

sutures on the second to fourth pereion segments. Postero-lateral angles of the coxal plates of the second to sixth pereion segments each successively reaching farther back than those of the preceding segments. Postero-lateral angles of the pleurae of the second and third abdominal segments extending to the lateral margins of the pleotelson. The pleotelson shows three faint longitudinal diverging ridges, of which the median one is interrupted in the middle; tip of pleotelson truncate. Inner lobe of the first maxillae narrowly rounded (not expanded) distally. Outer lappet of outer lobe of second maxilla with seven, inner lappet of the same lobe with eight apical setae. Distal epipodite of the maxilliped marked off from the basipodite by a suture; the palp consists of three joints, the last one small. Basipodite of the first three pairs of pleopods with its inner proximal angle prolonged and furnished with setae. Endopodite of the fourth pair of pleopods entire (not bifid). Setae on lower margin of the propodus of the first pereopod different in females and adult males (Nordenstam, 1933, p. 76).

Distribution: West Chile (AUDOUIN and MILNE-EDWARDS 1840), Chile (NICOLET 1849, CUNNINGHAM 1871).

Remarks: This species was not found in the L.U.C.E. collections.

Subtribe Cirolanoidea

To this tribe belongs the more or less typical marine isopods. The peraeon has seven distinctly separated somites and shows no fusion of the first with the cephalon. The pleopoda are generally similar to one another; except occasionally for the first pair of pleopods no other pair is operculiform, and larger than the preceding pairs. The individual somites of the body are wider than long and the uropoda, when present, do not arch over the pleotelson. In essence, this subtribe is equivalent to the flabellifera of many authors, excluding, however, the Serolidae and the Anthuridae which are herein considered separate subtribes.

Contained within the Cirolanoidea are the families Sphaeromidae, Anuropidae, Cirolanidae and Limnoriidae. Their distinguishing characters are shown in the following key:

A KEY TO THE FAMILIES OF THE SUBTRIBE CIROLANOIDEA

1. Pleon with six fully separated somites inclusive of pleotelson 2
1. Pleon with less than six fully separated somites..... *Sphaeromidae*
2. Uropoda lacking. Instead six pairs of pleopoda are present..... *Anuropidae*
2. Uropodal rami flattened, fan-like *Cirolanidae*
3. Uropodal rami tubular or claw-like *Limnoriidae*

Family Limnoriidae

Type genus: *Limnoria* RATHKE, MENZIES 1957.

Diagnosis: Cephalon ovoid in cross section. Eyes lateral. Clypeus consisting of a narrow, transversely elongated, undivided piece lacking projections in its outer

surface. Antennae separated along mid-line; not contiguous at the base. First and second pairs of antennae nearly in a transverse line, neither one markedly more anterior than the other. Obvious scale present on first antennae. Mandible lacking lacinia mobilis and molar process. Posterior part of cephalon slips under anterior margin of first peraeonal somite. Sexes separate. Penis (genital apophyses) consisting of a pair of elongate plates which articulate with the body. Only four digestive caeca (glands) present. Testes each with one lobe. Coxal plates present on peraeonal somites two to seven. Uropodal branches tubular (or claw-like), not expanded and flattened. Maxilliped with an epipod and a pentarticulate palp. Pleon consisting of five somites plus a large semicircular pleotelson.

Composition: The family Limnoriidae contains only two genera, *Limnoria* and *Paralimnoria*, MENZIES (1957). Only the former is represented in the fauna of Chile. This belongs to the sea-weed boring subgenus *Phycolimnoria*. Others are probably present but were not in the collections of the L.U.C.E.

Genus *Limnoria* RATHKE, MENZIES, 1957

Limnoria (Phycolimnoria) chilensis, new species

Figure 37

Synonyms: None.

Diagnosis: *Phycolimnoria* having a triarticulate mandibular palp. Maxillipedal epipod strap-like, just reaching to articulation of palp with sympod. Flagellum of second antennae with four articles. Dorsum of fifth pleonal somite and pleotelson with a pair of converging mid-dorsal carinae. Posterior margin of pleotelson with dorsal fringe of stout spike-like setae; scale-setae interposed between stout setae at margin.

Measurements: Holotype male, length 2.4 mm, width 1.0 mm.

Type locality and types: The types consisting of a male, a female and two paratypes were collected from Southern Chile at Islas Guaitecas, Puerto Melinka, February 14, 1949; *St. M 52*, tidal belt, rocks, stones and sand.

Distribution: The species was also collected from Central Chile at *St. M 121*, one specimen.

Affinities: Of the known species this one seems to resemble *L. (P.) nonsegnis* MENZIES (MENZIES, 1957, p. 187) the most. It differs from *nonsegnis* in having a pair of carinae on the fifth pleonal somite rather than a single carina.

Family Cirolanidae

Type genus: *Cirolana* LEACH.

Diagnosis: Cirolanoidea with fan-like uropods. Pleon with six fully separated somites inclusive of the uropod-bearing pleotelson. Coxal plates well marked off from peraeonal somites two to seven inclusive.

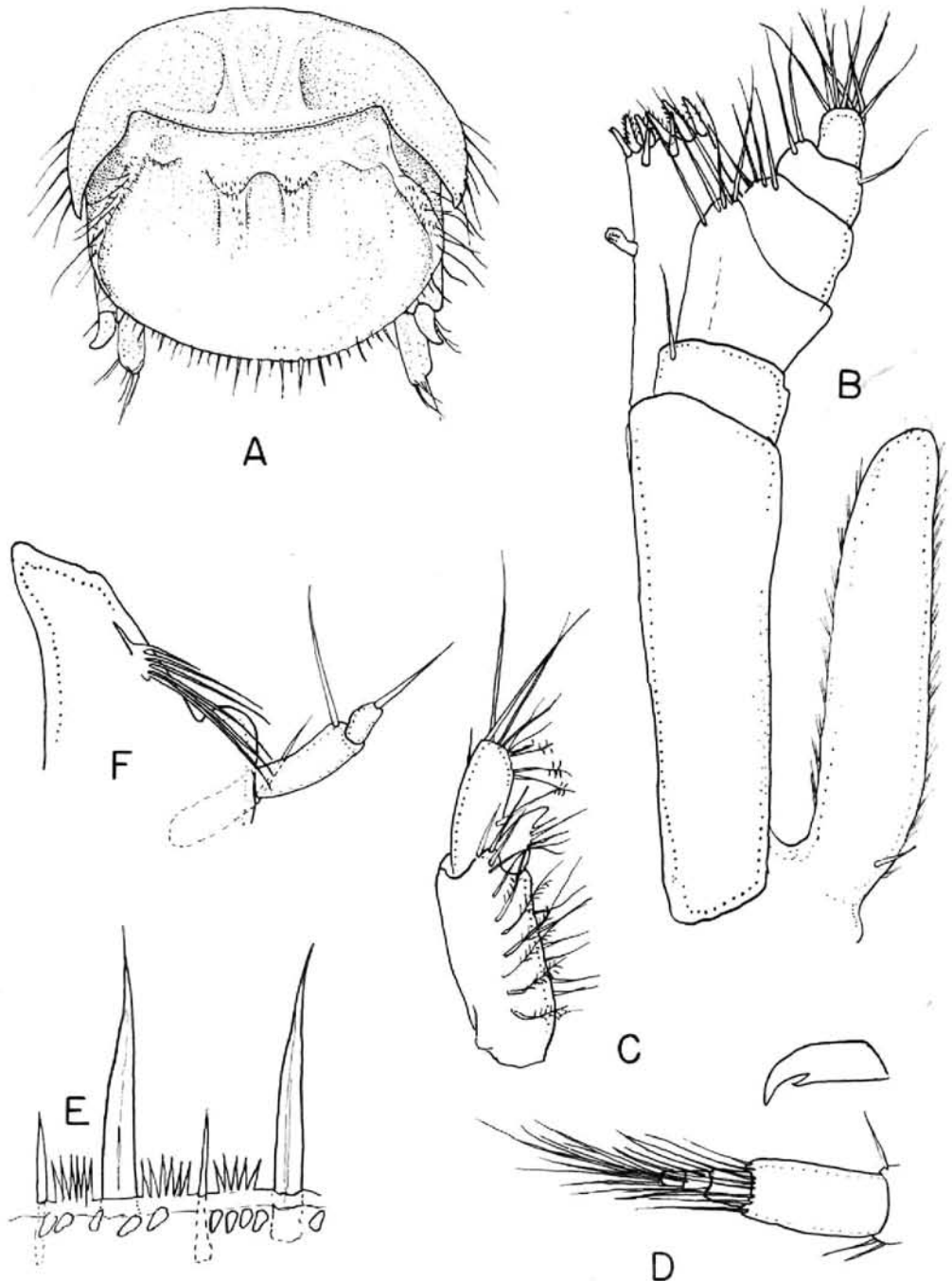


Figure 37. *Limnoria (Phycolimnoria) chilensis*, new species. A, pleotelson; B, maxilliped; C, uropod; D, flagellum of second antenna and claw of first pereopod. E, margin of pleotelson; F, setae row of mandible.

Composition: This family contains six subfamilies whose characteristics are shown in the following key:

A KEY TO THE SUBFAMILIES OF THE FAMILY CIROLANIDAE

1. All peraeopods prehensile *Cymothoinae*
1. Some or none of the peraeopods prehensile 2
2. Mandible lacks lacinia mobilis, molar process reduced 3
2. Mandible with lacinia mobilis and tooth-bearing molar process present 5
3. Terminal articles of maxillipedal palp with stout recurved hooks *Aeginae*
3. Terminal articles of maxillipedal palp without stout recurved hooks 4
4. Antipenultimate article of maxillipedal palp longer than broad... *Excorallaninae*
4. Antipenultimate articles of maxillipedal palp as broad as long... *Corallaninae*
5. Last four pairs of peraeopods with merus, carpus, and propodus expanded and paddle-like *Phoratopodinae*
5. Peraeopods ambulatory *Cirolaninae*

Subfamily Cymothoinae

Type genus: *Cymothoa* FABRICIUS.

Diagnosis: Cirolanidae with the peduncle and flagellum of the antennae poorly defined. Maxillipedal palp with two articles, terminal article with stout hook-like setae. All peraeopods prehensile.

Composition: The L.U.C.E. collections contained only one genus belonging to this diversified subfamily. This genus was *Lironeca*.

Genus *Lironeca* LEACH (auct. *Livoneca* LEACH, 1818)

Type species: *Livoneca redmanni* LEACH (?)

Diagnosis: Cymothoinae with cephalon deeply immersed in first peraeonal somite. First pair of antennae widely separated at the base, rather compressed. Abdomen (pleon) very little immersed in peraeon; not markedly narrower than peraeon. (Modified from RICHARDSON, 1905.)

Lironeca raynaudi M.-EDWARDS

Figure 36A—B

Synonyms: *Livoneca raynaudi* M.-EDWARDS, 1840, HALE 1925, pp. 215—217, fig. 10, including the synonyms *Livoneca novae-zealandiae* MIERS, 1875 and *Livoneca stewarti* FILHOL, 1885.

Diagnosis: *Lironeca* having the uropoda small and not reaching the apex of the pleotelson. Front with a bluntly pointed rostrum. All pleonal somites separated and reaching the lateral border (at least in ventral view). HALE (*op. cit.*) gives additional characteristics.

Measurements: 17.5 to 19 mm. (HALE, 1925, p. 216).

Type locality: M.-EDWARDS specimens were from the Cape of Good Hope.

Material examined: One male, two gravid females and 73 young were from Golfo de Ancud, Punta Chulao. One young male was from *St. M 16*, both places in Southern Chile.

Distribution: This species is widely distributed in the Pacific Ocean and South Atlantic Ocean having been taken from South Africa, Australia, New Zealand and Japan. Our record of the species from Chile is hardly surprising.

Genus *Meinertia* STEBBING

Type species: *Meinertia gaudichaudi* (MILNE-EDWARDS).

Diagnosis: Cymothoinae with cephalon deeply immersed in first peraeonal somite. First pair of antennae contiguous at the base. Pleural somites increasing in width posteriorly, first narrowest and much narrower than pleon. (Modified from RICHARDSON, 1905, pp. 236—237).

Meinertia gaudichaudi (MILNE-EDWARDS)

Figure 51 H—I

Synonyms: *Cymothoa gaudichaudii* M.-EDWARDS, 1840, p. 271, NICOLET, 1849.

Meinertia gaudichaudii (M.-EDW.), RICHARDSON, 1905, p. 237, and synonyms.

Diagnosis: None available.

RICHARDSON (1905, pp. 237—239) describes the species as follows: Body elongate, nearly three times as long as broad. Head nearly twice as wide as long, somewhat triangular in shape, with apex obtuse. The head is deeply set in the first thoracic segment, the narrow and acute antero-lateral angles of which extend half the length of the head. Eyes small, distinct, irregular in outline, but inclined to be square, and placed at the sides of the head, a little below the middle.

The first pair of antennae are composed of seven articles, the two first ones being almost fused; they extend just below the eye. The second pair of antennae are composed of nine articles and extend to the posterior margin of the head. The articles of both pairs of antennae are greatly dilated and flattened. The maxillipeds have a palp of two articles. The second maxillae terminate in two lobes furnished with small hooks. The first segment of the thorax is longer than any of the others; the second and fifth segments are subequal, the third and fourth are equal in length; the sixth segment and seventh are successively shorter. The antero-lateral angles of the first segment are narrow and acute and are produced forward to about the middle of the head. The abdomen is deeply set in the thorax. The sixth or terminal segment is trapezoidal, almost twice as wide as long. The post-lateral angles are rounded and the posterior margin straight. The uropoda are a little longer than the terminal abdominal segment. The inner branch is slightly longer than the outer

branch. Both are narrow, elongate, and produced to acute and tapering extremities. (Modified from RICHARDSON, *op. cit.*)

Material examined: Not in the L.U.C.E. collection.

Distribution: Pacific coast of America, from Mazatlan, Mexico, to Chile, Chincheneses Isls; Galapagos, New Guinea (RICHARDSON, 1905, p. 237).

Subfamily Aeginae

Type genus: *Aega* LEACH.

Diagnosis: Cirolanidae with antennal peduncle and flagellum well defined. Maxillipedal palp with two to five articles; terminal article armed with stout, hook-like setae. First three pairs of peraeopods prehensile, last four ambulatory.

Composition: This subfamily contains a variety of genera, only one of which, the genus *Aega* was represented in the L.U.C.E. collections.

Genus *Aega* LEACH, 1818

Type species: *Aega psora* (LINNAEUS, 1761).

Diagnosis: Aeginae having the first two articles of the peduncle of the first antennae expanded. Maxillipedal palp with five articles; terminal article bearing stout recurved hooks. Pleon not narrower than peraeon (modified after RICHARDSON, 1905, p. 167).

RICHARDSON (*op. cit.*) states that the maxillipedal palp is composed of five articles. Only four articles are shown on the maxillipeds of the species illustrated here. This is due to the fact that the small terminal article is obscured from view because of the peculiar twisting undergone by the maxillipedal palps of species belonging to this genus.

Aega magnifica (DANA)

Figure 38 D—I

Synonyms: *Pterelas magnificus* DANA, 1852, pp. 769—770, Atlas, 1855, pl. 51, figs. 4a—g.

Diagnosis: *Aega* bearing a spoon-shaped enlargement on the inferior margin of the propodus of the first three peraeopods. Eyes not confluent medially but widely separated. Uropodal endopod curves abruptly outward where peduncular extension stops. Apex of pleotelson acutely pointed and margin provided with plumose setae and stout simple setae.

Measurements: Length 14 lines, breadth $4\frac{1}{2}$ lines (DANA, 1852, pp. 769—770). The width (second peraeonal somite) of one female was 9.0 mm, length 28.5 mm.

Type locality: Nassau Bay, Fuegia (DANA, *op. cit.*).

Material examined: Specimens were examined from the following L.U.C.E. stations in Southern Chile; *St. M 27*, one female, *St. M 21* one female, two young, *St. M 20* two females, and Golfo de Ancud, S. of Isla Quellín, one female.

Distribution: The species was previously known only from the Magellanic region.

Affinities: This species is closely related to *Aega antillensis* SCHIOEDTE and MEINERT inhabiting the West Indies, Philippine Islands, Japan, and Australia (HALE, 1925, p. 178). From it is distinguished by having the eyes not confluent at the midline.

Aega semicarinata MIERS

Figure 38 A—C

Synonyms: *Aega semicarinata* MIERS, 1875, pp. 115—116, 1877, p. 2; DOLLFUS, 1891, pp. f. 57—58.

Aega bicavata NORDENSTAM, 1930, pp. 547—549, pl. 20, fig. 11, text fig. 11.

? *Aega serripes* M.-EDWARDS, 1840, HALE, 1925, p. 171—172.

Aega punctulata MIERS, 1881, pp. 77—78, pl. VII, figs. 10—11.

Diagnosis: *Aega* in which the second peraeopods have a lobe-like seta located at juncture of dactyl and propod of second peraeopod. Apex of pleotelson slightly concave; concavity crenulate. Rami of uropoda subequal in length, extending to apex of pleotelson. Apex of endopod of uropod truncate.

The punctae on the body of this species are about as described by MIERS (1875). Whether *A. serripes* M.-EDWARDS is a synonym or not I am uncertain. It is highly probable that *A. bicavata* NORDENSTAM from Juan Fernandez Island is a synonym of *A. semicarinata* MIERS.

Type locality: Kerguelen Islands (MIERS, *op. cit.*).

Measurements: Length $2\frac{1}{4}$ inches (MIERS, *op. cit.*).

Distribution: Kerguelen Islands (MIERS) to Chile.

Material examined: Specimens were taken at L.U.C.E. station *M 110* one specimen, and at Golfo de Ancud, S. of Isla Quellín, five specimens, both localities in Southern Chile.

Genus *Rocinela* LEACH, 1818

Type species: *Rocinela danmoniensis* LEACH, 1818

Diagnosis: Aeginae having the first two articles of the peduncle of the first antenna not expanded. Maxillipedal palp with two articles; terminal article with stout recurved hooks. Pleon not narrower than peraeon. (Modified after RICHARDSON, 1905, p. 190.)

