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42.

THE ZOOGEOGRAPHY, ECOLOGY, AND SYSTEMATICS OF THE CHILEAN MARINE ISOPODS

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Introduction

Historic resumé

Our early knowledge of the marine isopod fauna came mainly from expeditions to the Magellan region, e.g. the "Alert" (MIERS, 1881), the "Romanche" (DOLLFUS, 1891), the "Gazelle" (STUDER, 1884) the "Novara" (HELLER, 1865), and the U.S. Exploring Expedition (DANA, 1852). Their reports, as far as the Chilean fauna was concerned, were, naturally, fragmentary. Because of the large percentage of subpolar species in the Chilean fauna the reports of various expeditions and studies on the insular fauna are important. Most significant are the results of the Swedish South Polar Expedition (NORDENSTAM, 1933) and the German South Polar Expedition (VANHÖFFEN, 1914). Curiously American south polar expeditions, even those of recent date, have added little to the knowledge of the fauna.

Prior to this report around 35 species including synonyms and animals of dubious validity were known from Chile. Roughly one-half, or fourteen of them were found in the Lund University Chile Expedition collections. The following is a listing of the probably valid species previously reported from Chile. Those represented in the "LUCE" collections are marked with an asterisk.

A list of the species of marine isopods known previously from Chile

1.* *Aega magnifica* (DANA) as *Pterelas*
2.* *Aega semicarinata* MIERS
3.* *Amphoroidea typa* M. EDW.
4. *Antarcturus americanus* BEDDARD, as *Arcturus*
5. *Astacilla diomedea* BENEDICT
6. *Chaetilia ovata* DANA
7. *Cleantis linearis* DANA
8.* *Dynamenella eatoni* (MIERS) as *Dynamene*
9. *Edotea tuberculata* G.-M.
10. *Edotea magellanica* CUNNINGHAM
11.* *Euvallentinia darwini* (CUNNINGHAM) as *Vallentina*
12.* *Exosphaeroma studeri* VANHÖFFEN, as *Sphaeroma calcarea* of DOLLFUS, non DANA
13.* *Exosphaeroma lanceolata* (WHITE), as *Sphaeroma lanceolata* WHITE and *S. gayi* NICOLET
14.* *Exosphaeroma gigas* (LEACH), as *Sphaeroma gigas* LEACH, *S. chilensis* LEACH, *S. propinqua* NICOLET
15. *Excirolana chilensis* RICHARDSON
16. *Gnathia antarctica* STUDER
17. *Iathrippa longicauda* (CHILTON), as *Ianira*
18.* *Iais pubescens* DANA
19. *Idothea metallica* BOSC
20. *Jaeropsis curvicornis* NICOLET

21.* *Lironeca raynaudi* M. EDW.
22.* *Macrochiridothea michaelseni* OHLIN
23.* *Macrochiridothea stebbingi* OHLIN
24. *Macrochiridothea kruimeli* NIERSTRASZ
25. *Meinertia gaudichaudi* (M. EDW.), as *Cymothoa*
26.* *Neastacilla magellanica* (OHLIN), as *Astacilla*
27. *Notidotea rotundicauda* (MIERS), as *Austridotea*
28.* *Paramunna subtriangulata* (RICHARDSON) as *Austrimunna*
29. *Paranthura porteri* BOONE
30. *Rocinela australis* S. & M.
31.* *Serolis schythei* LÜTKEN
32. *Serolis paradoxa* (FABR.)
33. *Serolis gaudichaudi* A. & E.

Twenty-five currently valid genera had been previously reported from Chile. Only seven were not represented in the L.U.C.E. collections; *Antarcturus*, *Astacilla*, *Idothea*, *Meinertia*, *Notidotea*, *Paranthura*, and *Rocinela*. The genera *Idothea*, *Rocinela*, and *Meinertia* are probably contaminants of the fauna being transported to there from elsewhere. The genus *Sphaeroma* (not mentioned above) is probably a case of misidentification being based only on old species described by DANA and NICOLET. *Notidotea* and *Paranthura* were reported from central Chile; whereas, *Antarcturus* and *Astacilla* characterize the Magellan region.

Scope of the Lund University Chile Expedition collections

The L.U.C.E. collections contained 34 genera. Fifteen are recorded as new to the fauna but only one of which is described as a new genus. The number of species now amounts to 71, or about two times as many as were known previously and roughly one-half of which are described as new species. Clearly, the additions to the fauna through the efforts of the L.U.C.E. collections are highly significant.

Disposition of the specimens

All specimens on which this report is based will be sent to the Swedish State Museum (S.S.M. abbreviation) in Stockholm where the types of new species are to be kept.

Acknowledgments

The writer is first indebted to the leaders of the expedition for the privilege and honor of examining the specimens, and, second, to the Charles P. Berolzheimer Foundation Inc., New York, for a grant of money of sufficient size to permit the employment of an artist to "ink in" the pencilled sketches and arrange the plates

and maps for final publication. My sincerest gratitude is due Mr. ERNEST POWELL and Miss LESLIE BURCAW, of Palisades, New York, for this artistic assistance.

Finally, the writer acknowledges the use of the excellent facilities of the biology laboratory of the Lamont Geological Observatory, supported by the Rockefeller Foundation (Grant No. RF 54087), where this work was finally completed. Dr. THOMAS BOWMAN of the U.S. National Museum in Washington, D.C. kindly provided a tracing of DANA's *Chaetilia*.

Zoogeography

Geography

The Chilean coast-line extends from Arica at about 18° S to Cape Horn at about 55° S. Geographically it may be divided into three regions, northern Chile from Arica (18°28′ S) to Coquimbo (20°58′ S), central Chile from Coquimbo (20°58′ S) to San Vicente (36° S) and southern Chile from San Vicente (36° S) to Cape Horn (ca 55° S). These divisions are rather insignificant as far as the faunal distribution alone is concerned. A much more important parameter is the seawater temperature.

Marine thermal geography

Various aspects of the temperature regime have been considered important in influencing the distribution of marine organisms. The average annual range of temperature along the entire Chilean coast-line is between three and 22° C (H.O. Pub. 225, 1944). This range is wide enough for one to suspect a zonation of the fauna within it, including as it does, polar to subtropical temperatures (HEDGPETH, 1957, p. 364). Unlike many marine regions the annual temperature curve at a given point along the Chilean coast is remarkably flat, varying only 5—6 degrees at a maximum. (Table 1). This situation characterizes the eastern oceanic shores in the temperate regions in general (MENZIES and HEDGPETH, in press) and is a function of cold northward-streaming currents, Humboldt and Benguela in the southern hemisphere, and the phenomenon of upwelling.

EKMAN (1953, p. 208) recognized a "Peru fauna" including the "warmtemperate fauna — on the shelf of Peru and northern Chile." This fauna he suspected to extend to Chiloé Island (ca 43° S) where the cold temperate region (containing an antiboreal coastal fauna) is believed to start. This division EKMAN established on the basis of extreme annual temperatures and on a recognition of a "Magellan" fauna. In doing this, EKMAN may have been correct, but the distribution of the marine isopod fauna suggests that the situation is more complex.

On the basis of the duration of a particular average monthly temperature it is possible to divide Chile into at least three distinct marine thermal regions:

A. *Warm temperate region*: This is located between 15° S and 25° S and is a region in which the most frequent average monthly temperatures lie between 17 and 21° C.

Table 1. Average monthly sea surface temperatures along the Chilean coast-line, from H.O. pub. 225, 1944.

Degrees South Latitude	MONTHS J	F	M	A	M	J	J	A	S	O	N	D	
15	21	21	21	20	18	17	17	17	16	17	18	18	Warm Temperate (17—21)
20	21	21	21	20	18	17	17	16	16	17	18	18	
25	21	21	22	18	17	17	16	15	15	15	17	18	
30	18	18	18	16	16	16	14	14	13	14	16	16	Cold Temperate (12—16)
35	16	17	16	16	13	13	13	12	12	13	14	16	
40	16	16	16	13	13	12	12	11	11	12	13	14	
45	13	13	13	12	11	11	9	9	8	11	11	13	
50	11	11	11	8	8	8	7	7	7	8	8	8	Subpolar (6—11)
55	7	8	8	7	6	6	4	3	5	7	6	6	

B. *Cold temperate region:* This is located between 25° S and 45° S and is a region in which the most frequent average monthly temperatures lie between 12 and 16° C.

C. *Magellan or subpolar region:* This is located between 45° S and 55° S where average monthly temperatures are most frequently between 6 and 11° C.

EKMAN's Peru fauna extends from the warm region into the cold temperate region and his antiboreal region includes the subpolar and much of the cold temperate region above.

Generic considerations

The general geographic distribution of the 41 genera (exclusive of probable imigrants) comprising the Chilean fauna is shown in Table 2 where the following salient features may be recognized.:

Worldwide genera: Nineteen, or slightly less than one-half of the genera have essentially a worldwide distribution, being found in polar as well as tropical regions and therefore tell one little regarding the affinities of the Chilean fauna to other regions.

Antitropical genera: Five, or 22 percent of the remaining twenty-two genera show an antitropical distribution; being characteristic of temperate regions and lacking from the tropics. These genera are *Cleantis*, *Dynamenella*, *Edotea*, *Serolis*, and *Paramunna*.

Endemics to the southern hemisphere: Sixteen, or 72 percent of the remaining twenty-two genera are endemic to the southern hemisphere, and include the following:

1. *Amphoroidea*
2. *Antarcturus*
3. *Austrosignum*
4. *Cassidinopsis*
5. *Chaetilia*
6. *Cymodocella*
7. *Euvallentinia*
8. *Iathrippa*
9. *Isocladus*
10. *Janthopsis*
11. *Macrochiridothea*
12. *Neastacilla*
13. *Neojaera*
14. *Notidotea*
15. *Paradynamenopsis*
16. *Pleurosignum*

Table 2. Table of Distribution

Localities

Chilean Genera	Worldwide	Antitropical	Endemic So. Hemisphere	Endemic So. America	Magellan Endemics	Bipolar	Australian-New Zealand	South Africa	*Antarctic* Continent	Antarctic Subpolar	Juan Fernandez	California	Scandinavia
1. Aega	×												
2. Amphoridea			×				×	×					
3. Antarcturus*			×					×	×	×			
4. Astacilla*	×												×
5. Antias	×												
6. Austrosignum			×							×			
7. Cassidinopsis			×							×			
8. Chaetilia			×	×									
9. Cirolana	×												
10. Cleantis		×					×	×				×	
11. Cymodocella			×					×	×	×			
12. Dynamenella		×						×		×		×	
13. Dynamenopsis	×												
14. Edotea		×					×			×		×	
15. Euvallentinia			×							×			
16. Excirolana	×												
17. Exosphaeroma	×												
18. Gnathia	×												
19. Iais		×					×	×		×		×	
20. Ianiropsis	×												
21. Iathrippa			×				×		×	×			
22. Idothea*	×												
23. Isocladus			×					×					
24. Jaeropsis	×												
25. Janthopsis			×					×		×			
26. Limnoria	×												
27. Lironeca	×												
28. Macrochiridothea			×	×									
29. Meinertia*	×												
30. Munna (M.)	×												
31. Munna (U.)	×												
32. Neastacilla			×							×			
33. Neojaera			×							×			
34. Notidotea*			×				×						
35. Paradynamenopsis			×	×									
36. Paramunna		×						×					×
37. Paranthura*	×												
38. Pleurosignum			×						×				
39. Rocinela*	×												
40. Serolis		×					×		×	×		×	
41. Tridentella	×												
Total	19	6	16	3	0	0	7	9	5	13	0	5	2

* Not in L.U.C.E. collections.

Of these, two are endemic only to South America, namely, *Chaetilia* and *Macrochiridothea*. One genus, *Paradynamenopsis*, is new and appears also to be endemic to South America.

Twin genera: Genera endemic to the southern hemisphere which have comparable genera in the northern hemisphere are *Pleurosignum-Pleurogonium*, *Isocladus-Zuzara*, *Macrochiridothea-Mesidothea* or possibly *Chiridothea*; *Neojaera-Jaera*, and *Neastacilla-Astacilla*, *Antarcturus-Arcturus*. These are all antitropical rather than bipolar twins except possibly for *Antarcturus* and *Arcturus*.

Bipolarity: No bipolar genus is known from the Chilean fauna (see above).

Antarctic or polar affinities: Only five, or 22 percent of the Chilean genera, excluding new and worldwide genera, are found also in the Antarctic Continent. These are *Serolis*, *Neojaera* (auct *Austrofilius*), *Cymodocella*, *Iathrippa*, *Pleurosignum*, and *Antarcturus*. Only one of these, *Pleurosignum*, is exclusively Chilean-Antarctic.

Subpolar Islands: Genera endemic to the southern hemisphere and common to one or more subpolar island and also Chile are numerous, amounting to 60 percent of those Chilean genera. These genera are *Austrosignum*, *Cassidinopsis*, *Cymodocella*, *Dynamenella*, *Euvallentinia*, *Iathrippa*, *Janthopsis*, *Neastacilla*, *Neojaera*, *Serolis*, and *Antarcturus*.

Peruvian Region and Juan Fernandez Islands: Not one genus endemic to the southern hemisphere is known yet from the virtually unknown Peruvian region. This applies also to the much better known marine isopod fauna of the Juan Fernandez Islands off Chile.

South Africa: The Chilean fauna and that of the colder part of South Africa are markedly similar. The genera in common are of two types: a), antitropical genera (4) and b), subpolar insular genera (6). Ten, or 45 percent of the Chilean genera, exclusive of worldwide genera, are found in both places. These genera are: *Amphoroidea*, *Cleantis*, *Cymodocella*, *Dynamenella*, *Iais*, *Isocladus*, *Janthopsis*, *Paramunna*, *Neojaera* (auct. *Austrofilius*), and *Antarcturus*.

Australia-New Zealand: Like the South African fauna the Chilean fauna is related to the Australian-New Zealand fauna through two types of genera, a) antitropical (4) and b), subpolar insular genera (2) which are found in both places. These genera are *Amphoroidea*, *Cleantis*, *Edotea*, *Iathrippa*, *Iais*, and *Serolis*. These amount to 27 percent of the Chilean genera which are endemic to the southern hemisphere.

The Chilean fauna is most closely related to a generally circumsubpolar fauna surrounding the Antarctic. The fauna has a much lower percentage of polar genera. Antitropical and circumsubpolar genera establish the affinities which exist between the fauna of South Africa, Australia-New Zealand and California. The genera common to California, Norway and Chile are antitropical, or worldwide genera.

The Chilean marine isopod fauna shows no unusual relationships with the Peruvian or the fauna of the Juan Fernandez Islands.

Only two genera and possibly a third new one, or about 15 percent of the Chilean genera which are endemic to the southern hemisphere are endemic to South America.

Table 3. List of species in the L.U.C.E. collection

1. Munna (M.) chilensis, n. sp.
2. Munna (M.) lundae, n. sp.
3. Munna (U.) schauinslandi (G. O. Sars)
4. Munna (U.) nana Nordenstam, f. typica and Alpha
5. Paramunna subtriangulata (Richardson)
6. Paramunna kerguelensis Vanhöffen
7. Paramunna simplex n. sp.
8. Austrosignum latifrons n. sp.
9. Austrosignum globifrons n. sp.
10. Austrosignum grande Hodgson
11. Pleurosignum magnum Vanhöffen
12. Pleurosignum chilense n. sp.
13. Antias mawsoni Hale
14. Antias laevifrons n. sp.
15. Antias dimorphis n. sp.
16. Jaeropsis intermedius Nordenstam
17. Jaeropsis bidens n. sp.
18. Iathrippa chilensis n. sp.
19. Iathrippa multidens n. sp.
20. Iais pubescens (Dana)
21. Neojaera elongatus, n. sp.
22. Ianiropsis tridens Menzies
23. Ianiropsis perplexus n. sp.
24. Ianiropsis chilensis, n. sp.
25. Janthopsis laevis, n. sp.
26. Neastacilla magellanica (Ohlin)
27. Edotea dahli n. sp.
28. Edotea transversa, n. sp.
29. Cleantis chilensis, n. sp.
30. Macrochiridothea michaelseni Ohlin
31. Macrochiridothea stebbingi Ohlin.
32. Macrochiridothea setifer, n. sp.
33. Chaetilia paucidens, n. sp.
34. Serolis (S.) plana Dana
35. Serolis (S.) schythei Lütken
36. Limnoria (P.) chilensis, n. sp.
37. Lironeca raynaudi M. Edw.
38. Aega magnifica (Dana)
39. Aega semicarinata Miers
40. Tridentella laevicephalax, n. sp.
41. Cirolana chilensis, n. sp.
42. Cirolana concinna Hale
43. Cirolana urostylis, n. sp.
44. Cirolana robusta, n. sp.
45. Cirolana albinota Vanhöffen
46. Excirolana hirsuticauda, n. sp.
47. Isocladus calcarea (Dana)
48. Isocladus sp.
49. Exosphaeroma studeri Vanhöffen
50. Exosphaeroma lanceolata (White)
51. Exosphaeroma gigas (Leach)
52. Dynamenella eatoni (Miers)
53. Dynamenella tuberculata, n. sp.
54. Dynamenella acuticauda, n. sp.
55. Cymodocella foveolata, n. sp.
56. Amphoroidea typa Milne-Edw.
57. Euvallentinia darwini (Cunningham)
58. Dynamenopsis bakeri, n. sp.
59. Cassidinopsis emarginata (G.-M.)
60. Paradynamenopsis lundae, n. sp.
61. Gnathia vanhöffeni, n. sp.

Species distribution

Sixty-one species excluding varieties were in the L.U.C.E. collections (Table 3). To this may be added seven species from the Magellan region and some others which had been reported previously but were not in the L.U.C.E. collections (Table 4). These include *Cymodocella tubicauda*, *Chaetilia ovata*, *Excirolana chilensis*, *Gnathia antarctica*, *Idothea metallica*, *Jaeropsis curvicornis*, *Meinertia gaudichaudi*, *Paranthura porteri*, *Serolis paradoxa*, and *Serolis gaudichaudi*.

General distribution

The generalized picture of distribution of the Chilean species of marine isopods is one in which the majority are restricted to the Chilean coast.

Chilean Endemics: Over one-half of the species are known from the Chilean coast and from nowhere else.

Table 4. Distribution of Chilean Species Within Chile

SPECIES		Warm Temperate		Cold Temperate					Subpolar
	S. Lat.	15–20	20–25	25–30	30–35	35–40	40–45	45–50	50–55
1. Paramunna kerguelensis									×
2. Munna (M.) chilensis									×
3. Munna (M.) lundae									×
4. Paramunna subtriangulata									×
5. Austrosignum globifrons									×
6. Neastacilla magellanica									×
7. Macrochiridothea michaelseni									×
8. Antarcturus americanus									×
9. Astacilla diomedea									×
10. Edotea tuberculata									×
11. Edotea magellanica									×
12. Iathrippa *longicauda*									×
13. Macrochiridothea kruimeli									×
14. Rocinela australis									×
15. Notidotea rotundicauda									×
16. Euvallentinia darwini									×
17. Cassidinopsis emarginata									×
18. Iathrippa multidens									×
19. Iais pubescens							×	×	×
20. Pleurosignum chilense							×		×
21. Ianiropsis chilensis							×		×
22. Iathrippa chilensis							×		×
23. Serolis (S.) schythei							×		×
24. Exosphaeroma studeri									×
25. Dynamenella acuticauda						×	×		×
26. Exosphaeroma gigas						×			×
27. Edotea dahli					×		×		×
28. Dynamenella eatoni					×	×	×	×	×
29. Munna (U.) nana f. ("a")			×		×		×		×
30. Exosphaeroma lanceolata			×				×		×
31. Edotea transversa							×		
32. Cirolana urostylis							×		
33. Aega semicarinata							×		
34. Tridentella laevicephalax							×		
35. Janthopsis laevis							×		
36. Paramunna simplex							×		
37. Austrosignum latifrons							×		
38. Antias mawsoni							×		
39. Pleurosignum magnum					×		×		×
40. Jaeropsis intermedius							×		
41. Macrochiridothea stebbingi							×		
42. Aega magnifica							×		×
43. Isocladus sp.							×		
44. Munna (U.) schauinslandi							×		

Table 4.

SPECIES	S. Lat.	Warm Temperate		Cold Temperate				Subpolar	
		15–20	20–25	25–30	30–35	35–40	40–45	45–50	50–55
45. Cirolana concinna							×		
46. Cirolana chilensis							×		
47. Munna (U.) nana f. typica							×		
48. Lironeca raynaudi							×		
49. Cirolana albinota							×		
50. Gnathia vanhöffeni							×		
51. Serolis (S.) plana							×		
52. Antias dimorphis							×		
53. Ianiropsis perplexus							×		
54. Macrochiridothea setifer							×		
55. Austrosignum grande							×		
56. Limnoria (P.) chilensis						×	×		
57. Excirolana hirsuticauda					×	×	×		
57. Paradynamenopsis lundae, dwarfs				×			×	×	
59. Paradynamenopsis lundae, giants				×	×	×	×		
60. Amphoroidea typa				×	×	×	×	×	
61. Isocladus calcarea					×		×	×	
62. Neojaera elongatus			×		×				
63. Cymodocella foveolata			×		×		×		
64. Jaeropsis bidens			×	×	×		×		
65. Chaetilia paucidens					×				
66. Cirolana robusta						×			
67. Dynamenella tuberculata				×	×		×		
68. Antias laevifrons					×		×		
69. Dynamenopsis bakeri			×	×			×		
70. Cleantis chilensis			×						
71. Ianiropsis tridens			×						

Chile and Falkland Islands: Slightly less than 15 percent of the Chilean species, or 12 of the total extend to the Falkland Islands as well. They certainly would be expected to occur in Patagonia and many do.

Antitropical species: Only one species, *Ianiropsis tridens* is antitropical in distribution. This species is known from California and Chile.

Chile and South Africa: Eight species, or about 10 percent of the Chilean species occur in South Africa as well. These are:

1. *Iathrippa longicauda*
2. *Iais pubescens*
3. *Exosphaeroma studeri*
4. *Exosphaeroma gigas*
5. *Exosphaeroma lanceolata*
6. *Lironeca raynaudii*
7. *Isocladus calcarea*
8. *Jaeropsis curvicornis*

These species are all very "old" species nomenclaturally and may actually involve one or more different species.

Chile and Antarctic: Close to 10 percent or seven of the species are common to the Antarctic and Chile. Two of them are found at the Falkland Islands as well.

Peruvian affinities: Only one species, the parasitic *Meinertia gaudichaudi* is believed to be common to Chile and Peru. This species was not in the L.U.C.E. collections.

Australian affinities: Three species are common to Chile and Australia. These are:

1. *Exosphaeroma gigas*
2. *Cirolana concinna*
3. *Lironeca raynaudi*

Circumsubpolar species: Chilean species also found at one or more subpolar islands are six in number. They will probably be found to be truly circumsubpolar. These are:

1. *Paramunna kerguelensis*
2. *Paramunna subtriangulata*
3. *Iathrippa longicauda*
4. *Iais pubescens*
5. *Dynamenella eatoni*
6. *Aega semicarinata*

A list of the marine isopods reported from Peru

The following is a list of the species of marine isopods which have been reported to occur in Peru. This list is probably far under the actual representation and clearly indicates the inadequacy of our knowledge regarding the marine isopod fauna of Peru.

1. *Meinertia gaudichaudi* (M. EDWARDS), RICHARDSON, 1910
2. *Sphaeroma peruvianum* RICHARDSON, RICHARDSON, 1910
3. *Orbimorphus constrictus* RICHARDSON, RICHARDSON, 1910
4. *Anilocra laevis* MIERS, RICHARDSON, 1910
5. *Cymothoa oestrum* (LINNÉ) RICHARDSON, 1910
6. *Asotana formosa* S. & M., NIERSTRASZ, 1931
7. *Sphaeroma laevigatum* PHILLIPPI, NIERSTRASZ, 1931
8. *Sphaeroma propinquum* NICOLET, NIERSTRASZ, 1931 (=*Exosphaeroma gigas* (LEACH)
9. *Sphaeroma gayi* NICOLET, NIERSTRASZ, 1931 (=*Exosphaeroma lanceolata* WHITE)

Distribution within Chile

Magellan or subpolar fauna: This fauna characterizes the Magellan or subpolar region and consists of 19 (of the approximate 77 species) which are not known northward of this region in Chile. These species are:

1. *Antarcturus americanus*
2. *Astacilla diomedea*
3. *Austrosignum globifrons*
4. *Cassidinopsis emarginata*
5. *Edotea magellanica*
6. *Edotea tuberculata*

7. *Euvallentinia darwini*
8. *Iathrippa longicauda*
9. *Iathrippa multidens* n. sp.
10. *Macrochiridothea kruimeli*
11. *Macrochiridothea michaelseni*
12. *Munna* (*M.*) *chilensis* n. sp.
13. *Munna* (*M.*) *lundae* n. sp.
14. *Neastacilla magellanica*
15. *Notidotea rotundicauda*
16. *Paramunna kerguelensis* n. sp.
17. *Paramunna subtriangulata*
18. *Rocinela australis*
19. *Exosphaeroma studeri*

An additional sixteen species are found in the Magellan region and in locations northward. These species are found in the cold temperate region as well. They are:

1. *Iais pubescens*
2. *Pleurosignum chilense* n. sp.
3. *Ianiropsis chilense* n. sp.
4. *Iathrippa chilense* n. sp.
5. *Serolis* (*S.*) *schythei*
6. *Dynamenella acuticauda*
7. *Exosphaeroma gigas*
8. *Edotea dahli* n. sp.
9. *Dynamenella eatoni*
10. *Munna* (*U.*) *nana* f. "a"
11. *Exosphaeroma lanceolata*
12. *Aega magnifica*
13. *Paradynamenopsis lundae*, dwarfs
14. *Amphoroidea typa*
15. *Isocladus calcarea*
16. *Pleurosignum magnum*

Not one species is a member of all of the Chilean regions.

Cold temperate fauna: All of the above sixteen species are members of the cold temperate fauna. In addition to them, twenty-eight are found only here. These are:

1. *Cirolana urostylis* n. sp.
2. *Aega semicarinata*
3. *Tridentella laevicephalax* n. sp.
4. *Janthopsis laevis* n. sp.
5. *Paramunna simplex* n. sp.
6. *Austrosignum grande*
7. *Austrosignum latifrons* n. sp.
8. *Antias laevifrons*, n.sp.
9. *Antias mawsoni*
10. *Jaeropsis intermedius*
11. *Macrochiridothea stebbingi*
12. *Cirolana robusta* n.sp.
13. *Isocladus sp.*
14. *Munna* (*U.*) *schauinslandi*
15. *Cirolana concinna*
16. *Cirolana chilensis* n. sp.
17. *Munna* (*U.*) *nana* f. *typica*
18. *Lironeca raynaudi*
19. *Cirolana albinota*
20. *Gnathia vanhöffeni* n. sp.
21. *Serolis* (*S.*) *plana*
22. *Antias dimorphis* n. sp.
23. *Macrochiridothea setifer* n. sp.
24. *Ianiropsis perplexus* n. sp.
25. *Edotea transversa*
26. *Limnoria* (*P.*) *chilensis*, n.sp.
27. *Excirolana hirsutieauda*, n.sp.
28. *Chaetilia paucideus*, n. sp.

Warm temperate fauna ("*Peruvian*"): Only two species are found restricted to the warm temperate region. These species are *Cleantis chilensis* and *Ianiropsis tridens*. Nine species are found there additionally, and they are:

1. *Exosphaeroma lanceolata*
2. *Paradynamenopsis lundae*, n. sp.
3. *Munna* (*U.*) *nana forma* ("a.") *n. var.*
4. *Amphoroidea typa*
5. *Neojaera elongatus* n. sp.
6. *Cymodocella foveolata* n. sp.
7. *Jaeropsis bidens* n. sp.
8. *Dynamenella tuberculata* n. sp.
9. *Dynamenopsis bakeri* n. sp.

Juan Fernandez Islands: Only one species, *Ægа semicarinata*, a fish parasite, is common to Chile and the Juan Fernandez Islands. The species, like the genera, show scarcely any affinity with the Fernandez Islands fauna.

About 10 species were not included in the above enumerations due to the fact that the data regarding them was too scanty to permit a discussion of their distribution.

Ecology

The Chilean coast-line affords a variety of habitats. The majority of the intertidal species were collected from exposed rocky beach, fewer were collected from exposed sandbeach locations. Fewer intertidal species were collected from sheltered rocky beach localities and still fewer from sheltered sandy beach stations. The Chilean intertidal marine fauna is composed in the main of species inhabiting the exposed wave-swept rocky beaches.

Exposed rocky beach: The marine isopods inhabiting the exposed rock beaches of Chile amount to 37, or over half of all species collected. These are:

1. *Amphoridea typa*
2. *Antias dimorphis* n. sp.
3. *Antias laevifrons* n. sp.
4. *Antias mawsoni*
5. *Austrogisnum globifrons* n. sp.
6. *Cassidinopsis emarginata*
7. *Cirolana robusta* n. sp.
8. *Cymodocella foveolata* n. sp.
9. *Dynamenella eatoni*
10. *Dynamenella acuticauda* n. sp.
11. *Dynamenella tuberculata* n. sp.
12. *Dynamenopsis bakeri* n. sp.
13. *Euvallentinia darwini*
14. *Exosphaeroma gigas*
15. *Exosphaeroma lanceolata*
16. *Exosphaeroma studeri*
17. *Iais pubescens*
18. *Iathrippa chilensis* n. sp.
19. *Iathrippa longicauda*
20. *Iathrippa multidens* n. sp.
21. *Ianiropsis chilensis* n. sp.
22. *Ianiropsis tridens*
23. *Ianiropsis perplexus* n. sp.
24. *Isocladus calcarea*
25. *Jaeropsis bidens* n. sp.
26. *Limnoria* (*P.*) *chilensis* n. sp.
27. *Munna* (*M.*) *chilensis* n. sp.
28. *Munna* (*M.*) *lundae* n. sp.
29. *Munna* (*U.*) *nana* f. "a"
30. *Neastacilla magellanica*
31. *Neojaera elongatus* n. sp.
32. *Paradynamenopsis lundae*, dwarf n. sp.
33. *Paradynamenopsis lundae*, giants n. sp.
34. *Pleurosignum chilense* n. sp.
35. *Paramunna kerguelensis* n. sp.
36. *Paramunna subtriangulata*
37. *Excirolana hirsuticauda*, n. sp.

Sheltered rocky beach. Four of the species found at exposed rocky beach localities are also found at the sheltered rocky beach localities these are:

1. *Dynamenella tuberculata* n. sp.
2. *Dynamenopsis bakeri* n. sp.
3. *Cirolana concinna*
4. *Paradynamenopsis lundae*, giants n. sp.
5. *Isocladus calcarea*

Additionally one species was found only at the sheltered rocky beach localities. This was *Munna (U.) schauinslandi*

Exposed sand beach: The species found at the sandy beaches of exposed locations are five in number:

1. *Macrochirodothea michaelseni*
2. *Isoladus calcarea*
3. *Edotea dahli*
4. *Exosphaeroma lanceolata*
5. *Excirolana hirsuticauda* n. sp.

Protected sand beach: The species *Chaetilia paucidens, Excirolana hirsuticauda* and *Cirolana concinna* were the only ones found at this habitat.

Depth distribution: Twenty-three species were found at depths below the intertidal and were never captured from the intertidal.

0—10 meters: Here were seven species, *Euvallentinia darwini* and *Antias mawsoni, Isocladus calcarea, Exosphaeroma lanceolata, Amphoridea typa, Ianiropsis chilensis, Munna nana f.* ("a").

10—20 meters: Five species were found in this depth range. They are: *Aega magnifica, Cleantis chilensis, Gnathia vanhöffeni, Cirolana chilensis,* and *Serolis schythei.*

20—40 meters: Sixteen species were found between this depth range. They are:

1. *Aega semicarinata*
2. *Austrosignum grande*
3. *Antias mawsoni*
4. *Cirolana chilensis*
5. *Cirolana urostylis*
6. *Gnathia vanhöffeni*
7. *Ianiropsis chilensis*
8. *Iathrippa chilensis*
9. *Macrochiridothea setifer*
10. *Macrochiridothea stebbingi*
11. *Pleurosignum magnum*
12. *Serolis plana*
13. *Tridentella laevicephalax*
14. *Isocladus sp.*
15. *Aega magnifica*
16. *Edotea dahli*

40—80 meters: Nine species were found between these depths: *Aega magnifica, Pleurosignum magnum, Cirolana chilensis, Gnathia vanhöffeni, Janthopsis laevis, Edotea dahli, Pleurosignum chilense, Iathrippa chilensis,* and *Serolis schythei.*

80—100 meters: Nine species were found here, *Austrosignum latifrons, Cirolana albinota, Janthopsis laevis, Jaeropsis intermedius, Edotea dahli, Edotea transversa, Munna (U.) nana f. typica, Paramunna simplex,* and *Iathrippa chilensis.*

Below 100 m: Two species were found below 100 meters. These were *Iathrippa chilensis,* and *Jaeropsis bidens.*

Eurybathyal species. Ten intertidal species also were found at significant subtidal depths. These were:

1. *Amphoroidea typa* to 6 m.
2. *Antias mawsoni* to 40 m
3. *Edotea dahli* to 60 m
4. *Exosphaeroma lanceolata* to 5 m
5. *Ianiropsis chilensis* to 40 m
6. *Iathrippa chilensis* to 300 m
7. *Isocladus calcarea* to 6 m
8. *Jaeropsis bidens* to 300 m
9. *Munna* (*U.*) *nana f.* ("a") to 8 m
10. *Pleurosignum chilense* to 70 m

Subtidal eurybathyal species include:

1. *Cirolana chilensis* 12—60 m
2. *Gnathia vanhöffeni* 20—225 m
3. *Janthopsis laevis* 50—100 m
4. *Pleurosignum magnum* 20—45 m
5. *Serolis schythei* 15—70 m

The eurybathyal species are of interest because of the possibility that they might show submergence coincident with their geographic separation. This appears to be the case for three species, namely, *Ianiropsis chilensis*, *Iathrippa chilensis*, and *Pleurosignum chilense*.

Brackish water species. One species, *Munna* (*U.*) *schauinslandi* was taken from water which was quite brackish. The genus *Notidotea* which was not in the collections of L.U.C.E. is reported to be euryhaline in Chile and, like *Munna* (*U.*) *schauinslandi*, is also known from New Zealand and the Chatham Islands as well, in similar habitat.

List of stations at which marine Isopoda were collected by the Lund University Chile Expedition

Cf. Brattström & Dahl (1951) 1952.

St. M 3. Seno Reloncaví, Canal Tenglo, Isla Tenglo, northern shore, opposite Puerto Montt harbour, 41°29′15″ S, 72°57′50″ W; tidal belt, very sheltered; sand and gravel with mud and small stones; hand sampling; macro- and micro-fauna samples from stones, algae and mud; November 29, 1948. *Cirolana concinna, Isocladus calcarea, Paradynamenopsis lundae.*

St. M 6. Canal Chacao, Bahía de Ancud, Playa Brava, between Punta San Antonio and Punta Colorada, 41°51′35″ S, 73°49′20″ W; tidal belt, extremely exposed; rocks and boulders; hand sampling; November 16 and 19, 1948 and February 2, 1949. *Iais pubescens, Isocladus calcarea, Exosphaeroma lanceolata.*

St. M 7. Canal Chacao, Golfo de Quetalmahué, SW of Punta Rangui, 41°50′40″ S, 73°57′10″ W; depth 2—5 m; wooden frames with concrete for oyster cultures; hand sampling; November 17, 1948. *Isocladus calcarea, Exosphaeroma lanceolata.*

St. M 8. Canal Chacao, Golfo de Quetalmahué, Isla Pullinque, N of Punta Rangui, 41°50′12″ S, 73°56′57″ W; tidal belt, sheltered, rocks, hand sampling; November 17, 1948. *Isocladus calcarea.*

St. M 9. Canal Chacao, Bahía de Ancud, Península Lacui, Punta Ahui, southern shore, 41°49′54″ S, 73°51′46″ W; tidal belt, rather exposed; rocks, boulders and stones; hand sampling; November 17, 1948; samples from under stones. *Isocladus calcarea*; *Exosphaeroma lanceolata*; Micro-fauna samples from algae. *Paradynamenopsis lundae.*

St. M 10. Canal Chacao, Bahía de Ancud, Punta El Morro, 41°52′42″ S, 73°50′46″ W; tidal belt, very exposed; rocks and stones; hand sampling; micro-fauna samples from algae and under stones; November 18, 1948 and March 2, 1949. *Exosphaeroma lanceolata, Isocladus calcarea, Paradynamenopsis lundae.*

St. M 11. Canal Chacao, Bahía de Ancud, Lechagua, 41°53′03″ S, 73°51′18″ W; tidal belt, very exposed; sand beach with rather fine sand; hand sampling; November 18, 1948. *Isocladus calcarea, Exosphaeroma lanceolata.*

St. M 13. Seno Reloncaví, Canal Tenglo, between Isla Tenglo ("Quinta Hoffman") and Angelmó (ship-yard "Immar"), 41°29′16″ S, 72°58′10″ W; depth 0—6 m, very sheltered; stones, gravel and sand with mud; brood trawl; November 30, 1948. *Isocladus calcarea, Amphoroidea typa.*

St. M 14. Seno Reloncaví, the bay off Puerto Montt, between Isla Tenglo and Punta Pilluco, 41°30′05″ S, 72°56′22″ W; depth 225 m; small stones and boulders in fine sand; Agassiz trawl; position and depth somewhat uncertain; December 1, 1948. *Iathrippa chilensis, Gnathia vanhöffeni.*

St. M 16. Seno Reloncaví, Piedra Azul, NW of Punta Quillaipe, 41°31′30″ S, 72°48′15″ W (the position indicates the centre of the trawling area); depth, 40—55 m; sand and small stones; December 4, 1948. *Lironeca raynaudi.* — Depth 30 m; hard, grey, coarse sand; circular dredge, Agassiz trawl and Van Veen grab; December 14, 1948. *Cirolana chilensis.*

St. M 20. Golfo de Ancud, northern part, Estero Huito, central part, 41°43′50″ S, 73°10′15″ W;

depth 15 m; very fine sand mixed with mud; triangular dredge, circular dredge, Agassiz trawl; December 15, 1948. *Aega magnifica, Cirolana chilensis.*

St. M 21. Golfo de Ancud, northern part, Canal Calbuco, between Punta Meimen and Punta Pinto, 41°48′50″ S, 73°09′40″ W; depth 25 m; small stones; triangular dredge and Agassiz trawl; December 15, 1948. *Edotea dahli, Aega magnifica.*

St. M 22. Golfo de Ancud, northern part, Isla Quenu, Punta Pinto, western side, 41°49′15″ S, 73°10′15″ W; tidal belt, rather exposed; boulders and stones in sand; hand sampling; December 16, 1948 and May 11, 1949. *Isocladus calcarea, Paradynamenopsis lundae.*

St. M 23. Golfo de Ancud, northern part, Isla Quenu, Punta Pinto, northern side, 41°49′10″ S, 73°10′ W; tidal belt, rather sheltered; boulders and stones in sand; hand sampling; December 16, 1948. *Isocladus calcarea.*

St. M 24. Seno Reloncaví, S of Isla Guar, W of Bajo Pucarí, 41°44′25″ S, 72°55′45″ W; about 70 m; sand with shells; Agassiz trawl; December 16, 1948. *Iathrippa chilensis, Serolis (S.) schythei.*

St. M 27. Golfo de Ancud, northern part, between Isla Quenu and Isla Chidguapi, 41°49′40″ S, 73°08′ W; depth 45 m; coarse sand with shells; triangular dredge and Agassiz trawl; May 3, 1949. *Edotea dahli, Aega magnifica, Gnathia vanhöffeni.*

St. M 29. Seno Reloncaví, Estero Reloncaví, inner part. Bahía Ralún, E of Punta Dirección; 41°24′30″ S, 72°19′45″ W; depth 35—40 m; very fine, clay-like sand; triangular dredge, rectangular dredge and Agassiz trawl; January 4, 1949. *Cirolana chilensis.*

St. M 30. Seno Reloncaví, Estero Reloncaví, inner part. Bahía Ralún, Banco Petrohué, 41°24′ S, 72°19′20″ W; tidal belt, very sheltered, old tree trunks with barnacles; hand sampling; January 5, 1949. *Munna (U.) schauinslandi.*

St. M 33. Canal Chacao, Bahía de Ancud, Punta San Antonio, 41°51′33″ S, 73°50′14″ W; tidal belt, extremely exposed; rocks; hand sampling; micro-fauna sample from algae; January 3, 1949. *Exosphaeroma lanceolata, Paradynamenopsis lundae.*

St. M 37. Seno Reloncaví, Punta Pilluco, 41°30′06″ S, 72°53′57″ W; tidal belt, rather exposed; boulders in sand, some beds of hard clay; hand sampling; micro-fauna samples from algae; March, 1949. *Isocladus calcarea, Paradynamenopsis lundae.*

St. M 39. Seno Reloncaví, the bay E of the church on Isla Quellín, 41°52′30″ S, 72°53′50″ W; depth 25 m; bottom unknown; dip net; January 22, 1949. *Cirolana chilensis.*

St. M 40. Seno Reloncaví, N. of Isla Quellín, 41′50′ S, 72°55′ W; depth 100 m; small stones, probably on hard sand; triangular dredge, Agassiz trawl; January 23, 1949. *Munna (U.) nana, Paramunna simplex. Austrosignum latifrons, Jaeropsis intermedius, Iathrippa chilensis, Janthopsis laevis, Edotea dahli, Edotea transversa.*

St. M 41. Golfo de Ancud, eastern and southern part, ESE of Isla Tac, 42°26′40″ S, 72°59′ W; depth 250—300 m; sand and clay with small stones and shells; triangular dredge; January 23, 1949. *Jaeropsis bidens, Iathrippa chilensis.*

St. M 42. Golfo de Ancud, western part, Paso Tenaun, S of Punta Tenaun, 42°20′50″ S, 73°22′ W; about 50 m depth; hard bottom; triangular dredge; micro-fauna samples from algae and Spongiae; January 24, 1949. *Pleurosignum chilense, Iathrippa chilensis, Janthopsis laevis, Gnathia vanhöffeni.*

St. M 43. Golfo de Ancud, western part, between Quemchi and Isla Caucauhué, W of Punta Quelar, 40°08′20″ S, 73°28′20″ W, 30—40 m depth; coarse sand, small stones, and a few boulders; triangular dredge; January 24, 1949. *Gnathia vanhöffeni.*

St. M 47. Seno Reloncaví, Paso Maillén, between Punta Panitao and Punta Puchegui, 41°33′45″ S, 73°02′05″ W; depth about 22 m; coarse sand with *Chaetopterus* tubes, small stones with calcareous algae; triangular dredge; micro-fauna samples; January 25, 1949. *Iathrippa chilensis, Ianiropsis chilensis.*

St. M 49. Seno Reloncaví, Isla Guar, bay on the western side, 41°40′55″ S, 73° W; tidal belt, rather sheltered; stones, shell-sand; hand sampling; micro-fauna samples from sand and algae; February 6, 1949. *Munna (U.) schauinslandi.*

St. M 52. Islas Guaitecas, Puerto Melinka, 43°53′45″ S, 73°44′30″ W; tidal belt, rather exposed; rocks, stones and sand; hand sampling; February 14, 1949. *Antias dimorphis, Limnoria (P.) chilensis.*

St. M 55. Canal Chacao, Bahía de Ancud, between Punta San Antonio and Punta Colorada, 41°51′30″ S, 73°49′40″ W; tidal belt, extremely exposed; rocks with rock pools; hand sampling; January 25—27, 1949 and March 7, 1949. *Dynamenella eatoni, Isocladus calcarea.*

St. M 56. Canal Chacao, Península Laqui, Punta Corona, norheastern point, 40°47′ S, 73° 53′07″ W; tidal belt, extremely exposed; flat rocks with small holes and very shallow rock pools; hand sampling; February 26, 28, 1949. *Jaeropsis bidens, Isocladus calcarea, Exosphaeroma lanceolata, Dynamenella eatoni, Dynamenella tuberculata, Dynamenella acuticauda, Cymodocella foveolata, Amphoroidea typa, Dynamenopsis bakeri.*

St. M 57. Canal Chacao, Bahía de Ancud, Península Lacui, Punta Ahui, 41°49′51″ S, 73° 51′46″ W; tidal belt, very exposed; rocks with rock pools; hand sampling; March 1, 1949. *Dynamenella eatoni, Amphoroidea typa.*

St. M 59. Seno Reloncaví, Canal Tenglo, Isla Tenglo, western point, 41°30′45″ S, 73°00′13″ W; tidal belt, rather exposed; upper part with beds of hard clay, lower parts with boulders and stones in mud; hand sampling; March 13—14, 1949. *Paradynamenopsis lundae.*

St. M 60. Seno Reloncaví, Isla Tenglo, the bay on the south side, 41°30′15″ S, 72°58′50″ W; tidal belt, rather exposed; sand; hand sampling; macro- and micro-fauna samples; March 25, 29, 1949. *Cirolana concinna, Excirolana hirsuticauda, Isocladus calcarea.*

St. M 64. Golfo Corcovado, lightbuoy Vettor Pisani, 42°46′20″ S, 73°28′ W; depth 0—10 m; very exposed; buoy and accumulator, cable and anchor; hand sampling; had been at its station for one year after last cleaning and painting; February 17, 1949. *Ianiropsis chilensis.*

St. M 69. Boca (Paso) del Guafo, Isla Guafo, Punta Weather, 43°33′30″ S, 74°49′30″ W; tidal belt, extremely exposed; rocks; hand sampling; February 19, 1949. *Dynamenella acuticauda.*

St. M 70. Boca (Paso) del Guafo, Isla Guafo, the anchorage E of Punta weather, 43°33′ S, 74°49′ W; depth 25 m; rather coarse sand with some stones; circular dredge; February 19, 1949. *Macrochirodothea setifer, Serolis (S.) plana, Cirolana urostylis.*

St. M 71. Archipiélago do los Chonos, Canal Moraleda, Cayo Blanco, 44°48′20″ S, 73°35′ W; tidal belt, very exposed; steep rocks; hand sampling; micro-fauna samples; February 21, 1949. *Dynamenella eatoni.*

St. M 72. Archipiélago do los Chonos, Canal Moraleda, El Morro, 45°07′40″ S, 73°40′40″ W; tidal belt, exposed; steep rocks with rock pools; hand sampling; February 21, 1949. *Iais pubescens, Dynamenella eatoni, Paradynamenopsis lundae.*

St. M 73. Archipiélago de los Chonos, Canal Errázuriz, "Islote Elena", (Faro Islote Diego), 45°39′20″ S, 73°52′ W; tidal belt, rather exposed; rather steep rocks; hand sampling; micro-fauna samples; February 22, 1949. *Paradynamenopsis lundae.* — Depth 3—5 m; small stones, sand and gravel, some detritus; circular dredge; micro-fauna samples; February 22, 1949. *Isocladus calcarea.*

St. M 74. Archipiélago de los Chonos, Canal Moraleda, Puerto Lagunas, 45°17′ S, 73°45′ W; depth 5—7 m; stones with algae and Mytilidae; hand sampling with diver; February 22, 1949. *Amphoroidea typa.*

St. M 75. Archipiélago de los Chonos, Canal Moraleda, Peñon Blanco, 44°24′ S, 73°34′ W; tidal belt, very exposed; rather steep rocks with rock pools; hand sampling; February 24, 1949. *Munna (U.) nana, Antias laevifrons, Janiropsis perplexus, Dynamenella eatoni, Paradynamenopsis lundae.*

St. M 77. Archipiélago de los Chonos, Canal Moraleda, Islotes Locos, 43°59′20″ S, 73°27′ W; tidal belt, extremely exposed; rocks; hand sampling, micro-fauna samples; February 25, 1949. *Ianiropsis perplexus.*

St. M 78. Archipiélago de los Chonos, Canal Perez Norte, Roca Negra, 44°07′ S, 73°47′ W; tidal belt, very exposed; rocks with rock pools; hand sampling; micro-fauna samples from algae; February 26, 1949. *Cymodocella foveloata.*

St. M 82. Seno Reloncaví, Estero Reloncaví, central part. Bahía Sotomó, 41°38′30″ S, 72° 22′47″ W; tidal belt, rather sheltered; rocks; hand sampling; March 31, 1949. *Paradynamenopsis lundae.*

St. M 86. Seno Reloncaví, Estero Reloncaví. Inner part. W of Relonhué, 41°28′40″ S, 72° 19′25″ W; depth 100 m; sand with a little mud and some stones; triangular dredge; March 31, 1949. *Cirolana albinota.*

St. M 88. Seno Reloncaví, Estero Reloncaví. Inner part. Bahía Ralún, between Cayo Nahuelgúapi and Punta Veriles, 41°24′30″ S, 72°18′58″ W; depth 12 m; coarse sand, tree trunks and leaves from terrestrial plants; circular dredge; April 1, 1949. *Cirolana chilensis.*

St. M 91. Seno Reloncaví, Ensenada de Guatral, SW of Punta Guatral, 41°43′ S, 73°03′15″ W; tidal belt, rather sheltered; boulders and stones on sand; hand sampling; April 13, 1949. *Isocladus calcarea, Paradynamenopsis lundae.*

St. M 94. Canal Chacao, W of Rocas Amazonas, 41°46′30″ S, 73°45′45″ W; depth 40 m; small stones; triangular dredge, rectangular dredge; May 4, 1949. *Antias mawsoni, Janiropsis chilensis, Isocladus* sp.

