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MITES OF THE GENUS CRYPTOGNATHUS FROM AUSTRALIA, NEW ZEALAND, AND NIUE ISLAND.

BY

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ABSTRACT.

Ten new species of the genus Cryptognathus are described from Australia, New Zealand and Niue Island. Two new subgenera (Cryptognathus and Favognathus) are characterised, and a key is given to the known species of the genus.

INTRODUCTION.

Cryptognathids are very small mites which are collected infrequently and in small numbers from soil, leaf litter, mosses and lichens. They appear to be cosmopolitan in distribution, but nothing at all is known of their habits. It has been suggested that they are predatory animals (Baker and Wharton, 1952: Meyer and Ryke, 1959), but their mouthparts are so delicate, and their size so small, that it is difficult to imagine the type of prey with which they might be associated. Their mouthparts are often highly extrudable, with delicate, elongate, edentate chelicerae, so that they may be selective feeders on, say, fungal spores. On the other hand, study of the material on which the present paper is based revealed green material in the hind-gut of many of the specimens. Sometimes this appeared to be much in the form of cellular material, and sometimes as an amorphous mass. The needle-like chelicerae may also, therefore, be adapted to select algal cells or else, and this seems the best of the several alternatives, to pierce plant cells and drain the contents.

The genus Cryptognathus was established by Kramer in 1879, with Cryptognathus lagena as the type species. In 1893 Oudemans placed the genus in the Raphignathidae, with which family it has close affinities (Summers and Chaudhri, 1965). However, the structure of the gnathosoma and of the integument of Cryptognathus is so distinctive that in 1902 Oudemans made it the type genus of a new family, the Cryptognathidae. The family still contains but one genus.

The second species of the genus was not described until 1916 when Berlese established Cryptognathus cucurbita, as well as a new subspecies Cryptognathus cucurbita subnuda. Subsequent records of the family and genus mainly identified newly-found specimens with those of either Kramer or Berlese (e.g. in Thor, 1931; Womersley, 1935; Baker and Wharton, 1952). This was presumably due as much to the difficulty of comparing new material with the

generally poor original descriptions of KRAMER and BERLESE, as to the infrequent appearance, and apparent unimportance, of the animals in collections. However, in 1926 HIRS'T confidently erected a new species, Cryptognathus australiensis. Thirty-two years were to elapse before a further new species (Cryptognathus sternalis Krantz 1958) was described from Oregon, and in the following year MEYER and RYKE published a second subspecies to Berlese's Cryptognathus cucurbita.

Thus, in the eighty years between the naming of the genus and 1959, some four species and two subspecies had become known to science, and it had had three other mentions in the literature.

![Diagram](image)

**Fig. 1**: Representation of the dorsal surface of a cryptognathid mite to show the relative positions of the setae.

Then, in 1965, SUMMERS and CHAUDHRI published a paper which not only added a further ten species (mainly from California) to those already known, but also established a firm and detailed basis for further taxonomic work on these infrequent, but quaint, creatures. The new
taxonomic characters described by these authors for Cryptognathus rendered the already inadequate descriptions of Kramer and Berlese obsolete. Since these were the original descriptions of the genus it became important to relate them more adequately to Summers and Chaudhri’s framework, and to this end Cryptognathus cucurbita Berlese was redescribed (Luxton and Lee, 1969), as was Cryptognathus lagena Kramer (Luxton, 1973). In 1968, a further species (Cryptognathus barrassi) was established from Louisiana by Smiley and Moser, and the Cryptognathus ochraceus of Summers and Chaudhri was tentatively recorded from Israel by Gerson (1958).

To date there are fourteen good species of Cryptognathus adequately described, and C. cucurbita subnitida Berlese 1916 must remain of uncertain status until it can be examined in more detail.

GENERAL MORPHOLOGY OF THE GENUS.