One species of *Rocinela* has been reported from Chile. It was not found in the L.U.C.E. collections.

Rocinela australis SCHIOEDTE & MEINERT

(No figure available)

Information regarding this species is not available to the writer.

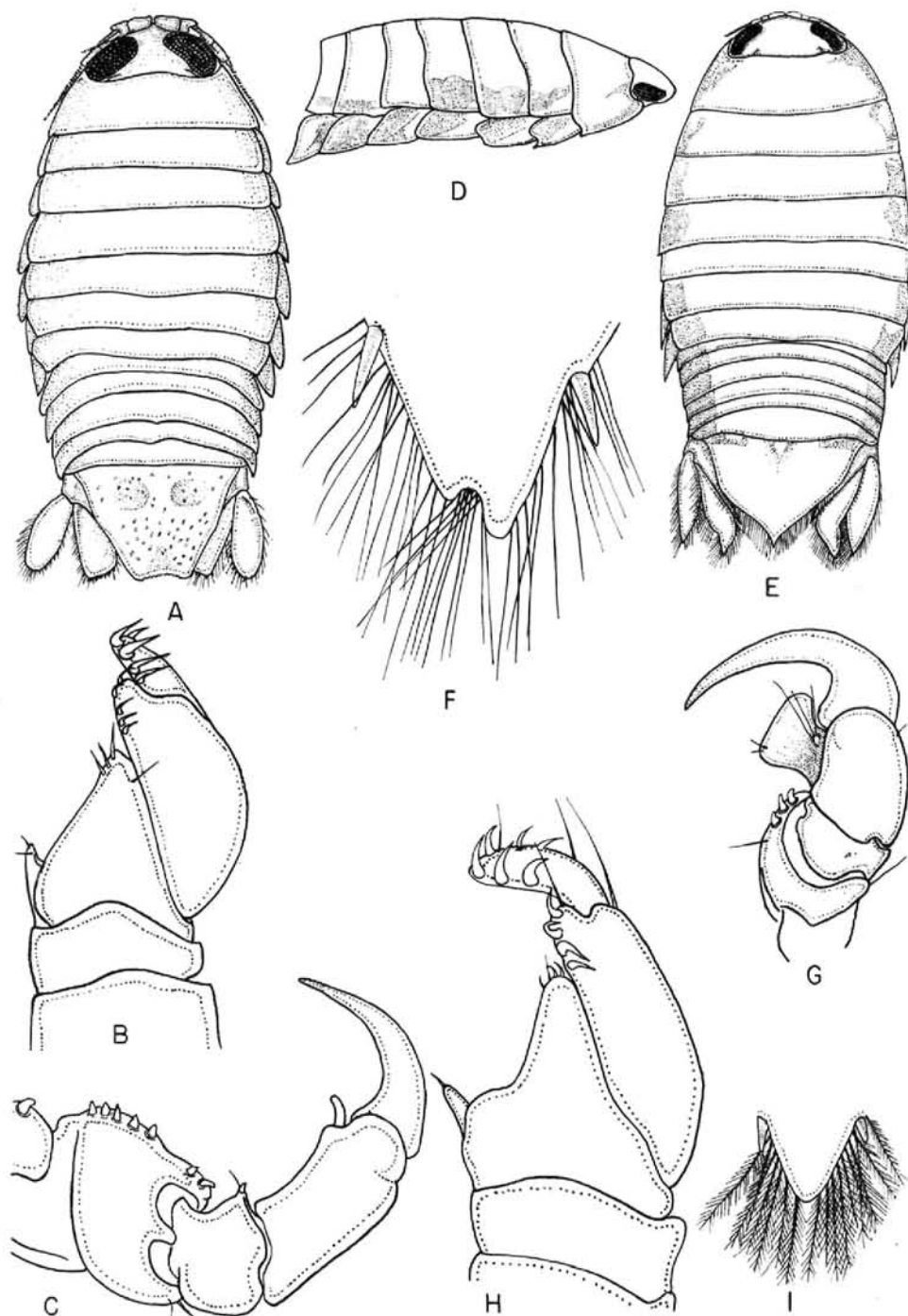


Figure 38, A—C, *Aega semicarinata* MIERS, A, in toto; B, maxilliped; C, second pereopod; D—I, *Aega magnifica* (DANA); D, lateral view; E, in toto; F, uropodal endopod; G, first pereopod; H, maxilliped; I, apex pleotelson.

Subfamily Corallaninae

Type genus: *Corallana*. DANA, 1852.

Diagnosis: Corallaninae with a pentarticulate maxillipedal palp. Mandible lacking lacinia mobilis, and molar process reduced. Antipenultimate article of maxillipeds not longer than broad; maxillae reduced. Incisive process of mandibles narrow and pointed with 2–3 teeth (modified from RICHARDSON, 1905).

Composition: This subfamily was represented in the L.U.C.E. collections by one genus, *Tridentella*.

Genus *Tridentella* RICHARDSON, 1905

Synonyms: *Tridentella* RICHARDSON, 1905, p. 161.

Smicrostoma HALE, 1925, p. 166.

Type species: *Cirolana virginiana* RICHARDSON, 1900, p. 216.

Diagnosis: Corallaninae with a molar process on mandibles, lacinia lacking. Outer lobes of first maxilla with a few apical setae. Apex of second maxilla with short scale-like setae. Inner plate of maxilliped elongate, tapering, and with only a few delicate apical setae, no hooks or stout seta. (Modified from RICHARDSON, 1905, p. 161).

It seems highly probably that *Smicrostoma* HALE is a synonym of *Tridentella*. The differences are largely those of interpretation of structures rather than fundamental anatomical distinctions.

Tridentella laevicephalax, new species

Figure 39F–L

Synonyms: None.

Diagnosis: *Tridentella* with apex of pleotelson broadly rounded, with a crenulate margin provided with small setae; dorsum lacking carinae. Dorsum of cephalon smooth, lacking tuberculations. Inner plate of maxilliped extending to middle of penultimate article of palp.

Measurements: Female holotype, length 9.7 mm, width (2nd peraeonal somite) 4.2 mm.

Type locality and types: The single specimen was collected at L.U.C.E. *St. M 110*, Southern Chile, SE of Bajo Corvicio, stones with calcareous algae, May 6, 1949.

Distribution: Known only from type locality.

Affinities: This species appears most nearly allied to *T. virginiana* RICHARDSON from which it may be distinguished in its lack of tubercles in the cephalon and in its much larger inner plate of the maxilliped.

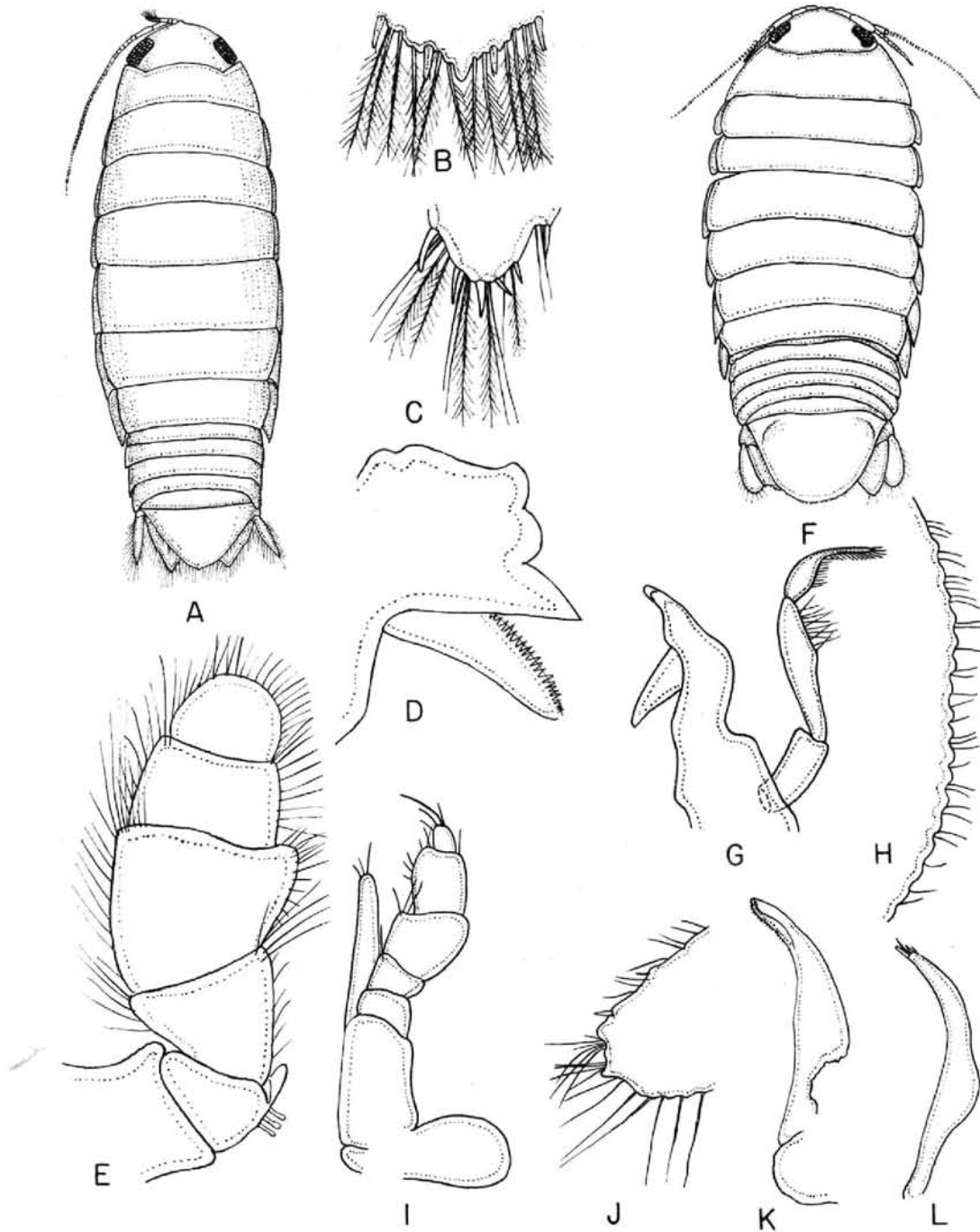


Figure 39. A—E, *Cirolana chilensis*, n. sp.; A, in toto; B, apex pleotelson; C, uropodal endopod; D, mandible; E, maxilliped; F—L, *Tridentella laevicéphala*, n. sp.; F, in toto; G, right mandible; H, apex pleotelson; I, maxilliped; J, uropodal exopod; K, second maxilla; L, first maxilla.

Subfamily Cirolaninae

Type genus: *Cirolana*.

Diagnosis: Cirolanidae in which the fifth pleonal somite is not as wide as the fourth. Maxillipedal palp pentarticulate. Molar process well developed on mandibles which have a toothed and expanded incisive process. Maxillae with no reduction of lobes. Last four pairs of peraeopods ambulatory, not flattened and paddle-like.

Composition: This extensive subfamily contains a considerable number of genera. Only two are located in the L.U.C.E. collections; *Cirolana* and *Excirolana*.

Genus *Cirolana* LEACH, 1818

Type species: *Cirolana cranchii* Leach, 1818.

Diagnosis: Cirolaninae without a projecting rostrum. First and second pleopoda subsimilar, first not operculiform. First pair of antennae with basal article not placed at right angles to the second article. Inner angle of uropodal peduncle produced. Accessory branchae lacking from pleopoda.

Composition: This genus contains a great number of species. Four species were represented in the L.U.C.E. collections, of these two appear to be a new species.

Cirolana chilensis, new species

Figure 39A—D

Synonyms: None.

Diagnosis: *Cirolana* with the flagellum of the first antennae short and stout. Pleotelson evenly rounded but with a triangulate apex bounded by stout setae and plumose setae. Uropodal exopod lanceolate, about as long as endopod. Posterior margin of uropodal endopod truncated. Eyes ovate and situated near lateral margin of cephalon.

Measurements: Holotype male, length 19.6 mm, width 4.5 mm, allotype female, length 22.4 mm, width 9.0 mm.

Type locality: The types consist of the above and 46 paratypes. All are from L.U.C.E. St. M 39, Southern Chile, Seno Reloncaví, the bay E. of the church on Isla Quellín, 25 meters, bottom unknown, January 22, 1949.

Distribution: Southern Chile, from L.U.C.E. stations, M 39 (as above), M 29, twenty specimens, M 20, one young, M 16, twelve specimens, M 88 nineteen specimens, M 107, eighteen specimens.

Affinities: This species is very close to *Cirolana woodjonesi* HALE from which it differs mostly in having the posterior pleotelson margin arcuate rather than triangulate. Additionally the maxilliped bears three rather than only two coupling hooks. In other respects the two seem identical. The appendix masculinum of this species does not bend abruptly medially as is the case in *C. woodjonesi* HALE.

Cirolana concinna HALE

Figure 40 A—E

Synonyms: *Cirolana concinna* HALE, 1925, pp. 152—153.

Diagnosis: *Cirolana* with an evenly arcuate posterior pleotelsonal margin which bears plumose and stout setae. Flagellum of first antennae tapering and elongate. Uropodal endopod widest at distal end, exopod smaller than endopod. Black chromatophora bunched at front of cephalon and characteristically arranged along peraeon and pleon.

Measurements: Length 8 mm. (HALE, 1925, p. 153).

Type locality and types: Western Australia, Cottesloe. Types in the Western Australian Museum, Reg. No. 10789.

Distribution: Western Australia (HALE), Chile (L.U.C.E.).

Material examined: Specimens were examined from the following L.U.C.E. stations in southern Chile: *M 60*, nineteen specimens, *M 3*, one specimen.

Affinities: This species is allied closely to *C. hermitensis* BOONE, also from western Australia. The Chilean specimens differ from *C. concinna* HALE in having only one coupling hook on the maxilliped and in having a less pointed pleotelson, the significance of these differences is uncertain.

Cirolana urostylis, new species

Figure 40 F—H

Synonyms: None.

Diagnosis: *Cirolana* with flagellum of first antennae equal in length to that of second antenna. Both antennae subsimilar in length and scarcely exceed the length of the cephalon. Apex of pleotelson evenly curved and fringed with plumose setae and stout setae. Uropodal rami tend to be styliform; exopod widest in middle, not as long as the sharply pointed but wider endopod.

Measurements: Type female, width of pleotelson 5.1 mm.

Type locality: From L.U.C.E. *St. M 70*, Southern Chile, Boca del Guafo, Isla Guafo, anchorage E. of Punta Weather, rather coarse sand with some stones, 25 meters, February 19, 1949; a single female specimen.

Distribution: Known only from type locality.

Affinities: In the shortness of the antennae this species approaches *C. lineata* POTTS, 1915, HALE, 1925, p. 145 from southern Australia. From *C. lineata* it differs in having the uropodal exopod shorter than the endopod.

Cirolana robusta, new species

Figure 41 D—E

Synonyms: None.

Diagnosis: *Cirolana* with flagellum of first antennae elongate extending half way along margin of first peraeonal somite. Flagellum of second antenna extending

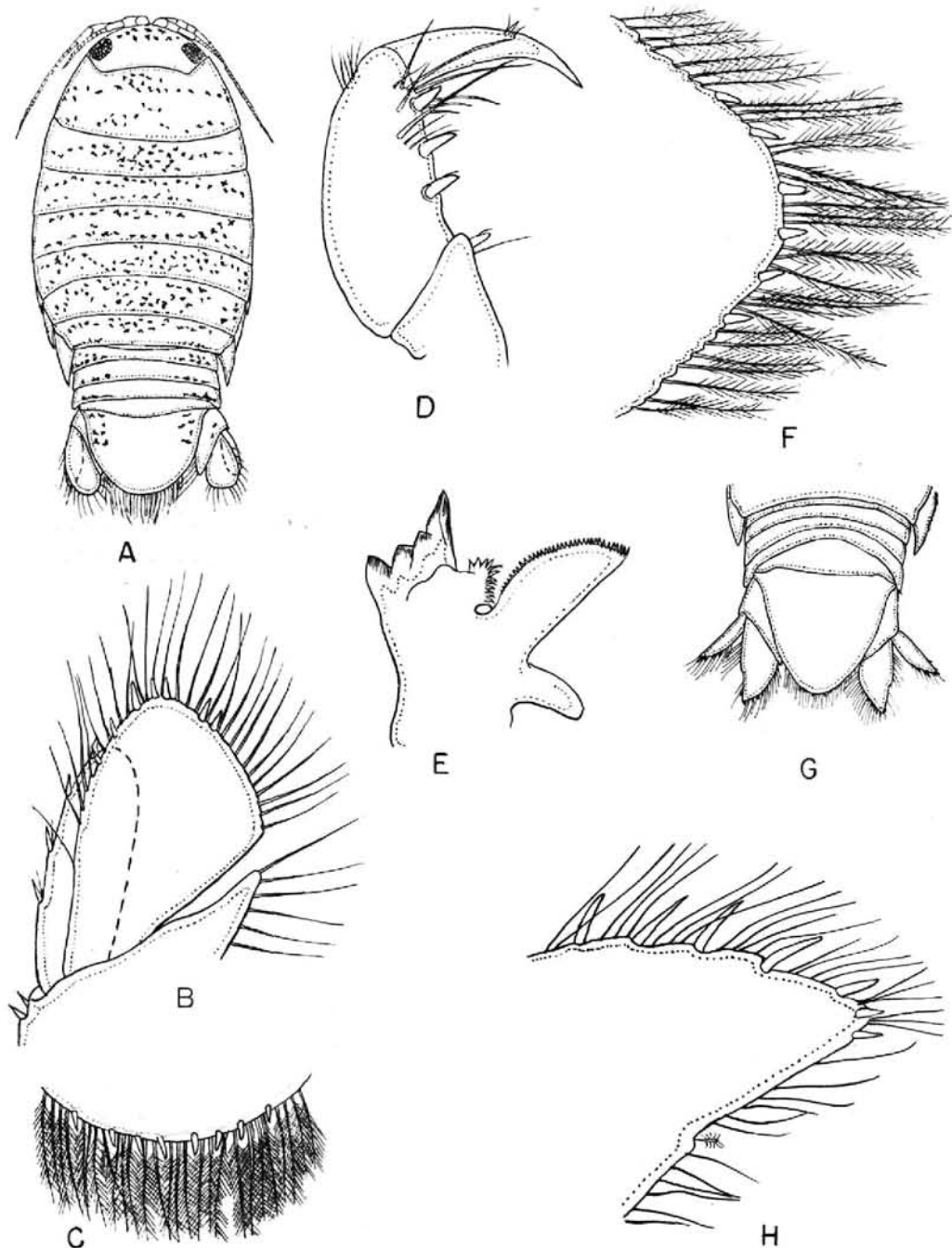


Figure 40, A—E, *Cirolana concinna* HALE. A, in toto; B, uropod; C, apex pleotelson; D, first peraeopod; E, mandible, F—H, *Cirolana urostylis*, n. sp.; F, apex pleotelson; G, pleon; H, uropodal endopod.

