

INSECTS OF CAMPBELL ISLAND.
PROSTIGMATA: EUPODIDAE, PENTHALODIDAE, RHAGI-
DIIDAE, NANORCHESTIDAE, TYDEIDAE, EREYNETIDAE¹

By R. W. Strandtmann²

B. P. BISHOP MUSEUM, HONOLULU, HAWAII

Abstract: Eleven species of prostigmatic mites are recorded from Campbell Island. Represented by 3 or more specimens are: *Eupodes longisetatus* n. sp.; *Stereotydeus undulatus* n. sp.; *S. nudisetatus* n. sp.; *S. pulcher* n. sp.; *Penthaleus major* (Duges); *Rhagidia mildredae* n. sp.; *Microtrombidium karriensis* Womersley, and *Nanorchestes antarcticus* Strandtmann. Represented by unique specimens are *Rhagidia* sp.; *Lorryia* sp.; and *Ereynetes* sp. All were collected in terrestrial habitats such as moss, lichens, grasses, and leaf mold.

Some 200 slides of prostigmatic mites from Campbell I. were made available to me by Dr. J. L. Gressitt of Bishop Museum. I wish to thank Dr. Gressitt most sincerely for the opportunity to study and report upon this collection. Type specimens are housed in Dominion Museum.

Eupodes longisetatus Strandtmann, n. sp. Fig. 1.

♀. Length of body, measured from tip of epivertix, 400 μ with only slight variation in the 2♂♂ and 6♀♀ available for measurements. Slender, slightly more than 2 \times as long as wide, widest at the rather prominent shoulders. Legs I about 2 \times length of body. All leg and body setae closely and finely ciliated. No eyes apparent in mounted specimens. *Dorsal side* (fig. 1b): Propodosoma separated from hysterosoma by a distinct furrow; epivertix separated from propodosoma by a distinct furrow but fitting closely into anterior margin. Two finely ciliated setae from center of epivertex and about as long as epivertex. Four propodosomal setae subequal, 1/2 as long as width of propodosoma, arranged in an approximate rectangle. Sensillae very slender, sparsely covered with long cilia, originating at posterior margin, as long as propodosoma. Hysterosoma tapering slightly toward rounded posterior end, with 4 pairs widely spaced, long, closely ciliated setae, each more than 1/2 as long as width of body; posterior end with cluster of 8-12 smaller and finer, ciliated setae, the most posterior 4 may be terminal or even ventral, depending upon how the mite is mounted. Chelicerae slender, separate, more than 2 \times as long as wide; chela (fig. 1e) edentate, small (about 1/7 total length of chelicera) with dorsal, nude seta at base of fixed arm. *Ventral side* (fig. 1a): Coxae in 2 groups, poorly defined, not meet-

1. Results of field work supported by grants G-18800 and G-23720 from the National Science Foundation (U. S. Antarctic Research Program).
2. Permanent address: Dept. of Biology, Texas Technological College, Lubbock, Texas.

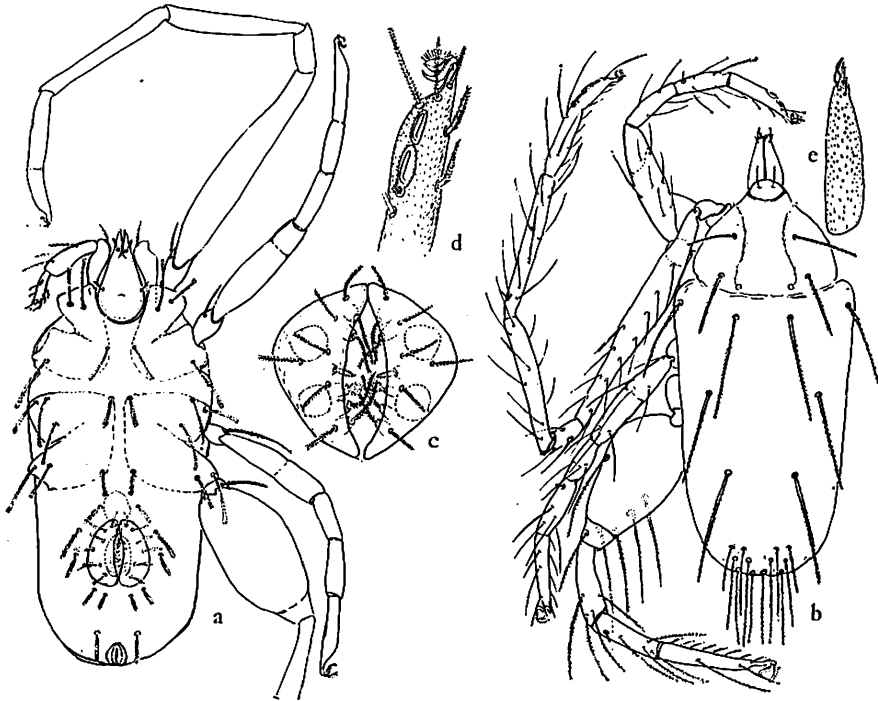


Fig. 1. *Eupodes longisetatus* n. sp. a, ventral view of ♂; b, dorsal view of ♂; c, ♀ genitalia; d, tarsus I of adult; e, chelicera.

ing medially, setal formula, 3-1-4-3. Rostrum narrowly cone-shaped, divided apically for about 1/4, with 2 subapical and 2 basal finely ciliated setae, plus 2 small, nude seta, difficult to find, on each apex. Genitalia in middle of ventral opisthosoma, roughly circular, covered by 2 reniform covers which each have 6 ciliated setae; bracketed by 5 pairs of setae. ♂ (fig. 1a) with a clear, rounded sac and a close cluster of some 7 pairs plumose setae not borne on apparent papillae. ♀ (fig. 1c) similar except internal setae more widely spaced, longer and more prominent; borne on obvious papillae and seemingly include shorter capitate and claviform setae. Excretory pore rounded, thick-lipped, ventral near apex, with a pair of plumose setae near anterior margin. Legs slender; leg I approximately 2× as long as body, legs II-IV approximately equal and shorter than body. All femora except III divided near apex (III divided near middle), the divisions apparently not movable. Tarsus I shows an apparent division in some specimens but not in others. Femur IV greatly enlarged. All tarsi with slender pretarsi bearing 2 basally ciliated claws and a slender, ciliated empodium. Tarsi I (fig. 1d) and II each with 2 rhagidiform organs, each in a separate field. On tarsus I, basal rhagidiform subtended by a stellate seta. A very small solenidion on dorsal base of each tibia. This does not preclude the presence of other solenidia as I found them exceedingly difficult to locate. Each trochanter with 1 seta (1-1-1-1). Leg chaetotaxy; abundant, long, slender, and very finely ciliated. The ciliations are shown only on leg IV and as I experienced difficulty in making them look right, I gave up the attempt to show ciliation on the other leg setae. Pedipalps: seg-

ments 2 & 3 approximately equal; terminal segment slender, more than 1/2 as long as 3, with 8 ciliated setae and a small, subbasal rhagidiform. Segments 2 & 3 with 2 & 3 setae respectively.

Holotype ♀ (Dominion), Beeman, St. Col Lyall, Campbell I., mixed moss, berlese funnelings, 3-5. XII. 1961, Gressitt.

DISTRIBUTION: Campbell I.

CAMPBELL I.: 1♂, 1♀, St. Col Ridge, 180-280 m, moss on rocks, 24, 26, 30. XI. 1961, Gressitt; 1♂, 1♀, Beeman Camp, 2-50 m, moss, lichen on trunk of *Drachophyllum*, 1-5. XII. 1961, Gressitt; 1♀, Beeman Hill, 100-180 m, yellow moss, 11-16. XII. 1961, Gressitt; 2♀ ♀, St. Col Lyall, Beeman, mixed moss, 3-5. XII. 1961, Gressitt; 1♀, Tucker Cove, 1-50 m, moss & lichen, berlese, 21-25. XI. 1961, Gressitt; 1♀, Lookout Bay Beach, *Drachophyllum* leaf mold, 16-19. XII. 1961, Gressitt; 1♀, 1961, Gressitt.

