

MATERIAL EXAMINED

North Cape: [Cop. 4] spp.
Mt. Maunganui: [E959] 1 ♂, 2 ♀♀ (5 mm).

OTHER RECORDS: None.

HABITAT: Moderately exposed shore, alga-covered rock.

DEPTH RANGE: Intertidal.

Cymodopsis sphyracephalata n.sp. (Fig. 47)

DIAGNOSIS

Cymodopsis with long, prominent epistome. Cephalon and anterior pereonites with prominent, transverse

ridges. Body surface strongly tuberculate. Pleonite 1 in males raised in prominent, rounded process. Pleotelson apex extending behind long, narrow notch. Female unknown.

TYPE MATERIAL

Holotype: NZOI Type No. 143 [F147, TAM, ♂, 10 mm].

TYPE LOCALITY: Southern Campbell Plateau.

REMARKS: The integument, as in many deep-water isopods, is thick and chalky white. The eyes have black rings around the individual ocelli.

MATERIAL EXAMINED

Southern Campbell Plateau: [F147] 1 ♂ (10 mm).

OTHER RECORDS: None.

HABITAT: Slope benthos.

DEPTH RANGE: 611 m (one specimen only).

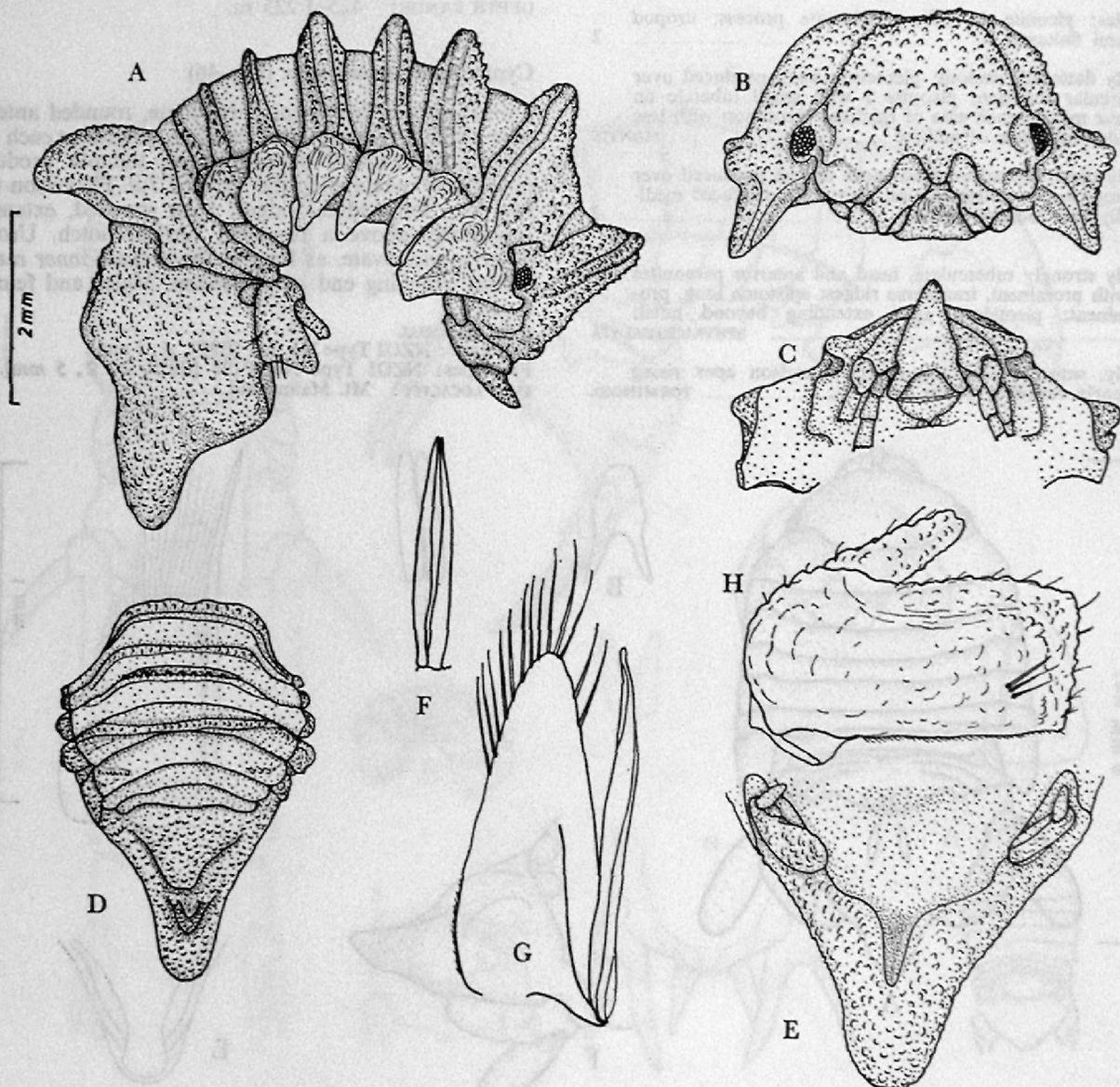


FIG. 47. *Cymodopsis sphyracephalata* n.sp., mature ♂: A, whole animal; B, head, frontal view showing epistome and peduncles of antenna I; C, head, ventral view showing epistome; D, pleon, dorsal view; E, pleotelson, ventral view; F, penis; G, pleopod 2, inner ramus; H, uropod.