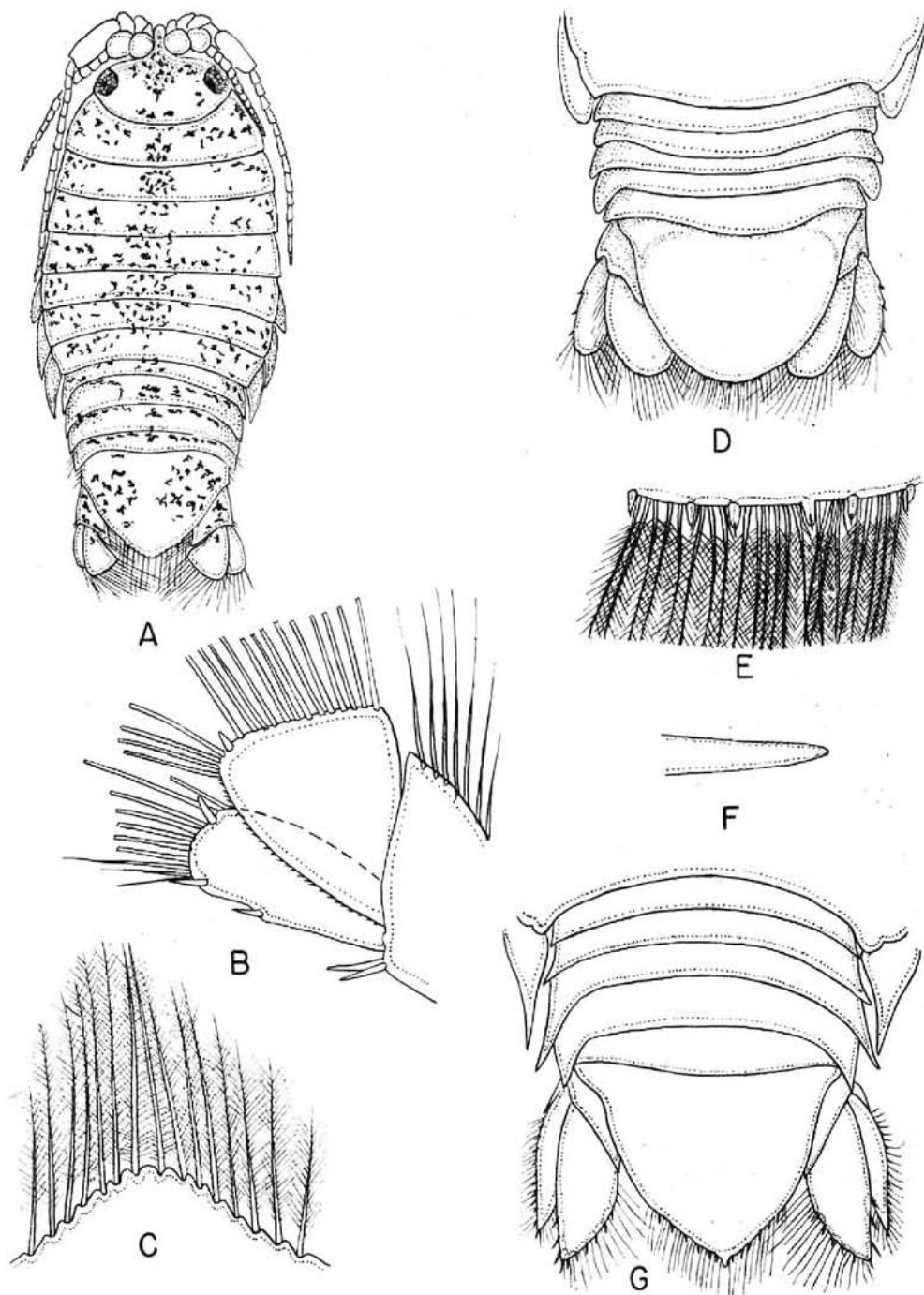


Figure 41, A—C, *Ecirolana hirsuticauda*, n. sp.; A, in toto; B, uropod; C, apex pleotelson; D—E, *Cirolana robusta*, n. sp.; D, pleon; E, pleotelsonal margin; F—G, *Cirolana albinota* VANHÖFFEN; F, apex of appendix masculinum; G, pleon.

half way along margin of third peraeonal somite. Apex of pleotelson evenly rounded, armed with stout and plumose setae. Uropodal rami with evenly rounded apices; exopod slightly shorter than endopod.

Measurements: Holotype male, length 27.0 mm, width of pleotelson 5.0 mm.

Type locality: Type male and two paratype males from L.U.C.E. *St. M 120* in central Chile, Bahía San Vicente, the Ramuntcho bay, SE. of Punta Gualpén, hard rocks and boulders. Between the lower boulders coarse sand, exposed, tidal belt, June 8, 1949.

Distribution: Known only from type locality.

Affinities: In general aspect and especially coloration this species shows a marked similarity to *Cirolana harfordi* (LOCKINGTON) of the Californian coast. It differs, however, in having a fringe of plumose setae at the distal margin of the pleotelson which is lacking from *C. harfordi*.

Cirolana albinota VANHÖFFEN

Figure 41 F—G

Synonyms: *Cirolana albinota* VANHÖFFEN, 1914, pp. 397—499.

Diagnosis: *Cirolana* with flagellum of first antenna short and stout, about equal to length of eyes. Flagellum of second antenna elongate, extending to distal margin of fourth peraeonal somite. Eyes pink.

Measurements: Reaches a length of 45 mm (VANHÖFFEN, *op. cit.*). Width of pleotelson of L.U.C.E. specimen 8.2 mm.

Distribution and material examined: Southern Chile, *St. M 86*, one specimen. Chile to Antarctic.

Affinities: This species is apparently closely related to *Cirolana oculata* VANHÖFFEN. The acute borders of the pleonal somites characterize *C. albinota*, as well as the presence of more stout setae along the margin of the pleotelson, in *C. albinota* 14, and *C. oculata* 8.

Genus *Exciorolana* RICHARDSON, 1912

Synonyms: *Exciorolana* RICHARDSON, 1912, p. 201.

Type species: *Exciorolana chilensis* RICHARDSON, 1912.

Diagnosis: Cirolaninae in which the fifth pleonal somite is as wide as the fourth. Front produced into rostrate process. Maxillipedal palp pentarticulate. Molar process and incisive part well developed. Maxillae with no reduction of lobes. Last four pairs of peraeopods ambulatory.

Composition: In the southern hemisphere this genus is represented by only one apparently circumpolar species, *Exciorolana natalensis* (VANHÖFFEN) and by the new species described herein.

Excirolana hirsuticauda, new species

Figure 41 A—C

Synonyms: None.

Diagnosis: *Excirolana* with a dorsally smooth pleotelson; posterior margin angulate and crenulate and provided with plumose setae but no stout setae. Uropodal endopod triangulate, outer margin entire not notched, outer angle with one stout seta and many plumose setae; exopod blunt at apex which has two stout setae at the two angles.

Measurements: Holotype male, length 11.5 mm, width of pleotelson 3.0 mm, allotype, length 10.2 mm, width of pleotelson 2.2 mm.

Type locality: The types consisting of the holotype, allotype and four male paratypes were from L.U.C.E. St. *M 152*, Central Chile, Montemar (N. of Valparaíso), "Estación de biología marina", tidal belt, rather sheltered, small sand beach with rather fine sand, September 14, 16 and 25, 1948.

Distribution and material examined: Collected from Chile at the following L.U.C.E. stations: Central Chile *M 152*, sixty-three plus the types, *M 153*, five, Southern Chile, *M 60*, eight.

Affinities: This species is allied to *Excirolana natalensis* (VANHÖFFEN) from which it differs in having stout setae on the uropods and an entire outer margin of the uropodal endopod (see BARNARD, 1940, p. 388). Also the dorsum of the pleotelson is smooth and not punctuate, and the rostrum is pointed rather than expanded at its apex (see VANHÖFFEN, 1914, p. 506).

It is quite possible that the species described by BARNARD (1940, pp. 388—389) represents yet another species due to the fact that the outer border of the uropodal endopod does bear a conspicuous notch, which is lacking from our specimens and the figures given by VANHÖFFEN (*op. cit.*).

RICHARDSON'S *Excirolana chilensis* RICHARDSON, 1912, is close to *hirsuticauda* but has truncated antero-lateral margins on the cephalon and the frontal margin is excavate.

Excirolana chilensis RICHARDSON

Figure 51 M

Synonyms: *Excirolana chilensis* RICHARDSON, 1912, pp. 201—203.

Diagnosis: RICHARDSON (*op. cit.*) describes this species as follows: "Body oblong-ovate and very convex. Color, in alcohol, yellow, marked with scattered arborescent black markings.

Head large, wider than long with the front excavate between the antero-lateral angles and the median process for the reception of the basal articles of the first antennae. Antero-lateral angles obliquely truncate. The anterior margin is produced in the middle in a long, narrow process between the basal articles of the first antennae and becomes dilated at its extremity, which is continuous with the frontal lamina.

They eyes are large and subquadrate and extend half the length of the lateral margin. The peduncle of the first antennae is composed of three articles, the first two of which are subequal and dilated, being about as wide as long; the third article is shorter and narrower than either of the other two; the flagellum is composed of 15 articles and extends to the posterior margin of the third thoracic segment. The second antennae have a peduncle composed of 5 articles, the first two of which are directed forward, the basal one being concealed in a dorsal view by the first antennae; the first 4 articles are short, the fifth being much longer than any of the others; the flagellum is broken off at the ninth joint.

The segments of the thorax are subequal. All, with the exception of the first, are provided with wide, subquadrate epimera. The greatest width of the thorax is 4 mm.

The first five segments of the abdomen are short and subequal, all visible in a dorsal view, the fifth being free at the sides, which are not covered by the fourth segment. The sixth or terminal segment is wider than long, $2\frac{1}{2}$ mm : $1\frac{1}{2}$ mm, and is triangularly produced at its posterior extremity. The length of the entire abdomen is 4 mm. The peduncle of the uropoda is produced at its inner extremity; the inner branch is wide and has the posterior extremity obliquely truncate; the outer branch is about half as wide as the inner branch and also has the posterior extremity obliquely truncate, but less so than the inner branch. The posterior margin of the terminal abdominal segment as well as the posterior margin of the uropoda is fringed with long plumose hairs.

The first three pairs of legs are prehensile, the last four pairs ambulatory; all are furnished with spinules.

Only one specimen was obtained by the U.S. Bureau of Fisheries steamer ALBATROSS off Lota, Chile, at a depth of 677 fathoms in yellow mud" (RICHARDSON, *op. cit.*).

Family Sphaeromidae

Type genus: *Sphaeroma* LATREILLE.

Diagnosis: Cirolanoidea in which the pleon consists of less than six distinct free somites inclusive of pleotelson. Molar process well developed, lacinia mobilis present. Maxilliped pentarticulate. Peduncle of uropod, when present, united firmly to endopod. Exopod present or absent. Young incubated in invaginated pouches of the ventral body wall of the female (except in *Monolithstra* and some others).

Here I am using the fundamental scheme of classification established by HANSEN (1905) except that the Limnoriidae is placed in its own family. I firmly suspect that *Plakarthurium*, considered a distinct subfamily by HANSEN (1905), NIERSTRASZ (1931, p. 192) will ultimately be found to belong to the platybranchiata group of this diversified family. The fundamental feature uniting the members of this group is the reduction in the number of pleonal somites and the tendency towards enrollment with its associated modifications in the peraeonal somites. Sexual dimorphism

is the rule rather than the exception as is also the tendency toward an "internal" incubatory pouch for the young.

The three groups of the Sphaeromidae established by HANSEN (1905) are as follows:

I. PLATYBRANCHIATA: Sphaeromidae having all pleopods thin, non-fleshy, without transverse folds. No Chilean isopod belongs to this group.

II. HEMIBRANCHIATA: Sphaeromidae with the endopods of pleopods 4—5 thick, fleshy with deep transverse folds, exopods thin and lack deep transverse folds.

Two genera belonging to the Hemibranchiata were represented in the collections. These were *Exosphaeroma* and *Isocladus*.

III. EUBRANCHIATA: Sphaeromidae with both rami of pleopods 4—5 thick and fleshy, with deep transverse folds.

No platybranchiate sphaeromid isopods were represented in the L.U.C.E. collections. The Hemibranchiata were represented by *Isocladus* and *Exosphaeroma* as shown in the following key:

A KEY TO THE CHILEAN HEMIBRANCHIATE GENERA

- 1. Last somite of male peraeon with a long mesial process *Isocladus*
- 1. Last somite of male peraeon without a long mesial process *Exosphaeroma*

Genus *Isocladus* MIERS, 1876

Synonyms: see HANSEN (1905).

Type species: *Isocladus armatus* (MILNE-EDWARDS).

Diagnosis: Hemibranchiate sphaeromidae with a slender mesial process on last peraeonal somite of male. Apex of pleotelson of both sexes similar, considerably produced, with a real groove on the lower side of the produced part.

Isocladus calcarea (DANA)

Figure 42B—G, Table 5

Synonyms: *Sphaeroma calcarea* DANA, 1852, pp. 776—777, DANA, 1855, pl. 52 fig. 2, Atlas.
Isocladus magellanensis RICHARDSON, 1906, pp. 14—15.
Isocladus tristensis LEACH, BARNARD, 1914, p. 384 and synonyms.

Diagnosis: *Isocladus* with uropodal exopod not acuminate and not curved outward at the tip, endopodal apex not pointed (after RICHARDSON, *op. cit.*).

Type locality: Tierra del Fuego (DANA, 1852).

Additional descriptive notes: This species appears to be variable regarding the crenulations on the margin of the uropodal rami and the rugosity of the dorsum of the pleotelson. This variability is shown in Table 5. No males were found to have a smooth pleotelson and crenulate uropods; whereas, those males with smooth

Table 5. Variability in *Isocladus calcarea* (DANA)

Sex	Pleotelson rugose or not. Uropodal margin crenulate or not.				Pleotelson		Uropod	
	Rugose and Crenulate	Smooth and Crenulate	Rugose and Entire	Smooth and Entire	Smooth	Rugose	Entire	Crenulate
Male	7	0	3	4	4	10	7	7
Female	4	5	3	15	22	5	16	11
<i>Total</i>	11	5	6	19	26	15	23	18

pleotelsons did have entire uropods. There is a clear tendency for females to have smooth pleotelsons and a stronger tendency for the males to have rugose pleotelsons. Uropodal crenulation is about evenly distributed.

RICHARDSON appears to have described the male and DANA the female of this species.

Material examined: A total of 189 specimens was examined which had been taken from the following stations: *M 3*, four males, three females, *M 6*, two males, *M 7*, four males, two females, *M 8*, one female, *M 9*, one female, *M 10*, one male, one female and addition two specimens, *M 11*, one female, *M 13*, one juvenile, *M 22*, one female, *M 23*, one female, *M 37*, one female, *M 55*, one male, thirteen females, *M 56*, one female, *M 60*, 107 males, females, juveniles, *M 73*, eight males and females, *M 91*, 32 males, females and juveniles, *M 123*, one male.

Distribution: Tierra del Fuego, Chile, South Africa.

Isocladus sp.

Figure 42A

Synonyms: None.

Diagnosis: Dorsum of pleotelson with three carinae, paired anterior ones and medial apical one. Uropodal rami subsimilar apex rounded not truncated or crenulate, exopod slightly shorter than endopod, neither extending beyond margin of pleotelson. Second pleonal somite with paired tubercles medially, otherwise pleon smooth.

Measurements: The one and only specimen was a gravid female, pleotelson width 2.4 mm, length 2.2 mm. The specimen was collected at L.U.C.E. *St. M 94*, southern Chile, Canal Chacao, W. of Rocas Amazonas, 40 meters, small stones, May 4, 1949.