Remarks: Described from 7♀ ♀ and 2♂ ♂, all found in moss and lichens. There was only a slight variation in body size and length of setae. Although legs I are slender and very long, almost 2× as long as the body, the species is not *Linopodes* because of the long body setae, distinct suture between propodosoma and hysterosoma, and the greatly swollen 4th femora. It will key to *E. voxencollinus* Thor in Thor and Willmann's key (1941) and fits the description of that species tolerably well but *voxencollinus* is smaller (300-335 μ), has 7 pairs of paragenital setae, and leg I is only about 1/3 longer than the body. *Eupodes berlesei* Thor has a similar facies but it is much larger, 650 μ, and the 4th femora are less swollen. *Eupodes skiaaki* Thor also has very long legs I and is approximately the same size as our mite, 470-580 μ, but the dorsal setae are shorter and the body is wider. It is interesting that the 2 species that seem to resemble *longisetatus* closest are from Norway where climatic conditions are probably not too unlike those on Campbell I. The recently described *E. wisei* Womersley & Strandtmann (1963) differs in having shorter and finer dorsal setae and shorter legs.

Stereotydeus undulatus Strandtmann, n. sp. Fig. 2 a-b, 3 a-e.

♂. Average length 840 μ, varying from 775-940. Body elliptic, legs long and slender, legs I longer than body. Middle lobe of epivertex with scalloped or undulate margin, 4th palpal joint 1/2 as long as 3. Venter with numerous setae. Dorsum with indistinct longitudinal furrows, pubescent, with the pubescence in fairly regular polygons. *Dorsum* (fig. 2a): Epivertex distinct, trilobed, all 3 lobes pubescent, mid lobe with a distinctly scalloped margin, the lateral lobes less so. Propodosoma separated from hysterosoma by a distinct furrow; eyes large, frequently with pigment still present in mounted specimens. Lateral propodosomal setae inserted at middle of interior margin of eye. Sensillae on a line between the 2 posterior setae, only slightly longer than propodosomal setae. Dorsal and scapular setae subequal, not as long as propodosomal setae. Two weak, irregular, longitudinal furrows on hysterosoma. Entire dorsum covered with polygonal fields of pubescence which may be rounded tubercles between anterior propodosomal setae and base of epivertex. *Ventral side* (fig. 2b): Coxae in 2 groups separated by a shallow furrow. Coxal setae, 3-1-6-4, subequal, pectinate. A prominent pit between coxae III & IV. Genitalia in middle of opisthosoma, in a circular camerostome, each of the 2 covers with 6 setae, the 4th more lateral than the others, the whole surrounded by a cluster of 20-25 pairs of equal, pectinate setae. Excretory pore subterminal, round, thick-lipped, bracketed by 3

pairs of setae. ♂ genitalia with an internal sperm sac and a close cluster of plumose setae. ♀ genitalia with more widely spaced internal setae, each on a distinct papilla. A shallow, vaguely triangular depression each side of the genitalia. Ventral pubescence in indistinct polygons which merge into fine striations posteriorly. Rostrum (fig. 3d). The 2 apical halves divergent, each with 2 subapical, nude setae and 2 pairs plumose setae, 1 pair on margin, other mediobasal. Basal part of rostrum longer than the divided apical part. Chelicerae (fig. 3c) usual. Pedipalp (fig. 3a) with 0-2-3-7 pectinate setae + a dorso-lateral rhagidiform on segment 4. Segment 2 not angular, longer than 3, 3 is 2× as long as 4, 4 obliquely pointed apically. Legs long and slender. Leg I longer than body, IV about same length as body, III & IV shorter. All femora completely divided at about apical 1/4. Tarsus I (fig. 3e) with 3 rhagidiform organs in 3 irregularly placed fields, a stellate seta at base of the basal. All tibiae and genua with a rather prominent, submedial dorsal solenidion. Tarsal claws ciliated basally, empodium straplike, ciliated, shorter than claws. Dorsoapical seta of tarsi II-IV broadened apically, brush-like.

Holotype ♂ (DOMINION), Tucker Cove, 4 m, Campbell I., tussock leaf mold, 3. III. 1963, K. A. J. Wise.

DISTRIBUTION: Campbell I.

CAMPBELL I.: 2♂♂, 1♀, Tucker Cove, 1-100 m, moss, 21. XI. 1961, Gressitt; 1♂, 1♀, Tucker Cove, 1-50 m, weed & grass turf, 6-11. XII. 1961, Gressitt; 3♂♂ Tucker Cove, 4 m, tussock leaf mold, 3. III. 1963, Wise; 2♀♀, St. Col Ridge, 180-280 m, moss on

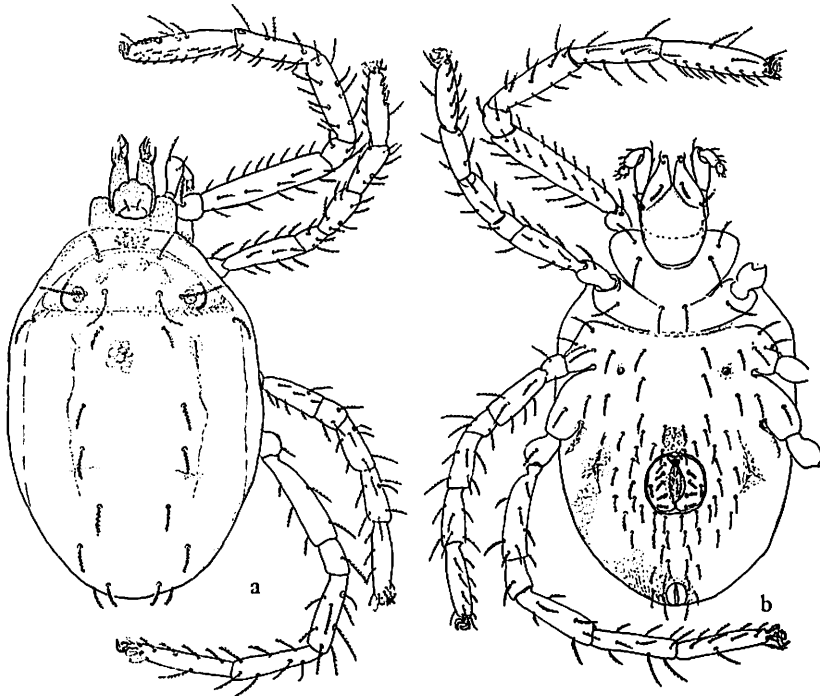


Fig. 2. *Stereotydeus undulatus* n. sp. a, dorsal view of ♂; b, ventral view of ♂.

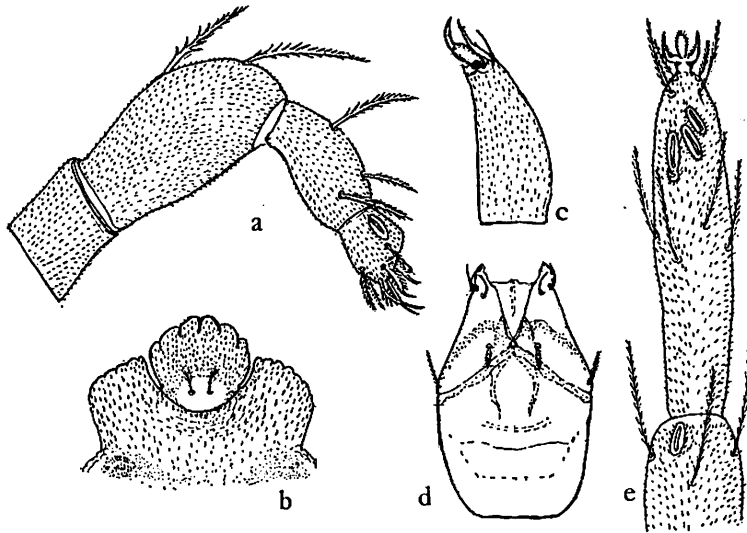


Fig. 3. *Stereotydeus undulatus* n. sp. a, lateral view of left pedipalp; b, dorsal view of epiprostrum; c, chelicera; d, ventral view of rostrum; e, dorsal view of tarsus I and tip of tibia I.

rock, 4, 7, 9, 13. XII. 1961, Gressitt; 1♂, Beeman Camp, 2-50 m, chicken yard, 6-11. XII. 1961, Gressitt; 1♂, 1♀, Beeman Hill, moss, 2. II. 1963, Wise; 1♂, below summit, Mt. Lyall, 390 m, moss & lichen on rocks, 14. II. 1963, Wise; 1♂, 1♀, Campbell I., misc. berlese, 1961, Gressitt.