Cymodopsis torminosa n.sp. (Fig. 48)

DIAGNOSIS

Cymodopsis with pleotelson apex rising sharply above narrow, vertical notch. Pleonite 1 in males with midpart swelling into rounded, conical process. Uropod outer ramus reduced, about half length and width of inner.

TYPE MATERIAL

Holotype: NZOI Type No. 142 [D39, ♂, 7 mm].

Paratypes: NZOI Type No. P199 [D39, 2 juvs, 5-6 mm].

TYPE LOCALITY: Off Auckland Islands.

MATERIAL EXAMINED

Off Auckland Is: [D39] 2 juvs (5-6 mm), 1 ♂ (7 mm).

Off Oamaru: [E416] 1 sp.

OTHER RECORDS: None.

HABITAT: Slope benthos.

DEPTH RANGE: 549-1 225 m

Tribe Sphaeromini Hansen, 1905

Section Sphaeromini Hansen, 1905: 102.

DIAGNOSIS

Female pleotelson rounded, or somewhat produced and more or less acute, but without notch. Male generally like female, but in some forms male pleotelson produced with pair of lateral notches, so median part appears as a process narrowed at its base, or with posterior margin of pereonite 7 forming backwardly directed spine. Mouthparts similar in both sexes.

Exosphaeroma Stebbing, 1900

Exosphaeroma Stebbing, 1900: 553. Hansen, 1905: 103, 118.

Monod, 1931a: 9-20. Menzies, 1962a: 132.

TYPE-SPECIES: *Exosphaeroma gigas* (Leach, 1814).

DIAGNOSIS

Hemibranchiate Sphaeromatidae without notch in pleotelson apex. Maxilliped palp last three segments have well developed lobes. Sexes similar, without mesial

processes. Pereopods without long, plumose setae. Pleopod 3 outer ramus of two segments. Pleopod 2 in mature males has well developed appendix masculina. Brood-plates small, not reaching midline. Female mouthparts not metamorphosed.

(Hansen 1905, Monod 1931a)

KEY TO NEW ZEALAND AND SUBANTARCTIC SPECIES OF EXOSPHEROMA

1. Body wide and flattened; pereonite 6 coxal plate produced posteriorly, overlapping pereonite 7 and pleonite 1; uropod outer ramus about half length of inner **PLANULUM**
- Body convex; pereonite 6 coxal plate not produced posteriorly; uropod rami of equal length **2**
2. Epistome long and recurved dorsally, projecting well in front of antennae, giving snubnosed appearance in dorsal aspect; uropod inner ramus narrow, sharply pointed in males, strongly hooked in females ... **FALCATUM**
- Not as above **3**
3. Pleotelson with two rounded anterior prominences, apex broadly rounded with margin folded downwards abruptly; uropods broad, not reaching telson apex **CHILENSIS**
- Pleotelson smoothly convex anteriorly, margin not folded down abruptly at apex **4**
4. Head with sharply raised and nearly straight frontal ridge; uropod rami narrowly ovate; pleotelson apex in large males without ventral transverse ridge **GIGAS**
- Head without sharply raised frontal ridge; uropod rami broad; pleotelson apex in large males with ventral transverse ridge **5**
5. Pleotelson apex narrow, acute; uropod rami broad ovate **OBTUSUM**
- Pleotelson apex narrow, acute; uropod rami broad truncate **ECHINENSIS**