Remarks: I have not seen examples of *I. tristensis* (LEACH) or *I. integer* (HELLER) and perhaps this specimen belongs to one of these, perhaps not. Only the shape of the pleotelson leads me to place it into *Isocladus* and without males even that

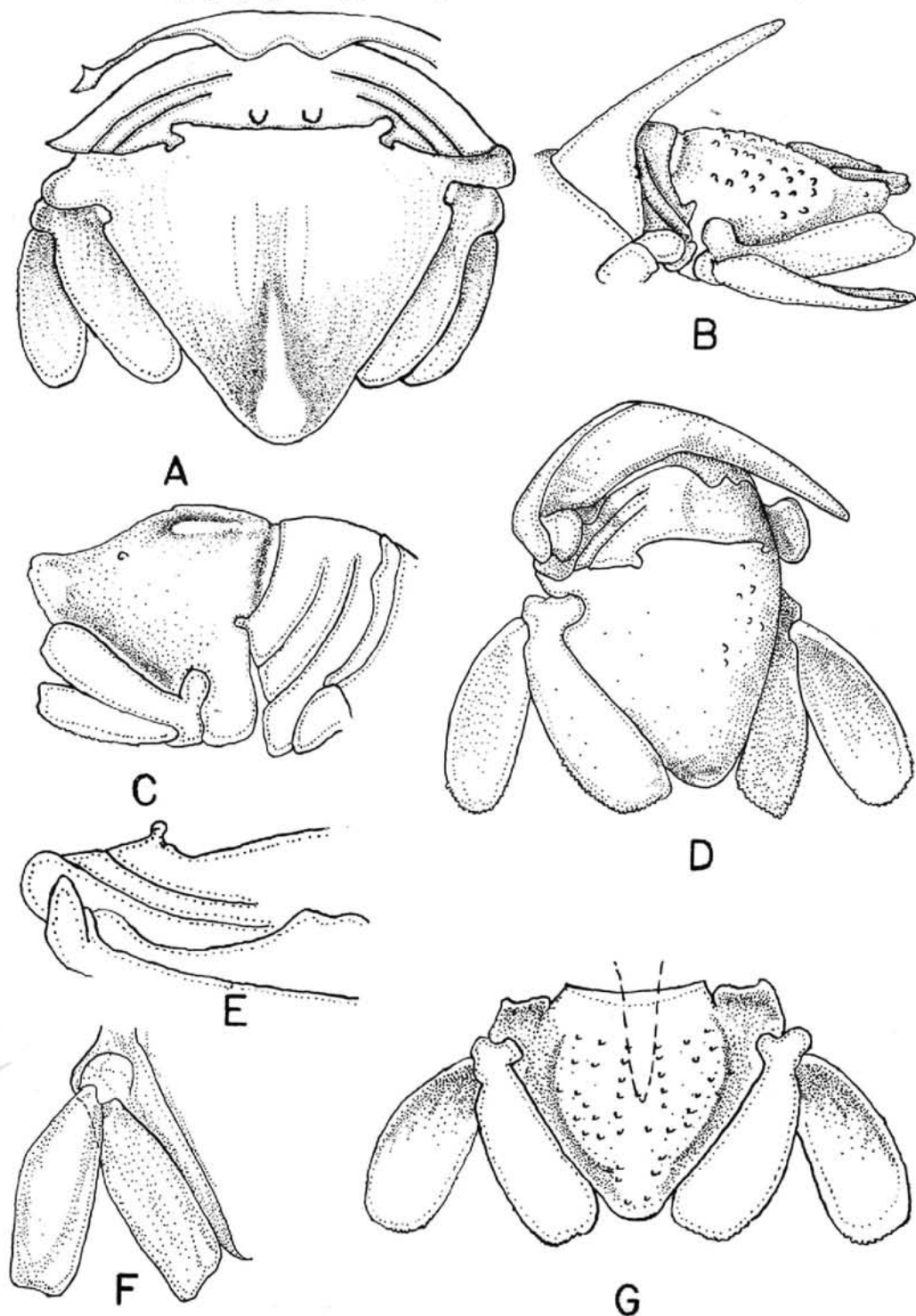


Figure 42: A, *Isocladus* sp., pleotelson; B—G, *Isocladus calcarea* (DANA); B, pleotelson, male, lateral view; C, pleotelson, female, lateral view; D, pleotelson, male, lateral view; E, fused part of pleotelson, dorsal view; F, uropoda, male, ventral view, non-crenulate; G, male, pleotelson, dorsal view.

assignment is uncertain. The animal resembles the female of *Exosphaeroma* considerably and may be identical with it. Its small size makes me uncertain of this.

Genus *Exosphaeroma* STEBBING, 1900

Synonyms: See HANSEN (1905).

Type species: *E. gigas* (LEACH).

Diagnosis: Hemibranchiate sphaeromidae lacking a slender mesial process on last peraeonal somite of male. Apex of pleotelson of both sexes similar, not produced, and without an obvious groove on the lower side at apex.

Three species, all previously known, were represented in the L.U.C.E. collections. This genus is a dominant member of the Chilean intertidal.

A KEY TO THE CHILEAN SPECIES OF EXOSPHAEROMA

- | | |
|---|---------------------------|
| 1. Pleotelson rugose dorsally | <i>studerii</i> VANHÖFFEN |
| 1. Pleotelson smooth dorsally | 2 |
| 2. Uropoda narrow and pointed, pleotelson broadly rounded at apex | <i>gigas</i> LEACH |
| 2. Uropoda wide and blunt at apex, pleotelson more acuminate | <i>lanceolata</i> (WHITE) |

Exosphaeroma studeri VANHÖFFEN

Figure 43C

Synonyms: *Exosphaeroma studeri* VANHÖFFEN, 1914, pp. 510—511, abb. 44.

? *Exosphaeroma kraussi* TATTERSALL, 1913, vide (?) BARNARD, 1914, p. 375—376, pl. XXXII D.

Exosphaeroma tristensis (LEACH) of KRAUSS, 1843, p. 65, vide BARNARD, 1914, p. 375—376, pl. XXXII D.

Sphaeroma calcarea of DOLLFUS, 1891, non Dana.

Diagnosis: *Exosphaeroma* with a markedly rugose pleotelson, with paired tuberculate medial carinae and a tuberculate medial carina near apex. Pleotelsonal apex subacute. Female much less tuberculate than male.

Measurements: Large female, pleotelson width 7.8 mm, length pleon 7.0 mm. VANHÖFFEN's specimens were 10—11 mm long.

Type locality and types: VANHÖFFEN's types came from Punta Arenas.

Material examined: A total of 19 specimens was examined from L.U.C.E. *St. M 115*, Straits of Magellan.

Distribution: Chile, Punta Arenas (VANHÖFFEN, 1916), Capetown, South Africa (BARNARD, 1914).

Remarks: I suspect from BARNARD's (1914) figures that *E. kraussi* and *E. tristensis* (LEACH), of KRAUSS, not LEACH, are synonyms of *E. studeri*. Lacking specimens I am uncertain. It is possible also that *E. scabriculum* HELLER is synonymous with *E. studeri* VANHÖFFEN. The specimen illustrated by DOLLFUS, 1891,

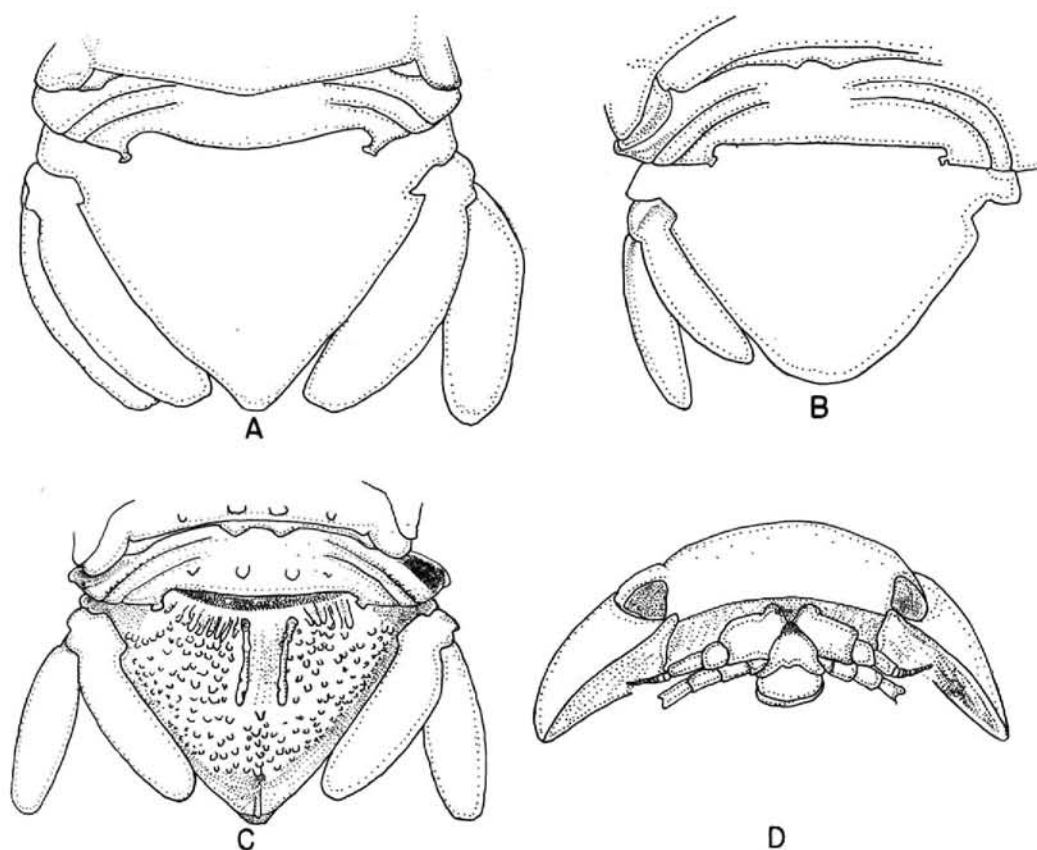


Figure 43. A, *Exosphaeroma lanceolata*, pleotelson; B, *Exosphaeroma gigas*, pleotelson; C, *Exosphaeroma studeri*, pleotelson; D, *Exosphaeroma gigas*, frontal view cephalon.

under the name *Sphaeroma calcarea* DANA, is certainly this species. DANA's species is, however, an *Isocladus*.

Exosphaeroma lanceolata (WHITE)

Figure 43A

Synonyms: *Sphaeroma lanceolata* WHITE, 1847.

Sphaeroma gayi NICOLET, 1849, BARNARD, 1940, p. 413 and references.

Diagnosis: *Exosphaeroma* with smooth pleotelson. Uropoda wide and blunt at apex. Pleotelson apex somewhat pointed, but bluntly so.

Measurements: Large male pleotelson, length 5.7 mm, width 6.5 mm, large gravid female pleotelson, length 2.4 mm, width 3.8 mm.

Material examined: A total of 279 specimens were examined from the fol-

lowing L.U.C.E. stations: *M 6*, eighty-three specimens, *M 112*, twenty-two specimens, *M 9*, six specimens, *M 10*, four specimens, *M 7*, nine specimens, *M 134*, two specimens, *M 11*, eleven specimens, *M 56*, seventy-eight specimens, *M 33*, sixty-four specimens.

Distribution: Magellan Straits, Falkland Islands, South Africa, (STEBBING, 1910).

It is probable that these specimens are conspecific with WHITE's *lanceolata* but one cannot be absolutely certain of this. BARNARD, 1940, considered this problem and came to the conclusion that an unnamed species was present in the New Zealand material he examined. Like BARNARD, I leave this problem to another carcinologist. Certainly the Chilean species is of no aid in the solution of the problem.

Exosphaeroma gigas (LEACH)

Figure 43 B and D

Synonyms: *Sphaeroma gigas* LEACH, 1814, p. 346.

Sphaeroma chilensis DANA, 1852, p. 195—196.

Sphaeroma propingua NICOLET, 1849.

Sphaeroma jurinii KRAUSS, 1843, p. 65 (non AUDOUIN).

Exosphaeroma gigas (LEACH), STEBBING, 1900, p. 553, see BARNARD, 1914.

Diagnosis: *Exosphaeroma* with narrow somewhat pointed uropods; apex of pleotelson broadly rounded. Dorsum of pleotelson smooth.

Measurements: Large male, length pleon 5.2 mm, width of pleotelson 6.0 mm; large female, length pleon 4.7 mm, width of pleotelson 3.2 mm.

Material examined: A total of more than 200 specimens were examined from the following L.U.C.E. Stations: *M 115*, fifty specimens, *M 113*, ninety specimens, *M 120*, eighty-seven.

Distribution: Capetown, South Africa (BARNARD, 1914); Auckland Island (STUDER, 1884) Kerguelen (VANHÖFFEN, 1914); Australia (MILNE-EDWARDS, 1840); Tasmania (THOMPSON, 1893); New Zealand (DANA, 1852); Antarctic Circumpolar (NIERSTRASZ, 1931).

Group *Eubranchiata*

The members of this diversified group may be divided into two sections; those with the exopod of the third pleopod jointed and those with the exopod of the third pleopod not jointed.

Eubranchiata, Section I

Eubranchiates with the exopod of the third pleopod jointed. Genera represented in the L.U.C.E. collections are: 1. *Dynamenella*, 2. *Cymodocella*, 3. *Amphoroidea*.

Genus *Dynamenella* H. J. HANSEN, 1905

Synonyms: *Dynamenella* HANSEN, 1905, and synonyms.

Type species: *D. perforata* (MOORE).

Diagnosis: Eubranchiate sphaeromids with the rami of the fourth and fifth pleopods similar, not jointed. Apex of pleotelson notched or sulcate. Mouth parts of both sexes similar. Uropods subsimilar in both sexes. No processes on peraeon or pleon. Male with transverse foramen in proximal part of pleotelsonal apex.

The one species which I refer to this genus may not belong to it because the apex of the pleotelson is similar in both sexes and unlike *D. perforata* (MOORE) in this respect. But I hesitate to establish another new genus in this already hopelessly confused group of the sphaeromids. HANSEN (1905) did suggest that "*Dynamene*" *eatoni* MIERS belonged to this genus and that is the species reported on as follows:

Dynamenella eatoni (MIERS)

Figure 44

Synonyms: *Dynamene eatoni* MIERS, 1875, pp. 73, DOLLFUS, 1891, p. 766—767, pl. VIII, fig. 9. STUDER, 1884, p. 19.

Diagnosis: *Dynamenella* having the pleotelson of both sexes similar. Appendix masculinum simple, lanceolate, at apex. Middle three articles of maxillipedal palp provided with lobes.

Type locality: Kerguelen Island, Swans Bay and Royal Sound (MIERS, *op. cit.*).

Measurements: Length nearly three-quarters inch for largest specimen.

Material examined: Ninety-three specimens were examined from the following L.U.C.E. stations: *M 56*, twelve specimens; *M 55*, fifteen specimens, *M 57*, five; *M 71*, fifteen, *M 72*, four specimens, *M 75*, three, *M 113*, six, *M 122*, twenty-five specimens, *M 120*, one, *M 123* seven specimens.

Remarks: This species has a rough (Fig. 44A) and smooth phase (Fig. E) which are indistinguishable except for the presence or absence of tuberculations.

Distribution: Chile, Kerguelen Islands (MIERS).

Dynamenella tuberculata, new species

Figure 45 E—H

Synonyms: None.

Diagnosis: *Dynamenella* with a tuberculate pleotelson. Uropodal rami of similar width. Appendix masculinum curves inward. Maxilliped with one coupling hook. Penes only twice as long as wide. Cordate foramen at apex of pleotelson.

Measurements: Holotype male, length 4.5 mm, width of pleotelson 2.7 mm.

Type locality: *St. M 56*, southern Chile, Canal Chacao, Península Laqui, Punta Corona, NE point, tidal belt, flat rocks with small holes and very shallow rock pools, extremely exposed, February 28, 1949.

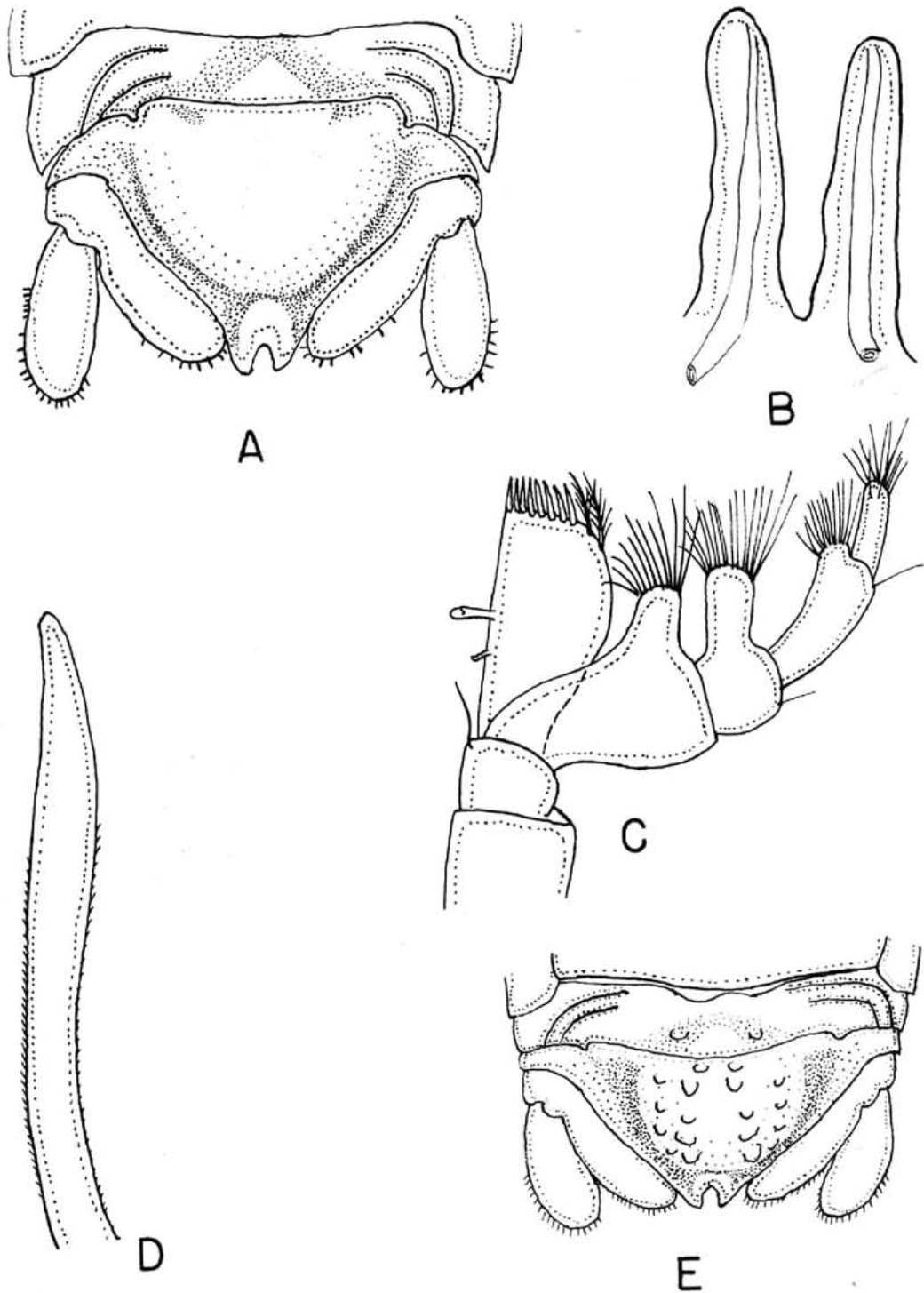


Figure 44. *Dynamenella eatoni* (MIERS); A, pleotelson, smooth form; B, penes; C, maxilliped; D, appendix masculinum; E, pleotelson, rough form.