The mites are flattened dorso-ventrally, and encased in a rigid integument which is sculptured to a greater or lesser degree. One of the most interesting features of these mites is the unvarying presence of a ‘hood’, which is a sclerotised projection antero-dorsally forming a ventrally incomplete collar around the mouthparts. The shape of the body is that of a broad or narrow oval.

The mouthparts consist of a pair of five-segmented palps, with the chelicerae often fastened some way posterior to the bases of these. The chelicerae are edentate stylets, and mostly elongate. The mouthparts are flexibly attached to the idiosoma beneath the hood by a delicate membrane, and may often be extruded from the hood to a greater or lesser degree.

The dorsum of the idiosoma bears two pairs of eyes, and eleven pairs of smooth dorsal setae (Fig. 1). Ventrally there are six pairs of idiosomal setae. The anal aperture of the female is terminal, whereas that of the male is postero-dorsal. There are either two or three pairs of paragenital setae present (Plate I). Ventrally, at the base of the hood, is a ‘prosternal apron’ (Plate I) which may be either wedge-shaped and dimpled, or crescentic and smooth.

The coxae of the legs are juxtaposed and fused into the ventral plate. The pretarsi have two simple claws and an empodium.

Apart from the positioning of the anus, males may be distinguished from the females by their three pairs of postero-dorsal setae (c, d and le) standing together as a cluster. Moreover, the male genital aperture appears to be terminal, and the solenidia of tarsi I-IV are twice as large as the corresponding solenidia of the female.

SPECIES GROUPS AND SUB-GENERA.

Summers and Chaudhri (1965) discovered that the eleven species described by them could be readily divided into two distinct groups on the basis of a number of morphological characters. These species groups they called the ‘Favus’ group and the ‘Imbricatus’ group.

The ‘Favus’ group. This is characterised principally by the presence of a wedge-shaped, dimpled prosternal apron and two pairs of paragenital setae (Plate I). To date six species of this group have been described.

The ‘Imbricatus’ group. The species belonging to this group have a smooth, crescent-shaped prosternal apron, and three pairs of paragenital setae (Plate I). To date eight species of this group have been adequately described.
Plate I: Details of some diagnostic features from the Australasian cryptognathids.

Figs. 1 à 3: 1) Genital region of the subgenus Favognathus; 2) Genital region of the subgenus Cryptognathus; 3) Prosternal apron of the subgenus Favognathus.

Study of the specimens from Australasia used in this present work shows that the division made by Summers and Chaudhri holds good, there being six species of the 'Imbricatus' group and four species of the 'Favus' group. Since this group distinction appears to be constantly applicable, it would seem to be proper to establish two new sub-genera. The first species
described (C. lagena) is a member of the ‘Imbricatus’ group (Luxton, in press), so it is proposed that the members of this group, as characterised above, should henceforth be referred to as Cryptognathus (Cryptognathus) spp., (sub-gen. nov.). For the ‘Favus’ group the new sub-genus Favognathus is proposed.

Plate I: Details of some diagnostic features from the Australasian cryptognathids.

Figs. 4 & 6: 4) Prosternal apron of the subgenus Cryptognathus (I); 5) Prosternal apron of the subgenus Cryptognathus (II); 6) Leg II of C. (C.) striatus showing sensillum k.
KEY TO THE KNOWN SPECIES OF CRYPTOGNATHUS.

1. Prosternal apron wedge-shaped, dimpled; 2 pairs of paragenital setae. Cryptognathus (Favognathus) subgen. nov. 2

Prosternal apron a crescentic, transparent flange on front margin of ventral plate; 3 pairs of paragenital setae. Cryptognathus (Cryptognathus) subgen. nov. 11

2. Length (including hood and anal covers) greater than 400 µ. ... C. (F.) magnus n. sp. Queensland, Australia. Length less than 400 µ. 3

3. Sternocoxal portion of ventral plate with pattern of pores uninterrupted, no striae. 4

Sternocoxal portion of ventral plate with extensive, nonporous, striated areas. 5

4. Dorsum with a faint reticulum; setae a, b, c between about 30 and 40 µ in length. C. (F.) favus Summers and Chaudhri 1965. California, U.S.A.