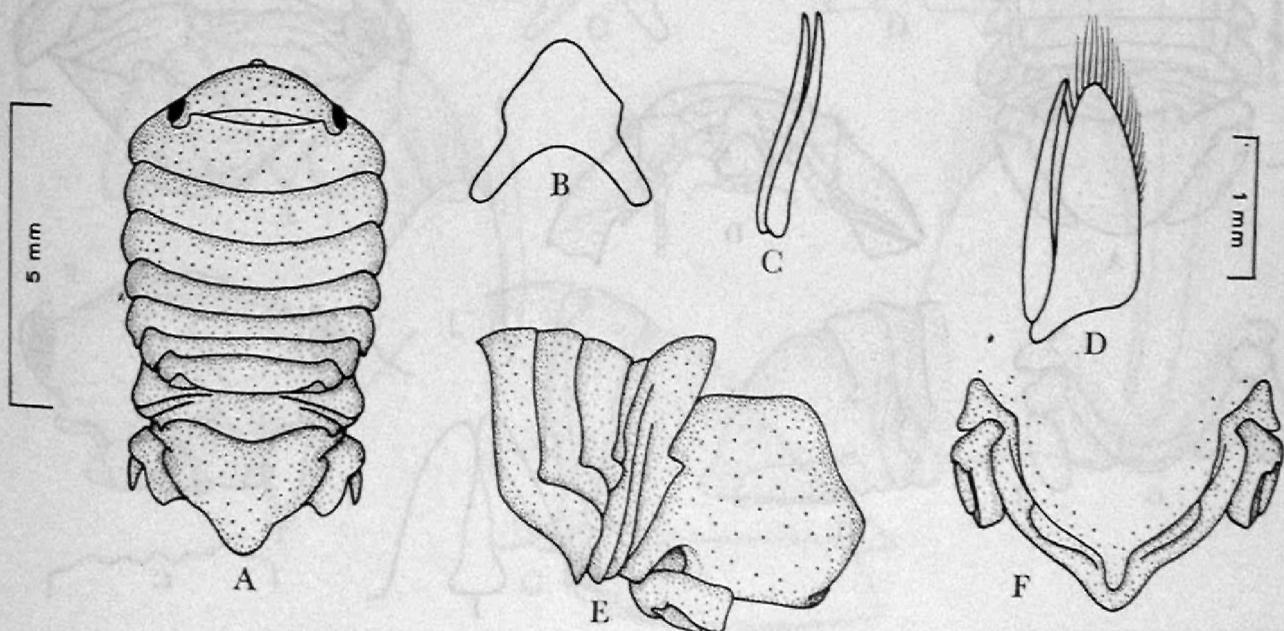


FIG. 48. *Cymodopsis torminosa* n.sp., mature ♂: A, whole animal; B, epistome; C, penis; D, pleopod 2, inner ramus; E, pleotelson, side view; F, pleotelson, ventral view.

REMARKS: There is confusion in the literature regarding *Exosphaeroma gigas* (Leach, 1818), *Exosphaeroma lanceolatum* (White, 1847), and *Exosphaeroma obtusum* (Dana, 1853). *E. lanceolatum* has been removed from the New Zealand list, since there are no valid records of its occurrence. The only reference to this species in the New Zealand region is that of Monod (1931b: 23, figs 16f, g), who records *E. lanceolatum* from Campbell and Stewart Islands. Specimens of Monod's material were obtained from the Senckenberg Museum and, as suggested by his figures, proved to be *E. obtusum* (Dana), a species which has been consistently misidentified as *E. gigas* in the New Zealand region. However, the species are readily distinguishable; the shapes of the epistome and the pleotelson apex, and the transverse ridge behind the pleopods on the pleotelson ventral surface in *E. obtusum* and its absence in *E. gigas* are sufficient to separate the two. Further confirmation is provided by the difference in length ranges of the two species: in the present material, *E. obtusum* males range from 7 to 17 mm, with little if any variation over the species range (from Whangarei in the north to Campbell Island in the south), whereas *E. gigas* males range from 10 to 30 mm.

Since their distribution ranges overlap in the Subantarctic Islands *E. gigas* and *E. obtusum* are clearly not

mere geographical variations. Since they are closely sympatric in numerous situations, and since they are completely separable with no intermediates, they are equally clearly distinct species with overlapping ranges.

The remaining species of *Exosphaeroma* are readily identifiable by their distinctive morphology.

Exosphaeroma chilensis (Dana, 1853) (Fig. 49)

Spheroma chilensis Dana, 1853: 777-8, pl. 52 figs 3a-c.
Exosphaeroma chilensis (or *chilense*). Chilton, 1911b: 310-11;
 1912: 135. Nierstrasz, 1931: 194. Naylor, 1961: 8, fig. 1b.
 Hurley, 1961: 269.

DIAGNOSIS

Exosphaeroma with two rounded prominences on the anterior part of the pleotelson; apex of pleotelson broad and slightly concave, abruptly folded downwards terminally. Uropods broad, barely reaching end of pleotelson; inner ramus arcuate, has acute apex; outer ramus lanceolate, has rounded apex.

TYPE LOCALITY: Valparaiso, Chile.

MATERIAL EXAMINED

Auckland Is: [139] 1 ♂ (8 mm); [155] 3 spp.
 Chatham Is: [CIE Sta. 11] 1 ♀ (10 mm); [D595] 4 juvs (8-11 mm), 4 ♀♀ (10-13 mm), 7 ♂♂ (10-18 mm); [E161] 1 juv. (6 mm), 3 ♀♀ (8-12 mm).

