

INSECTS OF CAMPBELL ISLAND. TALITRID AMPHIPOD CRUSTACEANS¹

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Abstract: Analysis of 560 specimens from 80 collecting localities on Campbell I. revealed 6 species of terrestrial and semi-terrestrial amphipod crustaceans (superfamily Talitroidea). *Chiltonia minuta* and *Parorchestia campbelliana* are newly described and *Orchestia bollonsi* Chilton is newly recorded from the island. Descriptive notes on *Allorchestes compressus* Dana, *Orchestia aucklandiae* Bate, and *Parorchestia* (?) *insularis* Chilton are also given. The species (esp. *Chiltonia minuta*) exhibit morphological characteristics that are considered primitive and approximate those of hypothetical ancestral types, but persist even now in the faunas of the ancient geographically isolated subantarctic islands of New Zealand.

Seven species of terrestrial and semi-terrestrial amphipod crustaceans (Superfamily Talitroidea) have previously been recorded from Campbell I. of the subantarctic islands of New Zealand. These include *Orchestia aucklandiae* Bate, *Hyale hirtipalma* Dana, *Hyale campbellica* Filhol, *Allorchestes compressus* Dana from the littoral and intertidal zones; *Chiltonia mihiwaki* Chilton and *Parorchestia tenuis* Dana from sea-side fresh waters; and *Parorchestia insularis* Chilton from the supra-littoral and truly terrestrial habitats. The present material, consisting of about 560 specimens from 80 collections contains 6 species of which *Chiltonia minuta* and *Parorchestia campbelliana* are new to science, *Orchestia bollonsi* Chilton is new to the island, and *Orchestia aucklandiae*, *Parorchestia insularis*, and *Allorchestes compressus* have previously been recorded (above).

I gratefully acknowledge the assistance of Mr. John Tottenham, Ottawa, in the preparation of the figures.

SYSTEMATIC SECTION

Superfamily TALITROIDEA Bulycheva 1957

Family HYALIDAE Bulycheva 1957, Barnard 1958

Allorchestes compressus Dana 1852 Fig. 5.

MATERIAL EXAMINED: 1 ♂, Stn. #20, Monument Harbor, from fresh-water pool near beach, 10. XII. 1961, J. L. Gressitt.

DISTRIBUTION: The species was first recorded from Campbell I. by Stephensen (1927). It has previously been recorded from Auckland I. (Port Ross) by Stephensen (1927), and

1. Results of field work supported by National Science Foundation grants G-18800 and G-23720 from the U. S. Antarctic Research Program.

is elsewhere known from Tasmania and from the S. and W. coasts of Australia. Habitat: stony shores, from LW to HW levels.

Remarks: Hurley (1957a) distinguished this species from the closely related *Allorchestes novizealandiae* Dana by the finger of the ♂ first gnathopod, which, in *A. compressus* matches the palm and does not overlap it. Since the species has not been illustrated more recently than Bate (1862), a few diagnostic characters of the material at hand are shown in fig. 5.

♂ (10 mm): Head short, moderately deep, inferior antennal sinus shallow; eye small, drop-shaped, black. Antenna 1 exceeding peduncle of antenna 2 by 4 or 5 flagellar segments. Antenna 2, proximal flagellar segments setose posteriorly. Maxilla 1, terminal spine-teeth of outer plate tall, slender, multi-pectinate; palp conspicuously 2-segmented, outer segment elongate, pilose, reaching beyond base of spine teeth. Maxilliped, inner plate rectangular, rounded apex with 3 short subequal spine-teeth, inner margin with 5 plumose setae; palp segments moderately broad, dactyl prominent, slender, with slender seta in place of nail. Gnathopod 1, coxal plate very broad, lower margin broadly convex, minutely spinulose, inner shelf weak, with 4-5 posterior spines; segment 5 with lappet-like posterior lobe, margin delicately spinose; segment 6 slightly arched and distally broadening, palm short, gently convex, spinulose; dactyl heavy, closing evenly on palm, tip a little exceeding bispinose palmar angle. Gnathopod 2, coxal plate deep, with small proximal posterior excavation; gill a simple short pedunculate sac; segment 2 with several proximal posterior spines; segment 5 with a narrow elongate lappet-like lobe, marginally spinulose; segment 6 large, subtriangular, hind margin short, smooth; palm very oblique, slightly sinuous, with double row of close-set slender spines between which fits the short, slender dactyl, tip not reaching 2 strong spines at palmar angle. Uropod 1, rami subequal, outer smooth, inner with a few proximal marginal spines, both rami shorter than peduncle bearing 2-5 marginal spines on each side; no prominent inter-ramal spine. Uropod 2 similar, shorter. Uropod 3, peduncle stout with apical posterior spine group; ramus shorter, slender, terminal spines only. Telson short, broad, cleft to base, each lobe dorsally with several setules near distal margin.

Family HYALELLIDAE Bulycheva 1957

Chiltonia minuta Bousfield, n. sp. Figs. 1-2.

Chiltonia mihiwaki (Chilton) 1909 (partim)?

MATERIAL EXAMINED: Holotype (DOM. Mus.), 1 ♀ ovig., Stn. #14, Lookout Bay Beach, Perseverance Hbr., under kelp on beach, 19. XII. 1961, Gressitt.

Description: Although only a single specimen was obtained, the animal is a perfectly preserved adult ♀, and is sufficiently distinct from the 3 species previously known from New Zealand and the subantarctic islands, keyed and figured by Hurley (1954), that specific recognition is justified.

♀ (3.5 mm): Head shallow, interantennal lobe prominent, broad, sub-acute, inferior antennal sinus shallowly concave. Eye small, indistinct, weakly pigmented in the type. Antenna 1 a little longer than antenna 2; peduncular segments strong, successively smaller distally; flagellum 8-segmented, longer than peduncle. Antenna 2 peduncle relatively slender, segment 1 large, conspicuously bulging in front, segment 2 with prominent gland cone, segment 3 small, segments 4 & 5 subequal; flagellum 7-segmented, about equal to peduncle.