Remarks: Described from 10♂♂ and 5♀♀. May be distinguished from other species of the genus by the large number of ventral setae, and the distinctly scalloped margin of the epivertex. It is somewhat similar to the antarctic *S. villosus* (Trst.) but *villosus* has less prominent eyes, much more prominent horseshoe-shaped ridges on the propodosoma, is more heavily armored, and the epiprostrum is smoothly margined.

Stereotydeus nudisetatus Strandmann, n. sp. Fig. 4.

♀. Length, 410-480 μ , average 435. Coarsely hirsute dorsally with the pubescence in vague polygons; ventrally more finely pubescent, the pubescence in more distinct and regular polygons. Epiprostrum in 3 large, triangular lobes, mid lobe long and pubescent, lateral lobes tuberculate, pointed. Femora divided at apical 1/4. Dorsal setae nude or nearly so; many leg setae nude. *Dorsal side* (fig. 4a): Shallow suture between propodosoma and hysterosoma. Posterior propodosomal seta at anterior margin of eye. Sensillae on or slightly posterior to a line between posterior margin of eyes, about as long as external propodosomal setae. Dorsal and scapular setae subequal, longer than ventral setae, nude or very nearly so. Hysterosoma with 2 faint, parallel lines laterally. Epiprostrum and anterior portion of propodosoma tuberculate, rest of dorsum with coarse pubescence in more or less vague polygons. *Ventral side* (fig. 4b): Coxae in 2 groups separated by a shallow furrow. Coxae indistinct, not all coxal setae on coxae but assigning them by area the coxal seta formula is 3-1-4-3. Most lateral seta of coxa III nude, all others

pectinate. Circular genital camerastome bracketed by 5 pairs of lightly pectinate setae. Each genital cover with 6 plumed setae, 4th more lateral than others. Prominent pit between coxae III & IV on each side. Margins of body and margins of coxae tuberculate, venter otherwise with polygonal, pubescent fields. Excretory pore submarginal, ventral, surrounded by 3 pairs of setae, posterior pair nude. Rostrum closely pubescent, broadly cone-shaped, medially divided to about middle; 2 pairs of small, nude apical setae, 1 pair plumose marginal setae, and 1 pair internal plumose setae near base of medial division. All legs shorter than body; trochanter setal formula 1-1-1-1, all nude. All femora completely divided at about apical 1/4. Many dorsal setae of legs nude. Almost all ventral leg setae pectinate. Tarsal claws ciliated basally, empodium strap-like, ciliated, shorter than claws. All leg segments coarsely pubescent dorsally, more finely pubescent ventrally. Tarsi I & II each with 3 rhagidiforms in single file parallel to long axis of leg. On tarsus I (fig. 4d) each is in a separate field, on tarsus II the apical 2 are in a common field; all tibiae, and genua I-III with a single, dorsal solenidion. Pedipalp (fig. 4c) with segments strongly contracted basally; segment 2 about as long as 2 & 3 combined, angulated on outer margin, concave on inner face, with 2 setae; segment 3 shorter than 4, with 3 setae; segment 4, 1.5 \times as long as 3, with 7 apical setae and a basal rhagidiform. All palpal setae pectinate.

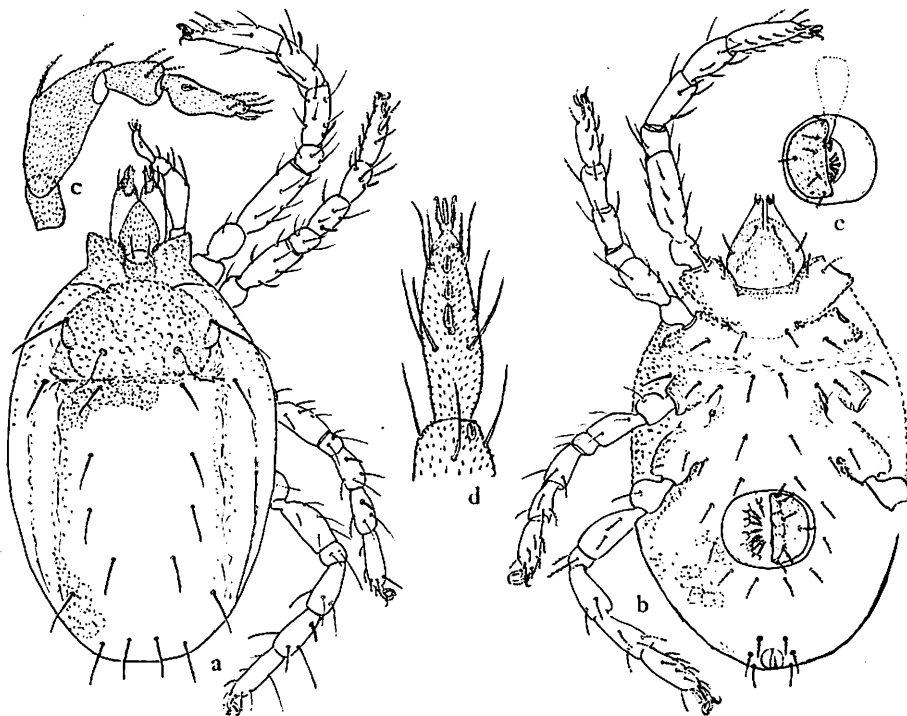


Fig. 4. *Stereotydeus nudisetatus* n. sp. a, dorsal view of ♀; b, ventral view of ♀ with right genital cover removed; c, lateral view of left pedipalp; d, dorsal view of tarsus I and tip of tibia I; e, ♂ genitalia.

Holotype ♀ (DOMINION), Mt. Lyall, 390 m, Campbell I., low plants below summit, berlese funnel, 19. II. 1963, Wise.

DISTRIBUTION: Campbell I.

CAMPBELL I.: 1♂, 1♀, Tucker Cove, 1-50 m, moss & lichen, berlese funnel, 25. XI. 1961, Gressitt; 1♂, 1♀, Shoal Point, tussock, 7. II. 1963, Wise; 1♂, Filhol Peak Summit, tussock & moss, 9. II. 1963, Wise; 1♂, 2♀ ♀, Mt. Lyall, 390 m, low plants below summit, 19. II. 1963, Wise; 1♀, Mt. Honey, 550 m, low plants below summit, 24. II. 1963, Wise.

Remarks: Described from 4♂♂ & 5♀♀. The combination of the long central lobe of the epivertex, distinctly triangular lateral lobes, nude dorsal setae, posterior dorsals as long as medial dorsals, angulate palpal segment 2 and long palpal segment 4 distinguish this species from others of the genus. It most closely resembles *S. areolatus* Womersley (1935) from S. Australia but *areolatus* is 100 μ shorter, has shorter dorsal setae, lateral lobes of epivertex not triangular, and palpal segment 2 is not angular. Also only 4 pairs of genital setae are shown for *areolatus* but this must be an error.

***Stereotydeus pulcher* Strandtmann, n. sp. Fig. 5**

♀: Length 500 μ, varying from 455-540. Both dorsal and ventral surfaces with prominent, polygonal reticulations, sparsely and finely pubescent. Legs shorter than body; femora undivided. Segment 4 of palp 1/2 as long as 3. *Dorsum* (fig. 5a). Epirostrum trilobed, mid lobe a half circle, broader than lateral lobes, pubescent with faint reticulations; lateral lobes deeply pocked. Propodosoma and hysterostoma separated by a prominent suture that begins at eyes and extends posteriorly in a flat arc. Two prominent, slightly diverging furrows on hysterostoma connect with the propodosomal suture laterad of the sensillae, forming a prominent, modified "H" (or an "M", if the reader so prefers). Propodosomal setae equal, the posterior inserted near anterior margin of eye, the anterior nearer the eye than are the sensillae. Sensillae longer than dorsal setae, placed well back of a line drawn between the posterior margin of eyes. Dorsal setae subequal, delicate, finely pectinate. Scapular setae well forward, on or before a line through the bases of the sensillae. Entire dorsum prominently reticulated (except epivertex, which is smooth, and the mid lobe of epirostrum which is faintly reticulated basally and pubescent apically. *Venter* (fig. 5b): Coxae I & II separated from III & IV by a shallow furrow, setal formula 3-1-4-3. A small pit each side between coxae III and IV. Genital camerastome circular, usual, bracketed by 5 pairs of setae. Excretory pore usual, subterminal, surrounded by 3 pairs of setae. All ventral setae delicate, finely pectinate. Most of ventral surface prominently reticulated, margins of body and margins of coxae pocked. Ventral surfaces of coxae with fine pubescence forming striae. ♂ and ♀ genitalia distinguished by the usual differences. Rostrum with widely divergent apices, divided to about the middle, each half with readily apparent bars which are indicated by dotted lines on fig. 5b; with the usual 4 pairs of setae, - 2 small nude apicals, 2 pairs of pectinate basals. Pedipalp (fig. 5c). Diagnostic shape and size; segment 2 broad, strongly angulated on outer margin, equal to 1, 3 & 4 in length and surpassing them in volume. Segment 3 about 2/5 as long and 1/2 as wide as 2, with 3 setae; segment 4 slightly more than 1/2 as long as 3, obtusely angled apically, with 7 pectinate setae, and a small solenidion. Chelicerae usual, pubescent. Legs shorter than body, femora undivided, all segments noticeably constricted basally, setae delicate and finely pectinate. Tarsi I & II each with 3 rhagidiform organs, all