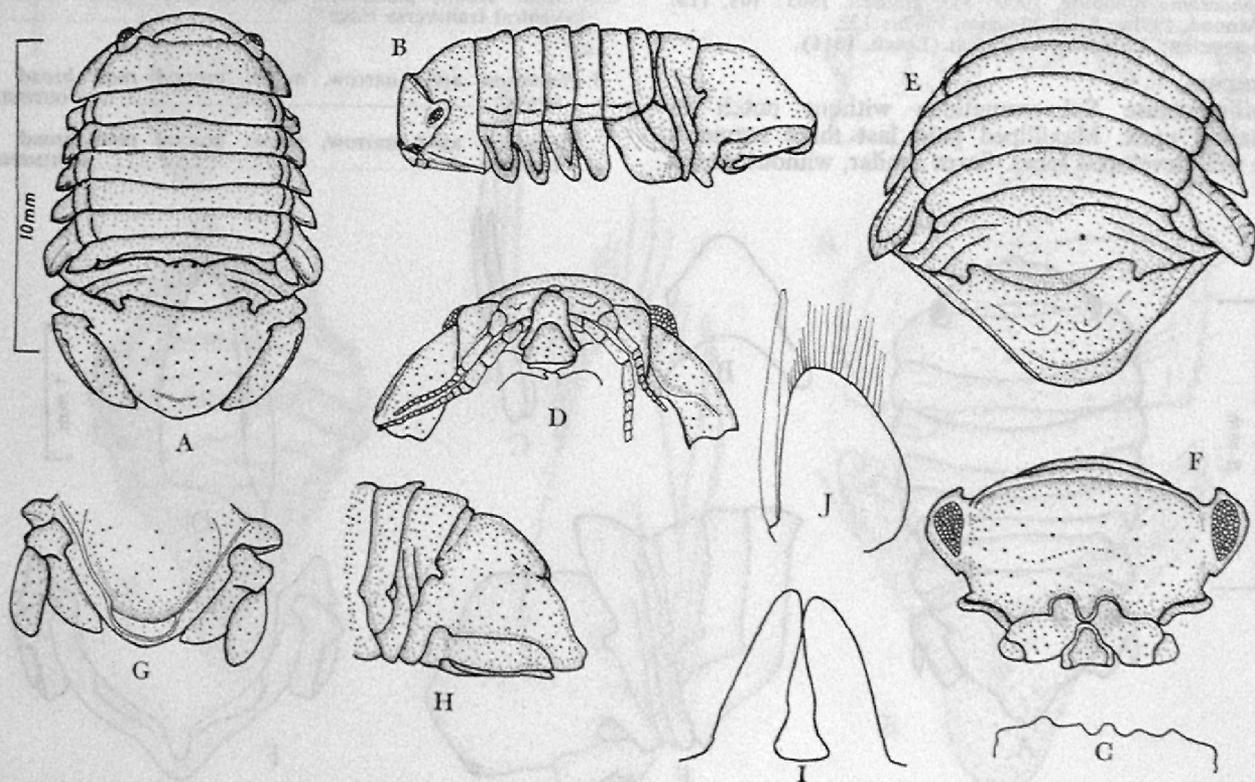


FIG. 49. *Exosphaeroma chilensis* (Dana), mature ♂ except H (♀): A, whole animal; B, side view; C, frontal margin of head, dorsal view; D, head, ventral view; E, posterior view of animal in natural rolled ("conglobated") position; F, head, frontal view; G, pleotelson, ventral view; H, pleon, side view; I, penes; J, pleopod 2, inner ramus.

DEPTH RANGE: Intertidal.

DISTRIBUTION: Auckland, Lyttelton, Chatham Islands (Chilton 1911b, 1912; Naylor 1961); South America, Valparaiso (Dana 1853).

REMARKS: A feature of this species is the way that the epimeral plates of pereonite 6 stick out like wings when the animal is rolled up.

***Exosphaeroma echinensis* n.sp. (Fig. 50)**

DIAGNOSIS

Exosphaeroma with pleotelson smoothly rounded, apex produced and acute, has transverse ridge on ventral surface in large males. Uropod inner ramus broad, truncate; outer ramus with outer margin slightly excavate posteriorly. Sexes similar.

TYPE MATERIAL

Holotype: Canterbury Museum Type No. AQ3402 [115, ♂, 7 mm].

Paratypes: Canterbury Museum Type No. AQ3427 [104, 114, 115, 15 juvs, 13 ♀♀, 10 ♂♂].

TYPE LOCALITY: Kaikoura.

MATERIAL EXAMINED

Whangaroa: [45] 12 ♀♀ (5-8 mm), 4 ♂♂ (8-9 mm).

Kaikoura: [104, 114, 115] 15 juvs (2-6 mm), 13 ♀♀ (7-8 mm), 11 ♂♂ (6-9 mm).

OTHER RECORDS: Stewart I. (coll. W. Traill; Chilton Coll.).
HABITAT: The specimens collected by Dell [45] were taken from around the mouth of a sea urchin (*Centrostephanus*), and those collected by Dix (1970 [104, 114, 115]) on subtidal *Evechinus chloroticus*, amongst the spines. No information is available regarding Traill's specimens. *E. echinensis* thus appears to be associated with echinoids, perhaps as a facultative commensal.
DEPTH RANGE: Intertidal, subtidal.

***Exosphaeroma falcatum* Tattersall, 1921 (Fig. 51)**

Exosphaeroma falcatum Tattersall, 1921: 216-17, pl. 5 figs 1-8.
Nierstrasz, 1931: 194. Hurley, 1961: 269.

DIAGNOSIS

Exosphaeroma with smooth body and pleotelson. Long, dorsally recurved epistome, prominent in dorsal view, giving animal pug-nosed appearance. Uropod outer rami narrow, sharply pointed in males, strongly hooked in females.

TYPE LOCALITY: Spirits Bay, North Cape.

MATERIAL EXAMINED

Spirits Bay: [TN Sta. 133] BM syntypes No. 157-159, 2.5 mm.