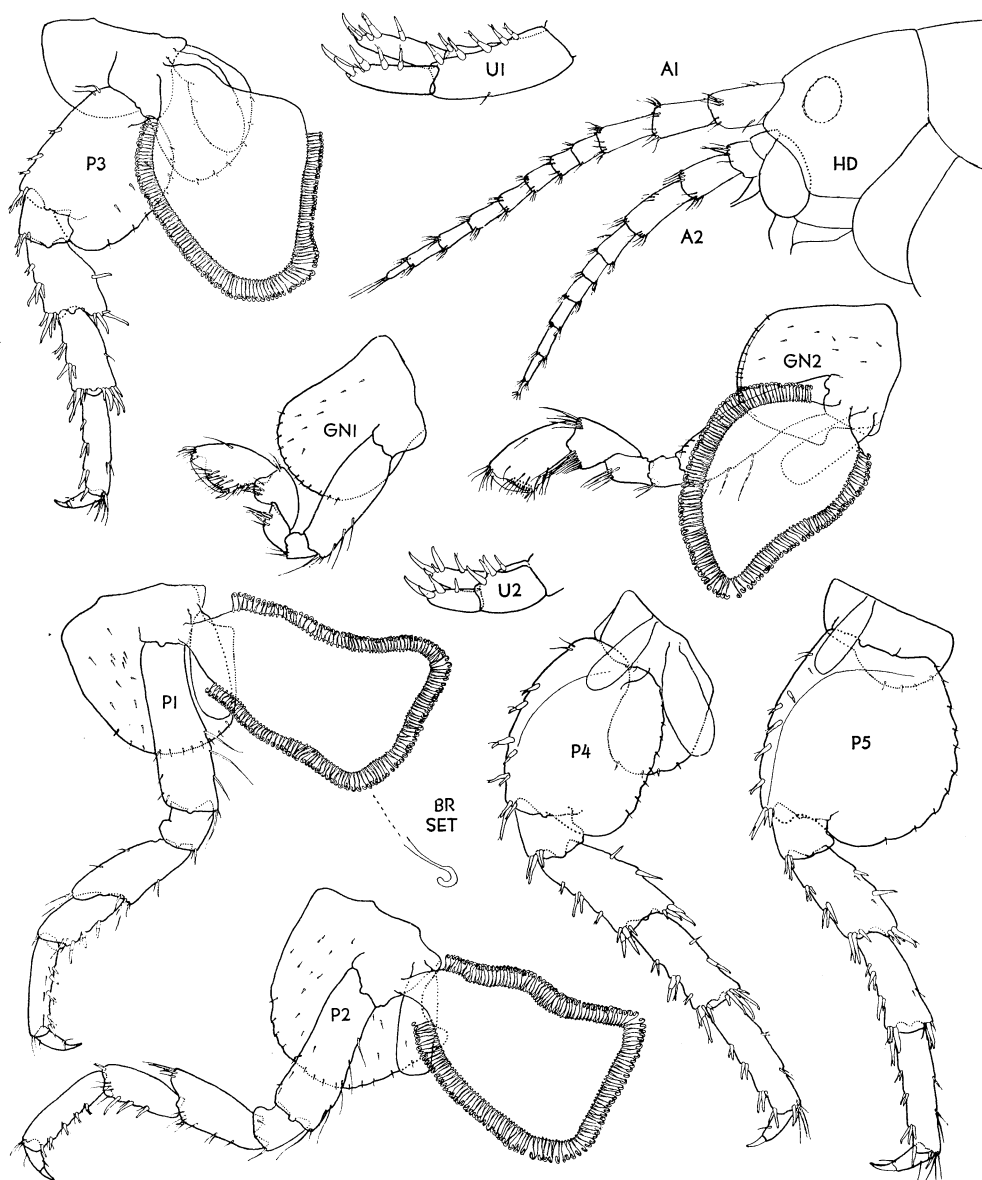


Fig. 1. *Chiltonia minuta* n. sp., holotype ♀, 3.5 mm, Perseverance Harbor, Campbell I.

Mouthparts about normal. Upper lip subquadrate, apex gently rounding, moderately pilose. Lower lip, lobes tall, broadest proximally, richly pilose along inner margin. Mandibles with slender 5-7-cusped incisor, left lacinia long, 6-dentate, right lacinia short, trid; 2 strong plumose accessory blades; molar process moderately strong, with about 25 facial striations. Maxilla 1, apical spine-teeth of outer plate tall, strongly pectinate, outer 3 teeth heavier, with fewer pectinations, palp "pit" about mid-way along outer margin; inner plate

short, with pair of strong plumose terminal setae, innermost slightly subapical. Maxilla 2, outer plate slightly longer, inner plate with apical slender spines and 2 proximal inner marginal plumose setae, stoutest proximally. Maxilliped, inner plate slender, rectangular, apex with 3 conical spine teeth, outer strongest, inner margin distally with 4–5 plumose setae; outer plate slightly exceeding inner plate, apex blunt, inner margin sinuous, richly spinose; palp strong, segments broad, terminal (4th) segment conspicuous, sub-conical, with stiff apical spines, one much longer than the others. Gnathopod 1, coxal plate broad and deep, lower margin lined with several spinules; segment 2 moderately strong with a few posterodistal setae; segment 5, hind lobe with stiff simple setae; segment 6 broadening distally, palm oblique, gently convex, dactyl closely approximating palm, tip closing between 2 stout spines at palmar angle. Gnathopod 2, coxal plate deeper than broad, proximally excavate and with blunt posterior process; segment 2 slender, slightly sinuous; segment 5, posterior lobe with several long stiff simple setae; segment 6 slightly broadening distally, palm slightly oblique, gently convex, dactyl closely fitting, tip reaching exactly to palmar angle. Peraeopods 1 & 2 very similar; coxal plates somewhat deeper than broad, that of P2 more deeply excavate and with a more deeply excavate and with a more prominent posterior process; segments 5 & 6 with stout posterior spines; dactyls short, strong. Peraeopods 3–5 similar, short, moderately spinose, increasing successively. Peraeopod 3, posterior coxal lobe deeper than anterior lobe, hind margin sparsely spinose; segment 2 moderately expanded, evenly convex behind. Peraeopod 4, coxal hind lobe deep, sharply rounding below; segment 2, hind margin nearly straight, weakly scalloped. Peraeopod 5, coxal plate shallow, broad; segment 2 broad, posterior margin strongly convex, noticeably scalloped. Primary (coxal) gills short and sac-like, present on gnathopod 2 and peraeopods 1–4 inclusive. Slender sac-like accessory gills anteriorly on coxal bases of peraeopods 4 & 5. Brood plates very large, laminar, sub-triangular, margins lined with numerous short, strong, hooked setae (more than 100 per plate). Abdominal side plates smoothly rounded below, posterior margins smooth, with 1–3 weak setae, hind corners of 2 & 3 little produced. Pleopods somewhat reduced, 3rd strongest; peduncles short and relatively broad, with 2 coupling spines (vestigial in pleopod 1) and margins variously pilose; outer ramus (7–8 segments) a little longer than inner ramus (5–6 segments). Uropod 1 short and stout, subequal rami with a few heavy marginal spines, shorter than peduncle. Uropod 2 very short and stubby, rami and peduncle subequal, each with 1 or 2 stout posterior marginal spines. Uropod 3 short, sub-conical, apex with 3 stout spines and 1 slender seta. Telson very broad, plate-like, posterior margin gently incised and nearly straight, bearing a few minute setae dorso-laterally.