Dorsal reticulum apparently confined to lateral edges; setae a, b, c between 20 and 22 µ in length. C. (F.) cucurbitellus Meyer and Ryke 1959 South Africa

5. Dorsal and ventral plates not similarly ornamented. 6

Dorsal and ventral plates similarly ornamented. 8

6. Dorsal plate with enlarged punctations in clusters; rim of hood without denticles. 7

Dorsal plate with uniformly distributed coarse pores (fading posteriorly); rim of hood strongly dentilicate. C. (F.) denticulatus n. sp. New South Wales, Australia

7. Dorsal punctations in widely spaced groups of three; medial groups smaller; round punctation laterally and posteriorly amid striae; b-b 95 µ. C. (F.) leopardus n. sp. New Zealand

Dorsal punctations in closely adjacent groups of three to five; no distinguishable medial band, but lateral groups smaller; b-b 71 µ. C. (F.) pictus Summers and Chaudhri 1965 Galapagos Islands

8. Front margin of hood with numerous, well-defined denticles. C. (F.) ochraceus Summers and Chaudhri 1965 Galapagos Islands

Front margin of hood smooth. 9


Dorsal punctations evenly distributed. 10

10. Dorsal and ventral plates essentially non- reticulate; a pore adjacent to each angle of the dimples on the collar. C. (F.) barrasi Smiley and Moser 1968 Louisiana, U.S.A.

Lateral fields of both dorsal and ventral plates extensively reticulated; no pores associated with dimples on the collar. C. (F.) cucurbita Berlese 1916. Sardinia

11. One proximoventral seta on tarsi III and IV (10 setae on each of these leg segments) 12

Two proximoventral setae on tarsi III and IV (11 setae each). C. (C.) imbricatus Summers and Chaudhri 1965 California, U.S.A.

12. Dorsal setae very small (less than 10 µ in length). C. (C.) australiensis Hirst 1926. New South Wales, Victoria, South Australia

Dorsal setae conspicuous. 13

13. Ventral punctuation extensive. 14

Ventral punctuation restricted to certain narrow zones. 20
14. Mean length (including hood and anal covers) 325 μ or more.......................... 15
   Length 300 μ or less........................................................................... 18
15. Dorsal and ventral plates not similarly ornamented; most cells of dorsal reticulum no wider than
   long..................................................................................................... 16
   Dorsal and ventral plates similarly ornamented; numerous cells of dorsal reticulum longer than
   wide.................................................................................................. C. (C.) lagena Kramer 1879
   (syn. C. sternalis Krantz 1958; syn. C. corrugis Summers and Chaudhri 1965)
   Germany, England, California, Idaho, Oregon
16. Each cell of dorsal reticulum with numerous pores, 35-50 per cell, about 8-22 dispersed through
   central area.......................... C. (C.) luteolus Summers and Chaudhri 1965
   California, U.S.A.
   Each cell of dorsal reticulum with fewer pores, all but 2-3 restricted to the periphery....... 17
17. Pores of ventral plate circular or slightly oval; no striae on sternocoxal region ....... C. (C.) scutellatus Summers and Chaudhri 1965
   California, U.S.A.
   Pores of ventral plate elongate or slitlike; sternocoxal region with fine longitudinal striae...... C. (C.) ultrarosstratus Summers and Chaudhri 1965
   California, U.S.A.
18. Dorsal reticulation essentially confined to lateral edges; ventral punctation not covering entire
   field below sternal region.......................... C. (C.) tenuis n. sp.
   New South Wales and Victoria, Australia
   Dorsal reticulation extensive; ventral punctation extensive........................................... 19
19. Ventral plate finely striated between the pores; length of chelicera about 80 μ.............. C. (C.) eucullus Summers and Chaudhri 1965
   California, U.S.A.
   Ventral plate without striae; length of chelicera about 90 μ.......................... C. (C.) aureatus Summers and Chaudhri 1965
   California, U.S.A.
20. Venter with a band of punctations between coxae IV............................................ 21
   Venter without horizontal band of punctation......................................................... 23
21. Venter with U-shaped band of punctation between coxae IV, not linked with punctation of coxal
   field; dorsum with fine reticulation, but otherwise apparently smooth......................... C. (C.) vulgaris n. sp.
   New Zealand
   Band of punctation between coxae IV not U-shaped, linked with punctate areas of coxal field;
   dorsum punctate.............................................................. 22
22. Dorsal punctuation not penetrating lateral reticulum to any great extent; venter striate with an
   elongate reticulum in parts......................................................... C. (C.) woodi n. sp.
   Queensland, New South Wales and Victoria, Australia
   Dorsal punctuation penetrating lateral reticulum; venter striate and without reticulum........ C. (C.) eurytopus n. sp.
   New South Wales and South Australia
23. Ventral punctuation in lateral bands below coxae IV giving way to an elongate reticulum...... C. (C.) lateropunctatus n. sp.
   New South Wales and South Australia
   Ventrum mostly striate with some punctuation at the base of the hood and scattered in the coxal
   region......................................................... C. (C.) striatus n. sp.
   New Zealand
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Plate II. Dorsal sculpturing of Australasian cryptognathids under Nomarski phase.