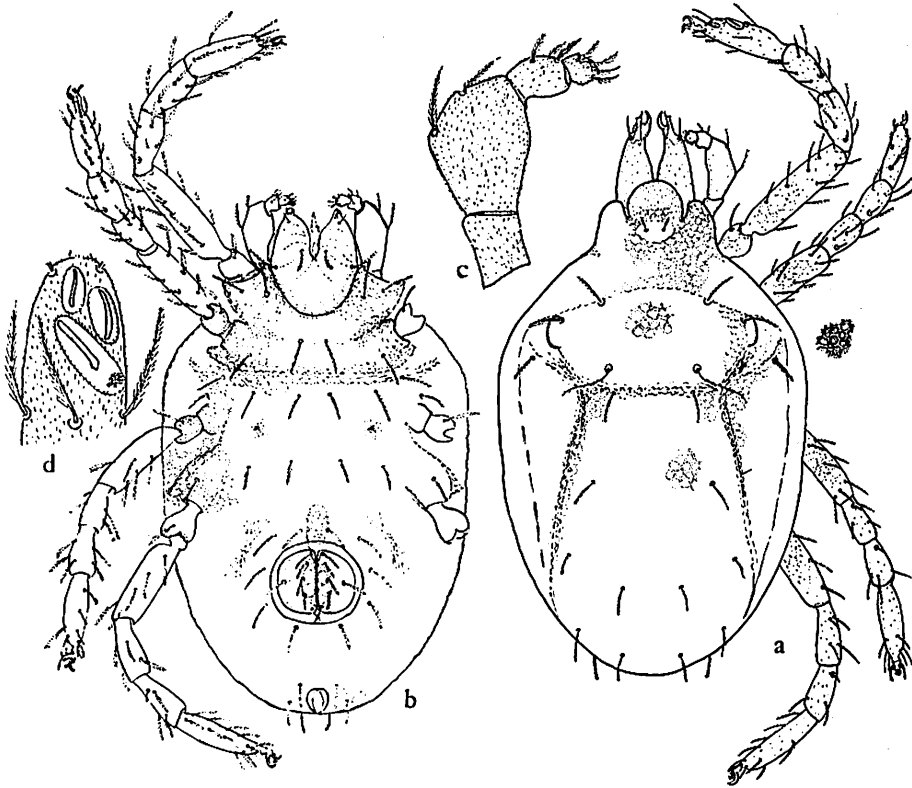


Fig. 5. *Stereotydeus pulcher* n. sp. a, dorsal view of ♂; b, ventral view of ♂; c, lateral view of left pedipalp; d, tip of tarsus I, dorsal view.

in separate fields, the apical 2 parallel to the long axis of leg, the basal longer and obliquely across the tarsus, subtended by a stellate seta on leg I (fig. 5d) and a nude seta on leg II. Tibiae I-IV, and genua I-III with a dorsal solenidion basally. Legs pubescent, faintly reticulate.

Nymph: Similar to adult but smaller, 350-390 μ and the internal genitalia not developed.

Holotype ♂ (DOMINION), below summit, Mt. Honey, 550 m, Campbell I., moss and lichens on rock, berlese fennel, 24. II. 1963, Wise.

DISTRIBUTION: Campbell I.

CAMPBELL I.: 3 ♂♂, 1 ♀, St. Col Ridge, 180-280 m, moss on rocks, berlese funnel, 24, 26, 30. XI. 1961, Gressitt; 1 ♂, 1 ♀, Mt. Azimuth, 350 m, moss & lichen, 30. II. 1961, Gressitt; 2 nymphs, Beeman Hill, 100-180 m, yellow moss, 11-16. XII. 1961, Gressitt; 1, Beeman Camp, 2-50 m, moss, 12-17. XII. 1961, Gressitt; 1 ♀, 1 nymph, Campbell I., misc. berlese, 1961, Gressitt; 2 ♂♂, 2 ♀♀, Beeman Hill, 190 m, moss & lichen, 11. II. 1963, Wise; 1 ♂, below summit, Mt. Lyall, 390 m, moss & lichen on rock, 14. II. 1963, Wise; 1 ♂, Moubray Hill, low plants nr. summit, 16. II. 1963, Wise; 1 ♂, 1 ♀, St. Col Peak, 250 m, low plants on rocks, 23. II. 1963, Wise; 2 ♂♂, below summit, Mt. Honey, 550 m, moss & lichens on

rock, 24. II. 1963, Wise; 1 ♀, Tucker Cove, moss on *Dracophyllum scoparium*, 3. III. 1963, Wise.

Remarks: Described from 11 ♂♂, 7 ♀♀, and 4 nymphs. The combination of the large, angulated 2nd palpal segment, dorsal furrow pattern, setal pattern, prominent reticulations and undivided femora readily distinguish this species although there is a remote possibility that it is the same as *Stereotydeus occidentale* Womersley (1935: 80). Womersley's illustration shows a similar epirostrum, setal pattern, and undivided femora. However *occidentale* is smaller, 420 μ , and the integument is said to be tuberculate. Unfortunately Womersley's description contains several obvious errors (3rd palpal segment with 2 hairs, pseudocapitulum with 2 setae) so that the possibility of other errors cannot be ignored. If Womersley's mite actually has no scapular setae, and if it is actually tuberculate rather than pocked, then the chance of synonymy is nil, but if these should prove to be errors in the descriptions, then synonymy is possible.

***Penthaleus major* (Duges) Figs. 6 & 7.**

Tetranychus major Duges, 1834 (Ann. Sci. Nat. ser, 2: 57). For further synonymy see Thor & Willmann (1941: 80), & André (1953: 279).

Average length of 5 ♀♀, 900 μ , varying from 890–1050. A plump mite with dorsal excretory pore and undivided body. All setae nude except ventral and apical tarsal setae which are pectinate or feathered. Dorsal podosomal setae stiff, moderately long, heavier than other setae. Sensillae slender, relatively short. Tarsus I (fig. 6d) with 3, tarsus II with 2 rhagidiform organs, the rhagidiforms of each tarsus in a common field. Tarsus I with a very short pretarsus (fig. 6e) tarsi II–IV (fig. 6c) without pretarsi. All claws ciliate basally, empodium narrow, straight, ciliated, about as long as claws. Rostrum (fig. 7a) of

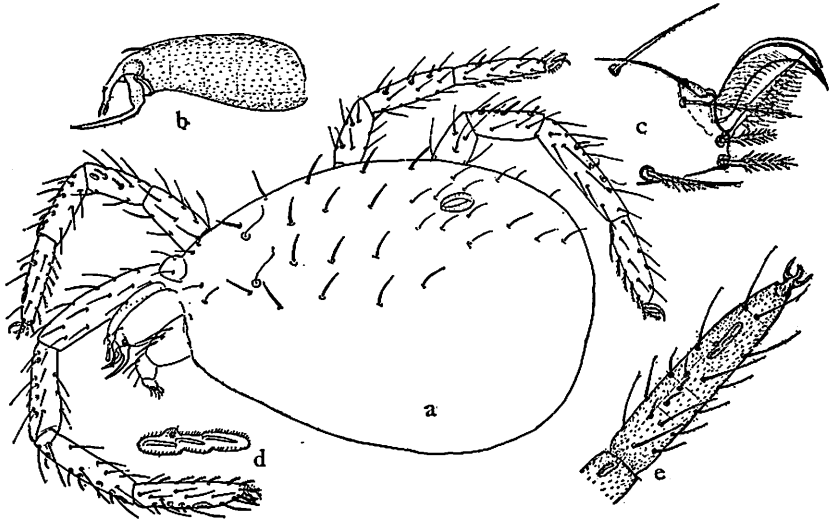


Fig. 6. *Penthaleus major* Duges. a, dorsolateral view of ♀; b, lateral view of chelicera; c, tip of tarsus IV showing claws, empodium, and terminal setae; d, rhagidiform organs and stellate seta of tarsus I; e, dorsal view of tarsus I and tip of tibia I.