St. M 95. Canal Chacao, Golfo de Quetalmahué, SW of Punta Aucan, 41°51′ S, 73°57′10″ W; depth 6—7 m; muddy sand covered with dead algae; shells; triangular and rectangular dredge; May 4, 1949. *Ianiropsis chilensis.*

St. M 98. Canal Chacao, Bahía de Ancud, SE of Punta Ahui, 41°50′10″ S, 73°51′20″ W; depth 8 m; small stones with algae; triangular and rectangular dredge; May 5, 1949. *Munna (U.) nana, Antias mawsoni, Ianiropsis chilensis.*

St. M 104. Golfo de Ancud, northern part, SE of Punta Tres Cruzes, NE of Punta Piedras, 41°50′30″ S, 73°28′30″ W; depth 50—60 m; stones and clinkers; triangular dredge; May 5, 1949. *Edotea dahli.*

St. M 107. Golfo de Ancud, northern part, N of Punta Barranco at Isla Abtao, 41°47′18″ S, 73°20′55″ W; depth 60 m; coarse sand with mud and some dead algae; triangular dredge and Agassiz trawl; May 5, 1949. *Cirolana chilensis.*

St. M 108. Golfo de Ancud, northern part, Canal San Antonio, inner part, 41°44′10″ S, 73°15′15″ W; depth 15 m; coarse shell and dead algae; triangular dredge; May 6, 1949. *Serolis (S.) schythei.*

St. M 110. Golfo de Ancud, northern part, SE of Bajo Corvio, 41°50′45″ S, 73°12′10″ W; depth 24 m; stones with calcareous algae; triangular dredge; May 6, 1949. *Aega semicarinata, Tridentella laevicephalax.*

St. M 112. Estrecho de Magallanes, Punta Arenas, N of the town Punta Arenas, 53°08′ S, 70°51′ W; tidal belt, exposed (shelter kelp); sand; hand sampling; micro-fauna samples; May 1, 1949. *Edotea dahli, Macrochiridothea michaelseni, Exosphaeroma lanceolata.*

St. M 113. Estrecho de Magallanes, Punta Santa María, near Agua Fresca, 53°22′ S, 70°57′ W; tidal belt, exposed, (shelter, kelp); sand, gravel, and muddy clay, covered with boulders, hand sampling; May 2, 1949. *Iais pubescens, Exosphaeroma gigas, Dynamenella eatoni.*

St. M 114. Estrecho de Magallanes, Punta Santa María, near Agua Fresca, 53°22′ S, 70°57′ W; holdfasts of kelp, thrown up on the shore during gale; May 2, 1949. *Iathrippa chilensis, Euvallentinia darwinii.*

St. M 115. Estrecho de Magallanes, near the estuary of Río los Ciervos, S of Punta Arenas, 53°11′ S, 70°55′ W; tidal belt, exposed (shelter; kelp); gravel and clay, mixed with mud and covered with boulders; hand sampling; May 3, 1949. *Munna (M.) chilensis, Munna (M.) lundae, Munna (U.) nana, Paramunna subtriangulata, Paramunna kerguelensis, Austrosignum globifrons, Pleurosignum chilense, Antias mawsoni, Iathrippa chilensis, Iathrippa multidens, Iais pubescens, Ianiropsis chilensis, Neastacilla magellanica, Exosphaeroma studeri, Exosphaeroma gigas, Dynamenella acuticauda, Cassidinopsis emarginata.*

St. M 120. Bahía San Vicente, the Ramuntcho bay, SE of Punta Gualpén, 36°44′54″ S, 73°11′02″ W; tidal belt, exposed; hard rocks and boulders. Between the lower boulders coarse

sand; hand sampling; June 8, 1949. *Cirolana robusta, Exosphaeroma gigas, Dynamenella eatoni, Amphoroidea typa, Paradynamenopsis lundae.*

St. M 121. Bahía San Vicente, Punta Liles just W of San Vicente, 36°43′36″ S, 73°08′10″ W; tidal belt, rather exposed; rocks with small rock pools; boulders; June 9, 1949. *Paradynamenopsis lundae.* — Micro-fauna samples from algae. *Limnoria (P.) chilensis.*

St. M 122. Golfo de Arauco, Bahía de Lota, small promontories SE of Punta Fuerto Viejo, 37°06′17″ S, 73°09′15″ W; tidal belt, extremely exposed; hard rocks and boulders in coarse sand; hand sampling; June 10, 1949. *Dynamenella eatoni, Amphoroidea typa.* — Micro-fauna samples from algae; June 10, 1949. *Paradynamenopsis lundae.*

St. M 123. Montemar (N of Valparaíso), Estación de biología marina, 32°57′24″ S, 71°33′25″ W; tidal belt, exposure varying in different parts of the station; rocks with rock pools; hand sampling; September 17, 19, 21, 1948; October 5, 14, 15, 16, 1948; June 15, 1949. *Antias mawsoni, Antias laevifrons, Jaeropsis bidens, Neojaera elongatus, Edotea dahli, Isocladus calcarea, Dynamenella tuberculata, Cymodocella foevolata, Amphoroidea typa, Paradynamenopsis lundae.* — Micro-fauna samples from algae; September 15, October 17, 1948; December 14—16, 1948. *Munna (U.) nana, Antias laevifrons, Cymodocella foevolata, Dynamenella eatoni.*

St. M 124. Bahía Herradura de Guayacán, northern part, SW of the factory "Melon", W of Guayacán, 29°57′55″ S, 71°22′17″ W; tidal belt, rather sheltered; hard rocks; hand sampling; June 21, 1949. *Dynamenella tuberculata, Dynamenopsis bakeri, Paradynamenopsis lundae.*

St. M 127. Península Coquimbo, headland S of Roca Pelícanos, N of Coquimbo ("Fuerte"), 29°55′56″ S, 71°22′08″ W; tidal belt, very exposed; yellow rocks; hand sampling; June 24, 1949. *Dynamenella tuberculata, Amphoroidea typa, Dynamenopsis bakeri, Paradynamenopsis lundae.* — Micro-fauna sample from algae; June 24, 1949. *Jaeropsis bidens.*

St. M 131. Iquique, southern part of the town, 20°13′10″ S, 70°10′19″ W; tidal belt, extremely exposed; red rocks with rock pools; hand sampling; July 1, 4, 6, 1949. *Ianiropsis tridens, Dynamenopsis bakeri.* — Micro-fauna sample from algae; July 4, 1949. *Munna (U.) nana* (var. "a"), *Jaeropsis bidens, Neojaera elongatus, Ianiropsis tridens, Cymodocella foveolata.*

St. M 133. Iquique, the harbour, 20°12′30″ S, 70°10′19″ W; tidal belt, very sheltered; rocks and boulders; hand sampling; July 2, 1949. *Dynamenopsis bakeri.*

St. M 134. Punta Negra, N of Iquique, 20°11′13″ S, 70°09′15″ W; tidal belt, extremely exposed; sand beach; hand sampling, July 3, 1949. *Exosphaeroma lanceolata.*

St. M 135. Cavancha, S of Iquique, 20°14′07″ S, 70°10′05″ W; tidal belt, exposure varying in different parts of the station; rocks with rock pools; hand sampling; July 5, 1949. *Jaeropsis bidens, Neojaera elongatus, Dynamenopsis bakeri.*

St. M 142. Seno Reloncaví, the bay off Puerto Montt, E of Isla Tenglo, 41°30′15″ S, 72° 57′50″ W; depth abt. 35 m; coarse sand; triangular dredge; July 14, 1949. *Austrosignum grande.*

St. M 145. Seno Reloncaví, Bahía Chincuí, 41°32′ S, 73°01′30 W; depth 70—80 m; fine, soft, grey sand with small stones; triangular dredge and Agassiz trawl; July 16, 1949. *Gnathia vanhöffeni.*

St. M 147. Seno Reloncaví, S of Punta San Pedro at Isla Maillén, 41°35′40″ S, 72°58′15″ W; depth 40—45 m; coarse sand; triangular dredge; July 16, 1949. *Pleurosignum magnum.*

St. M 148. Seno Reloncaví, S of Punta San Pedro at Isla Maillén 41°35′35″ S, 72°58′20″ W; depth 20—25 m; coarse sand; triangular dredge; July 16, 1948. *Pleurosignum magnum, Macrochiridothea stebbingi, Gnathia vanhöffeni.*

St. M 152. Montemar (N of Valparaíso), "Estación de biología marina", 32°57′24″ S, 71°33′ 25″ W (position not exact); tidal belt, rather sheltered; small sand beach with rather fine sand; hand sampling; September 14, 15, 16 and 25, 1948; *Chaetilia paucidens, Excirolana hirsuticauda.*

St. M 153. Bahía San Vicente, the Ramuntcho bay, SE of Punta Gualpén, 36°44′58″ S, 73°11′02″ W; tidal belt, exposed; sand beach with coarse sand; hand sampling; June 8, 1949. *Excirolana hirsuticauda.*

St. M 156. Tocopilla, off the power plant S of the town, 22°05′ S, 70°13′ W (position not exact); depth about 13 m; hard bottom; triangular dredge; January 5, 1949. *Cleantis chilensis.*

St. M 158. Tocopilla, at the rubbish dumps, 22°05′ S, 70°13′ W (position not exact); tidal belt, extremely exposed; rocks and boulders, hand sampling; January 5, 8, 1949. *Dynamenopsis bakeri.*

St. M 159. The Antofagasta area, Antofagasta, at the cold storage plant, 23°39′ S, 70°25′ W (position not exact); tidal belt, extremely exposed; rocks; January 3, 1949. *Dynamenopsis bakeri.*

Golfo de Ancud, Punta Chulao. From the dorsal side of a fish called "congrio colorado", about 1 m long, 10 kg. Depth about 180 m; March 8, 1949. *Lironeca raynaudi.*

Golfo de Ancud, S of Isla Quellin. From skates. July 1949. *Aega magnifica, Aega semicarinata.*

Systematics

In the general features of classification I am following, with modification, the scheme proposed by MONOD (1922). MONOD (op. cit.) recognized the necessity of separating the tanaids from the isopods and made the further important change of separating the gnathiids (=Decempedes) from the remainder of the isopods which he calls the Quatuordecempedes but which might just as well be called the Tetracera, a name used by LATREILLE in 1804 for similar isopods. His separation of the anthurids from the isopods is not followed. These are instead made one of the Subtribes of the Flabellifera, the Anthuridea. In Table 4 is shown the classification as proposed by several different students. In the first column is shown the classification used in this study. When the remainder of the Chilean isopods are studied it may be necessary to further modify the scheme. For the moment it is considered only a convenient classification and is not intended to imply particular morphologic or especially phylogenetic relationships.

A key to the major divisions of the Isopoda

1. Adults with five pairs of peraeopods ..... Suborder Gnathiidea
1. Adults with seven pairs of peraeopods ..... Suborder Tetracera or Quatuordecempedes 2
2. Entirely parasitic on Crustacea ..... Tribe 4. Epicaridea
2. Not parasitic on Crustacea, free living, or parasitic on fish 3
3. Uropods lateral or ventral 4
3. Uropods terminal 5
4. Uropods lateral 6
4. Uropods ventral, hinged ventrolaterally to pleotelson to form opercular plates covering pleopods ..... Tribe 2. Valvifera*, **
5. Aquatic, pleon consisting of less than six somites ..... Tribe 1. Asellota**
5. Terrestrial, pleon usually consisting of six somites. ..... Tribe 5. Oniscoidea
6. Aquatic, uropods flattened and with pleotelson form a caudal fan ..... Tribe 3. Flabellifera**
6. Terrestrial, uropods, laterally compressed ..... Tribe 6. Phreatoicidea

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* Tylidae of Oniscoidea have opercular plates similar to those of Valvifera but are terrestrial, not aquatic.

** Considered in the report.

Table 4. CLASSIFICATION OF THE ISOPODA

Proposed Scheme	Richardson 1905	Gerstaecker 1882	Nierstrasz and Stekhoven 1930	Monod 1922
Order: Chelifera	Order I. Chelifera	Order I. Tanaids	Order: Anisopoda	Order: Tanaidacea
Order: Isopoda	No equivalent Richardson incl. the Chelifera as the first order of the Isopoda	Order II. Isopoda	Order: Isopoda Genuina	Order: Euisopoda Kossman, 1880
Subord: Gnathiidea	in Flabellifera (see below)	Sect: I Anomala Anceidae-Gnathiidae	Subord: Gnathioida	Subord: Decempedes Gnathiidea
Subord: Tetracera Latreille 1804 or Suborder: Quatuordecempedes Monod		Sect. II. Genuina		Quatuordecempedes
Tribe 1. Asellota	Ord. 4. Asellota	Fam. 34. Asellina Munnopsidae	Subord: Asellota	Normalia Asellota
Tribe 2. Valvifera	Ord. 3. Valvifera	2. Serolidae 5. Idotheidae	Subord: Valvifera	Valvifera
Tribe 3. Flabellifera	Ord. 2. Flabellifera Incl: Gnathiidae	7. Sphaeromidae 8. Aegidae etc.	Subord: Flabellifera incl: Anthuridae	Flabellifera (excl: Anthuridae Gnathidae)
Subtr: Anthuridea	Anthuridae	Fam. 6. Anthuridae		Aberrantia Anthuridea
Subtr: Cirolanoidea. nom. nov.	Cirolanidae	9. Cymothoidae		
Tribe 4. Epicaridea	Ord. 5. Epicaridea	Fam. 11. Bopyridae 11. Cryptonisidae	Subord: Epicaridea	Normalia Epicaridea
Tribe 5. Oniscoidea	Ord. 6. Oniscoidea	Fam. 1. Oniscoidea	Subord: Oniscoidea	Oniscoidea
Tribe 6. Phreatoicidea	not considered	not considered	not considered	Gammariformes Phreatoicidea

Suborder Quatuordecempedes

TRIBE 1. ASELLOTA

The internal classification of the Asellota is in considerable disorder. Groups, subgroups, families, and super-families have been proposed by various workers. This has been done with little regard or complete misunderstanding of what had been proposed before. The situation is vastly complex and no single worker has yet been able to cover all of the Asellota and come up with a single functional scheme of classification. This is not the place for a general revision of the Asellota. Nonetheless, a system of classification has been derived from the works of HANSEN (1916), of NIERSTRASZ & STEKHOVEN (1930), NORDENSTAM (1933), and VANHÖFFEN (1914), and is considered with due regard to the general classification of the Isopoda used herein. The major divisions established by HANSEN (op. cit.) have been followed and about the only alteration has been to elevate the status of his Families to Subtribes and to consider his groups as Families.

A KEY TO THE SUBTRIBES OF THE TRIBE ASELLOTA

1. Male first pair of pleopods coupled along midline, consist of an elongate sympod, lacking rami.
   Second male pleopods coupled with first pairs.
   First pair of female pleopods lacking; second fused along midline to form a large operculum covering remaining pleopoda ..... Subtribe: *Paraselloidea**
1. Male first pair of pleopods consist of a short sympod and a short ramus, neither coupled with second pair. First pair of pleopods of female small, not covering completely the remaining pleopods 2
2. Sympods of male first pleopods free. First pair of pleopods of female with sympod and a single ramus ..... Subtribe: *Aselloidea*
2. Sympods of male first pleopods fused. First pair of pleopods of female fused to form a small operculum ..... Subtribe: *Stenetrioidea*

The Status of NORDENSTAM's Subfamilies

Four subgroups of the group Munnidae were established by NORDENSTAM (1933). These are Antiasini, Munnini, Dendrotiini and Pleurogoniinae. It will be noted from the following key that I have considered each of these as separate families. The genus *Antias* differs strongly from *Munna* in having pedunculate uropods and a narrow maxillipedal palp having the articles all of similar width; from *Pleurogonium* further in having a strongly developed mandibular molar process. *Pleurogonium* is widely separated from *Munna* in the structure of its mandibular molar process and in the epimeral or coxal plates which are strongly developed on most peraeonal somites; ocular peduncles are lacking. *Antias* and *Dendrotion* are separated from one

* Considered in this report.

another in the development of coxal plates and in the structure of the peraeopods. Each of these genera in my opinion differs enough from one another to establish it as the type of distinct families. NORDENSTAM's (1933) Jaeropsini is elevated to familial rank and I concur with NORDENSTAM about its uniqueness.

A key to the families of the tribe Asellota
Subtribe: Paraselloidea

1. None of the peraepods modified for swimming 5
1. Some of the peraeopods modified for swimming 2
2. All peraeopods except first pair modified for swimming, similar in structure *Desmosomidae*
2. Only peraeopods 5—6 or 7 inclusive paddle-like. Others simple walking legs or fossorial appendages 3
3. Only peraeopods 5—6 paddle-like, seventh a simple walking leg *Ilyarachnidae*
3. Peraeopods 5—7 inclusive paddle-like 4
4. Peraeopods 5—7 inclusive lack dactyls ..... *Munnopsidae*
4. Peraeopods 5—7 inclusive with dactyls ..... *Eurycopidae*
5. Claws lacking from peraeopods ..... *Macrostylidae*
5. Claws present on peraeopods 6
6. Uropoda lack peduncle 7
6. Uropoda with peduncle 8
7. Molar process of mandible normal, strong, truncated at denticulate grinding apex ..... *Munnidae**
7. Molar process of mandibles weak, pointed ..... *Pleurogonidae**
8. Fourth and fifth peraeonal somites elongated twice as long as wide ..... *Ischnosomidae*
8. All peraeonal somites similar in width, none twice as long as wide, most wider than long 9
9. Palp of maxilliped with narrow similar articles all less than one-half the width of endite 10
9. Palp of maxillipeds with last two articles narrow, others twice as wide at least and about equal width of endite 13
10. Molar process of mandible normal, strong, truncated at denticulate grinding apex 11
10. Molar process reduced, pointed, no grinding end present ..... *Jaeropsidae**
11. Dactyl of seventh peraeopod with one elongated terminal claw 12
11. Dactyl of seventh peraeopod with two short claws ..... *Antiasidae**
12. Coxal plates spiniform and well developed ..... *Dendrotidae*
12. Coxal plates lacking ..... *Haploniscidae*
13. Dactyls of peraeopods 2—7 inclusive with two principal claws and a smaller accessory claw ..... *Ianiridae**

* Considered in this report.

* Considered in this report (*Kuphomunna* BARNARD, belongs here to the Antiasidae).

13. Dactyls of peraeopods 2—7 inclusive with one or two terminal claws but never three 14
14. Molar process of mandible reduced to short setiferous tubercle *Nannoniscidae*
14. Molar process normal, expanded apically and truncated, grinding 15
15. Coxal plates present 16
15. Coxal plates absent ..... *Echinothambemidae*
16. Body not markedly elongated 17
16. Body length exceeds four times its width..... *Thambemidae*
17. Pleon with one somite ..... *Ianirellidae*
17. Pleon with two somites 18
18. Coxal plates spiniform ..... *Schistosomidae*
18. Coxal plates rounded ..... *Abyssianiridae*

A KEY TO THE CHILEAN MARINE ASELLOTA

1. Claws present on peraeopods. Uropoda lacking peduncle 2
1. Claws present on peraeopods. Uropoda with peduncle 13
2. Molar process of mandible normal, strong, truncated at grinding apex 3
2. Molar process weak, pointed 12
3. Coxal plates of peraeon visible in dorsal view 4
3. Coxal plates of peraeon not visible in dorsal view. Mandible with triarticulate palp. Peraeon lacks spines 10
4. Coxal plates visible in dorsal view on peraeonal somites 2—7 inclusive. Body without spines 5
4. Coxal plates visible in dorsal view only on peraeonal somites 5—7 inclusive 8
5. Uropodal ventral ramus rounded in X-section with spines at apex 6
5. Uropodal ventral ramus leaf-like, lacking spines 7
6. Cephalon frontal margin convex ..... *Munna* (*Munna*) *lundae* n.sp.
6. Cephalon frontal margin concave ..... *Munna* (*Munna*) *chilensis* n.sp.
7. Maxilliped with two coupling hooks ..... *Munna* (*Uromunna*) *nana* NORDENSTAM, var. *typica* and "a" n. vars.
7. Maxilliped with three coupling hooks ..... *Munna* (*Uromunna*) *schauinslandi* G. O. SARS
8. Postero-lateral borders of peraeonal somites 1—4 denticulate ..... *Austrosignum latifrons* n. sp.
8. Postero-lateral borders of peraeonal somites 1—4 entire, not denticulate ... 9
9. Eyes not on pronounced stalks ..... *Austrosignum globifrons* n. sp.
9. Eyes on pronounced stalks ..... *Austrosignum grande* HODGSON
10. Uropoda biramous 11
10. Uropoda uniramous ..... *Paramunna simplex* n. sp.
11. Lateral borders of pleotelson smooth ... *Paramunna subtriangulata* RICHARDSON
11. Lateral borders of pleotelson with spines *Paramunna kerguelensis* VANHÖFFEN
12. Lateral margin of pleotelson with spines and setae, apex pointed ..... *Pleurosignum magnum* VANHÖFFEN

12. Lateral margins of pleotelson lacking spines or setae .....
Pleurosignum chilense n. sp.
13. Molar process of mandible normal, strong, truncated as grinding apex 14
13. Molar process reduced, pointed, no grinding end present 18
14. Palp of maxilliped with narrow similar articles, all less than one-half the width of endite 16
14. Palp of maxilliped with last two articles much narrower than others 15
15. First three articles of maxillipedal palp less than one-half the width of endite
Janthopsis laevis n. sp.
15. First three articles of maxillipedal palp as wide as endite 20
16. Frontal border cephalon convex 17
16. Frontal border of cephalon concave ..... *Antias dimorphis* n. sp.
17. Pleotelson laterally with a few minute setae ..... *Antias laevifrons* n. sp.
17. Pleotelson laterally with two stout setae ..... *Antias mawsoni* HALE
18. Rostrum spear-point shaped. Lateral borders of pleotelson each with eight spines ..... *Jaeropsis intermedius* NORDENSTAM
18. Rostrum evenly convex 19
19. Each lateral border of pleotelson with two (male) three (female) spines .....
Jaeropsis bidens n. sp.
19. Lateral border of pleotelson incised but lacking spines
Jaeropsis curvicornis (NICOLET)
20. Male first pleopod with margins straight to apex which is bilobed 21
20. Male first pleopod with apex laterally expanded 22
21. Eyes with two facets, third pleopod lacking plumose setae .....
Iais pubescens (DANA)
21. Eyes with six facets, third pleopod with plumose setae .....
Neojaera elongatus n. sp.
22. Cephalon with pronounced rostrum 23
22. Cephalon without rostrum or with only a slight median lobe 25
23. Lateral borders of pleotelson lack stout setae *Iathrippa longicauda* (CHILTON)
23. Lateral borders of pleotelson with stout setae 24
24. Maxilliped with 3 coupling hooks. Each lateral border of pleotelson with 14—17 stout setae ..... *Iathrippa chilensis* n. sp.
24. Maxilliped with 5 coupling hooks. Each lateral border of pleotelson with 20—30 stout setae ..... *Iathrippa multidens* n. sp.
25. Lateral border of pleotelson denticulate ..... *Ianiropsis tridens* MENZIES
25. Lateral border of pleotelson not denticulate 26
26. Eyes red. Male first pleopods with lateral apex abruptly recurved .....
Ianiropsis perplexus n. sp.
26. Eyes black. Male first pleopods with lateral apex not abruptly recurved
Ianiropsis chilensis n. sp.

Family Munnidae

Type genus: Munna KRØYER, 1839.

Diagnosis: Molar process of mandible normal in structure, strongly developed with a truncated, denticulate grinding apex. Uropoda lack peduncle. All peraeopods bear at least one apical claw. The first pair of peraeopods is generally subchelate, the others being unmodified walking appendages. Second antenna usually has a small scale.

Composition: According to NORDENSTAM (1933) the Family contains six genera; *Munna* KRØYER, *Echinomunna* VANHÖFFEN, *Paramunna* G. O. SARS, *Austrosignum* HODGSON, *Notoxenus* HODGSON and *Coulmannia* HODGSON.

The validity of the genera *Echinomunna* VANHÖFFEN and *Notoxenus* HODGSON may be subject to serious question.

Whether the coxal plates, described for *Notoxenus* by HODGSON (1910), are visible in dorsal view or not is a matter for speculation. HODGSON (1910) does not say. NORDENSTAM (1933) indicates they are not visible in dorsal view. HODGSON's figures are too unreliable to discern from them.

There is no certainty as to the delimitation of coxal plates in VANHÖFFEN's (1914) *Echinomunna* although NORDENSTAM assumes they are as in *Munna*. However, because VANHÖFFEN seldom noted the coxal plates of *Munna* it is altogether possible that *Echinomunna* has none. These questions cannot be answered without specimens at one's disposal.

A KEY TO GENERA OF THE MUNNIDAE

1. Coxal plates of peraeon not visible in dorsal view 2
1. Coxal plates of peraeon visible in dorsal view 3
2. Mandible lacks palp ..... *Coulmannia*
2. Mandible with triarticulate palp 5
3. Coxal plates visible in dorsal view on peraeonal somites 2—7 inclusive 4
3. Coxal plates visible in dorsal view only on peraeonal somites 5—7 inclusive .... *Austrosignum**
4. Body strongly spinose ..... *Echinomunna*
4. Body lacks spines ..... *Munna**
5. Each somite of peraeon with a spine on dorsal surface at midline .... *Notoxenus*
5. Peraeonal somites lack spine ..... *Paramunna**

DISTRIBUTION OF THE GENERA OF MUNNIDAE

The genera *Notoxenus*, *Coulmannia* and *Echinomunna* and *Austrosignum* are known only from the Antarctic. *Munna* is widely distributed throughout the world. *Paramunna* is found in Northern Europe and the North Atlantic where 2—3 species are known and in the Antarctic where about 10 species are now known. The genus was encountered in this study from the southern Chilean coast.

* Considered in this report.

Genus *Munna* KRØYER, 1839

Synonyms: *Haliacris* PFEFFER, 1881.

Type species: *Munna boeckii* KRØYER, 1839.

Diagnosis: Munnidae having coxal plates visible in dorsal view on peraeonal somites two to seven inclusive. Body lacking spines. Eyes on a short immovable peduncle, preocular lobes generally present. Uropoda lacking peduncle. Antennae usually one-half or more the body length.

Composition: That it is possible for one to subdivide *Munna* into several groups has already been indicated by MENZIES (1952). I shall do so in the following paragraphs, erecting subgenera for the principal types and placing those species which are inadequately described in an "incertae sedis" list. Altogether over 44 species have been described exclusive of synonyms.

RICHARDSON's (1905) *Munna coeca* was transferred to *Haplomunna* RICHARDSON (1908), a genus which does not belong to the Munnidae but its precise designation is impossible due to its inadequate description.

Subgenus *Munna*, new subgenus

Type species: *Munna boecki* KRØYER, 1839 (ref. G. O. SARS 1897, pl. 44).

Diagnosis: Munnidae with inferior uropodal ramus rounded in cross-section, lacking recurved apical spine.

List of species

	Species	*Author, date*	*Locality*
1.	*Munna* (*Munna*) *boecki*	KRØYER, 1839	N. Europe
2.	" " *minuta*	H. J. HANSEN, 1916	N. Europe
3.	" " *halei*	MENZIES, 1952	California
4.	" " *groenlandica*	HANSEN, 1916	Greenland
5.	" " *acanthifera*	HANSEN, 1916	N. Atlantic
6.	" " *affinis*	NORDENSTAM, 1933	S. Atlantic
7.	" " *antarctica*	(PFEFFER, 1881)	Antarctic
8.	" " *neglecta*	MONOD, 1931	Antarctic
9.	" " *limicola*	G. O. SARS, 1868	N. Europe
10.	" " *neozealanica*	CHILTON, 1892	N. Zealand and Antarctic
11.	" " *maculata*	BEDDARD, 1885	Antarctic
12.	" " *spitzbergenensis*	GURJANOVA, 1930	Arctic
13.	" " *arnholdi*	GURJANOVA, 1933	Artic
14.	" " *bituberculata*	NORDENSTAM, 1933	Antarctic

Distribution: This subgenus shows a clear bipolar distribution with arctic-boreal and antarctic-antiboreal species. None is known from the tropical regions to date.

The following species, collected by the L.U.C.E. are assigned to this subgenus:

Munna (*Munna*) *chilensis*, new species

Figure 1

Synonyms: None.

Diagnosis: First antenna with seven articles, last article about one-third the length of prior article. Second antenna slightly longer than the body, flagellum with thirty-three articles. Cephalon twice as wide as long, eyes present, preocular lobes small, yet evident, frontal margin concave with five large setae. Maxilliped with three coupling hooks. Pleotelson pyriform, lateral margins smooth, lacking large setae or spines, but with a few very small setae along margins; terminal margin truncated, with fourteen setae in a characteristic arrangement. Uropodal inferior ramus small, tubular, lacking spines; superior ramus evident, with a single apical bristle. Apex of first male pleopod, slightly expanded laterally, margin convex, with about five fine setae. Apex of female operculum convex, slightly pointed, outer surface with four large two-pointed setae near proximal border. Male and female gnathopods similar.

Additional descriptive notes: First maxilla outer lobe with about eleven apical setae, inner lobe with four large setae. Outer lappet of outer lobe of second maxilla with four apical setae, inner lappet also with four apical setae, inner lobe with about eight or nine apical setae. Right mandible incisor with four teeth, setal row with five setae, molar process large, with teeth; left mandible incisor with five teeth, lacinia with four teeth, setal row with three setae, palp with three articles. Inferior margin of propodus of seventh peraeopod with two two-pointed setae, inferior claw of dactyl of seventh peraeopod smaller than superior claw. Apex of exopod of second male pleopod sharply pointed. Distal article of exopod of third pleopod about two times the width of endopod, endopod with three plumose setae at apex. Distal article of exopod of fourth pleopod with two plumose setae at apex, endopod lacks plumose setae. Fifth pleopod uniramous, lacks setae. Larger, more mature males may have the unusually developed gnathopods.

Measurements: Holotype male length 1.2 mm, width 0.5 mm; allotype, length 1.0 mm, width 0.5 mm.

Type locality and types: Holotype, allotype, 5 male (one figured and dissected) and 6 female paratypes. *St. M 115*, 3 May, 1949, southern Chile, Estrecho de Magallanes, 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).

Distribution: Species known only from the type locality.

Affinities: The lack of a dentate suburopodal shelf and the lack of strong spines on the pleotelson serves to distinguish this species from most other *Munna* (*Munna*).

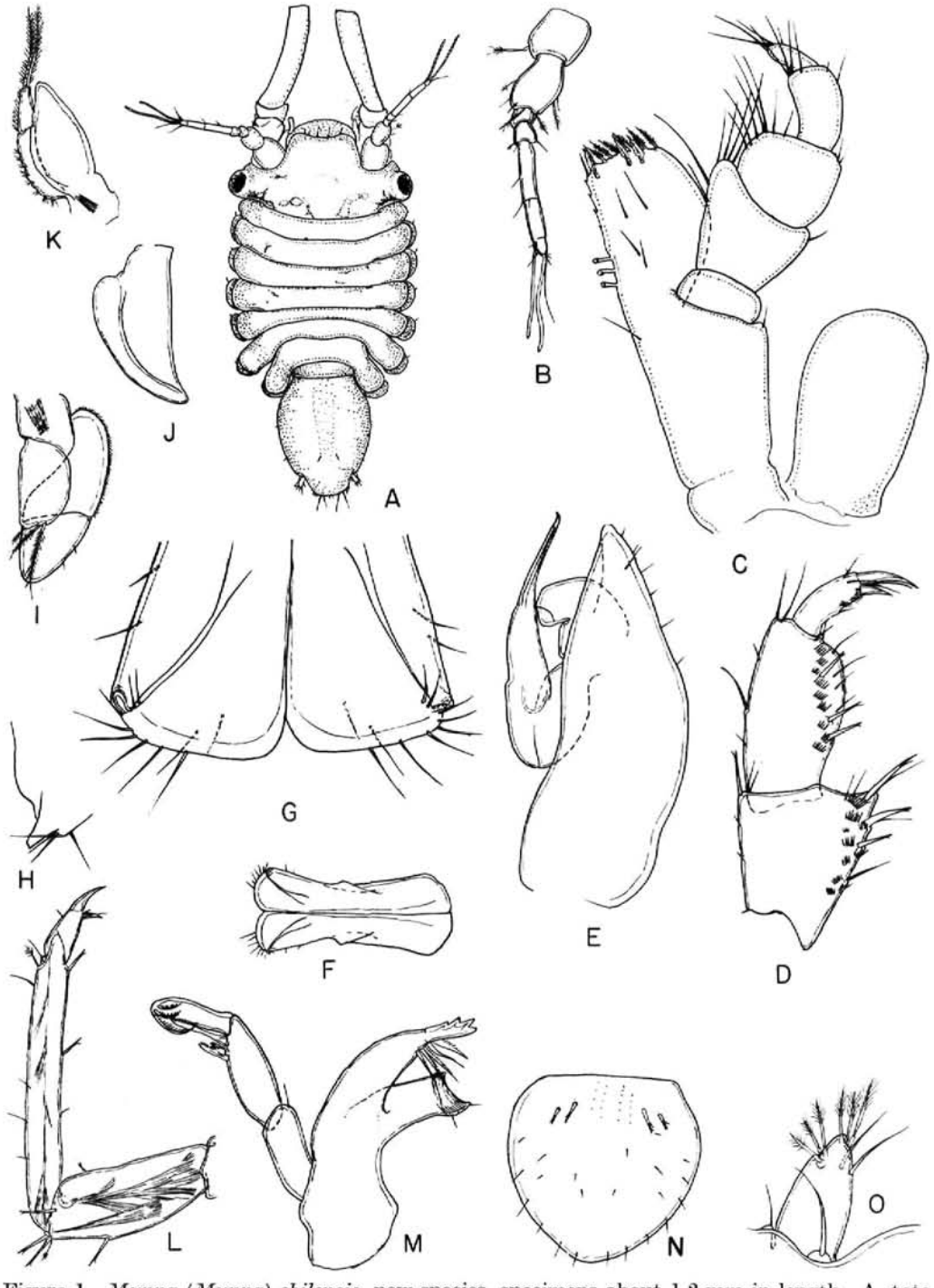

Figure 1. *Munna* (*Munna*) *chilensis*, new species, specimens about 1.2 mm in length. A, toto paratype male; B, first antenna; C, maxilliped; D, gnathopod; E, male second pleopod; F, male first pleopods; G, apices of male first pleopods; H, outer lateral border of male first pleopod; I, male third pleopod; J, male fifth pleopod; K, male fourth pleopod; L, seventh peraeopod; M, right mandible; N, female operculum; O, uropod.

Except for *M.* (*M.*) *spitzbergenensis* GURJANOVA, the first antennae of which have six articles only, all remaining species have 8 or more articles, being unlike *M.* (*M.*) *chilensis* which has seven. The species is generally related to *M.* (*M.*) *limicola* G. O. SARS, a northern European species and to *M.* (*M.*) *affinis*, *M.* (*M.*) *antarctica*, and *M.* (*M.*) *bituberculata* from the Antarctic. However, the species appears to be most closely related to *Munna* (*M.*) *neglecta* MONOD (1931). Although that species is described as having a first antenna composed of eight articles, NORDENSTAM (1933) describes one having only seven articles. Also, the male first pleopoda are less expanded laterally in this species than they are in *M.* (*M.*) *neglecta*, and the preocular lobes and the frontal margin have stout setae lacking in *M.* (*M.*) *neglecta*.

The similarities between *chilensis* and *lundae* are discussed below.

Munna (*Munna*) *lundae*, new species

Figure 2

Synonyms: None.

Diagnosis: First antenna with seven articles, last articles about one-fourth the length of prior article. Cephalon twice as wide as long, eyes present, preocular lobes exceedingly small, frontal margin convex, with five setae. Maxilliped with two coupling hooks. Telson pyriform, lateral borders smooth, lacking teeth or spines, but with a few small setae, dorsal surface also with a few setae, posterior margin with two setae. Uropod inferior ramus small, tubular, lacking spines; superior ramus very small, with a single apical seta. Apex of first male pleopod slightly expanded laterally, with an acute recurved postero-lateral angle, margin convex, with four setae. Male and female gnathopods probably similar. (Type lacks second antennal flagellum, hence number of articles not known.)

Additional descriptive notes: The mouth parts, except for the maxillipeds, are similar to those described for *M.* (*M.*) *chilensis*. Remaining pleopods also very similar. Inferior margin of propodus of seventh peraeopod with eight two-pointed setae.

Measurements: Holotype male, length 1.2 mm, width 0.5 mm.

Type locality and types: Holotype male only specimen, *St. M 115*, 3 May, 1949, Southern Chile, Estrecho de Magallanes, 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).

Distribution: Known only from the type locality.

Affinities: This species is closely related to *Munna* (*Munna*) *chilensis* in having similar antennae and pleopods. On the other hand, the frontal margin is convex and not concave, the eyes are large and swollen with hardly any preocular lobes. The apex of the pleotelson in the two species is also markedly different in bristle arrangement. These latter facts indicate that the two are distinct species and it is because of them that I describe this form as new even though it is based upon a single specimen.

Subgenus *Neomunna*, new subgenus

Type species: *Munna stephenseni* GURJANOVA, 1933.

Diagnosis: Munnidae with inferior uropodal ramus round in crossection, with at least one large medially recurved apical spine.

List of species

	Name			*Author, date*	*Locality*
1.	*Munna*	(*Neomunna*)	*stephenseni*	(GURJANOVA, 1933)	Artic
2.	"	"	*chromatocephala*	(MENZIES, 1952)	California
3.	"	"	*subneglecta*	(GURJANOVA, 1936)	N. Pacific
4.	"	"	*avatshensis*	(GURJANOVA, 1936)	N. Pacific
5.	"	"	*krøyeri*	GOODSIR (of G. O. SARS, 1897)	N. Atlantic
6.	"	"	*palmata*	(LILLJEBORG, 1851)	N. Atlantic
7.	"	"	*fabrici*	KRØYER (of HANSEN, nec, G. O. SARS, 1897)	N. Atlantic
8.	"	"	*coeca*	(GURJANOVA, 1930)	Arctic

Distribution: This subgenus, like *Munna*, is bipolar in its distribution; having Antarctic-antiboreal species, but no truly tropical ones. None was found in the L.U.C.E. collections.

Subgenus *Uromunna*, new subgenus

Type species: *Munna ubiquita* MENZIES, 1952.

Diagnosis: Munnidae with leaf-like ventral uropodal ramus, flattened in cross section. Apical spines lacking.

List of species

	Name			*Author, date*	*Locality*
1.	*Munna*	(*Uromunna*)	*ubiquita*	(MENZIES, 1952)	California
2.	"	"	*acarina*	(MILLER, 1941)	Hawaii
3.	"	"	*nana*	(NORDENSTAM, 1933)	Antarctic
4.	"	"	*mediterranea*	(PIERANTONI, 1916)	Mediterranean
5.	"	"	*petiti*	(AMAR, 1948)	Mediterranean
6.	"	"	*schauinslandi*	(G. O. SARS, 1905)	Antarctic

Distribution: This subgenus, unlike the preceding two, has no Arctic representation, and does have a few temperate-tropical species. Two of the species *M.* (*U.*) *nana* (NORDENSTAM) and *M.* (*U.*) *schauinslandi* (G. O. SARS) were found in the L.U.C.E. collections.

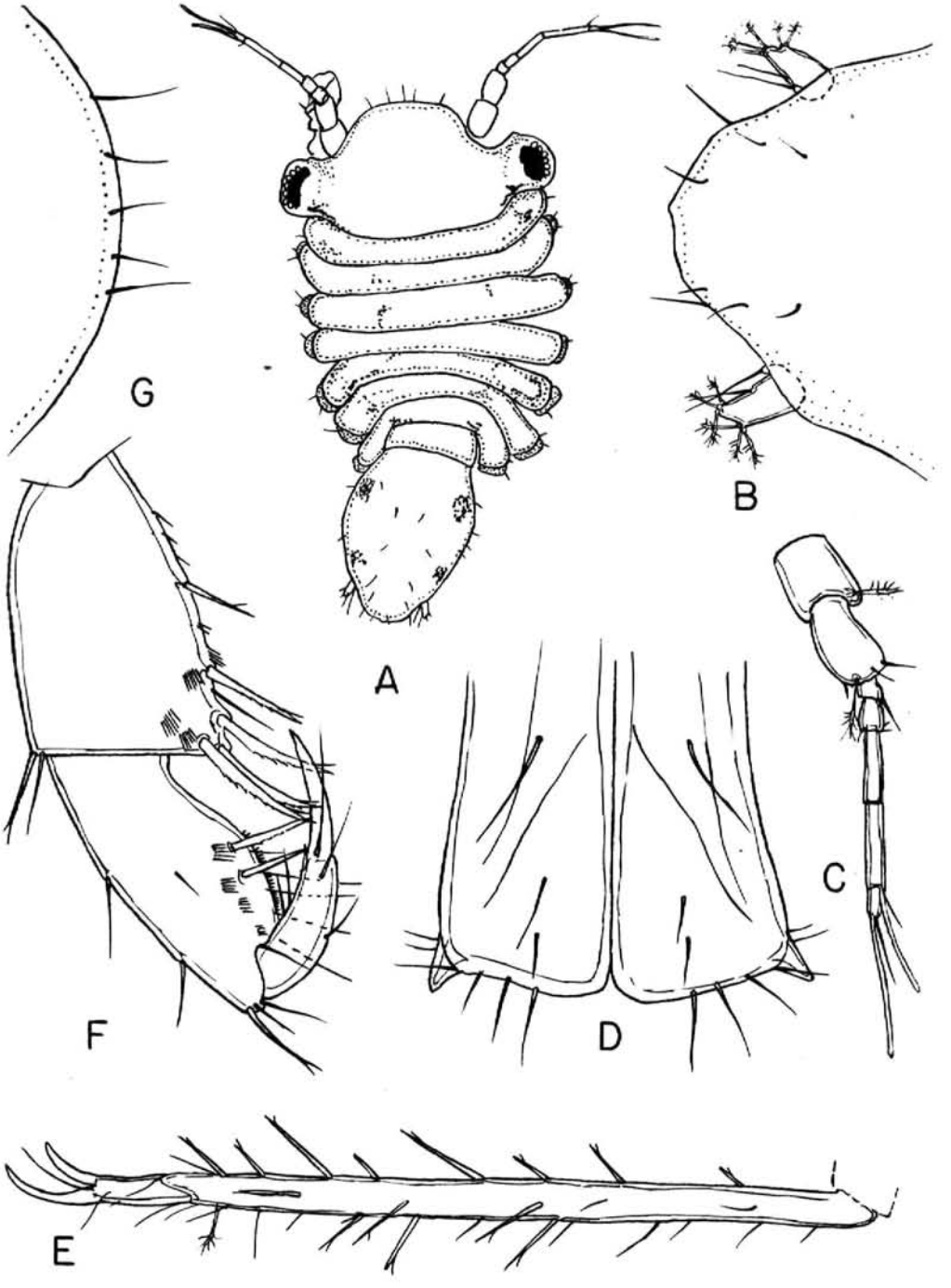

Figure 2. *Munna* (*Munna*) *lundae*, new species, Holotype male, length 1.2 mm, width 0.5 mm. A, toto; B, apex of pleotelson; C, first antenna; D, apices of male first pleopods; E, seventh peraeopod; F, gnathopod; G, apex female operculum.

Munna (Uromunna) schauinslandi (G. O. SARS)

Figure 3

Synonyms: *Munna schauinslandi* G. O. SARS, 1905, pp. 372—375, pl. 14, figs. 1—12.

Diagnosis: First antenna with six articles, last article about one-half the length of prior article. Second antenna about seventeenths the length of body, flagellum with ten articles. Cephalon twice as wide as long, eyes present, preocular lobes small, yet evident; frontal margin concave with about two small setae. Maxilliped with three coupling hooks. Telson pyriform, lateral margins smooth, lacking setae or spines; terminal margin with a small median projection of bisetiferous lobe. Uropod ventral ramus small, lacking spines; dorsal ramus evident, provided with a single seta as apex. Apex of first male pleopod simple, expanded laterally, margin with four small setae. Apex of female operculum concave, with two setae. Male and female gnathopods similar.

Additional descriptive notes: Although an obvious antennal scale is not present a large bristle is located where the scale would normally be expected. First maxilla outer lobe with ten apical setae, inner lobe with three apical setae. Outer lappet of outer lobe of second maxilla with four apical setae, inner lappet with three apical setae, inner lobe with about eight apical setae. Right mandible incisor with four teeth, setal row with four setae, molar process large; with teeth; left mandible incisor with four teeth, lacinia with four teeth, setal row with three setae, palp with three articles. Number of two-pointed setae on inferior margin of propodus of seventh peraeopod variable; inferior claw of dactyl wider at mid-line than superior claw. Apex of exopod of second male pleopod not sharply pointed. Distal article of exopod of third pleopod less than onehalf the width of distal article of endopod, endopod with two plumose setae at apex. Distal article of exopod of fourth pleopod with two plumose setae at apex, endopod lacks plumose setae, fifth pleopod uniramous, lacks setae. Scattered black chromotophors characterize this species.

Measurements: 1.20 mm length (G. O. SARS, 1905). One large male examined by the writer was 1.0 mm in length and 0.4 mm in width, a female of large size was 1.2 mm in length and 0.5 mm in width.

Material examined: Southern Chile, *St. M 30*, 3 males, 2 females, 1 juvenile. *St. M 49*, 1 male, 11 females, most ovigerous.

Type locality: Chatham Islands, intertidal (G. O. SARS, 1905).

Distribution: This species was first collected from brackish water on the Chatham Island of New Zealand by Professor SCHAUINSLAND. In Chile the species shows a brackish water habit as well, being collected at Estero Reloncaví where the salinity is greatly reduced, varying between 0.6 and 2.4 ‰ in the intertidal belt (BRATTSTRÖM and DAHL, 1952, p. 71, Tab. 10). The absence of this species from oceanic collections suggests it is not a widely euryhaline species but more probably simply a brackish water species as was earlier indicated by G. O. SARS (1905). A land bridge-type connection between the Chatham Islands and Chile is suggested from the distribution of this species.