Figs. 1 à 4: 1) C. (F.) magnus; 2) C. (F.) denticulatus; 3) C. (F.) insularis; 4) C. (F.) leopardus.
DESCRIPTIONS OF NEW SPECIES.

CRYPTOGNATHIDAE Oudemans 1902.

Cryptognathus Kramer 1879.

Favognathus subgen. nov.

**Cryptognathus (Favognathus) magnus** n. sp.

_FEMALE_: Dimensions as in Table i; sculpturing shown in Plates II and III.

_Collar_: Rim of collar truncate, with some fine denticulation; about 7 or 8 dimples in each longitudinal row, mostly round, or slightly elongate.

_Dorsum_: Animal golden-yellow in colour when in preservative; surface coarsely and evenly punctate with no apparent reticulation; some striation between somewhat elongate pores; dorsal setae very long and fine; setae _d_ anterior to setae _le_.

_Venter_: Sculpturing similar to that of dorsum, but all pores round in shape; striae between pores more evident than on dorsal surface; very small areas in sternal region free of pores; pro­stenal apron with about 25 round dimples.

_Legs_: All legs with two pedunculate claws; trochanters obviously and coarsely punctate; femora, genua, tibiae encircled with several ridges distally; addorsal setae _tc_ on tarsi II dissimilar; peglike sensillum, slightly bulbous at tip, present on genua II; two proximoventral setae on tarsi III and IV.

_Mouthparts_: Not able to be protruded more than half their length from the hood; chelicerae 116 µ long; pedipalpal tibia appears to be somewhat conical.

**Main diagnostic feature**: Size, — at 429 µ the largest known species of the subgenus Favognathus.

_MALE_: Not known.

**Distribution**: _♀_ Acacia harpophylla scrub, east of Chinchilla, Darling Downs, Queensland, Australia. 18.5.66. coll. T. G. Wood.

**Types**: Holotype _♀_ in South Australian Museum, Adelaide, South Australia.

**Cryptognathus (Favognathus) denticulatus** n. sp.

_FEMALE_: Dimensions as in Table i; sculpturing shown in Plates II and III.

_Collar_: Rim of collar with evenly scattered denticulation along most of leading edge; dimples very clear, roughly circular, larger on lateral edges of hood, and probably representing holes in the hood fabric; 7 or 8 dimples in each longitudinal row.