Remarks: The strongly excavate coxal plate 2, entire telson, and short uropods would ally the present species most closely with *Chiltonia enderbeyensis* Hurley 1954. This species was first recorded by Chilton (1909) from a fresh-water pool on Enderby I. and from a pool outflow on Auckland I. Stephensen (1927) noted closely similar but somewhat larger specimens from under stones and wood on Auckland I. which Hurley tentatively assigned to *C. enderbeyensis*. However, *Chiltonia minuta*, in addition to being much the smallest of all known species, is distinguished by the smooth epimeral plates, the absence of marginal spines on uropod 3, the extremely broad telson, and subequal peduncular segments 4 & 5 of antenna 2.

The present material demonstrates several important features that link the genus *Chiltonia* variously with *Austrochiltonia*, *Afrochiltonia*, and *Hyaella* (see Hurley, 1959), and that justify

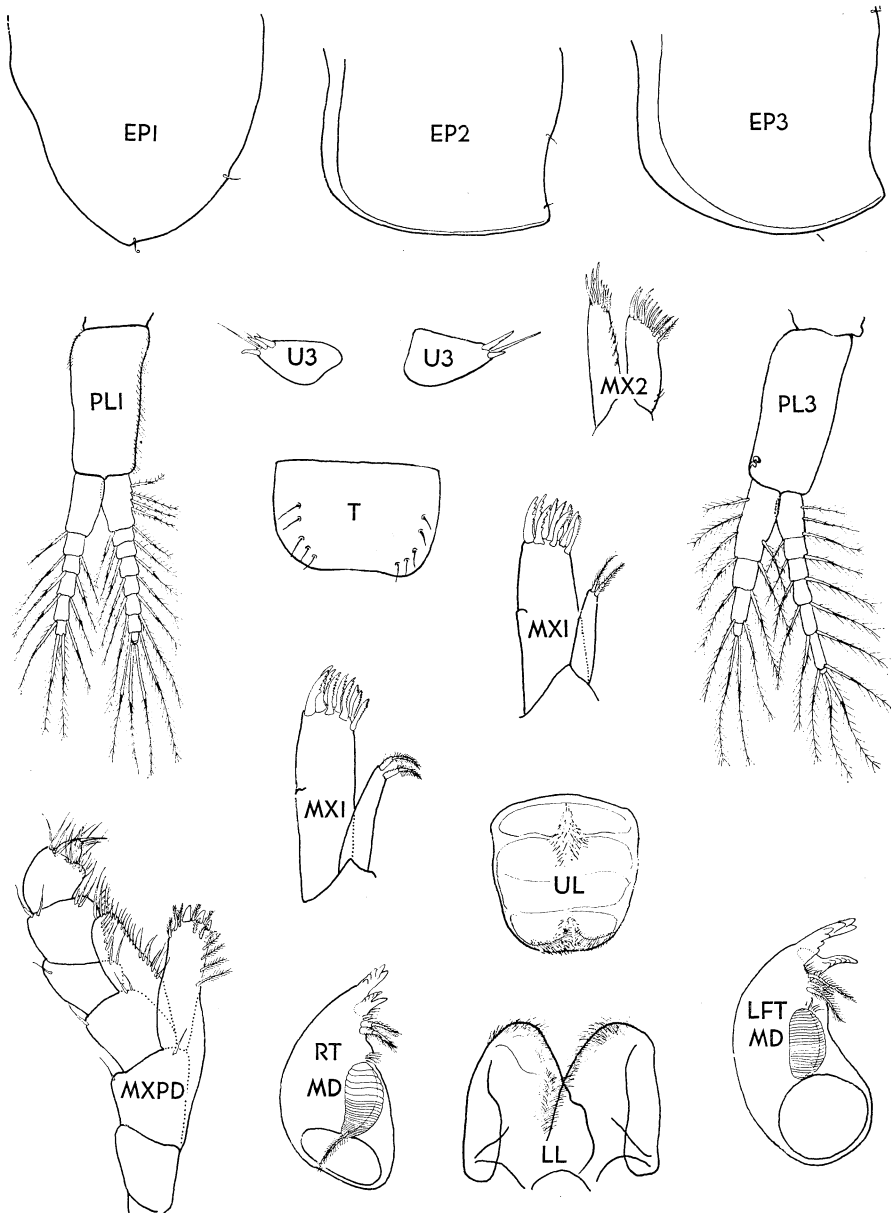


Fig. 2. *Chiltonia minuta* n. sp., holotype ♀, 3.5 mm, Perseverance Harbor, Campbell I.

