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INSECTS OF MACQUARIE ISLAND. PSOCOPTERA: PHILOTARSIDAE

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This paper reports on the Psocoptera collected on Macquarie Island by Mr. K. C. Watson, as a member of the Australian National Antarctic Research Expedition, Dr. J. Linsley Gressitt and Mr. W. Hughes. All of the specimens seen are representatives of the new genus and species described below.

Genus **Austropsocus** Smithers n. gen.

Belonging to the Philotarsidae but both sexes micropterous. Wing rudiments with long setae; venation not discernible. Claws without preapical tooth; pulvillus very broad. Female gonapophyses of three pairs of well-developed valves; subgenital plate with short, median posterior lobe. Hypandrium without ornamentation. Phallosome with well-developed sclerification of penial bulb.

Type species: *Austropsocus insularis* n. sp.

Thornton (1959: 337) has summarized the characters of the three recognized genera of the family, namely, *Philotarsus* Kolbe, *Aaroniella* Mockford and *Haplophallus* Thornton.

Austropsocus insularis does not fall readily within any of these genera; it differs from all in being equally micropterous in both sexes. In the form of the epiproct it approaches *Haplophallus* but not the other genera. The paraproct is similar to that in *Haplophallus* and *Aaroniella* but the trichobothrial field is reduced.

The phallosome resembles that of *Aaroniella* in having well-developed penial bulb sclerification. The subgenital plate is similar to that in some species of *Philotarsus* but the median posterior lobe is shorter, being less than about twice as long as wide; it is dissimilar in form from that of *Aaroniella* and much shorter than that of *Haplophallus*. The external valve of the gonapophyses is rounded, i. e. similar to *Haplophallus* but not to *Aaroniella*; the dorsal valve approaches that of *Philotarsus* with an apical pointed process bearing recurrent spinules and a broad conical dorsal lobe. *Austropsocus* does not have a preapical tooth on the claws; these are present in *Philotarsus* and *Aaroniella*.

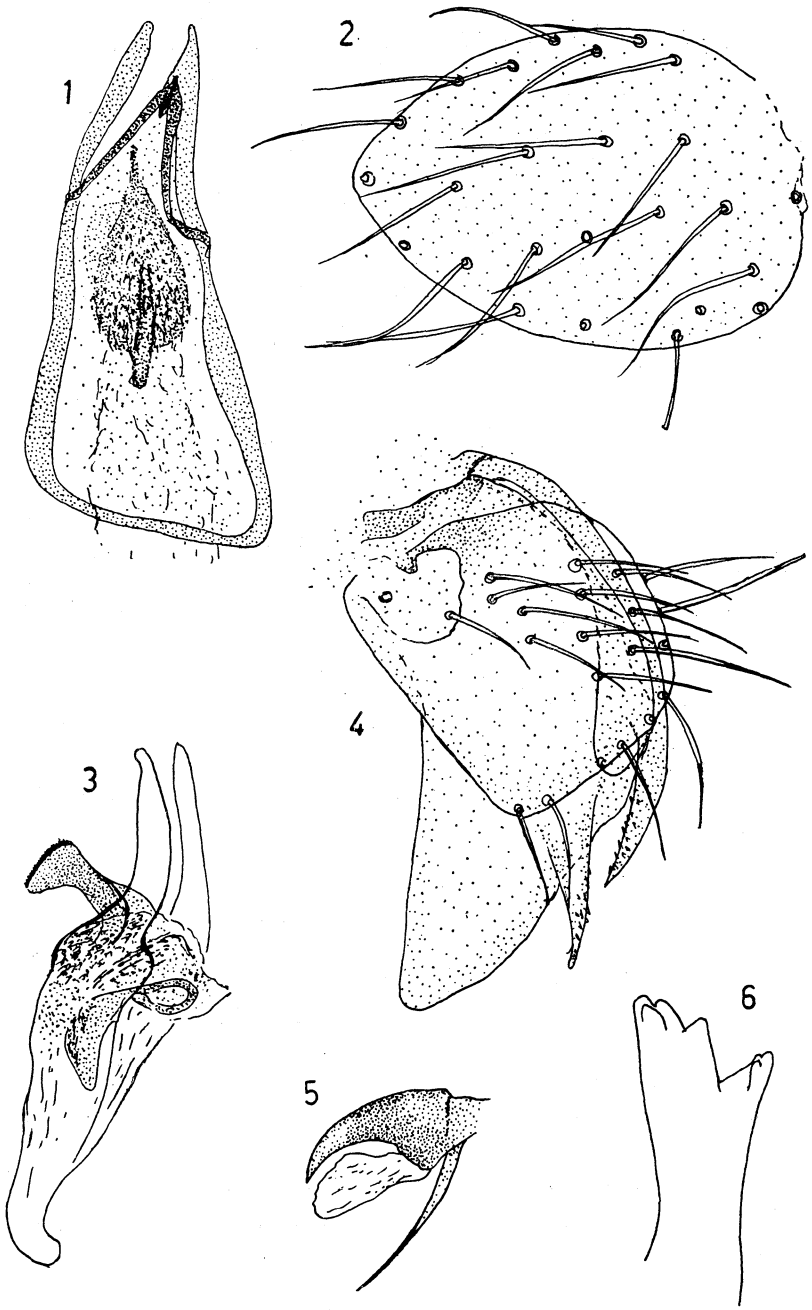
The most obvious distinguishing feature of the genus is the reduction of wings in both sexes; like similarly affected genera in the related family Elipsocidae, the reduction in wings is accompanied by reduction of the trichobothrial field and loss of ocelli. *Austropsocus insularis* has a close parallel on Marion I. in an Elipsocid, *Antarctopsocus jeanneli* Badonnel, with similarly reduced wings.