_Dorsum_: Elongate pores arranged in semicircular rows and mostly confined to region above setae _b_ and within setae _po_ and _a_; remainder of dorsum striate but with scattered, often inconspicuous, round punctations; striae most evident laterally where they form longitudinal bands; setae _d_ anterior to _le_.
Plate II: Dorsal sculpturing of Australasian cryptognathids under Nomarski phase.

Figs. 5 à 8: 5) C. (C.) eurytopus; 6) C. (C.) lateropunctatus;
7) C. (C.) woodi; 8) C. (C.) vulgaris.
Venter: Almost completely striate; some scattered round punctations over coxal fields, and laterally below coxae IV; prosternal apron with about ten dimples.

Legs: All legs with two claws, somewhat bent backwards; addorsal setae of tarsus II similar; peglike sensillum present on genua II; 1 proximoventral seta on each of tarsi III and IV.

Mouthparts: Not able to be protruded more than halfway; femur, tibia, and tarsus of pedipalp together forming an elongate cone; trochanter massively rectangular, about twice as wide as femur; digits of chelicerae elongate, fine and pointed.

Main diagnostic features: Dorsal and ventral sculpturing; denticulation of collar.

MALE: Dimensions as in Table I. Dorsal and ventral sculpturing similar to that of female.

Distribution: 3 ♀ 2 ♂ in dry sclerophyll woodland (Eucalyptus pauciflora-Eucalyptus dalrympleana), 4230' between Sawpit and Wilson's Valley, Mt Kosciusko Road, New South Wales, Australia. 18.4.67. coll. T. G. Wood.

♀ from same location as above, collected 15.12.66. T. G. Wood.

♂ from sclerophyll forest (Eucalyptus pauciflora — E. dalrympleana), 4350', Mt Kosciusko, New South Wales, Australia. 18.II.67. coll. T. G. Wood.

Types: Holotype ♂, 2 paratype ♀ and 2 ♂, in South Australian Museum, Adelaide, South Australia; 1 paratype ♀ in British Museum (Natural History), London.

Cryptognathus (Favognathus) insularis n. sp.

FEMALE: Dimensions as in Table I; sculpture as in Plates II and III.

Collar: Rim smooth; collar especially long and narrow; dimples somewhat angular with a light spot in the mesh at each angle; 6 or 7 dimples in each longitudinal row.

Dorsum: Golden-yellow in colour when in preservative; round, coarse pores scattered evenly across the whole surface; some fine striation between pores; a round group of closely set punctations situated laterally near each of the setae a; lateral edges somewhat reticulated; setae long pointed and fine, although apparently brittle since several are broken in several specimens; setae b, la and c seem to be grouped closer together (relative to other dimensions) than in other species.

Venter: Patterning similar to that of dorsum, with evenly scattered, round, coarse pores; striae evident between the pores, but especially evident in the extensive, non-punctate region over the sternal area; punctations in the sternal area confined to base of prosternal apron, coxal fields, some fingers extending into sternal region, and a single or double strand of punctations crossing sternal area from angle of apron; prosternal apron distinct, with thick margins, about 14 dimples and a concave anterior edge.

Legs: Each with two claws; some fine ridges encircling femora, genua, and tibiae distally; addorsal setae tc of tarsi II dissimilar; sensillum present on genua II; 1 proximoventral seta on each on tarsi III and IV.

Mouthparts: Fully protrusible (tips of pedipalps able to extend slightly beyond tarsi I); length of chelicerae 87 μ.

Main diagnostic feature: Groups of closely set punctations near setae a.
Plate II: Dorsal sculpturing of Australasian cryptognathids under Nomaski phase.

Figs. 9 à 11 : 9) C. (C.) tenuis ; 10) C. (C.) striatus ; 11) C. (C.) australiensis.

**Male:** Not known.

**Distribution:** 10 ♀♀ from moss, Niue Island. coll. A. Eyles.

**Types:** Holotype ♀ and 2 paratype ♀♂ in Entomology Division, Nelson, New Zealand; 2 paratype ♀♂ in South Australian Museum, Adelaide, South Australia; 2 paratype ♀♂ in British Museum (Natural History), London.