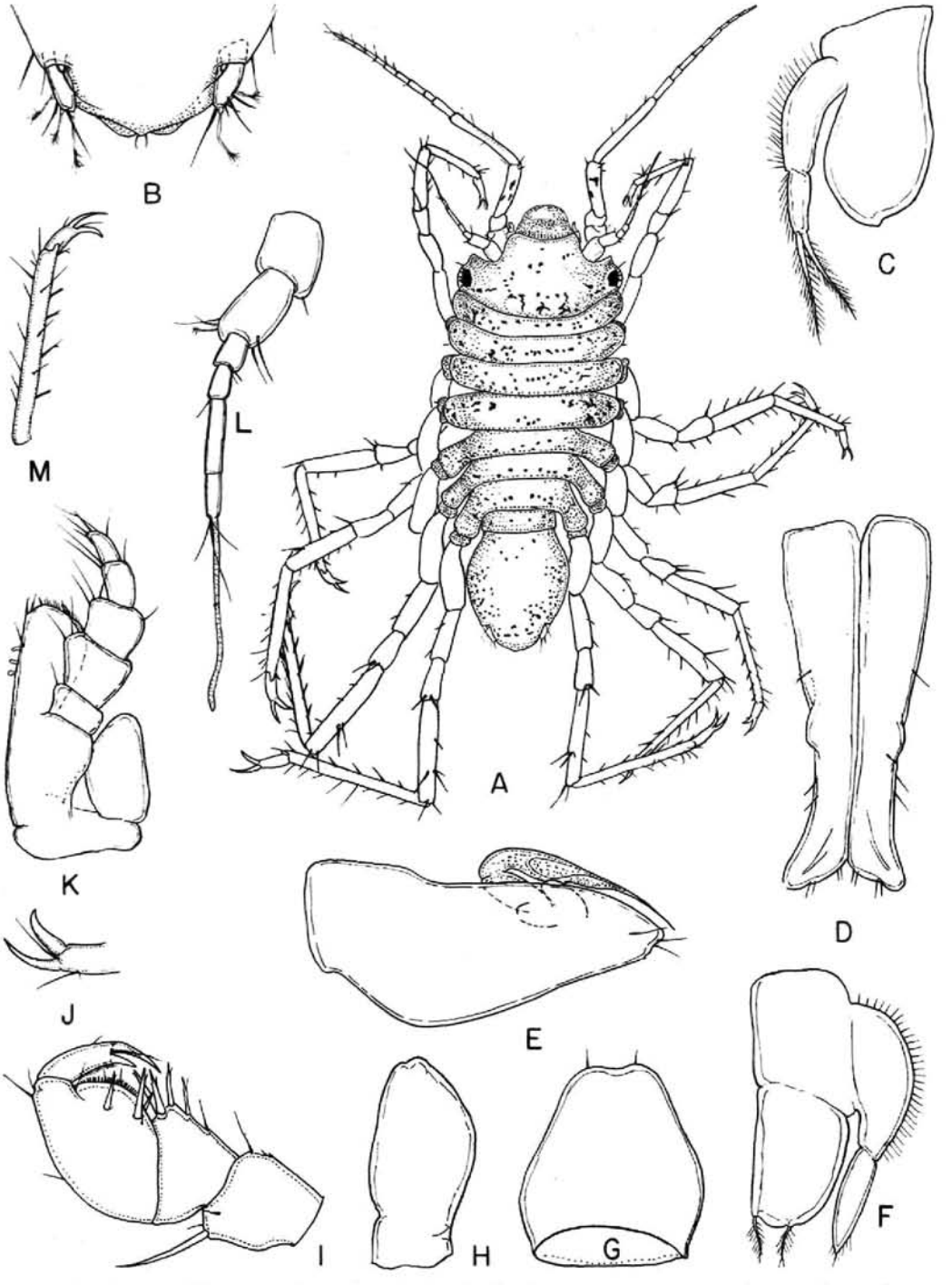

Figure 3. *Munna* (*Uromunna*) *schauinslandi* (G. O. Sars). A, male toto about 1.0 mm long; B, apex of pleon, male; C, fourth pleopod, male; D, male first pleopod; E, male second pleopod; F, third male pleopod; G, female operculum; H, male fifth pleopod; I, male gnathopod; J, apex of seventh peraeopod of male; K, male maxilliped; L, male first antenna; M, male seventh peraeopod.

Remarks: The specimens examined showed few differences from the description given the species by G. O. SARS (1905). The antenna consists of six and not five articles, minute preocular lobes are present, and the uropods are not as truncated as G. O. SARS figured them. The male first pleopods and other features are almost exactly as Sars figured. Thus it seems probable that the differences noted are due to differences in illustration and variation of the animals rather than to specific differences. The truncated telson figured by G. O. SARS is present in the specimens examined by the writer but examination of the posterior border of the telson with high magnification shows it to be turned under somewhat and that the real posterior margin has a slight median lobe but is otherwise evenly rounded.

Munna (*Uromunna*) *nana* (NORDENSTAM) forma *typica* and forma "a"

Figure 4—5

Synonyms: *Munna nana* NORDENSTAM, 1933, pp. 222—225, figs. 56, 57.

Diagnosis: First antenna with six articles, last article three-fourths to one-half the length of prior article. Second antenna about five-sevenths the length of body, flagellum with eight to thirteen articles. Cephalon twice as wide as long, eyes present, preocular lobes very small, frontal margin almost straight. Maxilliped with two coupling hooks. Lateral margins of pleotelson smooth, lacking setae or spines; terminal margin with a small median projection or lobe. Uropod ventral ramus flattened, lacking spines; dorsal ramus fairly large, with two apical setae. Apex of male first pleopod simple, not expanded laterally, either evenly curved or pointed. Apex of female operculum with truncated apex, with two setae. Male and female gnathopods similar.

Additional descriptive notes: Antennal scale present on second antenna. First maxilla outer lobe with eleven apical setae, inner lobe with four apical setae. Outer lappet of outer lobe of second maxilla with four setae, inner lappet with four apical setae, inner lobe with eight apical setae. Right mandible incisor with five teeth, setal row with three setae, molar process large, with teeth; left mandible incisor with four teeth, lacinia with four teeth, setal row with two setae, palp with three articles. Number of two-pointed setae on inferior margin of propod of seventh peraeopod variable. Apex of exopod of second male pleopod sharply pointed. Third, fourth and fifth pleopods as in *Munna schauinslandi* G. O. SARS.

Munna (*Uromunna*) *nana* (NORDENSTAM) forma *typica*

Figure 4

Diagnosis: Superior claw of dactyls of peraeopods with spinulate inferior margin. Penultimate and ultimate articles of peduncle of second antennae subequal in length.

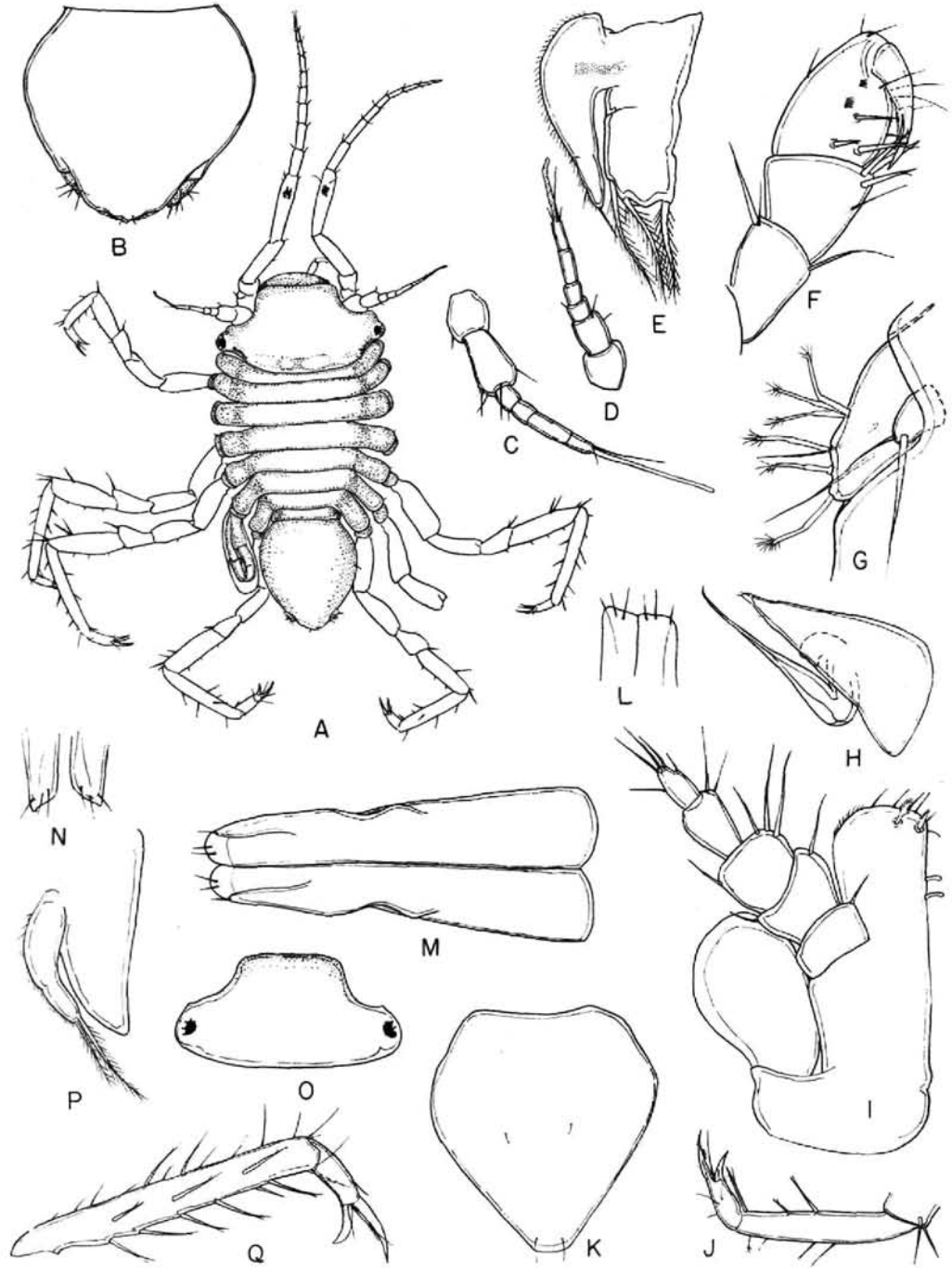

Figure 4. *Munna* (*Uromunna*) *nana* (NORDENSTAM) forma *typica*. A, male toto, about 1 mm length; B, pleotelson, male; C, first antenna, male; D, first antenna, male; E, male third pleopod; F, male gnathopod; G, male uropods; H, male second pleopod; I, male maxilliped; J, seventh male peraeopod; K, female operculum; L, apex male first pleopods; M, male first pleopods; N, first pleopods, male, O, cephalon male, P, male fourth pleopod; Q, male seventh peraeopod. Note regenerating sixth peraeopod in regeneration's capsule.

Measurements: Male 0.7 mm length, 0.25 mm width. Female 0.9 mm length, 0.44 mm width.

Material examined: Southern Chile, *St. M 40*, 1 male, 2 females.

Distribution: This species was taken previously by the Swedish Antarctic Expedition at the Falkland Islands. Its occurrence in Chile might be expected.

Remarks: The spinules of the claw of the peraeopods serves easily to distinguish this forma from the following, forma "a".

Munna (*Uromunna*) *nana* (NORDENSTAM) forma "a"

Figure 5

Synonyms: None.

Diagnosis: Superior claw of dactyls of peraeopods with smooth inferior margin, lacking spinules. Last article of peduncle of second antenna two times the length of penultimate article.

Measurements: Most specimens were slightly less than one millimeter in length and 0.5 millimeters in width.

Material examined: Northern Chile, *St. M 131*, 2 females; Central Chile, *St. M 123*, 6 males, 22 females, some ovigerous; Southern Chile, *St. M 98*, 1 male, *St. M 75*, 1 female, *St. M 115*, 5 males, 12 females, some ovigerous.

Remarks: All samples of forma "a" in this collection were very similar morphologically and all but one from 8 meters depth were collected at similarly exposed localities. Forma *typica* was collected from 100 meters depth. There exists the possibility that a deep water race and an intertidal race are present but more collections from intermediate depths are of course desirable before one could firmly establish such a possibility.

NORDENSTAM like many earlier researchers failed to notice the scale attached to the second antenna and the dorsal uropodal ramus. It is conceivable, of course, that I have failed to identify the species properly and that the above mentioned structures are actually lacking in *M. nana* NORDENSTAM; on the other hand it is equally possible that the very small size of the above-mentioned structures (oil immersion lens is needed to see them well) and the fact that they were previously believed to be lacking from the genus *Munna* (AMAR, 1948) accounts for their being overlooked by NORDENSTAM.

Munna species of *Incertae Sedis*

The following list contains species of *Munna* which are too imperfectly known to be assigned to a subgenus at present.

1. *Munna* (?) *hanseni* STAPPERS, vide HANSEN, 1916.
2. " " *studeri* HILGENDORF 1893, vide VANHÖFFEN, 1914.
3. " " *neglecta* of HALE, 1937.
4. " " *pellucida* GURJANOVA, 1929.

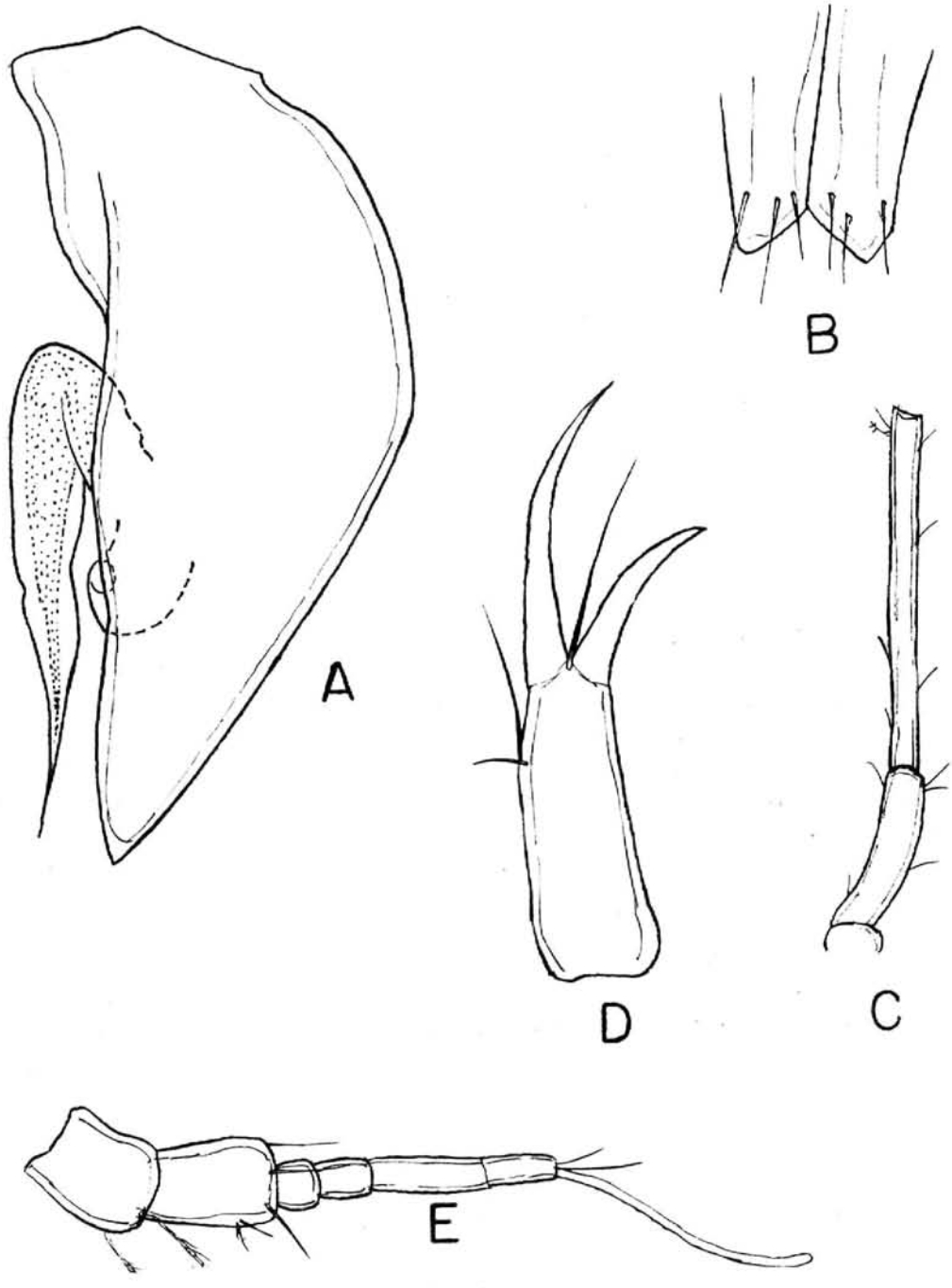

Figure 5. *Munna* (*Uromunna*) *nana* (NORDENSTAM) forma "a". A, male second pleopod; B, male first pleopods; C, peduncle of second antenna; D, dactyl of seventh peraeopod showing absence of denticles along superior claw; E, first antenna.

5. *Munna* (?) *brandti* ZIRWAS, 1910.
6. " " *macquariensis* HALE, 1937.
7. " " *psychrophila* VANHÖFFEN, 1914.
8. " " *globicauda* VANHÖFFEN, 1914.
9. " " *cryophila* VANHÖFFEN, 1914.
10. " " sp. MONOD, 1933.
11. " " sp. MONOD, 1933.
12. " " *truncata* RICHARDSON, 1908, (=type of *Caecimunna* RICHARDSON 1908).
13. " " *caeca* RICHARDSON, 1905, transferred to *Haplomunna* RICHARDSON, 1908; probably does not belong within the family Munnidae.

Genus *Paramunna* G. O. SARS, 1866

Synonyms: *Leptaspidia* BATE and WESTWOOD, 1868.
Metamunna TATTERSALL, 1906.
Austrimunna RICHARDSON, 1906, 1908, 1913, HODGSON, 1910.
Austronanus HODGSON, 1910, RICHARDSON, 1913.

Type species: *Paramunna bilobata* G. O. SARS, 1866.

Diagnosis: Munnidae without coxal plates visible in dorsal view on all peraeonal somites. Body lacking spines. Eyes on immovable peduncles. Uropoda lacking peduncle. Antennae less than one-half the length of the body.

Composition: This genus contains about 16 described species. The species described by HALE (1937) as *Paramunna dubia* should be transferred to *Austrosignum*. His *Paramunna lunata* (op. cit.) should probably be transferred to *Pleurosignum* but such a transfer will be impossible until the mouth parts of that species are described. VANHÖFFEN places *P. incisa* (RICHARDSON, 1908) in *Austrosignum*.

List of the known species

	Name	*Author, date*	*Locality*
1.	*Paramunna bilobata*	G. O. SARS, 1866	N. Europe but not Arctic
2.	" *subtriangulata*	(RICHARDSON, 1906)	Antarctic
3.	" *integra*	NORDENSTAM, 1933	Antarctic
4.	" *dentata*	NORDENSTAM, 1933	Antarctic
5.	" *capensis*	VANHÖFFEN, 1914	South Africa
6.	" *dilatata*	VANHÖFFEN, 1914	Antarctic
7.	" *kerguelensis*	VANHÖFFEN, 1914	Antarctic
8.	" *gaussi*	VANHÖFFEN, 1914	Antarctic
9.	" *rostrata*	(HODGSON, 1910)	Antarctic
10.	" *concavifrons*	BARNARD, 1920	South Africa
11.	" *laevifrons*	STEBBING, 1910	South Africa

12.	*Paramunna brevipes*		(BATE & WESTWOOD, 1868)	N. Atlantic
13.	"	*serrata*	(RICHARDSON, 1898)	Antarctic
14.	"	*gaini*	(RICHARDSON, 1913)	Antarctic
15.	"	*antarctica*	(RICHARDSON, 1906)	Antarctic
16.	"	*typica*	TATTERSALL, 1906	N. Atlantic

Distribution: This genus shows a clear-cut bipolar type of distribution, with two or three boreal species and over a dozen antarctic-antiboreal species. Tropical species are not known. The species *P. bilobata* G. O. SARS from N. Europe and *P. integra* NORDENSTAM are clearly analogous and perhaps homologous species. It is of considerable interest to note that the genus is not at all represented in the northern Pacific Ocean. The Chilean fauna is represented by three species. One is *P. subtriangulata* (RICHARDSON), the other *P. kerguelensis* VANHÖFFEN, the third is new.

Paramunna subtriangulata (RICHARDSON, 1908)

Figure 6

Synonyms: *Austrimunna subtriangulata* RICHARDSON, 1908, p. 7, fig. 8.
Paramunna subtriangulata (RICHARDSON). MONOD, 1926, p. 16, figs. 7A, B, C. — NORDENSTAM, 1933, pp. 235—237, figs. 63. — NIERSTRASZ, 1941, p. 290. — VANHÖFFEN, 1914, p. 572.

Diagnosis: Frontal margin cephalon triangulate, smooth. Lateral borders of peraeonal somites and pleon smooth, lacking spines or bristles. First antenna consisting of six articles; first peduncular article longest, second narrower and shorter than first, flagellar articles all short, subequal in length. Maxilliped with two coupling hooks. Mandibular palp lacking. Each first male pleopod with a single bristle at apex.

Additional descriptive notes: Mouth parts, with exceptions noted above very similar to those of *Munna*, sens. lat. Preserved specimens were pink in color.

Measurements: Male 0.76 mm length and 0.32 mm in width. Female, length 0.70 mm, width 0.36.

Material examined: Southern Chile, *St. M 115*, 18 males, 12 females, some ovigerous, 10 juveniles.

Type locality: Type specimens were collected from the Antarctic Graham Region (RICHARDSON, 1908). Since then specimens have been found from the Straits of Magellan (MONOD, 1926) and South Georgia Island (NORDENSTAM, 1933).

Distribution: The species would appear to be Antarctic-cirumpolar in its distribution. It is not known from northern Chile.

Affinities: The smooth pleotelson and pointed front ally this species most closely with *P. antarctica* from which species it differs in having shorter and thicker ocular peduncles and in having the first pleonal somite almost completely covered by the last peraeonal somite (ref. HALE, 1937). The first antennae have six articles in both species.

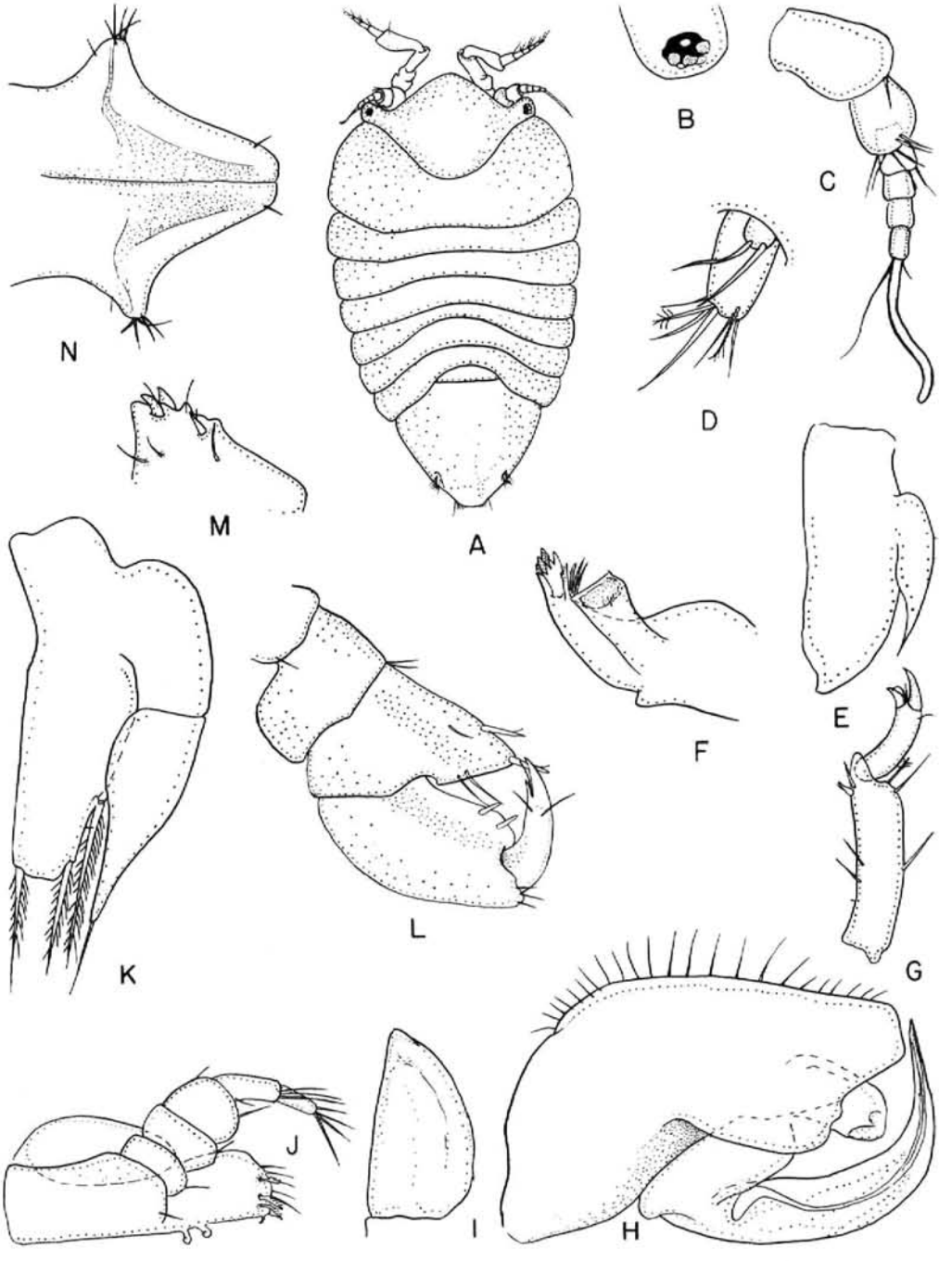

Figure 6. *Paramunna subtriangulata* (RICHARDSON), male of 0.7 mm length. A, toto; B, eye; C, first antenna; D, uropoda; E, male fourth pleopod; F, left mandible; G, seventh peraeopod; H, second pleopod, male; I, fifth pleopod, male; J, maxilliped; K, third male pleopod; L, male gnathopod; M, inner surface of carpus of gnathopod; N, inner surface apices male first pleopoda.

Paramunna kerguelensis VANHÖFFEN

Figure 7

Synonyms: *Paramunna kerguelensis* VANHÖFFEN, 1914, p. 574—575, abb. 105.

Diagnosis: Frontal margin entire, evenly and slightly convex. Lateral borders of peraeonal somites 1—4 and 6 each with a single bristle. First antenna with six articles; second article longest, terminal article longer than penultimate. Maxillipeds with two coupling hooks. Mandibular palp apparently lacking. Each first male pleopod with three setae at apex. Posterior border of pleotelson with a characteristic fringe of 18 setae, lateral borders each with large denticles.

Additional descriptive notes: With exceptions noted above the mouth parts and pleopods are as described for *M. subtriangulata* (Fig. 6). The teeth and bristles of the gnathopod (Fig. 7 D) are probably characteristic.

Measurements: Male, length 0.78 mm, width 0.36 mm.

Material examined: Southern Chile, *St. M 115*, 3 males, no females.

Distribution: Known previously from Kerguelen Island (VANHÖFFEN, 1914). It probably is an Antarctic circumpolar species. It was not found in the collections from central or northern Chile.

Affinities: In the lack of a pointed rostrum and in the presence of a dentate pleotelson this species resembles *P. gaussi* VANHÖFFEN, *P. gaini* (RICHARDSON). It differs from *P. gaussi* and *P. gaini* in having fewer and larger spines on the pleotelson.

Paramunna simplex, new species

Figure 8

Synonyms: None.

Diagnosis: Frontal margin entire, almost straight. Lateral borders of each peraeonal somite entire, each with one small bristle. First antenna with six articles, second longest, last two sub-equal in length. Maxilliped with two coupling hooks. Posterior border of pleotelson with six characteristic setae; lateral borders with 13—15 denticles. Uropods with inferior ramus only.

Additional descriptive notes: Mouth parts and pleopods as in *Paramunna*.

Measurements: Type female 1.4 mm long, 0.6 mm wide.

Type locality: Southern Chile, Seno Reloncaví, 23 January 1949, *St. M 40*, N. of Isla Quellín, 100 meters depth, hard sand, five females.

Distribution: Known only from type locality.

Affinities: At first I thought this species was *Paramunna gaussi* VANHÖFFEN which it resembles in pleotelson and head structure. However, it differs markedly from *P. gaussi* in having uni- and not biramous uropods and in lacking teeth in the first articles of the second antenna.

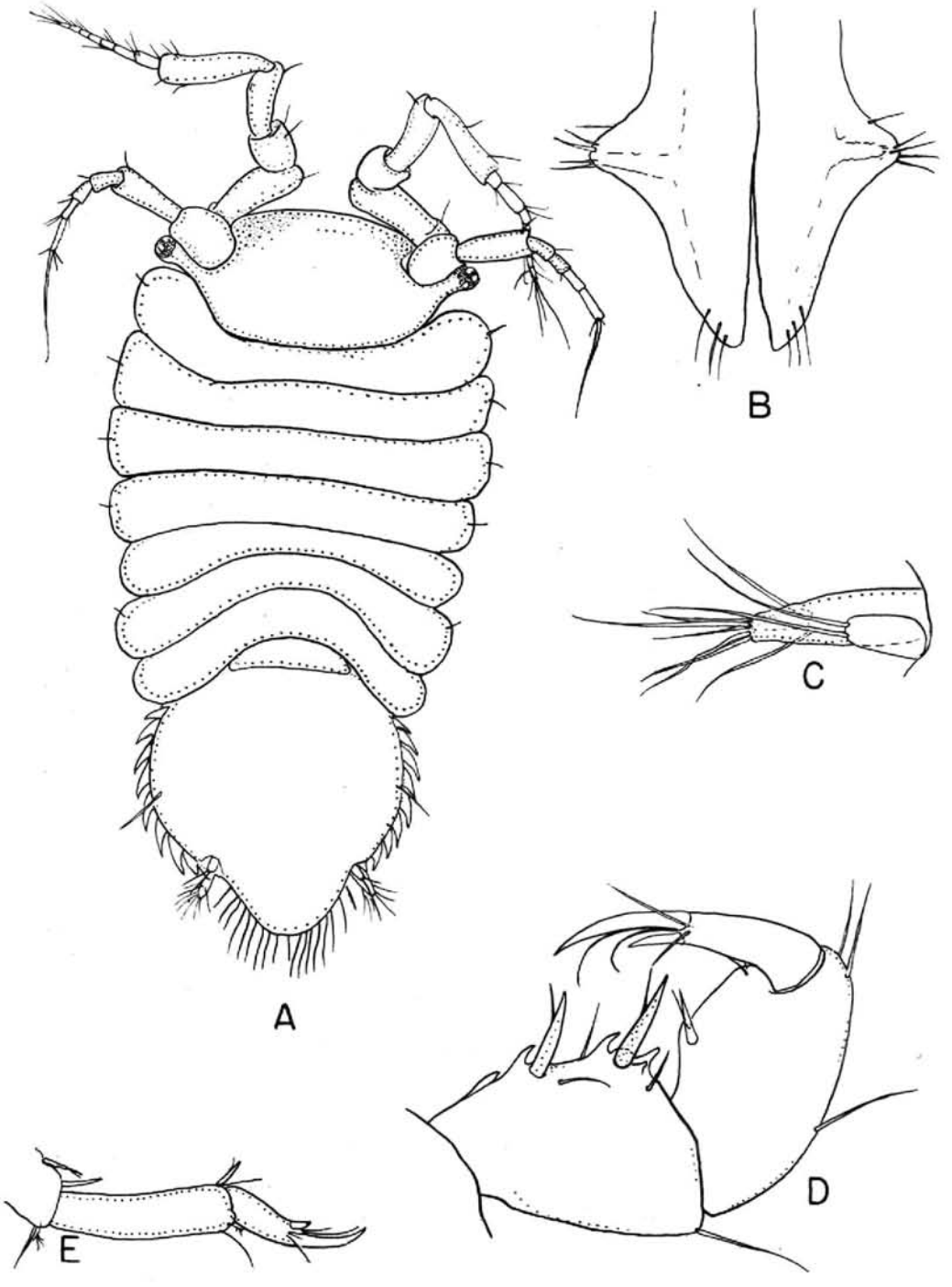

Figure 7. *Paramunna kerguelensis* VANHÖFFEN, male. A, toto, length 0.8 mm; B, apex of first pleopods; C, uropoda; D, gnathopod; E, seventh peraeopod.

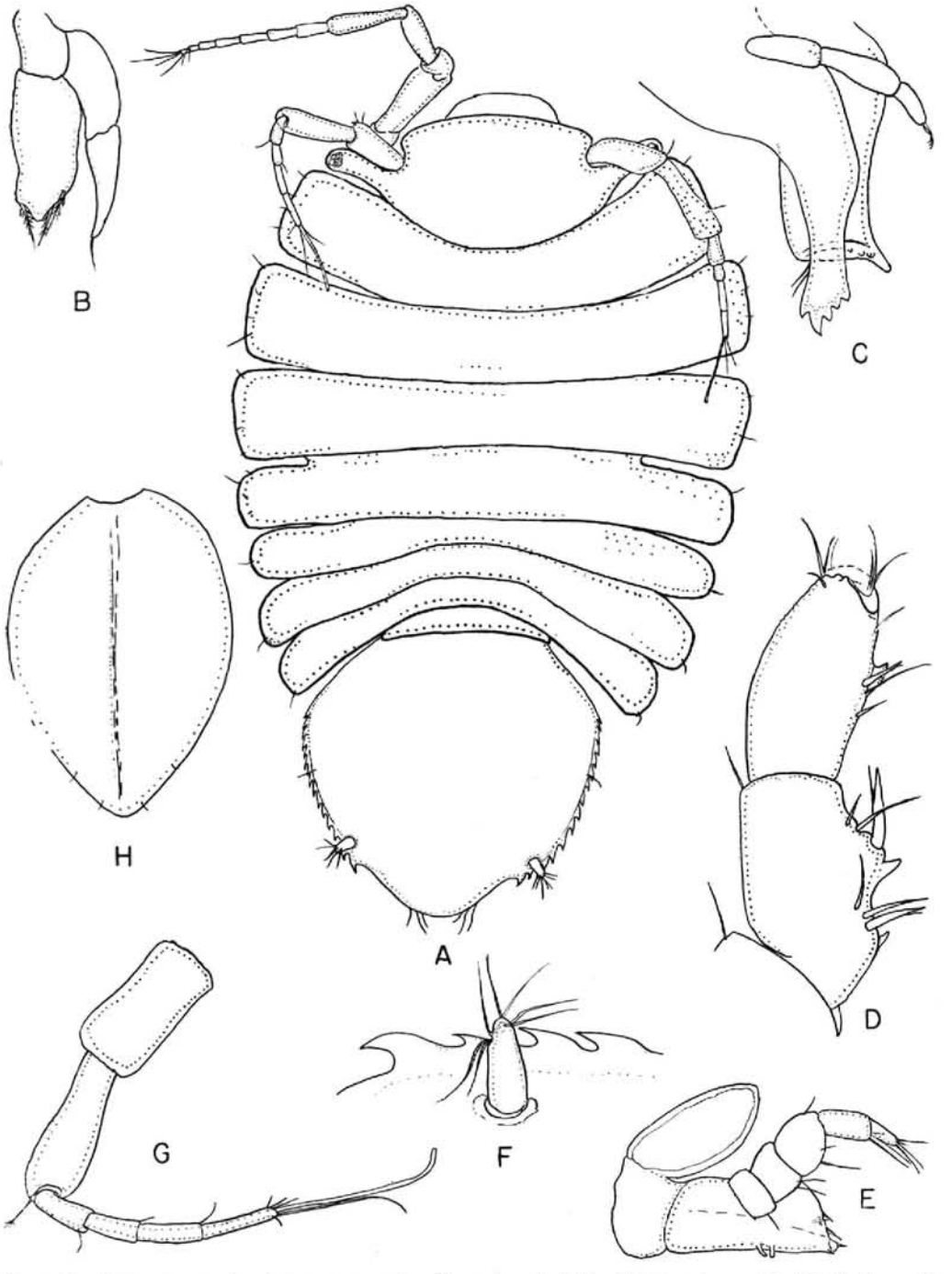

Figure 8. *Paramunna simplex*, new species. Female. A, toto, 1.4 mm long; B, third pleopod; C, mandible; D, gnathopod; E, maxilliped; F, uropod and lateral margin of pleotelson; G, first antenna; H, operculum.

Genus *Austrosignum*, HODGSON 1910

Synonyms: *Austrimunna* RICHARDSON 1908 (in part).
Austrosignum HODGSON, 1910 — MONOD, 1931 — NORDENSTAM, 1933 — VANHÖFFEN, 1914.

Type species: *Austrosignum glaciale* HODGSON, 1910.

Diagnosis: Munnidae with coxal plates visible in dorsal view only on peraeonal somites 5—7 inclusive. Otherwise the characteristics are the same as for *Paramunna* (p. 44). Both antennae shorter than body length.

List of species of *Austrosignum*

	Name	*Author, date*	*Locality*
1.	*Austrosignum glaciale*	HODGSON, 1910	Antarctic
2.	" *grande*	HODGSON, 1910	Antarctic
3.	" *incisa*	(RICHARDSON, 1908)	Antarctic
4.	" *falclandicum*	VANHÖFFEN, 1914	Antarctic
5.	" *dubia*	(HALE, 1937)	Antarctic

Distribution: This genus is known only from the Antarctic where it has a circumpolar distribution. Two species were found in the collections from Chile; both of these appear to be new.

Austrosignum latifrons, new species

Figure 9

Synonyms: None.

Diagnosis: Frontal margin of cephalon convex, evenly rounded. Ocular peduncles two times as long as wide. Posterolateral borders of peraeonal somites 1—4 denticulate. First antenna with six articles, last two subequal in length. Posterior border of pleotelson with six characteristic setae, lateral borders with setae but no spines.

Additional descriptive notes: Flagellum of second antennae with ten articles. Mouth parts and pleopods as in *Paramunna*. Mandibular palp triarticulate. Uropoda biramous.

Measurements: Female cotype length 1.28 mm, width 0.6 mm.

Type locality: Southern Chile, Seno Reloncaví, 23 January 1949, *St. M 40*, N. of Isla Quellín, 100 meters depth, hard sand, 3 females.

Distribution: Known only from type locality.

Affinities: This species differs from all previously known species in having the denticulate posterolateral margins of the first few peraeonal somites and in having ocular peduncles which do not exceed twice their width in length.

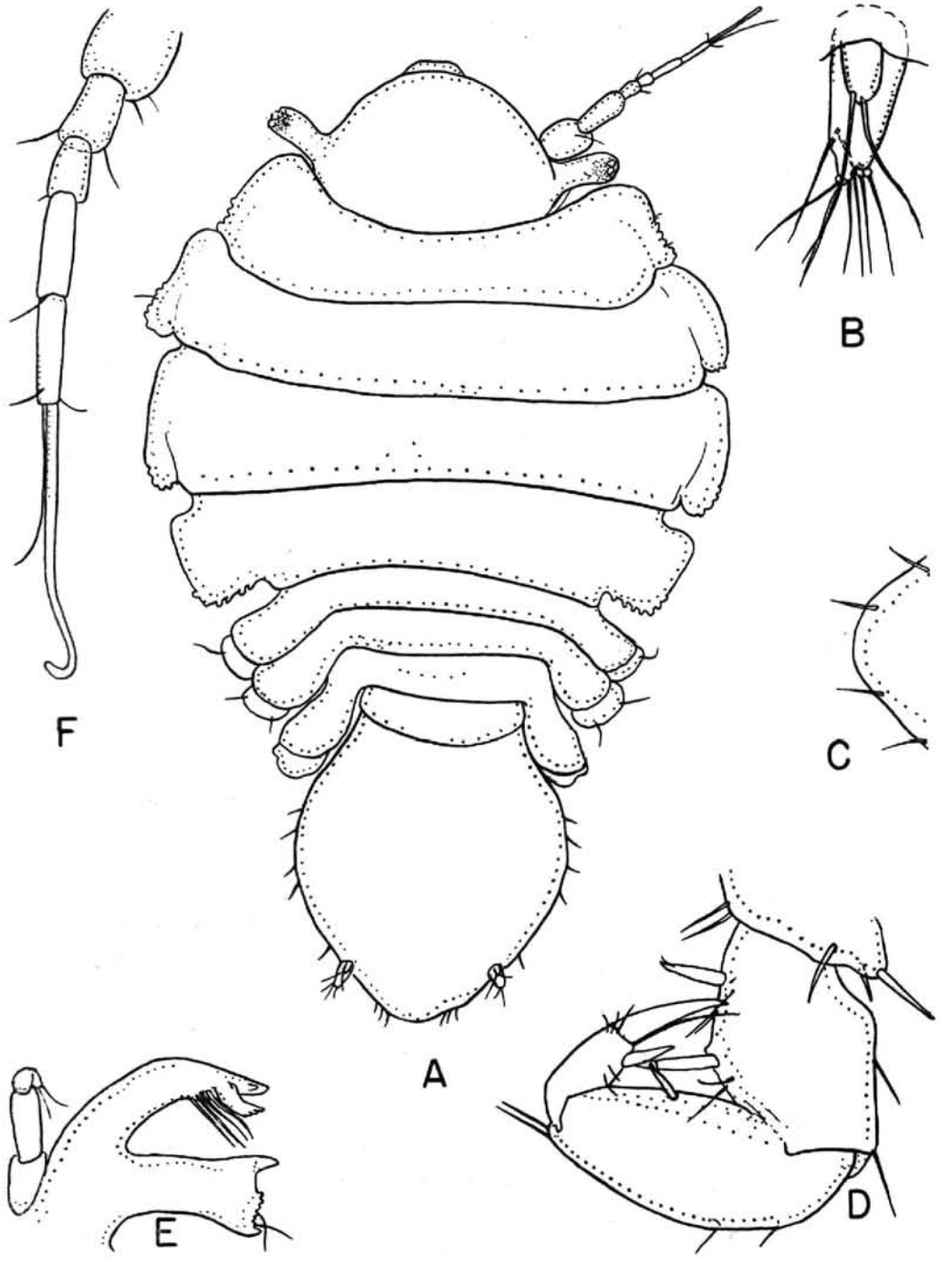

Figure 9. *Austrosignum latifrons*, n. sp., A, toto, female cotype, 1.2 mm long; B, uropods; C, apex of operculum; D, gnathopod; E, left mandible; F, first antenna.

Austrosignum globifrons new species

Figure 10

Synonyms: None.

Diagnosis: Frontal margin of cephalon convex, evenly rounded. Ocular peduncles short, about as long as wide. Peraeonal somites with entire lateral margins. First antenna with seven articles, second one-half longer than first, last two subequal in length. Posterior border of pleotelson with ten characteristic setae, lateral borders with a few setae and no spines or denticles.

Additional descriptive notes: Maxilliped with two coupling hooks, maxillae as in Munnidae. Mandible normal but palp lacking. Pleopods as in *Paramunna*. First antennal flagellum with four-five articles.

Measurements: Holotype male, length 1 mm, width 0.45 mm.

Type locality: Southern Chile, Estrecho de Magallanes, 3 May 1949, *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); 3 males, 3 females.

Distribution: Known only from the type locality.

Affinities: Superficially the species resembles *A. falclandicum* NORDENSTAM (1933, p. 244) especially in the shape of the cephalon. The second antenna, however, has 7 and not 6 articles and the pleon is composed of 2 and not 3 somites.

Austrosignum grande HODGSON

Figure 11

Synonyms: *Paramunna antarctica* of HALE, 1937, pp. 38—39, non RICHARDSON.
Austrosignum grande HODGSON, 1910, pp. 66—68.

Diagnosis: *Austrosignum* with eyes on stalks, front produced. First antenna with six articles. First somite of peraeon longer than other peraeonal somites. Lateral borders and apex of pleotelson entire and almost devoid of setae.

Measurements: Male length 1.3 mm, width at widest part 0.5 mm.

Type locality: Antarctic Continent (HODGSON, pp. 66—68).

Material examined: The only specimen was collected at *St. M 142*, Southern Chile, Seno Reloncaví, off Puerto Montt, July 14, 1949, about 35 meters depth, coarse sand.

Distribution: Besides being known from the winter quarters of the Scottish National Antarctic Expedition, this species is also known from the Antarctic Continent at Commonwealth Bay, Adelie Land (HALE, 1937, pp. 38—39).

Affinities: This species is close to *A. globifrons* n.sp., from which it differs markedly in having the eyes on pronounced stalks. Whether *Paramunna antarctica* RICHARDSON is this species or not will depend upon the correctness of NORDENSTAM's generic assignment of RICHARDSON's species. The latter apparently is the type of

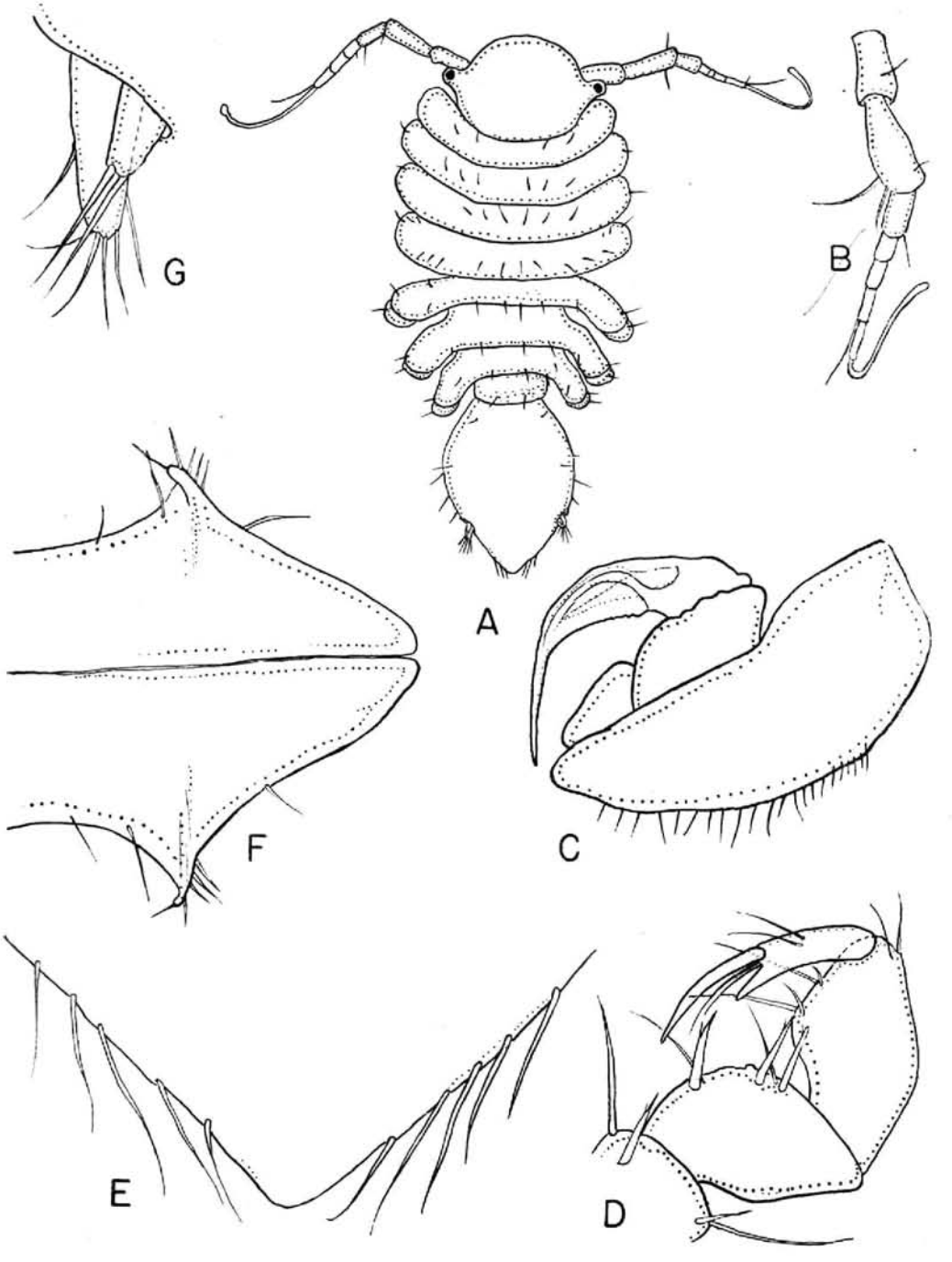

Figure 10. *Austrosignum globifrons*, n. sp. A, toto, male paratype, length 1.0 mm. B, first antenna; C, second pleopod; D, gnathopod; E, apex of pleotelson; F, male first pleopods; G, uropods.