Bulycheva's grouping of these primarily fresh-water aquatic animals in a distinct familial subdivision of the Talitroidea. These features include large subtriangular brood plates lined with numerous hooked marginal setae, the presence of sac-like accessory gills on some of the pereopods, strongly developed segments 1 & 2 (with prominent gland cone)

of antenna 2, elongate antenna 1, and pronounced interantennal head lobe. Of the mouth parts, the mandibular incisor and lacinia are typically slender, maxillary palp is minute or lacking and apical spine-teeth are tall and strongly pectinate, and segment 4 of maxilliped palp is variously reduced, with nail vestigial. Many of these features, combined with the small, subequal, subchelate gnathopods (in ♀), are characteristic of other primarily aquatic amphipods, particularly members of Gammaridae (cf. *Crangonyx*, *Gammarus*). It is possible, therefore, that *Chiltonia* closely approximates the ancestral and transitional talitrid form, equally well adapted for aquatic and terrestrial existence, that has been replaced along seashores and in forest-floor habitats the world over by more recently evolved and more efficiently land-adapted "Orchestia" and "Talitroides" types. *Chiltonia* may thus be regarded as a "living fossil" type, preserved in fresh-water environments of the far southern hemisphere where it is geographically isolated from competing fresh-water gammarid-type animals of the northern hemisphere on the one hand, and physiologically removed from the competition of essentially terrestrial Talitridae on the other.

Family TALITRIDAE Bulycheva 1957

Parorchestia campbelliana Bousfield, n. sp. Figs. 3-4.

Parorchestia tenuis Chilton 1909, p. 642 (partim?).

MATERIAL EXAMINED: Holotype (DOM. Mus.), 1 ♀ ovig., Stn. #12, Courrejolles Peninsula, in mollymawk rookery, 14. XII. 1961, Gressitt.

Description: Although the ♂ is unknown, the present perfect adult ♀ specimen is readily distinguished from other known species of "Orchestia"—type animals (sens. Hurley, 1957b) and is accordingly newly described herewith.

♀ (9.5 mm ovig.): Head short, deep, front margin perpendicular, nearly straight, crown moderately convex. Eye relatively small, sub-elliptical, black. Antenna 1 slender, reaching to mid-point of peduncular segment 5 of antenna 2, 5-segmented flagellum shorter than peduncle. Antenna 2 short, slender, peduncular segment 5 slightly longer than 4; flagellum about 12-segmented, longer than peduncle. Mouthparts somewhat atypical of terrestrial Talitridae. Upper lip lost. Lower lip, "shoulders" broad, inner margins thickly pilose. Mandibular incisors strong, 5-dentate; left lacinia larga, 5-dentate, right lacinia trifid; 4-5 plumose accessory blades; molar process strong, triturating surface with about 35 striations. Maxilla 1, inner plate tall, tapering distally to apical and subapical plumose setae; outer plate with small bi-articulate palp beyond mid-point of outer margin; apical spine-teeth tall, multi-pectinate, outer 3 teeth much heavier and more coarsely pectinate. Maxilla 2, apical blade-spines of outer plate in tall outer series, inner plate with strong pilosity proximal to stout plumose seta. Maxilliped, inner plate sub-rectangular, broadly truncate apex with 2 large outer conical spine-teeth and a smaller one at inner angle; inner margin with about 7 plumose setae; outer plate short, inner margin straight, lined with slender spines; palp short and broad, segments 1 & 2 indistinctly separated, segment 4 prominent, apex blunt-conical. Gnathopod 1, coxal plate broadly rounding below, inner shelf with 6-8 slender spines; segment 2 slightly widening distally; segment 4 with small posterior blister and weak spines; segment 5 longer than 6, broadly tumescent below; segment 6 broadening distally and tumescent below, short stout dactyl closing exactly on setose palm. Gnathopod 2, coxal plate broad, smoothly convex below, with prominent posterior triangular process;