**Cryptognathus (Favognathus) leopardus** n. sp.

**Female:** Dimensions as in Table I; sculpturing as in Plates II and III.

**Collar:** Rim smooth; dimples round or slightly elongate, very clear and possibly penetrating fabric of collar; 6 or 7 dimples in longitudinal row.

**Dorsum:** Punctations anterior to setae d large and closely associated in groups of 3 to 5 (these resemble the spots of a leopard); medial groups appear to be smaller than others and they gradually fade out laterally; a few single round or elongate pores also occur, especially near setae d and at the extreme lateral edges of the dorsum; no reticulation apparent, but striae surrounding punctations very evident; setae long and fine; setae d anterior to le.

**Venter:** Thinly but evenly scattered, somewhat elongate or round pores on a faintly striated background; small areas of the sternal region without punctuation except at bases of coxae; prosternal with about 15 dimples.

**Legs:** Legs with two pedunculate, backwardly directed claws; trochanters, femora (especially), genua, tibiae and (to a lesser extent) tarsi encircled with many fine ridges; addorsal setae lc on tarsi II dissimilar; sensillum present on genua II; 1 proximoventral seta each on tarsi III and IV.

**Mouthparts:** Can be greatly protruded, palps overtopping tarsi of leg I; length of chelicerae III μ.

**Main diagnostic feature:** Sculpturing of dorsum.

MALE: Dimensions as in Table I; sculpturing similar to that of ♀ except that groups of spots on dorsum are much smaller and less extensively distributed; elongate and round punctations laterally and posteriorly, the posterior ones arranged in semicircular lines around anal opening.

Distribution: I ♀ I ♂ ♀ from moss, Balloon Hill, near Mt Arthur, West Nelson, New Zealand. 31.5.64. coll. G. W. Ramsay.
I ♀ from moss on bark of Nothofagus, near Cobb Reservoir, West Nelson, New Zealand, 3400'. 18.9.64. coll. T. G. Wood.
I ♀ from podocarp litter and moss, Kuratau Stream, 10 miles west of Tokaanu, Lake Taupo, New Zealand. 21.4.65. coll. N. Walker.

Types: Holotype ♀ and I ♂ at Entomology Division, Nelson, New Zealand; I paratype ♀ at British Museum (Natural History), London.

Cryptognathus subgen. nov.

Cryptognathus (Cryptognathus) eurytopus n. sp.

FEMALE: Dimensions as in Table I; sculpturing as in Plates II and III.

Collar: Rim faintly denticulate, with evenly distributed small teeth; dimples not clear, and apparently granulated internally; 6 in each longitudinal row.

Dorsum: Finely punctate over the whole surface, except for bands of lateral reticulation; setae po, a, b, and la all surrounded by punctation which extends also into the reticulated area; setae d slightly anterior to le.

Venter: More-or-less triangular patch of elongate punctations between, and slightly posterior to, coxae IV, linked with narrow bands of punctation from above and below coxae IV; elongate punctations also at base of hood and over coxal fields; rest of venter striate, with striations mostly longitudinal but becoming transverse above genital opening; prosternal apron a transparent lip, slightly concave at the anterior edge.

Legs: Each with two pedunculate claws; addorsal setae te of tarsi II dissimilar; peglike sensillum present on genua II.

Mouthparts: Highly protrusible, palps overtopping tarsi I; length of chelicerae 100 μ.

Main diagnostic feature: Dorsal sculpturing.

MALE: Dimensions as in Table I; sculpturing similar to that of female, but lateral reticulation of dorsum not evident.

Distribution: 2 ♀♀ from summit of Mt Kosciusko, New South Wales, Australia, 7300', Poa-Celmisia herbfield. 10.12.66. coll. T. G. Wood.
I ♂ Epaeiris fjældmark, 6900', Mt Kosciusko, New South Wales, Australia. 21.4.67. coll. T. G. Wood.
2 ♀♀ from Salicornia spp. on raised, sandy beach, 1 mile east of Seaman's Hut, Cape Elizabeth, 8 miles south-west of Moonta, Yorke Peninsula, South Australia. May, 1967. coll. R. W. Jessup.
Plate III: Ventral sculpturing of Australasian cryptognathids under Nomarski phase.