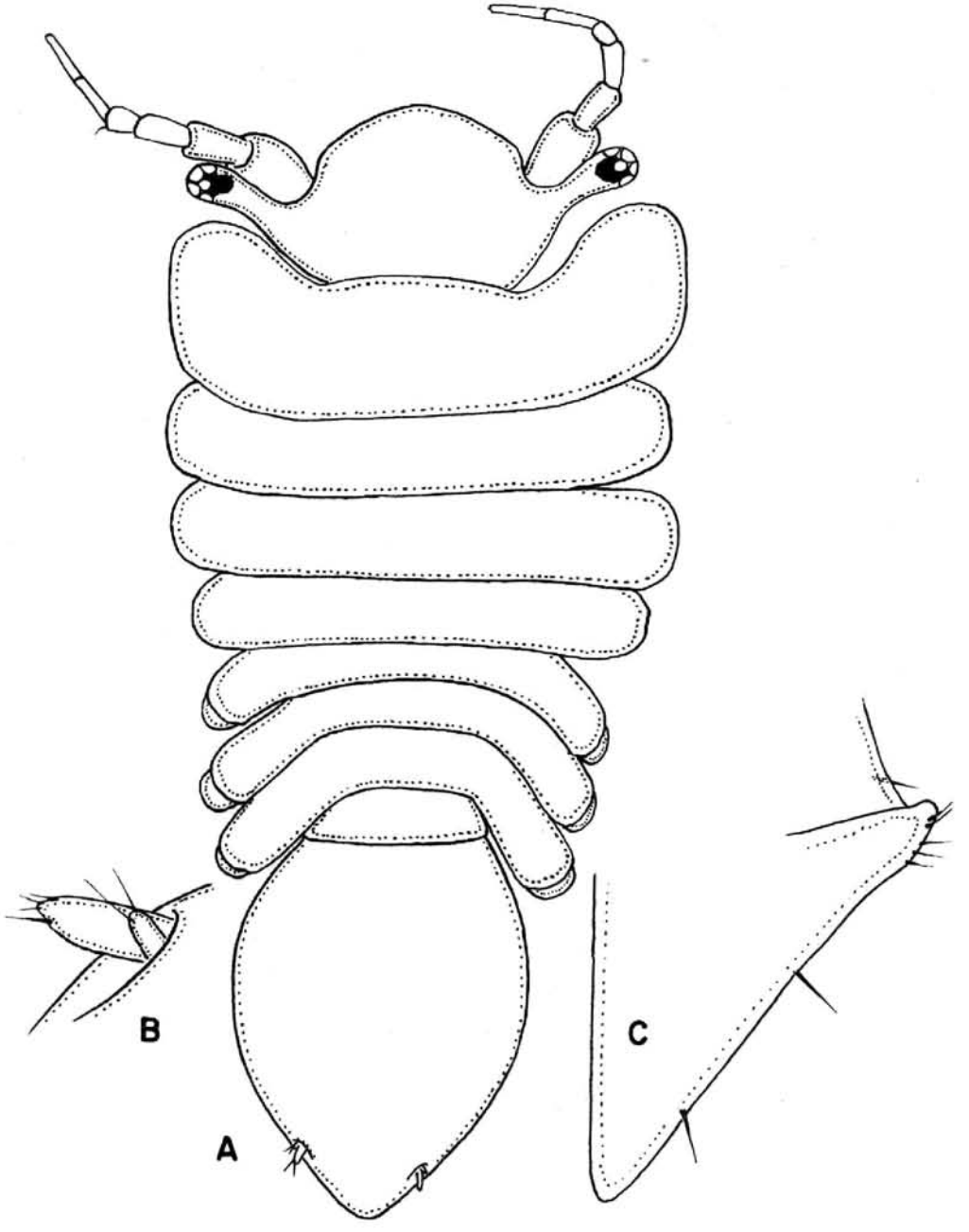

Figure 11. *Austrosignum grande* Hodgson. A, holotype male in toto. B, uropoda; C, apex of sympod of male first pleopod.

RICHARDSON's genus *Austrimunna* (RICHARDSON, 1906), and if it be found that *P. antartica* is an *Austrosignum* HODGSON, 1910, then of course, *Austrosignum* will become a synonym of *Austrimunna* emend., and not a synonym of *Paramunna* as NORDENSTAM has suggested. I am inclined to believe that *P. antarctica* has been correctly assigned to *Paramunna* because NORDENSTAM had seen representatives of the genera involved.

Family Pleurogonidae

Type genus: *Pleurogonium* G. O. SARS, 1863.

Diagnosis: Molar process of mandible reduced to narrow point which bears a few setae at its apex. Lacinia present on left mandible. Uropoda lacking peduncle. Except for gnathopod, all peraeopods simple walking legs. Antennae shorter than body length. Peraeopods bear at least one claw on dactyl. Second antenna without a scale. Last two articles of maxillipedal palp narrower than first three.

Composition and distribution: This family contains at least three genera: *Pleurogonium* G. O. SARS which is known from the Arctic and from off California and from the Antarctic, *Pleurosignum* VANHÖFFEN and *Antennulosignum* NORDENSTAM, both known solely from the Antarctic.

A KEY TO THE GENERA OF THE PLEUROGONIDAE

1. Cephalon lacking eyes and ocular peduncles ..... *Pleurogonium*
1. Cephalon with ocular peduncles and eyes 2
2. Second article of first antenna with a long extension at its medial border which exceeds the flagellum in length ..... *Antennulosignum*
2. Second article of first antenna normal, without any projections or extensions .... *Pleurosignum**

Genus *Pleurosignum* VANHÖFFEN, 1914

Synonyms: *Pleurosignum* VANHÖFFEN, 1914, p. 576 — NORDENSTAM, 1933, p. 246.

Type species: *Pleurosignum elongatum* VANHÖFFEN, 1914, pp. 576—577.

Diagnosis: Pleurogonidae with spinelike epimera visible in dorsal view on at least peraeonal somites 2—7 inclusive. Antennae of similar length, not longer than body. Second article of first antenna without projections or expansions. Mandibular palp lacking.

List of the species of *Pleurosignum*

	Name	*Author, date*	*Locality*
1.	*Pleurosignum elongatum*	VANHÖFFEN, 1914	Antarctic
2.	" *magnum*	VANHÖFFEN, 1914	Antarctic
3.	" *lunata*	(HALE, 1937)?	Antarctic

* Considered in this report.

Composition and distribution: All known species occur only in Antarctic regions. *P. lunata* (HALE) is assigned tentatively to the genus; the structure of its mouthparts is not known. Two species were found in the Chilean collections. One is *P. magnum* VANHÖFFEN and the other is new.

Pleurosignum magnum VANHÖFFEN

Figure 12

Synonyms: *Pleurosignum magnum* VANHÖFFEN, 1914, p. 577—578 — NORDENSTAM, 1933, pp. 246—248, fig. 68.

Diagnosis: Cephalon with front convex, evenly rounded. First antenna with six articles, first two articles subequal in length, third one-half the length of second, third, fourth, fifth and sixth subequal in length. Lateral margins pleotelson with 11—12 stout setae anterior to uropods and 8 stouter setae posterior to uropods, apex pointed. Dactyl of gnathopod with inferior margin provided with five sharp denticles, propod with two characteristic recurved two-pointed setae.

Additional descriptive notes: Gnathopodal setae characteristic.

Measurements: Female length 1.5 mm, width 0.75 mm. VANHÖFFEN (1914) cites one gravid female being 1.5 mm long.

Material examined: Southern Chile, *St. M 147*, three females, *St. M 148*, one.

Distribution: The species was previously known from the East Antarctic (VANHÖFFEN, 1914, "Gauss" Station and the Falkland Islands at Port William and Burwood Bank (NORDENSTAM, 1933, p. 248). This is the first record of the species from Chile.

Pleurosignum chilense, new species

Figure 13

Synonyms: None.

Diagnosis: Cephalon with convex front, almost triangulate. First antenna with six articles, first two subequal in length, flagellar articles one-half length of peduncular articles and also subequal in length. Lateral margins of pleotelson entire, without spines, denticles or setae; apex with four small setae. Dactyl of gnathopod with four blunt denticles, setae of propod normal two-pointed type which are not recurved at apex.

Additional descriptive notes: Apex of male first pleopod with a single seta. Maxilliped with two coupling hooks.

Measurements: Holotype male, length 0.87 mm, width 0.37 mm.

Type locality: Southern Chile, Estrecho de Magallanes, 3 May 1949, *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), four males, 1 gravid female.

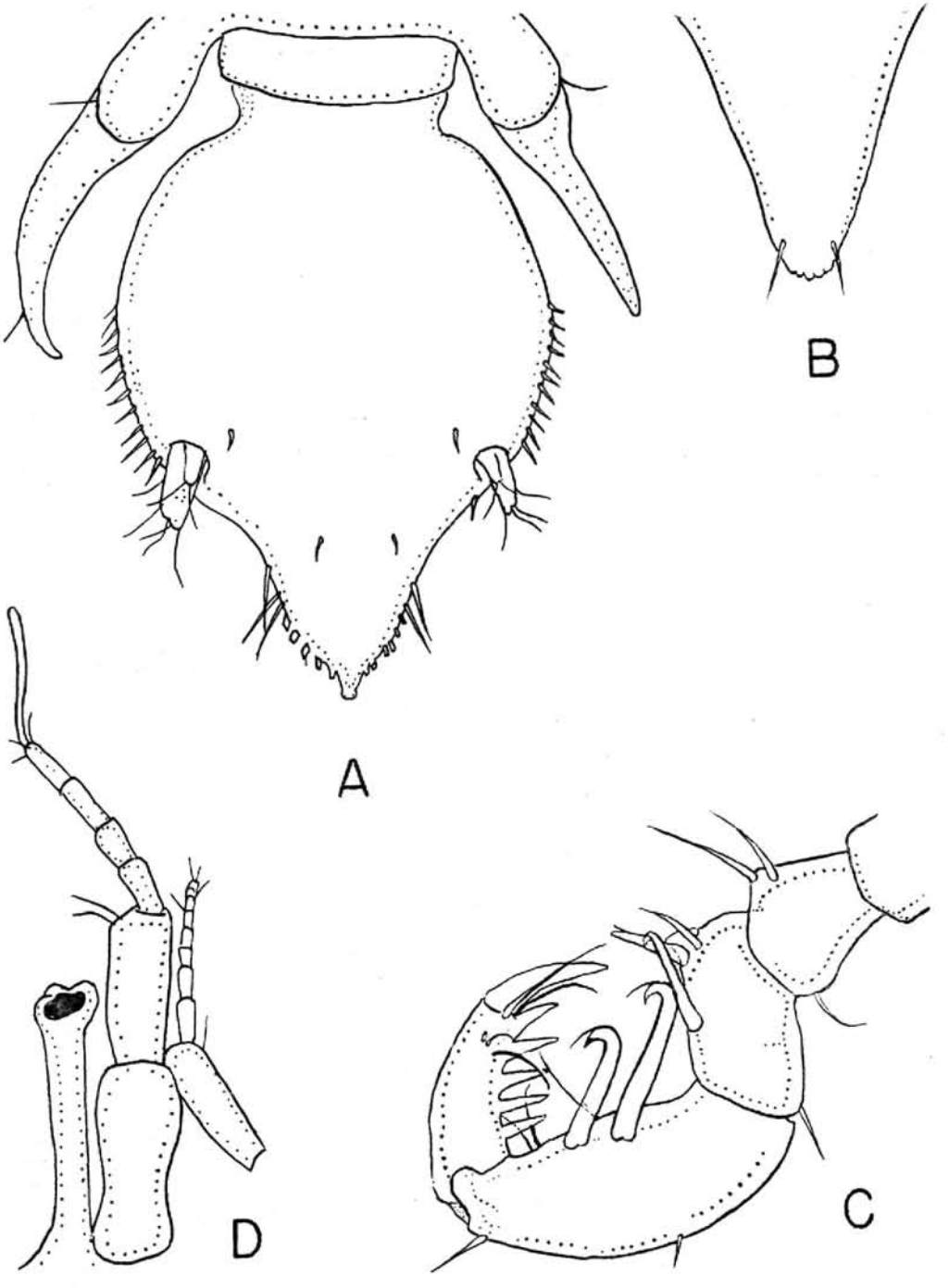

Figure 12. *Pleurosignum magnum* VANHÖFFEN, Female, 1.5 mm long; A, pleotelson; B, apex operculum; C, gnathopod; D, ocular peduncle and antennae.

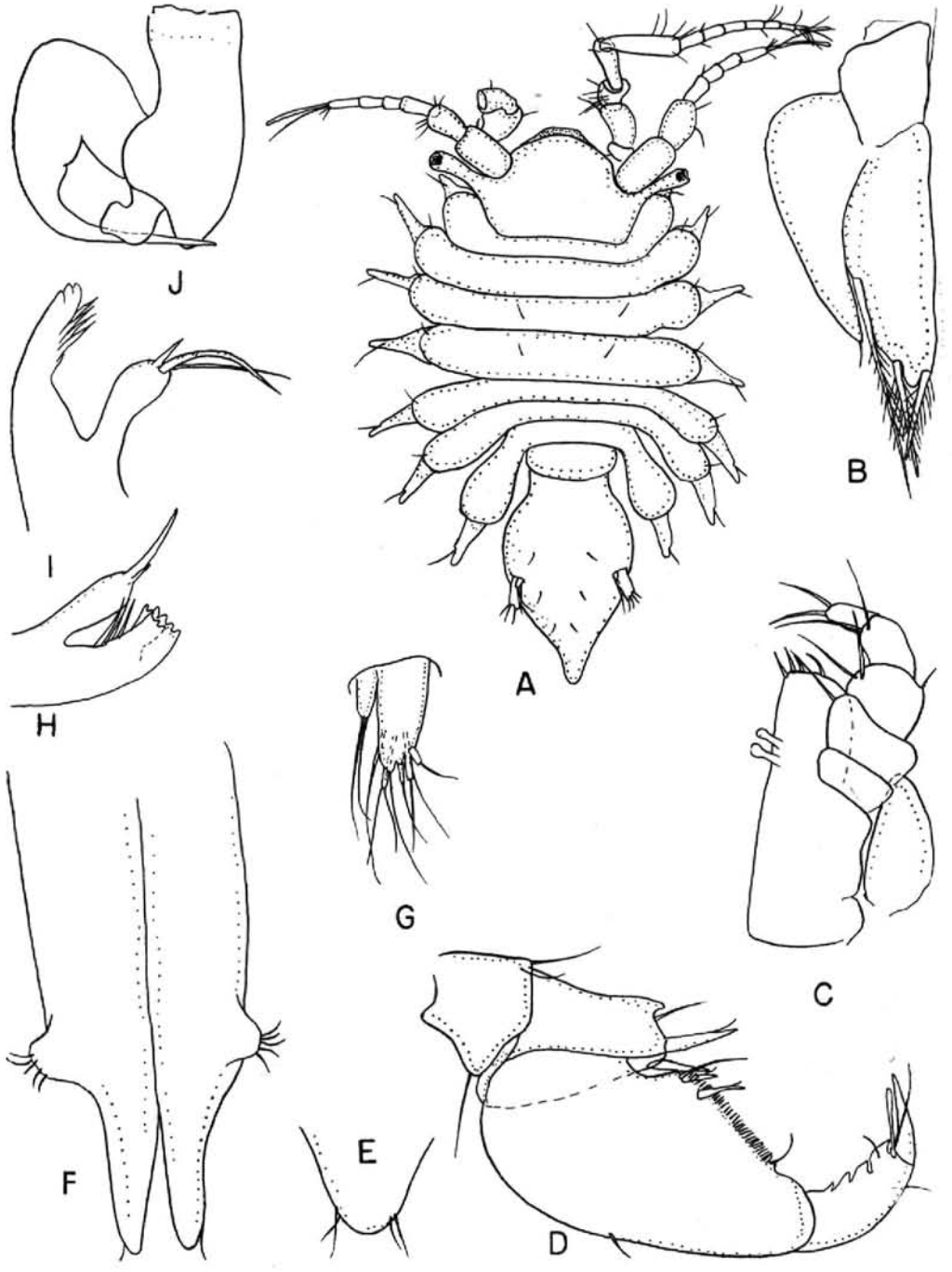

Figure 13. *Pleurosignum chilense*, n. sp. A, holotype male toto length 0.87 mm; B, third pleopod; C, maxilliped; D, gnathopod; E, apex pleotelson; F, male first pleopoda; G, uropods; H, left mandible; I, right mandible; J, second male pleopod.

Material examined: Southern Chile. In addition to the types, one male was examined from *St. M 42.*

Affinities: This species is wide like *P. magnum* but the structure of the male gnathopods which lack the large recurved setae on the propod indicates its distinctness.

Family Antiasidae

Type genus: *Antias* RICHARDSON, 1906.

Diagnosis: Articles of maxillipedal palp all narrow, similar in width and one-half the width of endite. Dactyl of seventh peraeopod with two short claws, not three. Mandibular molar process normal, expanded apically with a grinding edge. All peraeonal somites of similar width, none twice as long as wide. Uropoda with a peduncle. Peraeopods except for gnathopods, all of similar structure.

Composition and distribution: This family contains two genera *Antias* RICHARDSON, and *Kuphomunna* BARNARD. The former is known from the North Pacific and the South Atlantic; whereas the latter is known only from South Africa. MILTON A. MILLER (in letter) reports the genus *Antias* from Bermuda, hence one must conclude that it is a cosmopolitan genus having, however, its most pronounced representation in the South Atlantic.

A KEY TO THE GENERA OF THE ANTIASIDAE

1. Rostrum present, exceeding length of cephalon by two times ..... *Kuphomunna* BARNARD, 1914
1. Rostrum lacking ..... *Antias** RICHARDSON, 1906

Genus *Antias* RICHARDSON, 1906

Type species: *Antias charcoti* RICHARDSON, 1906.

Synonyms: *Antias* RICHARDSON, 1906, pp. 16—17 — NORDENSTAM, 1933, pp. 220 — VANHÖFFEN, 1914, p. 533.

Eight species of *Antias* are now known (MENZIES and MILLER, 1955) and a key to the species has been already given by those authors. The following is a list of the species.

List of the species of *Antias*

	Name	*Author, date*	*Locality*
1.	*Antias unirameus*	MENZIES & MILLER, 1955	New Zealand
2.	" *uncinatus*	VANHÖFFEN, 1914	S. Africa
3.	" *hispidus*	VANHÖFFEN, 1914	Antarctic

* Considered in this report.

4.	*Antias mawsoni*	HALE, 1937	Antarctic
5.	" *hirsutus*	MENZIES, 1951	California
6.	" *marmoratus*	VANHÖFFEN, 1914	Antarctic
7.	" *hofsteni*	NORDENSTAM, 1933	Antarctic
8.	" *charcoti*	RICHARDSON, 1906	Antarctic

The genus obviously has its greatest representation in the Antartic, namely over one-half of the species. Three species were found in the collections from Chile, one is *A. mawsoni* HALE; the others are new species.

Antias mawsoni HALE

Figure 14

Synonyms: *Antias mawsoni* HALE, 1937, pp. 29—30, fig. 10.

Diagnosis: Frontal border of cephalon convex, evenly rounded. First antenna with five articles, terminal antenna longest. Uropodal rami two in number, as long as or longer than peduncle, endopod about two times length of exopod. Lateral borders of pleotelson with two stout setae; posterior margin with two minute setae. Body with few marginal setae.

Additional descriptive notes: Mandibular palp triarticulate. Maxilliped with three coupling hooks. Flagellum of second antenna with nine articles and a prominent scale. Margins of coxal plates with long two-pointed setae.

Material examined: Central Chile, *St. M 123*, one male, Southern Chile, *St. M 98*, one young female, *St. M 94*, one male, *St. M 115* one male.

Measurements: Length female 1.6 mm (HALE, 1937, p. 30).

Affinities: This species appears most closely related to *Antias hispidus* VANHÖFFEN from the Antarctic. It differs from that species principally in a lesser number of setae in the body and lateral margins of the pleotelson. HALE's (1937), specimen had one less bristle on the pleotelson. Otherwise it is very similar to the specimens described here.

Distribution: This species was first collected at the main base of the "Australian Antarctic Expedition" in depths of 3—5 fathoms (HALE, 1937, pp. 29—30). These collections extend its range to Southern Chile. It is probably an Antarctic circumpolar species.

Antias laevifrons, new species

Figure 15

Synonyms: None.

Diagnosis: Frontal border of cephalon convex, truncated at apex. First antenna with five articles, last article three times the length of penultimate article. Uropodal rami two in number, subequal in length, about two times the length of peduncle. Lateral borders of pleotelson entire, with three minute setae. Posterior margin with two minute setae. Body lacking marginal or dorsal setae.

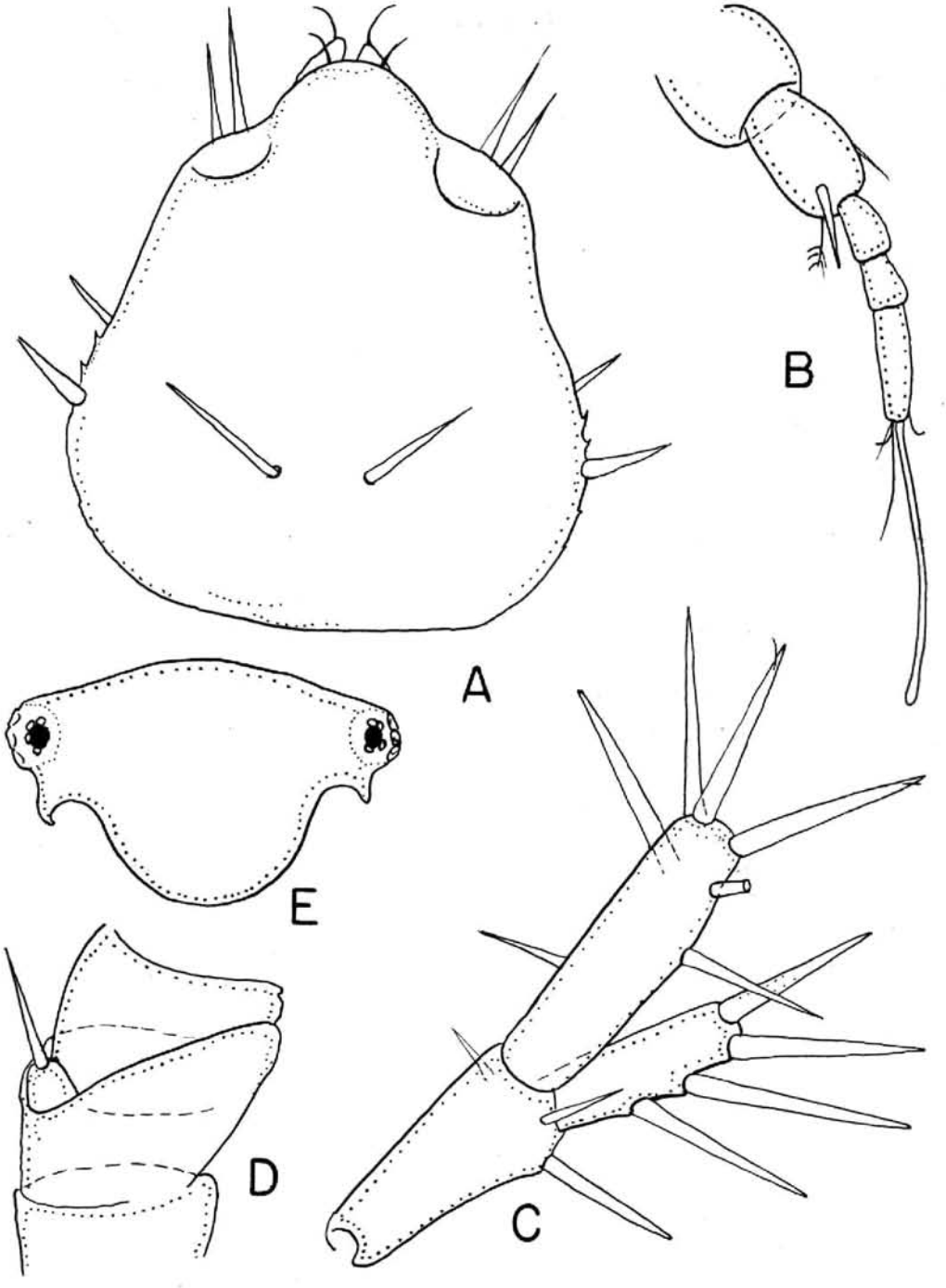

Figure 14. *Antias mawsoni* HALE, female, length 1.0 mm. A, pleotelson; B, first antenna; C, uropod; D, peduncle second antenna; E, cephalon.

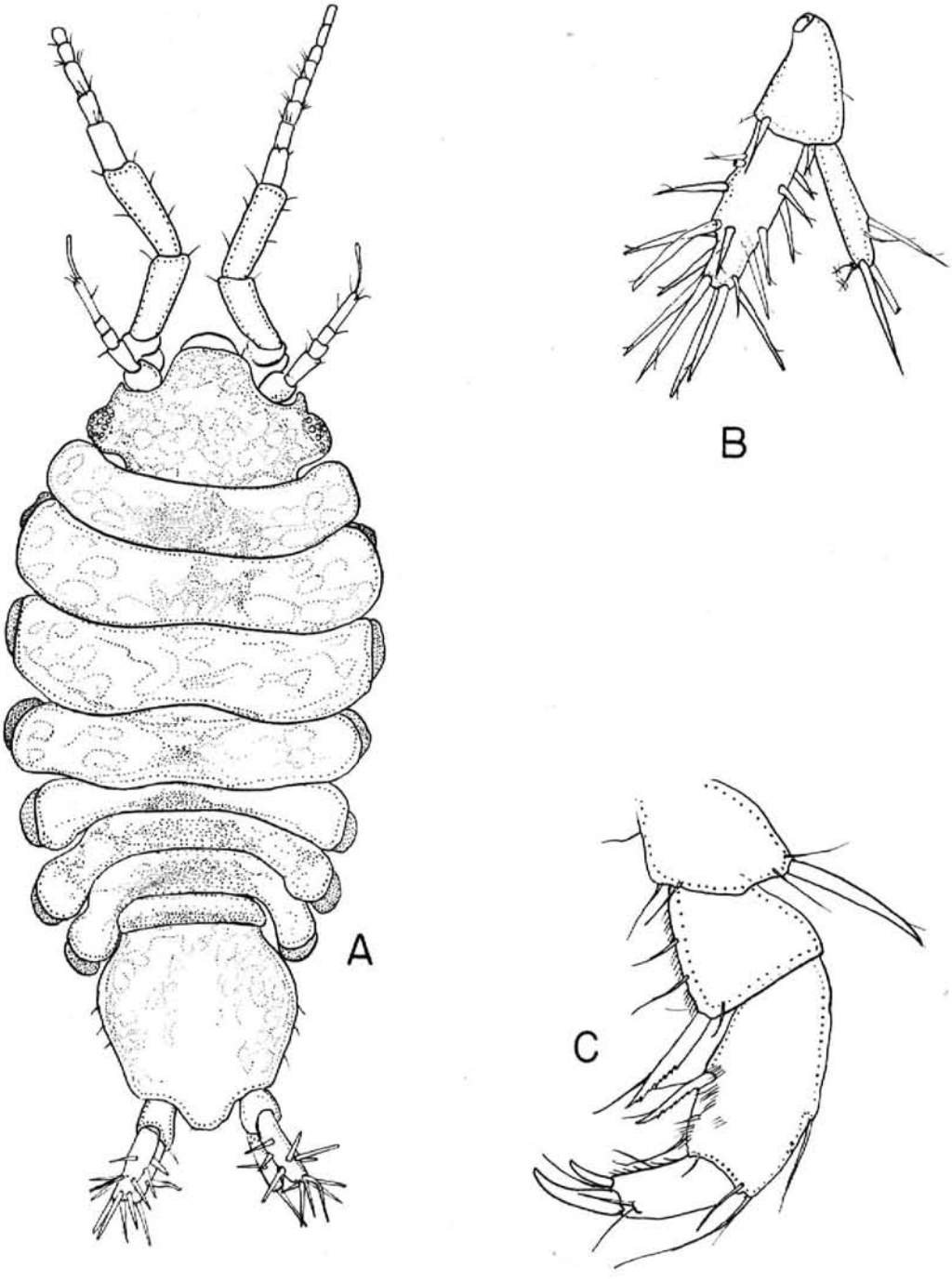

Figure 15. *Antias laevifrons*, n. sp. A, toto, female holotype, length 1.3 mm; B, uropod; C, gnathopod.

Additional descriptive notes: Mandibular palp triarticulate.

Measurements: Holotype ovigerous female, length 1.3 mm, width 0.5 mm.

Type locality: Central Chile, Montemar (N. of Valparaíso). *St. M 123*, "Estación de biología marina", 15 June 1949, tidal belt, rocks with pools, microfauna samples from algae, one female, and four additional specimens.

Material examined: *St. M 75*, one, *St. M 123*, four specimens.

Distribution: Chile, 32° S to 44° S.

Affinities: This species is most closely related to *A. mawsoni* HALE in antennal and uropodal structure but it differs markedly in lacking stout setae at the lateral borders of the pleotelson.

Antias dimorphis, new species

Figure 16

Synonyms: None.

Diagnosis: Frontal border of cephalon concave. First antenna with five articles, terminal article longest. Uropodal rami two, both as long as or longer than peduncle. Exopod about two times length of endopod. Lateral borders of pleotelson and body devoid of setae. Male with first peraeonal somite two times the length of second. Female with peraeonal somites subequal in length.

Additional descriptive notes: Mandibular palp triarticulate, maxilliped with two coupling hooks. Flagellum of second antenna with at least 19 articles.

Measurements: Holotype male 2.0 mm long, 0.5 mm wide. Gravid female allotype, 2.5 mm long, 0.75 mm wide.

Type locality and types: Southern Chile, Islas Guaitecas, Puerto Melinka, 14 February 1949, *St. M 52*, tidal belt, rocks, stones and sand, rather exposed; holotype male, allotype gravid female, and three male paratypes.

Distribution: Known only from type locality.

Affinities: This species shows no marked affinities with other known *Antias*. The smooth and elongate body, concave frontal margin, and sexual dimorphism are enough to distinguish it from all others.

Family Jaeropsidae

Type genus: *Jaeropsis* KOEHLER, 1885.

Diagnosis: (Family and genus) Molar process reduced, elongated, and no grinding edge present. Palp of maxilliped with narrow similar articles all less than one-half the width of endite. All peraeonal somites of similar width, wider than long. Uropoda with peduncle. Peraeopods with at least two dactylar claws, all similar in general structure, none adapted for swimming (e.g., paddle-like).

Composition and distribution: This family contains only one genus, hence the familial diagnosis equals the generic diagnosis, *Jaeropsis*. It is known from the

principal oceans of the world, except the Arctic Ocean. The greatest number of species are found from the Antarctic region.

Genus *Jaeropsis* KOEHLER, 1885

Synonyms: *Jaeropsis* KOEHLER, 1885. — STEBBING, 1905. — RICHARDSON, 1905. — VANHÖFFEN, 1914. — NORDENSTAM, 1933. — NIERSTRASZ, 1941.

Diagnosis: See diagnosis for family.

Composition and distribution: See family (p. 63).

List of the species of *Jaeropsis*

	Name	*Author, date*	*Locality*
1.	*Jaeropsis curvicornis*	(NICOLET, 1849)	Chile
2.	" *lobata*	RICHARDSON, 1899	California
3.	" *paulensis*	VANHÖFFEN, 1914	Antarctic
4.	" *marionis*	BEDDARD, 1885	Antarctic
5.	" *patagoniensis*	RICHARDSON, 1909	Antarctic, Patagonia
6.	" *rathbunae*	RICHARDSON, 1902	Bermuda
7.	" *intermedius*	NORDENSTAM, 1933	Antarctic
8.	" *dubia*	MENZIES, 1951	California
9.	" *dubia* var *paucispinis*	MENZIES, 1951	California
10.	" *brevicornis*	KOEHLER, 1885	Europe
11.	" *hawaiiensis*	MILLER, 1941	Hawaii
12.	" *dollfusi*	NORMAN, 1899	Mediterranean
13.	" *neozealandica*	CHILTON, 1909	N. Zealand
14.	" *palliseri*	HURLEY, 1957	N. Zealand

J. curvicornis (NICOLET) and *J. patagoniensis* RICHARDSON are believed by NORDENSTAM, 1933, p. 192, to be synonymous.

It is impossible at this time to construct a key to the species because their characteristics are too imperfectly known.

The presence or absence of spines at the lateral borders of the cephalon and pleotelson and the shape of the rostrum are characteristics separating one species from the other. Also important is the number of coupling hooks attached to the maxillipeds and the presence or absence of a claw on the uropodal peduncle.

The location of the eyes on the cephalon is probably not an important characteristic as described because the various authors have not been precise in their descriptions.

RICHARDSON (1905), MILLER (1941) and others have failed to indicate the molar process characterizing species belonging to this genus.

I must concur with NORDENSTAM (1933, p. 194) that "revision of the southern species of *Jaeropsis* is very much needed" but expand these remarks to include all of the species.

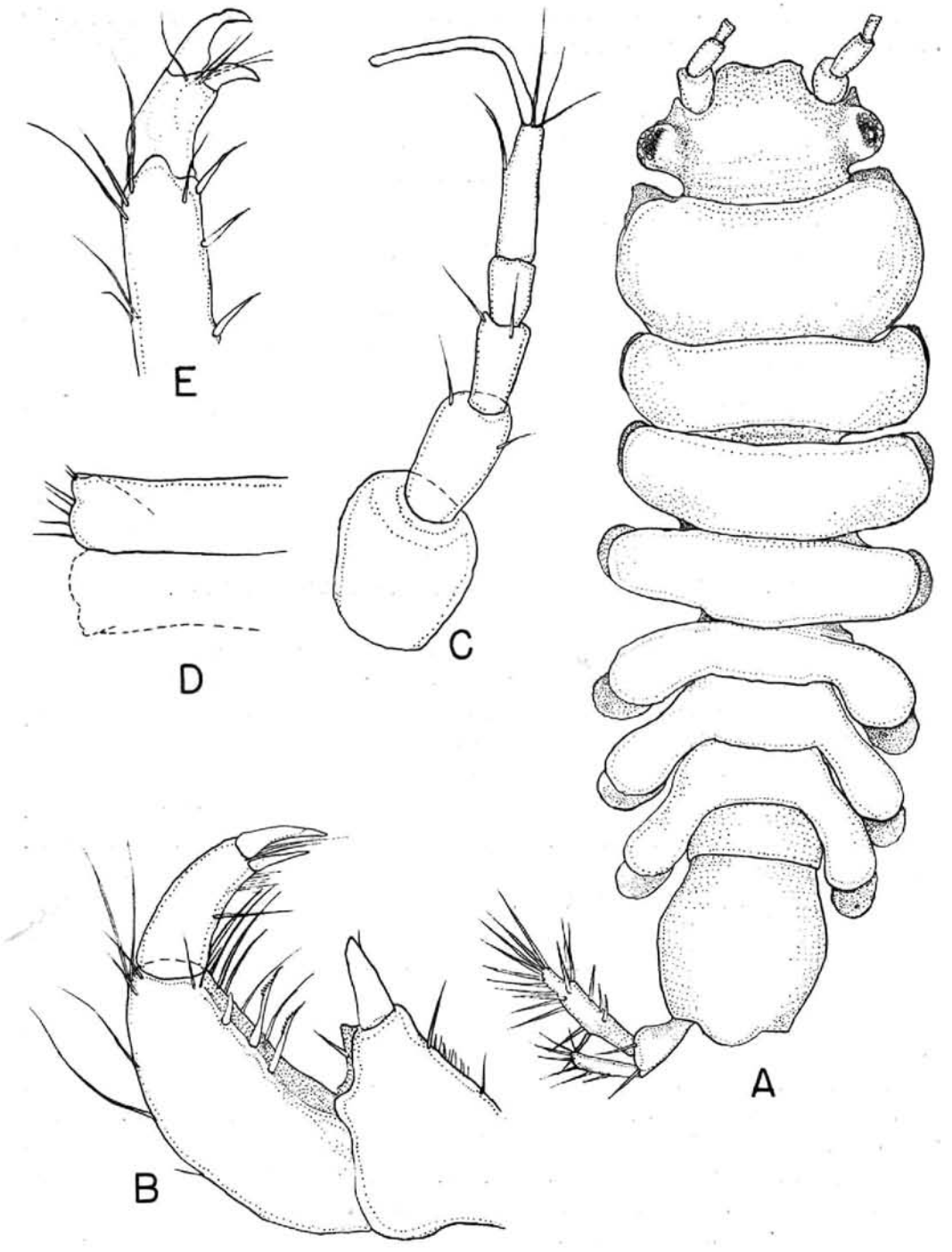

Figure 16. *Antias dimorphis,* n. sp., male holotype, 2.0 mm long. A, toto; B, gnathopod; C, first antenna; D, first pleopods; E, seventh peraeopod.

From the Chilean collections two species were found. One is almost certainly *Jaeropsis intermedius* NORDENSTAM, which was previously known from Argentina and the Falkland Islands. The other species I am describing as new.

Jaeropsis curvicornis (NICOLET)

Figure 51 C—E

Synonyms: *Jaera curvicornis* NICOLET, 1849, p. 263, pl. 3, fig. 10.
Jaeropsis curvicornis (NICOLET), BARNARD, 1914, p. 224 and synonyms.
Jaeropsis patagoniensis RICHARDSON, 1909, pp. 421—422, HALE, 1937, pp. 22—23.

Diagnosis: *Jaeropsis* with blunt rostral process having a sharp median projection. Pleotelson incised laterally cephalad of uropoda. Stout setae lacking from cephalon and pleotelsonal margins.

Distribution: Chile, Patagonia, New Zealand, South Africa, Antarctic (BARNARD, RICHARDSON, HALE, op. cit.).

Jaeropsis intermedius NORDENSTAM

Figure 17

Synonyms: *Jaeropsis intermedius* NORDENSTAM, 1933, pp. 194—197, fig. 46.

Diagnosis: Rostrum spear-point shaped, with minute and irregular denticulations on margin. Each lateral border of pleotelson with eight spines between each of which are one-three setae. Uropodal peduncle with a stout claw. First antenna with six articles, last article short, about one-third the length of penultimate article. Lateral borders of cephalon with six stout spines.

Measurements: Up to 3.5 mm (NORDENSTAM, 1933, p. 197).

Type locality: Coast of North Argentina, latitude 37°50′ S, longitude 56°11′ W. 100 meters, gravel mixed with sand, 23 December 1901 (NORDENSTAM, 1933, p. 197).

Material examined: Southern Chile, *St. M 40*, one ovigerous female.

Distribution: Argentina to Chile.

Jaeropsis bidens, new species

Figure 18

Synonyms: None.

Diagnosis: Rostrum evenly convex, lacking any spines or fringe of scales. Each lateral border of pleotelson with two (male) or three (female) spines between each of which are 4 characteristic setae. Uropodal peduncle with a claw at distal-medial angle. First antenna with six articles, last two short, as wide as long, and subequal in length. Apex of each first male pleopod with thirteen setae. Lateral borders of cephalon lacking spines.

Additional descriptive notes: Palp of mandible triarticulate. Flagellum of second antenna with 7—8 articles. Maxilliped with three coupling hooks.

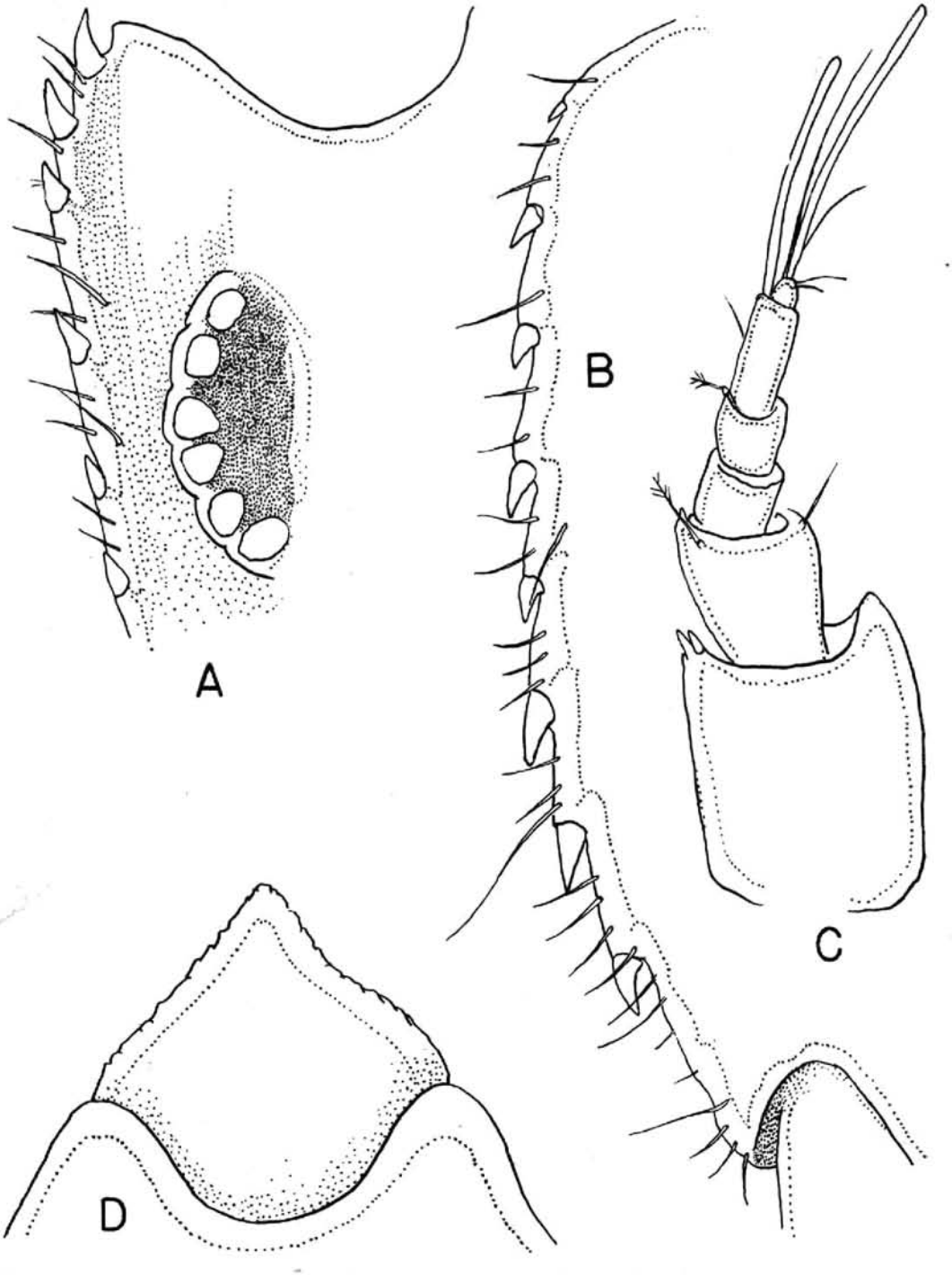

Figure 17. *Jaeropsis intermedius* NORDENSTAM. Gravid female, length 2.7 mm. A, cephalon; B, lateral border of pleotelson; C, first antenna; D, rostrum.

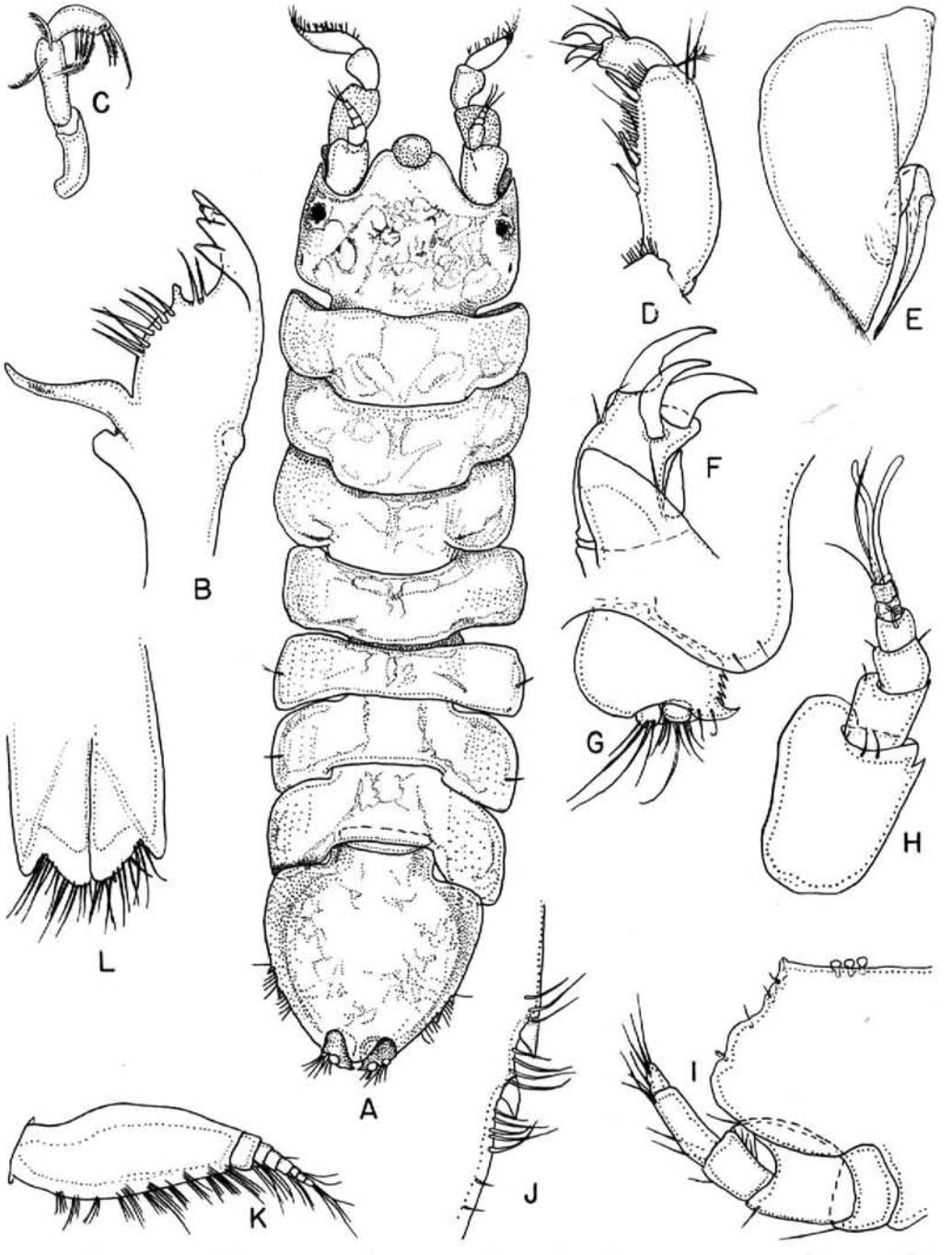

Figure 18. *Jaeropsis bidens*, n. sp. Holotype male, length 2.6 mm. A, toto; B, left mandible C, palp of mandible; D, first peraeopod; E, second pleopod; F, dactyl of seventh peraeopod G, uropod; H, first antenna; I, maxilliped; J, lateral margin pleotelson; K, flagellum of second antenna.