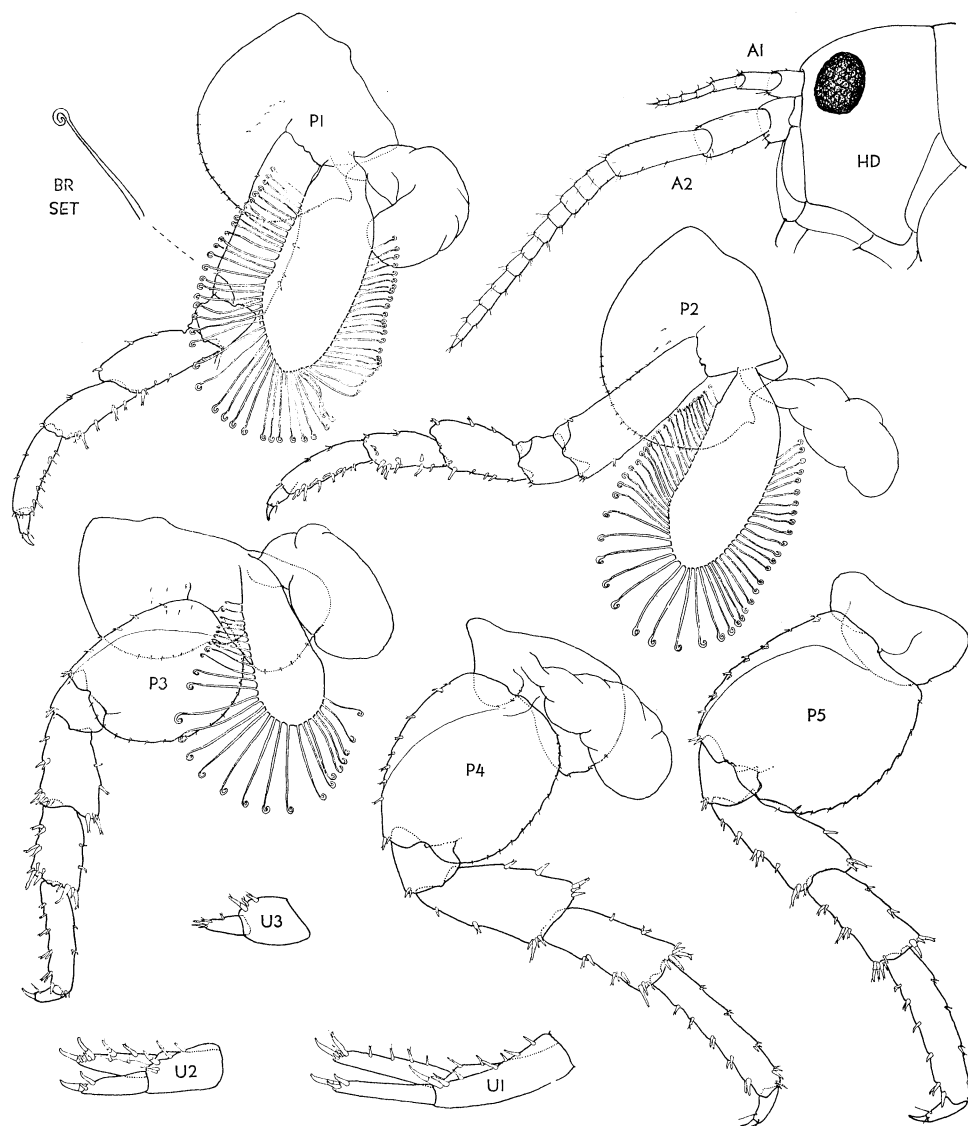


Fig. 3. *Parorchestia campbelliana* n. sp., holotype ♀, 9.5 mm, Courrejolles Peninsula, Campbell I.

segment 2 linear, margins bare; segment 4 broadly tumescent below; segment 5 slightly longer than 6, with posterior blister; segment 6, dactyl subterminal. Pereopods 1 & 2 very similar, distal segments moderately spinose behind, dactyl short, stout; coxal plates very broad, smoothly convex below, hind margin with prominent triangular process and excavate proximally. Pereopods 3-5 similar, moderately spinose, successively larger, dactyls short. Pereopod 3, coxal plate shallow, broad, anterior lobe larger; segment 2 expanded, smoothly convex behind. Pereopod 4, coxal plate with shallow posterior lobe weakly scalloped below; segment 2 convex and setulose behind. Pereopod 5, coxal plate moderately deep,

with few posterior marginal setules; segment 2 moderately expanded, hind margin convex, weakly serrate. Coxal gills sac-like or weakly lobate, about equal in size on all 5 limbs; Brood plates rather large, subovate or sub-triangular, about as long as respective basal segment of limb, margins lined with numerous elongate, hooked (or curl-tipped) setae. Abdominal side plates 1-3 smooth below, hind margins with 1-2 weak setae, hind corners slightly produced posteriorly. Pleopods about normal and subequal; peduncle of 3 shorter but rami longer than in pleopods 1 & 2; peduncles slender, with a few facial spines, and 2 coupling spines; rami 10-12-segmented, outer ramus slightly longer. Uropod 1, peduncle longer than the rami, margins with 3-5 spines, inter-ramal spine about 1/3 the inner ramus which has 4 marginal spines and 4-5 terminal spines; outer ramus smooth, shorter than inner. Uropod 2, rami and peduncle short, stout, subequal; outer ramus, margins smooth, slightly shorter than inner ramus having both margins spinose. Uropod 3, peduncle short, stout, with 3 short dorsal (posterior) spines; ramus shorter, slender, with 1 dorsal and 4 small terminal spines. Telson short, basally broad, apex rounded, with paired subterminal spine groups, and dorsal surface with scattered minute spinules.

Remarks: In features such as the short sparsely setose antennae, short stout peraeopods, short thick dactyls, and long pleopods, the present material resembles material of *Parorchestia* previously recorded from the mouth of a small fresh-water stream on the sea-shore of Perseverance Hbr., Campbell I. by Chilton (1909). With reservations he assigned his "few small specimens" to *P. tenuis* Stebbing (1906) on the basis of their similarity to specimens from blackish and fresh-water streams in various parts of New Zealand where the type was found. Hurley (1957b) has lumped a number of New Zealand leaf-mold species under the name *P. tenuis* Dana, including such widely differing entities as *P. sylvicola* Dana and 2 forms of *P. stewarti* Stephenson. I have recently examined 5 lots from the Stebbing collection of "*Parorchestia sylvicola*" in the British Museum² and found 9 fully distinct species among the 18 specimens, only 1 of which was identifiable with *Parorchestia sylvicola* as defined by Stebbing (1906) and redefined by Hurley (1957b). In each of 2 lots of 5 specimens, 4 distinct species could be identified, even though each species was usually represented by a single mature ♀. It is likely, therefore, that many undescribed species of "*Parorchestia*" type leaf-mold species occur in New Zealand and the adjacent islands, many of which are highly localized or endemic in relatively small isolated regions. By the same token, specific differences between *Parorchestia tenuis*, *P. sylvicola*, *P. stewarti*, etc., noted by Stebbing and Stephenson (above), are very probably valid and further studies on this early material would undoubtedly serve to re-validate these names. Although the present species is difficult to separate morphologically from *Parorchestia tenuis* as described by Stebbing (1906), mainly because accurate figures of the species are lacking, the high degree of endemism typical of insular leaf-mold species (see Stephenson, 1935) renders unlikely the conspecificity of Campbell I. and New Zealand material. The present material differs slightly from Stebbing's description in that the telson is broader than long, and the flagellum of antenna 1 is distinctly shorter than the peduncle.

This species closely resembles not only *P. tenuis* Dana from fresh-water streams in New Zealand, but is remarkably similar to ♀ specimens of an undescribed species of *Parorchestia* from stony streams and seashores of Victoria (submitted by W. D. Williams) and Tasmania (in Australian Mus. collections). It is also close to *Parorchestia rectipalma* Barnard 1940

2. Kindly loaned by Dr. Isabella Gordon.

from South Africa, the ♀ of which has smaller brood plates but the marginal setae are very long and curl-tipped as in the present species. Finally, *P. campelliana* is obviously closely related to *P. americana* Bousfield (in press) from the coast of Uruguay, of which only the ♂ is known. We might predict, therefore, that the ♂ of *P. campelliana* will be very similar to ♂♂ of the above species in having a relatively large subchelate gnathopod 1 and sub-triangular hand of gnathopod 2, characters which, interestingly, are shown by many intertidal marine species of Hyalidae (cf. *Allorchestes compressus*). It is further suggested that the genus *Parorchestia* Stebbing 1899 be restricted to *tenuis*-type animals having characteristics outlined above, and that new generic names be proposed for more typical leaf-mold complexes such as the "*sylvicola*" group, having slender delicately spinose antenna and walking limbs, highly modified gills, reduced brood plates with simple setae, and vestigial pleopods.