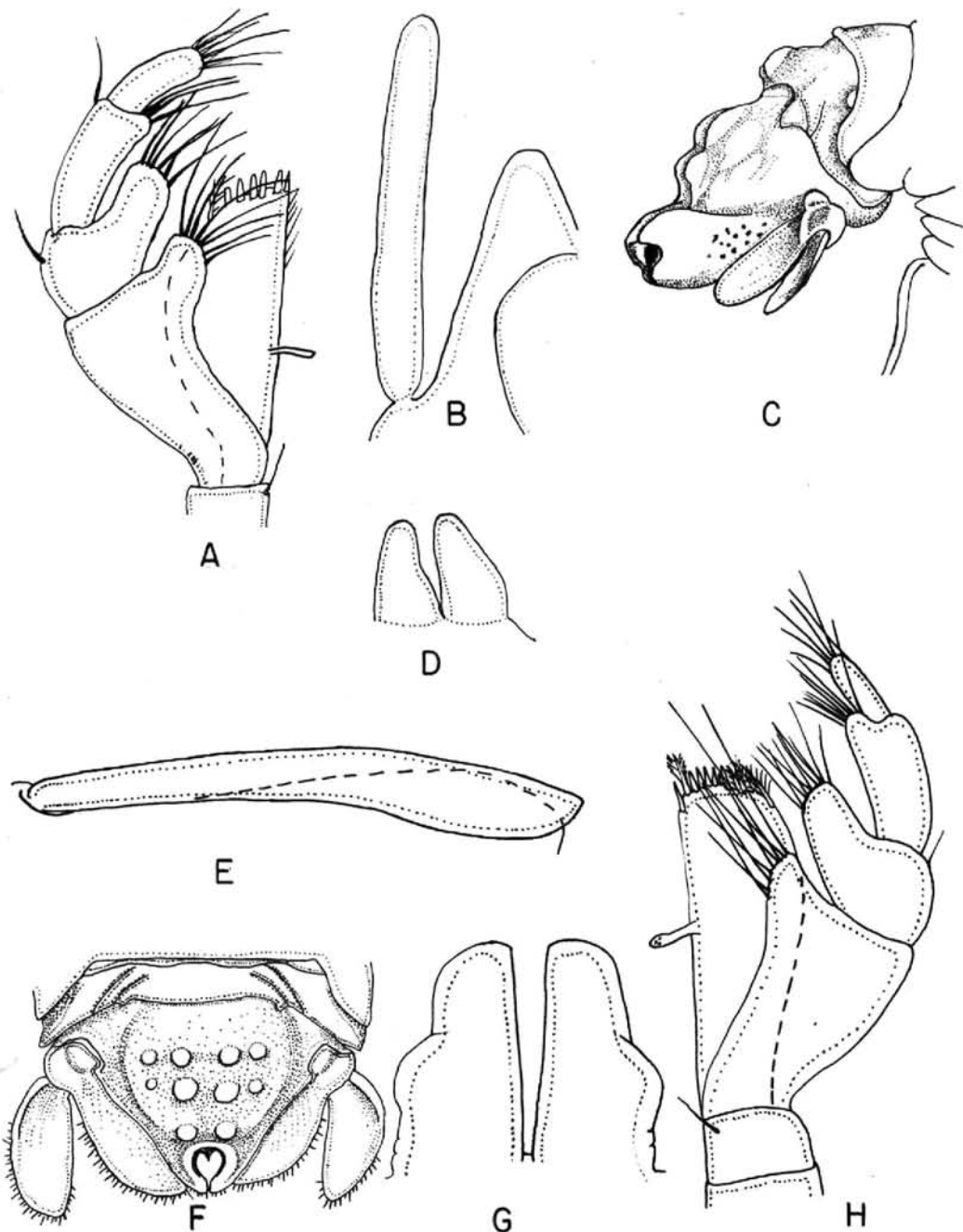


Figure 45. A—D, *Cymodocella foveolata*, n. sp.; A, maxilliped; B, pleopod 2, C, pleotelson, lateral view; D, penes; E—H, *Dynamenella tuberculata*, n. sp.; E, appendix masculinum; F, pleotelson; G, penes; H, maxilliped.

Material examined: Northern Chile, *St. M 127*, ten specimens, *M 124*, six specimens. Central Chile, *M 123*, two specimens.

Distribution: Known only from Chile.

Affinities: This species is close to *Dynamenella scabricula* (HELLER), BARNARD, 1914, pl. XXXA, from which it differs in the shape and size of the uropods, in shorter penes, and in the medially curved appendix masculinum.

Dynamenella acuticauda, new species

Figure 46A—B

Synonyms: None.

Diagnosis: Atypical *Dynamenella* with apex of pleotelson similarly notched in both sexes. Dorsum pleotelson smooth. Uropodal rami of similar width and length; not reaching to apex of pleotelson. Maxilliped with one coupling hook.

Measurements: Holotype female, length 5.1 mm, width of pleotelson 2.1 mm.

Type locality: Southern Chile, the Magallanes area, *St. M 115*, near the estuary of Río los Ciervos, S. of Punta Arenas, tidal belt, gravel and clay, mixed with mud and covered with boulders, exposed (shelter, kelp), May 3, 1949, 1 female.

Material examined: Southern Chile, *St. M 56*, eight specimens, *M 69*, two specimens.

Distribution: Known only from Chile.

Affinities: This species is close to *Dynamenella ovalis* BARNARD (1914, p. 418, pl. XXXV.D) in which species, however, the uropodal exopod is not as wide as the endopod and the pleotelson seems less acute. Otherwise the two are very similar.

Genus *Cymodocella* PFEFFER, 1887

Synonyms: *Cymodocella* PFEFFER, 1881, pp. 109—110; HANSEN, 1905, pp. 107, 126.

Type species: *Cymodocella tubicauda* PFEFFER, 1881, pp. 110—115, pl. II, fig. 8, pl. VI, fig. 11, 12.

Diagnosis: Eubranchiata sphaeromids with the rami of pleopods four and five similar, exopod not jointed. Both sexes similar, distal parts of abdomen somewhat produced, with lateral walls bent downwards and inwards constituting a tube, open at both ends. Uropods similar in both sexes. Rami lamellar exopod shorter than endopod. Male with appendix masculinum on pleopod 2 (after HANSEN, 1905, p. 107).

Composition: This genus appears to contain two species, *C. tubicauda* and *C. algoensis* (STEBBING), (HANSEN, 1905, p. 126). The genus was represented in the L.U.C.E. collections.

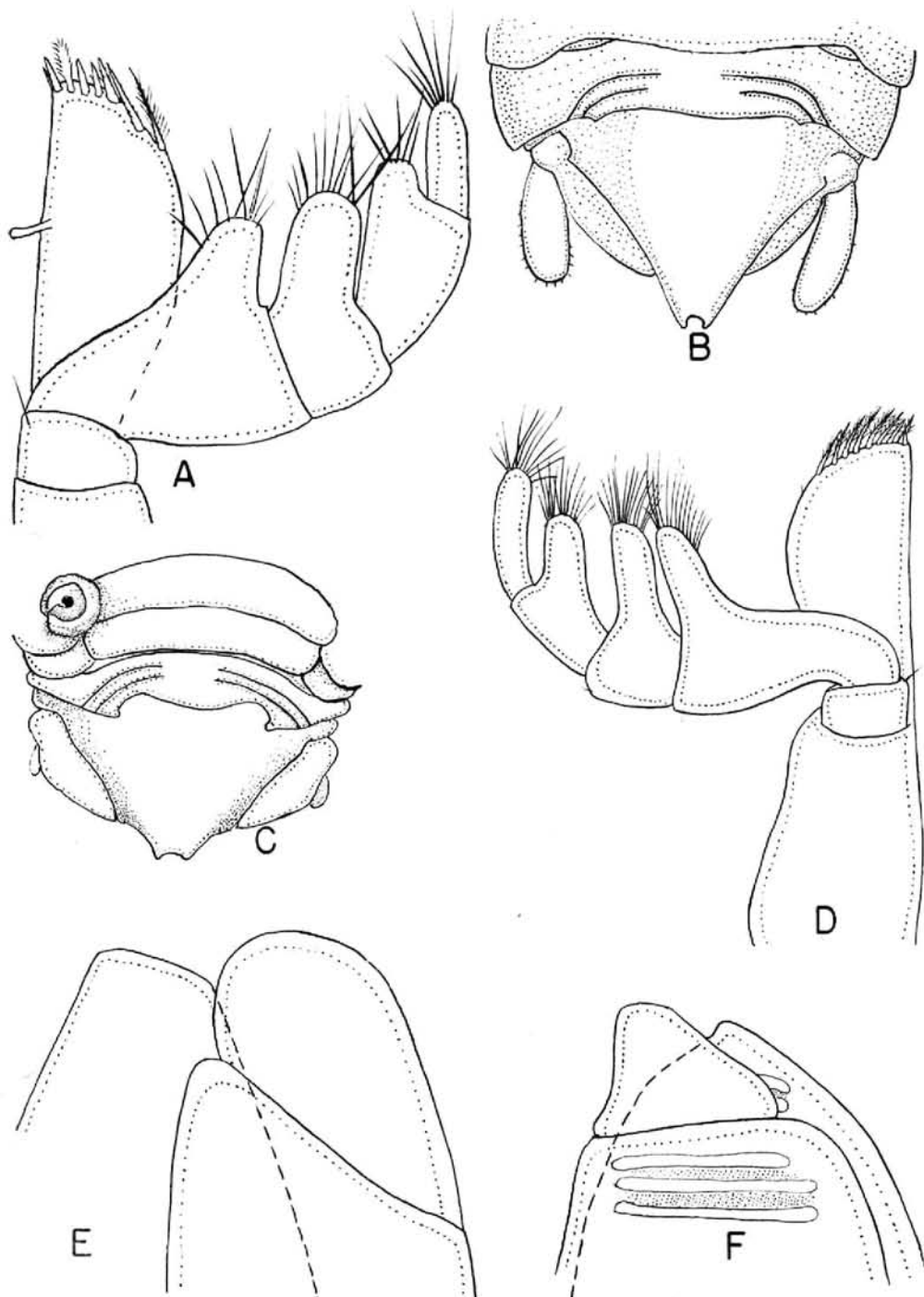


Figure 46. *Dynamenella acuticauda* n. sp. A—B, A, maxilliped; B, pleotelson; *Euvallentinia darwini* (CUNNINGHAM); C—F, C, Pleotelson (note serpulid worm on pleon); D, Maxilliped; E, third pleopod (setae omitted); F, fourth pleopod (setae omitted).

Cymodocella foveolata, new species

Figure 45 A—D

Synonyms: None.

Diagnosis: *Cymodocella* with foveolate pleotelson. Appendix masculinum apically blunt but not swollen. Penes scarcely longer than wide. Uropodal exopod shorter than endopod. Dorsum of apex of pleotelson medially with deep furrow. Two pairs of tubercles along midline of pleotelson with also some more lateral tubercles. Maxilliped with one coupling hook.

Measurements: Holotype female, length 3.5 mm, width of pleotelson 1.2 mm. *St. M 123*, Iso. 4, one female.

Type location and location of types: Above specimen and five paratypes from L.U.C.E. *St. M 123*, Central Chile, Montemar (N. of Valparaíso), Estación de biología marina, tidal belt, rocks with rock pools, exposure varying in different parts of the station, June 15, 1949.

Material examined: Additional specimens were seen from L.U.C.E. stations *M 56*, nine, *M 123*, six, *M 78*, two, *M 131*, one specimen.

Distribution: Known only from the above mentioned localities.

Affinities: This species is most closely related to *Cymodocella pustulata* BARNARD (1914), in which species, however, the apex of the appendix masculinum is swollen and the penes are over three times as long as wide, also the rami of the uropoda are subsimilar in length.

Genus *Amphoroidea* MILNE-EDWARDS, 1840

Synonyms: See HANSEN, 1905, pp. 108, 126.

Type species: *Amphoroidea typa* M.-EDW.

Diagnosis: Eubranchiata sphaeromids with rami of pleopods four and five not jointed. Basal joint of antennulae expanded, produced as an exceedingly large, free, horizontal, angular plate in front of the head. Both sexes similar, without processes; end of abdomen with a semicircular or triangular notch; uropods with rami well developed, lamellar. Especially 4th, 5th and 6th pairs of thoracic legs short and very thick, much thicker than anterior pairs. Mouth parts similar in both sexes. (After HANSEN 1905, pp. 108, 126).

Composition: Contain several species, all of which are restricted to the southern hemisphere.

Amphoroidea typa MILNE-EDWARDS

Figure 47 D

Synonyms: *Amphoroidea typus* MILNE-EDWARDS, 1840, p. 223.

Amphoroidea typica MILNE-EDWARDS, DANA, 1852, pp. 783.

Amphoroidea typa MILNE-EDWARDS, HANSEN, 1905, pp. 108, 126.

Diagnosis: Amphoroidea with apex of uropodal exopod pointed, exopod widest near middle, about as wide as endopod. Uropoda extend beyond margin of pleotelson. Dorsum of pleotelson lacking tuberculations or other ornamentation.

Measurements: Large female, length 22.9 mm, width of pleotelson 8.3 mm.

Type locality: Chile (M.-EDWARDS).

Material examined: *St. M 13*, one specimen, *M 56*, twenty-five, *M 57*, one, *M 74*, two specimens, *M 120*, one specimen, *M 122*, one, *M 123*, eight, *M 127*, one.

Affinities: This species differs from the others that have been described in having the uropodal rami similar in width and the exopod pointed apically, not rounded.

Distribution: Known only from Chile.

Eubranchiata, Section II

Eubranchiate sphaeromids in which the exopods of the fourth and fifth pairs of pleopods are jointed.

To this subdivision of the eubranchiates belongs several Chilean genera: 1. *Euwallentinia*, 2. *Dynamenopsis*, 3. *Cassidinopsis*, 4. *Paradynamenopsis* n. gen.

Genus *Euwallentinia* STEBBING, 1914

Synonyms: *Vallentinia* STEBBING, 1914, p. 351, (preoccupied). Vide TATTERSALL, 1921, pp. 223—226.

Type species: *Cymodocea darwini* CUNNINGHAM, 1871, p. 499, pl. LIX, figs. 1—1 B.

Diagnosis: Both sexes similar, without processes. Basal joint of first antenna not expended into a free or produced plate. Mouth parts of both sexes similar. Uropoda with exopod minute, much shorter than endopod. Second peraeopod of male prehensile (from TATTERSALL, 1921, p. 225).

Euwallentinia darwini (CUNNINGHAM)

Figure 46C—F

Synonyms: *Cymodocea darwini* CUNNINGHAM, 1871, p. 499, pl. LIX, figs. 1—1b. STUDER, 1884, p. 18, pl. II, figs. 6—6b. KOSSMANN, 1880, p. 649.

Dynamene darwini (CUNNINGHAM), MIERS, 1881, p. 79, HANSEN, 1905, p. 135.

Vallentinia darwini (CUNNINGHAM), STEBBING, 1914, p. 351.

Euwallentinia darwini (CUNNINGHAM), STEBBING, 1914, p. 944, TATTERSALL, 1921, p. 225.

Diagnosis: *Euwallentinia* with a vaulted pleotelson which lacks tuberculations. Uropodal exopod rounded; endopod pointed. Three maxillipedal articles with lobes. Coupling hooks lacking.

Measurements: Width of pleotelson of gravid female type, 4.5 mm.

Material examined: Southern Chile, Estrecho de Magallanes, Punta Santa María, near Agua Fresca, holdfasts of kelp thrown up on shore during gale, May 2, 1949, *St. M 114*, one gravid female.

Distribution: Known only from type locality.

Affinities: This is the only species belonging to this southern circumpolar genus.

Genus *Dynamenopsis* BAKER, 1908

Synonyms: None.

Type species: *Dynamenopsis obtusa* BAKER, 1908, pp. 152—153, pl. VII, figs. 11—17, pl. VIII, figs. 1—7.

Diagnosis: Eubranchiata sphaeromids with the exopod of pleopod fourtwo-jointed. Posterior notch (on pleotelson) is a transversely ovate foramen. First article of peduncle of first antenna not expanded and produced. Maxillipedal palp with lobes poorly developed.

Composition: Contained within the L.U.C.E. collection was one apparently new species that probably belongs to this genus. Several other species are known from elsewhere and *Sphaeroma globicauda* (DANA) from Tierra del Feugo was suspected by MONOD (1933, p. 206) as belonging to *Dynamenopsis*.

Dynamenopsis bakeri, new species

Figure 48

Synonyms: None.

Diagnosis: *Dynamenopsis* with a dorsally tuberculate pleotelson. Penes very elongate, pointed, united at base. Uropodal rami serrated on margins, pointed at apex. Appendix masculinum of male not separated from endopod of second pleopod.

Measurements: Holotype male, length 5.0 mm, width of pleotelson 2.3 mm, allotype, length 3.6 mm, width of pleotelson 1.9 mm.

Types and type locality: *St. M 133*, types plus 4 paratypes, Northern Chile, Iquique, the harbour, tidal belt, rocks and boulders, very sheltered, July 2, 1949.

Material examined: *St. M 56*, four specimens, *M 124*, two specimens, *M 127*, eight, *M 131*, two specimens, *M 133*, two specimens, *M 135*, eleven, *M 158*, three, *M 159*, six specimens.

Distribution: Known only from Chile.

Genus *Cassidinopsis* HANSEN

Synonyms: *Cassidina* MILNE-EDWARDS, in part, HANSEN, 1905, p. 128.

Cassidinopsis HANSEN, 1905, pp. 108—109, p. 128.

Type species: *Cassidina emarginata* GUÉRIN-MÉNEVILLE, 1843, p. 31.