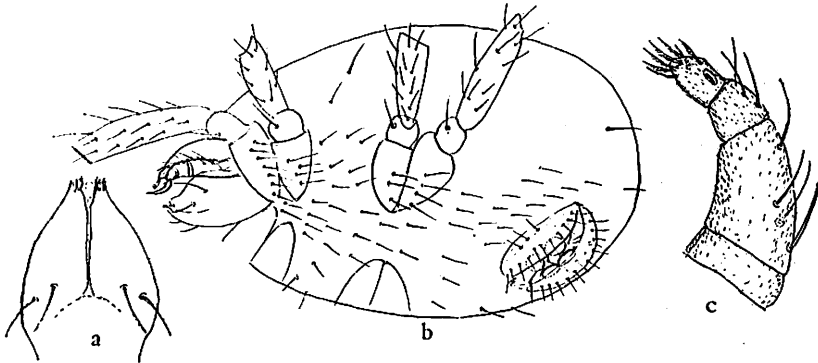


Fig. 7. *Penthaleus major* Duges. a, ventral view of rostrum; b, ventrolateral view of ♀; c, lateral view of right pedipalp.

a rather interesting shape, deeply divided, with 4 basal setae and 4 small apical setae. Ventral setae numerous. Coxal setae somewhat variable, the numbers shown, 7-4-3-4, was average for the 5 available specimens. Genitalia with 2 pairs of suckers and 12-16 setae on each genital cover. Pedipalps (fig. 7c) short, plump; apical segment as long as sub-apical, with 7 setae most of which are pectinate basally, and a dorsolateral rhagidiform near base. Segment 2 largest, with 4 nude setae; segment 3 (subapical) with 3 nude setae.

DISTRIBUTION: Cosmopolitan.

CAMPBELL I.: 5 ♀♀, Tucker Cove, 2 m, grass by stream, 22. XI. 1961, Gressitt; 1 ♀, nr. Tucker Cove, 5-100 m, 21, 22. XI. 1961.

Remarks: This serious pest of grasses, cereals, and other forage and garden crops has been reported from almost all crop-growing regions of the world. Its presence in the sub-antarctic is interesting in itself, but it seems especially so to note that it was on grass. Apparently it is a highly adaptable species provided that some of the higher plants, such as grasses, are present.

Rhagidia mildredae Strandtmann, n. sp. Figs. 8 & 9.

♀. Slightly more than 2× as long as wide. Legs I & IV longer than body. Eyes not apparent in mounted material. Average length, 1000 μ, varying from 790-1220. **Dorsal side** (fig. 8a): Epistome small, rounded, with 2 filamentose, ciliated setae longer than epistome and arising from approximately the middle (fig. 9f). Propodosoma with 2 pairs of setae, the inner pair from 1/2-2/3 as long as the outer, and near to and almost horizontal with the sensillae. Sensillae thread-like, finely ciliated, approximately as long as the outer setae. Dorsal hysterosoma with 8 or 9 pairs of setae, depending on whether the last pair is dorsal or ventral; the scapulars longest of the dorsal setae. **Ventral side** (fig. 8b): Coxae well defined, all somewhat triangular, in 2 groups, the anterior group touching mid-line, the posterior group separated by about the length of a genital seta. Coxal seta formula, 3-1-6-3, without variation in number or relative position and length. Genitalia in middle of opisthosoma, bracketed by 5 pairs of plumose setae. Genital covers each bearing 6 plumose setae shorter than the outer genital setae. ♂ with an internal sac and numerous internal, closely crowded, plumose setae. ♀ with 9-10 pairs more widely dis-

persed, internal plumose setae each of which is borne on a papilla. All ventral setae, especially the coxal, claviform. Excretory pore large and terminal. Rostrum (fig. 8c) with 8 subequal setae, the apical 4 nude. Anterior margin with 3-4 hyaline teeth on each side. Chelicera (fig. 9f) strongly swollen at base of fixed arm, outer seta of fixed arm 3-4 \times as long as the small inner seta. Tip of fixed arm with 3-4 small teeth apically (fig. 8d), no subapical teeth. Movable arm with a single row of very fine serrulations on inner margin; no teeth. Chelate portion slightly less than 1/2 total length of chelicera. Pedipalp with 4 segments, the 2 & 4 about equal, with 0-2-3-10 setae. Terminal segment (fig. 9e) cylindrical, rounded tip, almost 1/2 as long as wide, with 10 setae nearly as long as segment, and a small, submedian, dorsolateral solenidion. Legs long, relatively heavy for diameter of body. Femora I & II partially divided on ventral side, femora III & IV completely divided at approximately the middle. Legs I & IV longer than body, legs II & III shorter than body. Tarsal claws without accessory clawlets, empodium strap-like, ciliated, longer than claws. Tarsus I with 4 rhagidiform organs in separate, oblique fields (fig. 9 a, b). Not infrequently the apical or the basal rhagidiform will be almost at right

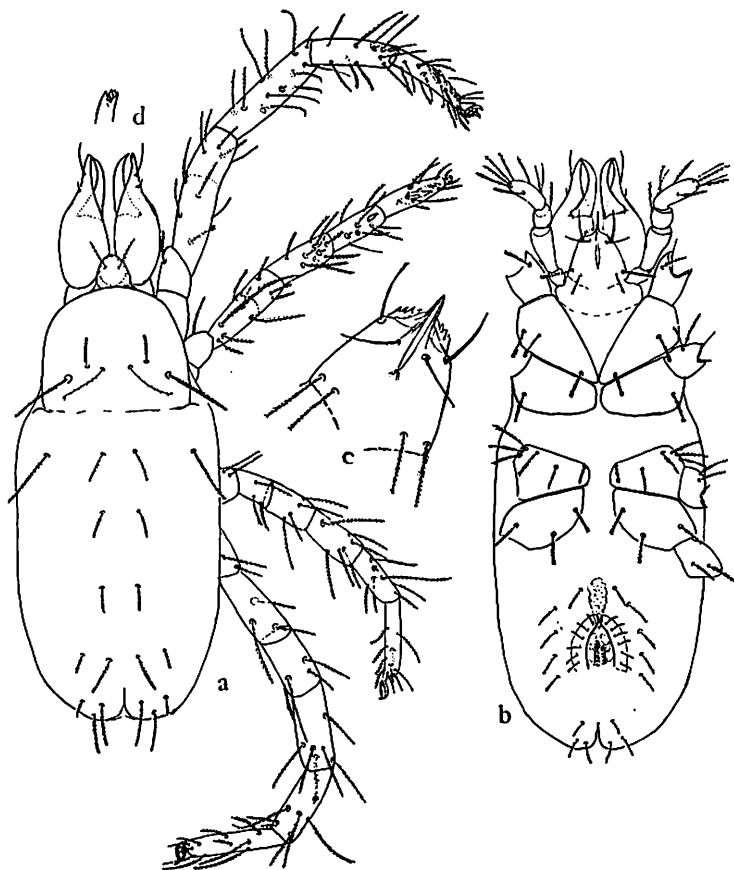


Fig. 8. *Rhagidia mildredae* n. sp. a, dorsal view of ♂; b, ventral view of ♂; c, ventral view of rostrum; d, enlarged tip of fixed arm of chela.

angles to the others. A stellate setae may be at base of the basal rhagidiform or at base of the subbasal rhagidiform. If it is at the base of the basal rhagidiform, then the solenidion of tibia I is near the apex of the tibia; if the stellate seta is subbasal, then the solenidion of tibia I is near the base of the tibia. Tibia I, in addition to the aforementioned solenidion has a dorsoapical rhagidiform. Genu I has a lateral, submedial solenidion. Tarsus II (fig. 9 c & d) has either 3 or 4 rhagidiforms in a common field parallel to the long axis of the tarsus and subtended by a small, erect seta. Tibia II has a dorsoapical sensory pit and a small solenidion dorsal and approximately medial, genus II has a small, ventral, subapical solenidion. Tibia III & IV and genu III each have a dorsal submedian solenidion. All leg setae finely ciliated. Base of claws finely ciliated.