Type locality and types: Northern Chile, Iquique, southern parts of the town, 4 July 1949, *St. M 131*, tidal belt, red rocks with rock pools, extremely exposed; microfauna sample from algae, four male holotypes, five females, one gravid.

Measurements: Type male length 2.2 mm, width 0.7 mm.

Material examined: Northern Chile, *St. M 135*, two males, seven females. *St. M 127*, one male, two gravid females, one juvenile, plus one. Central Chile, *St. M 123*, one gravid female albino, one female pleotelson, one male, two juveniles, one head. Southern Chile, *St. M 56*, one ovigerous female. *St. M 41*, one female.

Distribution: Northern to southern Chile, intertidal to 300 meters depth.

Affinities: In the presence of only three spines on each lateral border of the pleotelson the females of this species show a marked resemblance to *J. dubia* var, *paucispinis* MENZIES. It differs from that species in lacking the fringe of scales around the rostrum and on the peduncular articles of the second antenna.

Family Ianiridae

Diagnosis: Paraselloidea with none of the peraeopods modified for swimming. Dactyls with claws, two on first peraeopod, three on other peraeopods. Pleon consisting of two somites, first narrow and inconspicuous, second shield-shaped and large. Uropoda subterminal or terminal, with peduncle, generally biramous. Mandibular molar process normal, strong, truncated at grinding apex. Coxal plates visible in dorsal view on most peraeonal somites. Maxillipedal palp with last two articles markedly narrower than first three; first three wide, over one-half the width of endite. Second antenna with a distinct squama.

This family has for a long time been a catch-all for any genus roughly fitting its charcteristics. Because of this its composition has shifted depending upon the investigator's knowledge. The most recent listing of its genera is found in NIERSTRASZ (1941, pp. 282—288) who cites 16 genera.

The genera *Acanthaspidia* STEBBING, *Jolanthe* BEDDARD, *Janthopsis*, *Jaerella* RICHARDSON, *Janirella* RICHARDSON, *Trichopleon* BEDDARD, *Pseudoinaira* BARNARD, *Protojanira* BARNARD, and *Microprotus* RICHARDSON certainly do not belong to the Ianiridae because in those genera the pleotelson is composed of only one somite, not two. *Ianirella* was placed in a new family by MENZIES (1956) and in this paper *Janthopsis* and *Acanthaspidia* which are possible synonyms are similarly placed in the Ianirellidae. The number of genera comprising the Ianiridae can thus be reduced to eleven; with one genus, *Ectias* RICHARDSON, only tentatively assigned to it due to the fact that too few of its anatomical features are known to insure adequate placement.

A KEY TO GENERA OF THE IANIRIDAE

(Exclusive of *Protojanira* and *Ectias*)

1. Coxal plates not visible in dorsal view, uropodal rami as wide as long and shorter than peduncle 2

1. Coxal plates visible in dorsal view 3
2. With eyes ..... *Jaera* LEACH
2. Without eyes ..... *Caecijaera* MENZIES
3. First peraeopoda subchelate 4
3. First peraeopoda simple, not subchelate 5
4. Propod and carpus of gnathopod hugely swollen, dactyl present ..... *Carpias* RICHARDSON
4. Propod and carpus of gnathopod hugely swollen, dactyl lacking *Bagatus* NOBILI
5. Male first pleopod with margins straight to apex which is bilobed 6
5. Male first pleopod with apex laterally expanded 7
6. Eyes with two to six facets only 9
6. Eyes, large, with many facets. Third pleopod with plumose setae *Janira* LEACH
7. Propod of first peraeopod with inferior margin dentate for about 1.3 of its length *Janiralata* MENZIES
7. Propod of first peraeopod lacking dentations on inferior margin 8
8. Cephalon with pronounced rostrum ..... *Iathrippa* BOVALLIUS*
8. Cephalon without or with minute rostrum ..... *Ianiropsis* G. O. SARS*
9. Eyes with two facets, third pleopod lacking plumose setae .. *Iais* BOVALLIUS*
9. Eyes with about six facets, third pleopod with plumose setae ..... *Neojaera* NORDENSTAM* (=*Austrofilius* HODGSON)

Genus *Iathrippa* BOVALLIUS

Synonyms: *Iathrippa* BOVALLIUS, 1886, pp. 32—33, NORDENSTAM, 1933, p. 172.
Notasellus PFEFFER, 1887, p. 125.
Jorina NIERSTRASZ, 1918, pp. 134—317.

Type species: *Janira longicauda* CHILTON, 1884, p. 250, pl. 18.

Diagnosis: Ianiridae with eyes protruding, situated laterally. Uropods broad and flattened, the width of peduncle increasing towards the distal end. First pleopods of male with latero-distal angles triangular and protruding. Exopod of third pleopod of male widening toward distal end and not concealed by second pleopod. Endopod of third pleopod with three plumose setae at distal margin. Third pleopod acting as operculum in male and not the second as is the case in other genera (modified after NORDENSTAM, op. cit.).

Iathrippa chilensis, new species

Figure 19

Synonyms: None.

Diagnosis: Rostral apex dentate. Uropodal exopod one-half to one-third as long as endopod. Each lateral border of pleotelson with 14—17 stout setae. Maxilliped

* Considered in this report.

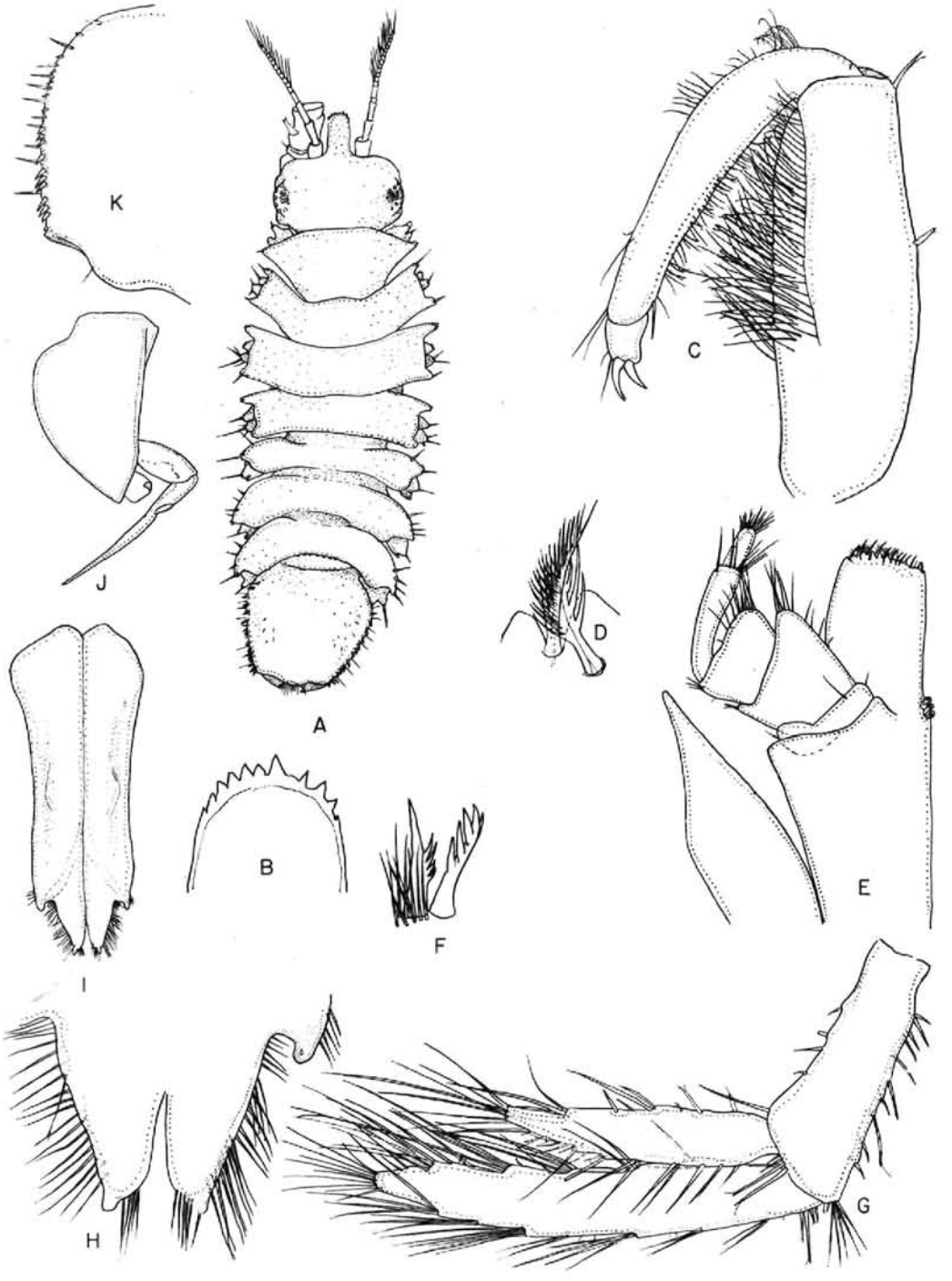

Figure 19. *Iathrippa chilensis*, n. sp. A, toto, male; B, rostrum; C, gnathopod; D, setae at apex of maxillipedal endite; E, maxilliped; F, setae of maxilla; G, uropod; H, apex of first male pleopods; I, first male pleopods; J, second male pleopod; K, lateral border pleotelson.

with three coupling hooks. Pre-apical angle of first male pleopod rounded, lacking serrations.

Measurements: Holotype male length 6.0 mm, width 1.5 mm.

Type locality and types: Southern Chile, Seno Reloncaví, the bay off Puerto Montt, between Isla Tenglo and Punta Pilluco, 1 December 1948, 225 meters, small stones and boulders in fine sand, *St. M 14*, holotype male, allotype and one female paratype.

Distribution: Southern Chile, *St. M 40*, two females, one gravid; *St. M 47*, one specimen, *St. M 41*, three specimens; *St. M 42*, one male, three females, three juveniles, *St. M 24*, one young, *St. M 114*, one young; *St. M 115*, one young.

Affinities: This species differs from those previously described in the large number of stout setae on the margin of the pleotelson and the fact that the pre-apical angles of the male first pleopoda are rounded and not denticulate. Its closest relation appears to be *I. multidens* (see below).

Iathrippa multidens, new species

Figure 20

Synonyms: None.

Diagnosis: Rostral apex dentate. Each lateral border of pleotelson with 20—30 stout setae. Maxilliped with five coupling hooks. Pre-apical angle of first male pleopod with serrations.

Measurements: Male holotype 10 mm long, 2 mm wide.

Type locality and types: Southern Chile, Estrecho de Magallanes, near the estuary of Río los Ciervos, S. of Punta Arenas, 3 May 1949, tidal belt, gravel and clay mixed with mud and covered with boulders, exposed (shelter: kelp), *St. M 115*, male holotype, eleven paratypes, males and females.

Distribution: Known only from type locality.

Affinities: This species is most closely related to *I. chilensis*. Characteristics given in the diagnosis serve to distinguish it from all known species.

Iathrippa longicauda (Chilton)

Figure 51 F—G

Synonyms: *Ianira* (*Iathrippa*) *longicauda* Chilton, Nordenstam, 1933, pp. 173—176 and synonyms, also.
Iathrippa longicauda (Chilton), Hurley, 1957, pp. 17—18, figs. 92—107.
Janira capensis Barnard, 1914, pp. 220—221, pl. XXB.

Diagnosis: Iathrippa without stout two-pointed setae on lateral margins of pleotelson; instead, the setae present are fine, simple setae. Maxilliped with three coupling hooks.

This species has been described in varying degrees of detail by Nordenstam, 1933, Hurley, 1957 and Richardson, 1910.

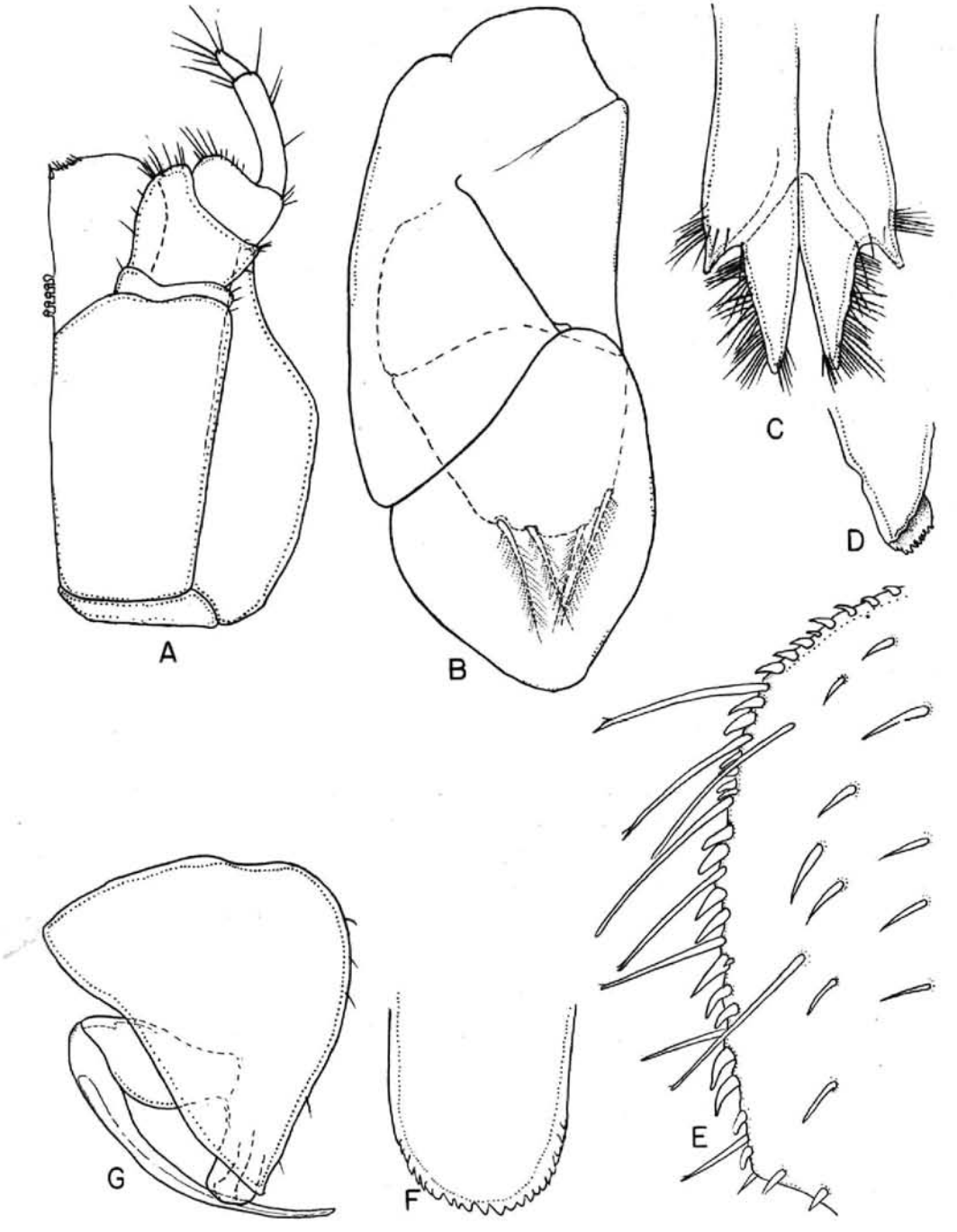

Figure 20. *Iathrippa multidens*, n. sp. A, maxilliped; B, third pleopod; C, first male pleopods; D, pre-apical angle of first male pleopod; E, lateral border of pleotelson; F, rostrum; G, second male pleopod.

Distribution: New Zealand, West Chile, Patagonia, Tierra del Fuego, Magellan Straits, Falkland Islands, South Georgia Islands, Campbell Islands, (NORDENSTAM, op. cit.), South Africa (BARNARD, 1914, p. 220).

Genus *Iais* BOVALLIUS, 1886

Synonyms: *Iais* BOVALLIUS, 1886, MENZIES and BARNARD, 1951.

Type species: *Iais hargeri* BOVALLIUS, 1886,=*Jaera pubescens*, DANA, 1852.

Diagnosis: Ianiridae with eyes dorsal, composed of only two facets. Uropoda shorter than pleotelson. Rostrum minute, head slightly lobed at frontal margin. Exopod of male third pleopod narrower than endopod, concealed by second pleopod, endopod lacking plumose setae.

Composition: The genus contains three species (MENZIES and BARNARD, 1951, p. 138). One of these, *I. pubescens* (DANA) occurs in Southern Chile. There it is found in association with a large sphaeromid.

Iais pubescens (DANA)

Figure 21—22

Synonyms: *Iais pubescens* (DANA), MENZIES and BARNARD, 1951, pp. 138—141.

Diagnosis: First antenna about one-seventh as long as body and one-fifth as long as second antenna. Second antenna more than two-thirds as long as body; flagellum with 26 articles. Maxilliped with two coupling hooks. Inferior claw of dactyl of peraeopods 1—7 bifid. Uropoda one-third as long as pleotelson. (After MENZIES and BARNARD, 1951, *op. cit.*)

Type locality and types: Nassau, Tierra del Fuego (DANA, 1852, p. 744).

Distribution: Antarctic circumsubpolar species, Falkland Islands, Kerguelen, Auckland and Campbell Isls., Tasmania and Str. Magellan, S. Africa and New Zealand. (MENZIES and BARNARD, *op. cit.*).

Material examined: In the L.U.C.E. collections specimens were obtained from four stations in Southern Chile (two from the Magellanes region). *St. M 6*, two females, *St. M 72*, five specimens, *St. M 113*, 48 specimens, *St. M 115*, eleven specimens.

Affinities: All species are closely related. This one is unique in having the bifid accessory claw on its dactyl.

Genus *Neojaera* NORDENSTAM, 1933

Synonyms: *Neojaera* NORDENSTAM, 1933, pp. 187—188.
? *Austrofilius* HODGSON, 1910.

Type species: *Jaera antarctica* PFEFFER, 1887, pp. 134—316.

Diagnosis: Ianiridae with minute dorsally situated eyes composed of about six facets. Body length exceeds four times the width. Coxal plates visible in dorsal

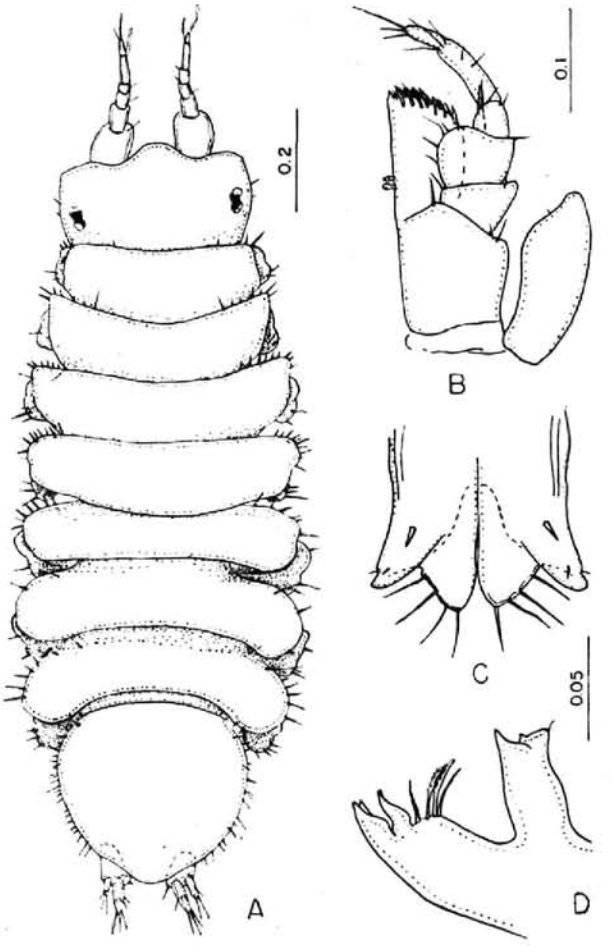

Figure 21. *Iais pubescens* (DANA). A, toto, adult female; B, maxilliped; C, apex of male first pleopods; D, left mandible (after MENZIES and BARNARD, 1951).

view on peraeonal somites 3—7. Uropoda much shorter than pleotelson. Endopod of third pleopod with 3 plumose setae. Antennae about twice as long as cephalon. Pronounced rostrum lacking. Pre-apical angles of male first pleopoda spiniform and directed along pleopod margin toward apex. Dactyls of peraeopoda biunguiculate.

Composition: The genus is reputed to have two species, *antarctica* PFEFFER and *serrata* (BARNARD). Neither has been adequately described. Both are known only from the Antarctic regions. The probability is very good that *Austrofilius* HODGSON and *Neojaera* are synonyms yet it is altogether curious that the discovery was not made by VANHÖFFEN (1914) who described both *Jaera antarctica* (PFEFFER), the type of *Neojaera* and *Austrofilius furcatus* HODGSON, the type of *Austrofilius*. The male first pleopoda are identical in general aspect.

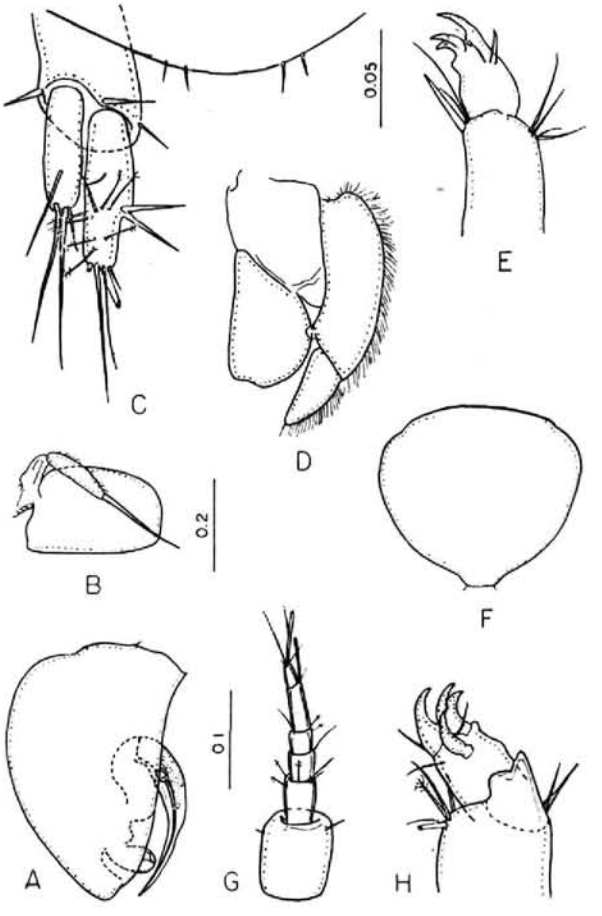

Figure 22. *Iais pubescens* (DANA). A, second male pleopod; B, male fourth pleopod; C, uropod and apex of pleotelson; D, third male pleopod; E, dactyl of first peraeopod, female; F, operculum, female; G, first antenna; H, dactyl of seventh peraeopod, female (after MENZIES and BARNARD, 1951).

Neojaera elongatus, new species

Figure 23

Synonyms: None.

Diagnosis: First antenna with six articles. Lateral margin cephalon with two stout setae. Lateral margin pleotelson with 7 stout setae. Endopod of second male pleopod coiled at apex. First male pleopod with pre-apical angle spiniform and not reaching apex.

Measurements: Holotype male length 2.5 mm, width 0.45 mm.

Type locality and types: Central Chile, Montemar (N. of Valparaíso), Estación de biología marina, tidal belt, rocks with rock pools, *St. M 123*, male and female types.

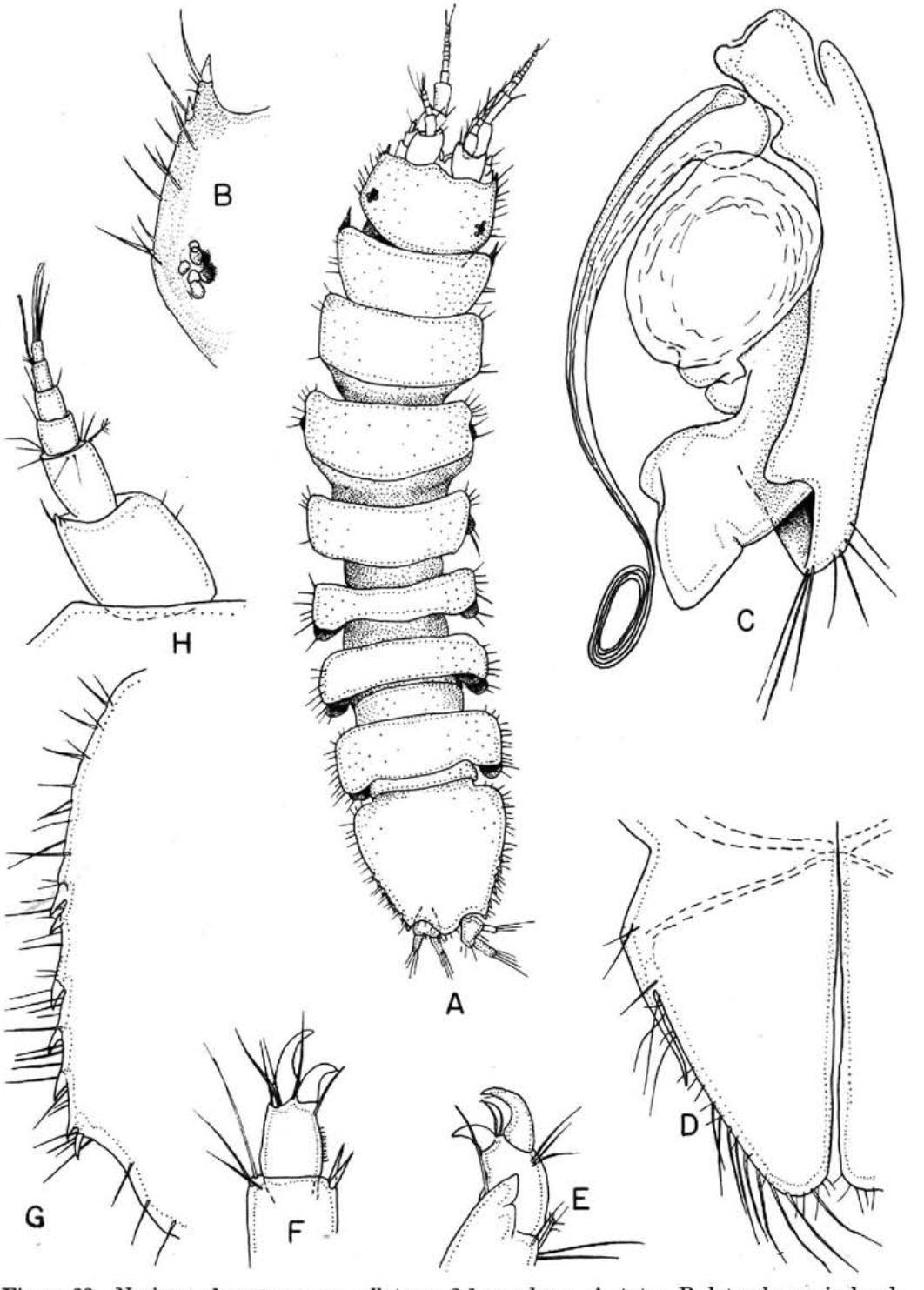

Figure 23. *Neojaera elongatus* n. sp., allotype, 2.1 mm long. A, toto; B, lateral margin head; C, second male pleopod; D, first male pleopod; E, apex seventh peraeopod; F, apex first peraeopod; G, lateral border pleotelson; H, first antenna.

Distribution: Besides the types, specimens were also collected from Northern Chile at Iquique, *St. M 131*, twenty four specimens, and *St. M 135*; Central Chile, *St. M 123*, one female.

Affinities: This species is quite distinct from all previously described forms in having such a short pre-apical angle on the first pleopod and in the small number of stout setae at the margins of the head; also distinctive is the small lobate frontal margin of the cephalon.

Genus *Ianiropsis* G. O. Sars, 1897—99

Synonyms: *Ianiropsis* G. O. Sars, 1897—99, p. 102.

Type species: *Ianiropsis breviremis* G. O. Sars, 1897—99.

Diagnosis: Ianiridae with cephalon, peraeon, and pleon lacking projecting lappets. Cephalon lacking long rostrum. Coxal plates visible in dorsal view on at least peraeonal somites two to seven. Pleon with two somites. Uropoda biramous. Maxillipedal palp with first three articles about as wide as endite. Male first pleopoda expanded laterally at apex, second pleopoda conceal third pleopoda from ventral view, exopod of third pleopod narrower than endopod which has three plumose setae at apex. Dactyls of first peraeopoda biunguiculate. Those of second to seventh inclusive triunguiculate. Propod of first peraeopod without serrations near its origin. Second antenna with obvious squama (modified from Menzies, 1952, pp. 134—135).

Composition: No species from this genus has been recorded from Chile up to the present time. Here three species are described.

Ianiropsis tridens Menzies, 1952

Figure 24

Synonyms: *Ianiropsis tridens* Menzies, 1952, pp. 156—158, fig. 71.

Diagnosis: *Ianiropsis* with frontal margin cephalon with slight convexity. Each lateral (posterior half) border of pleotelson with three spine-like serrations. First antennal flagellum with nine articles. Each lateral apex of male first pleopod directed posteriorly but not abruptly so. Uropoda exceeding slightly one-half the pleotelson length (after Menzies, *op. cit.*).

Material examined: Northern Chile, *St. M 131*, twenty specimens, males, females and young.

Distribution: Central California (Menzies, 1952) and northern Chile.

Affinities: See Menzies, 1951.

Ianiropsis perplexus, new species

Figure 25

Synonyms: None.

Diagnosis: Cephalon with slight medial convexity. Eyes red, large, laterally situated. First antenna with 9 articles, 3—4 subequal in length, 5th two times the

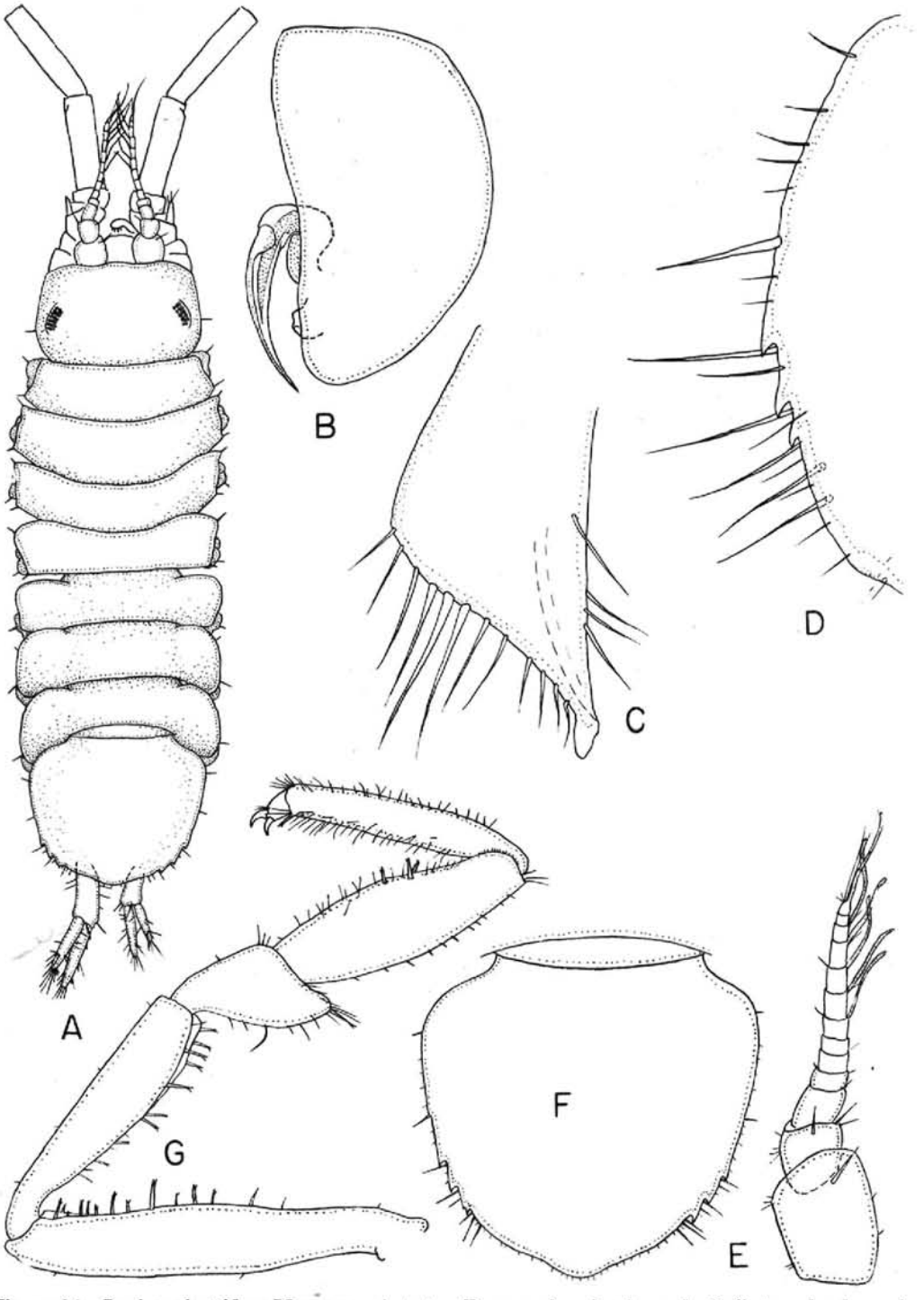

Figure 24. *Ianiropsis tridens* MENZIES. A, toto; B, second male pleopod; C, first male pleopod; D, lateral border of pleotelson; E, first antenna; F, pleotelson; G, seventh peraeopod. Figures A, B, E—G, after MENZIES 1952; C—D based upon Chilean specimens.

length of 4th. Uropoda exceed onehalf the pleotelson length. Postero-lateral border of pleotelson with four stout setae. Body pigmented with brown speckles. Male first pleopod with postero-lateral angle abruptly curved. Margin of each with 16 setae.

Measurements: Holotype male, length 2.6 mm, width 0.70 mm, figured allotype length 1.35 mm, width 0.45 mm.

Type locality and types: Southern Chile, Archipiélago de los Chonos, Canal Moraleda, Islotes Locos, 25 February 1949, tidal belt, rocks, exposed, microfauna samples; *St. M 77*, holotype, allotype, eight paratypes.

Distribution: Known only from Southern Chile at the Canal Moraleda area; type locality and *St. M 75*, nine specimens.

Affinities: In pigmentation and the absence of spines on the pleotelson this species appears to be close to *Ianiropsis minuta* MENZIES (MENZIES, 1952). It differs from that species in having the postero-lateral angle of the male first pleopod abruptly bent and in having the 3—4 articles of the first antenna subequal and not dissimilar in length.

Ianiropsis chilensis, new species

Figure 26

Synonyms: None.

Diagnosis: *Ianiropsis* with frontal margin convex. Lateral margins of pleotelson lacking denticles, a few setae present. Eyes black. First antenna with 12 articles, fifth article two times the length of sixth. Body pigmented with scattered black chromatophors. Lateral angles of male first pleopods not abruptly bent, margin of each with 15 setae.

Measurements: Holotype male, length 2.0 mm, width 0.9 mm, allotype length 2 mm, width 1 mm.

Type locality and types: Canal Chacao, Bahía de Ancud, SE of Punta Ahui, 8 meters depth, small stones with algae, May 5, 1949, *St. M 98*, one male, one female, and six paratypes.

Distribution: Southern Chile, *St. M 95*, one male; *St. M 94*, twelve specimens, *St. M 47*, seven specimens, *St. M 64*, one female, *St. M 115*, one female.

Affinities: This species differs from those previously described in having a smooth pleotelson, male first pleopoda lacking recurved postero-lateral angles and in having black eyes. The partial obscurement of the first pleonal somite and the interlocking of peraeonal somites 5—7 inclusive are also distinctive features.

Family Ianirellidae

Type genus: *Ianirella* BONNIER, 1896, MENZIES (1956).

Diagnosis: Paraselloidea with free head. None of the peraeonal somites fused, all subequal in length. Mandibles normal, molar process expanded at truncated apex. Antennae shorter than body. First antenna shorter than second antenna.

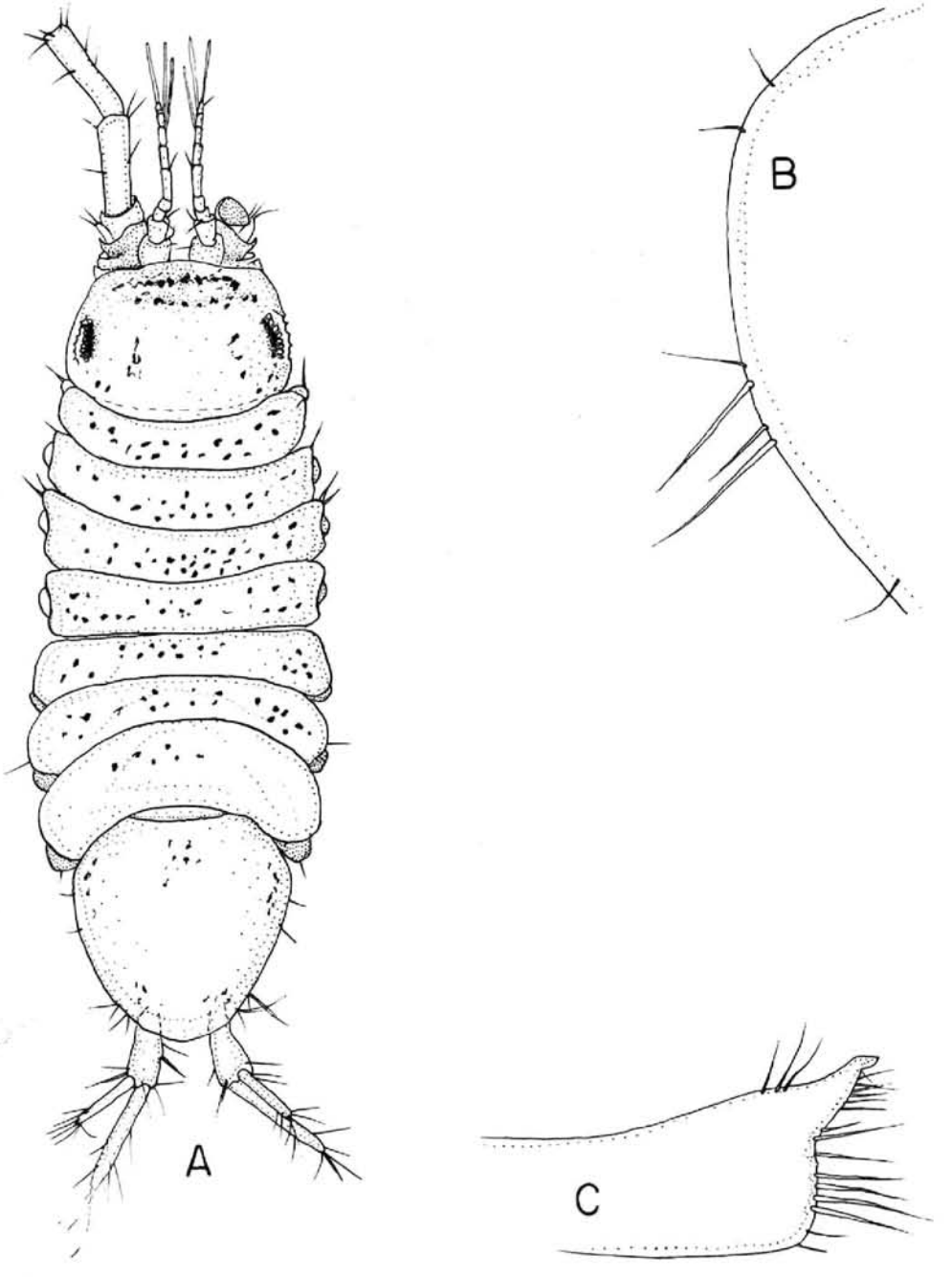

Figure 25. *Ianiropsis perplexus*, n. sp.; A, toto, male; B, lateral border of pleotelson; C, male first pleopod.

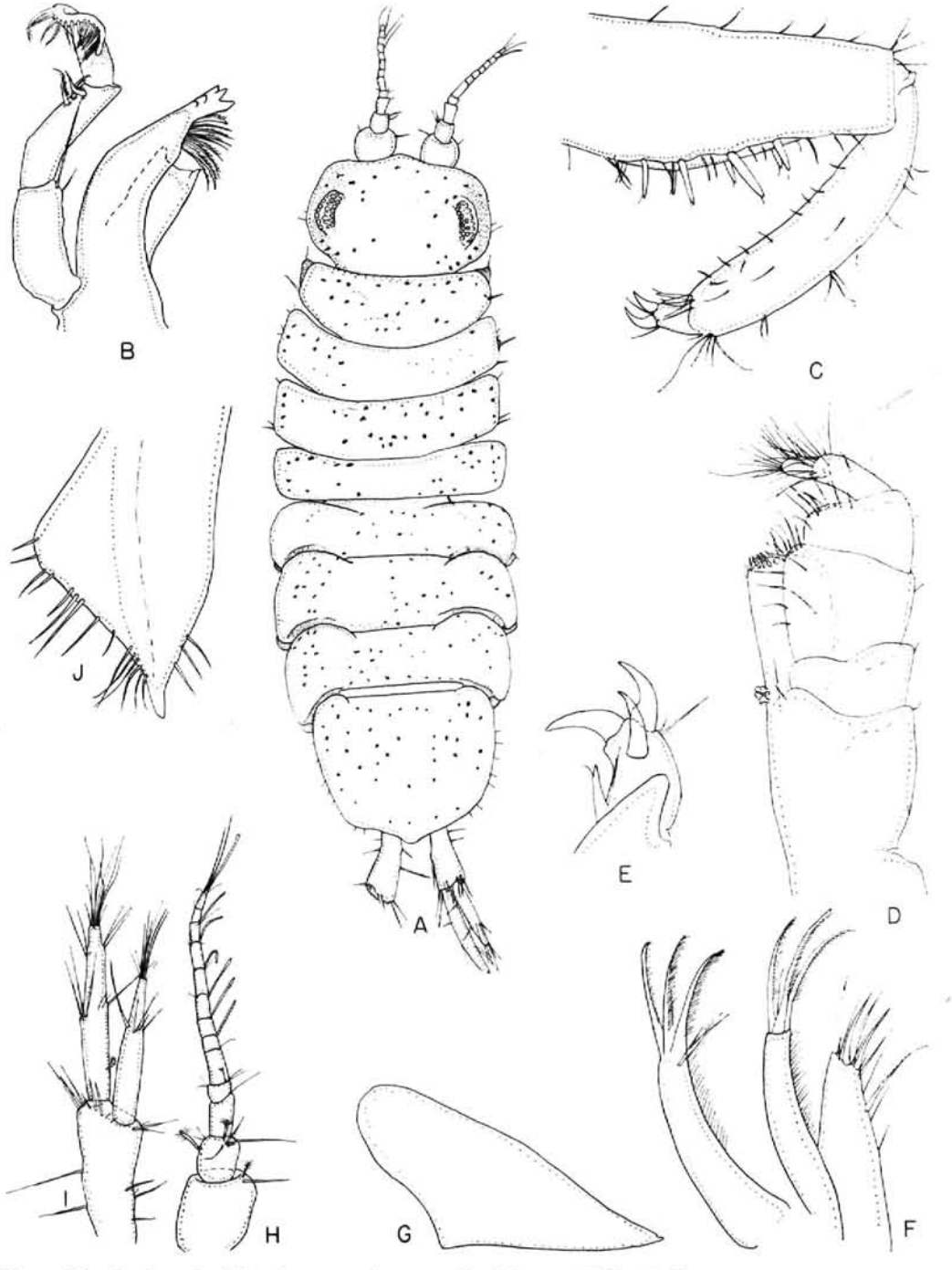

Figure 26. *Ianiropsis chilensis* n. sp. A, toto; B, right mandible; C, first peraeopod; D, maxilliped; E, seventh peraeopod; F, second maxilla; G, maxillipedal epipod; H, first antenna; I, uropod; J, male first pleopod.

All peraeopods simple; at least the last six are unmodified walking legs. Dactyls of last six peraeopods with only two claws. Pleon consisting of one somite only. Uropoda with peduncle, bi- or uniramous, terminal-ventral insertion of peduncle (modified from MENZIES, 1956).

Composition: When first instituted, this family by definition could contain only *Ianirella*. The above diagnosis has been made more liberal and it is now apparent that the family contains in addition to *Ianirella* the following genera and perhaps others:

Janthopsis BEDDARD
Acanthaspidia STEBBING
Rachura RICHARDSON
Jolanthe BEDDARD
Iolella RICHARDSON (sensu stricto)
Microprotus RICHARDSON

The presence or absence of dorsally visible coxal plates divides these into two groups:

Group A, with coxal plates	Group B, without coxal plates
Microprotus	*Janthopsis*
Ianirella	*Iolella*
	Rachura
	Acanthaspidia
	Jolanthe

Genus *Janthopsis* BEDDARD, 1886

Synonyms: *Ianthopsis* BEDDARD, 1886 p. 15. VANHÖFFEN, 1914, p. 539.

Type species: *Ianthe bovallii* STUDER, *vide* BEDDARD (*op. cit.*).

Diagnosis: Janirellidae with coxal plates not visible in dorsal view. Uropoda terminal, biramous, maxillipedal palp with first three articles less than one-half the width of endite. Antennae shorter than body, second with a squama. Mandibular molar process strong, truncated at apex. (This diagnosis is based upon the species reported here and upon those described by VANHÖFFEN. I have not seen STUDER's paper.)

Composition: The genus contains five species, all of which are Antarctic in distribution and the majority of which are from deep water. The Chilean species is from comparatively shallow water and, unlike the others, has eyes.

Janthopsis laevis, new species

Figure 27

Synonyms: None.

Diagnosis: Peraeonal somites minutely serrated, and provided dorsally with long setae. First antenna with 8 articles. Pleotelson laterally with 18 stout setae,

apically with 9 plumose setae. Uropodal rami shorter than peduncle. Eyes large, bulging, and dorsally situated. Maxilliped with three coupling hooks.

Measurements: Holotype female, length 5.0 mm, width 2.0 mm.

Type locality and types: Southern Chile, seno Reloncaví, N. of Isla Quellín, 23 January 1949, 100 meters, small stones, probably on hard sand, micro-fauna samples; *St. M 40*, holotype female, paratype female.

Material examined: Southern Chile, Golfo de Ancud, *St. M 42*, two specimens.

Distribution: Chile.

Affinities: This species shows no close affinities with previously described forms. It differs markedly from most in its having eyes and in the lack of spines or elevations on the dorsal surface of the body.