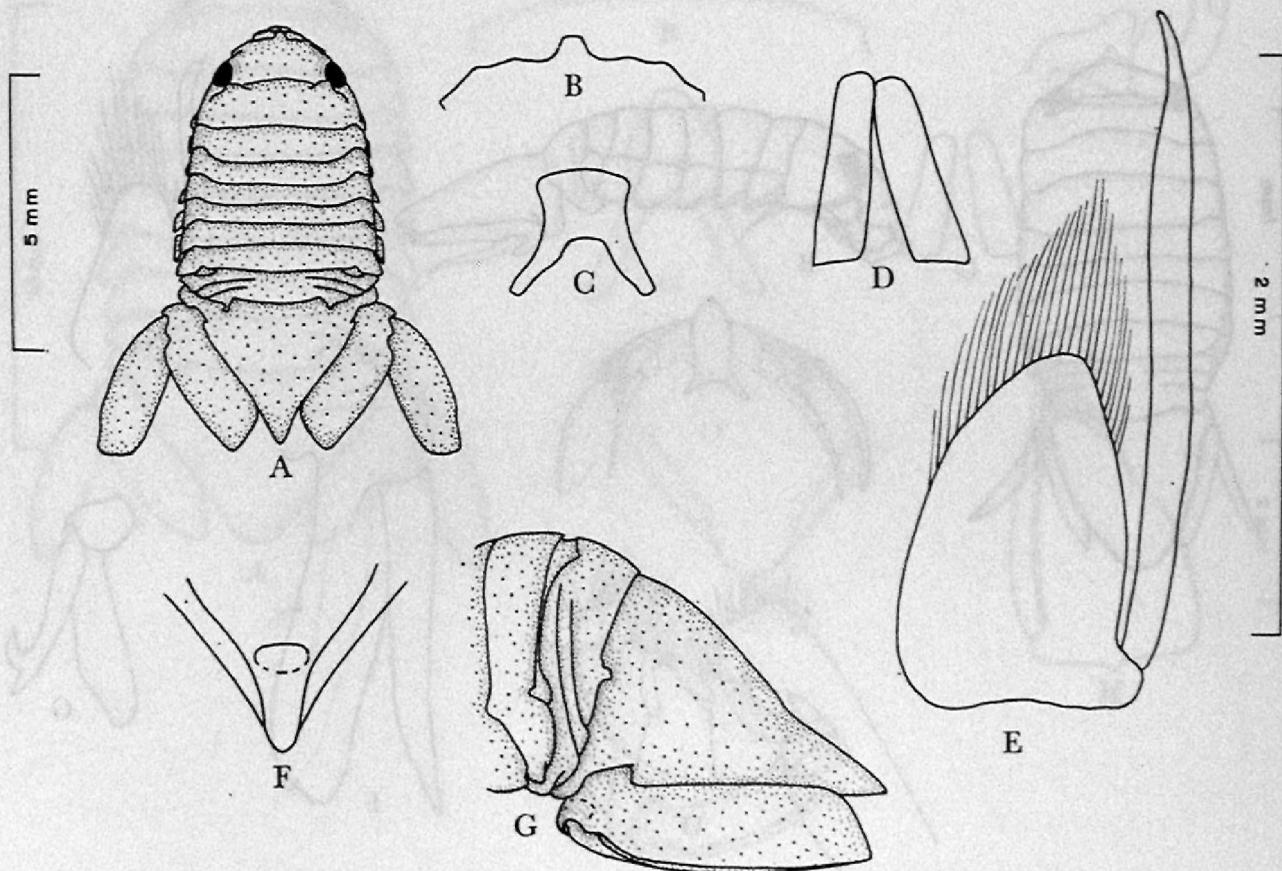


FIG. 50. *Exosphaeroma echinensis* n.sp., mature ♂: A, whole animal; B, frontal margin of head, dorsal view; C, epistome; D, penes; E, pleopod 2, inner ramus; F, pleotelson apex, ventral view; G, pleon, side view.

DISTRIBUTION: The only record is that of Tattersall (1921: 216) of two males and one female, all 2.5 mm long, from Terra Nova Sta. 133, Spirits Bay.

Note added in proof: 31 specimens of both sexes were recently collected intertidally by P. A. Luckens from a sandy beach at Marsden Point, Whangarei (N.Z.O.I. Stations J765, J770, J771, J772, J774, J839, J843, J844).

DEPTH RANGE: 20 m (one record only).

REMARKS: The figures are from the syntype material in the British Museum.

***Exosphaeroma gigas* (Leach, 1818) (Fig. 52)**

Sphaeroma gigas Leach 1818: 346. Dana, 1853: 775, pl. 52, fig. 1. Miers, 1876b: 110-11. Thomson & Chilton, 1886: 155.

Exosphaeroma gigas. Stebbing, 1900: 553-8, pl. 39. Chilton, 1906: 271-2. Chilton, 1909: 652-3. Tattersall, 1921: 216. Stephensen, 1927: 362. Nierstrasz, 1931: 194. Barnard, 1940: 413, figs 13a-f. Hurley, 1961: 269. Menzies, 1962a: figs 43b, d.

