as long as 4, flagellum shorter than article 5.

Mouthparts similar to the type species, *L. chrysotheras* Stebbing, except for the more slender first maxillary palp and the shorter spines on the inner edge of the inner plate of the maxilliped; the right and left palps of the first maxillae bear different sized spines.

Dorsal processes of segments slender. Peraeon segment 1 bears 2 of these teeth while each of the following segments bears one only; the last two segments of the urosome are fused. The processes of the pleon become successively more erect.

Epimera of pleon segments 1-3 with lower posterior corners produced into curved, conical processes; lower edges of second epimera noticeably excavate anterior to the process.

Coxae 1-2 not bifid, coxae 3-4 bifid, with a web between the downward projecting arms, coxa 5 with a long, conical anterior lobe, coxa 6 slightly bilobed, coxa 7 bearing a ventroposterior, curved process.

Peraeopods 3-5 successively longer, seventh articles successively shorter.

HOLOTYPE. — AHF No. 544, female, 6 mm.

TYPE LOCALITY. — 33° 17' N, 118° 22' W. epibenthic dredge, 0-1000 m (0-490 fms), Oct. 20, 1954, coll. R. Bieri.

MATERIAL EXAMINED. — Two specimens from the type locality.

REMARKS. — The undivided, broad and truncated first coxae, the slender peraeonal processes, and the erect rostral process of the head distinguish this species.

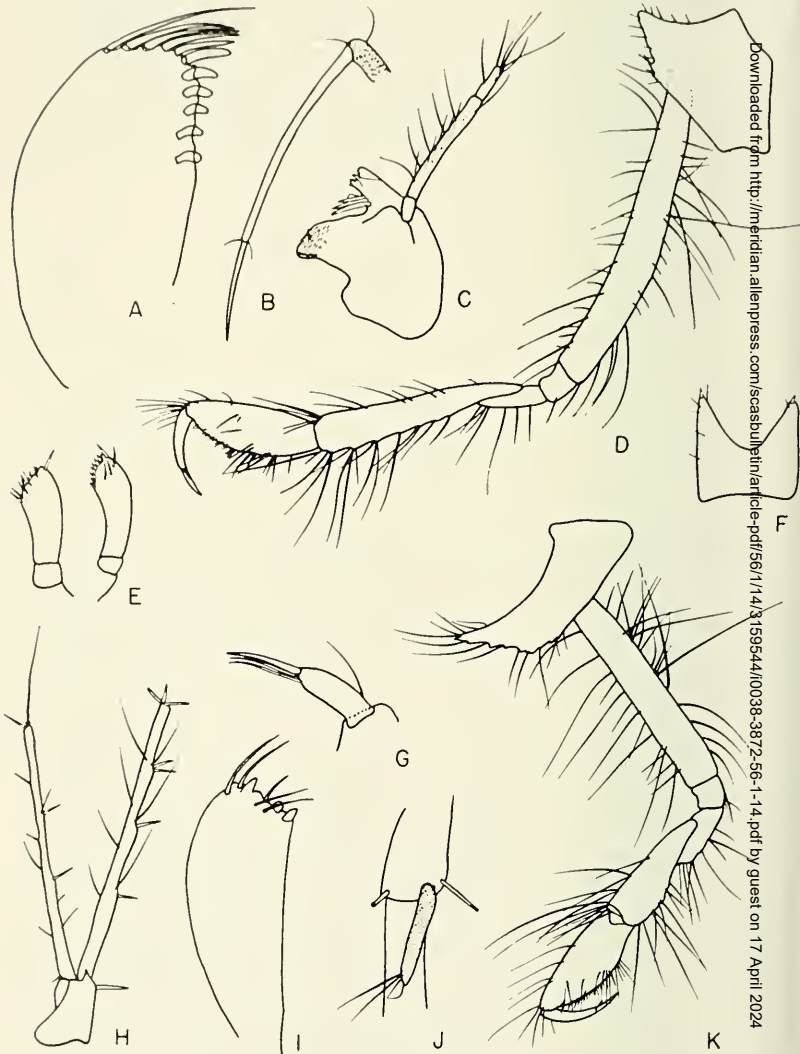


PLATE 5

*Lepechinella bierii*, n. sp.

Female, 6 mm, holotype. Fig. a, outer plate of maxilliped; b, article 7 of pereopod 2; c, mandible; d, k, gnathopods 2, 1; e, left and right palps of maxilla 1; f, telson; g, palp article 4, maxilliped; h, uropod 3; i, inner plate of maxilliped; j, accessory flagellum, stippled.