Nymphs: Similar to adults except fewer genital setae, no internal genital setae and smaller body size.

Holotype ♀ (DOMINION), Beeman Hill, in *Dracophyllum longifolium* leaf mold, 2. III. 1963, Wise. Described from 8♂♂, 15♀♀, 4 nymphs.

DISTRIBUTION: Campbell I.

CAMPBELL I.: 1♂, 1♀, Mt. Lyall, 200–400 m, *Colobanthus*, berlese funnel, 3–5, 12. XII. 1961, Gressitt; 2♀♀, 1 nymph, Beeman Camp, 2–50 m, moss, 12–17. XII. 1961, Gressitt; 1♂, 2♀♀, Beeman Hill, *Dracophyllum longifolium* leaf mold, 2. III. 1963, Wise; 1♀, 1 nymph, Beeman Beach, on top rock, 19. XII. 1961, Rennell; 1♀, St. Col, Lyall, Beeman, mixed moss, 3–5. XII. 1961, Gressitt; 2♂♂, 2♀♀, St. Col Ridge, 180–280 m, moss, 4, 7, 9, 13. XII. 1961, Gressitt; 1♂, 2♀♀, 1 nymph, St. Col Ridge, 180–280 m, 24, 26, 30. XI.

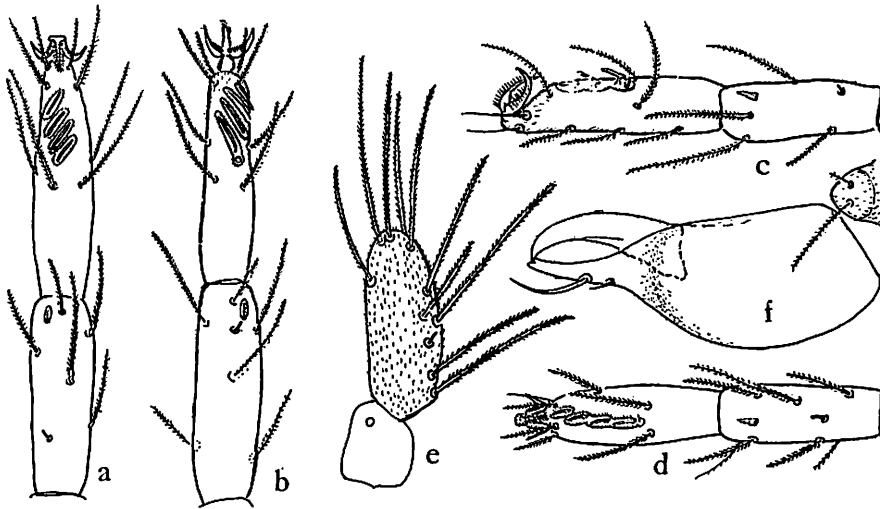


Fig. 9. *Rhagidia mildredae* n. sp. a, dorsal view of tarsus and tibia I showing the stellate seta between the 2 basal rhagidiforms and the solenidion near base of tibia; b, dorsal view of tarsus and tibia I showing the variation with stellate seta at base of basal rhagidiform and the solenidion near apex of tibia; c, dorsolateral view of tarsus and tibia II showing a form with 3 rhagidial organs; d, dorsal view of tarsus and tibia II of a form with 4 rhagidial organs; e, lateral view of terminal two segments of right pedipalp; f, dorsolateral view of chelicera and dorsal view of epivertex.

1961, moss on rocks, Gressitt; 1 ♂, Smooth water Bay, leaf mold under tussock, berlese funnel, 16. II. 1963, Gressitt; 1 nymph, Filhol Peak summit, tussock & moss, 9. II. 1963, Wise; 1 ♀, Filhol Peak, 213 m, lichens & moss, berlese funnel, 9. II. 1963, Wise; 2 ♀ ♀, Mt. Azimuth, 350 m, moss & lichen, 30. XI. 1961, Gressitt; 1 ♂, 1 ♀, Courrejolles Peninsula, 200 m, mollymawk nests, 14. XII. 1961, Gressitt; 1 ♀, Lookout Bay Beach, high tide level, under rocks, 16–19. XII. 1961, Gressitt; 1 ♂, misc. berlese funnellings, 1961, Gressitt.

Remarks: Similar to *Rhagidia macquariensis* Womersley & Strandtmann (1963) in size and general appearance but *macquariensis* has a prominent, subapical tooth on the fixed arm of the chela, lacks solenidia on the leg segments, the terminal segment of the palp is shorter, and coxae I are less triangular. There is also a superficial resemblance to *R. gerlachei* Trst. but *gerlachei* has a trochanter setal formula of 1–2–2–2 and is a larger mite, from 1250–1550 μ . In Thor & Willmann's key (1941) *mildredae* runs to *megalochela* Tra-gardh from Tierra del Fuego. It is no doubt close to that species but the movable arm of the chelo is quite differently shaped. Most abundant in moss and lichen, if not entirely restricted thereto. Not only is there variation in size but considerable variation also is exhibited in the number and placement of solenidia and rhagidial organs. Some of these are indicated in the figures and have been mentioned in the description. With only one exception, there was no consistency in the variations. The exception was on leg I; —if the stellate seta of tarsus I is between the 2 basal rhagidiforms then the solenidion of tibia I is basal; if the stellate seta is basal, then the solenidion of tibia I is apical. Sometimes tarsus II had 4 rhagidiforms and sometimes 3; also the solenidia of legs III and IV varied somewhat in position but I could establish no correlation with any of these variations to sex or to the position of the stellate seta of tarsus I. Body chaetotaxy was remarkably constant; the rostrum and epistome were constant; some variation occurred in the relative length of the chela and chelicera but again it did not correlate with other variations.

Named for Mildred, to fulfill a promise of long standing.

Rhagidia sp.

A unique ♀, Tucker Cove, 1–50 m, from moss and lichen, 21–25. XI. 1961, Gressitt. Length of body 512 μ . Legs usual in relative size and length; coxal seta formula 3–1–4–3; trochanter, 1–1–2–1. Genitalia with 5 setae on each cover, 9 internal setae on papillae, 5 pairs paragenital setae. First 3 pairs of dorsal setae 1/2 as long as scapulars and 1/2 as long as posterior 2 pairs of dorsals. Anterior propodosomal seta about 1/2 as long as the posterior propodosomal setae; sensillae filiform, longer than posterior propodosomal seta. Chelate portion of chelicera 1/3 total length of chelicera. Apparently only 1 chelicera seta. The condition of the specimen does not permit observation of rhagidiforms and solenidia.

The presence of only a single cheliceral seta when the normal number is 2 indicates that one may be missing accidentally. It is impossible to evaluate any character on a unique specimen and for that reason no name is given to this specimen.

Lorryia sp.

1 ♀, Courrejolles Peninsula, 200 m, *Colobanthus*, Gressitt. Length 363 μ ; leg I 132 μ . Dorsum, large areas of delicate reticulations separated by smaller areas of striato-punctate lines.

Venter entirely striato-punctate. Resembles *Lorryia sigthori* Baker (1944) described from nymphs collected from moss and lichens on the western face of Popocatepetl in Mexico at an elevation of 2800 m. It is difficult to say from only 1 specimen, whether this is the adult of Baker's species or if it represents a new species.

***Nanorchestes antarcticus* Strandtmann**

Nanorchestes antarcticus Strandtmann (in Womersley & Strandtmann, 1963).

?*Nanorchestes amphibius*, Womersley, 1937 (? not *N. amphibius* Topsent & Trouessart).

1♂ collected at Courrejolles Peninsula, 200 m, on *Colobanthus*, by Gressitt. 2♂♂, Tucker Cove, 1–50 m, Campbell I., moss, 21–25. XI. 1961, Gressitt.