Diagnosis: Eubranchiata sphaeromids with head small. Basal joint of entennulae not produced and expanded. Exopod of pleopod 4 is jointed. End of pleon

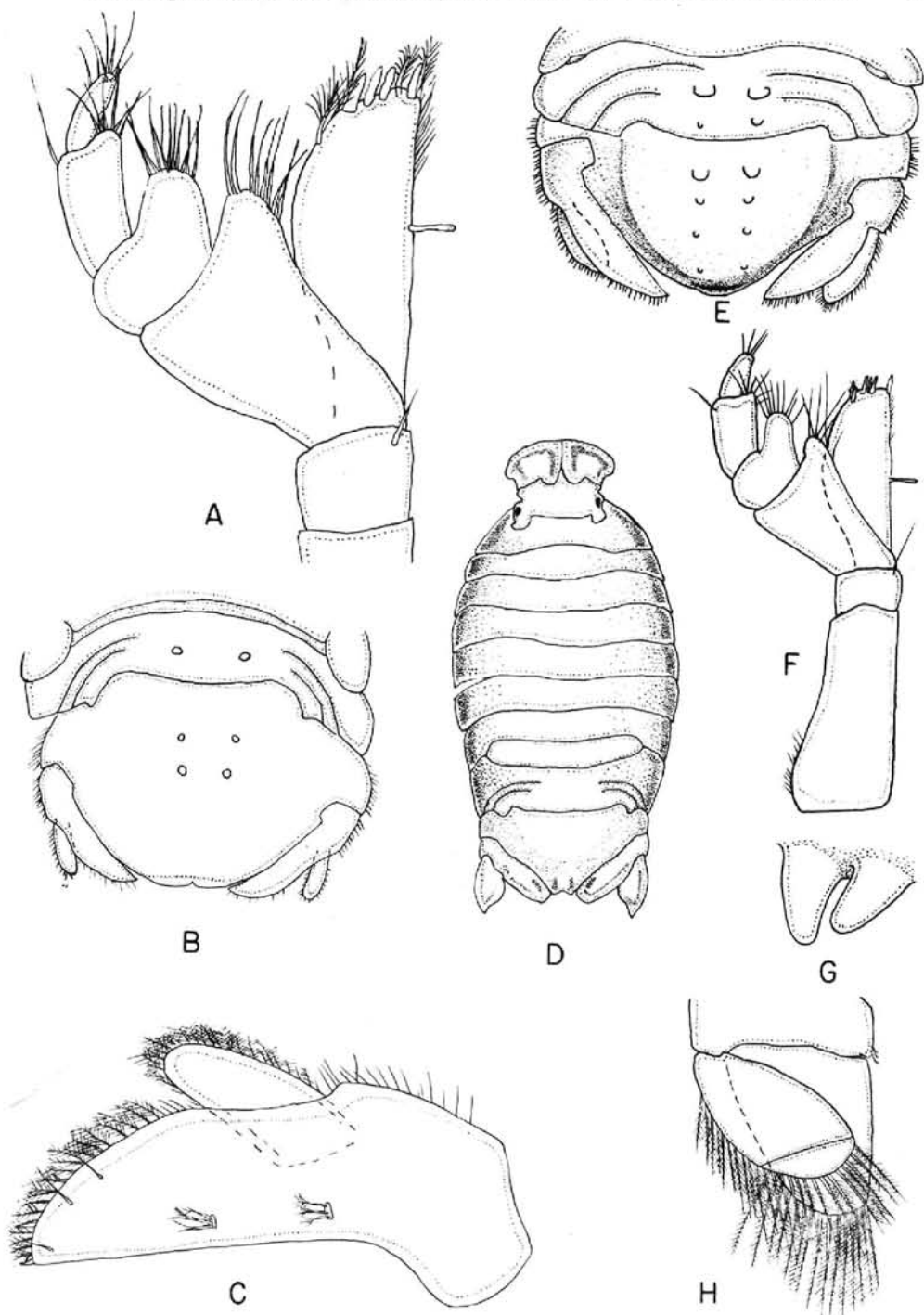


Figure 47. A—C, *Paradynamenopsis lundae*, n. sp.; dwarf phase; A, maxilliped; B, pleotelson; C, uropod; D, *Amphoroidea typa* M.-Edw., in toto; E—H, *Paradynamenopsis lundae*, n. sp.; giant phase; E, pleotelson; F, maxilliped; G, penes; H, third pleopod.

feebly emarginate. Uropoda and mouth parts similar in both sexes. Both without precesses on peraeon or pleon. (modified after HANSEN 1905, pp. 108—109).

Composition: A genus restricted to the Southern Hemisphere. It contains besides the type, *C. latistylis* (DANA) and *C. maculata* (STUDER).

Cassidinopsis emarginata (GUÉRIN-MÉNEVILLE)

Figure 49

Synonyms: *Cassidinia emarginata* GUÉRIN-MÉNEVILLE, 1843, p. 31. CUNNINGHAM, 1871, p. 499, MIERS, 1879, p. 204. STUDER, 1883, p. 19, PFEFFER, 1886, pp. 103—109, pl. D figs. 9—10, pl. V, figs. 23—30, pl. VI, figs. 1—10. HANSEN, 1905, p. 13. *Cassidinopsis emarginata* (GUÉRIN-MÉNEVILLE), STEPHENSEN, 1947, p. 28 and synonyms.

Diagnosis: *Cassidinopsis* with apex of pleotelson emarginate. Dorsum of pleotelson smooth, lacking tuberculations. Exopod stylet-shaped, attached to endopod at midpoint of lateral border. Distal margin of endopod emarginate. Maxilliped with one coupling hook.

Measurements: Male, 27 mm length; width 14.2 mm. (PFEFFER, 1881, p. 109).

Type locality and location of types: Types were from the Falkland Islands.

Material examined: Two female specimens were represented in the L.U.C.E. collections at station *M 115*, Straits of Magellan.

Distribution: Falkland Islands, (GUÉRIN-MÉNEVILLE), Kerguelen (STUDER), South Georgia Island (PFEFFER), Crozet Island (STEPHENSEN). The species appears to be antarctic circumpolar in distribution (VANHÖFFEN, 1914, p. 514).

Genus *Paradynamenopsis*, new genus

Synonyms: None.

Type species: *Paradynamenopsis lundae*, new species.

Diagnosis: Eubranchiata sphaeromids with exopod of third pleopod jointed. Basal articles of peduncle of first antennae not produced and not expanded. Penes about as long as wide. Last two articles of maxillipedal palp scarcely produced; antepenultimate articles markedly produced. Uropodal exopod shorter than endopod. Sexes with mouth parts and pleotelson similar, not modified or reduced. Apex of pleotelson with minute emargination below elevated swelling. No chordate foramen present on pleotelson of either sex.

Distribution and composition: Known only from Chile.

Paradynamenopsis lundae, new species

Figure 47, A—C (dwarf phase), E—H (giant phase)

Synonyms: None.

Diagnosis: *Paradynamenopsis* with uropodal exopod bluntly rounded at apex;

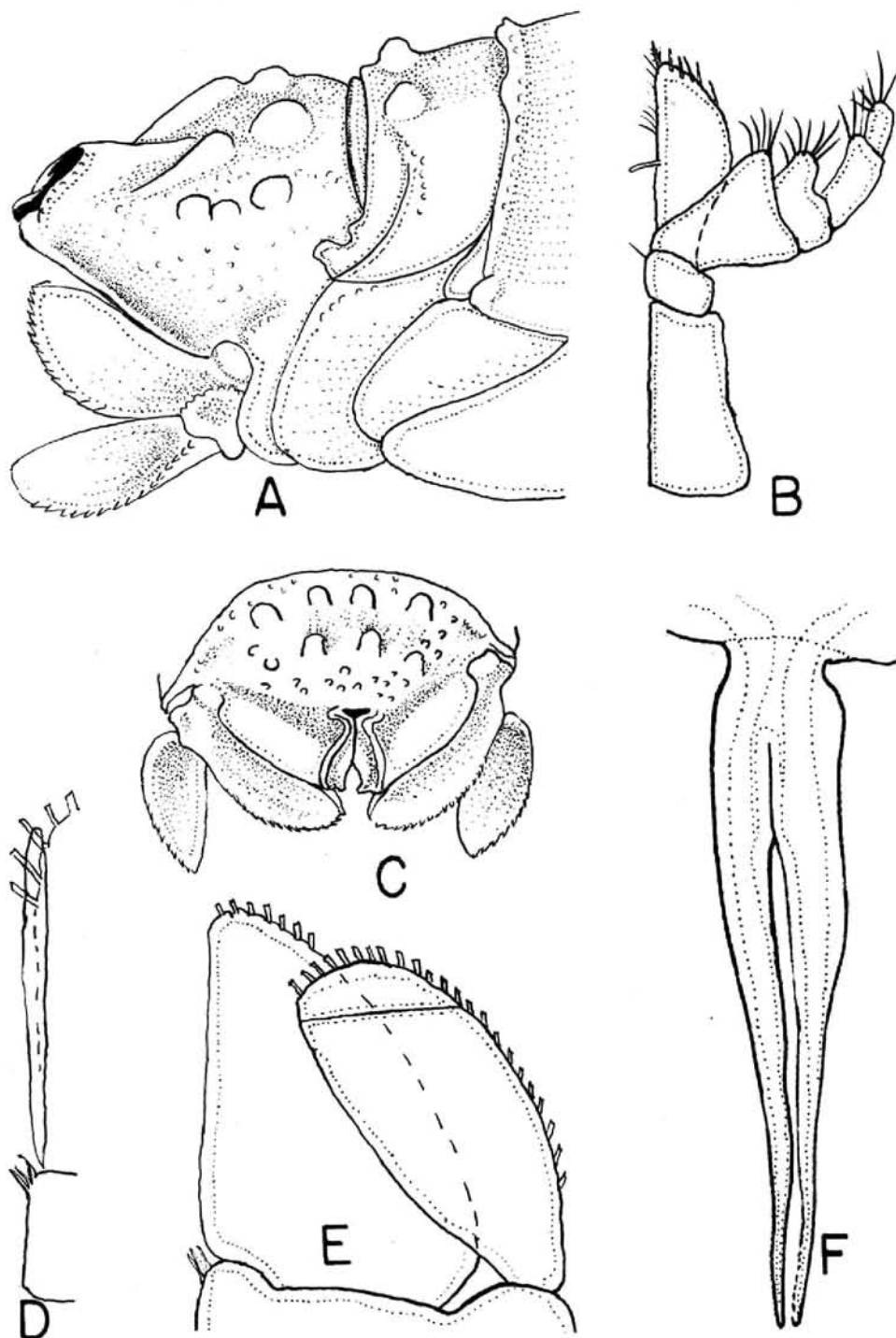


Figure 48. *Dynamenopsis bakeri*, n. sp. A, pleotelson, female; B, maxilliped; C, male pleotelson; D, second male pleopod; E, third pleopod; F, penis.

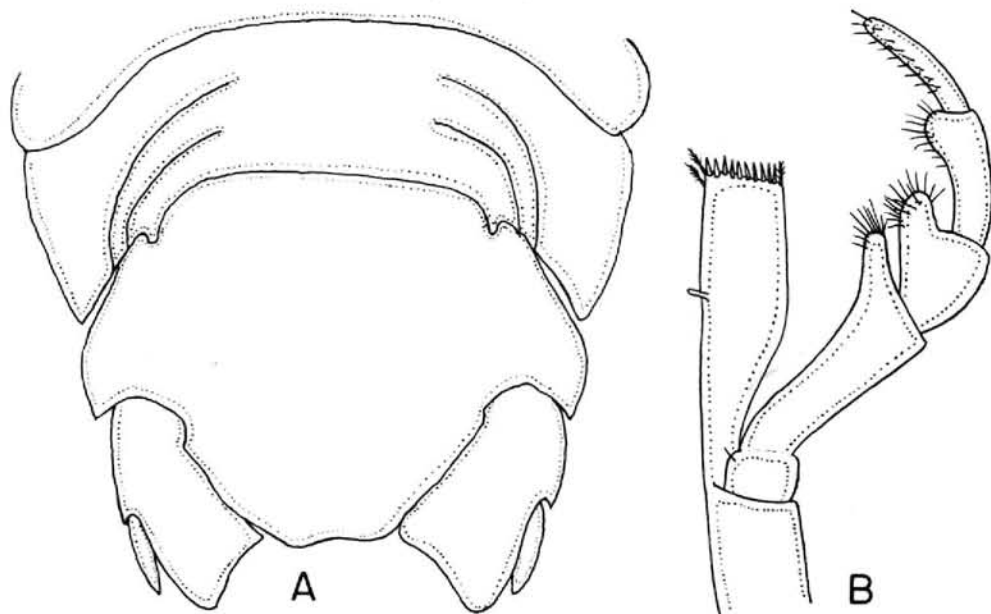


Figure 49. *Cassidinopsis emarginata*, female, A, pleon; B, maxilliped.

endopod with pointed apex, outer margin convex. Dorsum of pleotelson feebly or markedly tuberculate. Maxilliped with one coupling hook.

Measurements: Holotype male, length 3.8 mm, pleotelsonal width 2.0 mm, allotype length 3.0 mm, pleotelsonal width 1.2 mm.

Type locality and location of types: The types are of the giant phase from L.U.C.E. *St. M 121*, and consist of 50 male and female paratypes in addition to the holo- and allotypes; Central Chile, Bahía San Vicente, Punta Liles just W. of San Vicente, tidal belt, rocks with small rock pools, boulders, rather exposed, June 9, 1949.

Material examined: Giant phase, *St. M 120*, twenty-seven specimens, *M 127*, two specimens, *M 124*, four, *M 122*, two, one young; *M 123*, one, *M 59*, two, *M 9*, three, *M 91*, two, *M 82*, one specimen, *M 3*, one specimen, *M 37*, one, *M 22*, twenty-three, *M 10*, two, *M 33*, one. Dwarf phase, *St. M 127*, one young, *M 75*, one, *M 72*, nine, *M 73*, twelve specimens.

Distribution: Known only from Chile.

Suborder Gnathiidea

To this suborder belongs isopods in which the adults have only five pairs of ambulatory peraeopods. The adult males have only six free peraeonal somites and

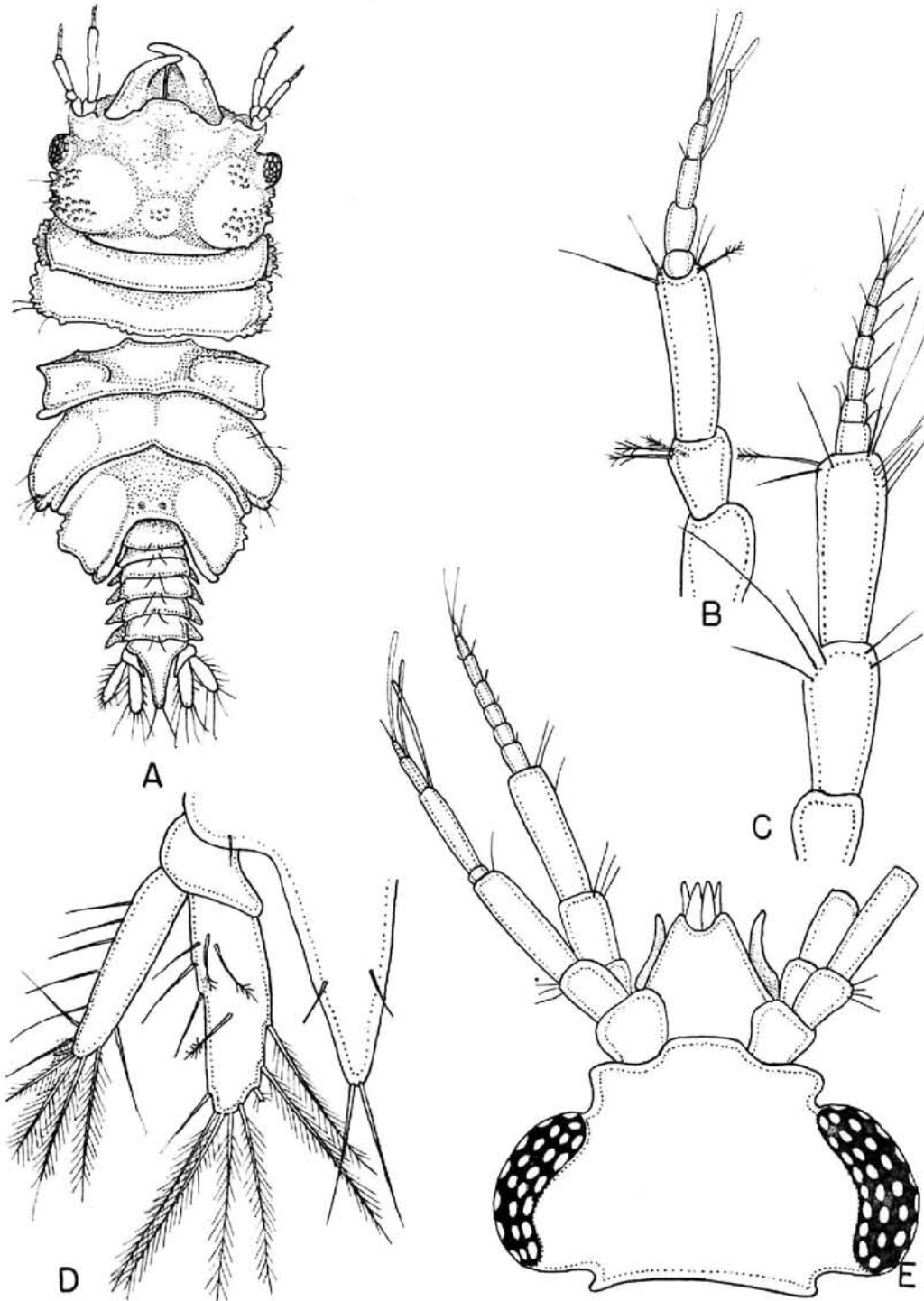


Figure 50. *Gnathia vanhoeffeni*, n. sp.; A, male, in toto; B, first antenna; C, second antenna; D, uropod and pleotelson; E, cephalon of juvenile.