Austropsocus insularis Smithers n. sp.

Female: Coloration in alcohol. Head, body and wings pale yellowish brown; in many specimens there is an indication of a slightly darker area on either side of epicranial suture and mesad of compound eyes; these darker areas may be broken up into irregular, confluent spots. Many specimens have a dark brown or reddish mark connecting antenna bases and compound eyes. Antennae with scape and pedicel very pale brown, flagellar segments little darker, from pale brown to brown. Eyes black, in some specimens irridescent greenish yellow (color in life?). Legs pale yellowish brown except for tarsal segments 2 and 3 which are pale brown, of a shade similar to that of flagellum of antennae. Tip of segment 4 of maxillary palp pale brown, palp otherwise very pale. Claws almost black, with pale apex. Thoracic pleura and dorsa of abdomen have a pinkish to reddish tinge in many specimens; this color is apparently induced by the preservative and this coloration is found mainly in those specimens in which the mark between antenna base and compound eye is reddish.

Morphology. Micropterous. Length of body in alcohol 2.3 mm. Median epicranial suture not very distinct owing to its not being darker than adjacent areas of vertex. Vertex well rounded. Postclypeus not particularly bulbous; vertex, frons and postclypeus bearing long, stout dark brown setae, symmetrically arranged, in addition to smaller setae; setae of labrum short, fine and pale; a few setae, similar to those of the vertex occur on the genae. Length of antenna 1.6 mm. Eyes fairly large, not quite reaching level of vertex when viewed from the side. IO/D : 2.1; PO : 0.75. Ocelli absent. Apex of lacinia (fig. 6). Prothorax dorsally without setae. Mesothorax with antedorsum and lateral lobes poorly demarcated; notum setose, row of small, fine setae across front of segment and few large dark brown setae arranged symmetrically, interspersed with few smaller, scattered setae. Metathorax with antedorsum and lateral lobes not distinguishable. Transverse row of 6 small fine setae lies across middle of metanotum with, near the hind margin, a large seta on each side. A pair of smaller setae, one on each side of the midline, lies in the middle of the segment. Abdomen fairly rotund, each segment with a transverse row of few large setae about 1/3 of the way from hind margin of segment and row of fine, short setae nearer its anterior margin; on abdominal segment 1 the small setae are arranged in a more irregular manner than on remaining segments. Abdominal segment 1 a little more heavily sclerotized dorsally than other segments. Measurements of hind leg : F : 0.52 mm; T : 0.77 mm; t_1 : 0.2 mm; t_2 : 0.06 mm; t_3 : 0.07 mm; rt : 3.3 : 1.0 : 1.2. Pearman's organ absent; claws (fig. 5) without preapical tooth and with very broad pulvillus; hind tibia with 4 apical spurs and bearing very long, stout setae on external face in addition to normally present setae. Fore wing length 0.3 mm. Fore wings (fig. 2) reduced to small scale-like appendages; venation not discernible but there are long setae arranged in rows. Hind wings absent. Paraproct simple, rounded behind, with group of about 8 strong setae grouped in the position usually occupied by the trichobothria; duplex setae absent, but hind margin bearing several setae of various lengths, these continuing as a ventral marginal row to near base of paraproct. Subgenital plate lightly sclerotized with posterior median lobe more or less rectangular; the lobe bears a small subapical seta on each side of midline. Two narrow anteriorly diverging pale brown bands run approximately parallel with lateral margins of subgenital plate, bands broadening a little anteriorly. Gonapophyses (fig. 4). Ventral valve with preapical dorsal lobe.

Male: Coloration in alcohol. As in ♀.



Figs. 1–6. *Austropsocus insularis* n. gen. & n. sp.: 1, ♂ phallosome, dorsal view; 2, Fore wing, ♀; 3, ♂ phallosome, lateral view; 4, Gonapophyses, ♀; 5, Claw, ♀; 6, Apex of lacinia, ♀.