Remarks: The assiduous collecting of Drs. J. L. Gressitt and K. A. J. Wise have demonstrated this very small mite to be common in the Antarctic proper and one of the most southern forms of terrestrial arthropods. Its presence in the subantarctic is to be expected and it is therefore quite likely that future collecting, with this mite as an objective, will reveal them in greater numbers. Womersley's paper (1937) on the Australian Antarctic Expedition of 1911–14 records a single specimen from the Macquarie Island of what he called *Nanorchestes amphibius* T. & T. It is probably *N. antarcticus*. The distinction between *N. antarcticus* and *N. amphibius* has been given in Womersley and Strandtmann (1963). Womersley's paper of 1937 does not indicate the diagnostic characters (cheliceral seta, solenidia, epistrotrum) for separation and in view of the present recovery of *N. antarcticus* from Campbell I., I am assuming the specimen Womersley had is also this species.

***Microtrombidium karriensis* Womersley** Figs. 10 & 11.

Microtrombidium karriensis Wom., 1934: 191.

Microtrombidium (M.) tasmanicum Wom., 1937: 88.

Redescribed from 37 specimens which ranged in size from 1120–1800 μ , averaging 1450 μ . Ovoid elliptic in shape, widest at shoulders. Propodosoma narrow, roundly angulate, the paired eyes marginal at lateral angles, about opposite the middle of crista. Legs shorter than body, tarsi I enlarged and ovoid. Body chaetotaxy dense, uniform, ciliated. *Ventral side* (fig. 10b): Rostrum (fig. 11c) bluntly cone-shaped, with 8–10 nude bristles subapically and some 15 pairs medially directed, ciliated setae ventrally and laterally. Genital opening between coxae IV, covered by 2 reniform covers, each bearing about 35 nude or nearly nude setae medially and about that many ciliated setae laterally (fig. 11d). Excretory opening (fig. 11d) circular, covered by 2 lips each bearing 12–15 ciliated setae. Coxae hirsute, each with 20–40 slender, ciliated setae which are not quite as long, more slender, and with smaller insertions than ventral body setae. *Dorsal side:* Propodosoma (fig. 10a) comes to a truncate apex where there are 10–12 anteriorly directed ciliated setae roughly in 2 rows. Eyes slightly elevated, projecting beyond margin of body and on a plate. Crista metopica has a circular sensory area (fig. 11 a–b) and 1 pair of long, filamentous, apparently nude sensillae originating off the inner posterior rim of the sensory area. Pedipalp tibia with a slender, spine-like seta near base of palp tarsus (fig. 11f). Accessory tibial claw about 1/2 as long as tibial claw, both smooth and sharply pointed. Inner side with a comb of 8–10 spine-like setae, followed by a loose cluster of 5–6 nude setae (fig. 11g); on outer side, tibia with 10–12 sparsely ciliated setae plus 2 nude setae apically, in addi-

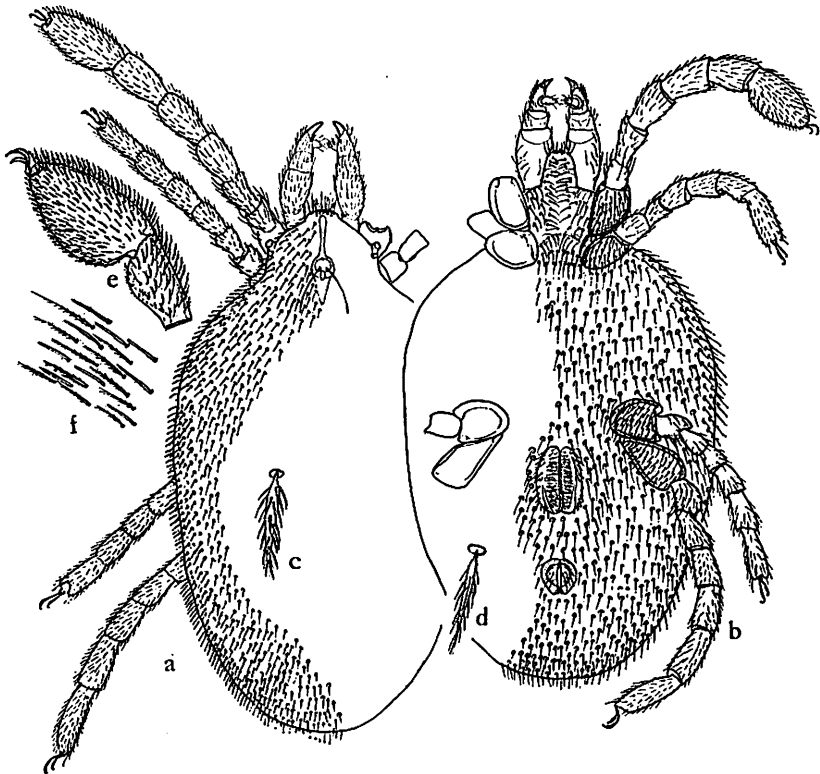


Fig. 10. *Microtrombidium karriensis* Womersley, adult. a, dorsal view; b, ventral view; c, dorsal seta enlarged; d, ventral seta enlarged; e, lateral view of tarsus and tibia I; f, enlarged view of portion of tarsus I showing intermingling of setae and solenidia.

tion to the spine-like seta (fig. 11f). Palp tarsus elongated, non-capitate, rather closely covered with ciliated setae among which is at least 1 nude solenidion. Rest of palpal segments closely covered dorsally with stiff, weakly ciliated setae, —ventrally setae are longer, not stiff, and fewer in number. Chelicera (fig. 11e) bears a strong chela, finely toothed on inner margin, —typical of the genus. Body chaetotaxy remarkably uniform. Dorsal setae a bit thicker, somewhat closer together and with smaller setal bases than ventral setae. All body setae ciliated, as shown in the enlargements (fig. 1 c & d). Femora of all legs divided in middle. Tarsi concave apically to receive the retracted claws. Claws 2, unequal, slightly widened in arch. No empodium. On basal segments the dorsal setae are finer, stiffer, more numerous and less ciliated than the ventral setae. Ventral setae more abundant and more densely ciliated on tarsi. All tarsi, and to a lesser extent the tibia with numerous solenidia interspersed among the ciliated setae. This is especially true of tarsus and tibia I (fig. 11e). Fig. 11f is an enlarged view of a section of tarsus I to show how the setae and solenidia are interspersed.

DISTRIBUTION: Campbell I., Tasmania, South Australia, West Australia.

CAMPBELL I.: 11, Mt. Lyall, 200–400 m, moss, 3, 5, 12. XII. 1961, Gressitt; 8, Cour-

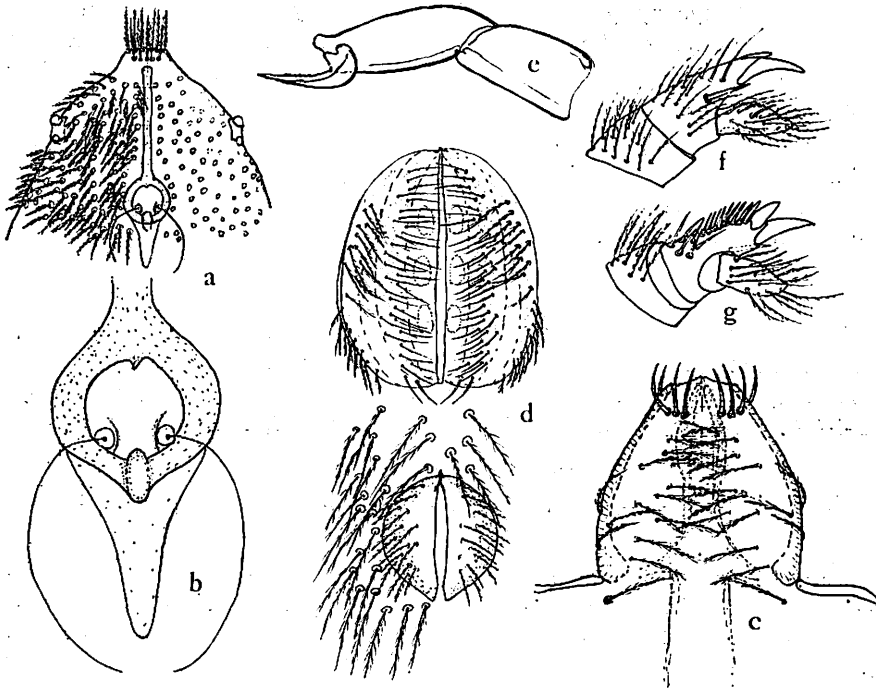


Fig. 11. *Microtrombidium karriensis* Womersley, adult. a, propodosoma with setae on right side removed; b, enlarged view of sensory area showing sensillae and post-metopical plate; c, ventral view of rostrum; d, genital and excretory pores and associated setae; e, lateral view of chelicera; f, lateral view of terminal 3 segments of right pedipalp; g, lateral view of terminal 3 segments of left pedipalp.