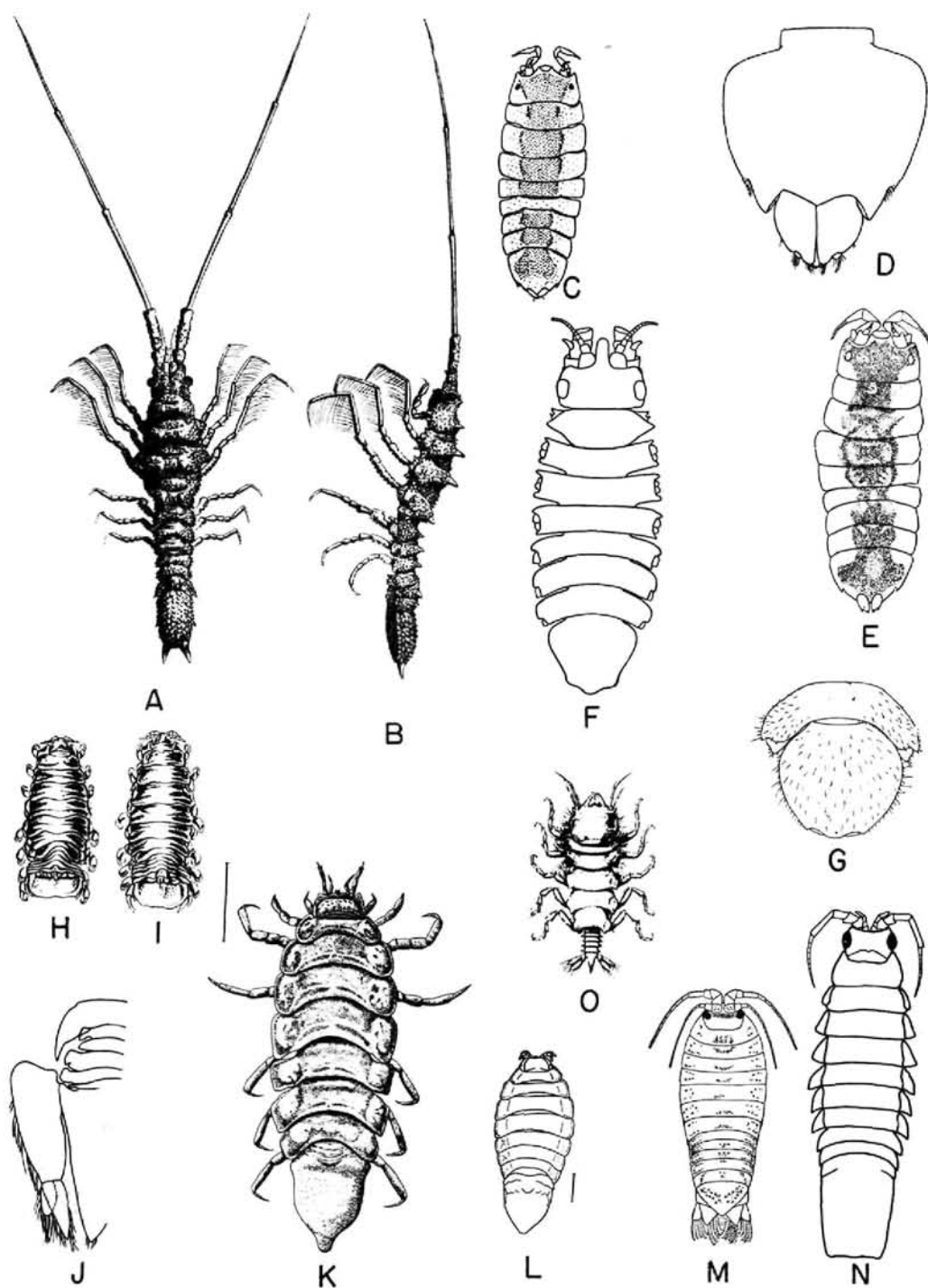


Figure 51. A—B, *Antarcturus americanus* (BEDDARD), (from BEDDARD 1886, pl. 23, figs. 5—6), C—E, *Jaeropsis curvicornis* (NICOLET), C—D from HALE, 1937, fig. 11; E, from RICHARDSON,

the mandibles project in front of the cephalon and are forceps-like. Pleon much narrower than peraeon.

Only one genus and one species was represented in the L.U.C.E. collections.

Genus *Gnathia* LEACH, 1814.

Gnathia vanhoeffeni, new species

Figure 50

Synonyms: None.

Diagnosis: *Gnathia* with eyes lateral and slightly projecting. Cephalon only sparsely tuberculate, with preocular lateral border entire, lacking extensive large tuberculations. Body only sparsely hairy and with few tuberculations. Uropoda not indented along margins. Lateral borders of pleotelson smooth, entire.

Measurements: Holotype male, length 3.5 mm, width of cephalon 1.4 mm.

Type locality: The type male is from L.U.C.E. St. *M 145*, Southern Chile, Seno Reloncaví, Bahía Chincuí, 70–80 meters, fine, soft grey sand with small stones, July 16, 1949.

Material examined: In addition to the type specimens were seen from L.U.C.E. stations *M 27*, four females, *M 14*, nine males and twenty-one females, *M 145*, two females, *M 42*, one male, *M 43*, one young, *M 148*, one male.

Distribution: Known only from Chile.

Affinities: Except for the smooth and entire preocular lobes, this species closely resembles *G. hodgsoni* VANHÖFFEN and to a lesser degree *G. calva* VANHÖFFEN.

Gnathia antarctica (STUDER)

Figure 51, O

Synonyms: *Anceus antarcticus* STUDER, HODGSON, 1910, p. 11 and synonyms, NIERSTRASZ, 1941, p. 237.

Diagnosis: Male cephalosome quadrangular, with a strongly developed spine in front of each eye. Usually with two spines near the anterior margin and the middle line. Cephalosome and anterior segments of the mesosome more or less spinous and fringed with long setae (HODGSON, 1910, p. 11).

Type locality: Patagonia (HODGSON, 1910, p. 11).

Distribution: Kerguelen, Prince Edward Island, South Georgia Island, Antarctic, Patagonia and Chile (NIERSTRASZ, 1941, p. 237).

This species was not found in the L.U.C.E. collections.

1909, p. 421; F—G, *Iathrippa longicauda* (CHILTON); F, from RICHARDSON, 1910, fig. 1; G, from NORDENSTAM, 1933, fig. 40; H—I, *Meinertia gaudichaudi* (MILNE-EDWARDS), from RICHARDSON, 1905, fig. 421; J, *Macrochiridothea kruimeli* NIERSTRASZ, from SHEPPARD, 1957, fig. 13; K, *Edothea tuberculata* GUÉRIN-MÉNEVILLE; L, *Edotea magellanica* CUNNINGHAM; K—L from GIAMBIAGI, 1925, fig. 1—2; M, *Excirolana chilensis* RICHARDSON, from RICHARDSON 1912, fig. 1; N, *Idothea metallica* BOSC, from NAYLOR, 1957, fig. 1; O, *Gnathia antarctica* STUDER, from HODGSON, 1910, pl. 1, fig. 2.

List of Tables

1. Average monthly sea surface temperatures along the Chilean coastline.
2. Table of distribution of genera.
3. Distribution of Chilean species within Chile.
4. Classification of the Isopoda.
5. Variability in *Isocladus calcarea* (DANA).

Summary

Where possible illustrations accompany each of the species described in this paper. This includes all species, previously known or not, from Chile. Only 15 of the known Chilean species were not found in the L.U.C.E. collections.

The Chilean fauna is divided into three geographic units, species of the Magellan region, species of the cold temperate region, and species of the warm temperate region (Peruvian elements). The fauna shows its greatest affinities with the fauna of the circumsubpolar islands and antitropical faunas. The relationships between the fauna of the Juan Fernandez Islands, the Antarctic polar fauna, and Peru is of a very low order. Generic endemism is low but specific endemism is relatively high. This picture may change when the fauna of Peru is better known.

New subgenera of the genus *Munna* which are described are *Munna*, type *boeckii* KRØYER; (*Neomunna*), type *stephenseni* (GURJANOVA); (*Uromunna*), type *ubiquita* (MENZIES). A new sphaeromid genus *Paradynamenopsis*, type *P. lundae* MENZIES is also described.

Thirty-two new species are described as follows, all from Chile:

New Species

1. <i>Munna (M.) chilensis</i>	Magellan Straits
2. <i>Munna (M.) lundae</i>	Magellan Straits
3. <i>Paramunna simplex</i>	Seno Reloncaví
4. <i>Austrosignum latifrons</i>	Seno Reloncaví
5. <i>Austrosignum globifrons</i>	Magellan Straits
6. <i>Pleurosignum chilense</i>	Magellan Straits
7. <i>Antias laevifrons</i>	Montemar
8. <i>Antias dimorphis</i>	Islas Guaitecas
9. <i>Jaeropsis bidens</i>	Iquique
10. <i>Iathrippa chilensis</i>	Seno Reloncaví
11. <i>Iathrippa multidentis</i>	Magellan Straits
12. <i>Neojaera elongatus</i>	Montemar
13. <i>Ianiropsis perplexus</i>	Canal Moraleda
14. <i>Ianiropsis chilensis</i>	Canal Chacao
15. <i>Janthopsis laevis</i>	Seno Reloncaví
16. <i>Edotea dahli</i>	Golfo de Ancud
17. <i>Edotea transversa</i>	Seno Reloncaví
18. <i>Cleantis chilensis</i>	Tocopilla

19. <i>Cirolana chilensis</i>	Séno Reloncaví
20. <i>Cirolana urostylis</i>	Isla Guafo
21. <i>Cirolana robusta</i>	San Vicente Bay
22. <i>Excirrolana hirsuticauda</i>	Montemar
23. <i>Dymanenella tuberculata</i>	Canal Chacao
24. <i>Dynamenella acuticauda</i>	Magellan Straits
25. <i>Cymodocella foveolata</i>	Montemar
26. <i>Dynamenopsis bakeri</i>	Iquique
27. <i>Paradynamenopsis lundae</i>	Bahía de San Vicente
28. <i>Gnathia vanhoeffeni</i>	Seno Reloncaví
29. <i>Macrochiridothea setifer</i>	Isla Guafo
30. <i>Chaetilia paucidens</i>	Montemar
31. <i>Limnoria (P.) chilensis</i>	Islas Guaitecas
32. <i>Tridentella laevicéphalax</i>	Golfo de Ancud

Eleven species are new to the Chilean fauna. These are:

1. *Paramunna kerguelensis* VANHÖFFEN
2. *Austrosignum grande* HODGSON
3. *Pleurosignum magnum* VANHÖFFEN
4. *Antias mawsoni* HALE
5. *Jaeropsis intermedius* NORDENSTAM
6. *Ianiropsis tridens* MENZIES
7. *Cirolana concinna* HALE
8. *Cirolana albinota* VANHÖFFEN
9. *Isocladus* sp.
10. *Cassidinopsis emarginata* (GUÉRIN-MÉNEVILLE)
11. *Serolis (S.) plana* DANA

Analytical keys are given to the major divisions of the Isopoda, the subtribes of the Asellota, the families of the Paraselloidea, the Chilean marine Asellota, the genera of the Munnidae, the genera of the Antiasidae, the genera of the Ianiridae, the species of Valvifera of Chile, the subtribes of the Flabellifera, the Chilean species of Flabellifera, the families of the subtribe Cirolanoidea, the subfamilies of the Cirolanidae.

Resumen

Hasta donde ha sido posible, se dan ilustraciones acompañando a cada una de las especies descritas en este trabajo. Este, incluye a todas las especies de Chile conocidas previamente o nó. Solamente 15 de las especies chilenas ya conocidas no se encontraron en las colecciones de la L.U.C.E.

Se divide a la fauna chilena en tres unidades geográficas: especies de la región Magallánica, especies de la región fría-temperada, y especies de la región calurosa-temperada (elementos Peruanos). Sus mayores afinidades las muestra con la fauna de las islas circum-subpolares y las faunas antitropicales.

La fauna de las islas Juan Fernández, la polar Antártica y la del Perú muestran escasas relaciones. El endemismo genérico es bajo pero el endemismo específico es relativamente alto. Este cuadro puede cambiar cuando se conozca mejor la fauna del Perú.

Los nuevos subgéneros descritos en el género *Munna* son: *Munna*, tipo *boeckii* KRØYER; (*Neomunna*), tipo *stephenseni* (GURJANOVA); (*Uromunna*), tipo *ubiquita* (MENZIES). Se describe también un nuevo género de Esferómidos: *Paradynamenopsis*, tipo *P. lundae* MENZIES.

Se describen 32 especies nuevas, todas de Chile. Ellas son las siguientes:

Especies nuevas

1. <i>Munna (M.) chilensis</i>	Estrecho de Magallanes
2. <i>Munna (M.) lundae</i>	Estrecho de Magallanes
3. <i>Paramunna simplex</i>	Seno Reloncaví
4. <i>Austrosignum latifrons</i>	Seno Reloncaví
5. <i>Austrosignum globifrons</i>	Estrecho de Magallanes
6. <i>Pleurosignum chilense</i>	Estrecho de Magallanes
7. <i>Antias laevifrons</i>	Montemar
8. <i>Antias dimorphis</i>	Islas Guaitecas
9. <i>Jaeropsis bidens</i>	Iquique
10. <i>Iathrippa chilensis</i>	Seno Reloncaví
11. <i>Iathrippa multidentis</i>	Estrecho de Magallanes
12. <i>Neojaera elongatus</i>	Montemar
13. <i>Ianiropsis perplexus</i>	Canal Moraleda
14. <i>Ianiropsis chilensis</i>	Canal Chacao
15. <i>Janthopsis laevis</i>	Seno Reloncaví
16. <i>Edotea dahli</i>	Golfo de Ancud

17. <i>Edotea transversa</i>	Seno Reloncaví
18. <i>Cleantis chilensis</i>	Tocopilla
19. <i>Cirolana chilensis</i>	Seno Reloncaví
20. <i>Cirolana urostylis</i>	Isla Guafo
21. <i>Cirolana robusta</i>	Bahía de San Vicente
22. <i>Exciorolana hirsuticauda</i>	Montemar
23. <i>Dynamenella tuberculata</i>	Canal de Chacao
24. <i>Dynamenella acuticauda</i>	Estrecho de Magallanes
25. <i>Cymodocella foveolata</i>	Montemar
26. <i>Dynamenopsis bakeri</i>	Iquique
27. <i>Paradynamenopsis lundae</i>	Bahía de San Vicente
28. <i>Gnathia vanhoeffeni</i>	Seno Reloncaví
29. <i>Macrochiridothea setifer</i>	Isla Guafo
30. <i>Chaetilia paucidens</i>	Montemar
31. <i>Limnoria (P.) chilensis</i>	Islas Guaitecas
32. <i>Tridentella laevicephalax</i>	Golfo de Ancud

Otras once especies son nuevas para la fauna chilena. Estas son:

1. *Paramunna kerguelensis* VANHÖFFEN
2. *Austrosignum grande* HODGSON
3. *Pleurosignum magnum* VANHÖFFEN
4. *Antias mawsoni* HALE
5. *Jaeropsis intermedium* NORDENSTAM
6. *Ianiropsis tridens* MENZIES
7. *Cirolana concinna* HALE
8. *Cirolana albitona* VANHÖFFEN
9. *Isocladus* sp.
10. *Cassidinopsis emarginata* (GUÉRIN-MÉNEVILLE)
11. *Serolis (S.) plana* DANA

Se dan claves analíticas para las grandes divisiones de Isopoda, las subtribus de Asellota, las familias de Paraselloidea, los Asellota marinos de Chile, los géneros de Munnidae, los géneros de Antiasidae, los géneros de Ianiridae, las especies de Valvifera de Chile, las subtribus de Flabellifera, las especies chilenas de Flabellifera, las familias de la subtribu Cirolanoidea y las subfamilias de Cirolanidae.

Bibliography

- AUDOUIN and MILNE-EDWARDS, 1841. Description des Crustacés nouveaux au peu connus. Arch. du Mus. d'Hist. Nat., vol. 2, Paris (not seen by writer).
- AMAR, RAYMOND, 1948. Une nouvelle espèce méditerranéenne du genre *Munna*. Bull. Mus. Hist. Nat. Marseille, 8 (2—3): 62—73.
- BAKER, W. H., 1908. Notes on some species of the Isopod family Sphaeromidae, from the south Australian coast. Trans. and Proc. Roy. Soc. South Australia, 32: 138—162, pls. 3—10.
- BARNARD, K. H., 1914. Contributions to the Crustacean fauna of South Africa. — 3. Additions to the marine Isopoda, with notes on some previously incompletely known species. Ann. South African Mus., 10, part 7, no. 11: 197—230, pls. XVII—XXII; part 11, no. 16: 325a—442, 12 pls.
- 1920. Contributions to the Crustacean fauna of South Africa. Ann. South African Mus., 17, part V, no. 11: 319—438, pls. XV—XVII.
- 1925. Contributions to the Crustacean fauna of South Africa. Ann. South African Mus., 20, part V, no. 10: 381—412.
- 1940. Contributions to the Crustacean Fauna of South Africa. XII. Further additions to the Tanaidacea, Isopoda, and Amphipoda, together with keys for the identification of the hitherto recorded marine and fresh-water species. Ann. South African Museum, 32, part V (18): 381—514 (Isopoda).
- 1955. A new *Protojanira* from Natal (Isopoda, Asellota). Ann. Natal Museum, 13 (2): 249—251.
- BATE, C. SPENCE and J. O. WESTWOOD, 1868. A history of the British sessile-eyed Crustacea. 2: I—LVI, 536 pp., London, John van Voorst.
- BEDDARD, FRANK EVERS, 1885. A preliminary notice of the Isopoda collected during the voyage of H. M. S. CHALLENGER, part II, Munnopsidae. Proc. Zool. Soc. London: 916—925.
- 1886. Report on the Isopoda collected by H. M. S. CHALLENGER during the years 1873—1876, part II, Challenger Reports. Zoology 17 (48): 175 pp. 25 pls.
- BENEDICT, JAMES E., 1898. The Arcturidae in the U.S. National Museum, Proc. Biol. Soc., Washington, Vol. 7 pp. 41—51.
- BONNIER, J., 1896. Edriophthalmés, résultats scientifiques campagne "Caudan" dans le Golfe de Gascogne. Ann. Univ. Lyon, 26: 527—689.
- BOONE, P. L., 1920. *Calamura porteri* a new genus and species of isopod from Chile. Revista Chilena de Historia Natural. Año 24, Santiago (not seen by writer).
- BOVALIUS, CARL, 1886. Notes on the family Asellidae. Bihang till Kongl. Svenska Vet.-Akad. Handlingar, 11(15):1—54.
- BRATTSTRÖM, H. and ERIK DAHL, (1951) 1952. General account, lists of stations, hydrography, in Repts. Lund Univ. Chile Exped. 1948—49, 1, Lund Univ. ÅRSSKR N.F. Avd. 2, 46 (8): 1—86, Lund, C. W. K. Gleerup.
- CHILTON, CH., 1884. Additions to the sessile-eyed crustacea of New Zealand. Trans. New Zealand Inst., 16: 249—265.
- 1892. Notes on some New Zealand Amphipoda and Isopoda. Trans. Proc. New Zealand Inst., 24: 258—269.