TRIBE 2. VALVIFERA

Valviferans occur in Chile in considerable quantity and at least 16 species are known. Their diagnostic features are indicated in the following key:

A KEY TO THE VALVIFERA OF CHILE

1. Uropoda uniramous 2
1. Uropoda biramous 6
2. First antenna less than one-half the length of second antenna ..... *Idothea metallica* Bosc
2. First and second antennae about equal in length; first slightly shorter 3
3. Body with deep transverse grooves, pleon with three distinct somites ..... *Edotea transversa* n. sp.
3. Body lacking deep transverse grooves 4
4. Pleonal sutures obvious laterally for only two somites ..... *Edotea magellanica* Cunningham
4. Pleonal sutures obvious laterally for only one somite 5
5. Frontal lamina bifid ..... *Edotea tuberculata* Guérin-Méneville
5. Frontal lamina pointed ..... *Edotea dahli* n. sp.
6. All peraeopods simple, none subchelate 7
6. Some peraeopods subchelate 13
7. First four pairs of peraeopoda directed towards mouth and provided with plumose setae 8
7. First four peraeopods similar to last three, not provided with plumose setae 11
8. Fourth peraeonal somite over two times the length of third 9
8. Fourth peraeonal somite only as long as third ..... *Antarcturus americanus* (Beddard)
9. Lateral parts of first peraeonal somite expanded downward or not expanded downward 10
10. Expanded downward ..... *Astacilla diomedea* Benedict
10. Not expanded downward ..... *Neastacilla magellanica* (Ohlin)

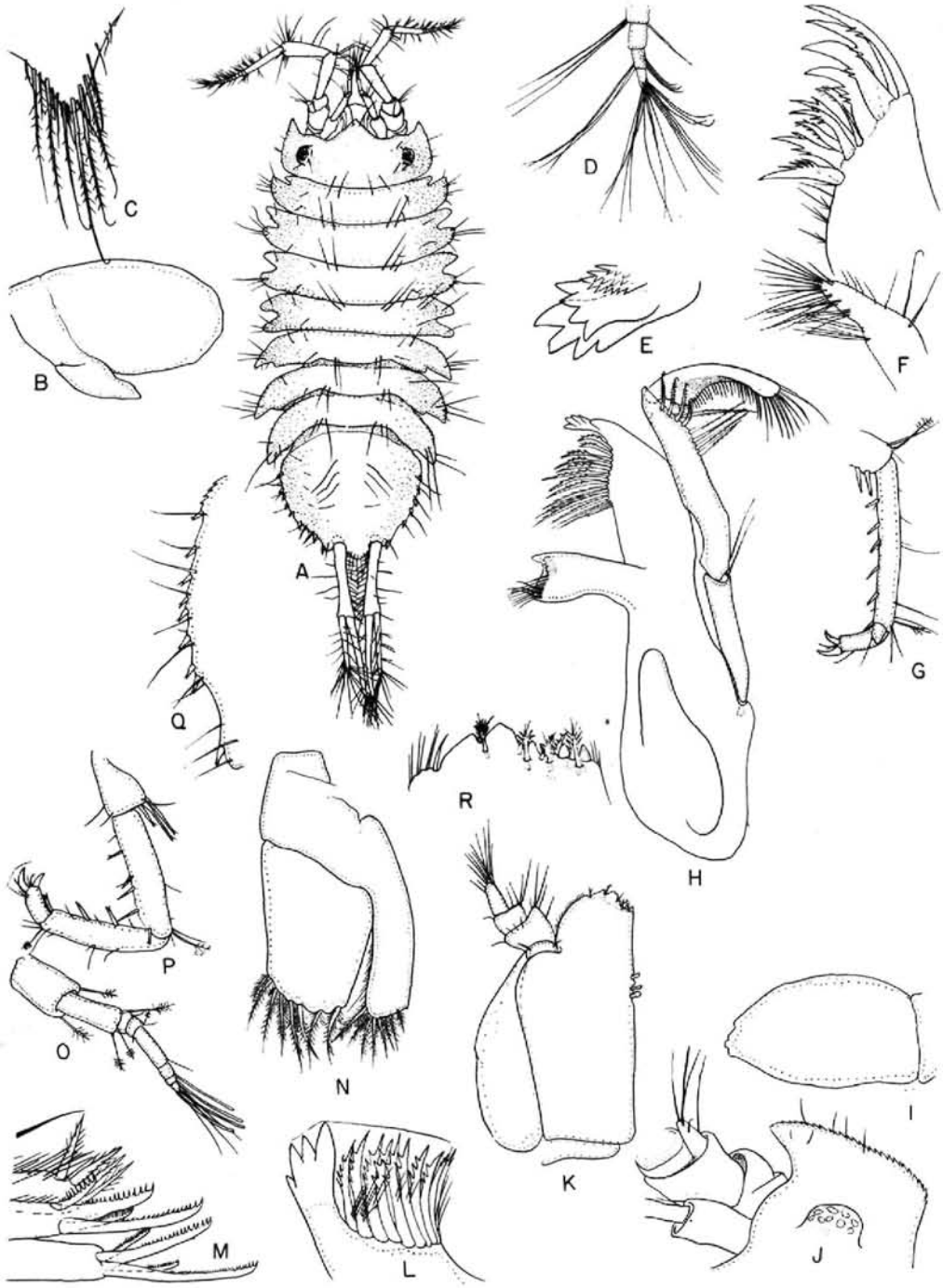

Figure 27. *Janthopsis laevis*, n. sp., holotype female. A, toto; B, last pleopod; C, apex of pleotelson; D, apex second antenna; E, incisor and lacinia left mandible; F, first maxilla; G, seventh peraeopod; H, right mandible; I, last pleopod; J, cephalon; K, maxilliped; L, right mandible; M, second maxilla; N, third pleopod; O, first antenna; P, first peraeopod; Q, lateral border of pleotelson; R, maxillipedal endite.

11. Coxal plates marked off in peraeonal somites 2—7 inclusive. Flagellum of second antenna multiarticulate with subequal articles ..... *Notidotea rotundicauda* (CHILTON)
11. Coxal plates marked off on peraeonal somites 2—7 inclusive. Flagellum of second antenna with an elongate proximal article and a few minute terminal articles 12
12. Apex of pleotelson truncated ..... *Cleantis linearis* DANA
12. Apex of pleotelson rounded ..... *Cleanthis chilensis* n. sp.
13. First three pairs of peraeopoda subchelate, others ambulatory, none as long as body 14
13. First five pairs of peraeopoda subchelate, last two ambulatory, sixth as long as body ..... *Chaetilia paucidens* n. sp.
14. Lacking eyes and dorsal body tubercles *Macrochiridothea michaelsoni* OHLIN
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15. With sharp tuberculations on dorsum of body *Macrochiridothea stebbingi* OHLIN
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16. Apex of pleotelson with median spine-like projection ..... *Macrochiridothea setifer* n. sp.
16. Apex of pleotelson without median spine-like projection ..... *Macrochiridothea kruimeli* NIERSTRASZ

Family Arcturidae

Type genus: *Arcturus* Latreille.

Diagnosis: Valvifera with elongate subcylindrical body. First antenna shorter than second antenna; flagellum with single article. First four pairs of peraeopods elongated provided with ciliated setae and directed toward the mouth. Last three peraeopods short, stout, adapted toward clinging and lack plumose setae. Pleonal somites variously coalesced. First peraeonal somite often coalesced with cephalon. Uropoda generally biramous (modified after RICHARDSON, 1905).

This family contains several genera. Only one, *Neastacilla*, was represented in the L.U.C.E. collections.

Genus *Neastacilla* TATTERSALL, 1921

Type species: *Astacilla falclandica* OHLIN, TATTERSALL, 1921, p. 243.

Diagnosis: First peraeonal somite coalesced with head, only a groove remains. Pleon with one somite but with groove-like indications of two additional somites, incisions not apparent. Dactyl of first peraeopod lacks claws. Lateral parts of first peraeonal somite not expanded forwards and downwards. Secondary ramus of uropoda with a single long plumose apical seta (diagnosis after NORDENSTAM, 1933).

Neastacilla magellanica (OHLIN)

Figure 28

Synonyms: *Astacilla magellanica* OHLIN, 1901.
Neastacilla magellanica (OHLIN), NORDENSTAM, 1933, p. 122.

Diagnosis: Ultimate article of second antennular peduncle slightly shorter than penultimate article. Apex of flagellum of second antenna with claw, margins of flagellum with row of teeth-like setae. First peraeopod lacks claws, terminal article with four apical setae. Frontal margin of cephalon with median point. Epimera visible on all peraeonal somites except the first. Fifth epimera largest. Body lacking spines. Only slight grooves on pleotelson indicate the various segments; suture lines not evident. Color variable, yellow to purple, body with scattered brown chromatophores.

Specimens examined: A total of 42 specimens was examined. These were all collected from Southern Chile. Gravid females have a much expanded third (free) peraeonal somite and are usually two times the size of non-gravid specimens.

Distribution: The species was first collected from the Straits of Magellan at Dungeness Point, 10 fathoms (OHLIN, 1901, p. 268). Nordenstam reported it from the Falkland Islands. It was taken by the Lund University Expedition at *St. M 115*.

Affinities: This species appears very close to *Neastacilla falclandica* (OHLIN). The principal differences between the two appear to be in the stoutness of the second antennae. Those of *N. falclandica* seem stouter. This seems to be a somewhat variable difference; however, I hesitate to unite the two species because I have not seen the type specimens.

Genus *Astacilla* CORDINER, 1793

Type species: *Astacilla longicornis* (SOWERBY), G. O. SARS, 1897, pp. 88—89.

Diagnosis: Arcturidae with a short lateral suture between cephalon and first peraeonal somite. Lateral parts of first peraeonal somite expanded. Flagellum of second antenna with three articles. Fourth somite of peraeon elongated, being over two times the length of the individual other peraeonal somites. (Modified from NORDENSTAM, 1933, pp. 118—119).

Astacilla diomedea BENEDICT

(No figure available)

Diagnosis: "The head is excavated in front, nearly rectangular, a little broader behind than in front. The eyes are but little swollen, are round, and are situated a little anterior to the middle of the margin.

The antennae are closely like those of *Astacilla nodosa* (DANA). The first segment of the thorax has the same width as the head; the second and third segments are successively wider and also shorter than the first; the fourth segment is very wide

at the anterior end, as in *nodosa*; ... the segments posterior to the fourth are longer than the first three and are successively narrower. The abdomen is constricted at the base and has sub-parallel sides; from the slight posterolateral protruberance it narrows rapidly to the apex ... all the articles of the antennal peduncles have a narrow ring of black at the distal ends, except the fifth" (modified from BENEDICT, 1898, pp. 50—51).

Type locality: "Straits of Magellan, 17 fathoms, St. 2774 "Albatross"; a single gravid female" (BENEDICT, *op. cit.*).

Genus *Antarcturus* ZUR STRASSEN, 1902

Type species: *Arcturus coppingeri* MIERS, 1881, p. 75, pl. 7.

Diagnosis: First peraeonal somite coalesced with cephalon. Lateral margins of first peraeonal somite not prolonged downward and forward; mouth organs visible in lateral view. Pleon with three somites anterior to pleotelson. Pleonal length not exceeding length of last five peraeonal somites together. Antennae at least equal in length to body, flagellum of adult with at least five articles. First peraeopods prehensile, dactyl long and narrow. Exopod of first male pleopod of male with diagonal furrow on posterior surface (NORDENSTAM, 1933, p. 129).

Antarcturus americanus (BEDDARD)

Figure 51A—B

Synonyms: *Arcturus americanus* BEDDARD, 1886, pp. 104—105, pl. XXIII, figs. 5—8.
Antarcturus americanus (BEDDARD), Nordenstam, 1933, p. 135.

Diagnosis: *Antarcturus* with head lacking spines but having tubercles or granulations. Pleotelson with acute subapical spines. Dorsum of peraeonal somites one to seven each with one pair of short erect spines (STEPHENSEN, 1947, p. 20).

This species was not in the L.U.C.E. collection. It was reported from the Magellan region by OHLIN and BEDDARD, vis. NORDENSTAM, 1933, p. 138.

Family Idotheidae

Type genus: *Idothea* Fabricius.

Diagnosis: Valvifera with body generally somewhat depressed or strongly depressed. First pair of antennae often shorter than second pair, flagellum with single long article and a few or no minute apical articles. First pair of peraeopods usually stout and similar to other pairs of peraeopods. Pleonal somites variously coalesced. First peraeonal somite always distinct from cephalon. Uropoda usually uniramous (modified after RICHARDSON, 1905).

Subfamily: *Idotheinae* DANA, 1852,
MIERS, 1881, NORDENSTAM, 1933

Diagnosis: Differing from the other subfamilies of the Idotheidae in having the uropoda uniramous. First antennae shorter than second antennae. Second

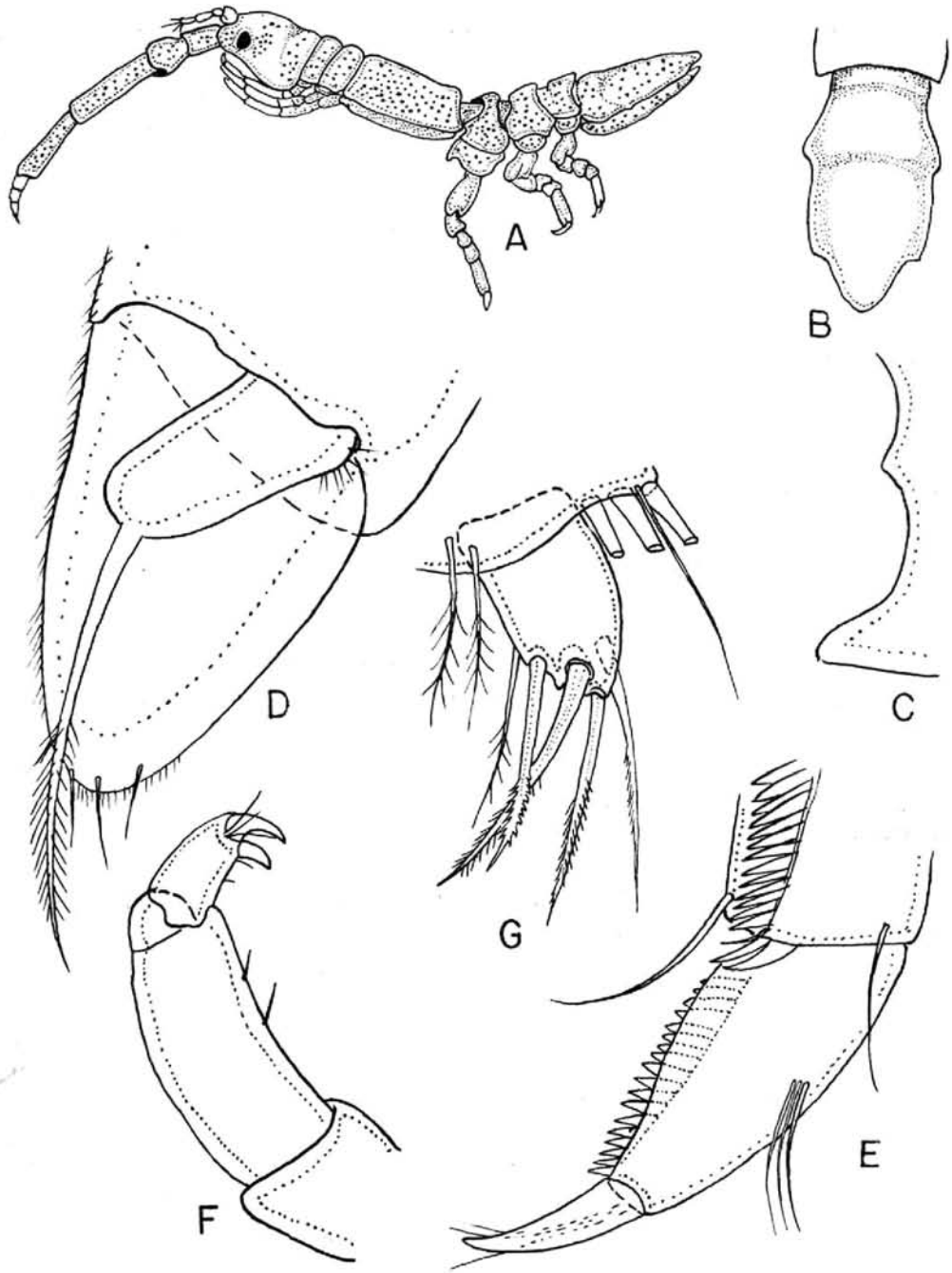

Figure 28. *Neastacilla magellanica* (OHLIN). A, whole animal, lateral view; B, pleotelson, dorsal view; C, frontal border of cephalon; D, inner surface uropod; E, apical articles second antenna; F, last peraeopod; G, apical articles first peraeopod. Figured specimen about one mm in length.

antennal flagellum multiarticulate. Cephalon without incisions laterally. Peraeopoda all similar, not subchelate.

Two genera, *Edotea* and *Cleantis*, of this ubiquitous subfamily were represented in the L.U.C.E. collections. *Cleantis* should probably be removed from the family because of its having biramous uropoda.

Genus *Idothea* Fabricius, 1775

Synonyms: Numerous, see Miers, 1883.

Type species: *Idothea baltica* (Pallas), Ohlin, 1901, p. 285.

Diagnosis: Idotheidae having a multiarticulate second antennal flagellum. Coxal plates separated on peraeonal somites 2 to 7 inclusive. Pleon with three sometimes plus lateral incisions of a fourth.

Composition: This genus contains a great number of species, one is occasionally found in the Chilean fauna, *Idothea metallica* Bosc.

Idothea metallica Bosc

Figure 51—N

Synonyms: Numerous, see Richardson, 1905, p. 362.

Diagnosis: Idothea with a truncated pleotelsonal apex and subparallel lateral margins. Frontal process pointed. Coxal plates triangular. Body length about three times the width. Maxillipedal palp with four articles.

Distribution: Atlantic Ocean and Mediterranean. The species is distributed widely in the plankton and becomes an occasional visitor to the shores of many countries. (Naylor, 1957, pp. 599—602.)

Genus *Edotea* Guérin-Méneville, 1843

Type species: *Edotea tuberculata* G.-M.

Diagnosis: Idotheinae with flagellum of second antenna rudimentary, appearing generally as a single clavate article. Pleon with dorsal grooves indicating placement of three somites, lateral incisions not always evident. Maxilliped with three articles to palp. Coxal plates united firmly to peraeon, grooves indicate coxal plate separation in some species. Flagellum of second antenna actually composed of three or more articles.

This genus contains eight species, five of which are known from the Southern Hemisphere and three from the Northern Hemisphere. Here two additional species are described from the L.U.C.E. collections; both appear to be new species.

Edotea tuberculata Guérin-Méneville

Figure 51-K

Synonyms: *Edotia tuberculata* Guérin-Méneville, 1843, Ohlin, 1901, pp. 292—295, and synonyms. Sheppard, 1957. p. 160.

Diagnosis: "Segments of the peraeon each with a dorsal tuberculum in the middle line and with two lateral longitudinal grooves on each side, the most lateral grooves often incomplete or indistinct. Abdomen with all segments coalesced with one another, but with two anterior segments indicated, the first by a transverse groove, the second by a short lateral suture or incision. Uropods slightly hollowed distally with lower part of the sympodite and its ramus not bent upwards so as to form a secondary ventral border; ramus triangular, not even half as long again as it is broad." NORDENSTAM, 1933, p. 95. Eyes not on tubercles (SHEPPARD, 1957, p. 160).

Distribution: Patagonia, Tierra del Fuego, Magellan Straits, near Cape Horn, Falkland Islands, (SHEPPARD, and NORDENSTAM, *op. cit.*).

Edotea magellanica CUNNINGHAM

Figure 51—L

Synonyms: *Edotia magellanica* CUNNINGHAM, 1871, p. 499, NORDENSTAM 1933, pp. 97—98.

Diagnosis: "Head and peraeon devoid of tuberculae. Peraeon segments with a faint laterally situated longitudinal groove on each side. Abdomen with two anterior segments indistinctly marked off by grooves, the second on each side ending in a free lateral tip. Uropods markedly hollowed distally, with the lower part of the sympodite and its ramus bent upwards, so as to form a small ventral secondary border; ramus triangular about twice as long as it is broad." NORDENSTAM, 1933, p. 97.

Distribution: Patagonia, Tierra del Fuego, Magellan Straits, South America (NORDENSTAM, *op. cit.*).

Edotea dahli, new species

Figure 29

Synonyms: None.

Diagnosis: Frontal margin of cephalon entire. Frontal lamina projecting and pointed, dorsum of head with a bilobate elevation medially, head foveolate, covered with short setae. Eyes small, black and laterally situated. Maxilliped with one coupling hook. Dorsum of peraeon generally smooth. Pleon with indications of three coalesced somites, first with slight lateral incisions, coxal plate areas of peraeon with longitudinal grooves. Appendix masculinum with six stout setae near apex which is bluntly pointed.

Measurements: Male holotype, length 5.2 mm, width 2.0 mm. Other specimens of similar size.

Type locality and types: The type specimens consist of two males, *St. M 21*, from southern Chile at the Golfo de Ancud, Canal Calbuco, between Punta Meimen and Punta Pinto on December 16, 1948; small stones, 25 meters.

Material examined and distribution: The species was also collected from

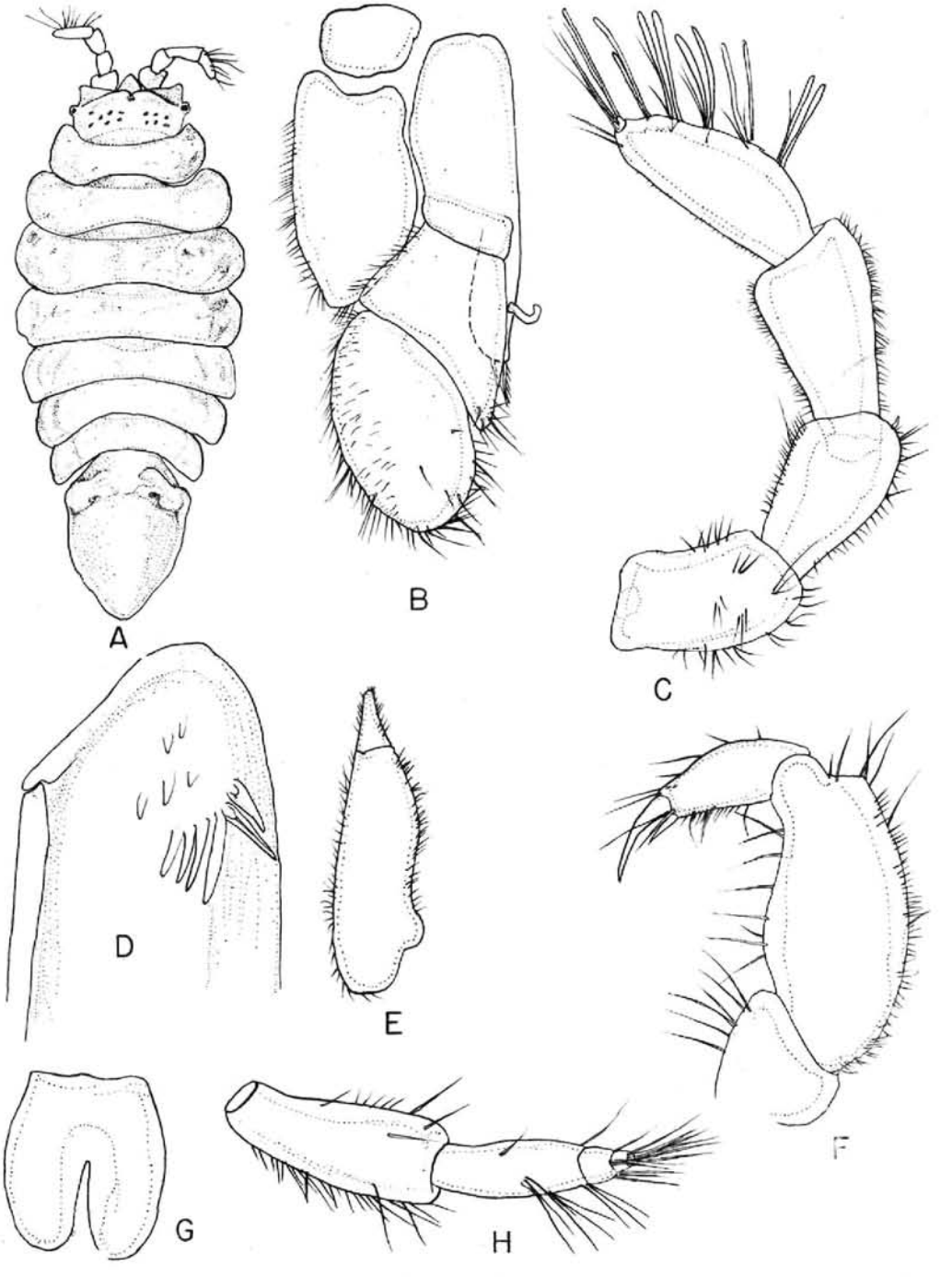

Figure 29. *Edotea dahli*, new species, holotype male. A, whole animal; B, maxilliped; C, first antenna; D, appendix masculinum; E, uropod; F, first peräeopod; G, penes; H, second antenna. Length figured specimen 5.2 mm.

the Golfo de Ancud between Isla Quenu and Isla Chidguapi, *St. M 27*, one juvenile, May 3, 1949, coarse sand with shells, 45 meters; from S.E. of Punta Tres Cruzes, N.E. of Punta Piedras, *St. M 104*, May 5, 1949, one male, 50—60 meters; *St. M 40*, Seno Reloncaví, 1 specimen, January 23, 1949, small stones probably on hard sand, 100 meters; and from Central Chile at Montemar, *St. M 123*, March 10, 1949, two females; Southern Chile, Estrecho de Magallanes, N. of town Punta Arenas, *St. M 112*, one female, sand.

Affinities: The species seems closely related to *Edotea bilobata* NORDENSTAM from the Falkland Islands. It differs from that species in having the lobes of the cephalon much less pronounced and the pleon less pointed. The epimeral areas of the peraeon are also more pointed. In *bilobata* they are contiguous on lateral margin.

Edotea transversa, new species

Figure 30

Synonyms: None.

Diagnosis: Frontal margin of cephalon entire. Frontal lamina projecting but blunt at apex. Dorsum of cephalon with two large tubercles near frontal margin, eyes situated laterally. Epimeral areas of peraeon with swellings, dorsum with transverse grooves which are best developed on somites 1—6 inclusive, five to seven with median lobe. Pleon with two obvious somites and a third one indicated by depression on pleotelson each with mid-dorsal lobe. Appendix masculinum with over 15 rows of spines, apex pointed.

Measurements: Female holotype, length 11.0 mm, width 5.0 mm, male allotype, length 18.0 mm, width 7.0 mm.

Type locality and types: Types, male and female, were collected from Southern Chile, *St. M 40*, Seno Reloncaví, N of Isla Quellín, 100 m depth, January 23, 1949; small stones, probably on hard sand.

Distribution: Known only from type locality.

Affinities: This species differs from most in having the first two pleonal somites clearly indicated dorsally and laterally, otherwise however, it is very much an *Edotea*. The flagellum of the second antenna has four articles, the first of which is longest. The male peraeopoda, as seems characteristic of many idotheids, are strongly pubescent. The transverse grooves are also distinctive.

Genus *Cleantis* DANA, 1852

Type Species: *Cleantis linearis* DANA, 1852.

Diagnosis: Body linear. Coxal plates marked off from peraeon on all but first somite. Pleon with more than one somite. Flagellum of second antenna with large proximal article and a few minute terminal articles. Maxillipedal palp with five articles. Uropoda biramous. (After NORDENSTAM, 1933).

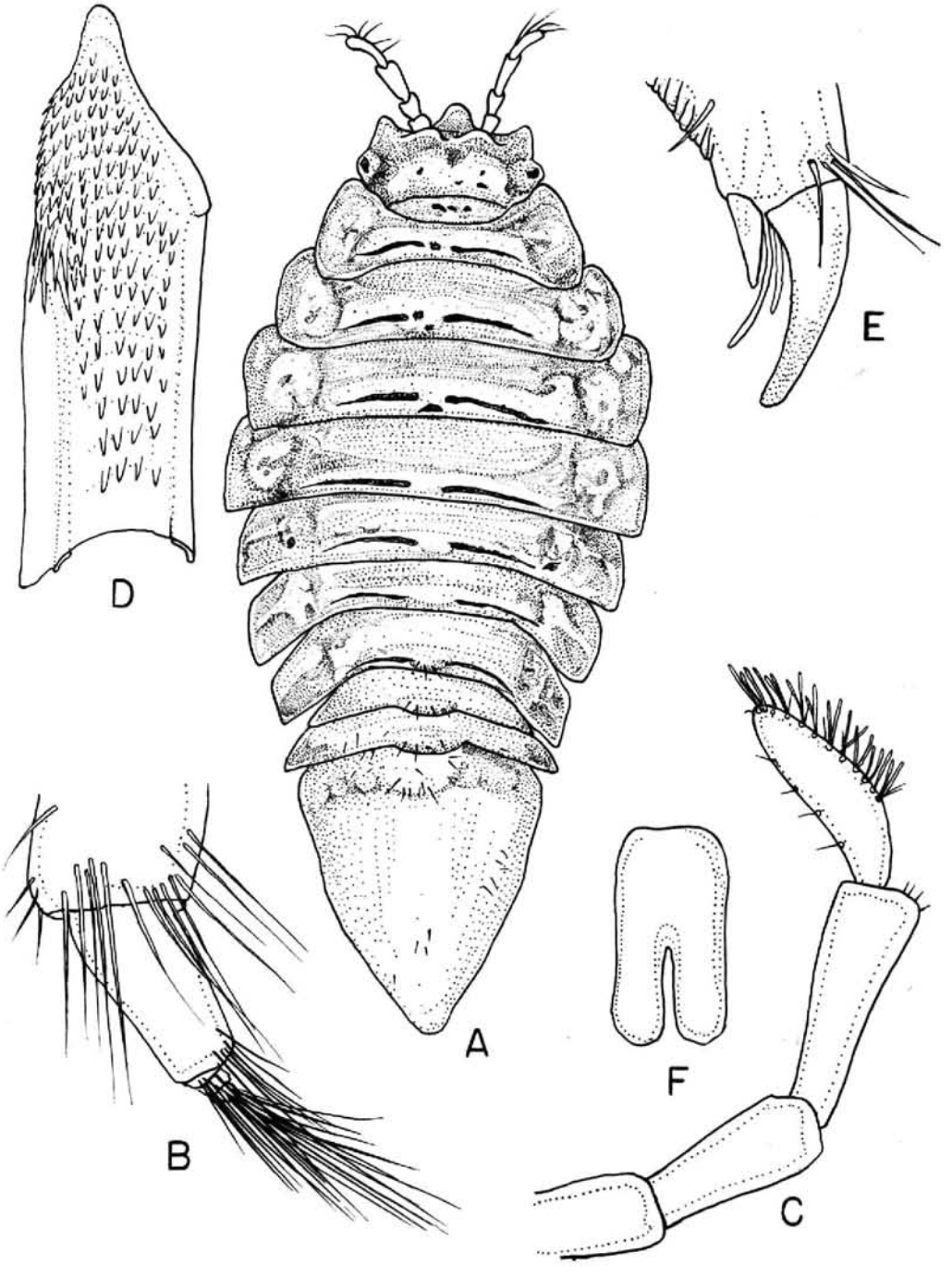

Figure 30. *Edotea transversa*, new species, female holotype. A, whole animal; B, second antenna; C, first antenna; D, appendix masculinum; E, first peraeopod; F, penes. Length measured specimen 11.0 mm.

NORDENSTAM (*op. cit.*) has discussed the various Antarctic species. NIERSTRASZ (1941) lists 16 species. One of these, *C. occidentalis* RICHARDSON is the young of *Idothea urotoma*, according to MENZIES (1950). The genus appears to have an anti-tropical distribution. No purely tropical species are known.

Cleantis linearis DANA

(No Figure available)

Synonyms: *Cleantis linearis* DANA, 1852, p. 472, pl. 46, figs. 9a—9l, NORDENSTAM, 1933, pp. 101—102.

Diagnosis: Pleon with four free somites anterior to pleotelson. Distal margin of pleotelson truncate. Antennal flagellum biarticulate (modified from NORDENSTAM, 1933, p. 101).

Type locality: Northern Patagonia (DANA, 1852).

Distribution: Patagonia and central Chilean coast (NORDENSTAM, 1933, p. 102). This species was not found in the L.U.C.E. collections.

Cleantis chilensis, new species

Figure 31

Synonyms: None.

Diagnosis: Frontal margin cephalon slightly concave, frontal lamina triangulate, clypeus bifid and extending forward rather than frontal lamina. Eyes oblong, transverse, located at margin cephalon. Last three pairs of coxal plates pointed postero-laterally. Pleon with three distinct somites and lateral incisions indicating a fourth, apex pleotelson rounded. Flagellum of first antenna with single article, second with four articles. Uropoda biramous. Fourth pairs peraeopoda minute, directed laterally. Antero-lateral parts of pleon with fringe of delicate setae.

Measurements: Holotype, length 11.0 mm, width 2.0 mm.

Type locality and types: Type collected at *St. M 156*, from Northern Chile at Tocopilla, off power plant south of town, January 5, 1949, on hard bottom, about 13 meters depth.

Distribution: Known from type locality only.

Affinities: The affinities of this species are difficult to discern. The fringed pleotelson allies it with *C. granulata* HELLER from which it differs, however, in having the pleotelson apically convex and not concave. The pleotelsonal suturing is similar in both.

Subfamily: *Mesidoteinae* RACOVITZA and SEVASTOS, 1910

Diagnosis: Idotheidae with biramous uropoda. Second antennal flagellum multiarticulate. Coxal plates marked off in peraeonal somites two to seven inclusive (derived from NORDENSTAM, 1933, pp. 103—105).

This subfamily is represented in Chile by one genus, *Notidotea*, a curious counterpart of *Mesidothea* of the Northern Hemisphere.

Genus *Notidotea* NICHOLLS, 1937

Type Species: *Notidotea lacustris* (G. M. THOMPSON)

Diagnosis: Idotheidae with biramous uropoda. Pleotelson with two partly delimited somites in addition to two fully separated somites. Maxillipedal palp with only four fully separated articles. Flagellum of second antenna multiarticulate. Coxal plates delimited on paraeonal somites two to seven inclusive.

The Chilean species is *Notidotea rotundicauda* (MIERS). The genus is close to Mesidothea in many respects besides the fact that both have marine and fresh water inhabitants.

Notidotea rotundicauda (MIERS)

(No figure available)

Synonyms: *Austridotea* (*Notidotea*) *rotundicauda* (MIERS), NICHOLLS, 1937, pp. 131—132, figs. 16—17, and synonyms.

Diagnosis: "Body depressed, ovate; head widest behind the eyes, its antero- and postero-lateral margins produced into lobes meeting in an obtuse angle against the eyes, dorsally the sinuous transverse furrow strongly marked; eyes appearing dorsal, submarginal, also distinctly visible on the ventral surface as facetted areas; second antennae with multi-articulate flagellum, with no marked setosity in the male; lateral border of first peraeon segment extending well forwards on either side of the head; peraeon segments 2—7 with coxal plates distinct; pleon narrowing posteriorly, with but two free segments, the third incompletely separated from the succeeding pleotelson by a pair of deep incisures. Palp of maxilliped with five distinct joints; peraeopods divided into two groups, I—III subchelate, IV—VII simple ambulatory; second pleopod in the male with appendix masculina extremely long, reaching almost to the hind end of the body. Uropods (opercula) with strong lateral setose spine and retaining both rami." (NICHOLLS, 1937, p. 115—116).

Subfamily: *Chaetilinae* DANA

Synonyms: *Chaetilidae* DANA, 1852, *Macrochiridotheinae* NORDENSTAM, 1933.

Diagnosis: Cephalon laterally expanded, its posterior part immersed in first peraeonal somite. Eyes small, present or absent. First antennae larger or almost as large as second antennae, each with flagellum appearing as single clavate article. Coxal plates marked dorsally off only on last three peraeonal somites. Maxillipeds with four-jointed palp. First pair of peraeopods large swollen gnathopods. Second to fifth inclusive weak, sometimes subchelate. Peraeopods six to seven lacking claws on dactyl. Uropoda biramous. (Modified after NORDENSTAM, 1933.)

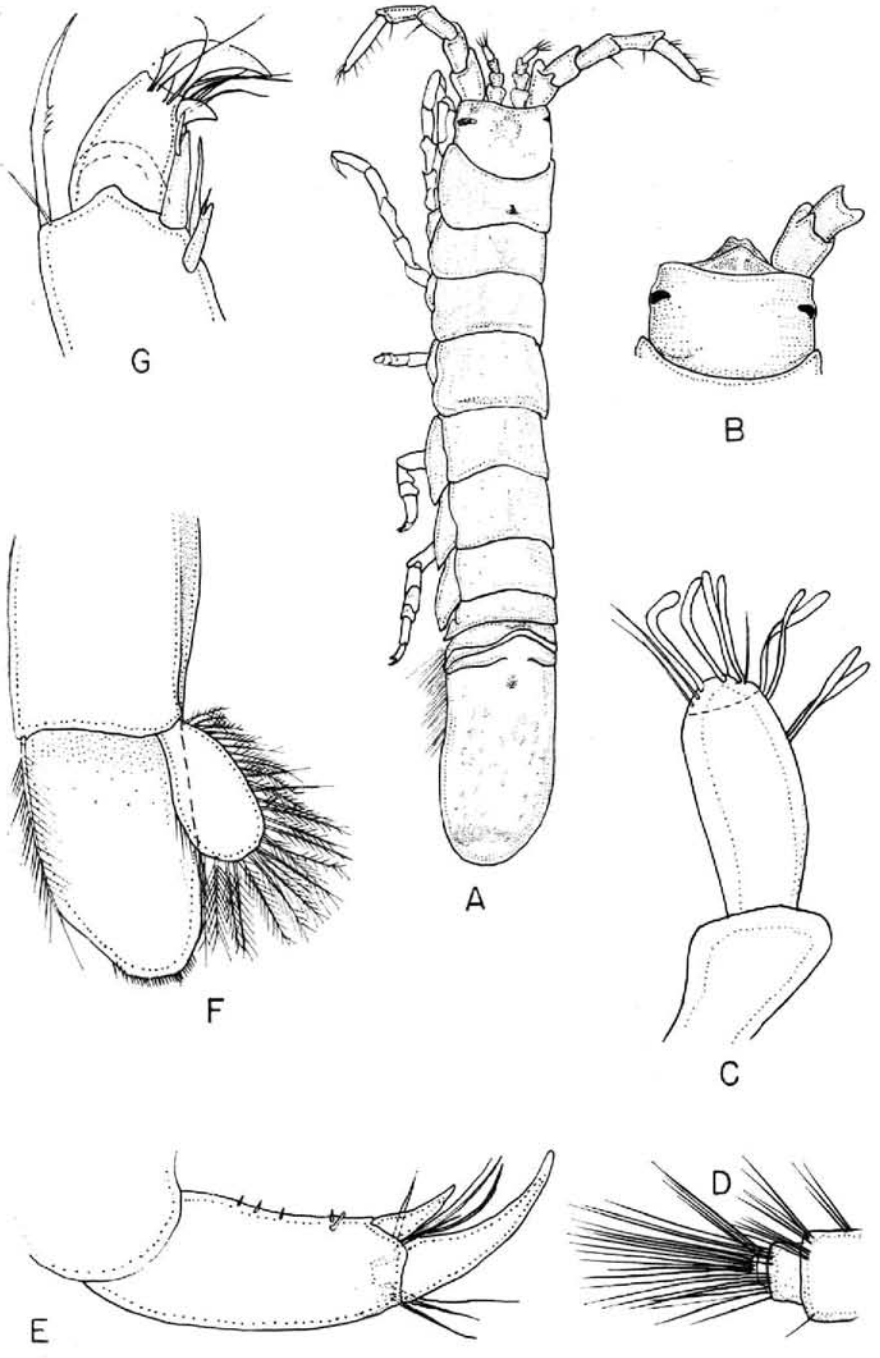

Figure 31. *Cleantis chilensis*, new species. A, whole animal, type; B, cephalon; C, first antenna; D, second antenna; E, first peraeopod; F, uropod; G, seventh peraeopod. Specimen 11 mm in length.

NORDENSTAM (*op. cit.*) reports the maxillipedal palp in this subfamily to have three articles. It has four, with the small first article being generally overlooked. Two genera were found in the L.U.C.E. collections, *Macrochiridothea* OHLIN and *Chaetilia* DANA. The coxal plate morphology is the same in both genera.

Genus *Macrochiridothea* OHLIN, 1901

Type species: *Macrochiridothea michaelseni*, OHLIN, 1901.

Synonyms: None.

Diagnosis: Chaetilinae with lateral borders of cephalon expanded and with a deep incision on either side. Eyes dorsal when present. Pleon with four somites. Sixth pair of peraeopoda elongate but not as long as body. First three pairs of peraeopoda subchelate.

Macrochiridothea michaelseni OHLIN

Figure 32

Synonyms: *Macrochiridothea michaelseni* OHLIN, 1901, pp. 287—289, fig. 8.

Diagnosis: Dorsum of cephalon, peraeon, and pleon smooth, lacking tuberculations. Eyes lacking. Pleotelson with a single apical spine on either side of which are three-four pairs of plumose setae. Second article peduncle of first antenna with a strongly projecting outer angle. Flagellum of antenna with short terminal articles. Flagellum of second antenna with seven articles.

Measurements: Length 11.5 mm, breadth 5.5 mm female smaller (OHLIN, 1901).

Type locality and types: In brackish pools Magellan Strait, Punta Arenas, in branch of delta of Rió de las Minas, March 16, 1893, 12 fathoms, one specimen (OHLIN, 1901).

Distribution: Ten specimens in L.U.C.E. collections were from *St. M 112*, Estrecho de Magallanes, Punta Arenas, N. of town, tidal belt, sand.

Affinities: The peculiar elongation on the apex of the second article of the first antennal peduncle is distinctive for this species as are also the absence of eyes and tuberculations on the body.

Macrochiridothea stebbingi OHLIN, 1901

Figure 33

Synonyms: *Macrochiridothea stebbingi* OHLIN, 1901, pp. 289—291, fig. 9.

Diagnosis: Body and cephalon tuberculate, eyes small, dorsal. Cephalon with a frontal row of two and a posterior row of four tubercles along posterior margin; sixth with three tubercles, seventh with one median tubercle. Pleotelson with one median spinelike tubercle at base of last pleonal somite. Epimera curved upward with spinelike posterolateral margins. Apex of pleotelson with a medial spine surrounded by plumose setae. Flagellum of first antenna triarticulate. First pair of peraeopoda

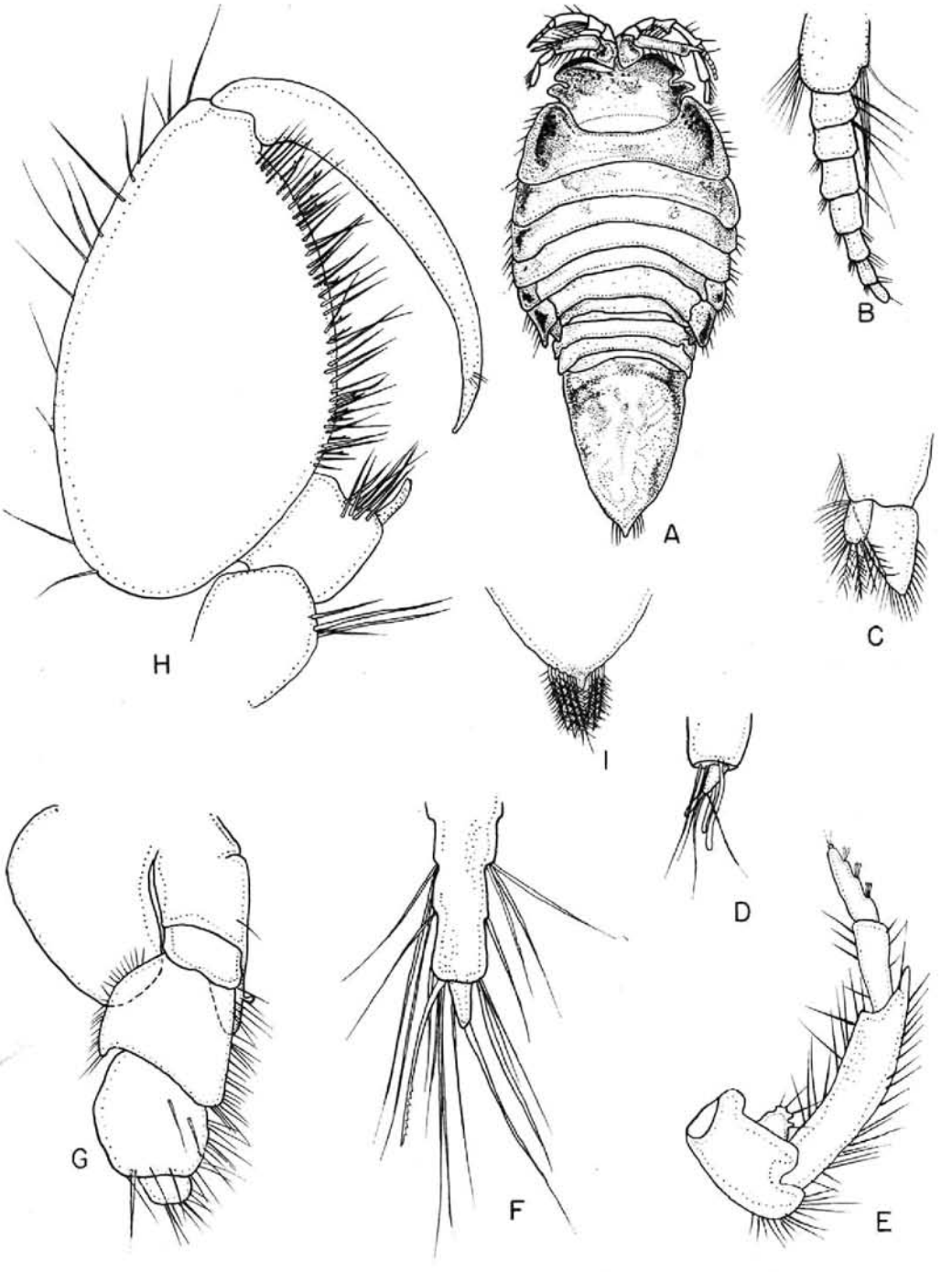

Figure 32. *Macrochiridothea michaelseni* Ohlin. A, whole animal; B, second antenna; C, uropod, D, first antenna; E, first antenna; F, seventh peraeopod; G, maxilliped; H, gnathopod; I, apex pleotelson.