[Not] *Exosphaeroma gigas* (Leach), Morton & Miller, 1968: 215, fig. 71.3.

DIAGNOSIS

Exosphaeroma with prominent, nearly straight, frontal ridge on head. Sexes similar. Uropods narrowly ovate. Pleotelson smoothly convex anteriorly, broadly rounded, without transverse ridge on apex ventrally in large males.

MATERIAL EXAMINED

Chatham Rise: [E422] 2 spp.

Foveaux Strait: [B260] 3 spp; [E820] 1 sp.

Near Snares I: [B582] 1 sp; [D132] 1 sp; [F97] 3 spp.

Auckland Is: [59] 8 juvs (4-11 mm), 8 ♀♀ (8-16 mm), 18 ♂♂ (11-23 mm); [9] 3 juvs (8-12 mm), 20 ♀♀ (9-20 mm), 32 ♂♂ (13-23 mm); [60] 1 juv. (9 mm), 1 ♀ (12 mm), 2 ♂♂ (20-22 mm); [152] 10 spp. (11-12 mm); [D54] 1 ♂ (28 mm). Also: [B176] about 10 spp; [D52] 1 sp; [D53] 1 sp; [D60] 2 spp; [D65] 1 sp; [D71] 3 spp.

Macquarie I: [Z2301] 1 juv. (6 mm); [Z2300] 5 juvs (6-9 mm), 2 ♂♂ (26-30 mm); [Z2315] 139 juvs (3-12 mm), 8 ♀♀ (11-14 mm), 1 ♂ (15 mm); [D15] 40 juvs (3-13 mm), 16 ♀♀ (8-14 mm), 11 ♂♂ (11-19 mm). Also: [136] about 60 spp, [E230] 11 juvs (7-11 mm), 7 ♀♀ (12-21 mm), 4 ♂♂ (13-27 mm), many others; [E231] 30 juvs (3-13 mm), 10 ♀♀ (11-14 mm), 10 ♂♂ (11-29 mm); [E232] 62 juvs (3-15 mm), 4 ♀♀ (12-18 mm), 35 ♂♂ (10-28 mm).

OTHER RECORDS: Naylor (1961: 8, fig. 1a) identified material from the Chatham Islands as *E. gigas*, but his figure indicates that it was *E. obtusum* (Dana); this is supported by the complete absence of other records of *E. gigas* for this locality, and the abundance of *E. obtusum* there.

Barnard (1940) gives a useful discussion, with figures of some Auckland Islands material.

E. gigas as figured by Morton & Miller (1968, fig. 71.3) is probably *E. obtusum*.

British Museum material from Stanley, Falkland Islands, closely resembles the Auckland Islands material.