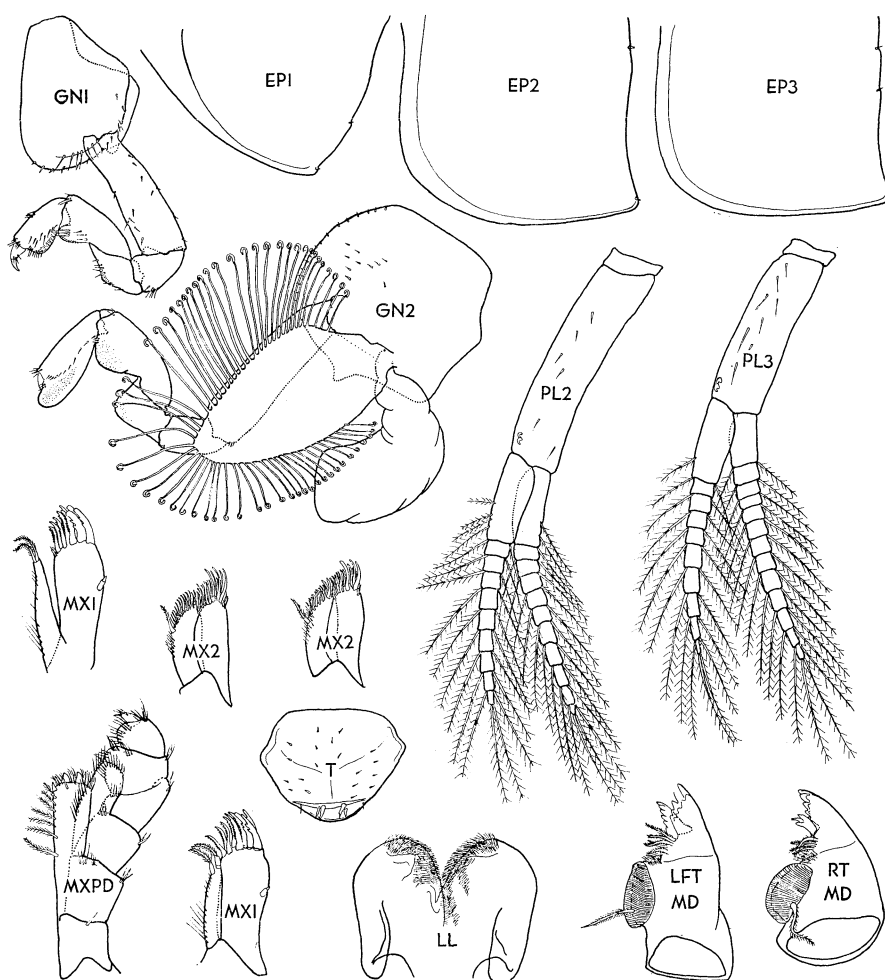


Fig. 4. *Parorchestia campelliana* n. sp., holotype ♀, 9.5 mm, Courejolles Peninsula, Campbell I.

Orchestia aucklandiae Bate 1862 Fig. 5.*Orchestia aucklandiae* Hurley 1957b

MATERIAL EXAMINED: 3♂♂ (to 30 mm), 6♀♀ (4 ov.), 2 imm., 12 juv., Stn. #26, Rocky Bay, under kelp on beach, 28. XI. 1961, Gressitt; 6♂♂ (1 adult), 7♀♀ (1 ov.), 25 imm. & juv., Stn. #26 Rocky Bay, shore, under kelp, 20. XII. 1961, Gressitt; 2♂♂, 2♀♀, 4 juv., Stn. #14, Lookout Bay, kelp on beach, 3. XII. 1961, Gressitt.

DISTRIBUTION: According to Hurley (1957b), *Orchestia aucklandiae* has been authentically recorded only from the Auckland Is., Campbell I., Stewart I. and the Otago Peninsula of South I., New Zealand. This species is not to be confused with *O. serrulata* Dana, a synonym of *O. chiliensis* M.-E., which is a more northern species and widely distributed in North and South Is. of New Zealand, Chatham Is., Juan Fernandez, and Chile.

Remarks: Large ♂♂ (up to 30 mm) in the present material show the characteristic dorsal ridging of the pereon segments. The species exhibits several features that are characteristic of primitive members of the genus *Orchestia* (cf. *Orchestia traskiana*, Bousfield, 1961), including large brood plates with minutely curl-tipped marginal setae (fig. 5-4), distinctly subchelate ♀ gnathopod 2, and simple, sac-like gills. Maxilla 1, apical spine-teeth of outer plate are fairly tall and multi-pectinate; palp small, bi-articulate, distad of mid-point.

Orchestia bollonsi Chilton Fig. 5.

MATERIAL EXAMINED: A total of 126 specimens in 20 collections from 9 localities as follows: Stn. #2, Beeman-Tucker Beach, intertidal, under rocks, 8. X. 1961, Gressitt, 1♂; *Ibid.*, *Colobanthus*, 19. XII. 1961, K. Rennell, 2♀♀, 11 im.; Stn. #3, Tucker Cove, tidal rock, 21. XI. 1961, Gressitt, 1♀ ov.; Stn. #12, Courejolles Peninsula, 200 m, *Colobanthus*, 14. XII. 1961, Gressitt, 4♀♀, 4 juv. (in 2 lots); *Ibid.*, grey-headed mollymawk nests, Gressitt, 1♂, 1♀, 5 juv. (in 3 lots); *Ibid.*, *Tillaea*, among rocks, in mollymawk nests, 13. II. 1963, K. A. J. Wise, berlese, 22 imm.; Stn. #13, Smoothwater Bay, leaf-mold, under sedge, 16. II. 1963, Wise, berlese, 1♀, 9 juv.; Stn. #14, Lookout Bay Beach, kelp on beach, 3. XII. 1961, Gressitt, 2♂♂, 2♀♀, 4 juv.; *Ibid.*, (with *Chiltonia*!), 16-19. XII. 1961, 1♀ ov.; Stn. #16, Shoal Pt., *Tillaea* on shore rock, 1. II. 1963, Wise, berlese, 1♂, 1♀ ov., 25 juv.; Stn. #23, S. coast below Mt. Dumas, 10 m, in penguin colony, 18. II. 1963, Wise, berlese, 1♀, 5 juv.; Stn. #24, Middle Cove, Northwest Bay, kelp on rocks, 29. XI. 1961, Gressitt, 1 juv.; *Ibid.*, on sand, under kelp, 5 m, 5. II. 1963, Wise, 1 juv.; Stn. #26, Rocky Bay, under rock on slope, 28. XI. 1961, Gressitt, 5♀♀ ov.; *Ibid.*, 0-20 m, 20. I. 1962, Rennell, 1♂; *Ibid.*, from *Tillaea* in penguin colony, 10 m, 18. II. 1963, Wise, berlese, 1♀, 6 imm.