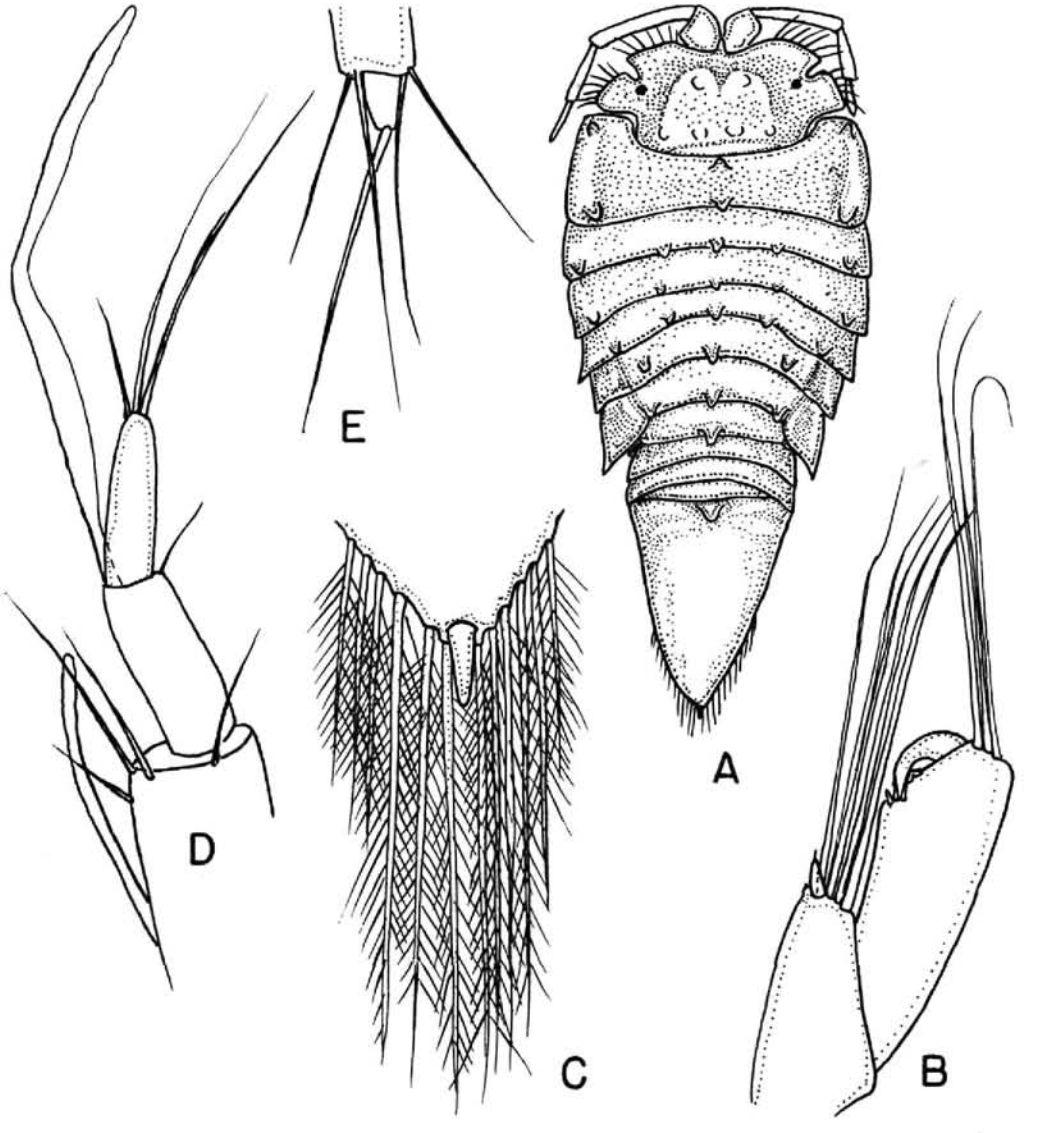

Figure 33. *Macrochiridothea stebbingi* Ohlin. A, whole animal; B, second peraeopod; C, apex pleotelson; D, first antenna; E, seventh peraeopod.

gnathopod-like, second and third subchelate. Fourth pair lacks dactyl, five to seven with minute dactyl bearing a long terminal seta.

Measurements: Female, 7 mm long (Ohlin, *op. cit.*).

Type locality and types: Types were collected from Tierra del Fuego between Isla Nueva and Navarino at 30 fathoms, February 1, 1896 (Ohlin, 1901).

Material examined: Specimens in the L.U.C.E. collection came from *St. M 148*, southern Chile.

Distribution: Tierra del Fuego to Chile.

Affinities: The closest relative to this species is what NORDENSTAM called *M. stebbingi* var *multituberculata*. This is probably a distinct species. Its tuberculations are much more pronounced and differ in their arrangement from those of *stebbingi*, e.g. the pleon has three tuberculations and the last peraeonal somite has three rather than one as in the true *stebbingi*. The eyes are small in both.

Macrochiridothea setifer, new species

Figure 34

Synonyms: None.

Diagnosis: Cephalon with lateral margins deeply incised, dorsum flat, lacking tubercles except for a pair of flattened elevations at margin of maxillipedal somite groove. Remainder of body flattened, lacking tuberculations or swellings. Third somite of pleon connected at midline with long carina going to apex of pleotelson. The apex has a large terminal spine lateral to which are numerous plumose setae. Lateral margins of cephalon and peraeon with stout setae. Gnathopod and peraeopods similar to those described for *stebbingi*. Eyes small but obvious.

Measurements: Holotype female, length 4.0 mm, width 2.0 mm.

Type locality and types: The type and only specimen is from *St. M 70*, Southern Chile, Isla Guafo, the anchorage E. of Punta Weather, February 19, 1949, 25 meters depth, rather coarse sand with some stones.

Distribution: Known only from type locality.

Affinities: The smoothness of the body allies this species with *M. michaelseni*, however, the presence of eyes, stout marginal setae, and the carina on the pleon serves to distinguish the two species.

From *M. kruimeli* NIERSTRASZ this species differs in having an apical spine on the pleotelson which *kruimeli* lacks (SHEPPARD, 1957, fig. 13c).

Macrochiridothea kruimeli (NIERSTRASZ)

Figure 51-J

Synonyms: *Macrochiridothea kruimeli* NIERSTRASZ, 1918, pp. 130—132, figs. 13, 54—64, SHEPPARD, 1957, pp. 172—173.

Diagnosis: The eyes are very small and contain a little pigment. The antenna is considerably longer than the antennule and its flagellum consists of fifteen joints, the first of which is the longest. The maxilliped has four joints to the palp. (SHEPPARD, 1957, pp. 172—173).

Type locality: Punta Arenas, Chile.

Distribution: Magellan region and Falkland Islands, (SHEPPARD, 1957, p. 173). This species not found in the L.U.C.E. collections.

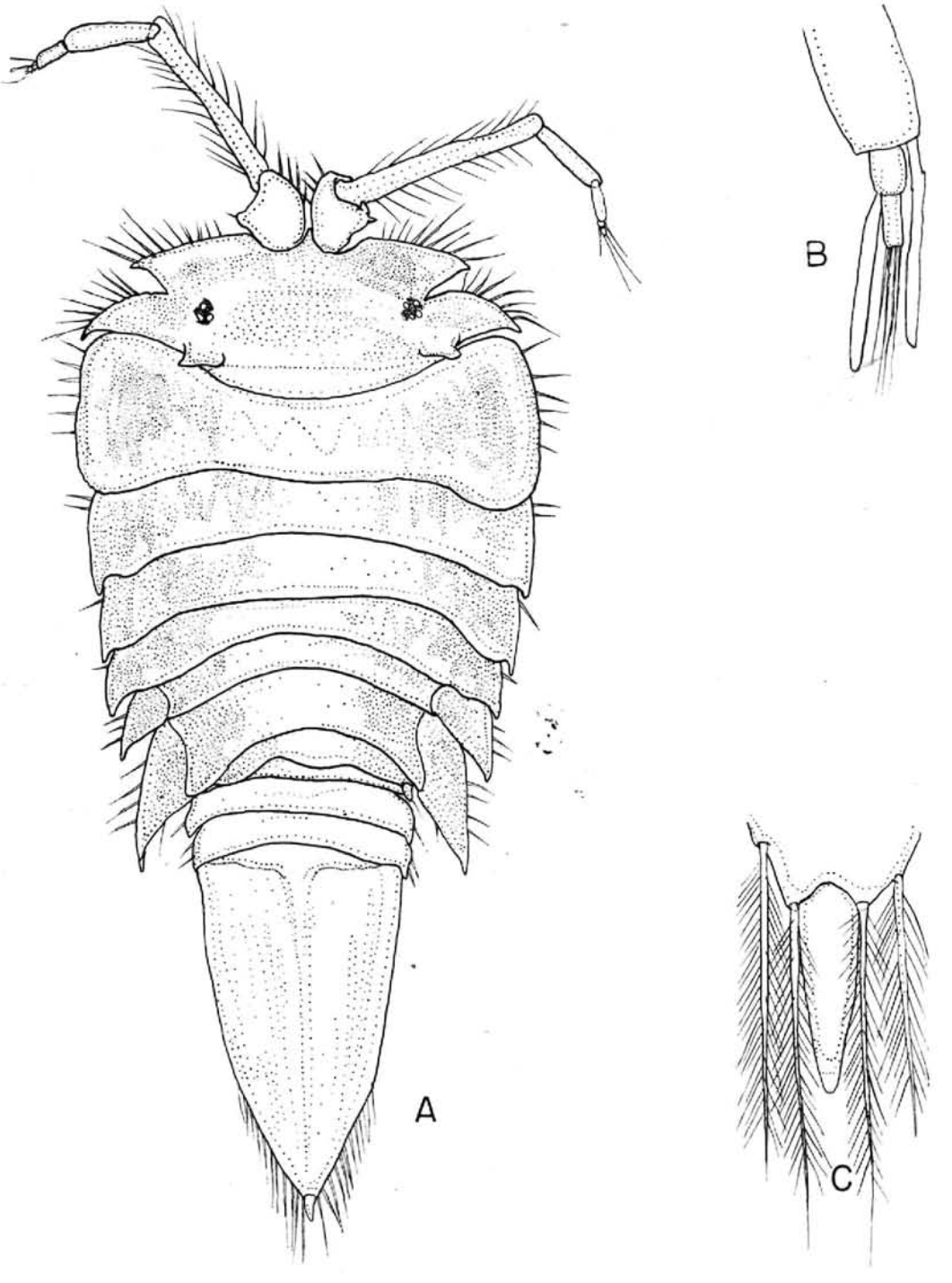

Figure 34. *Macrochiridothea setifer*, new species. A, whole animal; B, first antenna; C, apex pleotelson.

Genus *Chaetilia* DANA, 1852

Synonyms: None, ref. NORDENSTAM, 1933.

Type species: *Chaetilia ovata* DANA.

Diagnosis: Chaetilinae with lateral margins of cephalon not expanded and not incised. Eyes laterally located. Pleon with four or five somites. Sixth pair of peraeopoda as long as body. First five pairs of peraeopoda subchelate. Last two pairs lack claws or dactylus.

This genus was established nearly one hundred years ago on *C. ovata* DANA. It had not been collected since. One other species was found in the L.U.C.E. collections. DANA was incorrect in believing that the sixth pair of peraeopods were multiarticulate (e.g. with 14 articles). This is not the case on the specimen I have examined. The peraeopods do appear to be multiarticulate due to peculiarities on calcification of the peraeopods; they are, however, quite like the other peraeopods in actual segmentation.

Chaetilia paucidens, new species

Figure 35

Synonyms: None.

Diagnosis: Second and third articles of peduncle of first antenna each about twice as long as wide. Frontal margin cephalon projecting medially but with pronounced apical convexity into which inserts the first peduncular articles of the first antennae. Pleon with four somites; pleotelson with apex bluntly pointed and provided with six teeth, three on either side of midline. Flagellum of first antenna with a minute apical article. Flagellum of second antenna with seven articles.

Measurements: Holotype oostegite bearing female, length 5.0 mm, width 2.0 mm.

Type locality and types: Collected from *St. M 152*, Central Chile, Montemar (N. of Valparaíso), Estación de biología marina, tidal belt, sand beach, September 16, 1948.

Distribution: Known only from type locality.

Affinities: This species is related but not closely to *C. ovata* DANA. The second and third peduncular articles of the first antennae are much longer than wide, the apex of the pleotelson is sharply pointed and the pleon has five somites in *C. ovata* DANA. In *C. paucidens* the second and third peduncular articles of the first antennae are only slightly longer than wide, the apex of the pleotelson is blunt, and the pleon has four somites.

TRIBE 3. FLABELLIFERA

Here the Flabellifera is considered to have three subtribes, the Anthuroidea, the Seroloidea and the Cirolanoidea (auct. Cymothoidea of other authors).

The typical flabelliferan has seven peraeonal somites and six pleonal somites

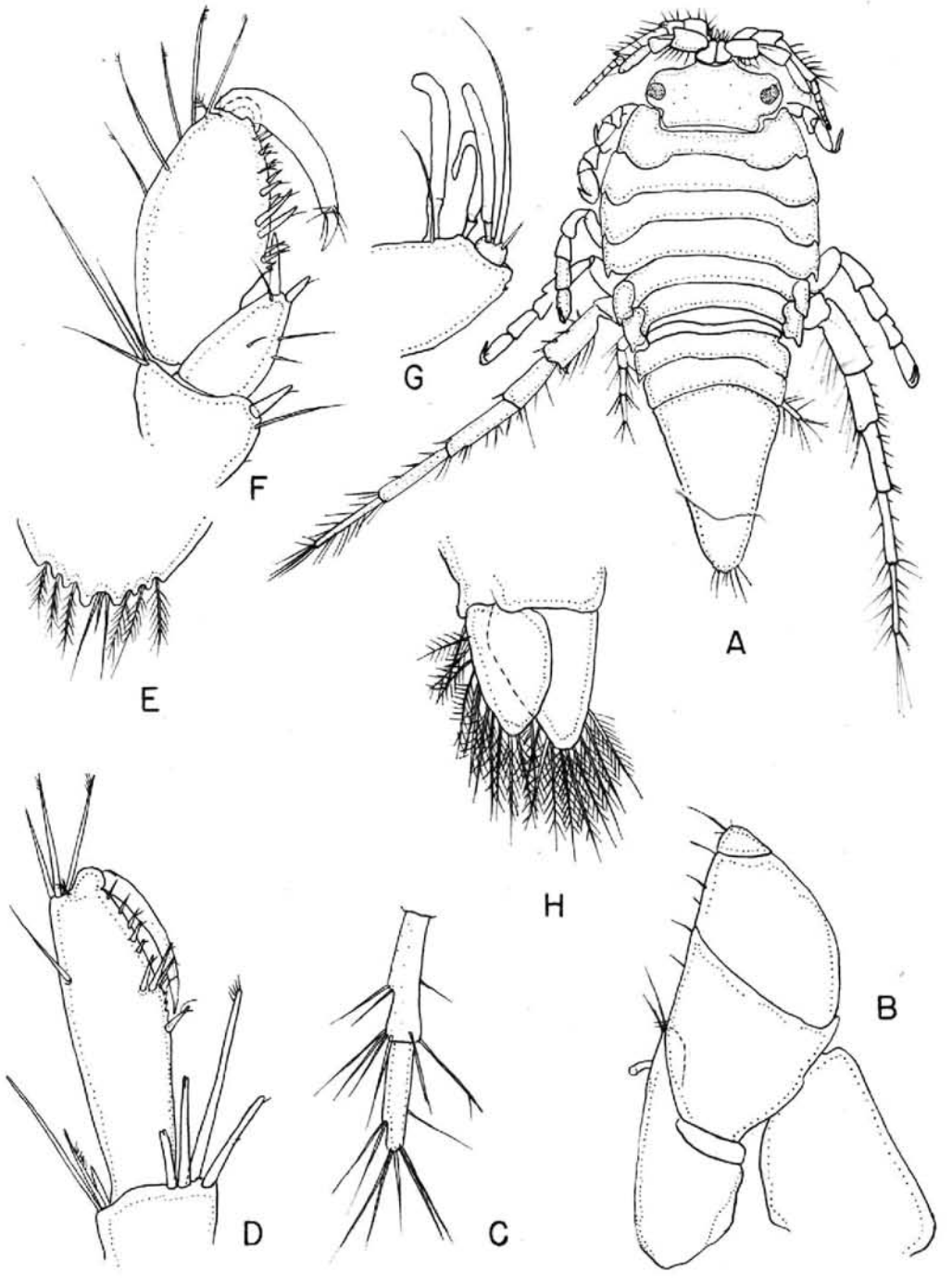

Figure 35. *Chaetilia paucidens*, new species. A, whole animal; B, maxilliped; C, seventh peraeopod; D, third peraeopod; E, apex pleotelson; F, gnathopod; G, first antenna; H, uropod.

inclusive of the pleotelson which bears uropoda. Also five pairs of pleopoda and seven pairs of peraeopods are present. The mouth parts are normal, having mandibles with a well developed molar process, lacinia mobilis (left) setae row, and triarticulate palp. The first maxillae bear three lobes and the second two lobes. The maxilliped has an epipod and a palp with five articles. The eyes are dorsal when present. However, there are exceptions to each characteristic listed above. For example, uropods are lacking from *Anuropus*; mandibular molar process lacks in *Limnoria*. The lobes of the maxillae are reduced or absent in the cymothoid genera, and the number of articles to the maxillipedal palp is similarly reduced. Sphaeromids have less than six free peraeonal somites and serolids have less than seven peraeonal somites but retain their seven pairs of peraeopods and five pairs of pleopods. Except in *Limnoria* and in many sphaeromids the uropoda are flattened.

The flabelliferan forms the stem from which other isopod types can be derived and it is only with extreme difficulty that they may be characterized from the other Isopoda. Only the fact that the uropoda are more lateral in their insertion than terminal serves to distinguish the flabellifera from the asellota; the fact that the uropoda do not inflex under the pleon to form an opercular covering of the pleopoda serves to distinguish it from the Valvifera. These are tenuous items on which to base a classification of a group; however, such is the the situation today.

As was indicated, we see the flabellifera are far from being a homogenous group. The following key serves to distinguish the three major subtribes:

A KEY TO THE SUBTRIBES OF THE FLABELLIFERA

1. Individual peraeonal somites longer than wide. Uropoda with exopods arching medially over pleotelson ..... *Anthuroidea*
1. Individual peraeonal somites much wider than long. Uropoda in plane of pleotelson 2
2. Peraeon with first somite fused medially to cephalon. Seventh somite present or absent in dorsal aspect, when present not reaching the lateral contour of body. First to third pleopoda smaller than operculiform fourth and fifth pairs ..... *Seroloidea*
2. Peraeon with seven distinct separated somites. First not fused with cephalon. Pleopoda generally similar, no one pair especially operculiform ... *Cirolanoidea*

A KEY TO THE CHILEAN FLABELLIFERA

1. Individual peraeonal somites longer than wide. Uropoda with exopods arching medially over pleotelson. Mouth parts adapted for piercing and sucking ..... *Paranthura porteri* (BOONE)
1. Individual peraeonal somites much wider than long. Uropoda in plane of pleotelson 2
2. Peraeon with first somite fused medially to cephalon. First to third pleopoda smaller than operculiform fourth and fifth pairs 3

2. Peraeon with seven distinct separated somites. Pleopoda generally similar, fourth and fifth pairs not operculiform 6
3. Coxal plates marked off from peraeon of second to fifth somites inclusive .. 4
3. Coxal plates marked off from peraeon of second to fourth somites inclusive 5
4. Peraeonal somites with transverse ridges *Serolis* (*S.*) *paradoxa* (FABRICIUS)
4. Peraeonal somites without transverse ridges *Serolis* (*S.*) *schythei* LÜTKEN
5. Posterolateral angles of pleural of 2nd and 3rd pleonal somites extending to lateral margins of pleotelson .....
Serolis (*S.*) *gaudichaudi* AUDOUIN & MILNE-EDWARDS
5. Posterolateral angles of pleurae of 2nd and 3rd pleonal somites extend about as far back as to one-third the length of the pleotelson .. *Serolis* (*S.*) *plana* DANA
6. Pleon with six fully separated somites inclusive of pleotelson 7
6. Pleon with less than six fully separated somites inclusive of pleotelson..... 20
7. Uropodal rami tubular or claw-like .....
Limnoria (*Phycolimnoria*) *chilensis* n. sp.
7. Uropodal rami flattened, fan-like 8
8. Some or none of the peraeopods prehensile 10
8. All of the peraeopods prehensile 9
9. First pair of antennae contiguous at base .....
Meinertia gaudichaudi (MILNE-EDWARDS)
9. First pair of antennae widely separated at base .....
Lironeca raynaudi M.-EDWARDS
10. Mandible lacks lacinia mobilis and molar process reduced 11
10. Mandible with molar process and tooth-bearing lacinia mobilis 14
11. Terminal articles of maxillipedal palp with stout recurved setae 12
11. Terminal articles of maxillipedal palp without stout recurved setae .....
Tridentella laevicephalax n. sp.
12. Maxillipedal palp with two articles *Rocinela australis* SCHIOEDTE & MEINERT
12. Maxillipedal palp with five articles 13
13. Spoon shaped enlargement on inferior margin of propod of first three peraeopods
Aega magnifica (DANA)
13. Spoon shaped enlargement not present on inferior margin of first three peraeopods ..... *Aega semicarinata* MIERS
14. Front of cephalon rostrate 15
14. Front without a projecting rostrum 16
15. Anterolateral margins of cephalon truncated .....
Excirolana chilensis RICHARDSON
15. Anterolateral margins of cephalon rounded *Excirolana hirsuticauda* n. sp.
16. Apex of pleotelson with acute point medially 17
16. Apex of pleotelson evenly rounded 18
17. Coxal plate of seventh peraeonal somite acutely produced, extending almost to pleotelson ..... *Cirolana albinota* VANHÖFFEN

17. Coxal plate of seventh peraeonal somite not acutely produced, extending only to margin of first pleural somite ..... *Cirolana chilensis* n. sp.
18. Rami of uropoda acutely pointed ..... *Cirolana urostylis* n. sp.
18. Rami of uropoda blunt 19
19. Coxal plate of seventh peraeonal somite with blunt margin .....
Cirolana robusta n. sp.
19. Coxal plate of seventh peraeonal somite pointed at posterolateral margin ....
Cirolana concinna HALE
20. Pleopods four to five with exopods pelucid, thin; endopods thick and fleshy with deep transverse folds 21
20. Pleopods four to five with both rami thick and fleshy with deep transverse folds 25
21. Last somite of male peraeon with a long mesial process 22
21. Last somite of male peraeon without long mesial process 23
22. Uropodal rami rounded, not crenulated at margin ..... *Isocladus* sp.
22. Uropodal rami truncated, often with crenulated margin .....
Isocladus calcarea (DANA)
23. Dorsum of pleotelson smooth 24
23. Dorsum of pleotelson tuberculate and rugose .....
Exosphaeroma studeri VANHÖFFEN
24. Apex of pleotelson broadly rounded, uropodal rami pointed .....
Exosphaeroma gigas LEACH
24. Apex of pleotelson more pointed than rounded, uropodal rami rounded .....
Exosphaeroma lanceolata (WHITE)
25. Exopod of pleopod three two jointed 26
25. Exopod of pleopod three not jointed 30
26. Basal articles of antennulae expanded, plate-like, extending beyond margin of cephalon ..... *Amphoroidea typa* MILNE-EDWARDS
26. Basal articles of antennulae not greatly expanded, not plate-like 27
27. Lateral margins of pleotelson bent downwards to form a tube .....
Cymodocella foveolata n. sp.
27. Lateral margins of pleotelson not bent downwards to form a tube. Distal margin of pleotelson notched in both sexes 28
28. Apex of uropodal rami pointed ..... *Dynamenella tuberculata* n. sp.
28. Apex of uropodal rami blunt 29
29. Uropodal rami not reaching to posterior margin of pleotelson .....
Dynamenella acuticauda n. sp.
29. Uropodal rami reaching to posterior margin of pleotelson .....
Dynamenella eatoni (MIERS)
30. Apex of pleotelson with chordate foramen ..... *Dynamenopsis bakeri* n. sp.
30. Apex of pleotelson incised but lacking chordate foramen 31
31. Apex of pleotelson feebly incised, swollen ridge above incision in dorsum of pleotelson ..... *Paradynamenopsis lundae* n. sp. (dwarf & giant phases)

31. Apex of pleotelson incised or emarginate but lacking swollen ridge above incision 32
32. Uropodal exopod less than one-half the length of a pointed endopod .....
Euvallentinia darwini (CUNNINGHAM)
32. Uropodal exopod one-half the length of an apically truncated endopod .....
Cassidinopsis emarginata (GUÉRIN-MÉNEVILLE)

Subtribe Anthuroidea

This subtribe contains flabelliferans in which the individual peraeonal somites are longer than wide and in which the uropodal exopods arch medially over the pleotelson.

None was represented in the L.U.C.E. collections. One species *Paranthura porteri* BOONE is known previously from the Peruvian fauna.

Paranthura porteri BOONE

(No figure available)

The description of this species was not available to the writer.

Subtribe Seroloidea

Family Serolidae

Type genus: *Serolis* LEACH.

Earlier modern workers have been content to consider the genus Serolis a family of the Flabellifera. The homogeneity of the group and lack of transitional forms suggests that this is incorrect. The operculiform 4—5 pairs of pleopoda which are unlike the preceding three pairs is unique and not duplicated by any other flabelliferan. Because of this and because the cephalon is fused medially with the first peraeonal somite I am of the opinion that the Serolidae should belong to a category higher than the family and equivalent to the Anthuroidea. Accordingly, *Serolis* is considered as belonging to a tribe, the Seroloidea. The family Serolidae remains with its single genus *Serolis*.

Diagnosis: Flabellifera with the 4—5 pairs of pleopoda large and operculiform, pleopods one to three normal, smaller than 4—5. Cephalon united medially with first peraeonal somite. Body strongly depressed, much wider than high (thick). Uropoda small, normal, subapical, not arching over pleotelson.

Genus *Serolis* LEACH, 1814

Subgenus *Serolis* NORDENSTAM, 1933

Type species: *Serolis* (*Serolis*) *paradoxa* (FABRICIUS, 1775).

Diagnosis: Uropods two-branched (not spiniform). Tergum of seventh peraeon segment entirely vanished. Tergum of sixth peraeon segment well demarcated from

first abdominal segment in its entire length. Second joint of palp of maxilliped cordate (modified after NORDENSTAM, 1933).

Serolis (Serolis) plana DANA

Figure 36C

Synonyms: *Serolis plana* DANA, 1855, Atlas, pl. 53, figs. 1a—1c.
? *Serolis convexa* CUNNINGHAM, NORDENSTAM, 1933, pp. 77—82.

Diagnosis: Group IV *Serolis* of NORDENSTAM (1933). Pleon with apex bluntly pointed, excavate below. Median pleonal carina entire, not broken in middle; lateral carinae lack teeth at distal ends; instead a sulcus terminates each carinae. Rami of uropods elongate, narrow.

Whether this species is identical with *Serolis* (*S.*) *convexa* CUNNINGHAM or not is subject for speculation. DANA's types have been lost; however, the agreement between his illustration and the specimen at hand is remarkably complete, lending support to NORDENSTAM's (1933) contention that they are distinct species. The two are, however, very closely related. The species does have all the characteristics of group IV *Serolis* as cited by NORDENSTAM (1933, p. 51). The eyes are reniform.

Type locality: This species was originally collected by Fuegia (DANA, 1853, p. 794).

Measurements: Length, one inch; width three-fourths of an inch (DANA, *op. cit.*). Our specimen measured 8.3 mm in length and 7.0 mm in width.

Material examined: One female, from Southern Chile, *St. M 70.*

Distribution: Known previously from Tierra del Fuego (DANA).

Affinities: This species is closely related to and perhaps identical with *S.* (*S.*) *convexa* CUNNINGHAM.

Serolis (*Serolis*) *schythei* LÜTKEN

Figure 36D

Synonyms: *Serolis schythei* LÜTKEN, NORDENSTAM, 1933, p. 55.

Diagnosis: Head of greatest width across the eyes. Coxal plates marked off by dorsal sutures on the second to fifth peraeon segments. Epimeral angles of the second to sixth segments of peraeon all successively extending beyond the epimeral angles of the preceding segments. Epimera of second abdominal segment extending further back than the posterior angles of the epimera of the fifth peraeon segment, but not as far back as those of the sixth peraeon segment. Pleotelson with three diverging longitudinal ridges. Posterio-lateral angles of pleotelson prolonged into retroverted points. First maxillae with inner lobes expanded distally. Outer lappet of the outer lobe of second maxilla provided with two apical setae, inner lappet of the same lobe with six or seven. Maxilliped with a vestigial fourth joint. Basipodite of the first three pairs of pleopods with proximal part of the inner margin slightly convex and devoid of setae. Endopodite of fourth pleopod bifid (from NORDENSTAM, *op. cit.*).

Type locality: Region of Magellan Straits (NORDENSTAM, 1933, p. 55).

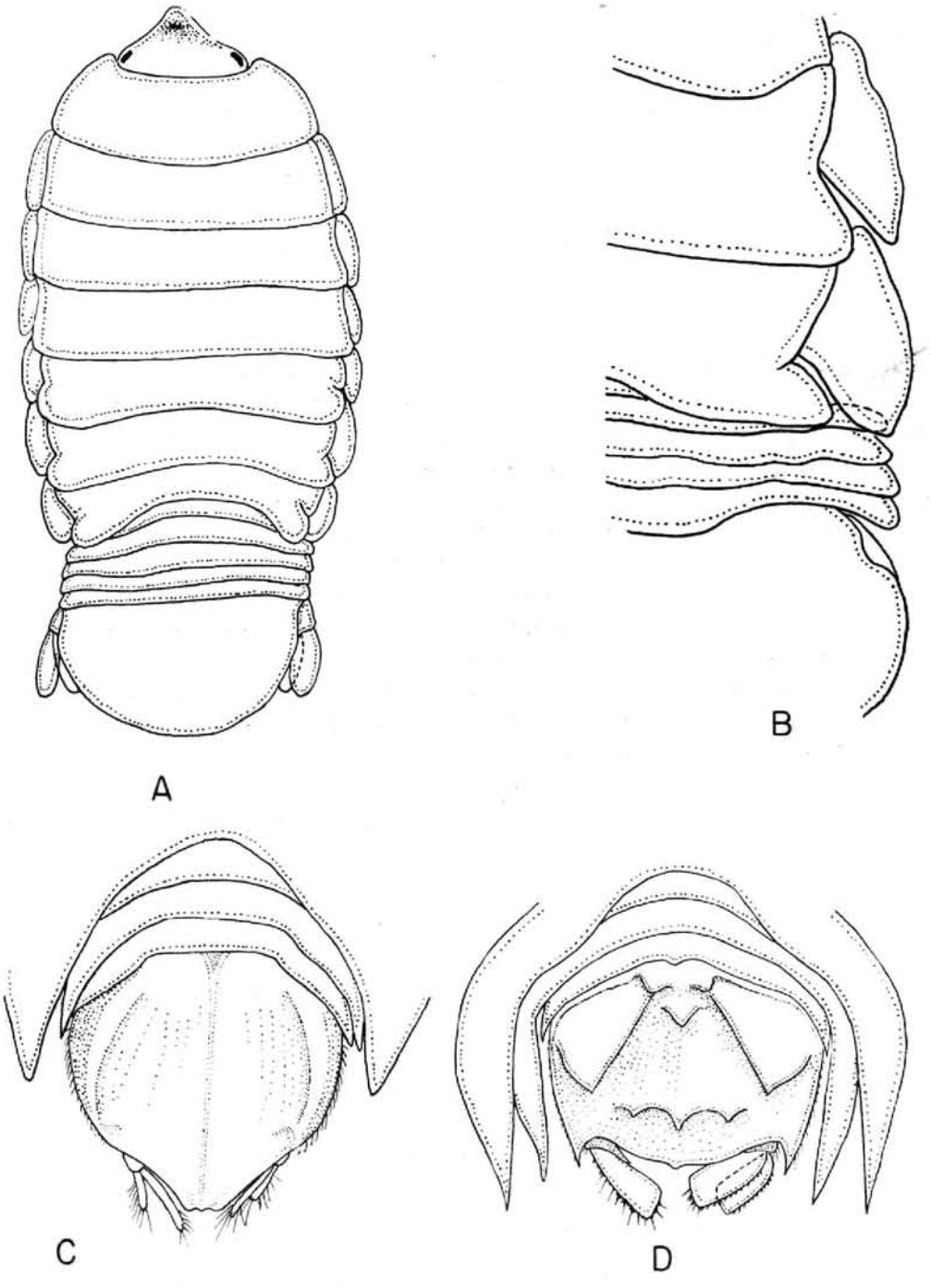

Figure 36, A—B, *Lironeca raynaudi* M.-Edw., A, in toto, male; B, lateral border gravid female, C, *Serolis plana* Dana, D, *Serolis schythei* Lütken.

Measurements: 17.3—31.5 mm in length (NORDENSTAM, *op. cit.*).

Material examined: A total of 96 specimens were from *St. M 108* and one from *St. M 24*, both stations in Southern Chile.

Distribution: NORDENSTAM (*op. cit.*) records the species from the coast of North Argentina, latitude 37° S, from the Falkland Islands, South Georgia, Patagonia, Graham Land, and the Magellan Region at Punta Arenas.

Serolis (*Serolis*) *paradoxa* (FABRICIUS)

(No figure available)

Synonyms: *Serolis paradoxa* (FABRICIUS), NORDENSTAM, 1933, pp. 51—55, and synonyms.

Diagnosis: "Anterio-lateral angles of the head triangularly prolonged. Coxal plates delimited by dorsal sutures on the second to fifth pereion segments. Posterior epimeral angles on the second to sixth segments of pereion all successively reach further back than the epimeral angles of the preceding segments. Posterio-lateral epimeral angles of the second and third abdominal segments extend to the lateral margins of the pleotelson. Pleotelson with three longitudinal diverging ridges. Inner lobe of first maxilla expanded distally. Outer lappet of outer lobe of second maxillae with two, and inner lappet of the same lobe with five or six, apical setae. Maxilliped without suture between the distal epipodite and the basipodite, the distal epipodite being fused proximally with the basipodite to about half its length; second joint of the palp cordiform. Basipodite of the first three pairs of pleopods with proximal part of the inner margin slightly convex. Fourth pair of pleopods with the endopodite bifid." (NORDENSTAM, 1933, p. 52.)

Distribution: "Coast of Central Chile (NIERSTRASZ 1917), Tierra del Fuego and Patagonia (AUDOUIN and MILNE-EDWARDS 1841), Falkland Islands (BEDDARD 1884), South Georgia (Sw. Ant. Exped.).

The species has not previously been recorded from South Georgia. It occurs with certainty as far northwards as the coast of Central Chile. Perhaps it may also be distributed at the coasts of North Chile and Peru. In any case, there are at the Swedish State Museum two specimens which are labelled: "Vanadis Expedition, Callao" (coast of Peru). This locality I regard, however, as uncertain." (NORDENSTAM, *op. cit.* p. 55.)

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

Serolis (*Serolis*) *gaudichaudi* AUDOUIN and MILNE-EDWARDS

(No figure available)

Synonyms: *Serolis gaudichaudi* AUDOUIN et MILNE-EDWARDS, NORDENSTAM, 1933, pp. 76—77.

Diagnosis: Anterior-lateral angles of the head prolonged in a lateral direction, so that the head has its greatest width anteriorly. Coxal plates marked off by dorsal

sutures on the second to fourth pereion segments. Posterio-lateral angles of the coxal plates of the second to sixth pereion segments each successively reaching farther back than those of the preceding segments. Posterio-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 pereiopod 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 preceeding 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, exluding, 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, transversly 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.

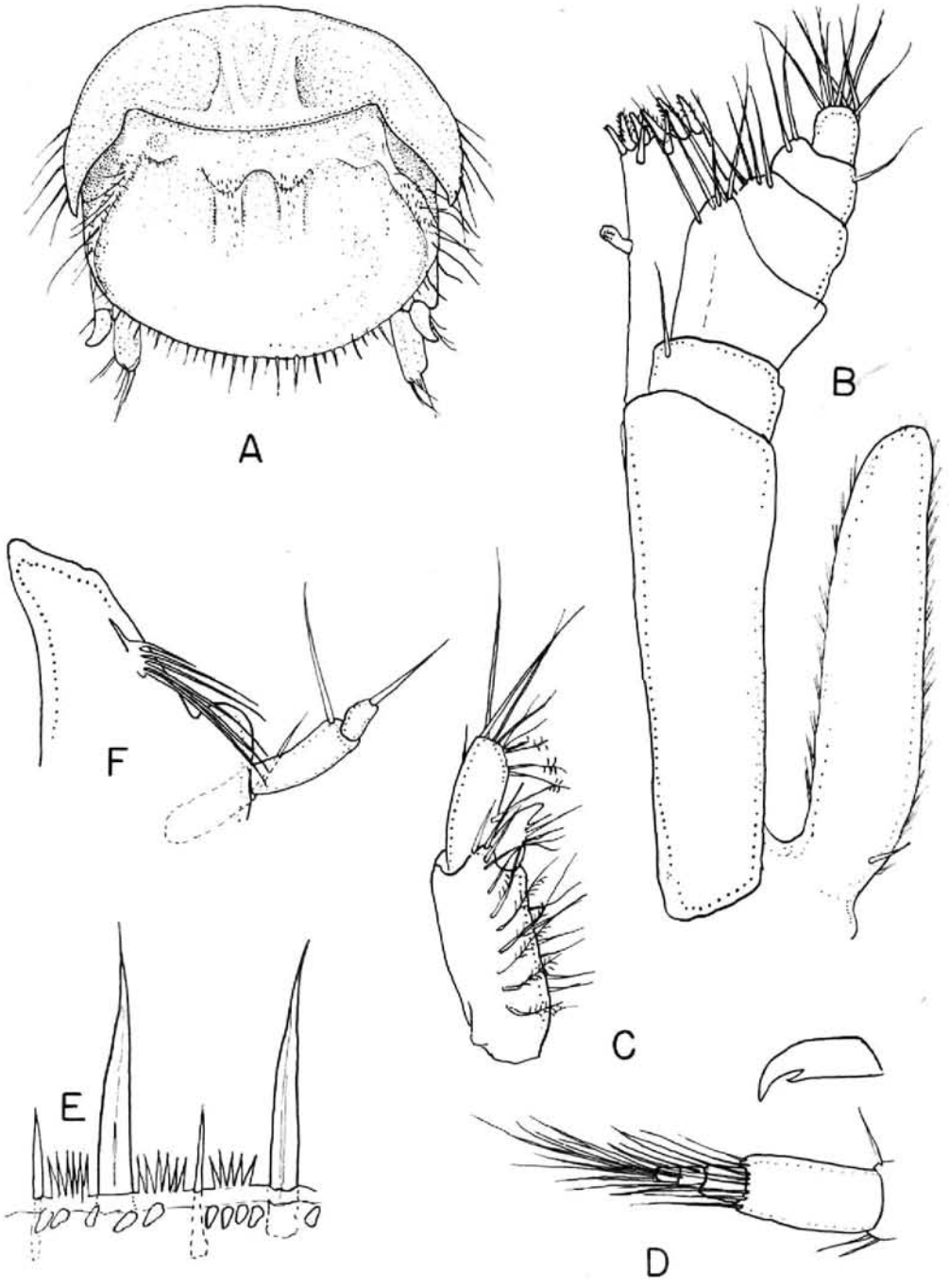

Figure 37. *Limnoria* (*Phycolimnoria*) *chilensis*, new species. A, pleotelson; B, maxilliped; C, uropod; D, flagellum of second antenna and claw of first peraeopod. E, margin of pleotelson; F, setae row of mandible.

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 Magellean 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 is distinguished by having the eyes not confluent at the midline.

Aega semicarinata MIERS

Figure 38A—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.

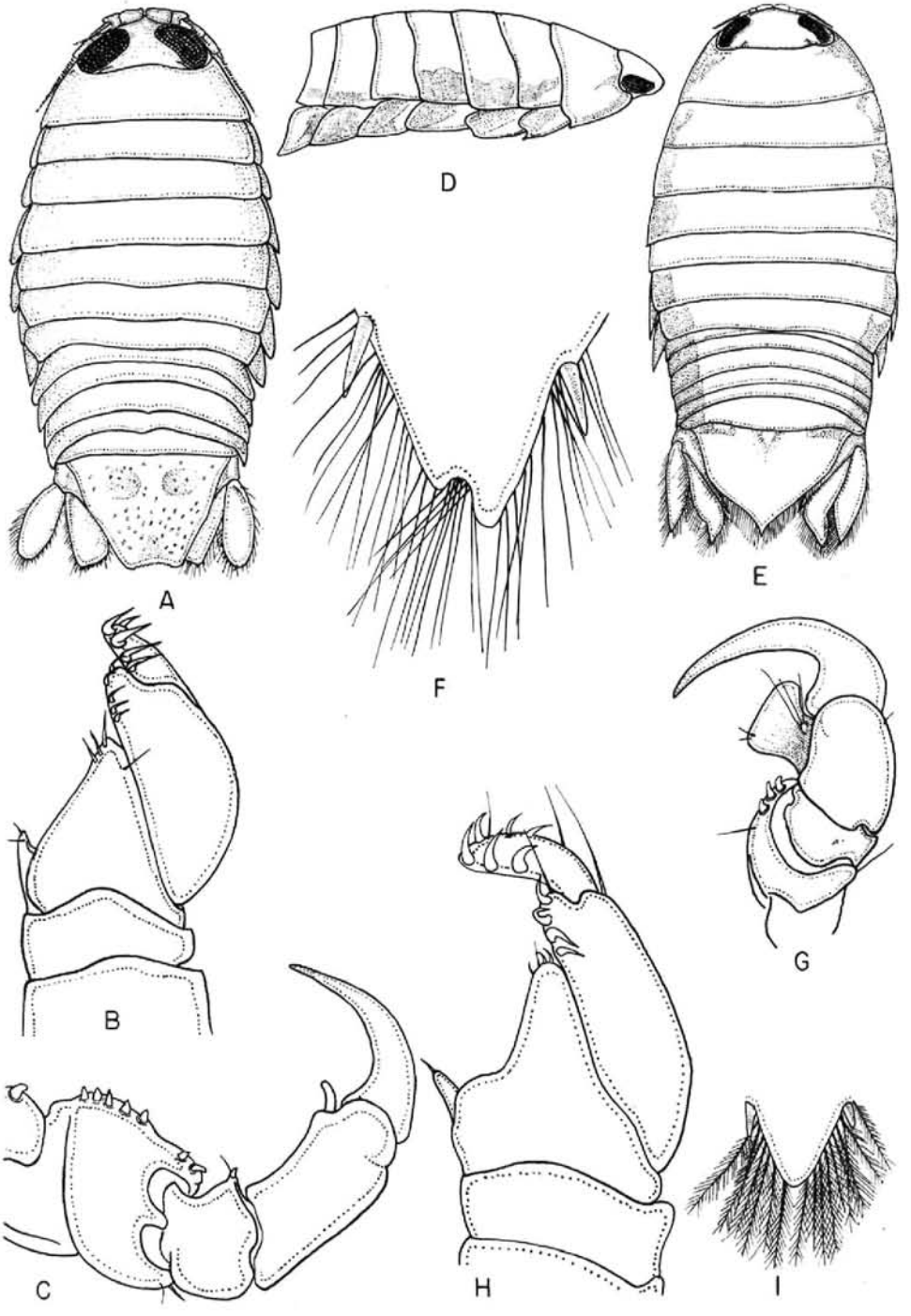

Figure 38, A—C, *Aega semicarinata* MIERS, A, in toto; B, maxilliped; C, second peraeopod; D—I, *Aega magnifica* (DANA); D, lateral view; E, in toto; F, uropodal endopod; G, first peraeopod; H, maxilliped; I, apex pleotelson.

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 Corvio, 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.

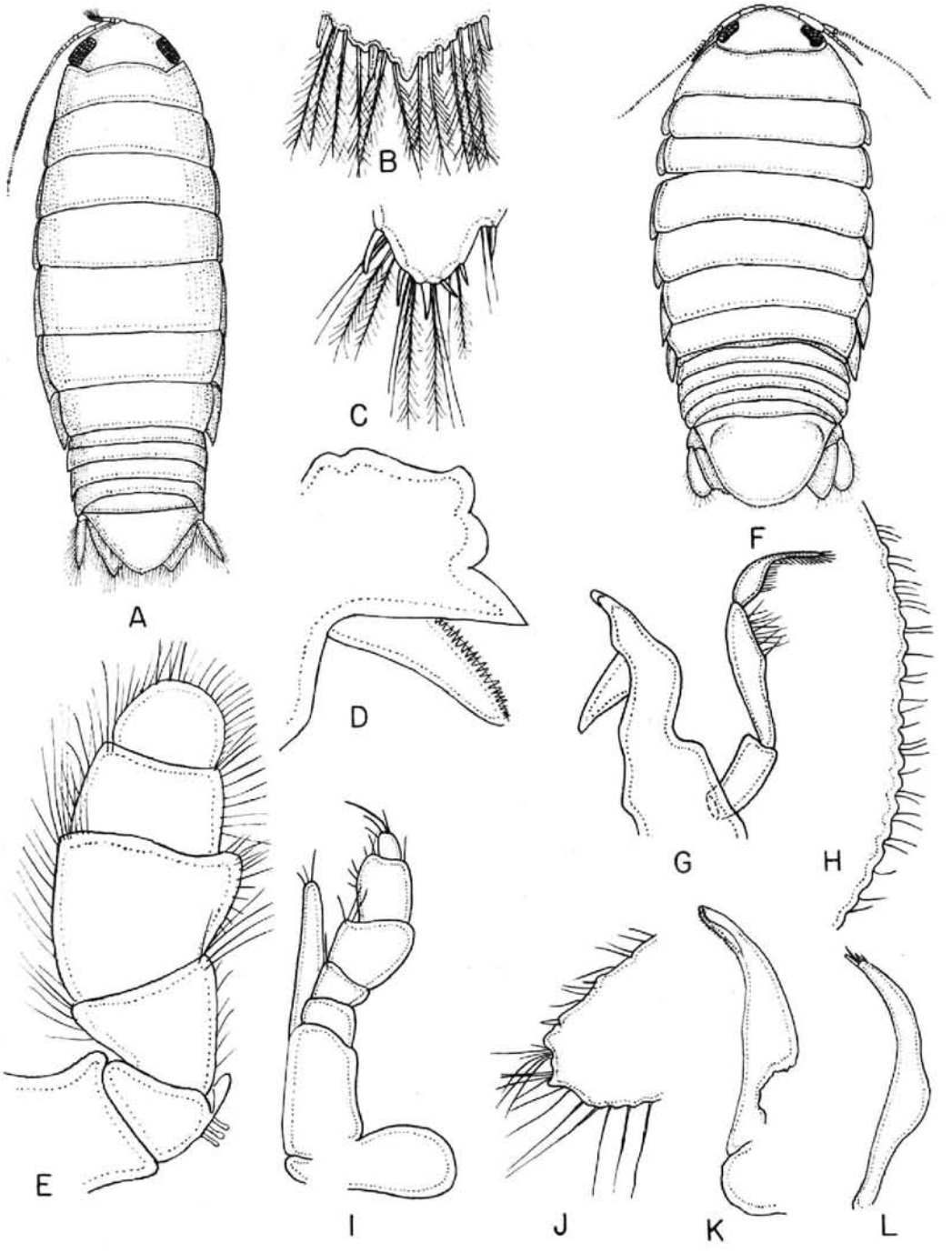

Figure 39, A—E, *Cirolana chilensis*, n. sp.; A, in toto; B, apex pleotelson; C, uropodal endopod; D, mandible; E, maxilliped; F—L, *Tridentella laevicephalax*, n. sp.; F, in toto; G, right mandible; H, apex pleotelson; I, maxilliped; J, uropodal exopod; K, second maxilla; L, first maxilla.