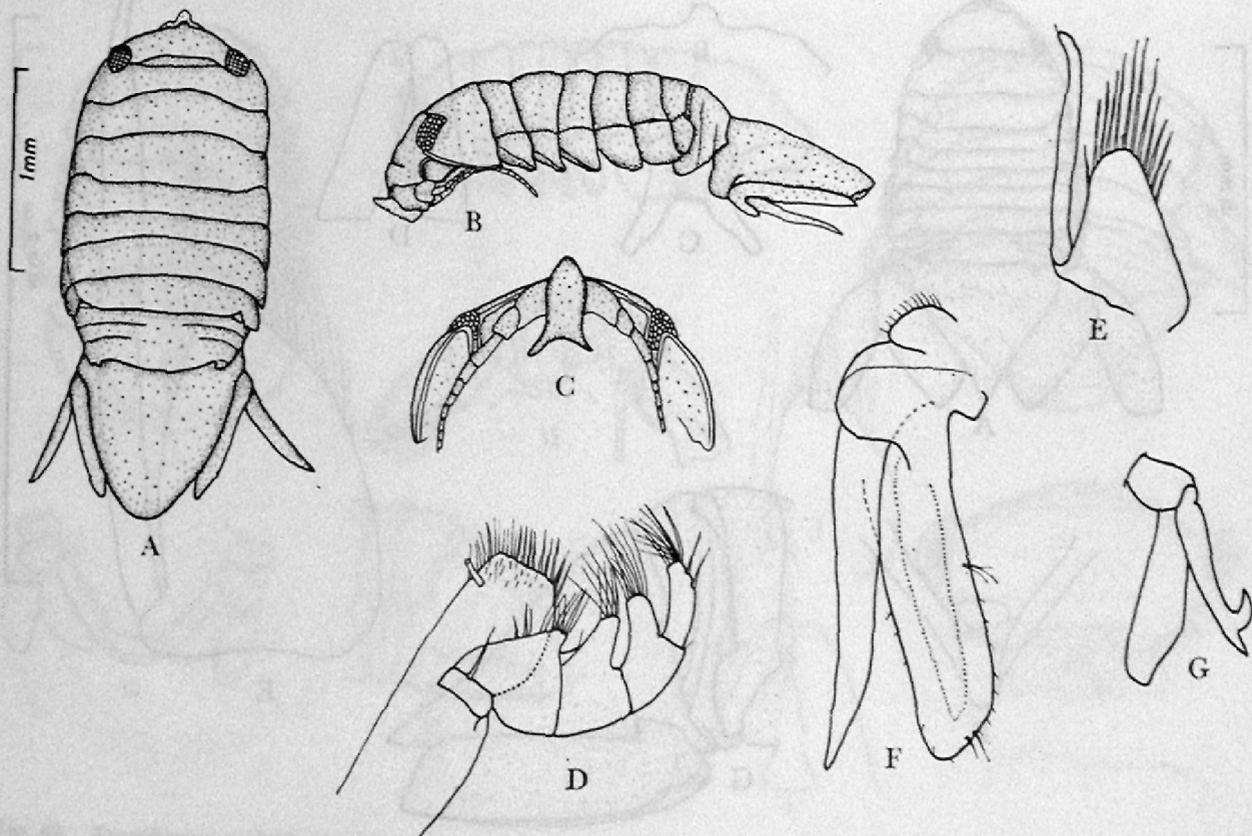


FIG. 51. *Exosphaeroma falcatum* Tattersall: A, whole animal, ♂; B, side view; C, head, ventral view; D, maxilliped; E, pleopod 2, inner ramus; F, uropod, ♂; G, uropod, ♀.

Exosphaeroma obtusum (Dana, 1853) (Fig. 53)

Sphaeroma obtusa Dana, 1853: 779, pl. 52, figs 5a-b.
Sphaeroma obtusum (or *obtusum*). Miers, 1876b: 112. Thomson & Chilton, 1886: 155. Nierstrasz, 1931: 192. Hurley, 1961: 269.
Exosphaeroma sp. Barnard, 1940: 416-17, figs 13g-k. Hurley, 1961: 270.
 [Not] *Exosphaeroma lanceolatum* (White). Monod, 1931b: 23, figs 16f-g. Morton & Miller, 1968: 455, 457 fig. 168.
 [Not] *Exosphaeroma gigas* (Leach). Naylor, 1961: 8, fig. 1a. Tattersall, 1921: 216. (?) Hicks, 1971: 56.
Exosphaeroma obtusum. Jansen, 1971: 266, 271.

DIAGNOSIS

Exosphaeroma without prominent frontal ridge on head. Uropod rami broad, inner arcuate, outer ovate. Pleotelson smoothly convex anteriorly, apex rounded, not produced, margin not folded downwards abruptly, has transverse ridge on ventral surface in large males.

TYPE LOCALITY: "Along shores of Parua [*sic*] Harbour, Bay of Islands".

MATERIAL EXAMINED

North Cape: [Cop. 4] spp.
 Spirits Bay: [TN 133, 135, 136] 4 juvs (2.5-4 mm).
 Whangarei: [E954] 20 juvs (2-8 mm), 35 ♀♀ (7-12 mm), 9 ♂♂ (8-13 mm).
 Auckland: [E950] 1 juv. (5 mm); [10] 4 juvs (5-6 mm), 14 ♀♀ (6-8 mm), 7 ♂♂ (7-13 mm); [139] 2 ♀♀ (8-10 mm).
 Mt. Maunganui: [E959] 1 juv. (5 mm).

Mahia Peninsula: [Cop. 14] spp.
 Plimmerton: [Cop. 15] spp.
 Wellington—Lycall Bay: [27] 1 juv. (7 mm); [30] 4 ♂♂ (10-14 mm). Island Bay: [E985] 3 juvs (4 mm). Pt. Jerningham: [Z2305] 5 juvs (6-12 mm), 1 ♀ (14 mm), 4 ♂♂ (10-17 mm).
 Castlepoint: [Z2299] 1 ♀ (13 mm).
 Kaikoura: [E972] 46 juvs (2-7 mm); [104] 1703 juvs (2-7 mm), 325 ♀♀ (7-12 mm), 282 ♂♂ (7-17 mm), [88] 8 juvs (4-7 mm), 1 ♀ (10 mm), 7 ♂♂ (10-13 mm).
 Pegasus Bay: [Cop. 20] spp.
 Oamaru: [129, 131] 1 juv. (5 mm), 1 ♀ (11 mm), 4 ♂♂ (11-12 mm).
 Otago Harbour: [Z2289] 16 juvs (4-6 mm), 2 ♀♀ (7-8 mm), 11 ♂♂ (6-20 mm).
 Doubtful Sound: [134] 8 juvs (5-6 mm), 3 ♂♂ (9-10 mm).
 Stewart I: [76] 5 juvs (5-8 mm), 7 ♀♀ (7-10 mm), 5 ♂♂ (10-15 mm); [154] 5 ♂♂ (12-16 mm); [77-78] 5 juvs (5-8 mm), 4 ♀♀ (8-12 mm), 7 ♂♂ (11-15 mm); [29] 1 ♀ (8 mm), 10 ♂♂ (9-13 mm). Also: [79] about 11 spp; [E834] 7 spp.
 Snares Is: [67] 4 juvs (6 mm), 3 ♀♀ (7-8 mm), 6 ♂♂ (7-12 mm). Also: [72] 4 spp.
 Chatham Is: [CIE Sta. 11, 12, 16] 11 juvs (4-8 mm), 26 ♀♀ (7-12 mm), 23 ♂♂ (8-15 mm).
 Auckland Is: [3] 9 juvs (6-9 mm), 14 ♀♀ (9-13 mm), 42 ♂♂ (9-16 mm); [10] 4 juvs (5-6 mm), 14 ♀♀ (6-8 mm), 7 ♂♂ (7-13 mm); [12] 14 ♀♀ (10-12 mm), 7 ♂♂ (10-15 mm); [153] 1 sp. (16 mm); [D186, D188, D191] 1 juv. (9 mm), 5 ♀♀ (9-13 mm), 5 ♂♂ (10-15 mm). Also: [D190] about 16 spp; [1, 5, 6, 7, 13, 14, 16, 17, 48, 53, 59] many spp.