Morphology. Micropterous. Smaller and more slender than ♀, in general features similar. Length of body in alcohol 1.5–1.6 mm. Length of antenna 1.5 mm. Antenna little thicker than in ♀. Eyes fairly large, relatively little larger than in ♀, just reaching level of vertex when viewed from the side. IO/D : 1.7–1.8 ; PO : 0.6–0.7. Ocelli absent. Coxa with rugose area representing rudiment of Pearman's organ. Fore wing length 0.2 mm, similar to that of ♀. Hind wing absent. Epiproct short, simple transverse plate with gently curving hind margin ; setose. Paraproct roughly triangular, lightly sclerotized, with a field of about 12 trichobothria ; apically setose. Hypandrium simple with 2 small indentations on hind margin giving it a lobed appearance, margin laterad of the indentations being more strongly sclerotized than mesad of them ; a large seta arises on each lateral area in addition to smaller, generally distributed setae. Phallosome (fig. 1, dorsal and fig. 3, lateral).

MATERIAL EXAMINED. Macquarie I. : 16 ♀♀ (incl. holotype), 8 ♂♂ (incl. allotype), 15 nymphs, ex *Stilbocarpa polaris* leaves, Lambing Gully, 17. VIII. 1961, Watson ; 16 ♀♀, 4 ♂♂, 7 nymphs, same data, 20. VI. 1961, Watson ; 1 nymph, ex *Colobanthus muscoides*, Isthmus, 14. XII. 1960, Watson ; 12 nymphs, ex *Puccinellia macquariensis*, Isthmus, 19. IV. 1961, Watson ; 1 nymph, Isthmus, 19. II. 1962, Hughes ; 2 nymphs, ex tussock grass, Isthmus, 9. II. 1962, Hughes ; 2 ♀♀, ex *S. polaris* leaves, Gadget Gully, 7. XII. 1960, Watson ; 1 ♀, 1 nymph, ex *S. polaris* litter, Gadget Gully, 26. I. 1961, Watson ; 3 nymphs, same data, 7. III. 1961, Watson ; 2 nymphs, ex *S. polaris* leaves, Douglas Bay, 26. I. 1961, Watson ; 3♂♂, 2 nymphs, ex *S. polaris* leaf litter, Handspike Point, 14. I. 1961, Watson ; 2 nymphs, ex *S. polaris* plants, First Gully, 24. II. 1961, Watson ; 1 nymph, *S. polaris* litter, Nuggets Creek, 2. III. 1961, Watson ; 9 nymphs, ex *S. polaris* litter, Catch-me Point, 20. III. 1961, Watson ; 5 ♀♀, 3 ♂♂, 2 nymphs, ex *S. polaris* litter, Langden Point, 22. III. 1961, Watson ; 1 ♂, 3 nymphs, ex *S. polaris* litter, Wireless Hill, 5. IV. 1961, Watson ; 1 ♀, ex dead *Poa foliosa* and sheep dung, Wireless Hill, 12. X. 1961, Watson ; 1 ♀, 4 ♂♂, ex *Pleurophyllum*, Wireless Hill, 100 m, 9. XII. 1960, Gressitt ; 2 ♀♀, ex *S. polaris* litter, Sub-plateau, 23. VIII. 1961, Watson ; 1 nymph, ex *Pleurophyllum* debris, NW. Coast, 10. XII. 1960, Gressitt ; 3 nymphs, ex *Pleurophyllum* debris, N. end, (NW.), 10. XII. 1960, Gressitt ; 2 nymphs, 10. III. 1962, Hughes ; 3 ♀♀, 1 nymph, no locality data, Watson ; 2 ♀♀, 2 ♂♂, 6 nymphs, ex *Stilbocarpa* litter, First Gully, 24. II. 1961, Watson ; 22 ♀♀, 7 ♂♂, ex *Stilbocarpa* leaves, Hasselboro' Bay, 5. IX. 1961, Watson ; 29 ♀♀, 19 ♂♂, 3 nymphs, ex *Stilbocarpa* leaves, Lambing Gully, 12. V. 1961, 30. IX. 1961, 1. XII. 1961, 2. XI. 1961, Watson.

Holotype, allotype and paratypes will be deposited in the Australian National Insect Collection, paratypes in the Bishop Museum, and the Australian Museum, Sydney.

A total of 230 specimens has been examined (100 ♀♀, 51 ♂♂, 79 nymphs), females : males being in the ratio 2 : 1. The species was collected in all months of the year except July.

The family Philotarsidae has been recorded from all zoogeographical Regions.

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REFERENCE

Thornton, I. W. B. 1959. A new genus of Philotarsidae (Corrodentia) and new species of this and related families from Hong Kong. R. Ent. Soc. Lond., Trans. **111** : 331–49, 20 figs.