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 40A—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, Cotteloe. 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 40F—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 41D—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

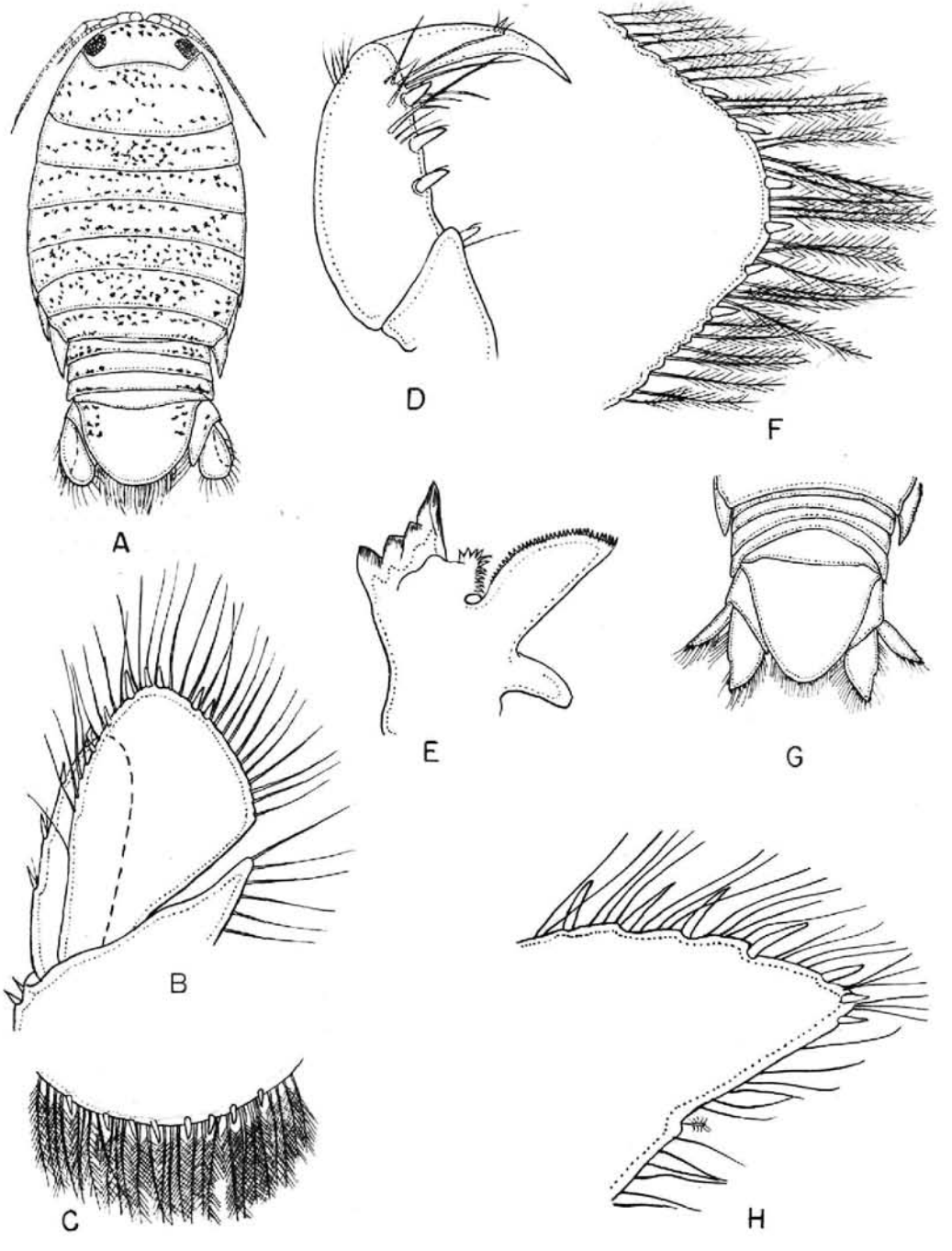

Figure 40, A—E, *Cirolana concinna* HALE. A, in toto; B, uropod; C, apex pleotelson; D, first peraeopod; E, mandible, F—H, *Cirolana urostylis*, n. sp.; F, apex pleotelson; G, pleon; H, uropodal endopod.

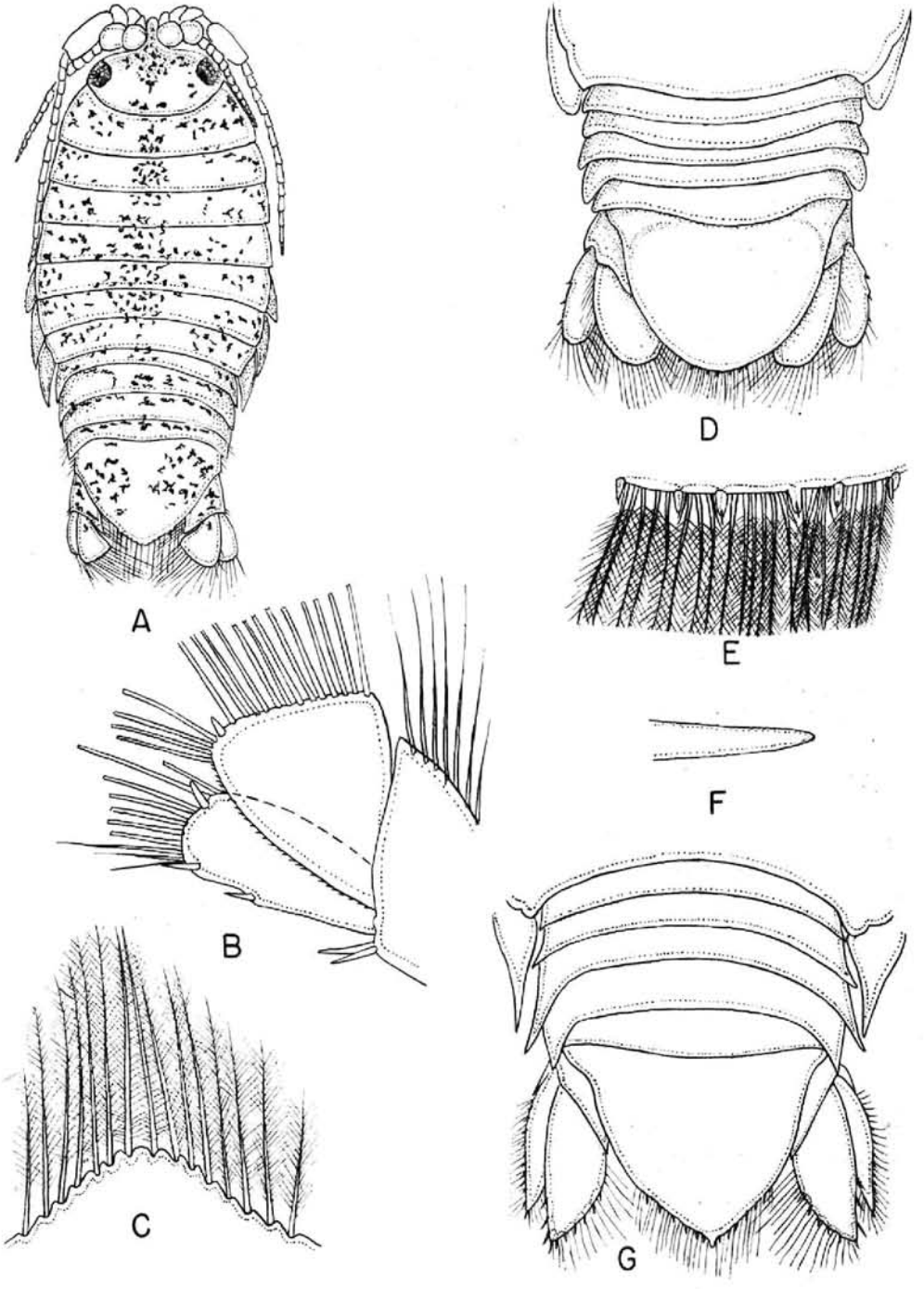

Figure 41, A—C, *Excirolana hirsuticauda*, n. sp.; A, in toto; B, uropod; C, apex pleotelson; D—E, *Cirolana robusta*, n. sp.; D, pleon; E, pleotelsonal margin; F—G, *Cirolana albinota* VANHÖFFEN; F, apex of appendix masculinum; G, pleon.

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 expecially 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 Antartic.

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 *Excirolana* RICHARDSON, 1912

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

Type species: *Excirolana 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, *Excirolana natalensis* (VANHÖFFEN) and by the new species described herein.

Excirolana hirsuticauda, new species

Figure 41A—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 51M

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

Diagnosis: RICHARDSON (op. cit.) describes this species as follows: "Body ablong-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 *Plakarthrium*, 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 Hemibranchiates 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
Total	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*, too 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 42 A

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

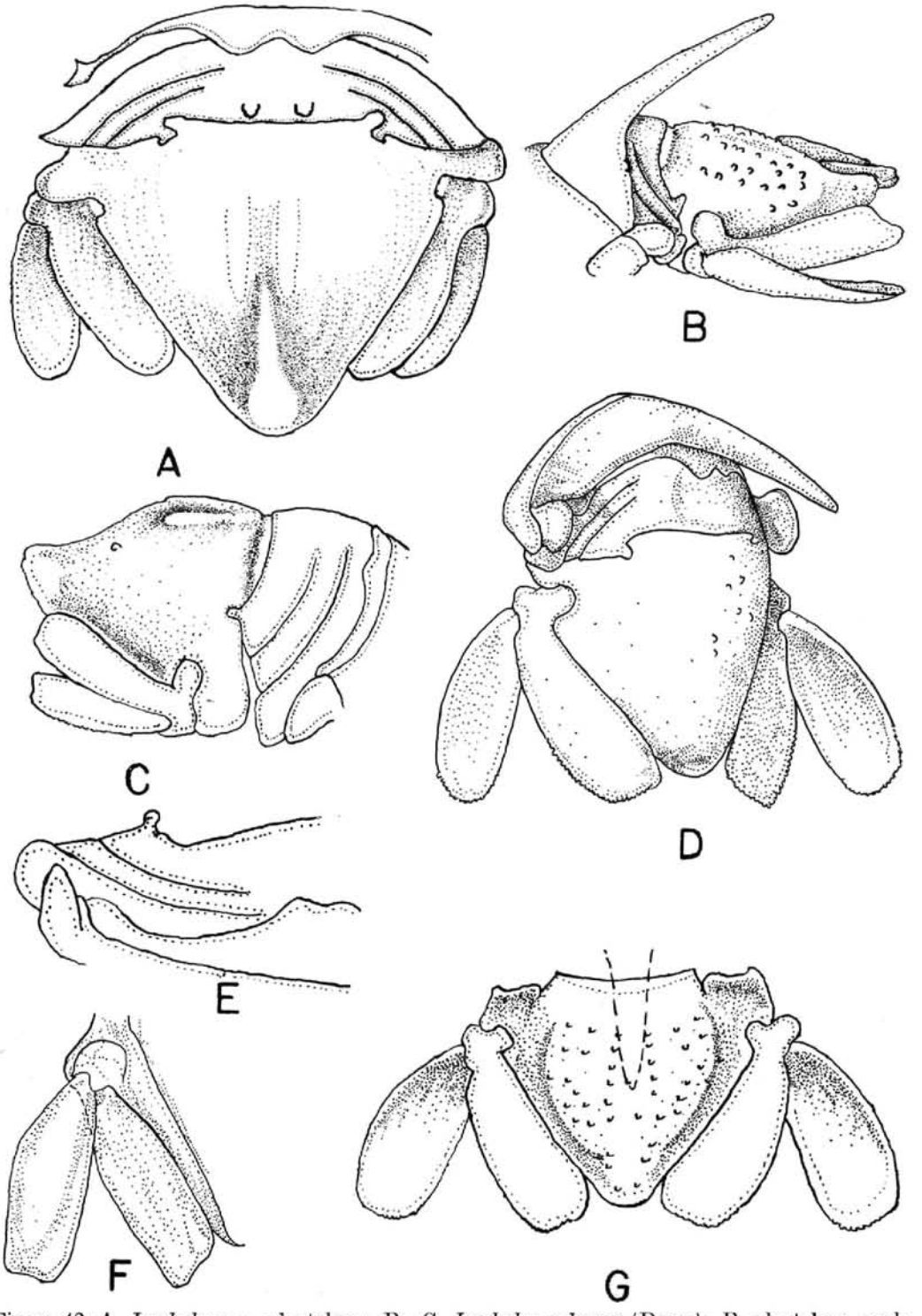

Figure 42: A, *Isocladus* sp., pleotelson; B—G, *Isocladus calcarea* (DANA); B, pleotelson, male, lateral view; C, pleotelson, female, lateral view; D, pleotelson, male, lateral view; E, fused part of pleotelson, dorsal view; F, uropoda, male, ventral view, non-crenulate; G, male, pleotelson, dorsal 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 ..... *studeri* VANHÖFFEN
1. Pleotelson smooth dorsally 2
2. Uropoda narrow and pointed, pleotelson broadly rounded at apex *gigas* LEACH
2. Uropoda wide and blunt at apex, pleotelson more acuminate *lanceolata* (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,

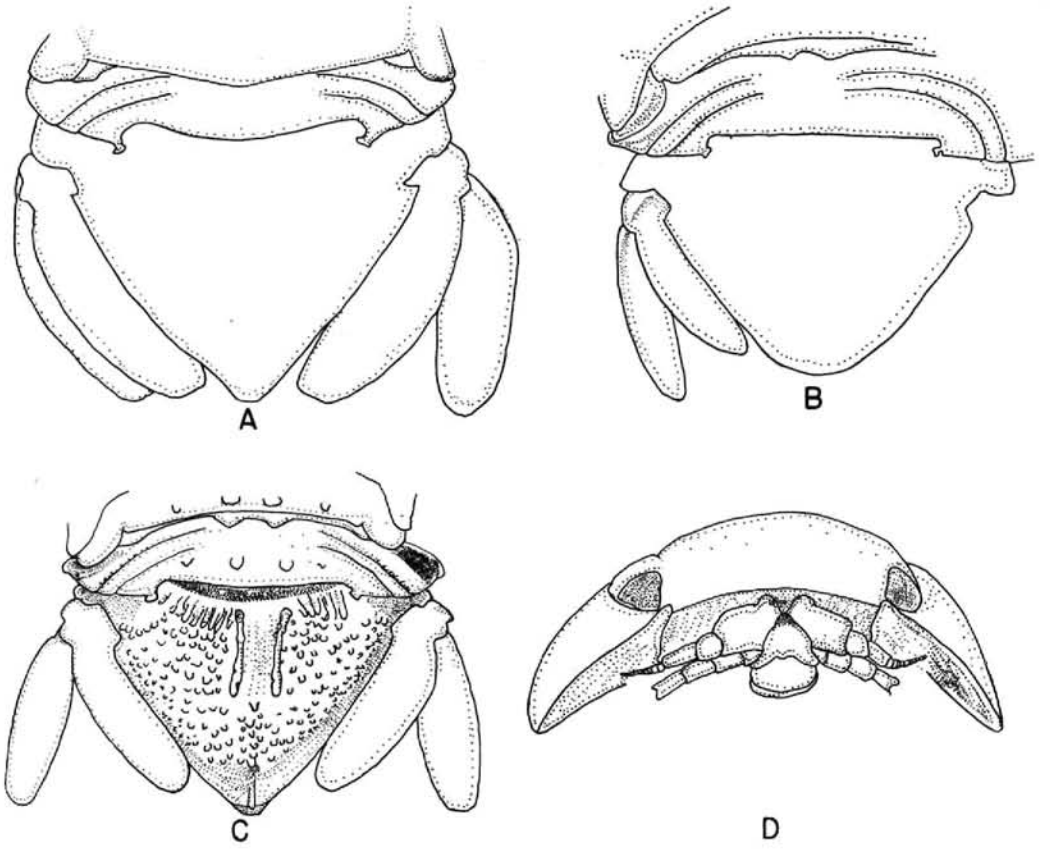

Figure 43. A, *Exosphaeroma lanceolata*, pleotelson; B, *Exosphaeroma gigas*, pleotelson; C, *Exosphaeroma studeri*, pleotelson; D, *Exosphaeroma gigas*, frontal view cephalon.

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 45E—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.

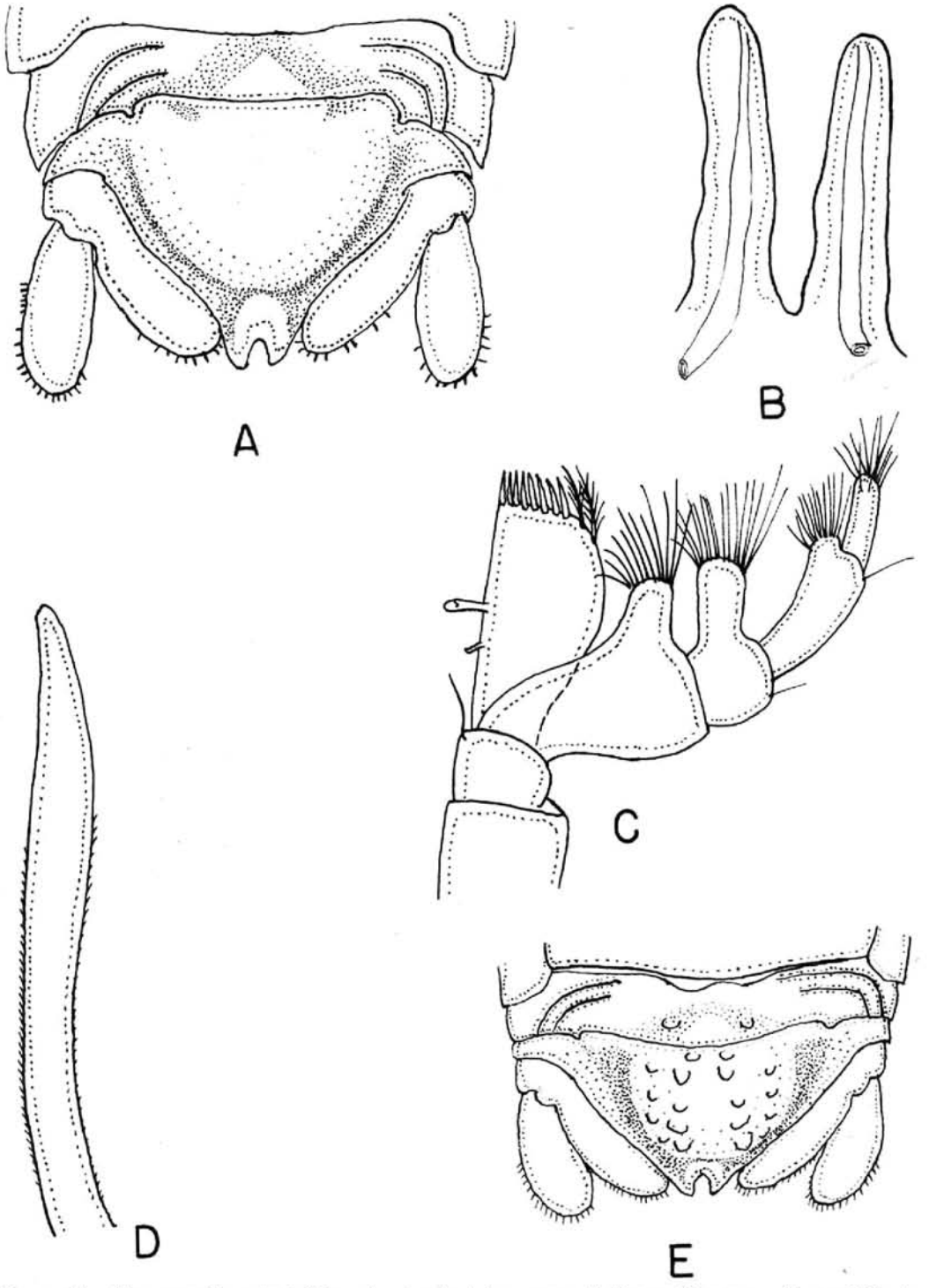

Figure 44. *Dynamenella eatoni* (Miers); A, pleotelson, smooth form; B, penes; C, maxilliped; D, appendix masculinum; E, pleotelson, rough form.

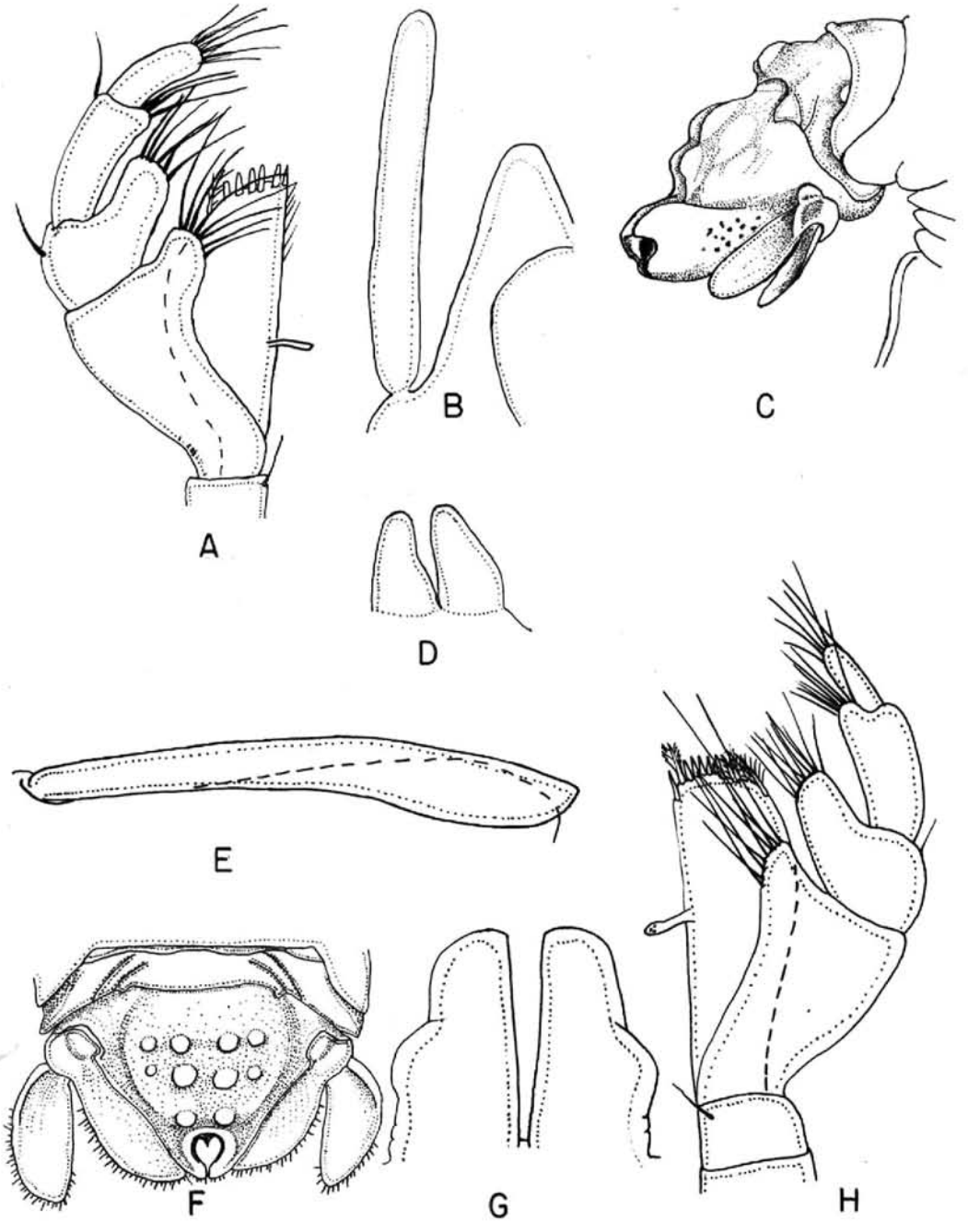

Figure 45. A—D, *Cymodocella foveolata*, n. sp.; A, maxilliped; B, pleopod 2, C, pleotelson, lateral view; D, penes; E—H, *Dynamenella tuberculata*, n. sp.; E, appendix masculinum; F, pleotelson; G, penes; H, maxilliped.

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: Eubranchiate 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.

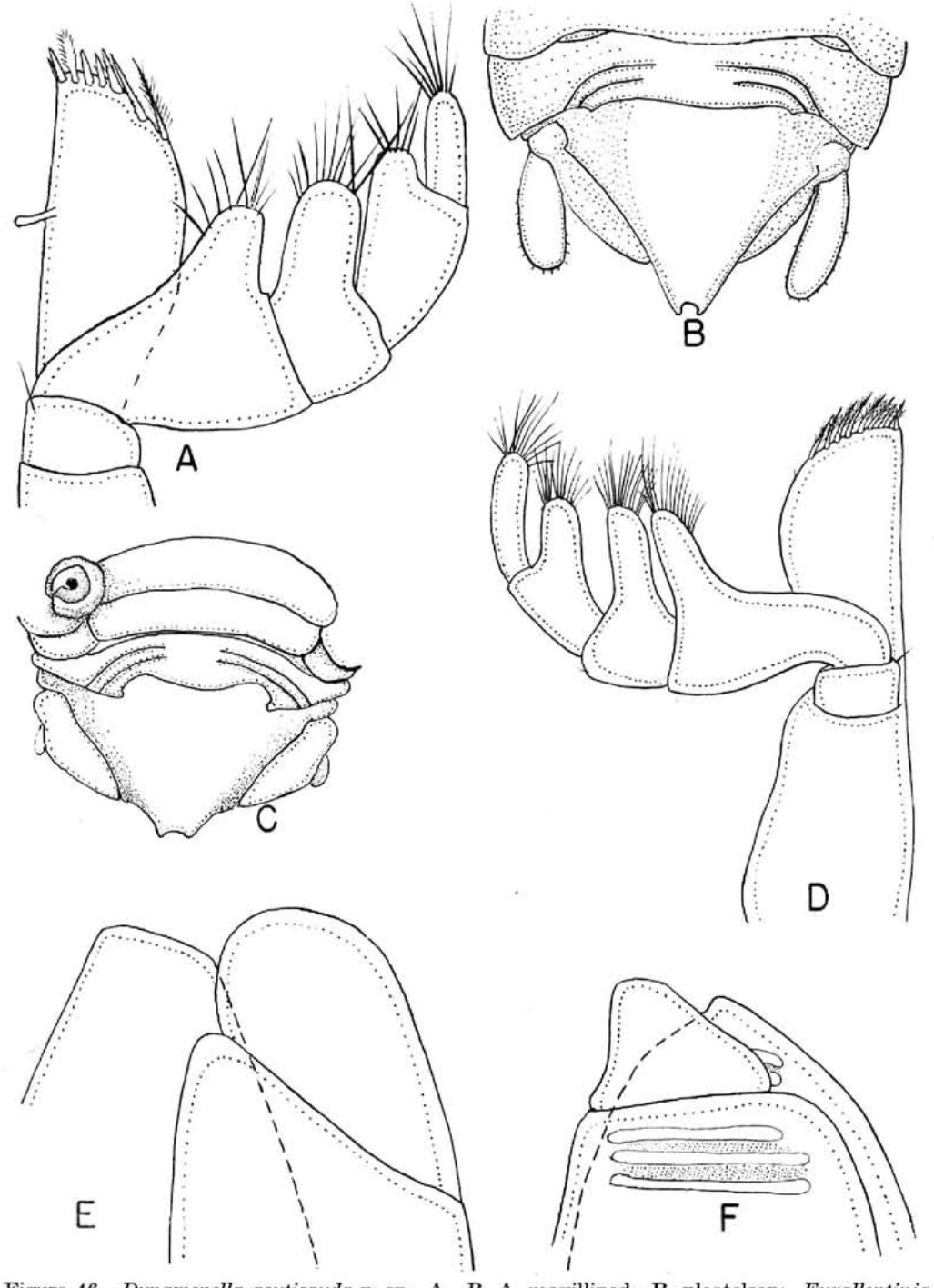

Figure 46. *Dynamenella acuticauda* n. sp. A—B, A. maxilliped; B, pleotelson; *Euvallentinia darwini* (CUNNINGHAM); C—F, C, Pleotelson (note serpulid worm on pleon); D, Maxilliped; E, third pelopod (setae omitted); F, fourth pleopod (setae omitted).

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 localites.

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: Eubranchiate 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. *Euvallentinia*, 2. *Dynamenopsis*, 3. *Cassidinopsis*, 4. *Paradynamenopsis* n. gen.

Genus *Euvallentinia* 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—1B.

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).

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

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

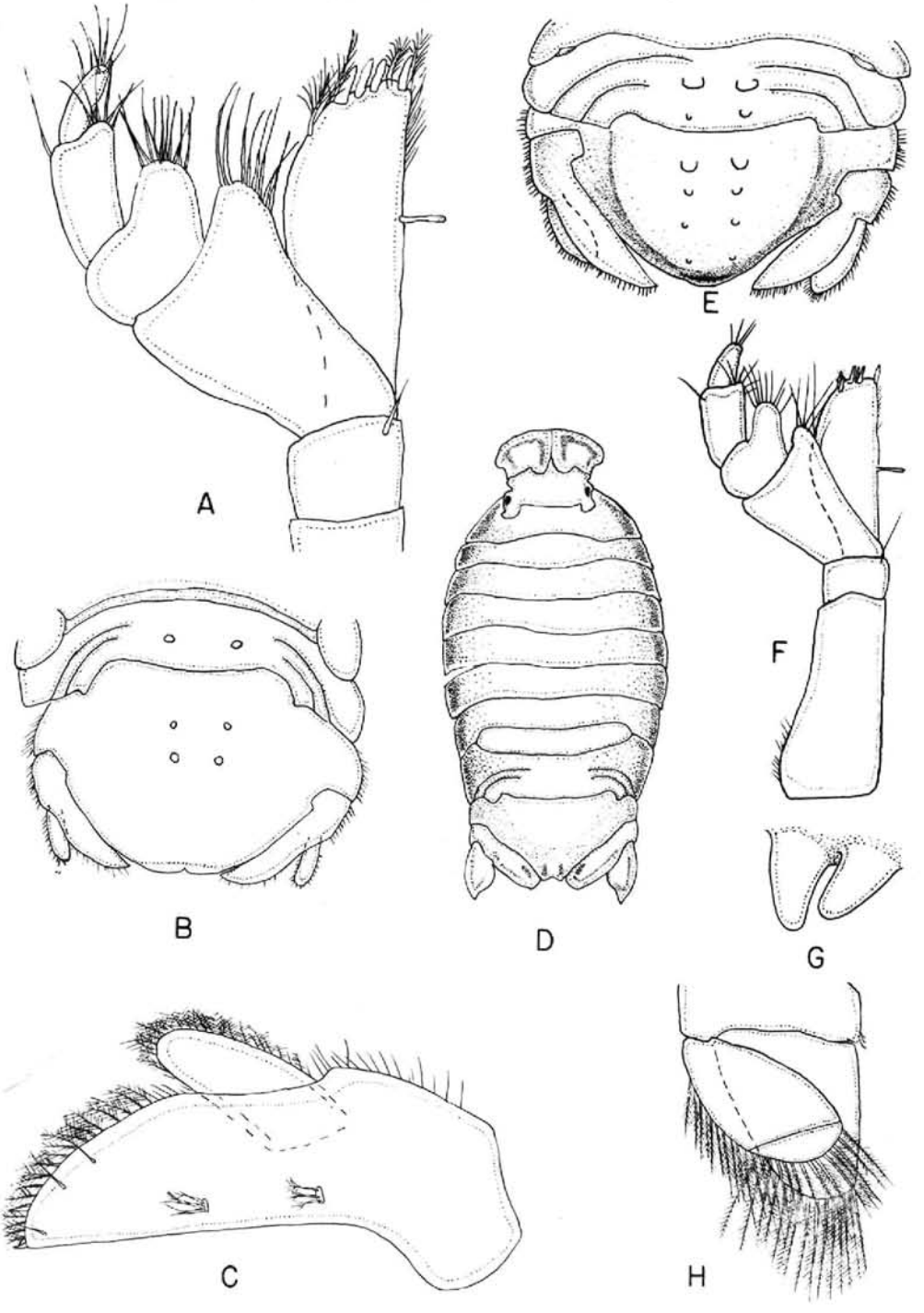

Figure 47. A—C, *Paradynamenopsis lundae*, n. sp.; dwarf phase; A, maxilliped; B, pleotelson; C, uropod; D, *Amphoroidea typa* M.-Edw., in toto; E—H, *Paradynamenopsis lundae*, n. sp.; giant phase; E, pleotelson; F, maxilliped; G, penes; H, third pleopod.

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: Eubranchiate 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;

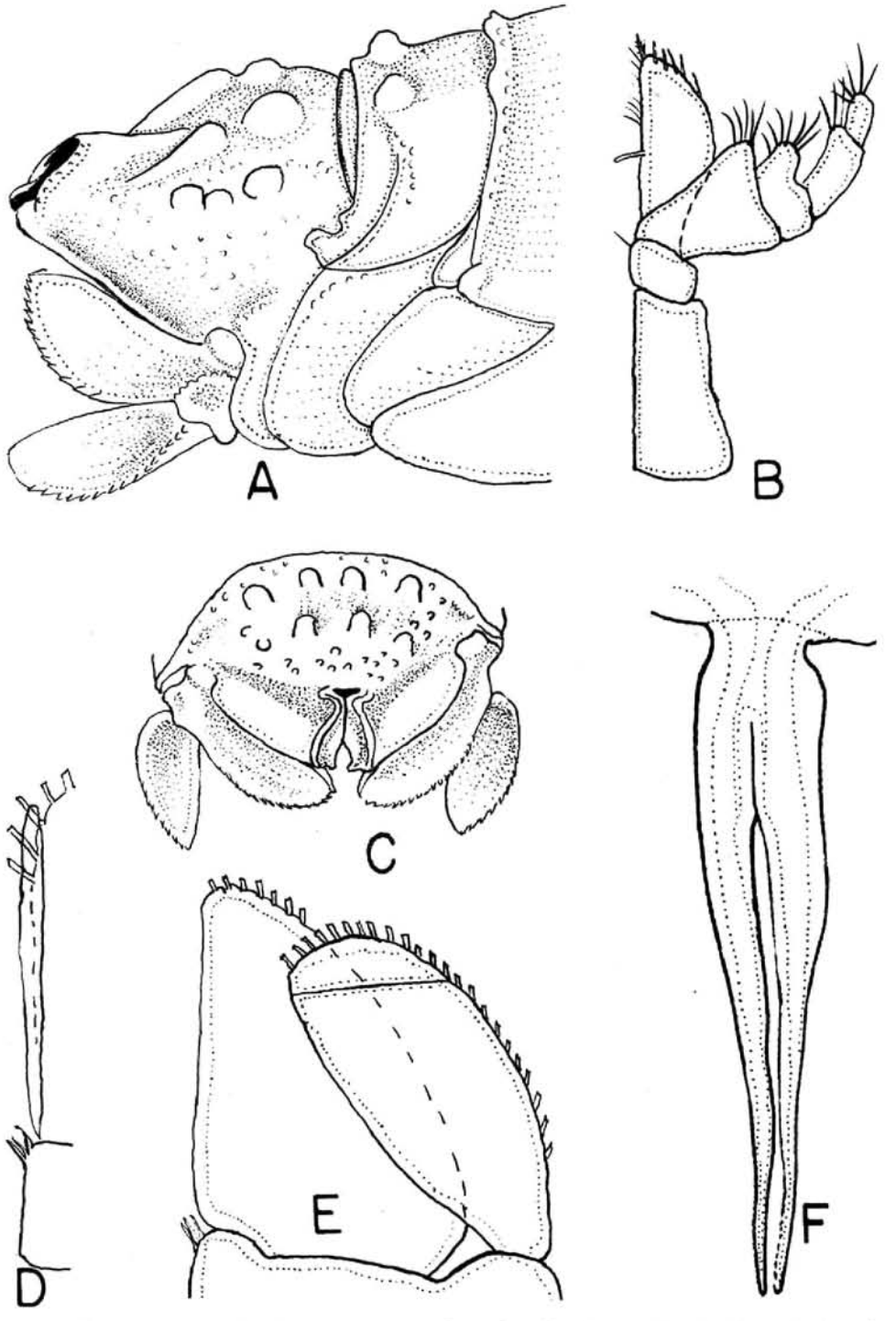

Figure 48. *Dynamenopsis bakeri*, n. sp. A, pleotelson, female; B, maxilliped; C, male pleotelson; D, second male pleopod; E, third pleopod; F, penis.

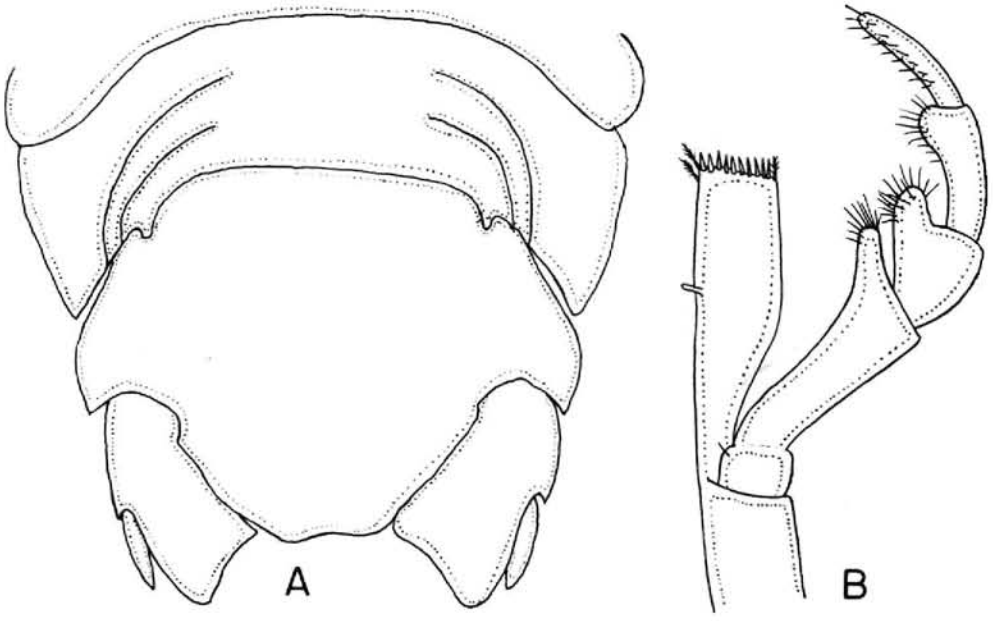

Figure 49. *Cassidinopsis emarginata*, female, A, pleon; B, maxilliped.

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

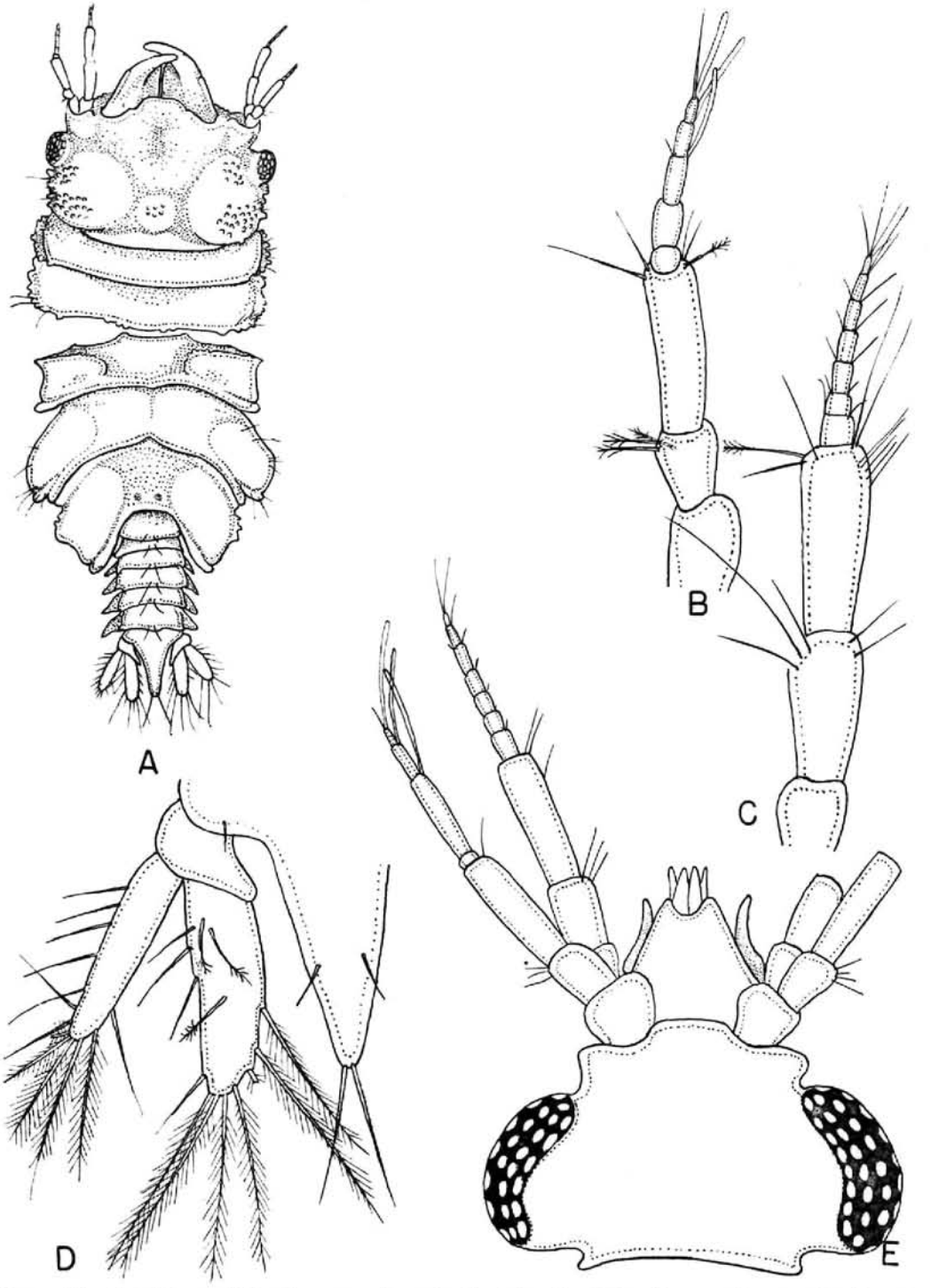

Figure 50. *Gnathia vanhöffeni*, n. sp.; A, male, in toto; B, first antenna; C, second antenna; D, uropod and pleotelson; E, cephalon of juvenile.

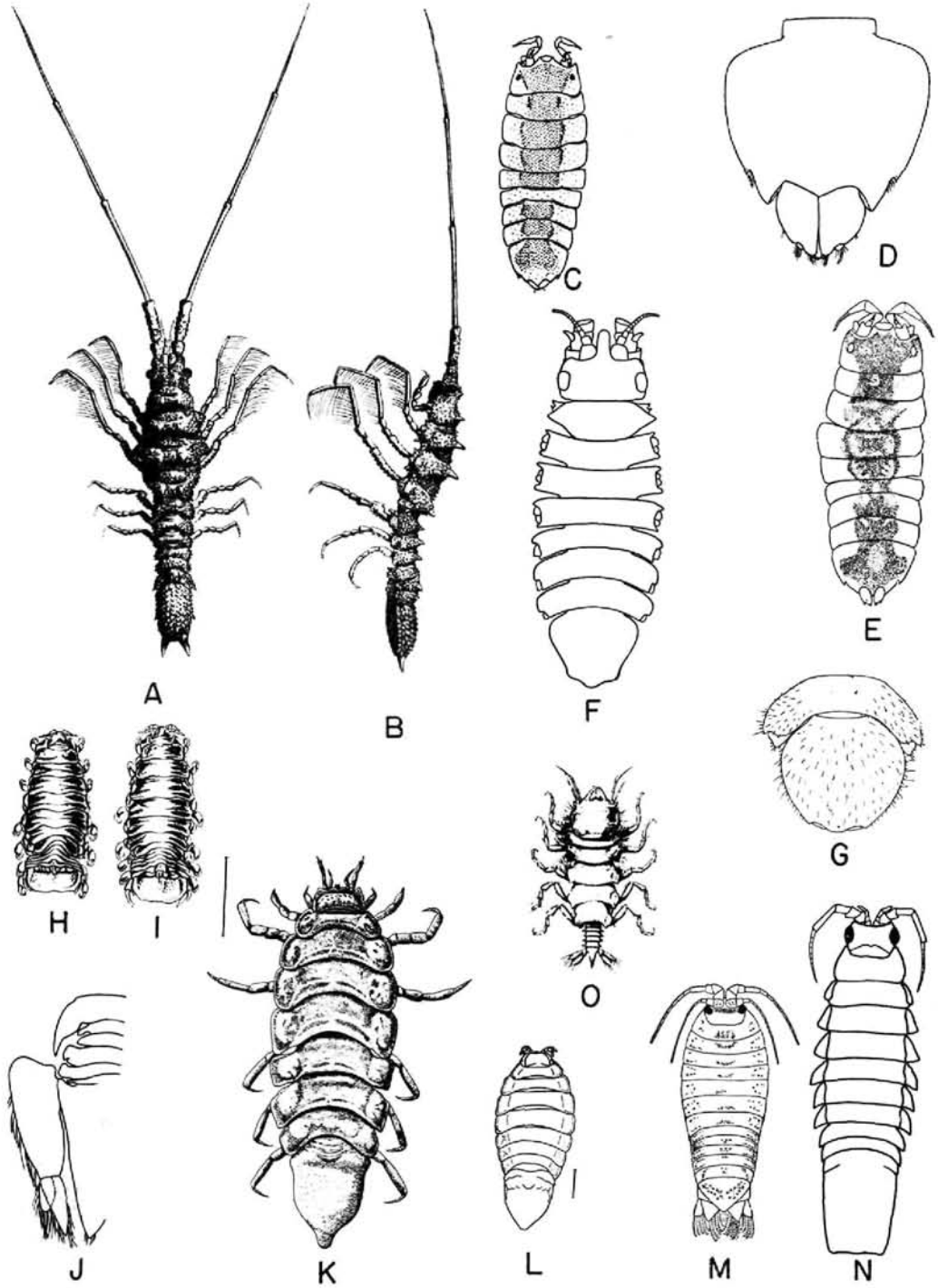

Figure 51. A—B, *Antarcturus americanus* (BEDDARD), (from BEDDARD 1886, pl. 23, figs. 5—6), C—E, *Jaeropsis curvicornis* (NICOLET), C—D from HALE, 1937, fig. 11; E, from RICHARDSON,

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 vanhöffeni, 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 antartica* STUDER, from HODGSON, 1910, pl. 1, fig. 2.

List of Tables

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

19. *Cirolana chilensis*	Sēno Reloncaví
20. *Cirolana urostylis*	Isla Guafo
21. *Cirolana robusta*	San Vicente Bay
22. *Excirolana hirsuticauda*	Montemar
23. *Dymanenella tuberculata*	Canal Chacao
24. *Dynamenella acuticauda*	Magellan Straits
25. *Cymodocella foveolata*	Montemar
26. *Dynamenopsis bakeri*	Iquique
27. *Paradynamenopsis lundae*	Bahía de San Vicente
28. *Gnathia vanhöffeni*	Seno Reloncaví
29. *Macrochiridothea setifer*	Isla Guafo
30. *Chaetilia paucidens*	Montemar
31. *Limnoria (P.) chilensis*	Islas Guaitecas
32. *Tridentella laevicephalax*	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 previamento 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 *boecki* 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. *Munna* (*M.*) *chilensis*	Estrecho de Magallanes
2. *Munna* (*M.*) *lundae*	Estrecho de Magallanes
3. *Paramunna simplex*	Seno Reloncaví
4. *Austrosignum latifrons*	Seno Reloncaví
5. *Austrosignum globifrons*	Estrecho de Magallanes
6. *Pleurosignum chilense*	Estrecho de Magallanes
7. *Antias laevifrons*	Montemar
8. *Antias dimorphis*	Islas Guaitecas
9. *Jaeropsis bidens*	Iquique
10. *Iathrippa chilensis*	Seno Reloncaví
11. *Iathrippa multidens*	Estrecho de Magallanes
12. *Neojaera elongatus*	Montemar
13. *Ianiropsis perplexus*	Canal Moraleda
14. *Ianiropsis chilensis*	Canal Chacao
15. *Janthopsis laevis*	Seno Reloncaví
16. *Edotea dahli*	Golfo de Ancud

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

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