- CHILTON, CH., 1909. The Crustacea of the subantarctic islands of New Zealand. Subantarctic Islands of New Zealand, 2(26): 601—671, Wellington, New Zealand.
- CUNNINGHAM, R. O., 1871. Notes on the reptiles, amphibia, fishes, mollusca and Crustacea obtained during the voyage of H. M. S. NASSAU (1865—69). Trans. Linn. Soc. London, 27: 465—502, pls. 58—59.
- DANA, J. D. 1852. Crustacea, *in*: United States exploring expedition. 14: 696—805, atlas 1855 pl. 46—52, C. Sherman (1852) Philadelphia.
- DOLLFUS, ADRIEN, 1891. Crustacés isopodes, *in*: Mission Scientifique de Cap Horn 1882—1883, Tome VI, Zoologie, Paris, Gauthier-Villars: 55—76, pl. VIII.
- EKMAN, S., 1953. Zoogeography of the sea. Sedgwick and Jackson Ltd., 417 pp.
- FABRICIUS, J. C., 1775. Systema entomologiae. Flensburg et Leipzig (not seen by writer).
- FILHOL, H., 1885. Crustacés, *in*: Recueil de mémoires, rapports et documents relatifs à l'observation du passage de VENUS sur le soleil, 3 (2): 349—516, Paris.
- GIAMBIAGI, DEIDAMIA, 1925. Crustáceos Isópodos, *in*: Resultados de la Primera Expedición a Tierra del Fuego (1921), Buenos Aires, Coni, pp. 1—20.
- GUÉRIN-MÉNEVILLE, F. E. 1843. Icon. règne animal. Texte, crustacés, p. 31 (not seen by writer).
- GURJANOVA, E. 1930. Beiträge zur fauna der Crustacea malacostraca des Arctischen Gebietes. Zool. Anz. 86 (2): 231—248.
- 1933. Contributions to the isopod fauna of the Pacific Ocean, no. 2, new species of Gnathiidae and Asellota. Explor. des Mers U.S.S.R., Leningrad, no. 19: 78—97.
- 1936. Beiträge zur Kenntnis der Isopoden-fauna des Pazifischen Ozeans. Neue Isopodenarten aus dem Japanischen und Bering Meer. Zool. Anz. 114: 250—265.
- HALE, HERBERT M., 1925. Review of Australian isopods of the cymothoid group. (I). Trans. Roy. Soc. South Australia, xlix: 128—185.
- 1937. Isopoda and Tanaidacea *in*: Australasian Antarctic expedition sci. repts. ser. C, Zool. and Bot., 2 (2): 1—45, Sydney.
- HANSEN, J. J., 1905. On the propagation, structure, and classification of the Sphaeromidae. Quart. Jour. Microsc. Sci., 49: 69—135.
- 1916. Crustacea Malacostraca, III, Isopoda. The Danish Ingolf-Expedition, 3 (5): 1—262, 16 pl., Copenhagen, H. Hagerup.
- HEDGPETH, JOEL W., 1957. Marine biogeography. Mem. 67, 1, Chapt. 13, pp. 359—382.
- HELLER, C., 1865. Crustaceen, *in*: Reise der Österreichischen Fregatte NOVARA um die Erde in den Jahren 1857, 1858, und 1859 unter den Befehlen des Commodore B. von Wüllerstorff-Urbair, Zool. Theil 2 (3): 280 pp., pls. 1—25.
- HILGENDORF, F., 1893. Bemerkungen über zwei Isopoden, die japanische Süßwasser-Assel und eine neue *Munna*-Art. Sitzber. Gesellschaft Naturf. Freunde, Berlin, no. 1, pp. 1—3.
- HODGSON, T. V., 1910. Crustacea, IX, Isopoda. National Antarctic Expedition 1901—1904, 5 (9): 1—77, pls. 1—10, London.
- H. O. Publ., 1944. World atlas of sea surface temperatures, 2nd ed. (reprint 1954), Hydrographic office of United States Navy, Washington, D.C., H.O. Publ. no. 225.
- HURLEY, D. E., 1957. Some Amphipoda, Isopoda and Tanaidacea from Cook Strait. Zool. Publ. Victoria Univ. College, no. 21, pp. 1—20.
- KOEHLER, R., 1885. Description d'un Isopode nouveau, le *Jaeropsis brevicornis*. Ann. sciences naturelles, Zool. Ser. 6, Tome XIX. Paris.
- KOSSMAN, R., 1880. Zoologische Ergebnisse einer Reise in die Küstengebiete des Rothen Meeres, III, Malacostraca, Leipzig (not seen by writer).
- KRAUSS, C. F. F., 1843. Die südafrikanischen crustaceen. Eine Zusammenstellung aller bekannten *Malacostraca*, Stuttgart (not seen by writer).
- KROYER, H., 1839. *Munna* en ny kræbstdyrslægt. Naturhist. Tidsskrift II, pp. 612—616, Taf. V.
- LATREILLE, P. A., 1804. Histoire naturelle générale et particulière des Crustacés et des Insectes, 413 pp., pl. LXVI.

- LEACH, W. E., 1813 (1814). Crustaceology, *in*: Brewster's Edinburgh Encyclopaedia, London, Baldwin, 7: 383—437, pl. 221.
- 1818. Cymothoadés, *in* Dict. Sci. Nat., 31: 1—22, Paris.
- LILJEBORG, WILHELM, 1851. Norges Crustaceer. Öfversigt af Kongl. Vetenskaps Akad. Förhandl. 8: 19—25.
- MENZIES, ROBERT J., 1950. The taxonomy, ecology, and distribution of northern California Isopods of the genus *Idothea* with the description of a new species. *Wasmann J. Biol.* 8 (2): 155—195.
- 1951. New marine isopods, chiefly from northern California, with notes on related forms. *Proc. U.S. Nat. Mus.*, 101 (3273): 105—156.
- 1952. Some marine asellote isopods from Northern California, with descriptions of nine new species. *Proc. U.S. Nat. Mus.*, 102 (3293): 117—159.
- 1956. New abyssal tropical Atlantic isopods with observations on their biology. *Am. Mus. Novitates*, no. 1798: 1—16.
- 1957. The marine borer family Limnoriidae (Crustacea, Isopoda). *Bull. Mar. Sci. Gulf and Caribbean*. 7 (2): 101—200.
- MENZIES, ROBERT J. and J. L. BARNARD, 1951. The isopodan genus *Iais* (Crustacea). *Bull. So. California Acad. Sci.*, 50 (3): 136—151.
- MENZIES, ROBERT J. and JOEL W. HEDGPETH. Temperature correlated global discontinuities in marine biogeography. (In press.)
- MENZIES, ROBERT J. and MILTON A. MILLER, 1955. Marine asellote isopods of the genus *Antias* with the description of a new species from New Zealand. *Trans. Roy. Soc. New Zealand*, 83 (2): 383—389.
- MIERS, EDWARD J., 1875. Descriptions of three additional species of Crustacea from Kerguelen's Land and Crozet Island, with remarks upon the genus *Paramoera*. *Ann. Mag. Nat. Hist.*, 16, Ser. 4: 115—118.
- 1875a. Descriptions of new species of Crustacea collected at Kerguelen's Island by the Rev. A. E. Eaton. *Ann. Mag. Nat. Hist.*, 16, ser. 4: 73—76.
- 1881. Crustacea, *in*: Günther, Albert, Account of the zoological collections made during the survey of H.M.S. ALERT in the Straits of Magellan and the coast of Patagonia. *Proc. Zool. Soc. London*, 1881: 61—80, pl. VII.
- 1883. Revision of the Idotheidae etc. *J. Linn. Soc. London. Zoology*, 16: 1—88, pls. I—III.
- MILLER, MILTON A., 1941. The isopod crustacea of the Hawaiian Islands, II, Asellota. *Occ. Pap. Bernice P. Bishop Mus.*, 16 (13): 305—320.
- MILNE-EDWARDS, H., 1840. *Histoire naturelle des Crustacés*, 3, Paris (not seen by writer).
- MONOD, TH., 1922. Sur un essai de classification rationnelle des isopodes. *Bull. Soc. Zool.*, 47: 134—140, Paris.
- 1926. Tanaidaces, isopodes et amphipodes, résultats du voyage de la Belgica en 1897—1899. *Rapports Scientifiques Zoologie*, 1926: 1—67.
- 1931. Tanaidaces et isopodes subantarctiques de la collection Kohl-Larsen du Senckenberg Museum. *Senckenbergiana* 13 (1): 10—30.
- 1933. Tanaidacea et Isopoda, *in*: Mission Robert Ph. Dollfus en Égypte. *Mém. Inst. Égypte*. Vol. 21, pp. 161—264.
- NAYLOR, E., 1957. The occurrence of *Idotea metallica* Bosc in British waters. *J. Mar. Biol. Ass. U.K.*, Vol. 36, pp. 599—602.
- NICHOLLS, G. E., 1937. On the freshwater Idoteidae of New Zealand (Crustacea, Isopoda). *Ann. Mag. Nat. Hist.*, ser. 10, 19: 113—136.
- NICOLET, H., 1849. Crustáceos, *in*: C. Gay, Historia física y política de Chile, Zoología, 3: 1—547, Paris and Santiago. 1854 *ibid.* Atlas, 2, Paris and Santiago.
- NIERSTRASZ, H. F., 1918. Alte und neue Isopoden. *Zool. Mededeel.*, Rijks Mus. Nat. Hist. Leiden, Vol. 4, pp. 103—142.

- NIERSTRASZ, H. F., 1931. Die Isopoden der Siboga-Expedition III, Isopoda genuina. II. Flabellifera, Monogr. XXXII c, Brill, Leiden, 111 pp., 2 pls., 129 text figs.
- 1941. Die Isopoden der Siboga-Expedition IV, Isopoda genuina. III. Gnathiidea, Anthuridea, Valvifera, Asellota, Phreatocoeidea. Siboga-Expeditie. Monogr. 32d, Brill, Leiden, pp. 235—308.
- NIERSTRASZ, H. F. and J.H. SCHUURMANS STEKHOVEN Jr., 1930. Isopoda genuina, in: Grimpe and Wagler, Tierwelt der Nord- und Ostsee, Lief. 18, Xe: 57—133.
- NORDENSTAM, ÅKE, 1930. Tanaidacea and marine isopoda from Juan Fernandez, in: The Natural History of Juan Fernandez and Easter Island, C. Skottsberg, 3: 525—552, pl. 20.
- 1933. Marine isopoda of the families Serolidae, Idotheidae, Pseudidotheidae, Arcturidae, Parasellidae and Stenetriidae mainly from the South Atlantic. Further zoological results of the Swedish Antarctic Expedition 1901—1903 under the direction of Dr. Otto Nordenstam, Ed. Sixten Bock, 3 (1): 1—284, 2 pls., Stockholm.
- NORMAN, ALFRED MERLE, 1899. *Jaeropsis dollfusi*, a new Mediterranean isopod. Ann. Mag. Nat. Hist. Ser. 7, 4, London (not seen by writer).
- OHLIN, AXEL., 1901. Isopoda from Tierra del Fuego and Patagonia, I, Valvifera. Svenska Exped. Magellansländerna, Bd. II, No. 11, pp. 261—306, pls. XX—XXV.
- PFEFFER, GEORG, 1881. Die Krebse von Süd-Georgien nach der Ausbeute der Deutschen Station 1882—83. I. Teil, Jahrb. der Hamburg. Wissensch. Anstalten IV: 43—150, 7 pl.
- PIERANTONI, U., 1916. Sopra un nuovo Isopode marino del Golfo de Napoli (*Munna mediterranea* n. sp.). Pubbl. Staz. Zool. Napoli, 1: 147—154, pl. 4.
- RACOVITZA, E.-G. and R. SEVASTOS, 1910. *Proidotea Haugi* n.g. en. sp. Isopode Oligocène de Roumanie et les Mesidoteini nouvelle sous-famille des Idotheidae. Arch. de Zool. Expér. et Gen. Ser. 5, Vol. VI, Paris (not seen by writer).
- RICHARDSON, H. E., 1899. Key to the isopods of the Pacific Coast of North America, with descriptions of twenty-two new species. Proc. U.S. Nat. Mus. 21: 815—869.
- 1902. The marine and terrestrial isopoda of the Bermudas with descriptions of new genera and species. Trans. Conn. Acad. Sci., Vol. 11, pp. 277—310, pls. 37—40.
- 1905. A monograph on the isopods of North America. Bull. U.S. Nat. Mus. 54: 727 pp.
- 1906. Isopodes (première mémoire). Expéd. Antarctique Française, Crustacés, Isopodes: 1—21, Paris.
- 1906 b. Descriptions of new isopod crustaceans of the family Sphaeromidae. Proc. U.S. Nat. Mus. 31: 1—22.
- 1908. Crustacés, Isopodes (2^e mémoire). Expéd. Antarctique Française (J. Charcot): 1—8, Paris.
- 1909. Description of a new isopod of the genus *Jaeropsis* from Patagonia. Proc. U.S. Nat. Mus., 36 (1675): 421—422.
- 1910. Description of a new species of isopod of the genus *Notasellus* from the east coast of Patagonia, Proc. U.S. Nat. Mus. 37 (1720): 649—650.
- 1912. Descriptions of a new genus of isopod crustaceans, and of two new species from South America. Proc. U.S. Nat. Mus., 43 (1929): 201—204.
- 1913. Crustacés Isopodes. Deuxième Expédition Antarctique Française (J. Charcot), 1908—1910, 3: 1—42, Paris.
- SARS, G. O., 1863. Om en anomal gruppe af isopoder. Chr. Vid. Selsk. Forh. (not seen by writer).
- 1866. Beretning om en i Sommeren 1865 foretagen zoologisk Reise ved Kysterne af Christianias og Christiansands stifter. Nyt Mag. Naturvid. Christiania 15: 84—128 (not seen by writer).
- 1897—99. An account of the Crustacea of Norway, II. Isopoda, X. 170 pp., 100 pls.
- 1905. Pacificische Plankton-Crustaceen. II. Brackwasser-Crustaceen von den Chatham-Inseln. Zool. Jahrb. Abt. Systematik, 21 (not seen by writer).

- SCHIOEDTE, J. C. and FR. MEINERT, 1887—1884. *Symbolae ad monographium Cymothoarum Crustaceorum Isopodum familiae*, Naturhistorisk Tidsskrift (3), Kjøbenhavn, XII, 1879—1880, pp. 312—415, pls. 7—13; XIII, Aniloceridae, Saophridae, Cymothoidae, 1881—1883, pp. 1—167; 281—379, pls. 1—10; 11—14; XIX Cymothoidae, 1883—1884, pp. 221—455, pls. 6—18.
- SHEPPARD, EDITH M., 1957. Isopod crustacea, etc. *in*: *Discovery Reports*, Cambridge, 29: 141—198, pls. VIII, IX.
- STEBBING, T. R. R., 1900. South African crustacea *in*: *Marine Investigations of South Africa*, Cape of Good Hope, Dept. Agr., pp. 12—66, pls. I—IV.
- 1905. Report on the Isopoda collected by Prof. Herdmann at Ceylon in 1902, *in*: *Rept. Pearl Oyster Fisheries of the Gulf of Manaar [Marine biology of Ceylon]*, Suppl. Rept. XXIII, 1905, pp. 1—64, pl. I—XII.
- 1910. General catalogue of South African Crustacea. *Ann. S. African Mus.* 6 (IV): 281—593.
- 1914. Crustacea from the Falkland Islands collected by Mr. Rupert Vallentin. Part II, *Proc. Zool. Soc. London*, pp. 341—378.
- STEPHENSEN, K., 1947. Tanaidacea, Isopoda, Amphipoda, and Pycnogonida, *in*: *Sci. Res. Norwegian Antarctic Expedition*, Oslo, no. 27, pp. 1—90, 26 text figs.
- STUDER, TH., 1884. Isopoden gesammelt während der Reise S.M.S. GAZELLE um die Erde 1874—1876. *Abh. Kgl. Preuss. Akad. Wissensch. Berlin* 1883, pp. 1—128.
- TATTERSALL, W. M., 1906. The marine fauna of the coast of Ireland, Pt. V. *Rept. Sea and Inland Fisheries of Ireland for 1904*, App. II, *Sci. Invest. Dublin* 1906: 53—142, pls. I—XI.
- 1913. The Schizopoda, Stomatopoda, and new Antarctic Isopoda of the Scottish National Antarctic Expedition. *Trans. Roy. Soc. Edinburgh*, 49: 865—894.
- 1921. Tanaidacea and isopoda *in*: *British Antarctic "Terra Nova" Exped., 1910*, *Nat. Hist. Rep. Zool.*, Vol. 3, part 8, pp. 191—258.
- VANHÖFFEN, E., 1914. Die Isopoden der Deutschen Südpolar-Expedition, 1901—1903, 15 (7): 449—598, Berlin, Georg Reimer.
- WHITE, ADAM, 1847. List of the specimens of crustacea in the collection of the British Museum, London, British Museum, pp. 143 (not seen by the writer).
- ZIRWAS, C., 1910. Die Isopoden der Nordsee. *Wiss. Meeresuntersuchungen. Komm. Wiss. Untersuch. deutscher Meere in Kiel und d. Biol. Anst. auf Helgoland. Neue Folge* 12: 75—115.

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