DISTRIBUTION: Hurley (1957b) has summarized existing records from Auckland I., Ewing I., Bounty I., Snares I., and Dog I., and also from Hooper's Inlet, Otago Peninsula. The present records are the first from Campbell I.

Remarks: The present material differs only slightly from the form originally described by Chilton from Snares and Ewing I., and, added to the fact that the present material occurs in much the same habitat (in or under vegetation, etc., within a few meters of the shore), does not justify specific separation from the type material. The brood plates of the ♀ are moderately large and the marginal setae are slightly thickened or knobbed at the tip, perhaps representing a late stage in the evolution from curl-tipped to simple form.

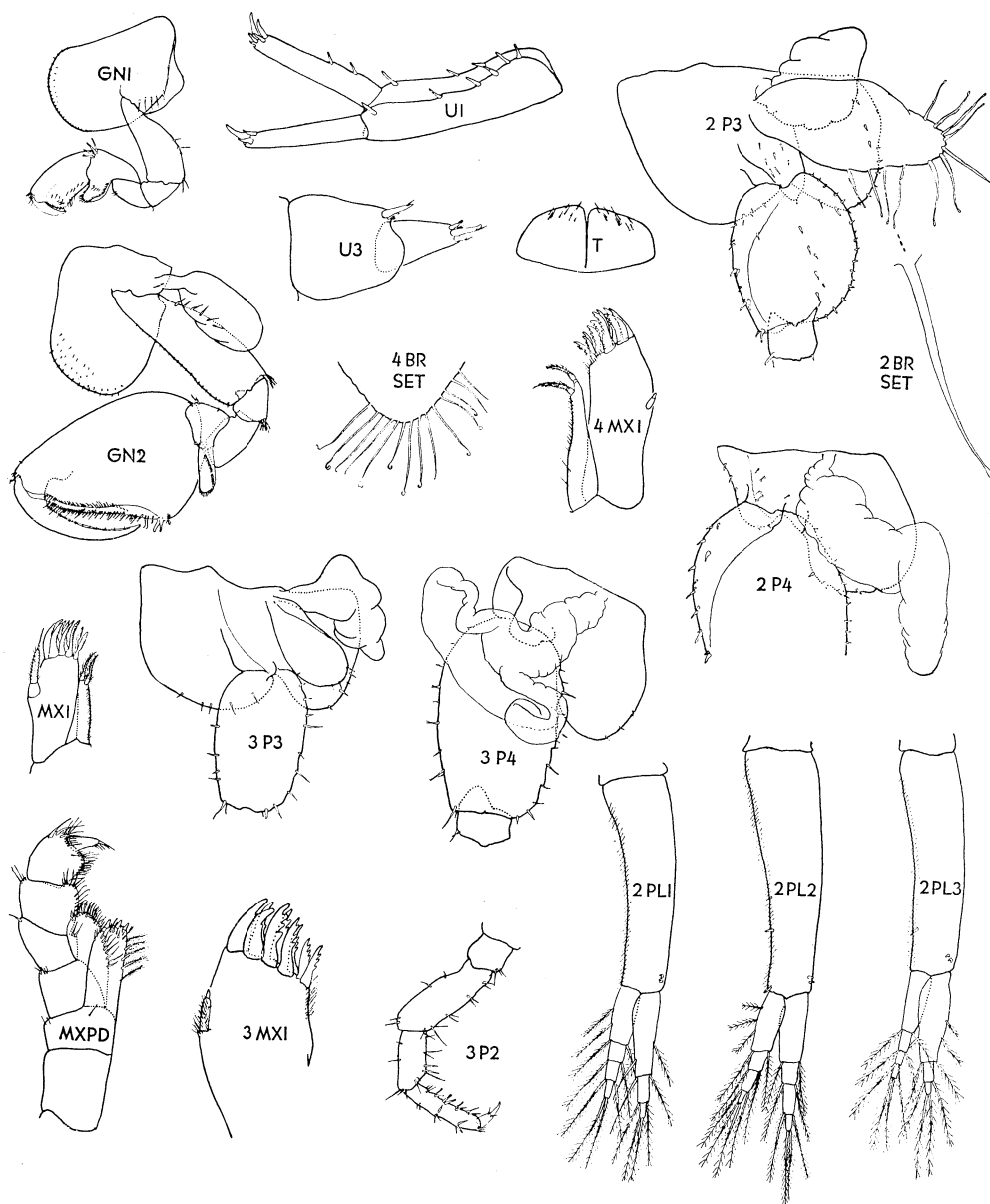


Fig. 5. 1, *Allorchestes compressus* Dana, ♂, 10 mm, Monument Harbor, Campbell I. (left and top middle); 2, *Orchestia bollonsi* Chilton, ♀, 12 mm, Rocky Bay, Campbell I. (right); 3, *Parorchestia* (?) *insularis* Chilton, ♀, 13 mm, Beeman Camp, Campbell I.; 4, *Orchestia aucklandiae* Bate, ♀, 16 mm, Rocky Bay, Campbell I.

The gills are somewhat modified from simple sacs, that of peraeopod 4 is rather slender, elongate, and L-shaped. The pleopods are subequal in length but the rami are considerably reduced, 3-4 segmented, inner ramus slightly the longer. The long peduncles are pilose

with a few small spines on the outer margin.