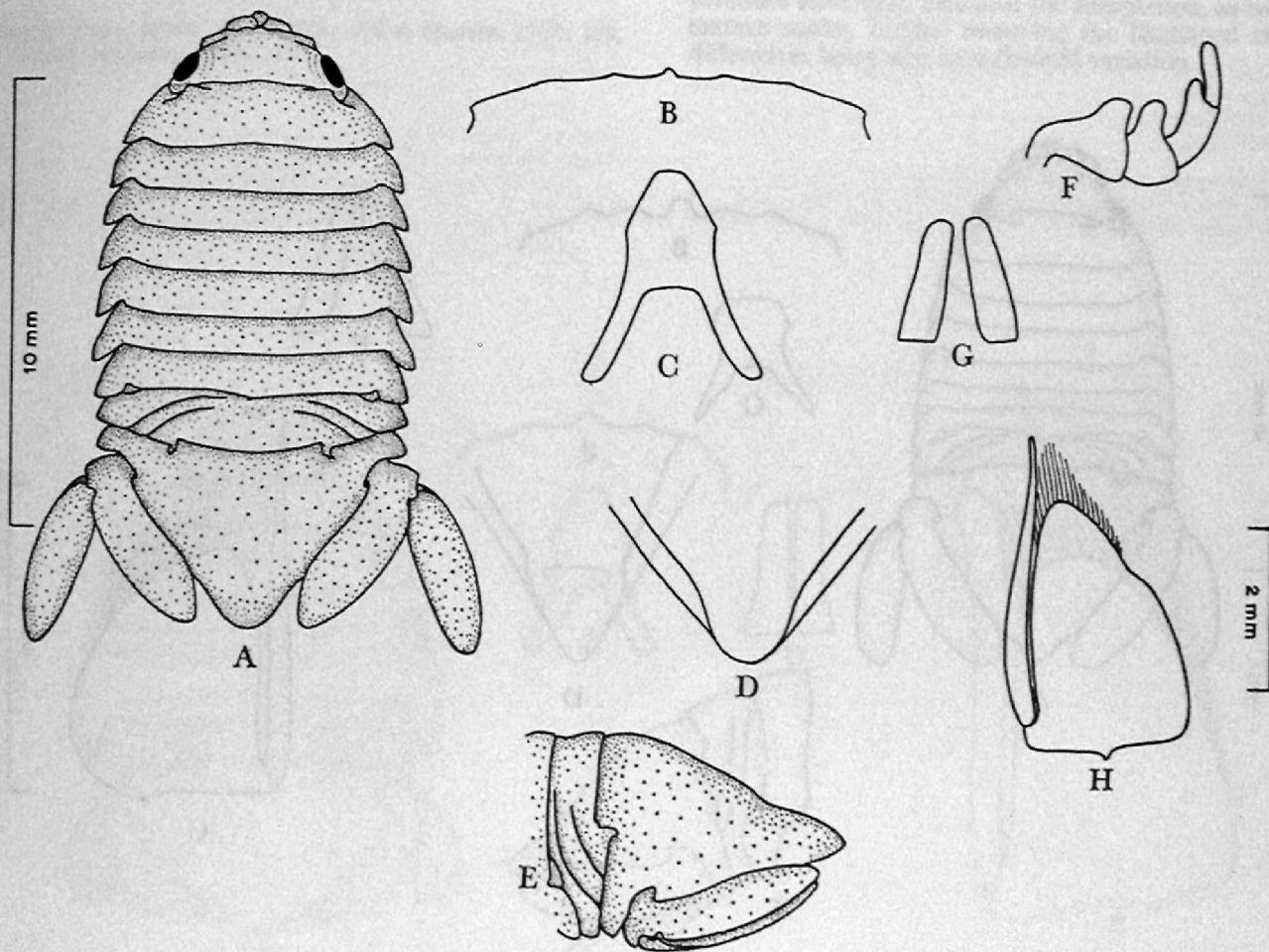


FIG. 52. *Exosphaeroma gigas* (Leach), mature ♂: A, whole animal; B, frontal margin (anterior outline) of head, dorsal view; C, epistome; D, pleotelson apex, ventral view; E, pleon, side view; F, maxilliped palp (without setae); G, penes; H, pleopod 2, inner ramus.