rejolles Peninsula, 200 m, Mollymawk rookery, moss, 14. XII. 1961, Gressitt; 1, Courrejolles Peninsula, 200 m, mollymawk rookery, 12. II. 1963, Rennell; 1, Monument Harbour, N. Bearch, rocky shore, 10. XII. 1961, Gressitt; 1, same data but beach boulders, moss, 17. XII. 1961, Gressitt; 1, same data but tussock, 9. II. 1963, Wise; 1, Perseverance Harbour, tussock roots, 11. XI. 1961, Wise; 3, Perseverance Harbour, Lookout Bay, leaf mold under tussock, 3. II. 1963, Wise; 1, same data but under *Stilbocarpa*; 4, Shoal Point, tussock, 7. II. 1963, Wise; 2, same data but Rennell; 1, below summit of Mt. Honey, 550 m, moss & lichen on rocks, 24. II. 1963, Wise; 1, Tucker Cove, tussock leaf mold, 3. III. 1963, Wise; 1, Rocky Bay, 10 m, penguin colony, 19. II. 1963, Wise.

Remarks: Womersley (1945: 308) stated, "Members of this genus are very difficult to separate..." — a masterpiece of understatement! The 37 specimens before us exhibit considerable variation in size and considerable apparent variation in details of the crista, sensillae, and pedipalps. But careful study always dissolved the apparent variations and this, plus the absolute uniformity of the chaetotaxy, makes us feel confident that we are dealing with 1 species. Various ones of the specimens could be made to fit several of the species described by Womersley from Australia and New Guinea but since they are descriptions of unique, or of 2 or 3 specimens, it is impossible to evaluate the range of variation. I am of the opinion that they are probably synonyms of *karriensis* but hesitate

to relegate them to synonymy without seeing types or type locality material. André's descriptions of the species of Angola are sufficiently detailed to establish that our species does not apply to any of them. Clearly this species from Campbell I. has its affinities with Australian forms.

According to Womersley (1945) *Microtrombidium karriensis* and its synonym *M. (M.) tasmanicum* varies considerably in size and is widely distributed in South and Western Australia and Tasmania. The descriptions and illustrations contain nothing that would exclude the Campbell I. form.

Ereynetes sp.

Length approximately 365 μ . Propodosomal sensory area with weak, subcuticular, sclerotic bars. No propodosomal shield; eyes absent or not apparent on mounted specimens. Pedipalp apparently 3-segmented. Palp tarsus with an inflated seta basally (fig. 12b). Coxal setae 3-1-3-2. Trochantal setae 1-1-1-0; II & III ciliated, II nude.

DISTRIBUTION: Campbell I., ? Macquarie I.

CAMPBELL I.: 1, Lookout Bay, Beach, 16-19. XII. 1961, *Dracophyllum* leaf mold, Gressitt.

Remarks: This mite may be *Ereynetes macquariensis* Fain. The unique specimen available to me had the posterior ventral portion of the body badly torn and the legs were not in position for good observation. The other characters, as illustrated, seemed clear enough but I hesitate to say that the differences shown and enumerated below are true and constant; hence I prefer to leave the specimen unnamed until such time as more

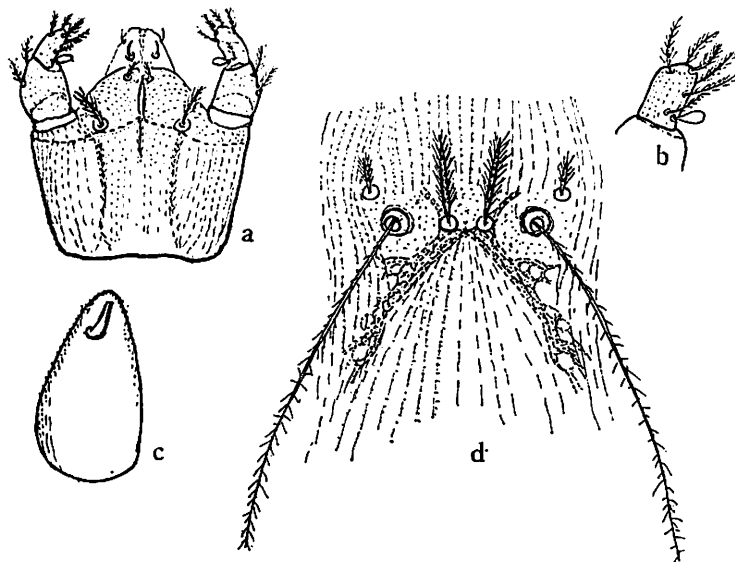


Fig. 12. *Ereynetes* sp. a, ventral view of gnathosoma; b, ventrolateral view of left palp tarsus; c, ventral view of chelicera (broken chela); d, propodosomal sensory area.

material is available. The unique specimen differs by having the sensillae much closer together, no podosomal shield, somewhat shorter dorsal setae, pedipalps apparently only 3-segmented, rostral setae differently arranged. The specimen is apparently a nymph and some of the above differences could be accounted for on that basis, but if the pedipalp is really only 3-segmented, then this is probably a different species.

REFERENCES CITED

- André, Marc. 1953. Nouvelles observations sur *Penthaleus major* (Duges). Bull. du Museum, ser. 2, 25: 279-82.
- . 1958. Acariens Thrombidions (adultes) de l'Angola. Museu do Dundo, No. 35, 125 pp.
- Baker, Edward W. 1944. Seis especies de *Lorryia* (Acarina, Tydeidae). Ann. Inst. Biol. 40: 215-22.
- . 1946. New species of North and Central American mites of the family Penthaleidae. Jour. Wash. Acad. Sci. 36: 421-25.
- Cooreman, Jean. 1959. Notes sur quelques acariens de la faune cavernicole (ser. 2). Inst. Roy. Sci. Nat. Belg. 35: 1-40.
- Fain, A. 1962. Un organe sensoriel propre aux Ereyneidae: "l'organe ereynetall." Remarques sur l'évolution de la chaetotaxie dans ce groupe d'Acariens (Trombidiformes). Acarologia 4: 297-306.
- . 1962. Insects of Macquarie Island. Acarina: Trombidiformes: Ereyneidae. Pacific Ins. 4: 921-28.
- Schuster, von Reinhart. 1958. Neue terrestrische Milben aus dem mediterranen Litoral. Vie et Milieu 9: 88-109.
- Thor, Sig & Carl Willmann. 1941. 71a. Acarina prostigmata 6-11 Eupodidae, Penthaleidae, Penthaleidae, Rhagidiidae, Pachygnathidae, Cunaxidae. Das Tierreich. 71. Lieferung, pp. xxviii+186.
- Tragardh, Ivar. 1907. The Acari of the Swedish South Polar Expedition. Wissenschaftliche Ergebniss der Schwedischen Sudpolar-Expedition 1901-1903. 5 (11): 1-34, 3 pls.
- Womersley, H. 1934. A revision of the Trombidiid and Erythraeid mites of Australia with descriptions of new genera and species. Rec. S. Austral. Mus. 5: 179-254 (p. 191 for desc. of *Microtrombidium karriensis*).
- . 1935. On some Australian and South African species of Acarina of the genus *Stereotydeus* (Penthalodidae). Proc. Linn. Soc. N. S. Wales 60: 79-82.
- . 1937. Acarina. Australasian Antarctic Expedition 1911-14 under the leadership of Sir Douglas Mawson. Sci. Rep. ser. C, Zoology and Botany. 10 (6): 5-24, 11 pls.
- . 1937. A revision of the Australian Trombidiidae. Rec. S. Austral. Mus. 6: 75-100 (p. 86 for key to species of the genus *Microtrombidium*).
- . 1941. The red-legged earth-mites, Penthaleidae, of Australia. Trans. R. Soc. S. Austral. 65: 292-94.
- . 1945. A revision of the Microtrombidiinae of Australia and New Guinea. Rec. S. A. Mus. 8: 292-355.
- & R. W. Strandtmann. 1963. On some free living prostigmatic mites of Antarctica. Pacific Ins. 5 (2): 451-72.