Parorchestia (?) insularis Chilton Fig. 5.

MATERIAL EXAMINED: More than 260 specimens in 53 collections from 18 localities, summarized as follows: Stn. #1, Beeman Hill, Gressitt, 4 coll'ns., 2-16. XII. 1961, 30-180 m, mostly in *Pleurophyllum* leaf-mold, moss, and *Poa* roots, 2♂♂, 2♀♀, 14 imm. & juv.; *Ibid.*, Rennell, 3 coll'ns., I-II. 1962, 30-120 m, in *Pleurophyllum* & sedge, 1♀ ov., 3 imm.; *Ibid.*, Wise, 2. II. 1963, 50 m, moss, lichens, low plants, 7 imm.; Stn. #2, Beeman Camp & Shore, Gressitt, 9 coll'ns., 26. XI. 1961, 2-50 m, among *Coprosoma*, *Poa* roots, *Bulbinella* roots, moss, turf, can traps, 3♀♀ (1 ov.), 16 imm. & juv.; *Ibid.*, Wise, 3 coll'ns., 11-29. II. 1963, 2-50 m, berlese samples from sedge leaf-mold, *Pittosporum* leaf mold, 2♂♂, 2♀♀ (1 ov.), 7 imm.; Stn. #3, Tucker Cove, Perseverance Hbr., Gressitt, 3 coll'ns., 21-26. XI. 1961, 1-100 m, berlese samples of moss, 5♂♂, 1♀, 4 imm.; *Ibid.*, Rennell, 27. II. 1962, lichens on *Dracophyllum*, 1 imm.; *Ibid.*, Wise, 7 coll'ns., 0-100 m, moss on *Dracophyllum*, *Pittosporum* leaf mold, tussock leaf mold, 1. II-3. III. 1963, 1, 3♀♀, 40 imm. & juv.; Stn. #6, Moub-ray Hill, Wise, berlese, 200 m, base of tussock, 16. II. 1963, 1♂; Stn. #7, Lyall-Beeman Saddle, Gressitt, 70 m, *Pleurophyllum*, 3-12. XII. 1961, 1♀ ov.; Stn. #8, Mt. Lyall, Gressitt, 200-400 m, in moss, 3-12. XII. 1961, 1 imm.; *Ibid.*, Wise, 2 coll'ns., below summit, ca 390 moss & lichen on rocks, 19. II. 1963, 2♂♂, 2♀♀, 14 imm. & juv.; Stn. #9, St. Col Ridge, Gressitt, 180-180 m, in lichens on *Dracophyllum*, 4-13. XII. 1961, 1, 2 imm.; Stn. #10, St. Col Peak, Wise, 250 m, low plants on rock, 23. II. 1963, 1 juv.; Stn. #12, Courejolles Peninsula, Gressitt, 200 m, in *Colobanthus*, 14. XII. 1961, 2 imm.; Stn. #13, Wise, 2 coll'ns., in *Dracophyllum* leaf mold, 16. II. 1963, 3♂♂, 2♀♀, 5 imm.; Stn. #14, Lookout Bay, Perseverance Hbr., Wise, 2 coll'ns., base of *Bulbinella*, 24. II. 1963, 5♂♂, 3♀♀, 37 im.; Stn. #16, Shoal Pt., Perseverance Hbr., Wise, in tussock, 7. II. 1963, 2♀♀, 10 juv.; Stn. #17, Mt. Honey, Wise, ca. 140 m, low plants on rock, 24. II. 1963, 2♂♂, 7 juv.; Stn. #24, Middle Cove, Northwest Bay, Wise, 2 coll'ns., in *Dracophyllum* leaf-mold, 5. II. 1963, 11 imm. & juv.; Stn. #26, Rocky Bay, SW shore below Mt. Dumas, Gressitt, in penguin nest, 28. XI. 1961, 2♂♂, 1♀, 14 imm.; *Ibid.*, Wise, 2 coll'ns., ca 10 m, from *Dracophyllum* leaf-mold & in penguin colony, 15, 18. II. 1963, 1♀, 9 imm.; Stn. #27, (?), Filhol Peak, Wise, summit, tussock and moss, 9. II. 1963, 1 imm.; Campbell I., (no locality), Gressitt, berlese sample, XII. 1961, 2 juv.; Wise (no locality), in tussock, 7. II. 1963, 2♀♀ (1 ov.).

DISTRIBUTION: The species was originally described from Campbell I. by Chilton (1909) who noted its extreme abundance, to the tops of the highest hills. A slightly different form has been described by Chilton and by Stephensen (1927) from the Auckland Is., which Hurley (1957b) regards as conspecific since he found both forms on Campbell and Auckland Islands. The present material contains less than 50♂♂, only 10 of which are mature or nearly mature; these do not show the strong palmar processes of the 2nd gnathopods typical of the Auckland I. material, but are more like the type material from Campbell I. illustrated by Chilton (1909) and Hurley (1957b).

This species has the slender bristly antennae and peraeopods, highly modified and convoluted gills, reduced pleopods, and slender uropods typical of leaf-mold Talitridae and thus removed from the littoral marine genus *Orchestia* as represented by *O. gammarella*, the generic type. These same features, coupled with small slender brood plates bearing short simple marginal setae, the sublinear propod of gnathopod 1 in both sexes, and the

relatively slender maxilliped palp, are likewise of sufficient taxonomic significance to remove the species from the genus *Parorchestia* as represented by the *tenuis* complex (above, p. 11). However, it is not the purpose of this short paper to propose new higher taxa to accommodate these major groupings, but rather to suggest new lines of approach to a major investigation and revision of the land-hopper fauna of the New Zealand and sub-antarctic islands region.

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Abbreviations for illustrations

A1—Antenna 1	Md—mandible
A2—Antenna 2	Mx—maxilla
Br. Set—Brood plate seta (e)	Mxpd—maxilliped
Ep—Epimeral plate (s)	P—peraeopod
Gn1—gathopod 1	P1—pleopod
Gn2—gnathopod 2	Rt—right
Hd—head region	T—telson
Lft—left	U—uropod
LL—lower lip	UL—upper lip