Types: Holotype ♀ and ♂ at South Australian Museum, Adelaide, South Australia; ♂ paratype ♀ at British Museum (Natural History), London.

Cryptognathus (Cryptognathus) lateropunctatus n. sp.

FEMALE: Dimensions as in Table 1; sculpturing as in Plates II and III.

Collar: Rim smooth; dimples round, or somewhat elongate, with 5 or 6 in each longitudinal row.

Dorsum: Very fine, closely set punctations especially apparent medially although extending over the whole surface; reticulation especially visible laterally as a hexagonal mesh, but also extending over the whole field; setae $d$ slightly anterior to $le$.

Venter: Round punctations at the base of the hood, over the coxal fields and laterally below coxae IV; punctation below coxae IV extends to halfway down the lateral ventral surface, where it gives way to reticulation of an elongated mesh; setae $d$ approximately level with setae $le$.

Legs: All legs with two pedunculate claws; addorsal setae $le$ on tarsi II dissimilar; peglike sensillum present on genua II; ♂ proximoventral seta on each of tarsi III and IV.

Mouthparts: Probably highly protrusible, though not fully extended on either of two specimens available for study; length of chelicerae about 87 µ.

Main diagnostic feature: Ventral sculpturing.

MALE: Not known.

Distribution: ♂ ♀ from Mallee scrub, near Coonalpyn, South Australia. 21.5.66. coll. T. G. Wood.

♂ ♀ from savannah woodland (Eucalyptus sp.), 30 miles east of Narrandera, New South Wales, Australia. 26.2.69. coll. T. G. Wood.

♀ in moss, Mt Arden, South Australia. November, 1943: from the collection of H. Womersley.

Types: Holotype ♀ in the South Australian Museum, Adelaide, South Australia; ♂ paratype ♀ at British Museum (National History), London.

Cryptognathus (Cryptognathus) woodi n. sp.

FEMALE: Dimensions in Table 1; sculpturing in Plates II and III.

Collar: Rim uneven or very slightly toothed; dimples mostly round and separated from each other by a very thick wall; 5 or 6 in each longitudinal row.

Dorsum: Coarse punctations fading posteriorly and laterally; lateral reticulum hexagonal and apparently not penetrated by punctation; setae $d$ approximately level with setae $le$.
Plate III: Ventral sculpturing of Australasian cryptognathids under Nomarski phase.

Figs. 5 to 8: 5) C. (C.) eurytopus; 6) C. (C.) lateropunctatus;
7) C. (C.) woodi; 8) C. (C.) vulgaris.
**Venter**: Elongate punctations at base of hood and over fields of coxae I, II, and III; a band of elongate punctations across venter between coxae IV, somewhat wider in the mid-field; sternal region striate; rest of venter striate, with an elongated reticulum; striae longitudinal, except just above genital opening where they are transverse; presternal apron a transparent flange with a straight, or very slightly concave, anterior edge.

**Legs**: All legs with two pedunculate claws; addorsal setae tc on tarsi II dissimilar; minute peglike sensillum present on genua II; 1 proximoventral seta on each of tarsi III and IV

**Mouthparts**: Highly protrusible, tips of pedipalps extending beyond tarsi I; length of chelicerae 105-115 μ.

**Main diagnostic features**: Dorsal and ventral sculpturing.

**Male**: Not known.

**Distribution**: 5 ♀♀ in subtropical rainforest, Binna Burra Road, South Beechmont, Queensland, Australia. 21.5.66. coll. K. E. Lee.  
2 ♀ in dry sclerophyll (Eucalyptus pauciflora-E. dalrympleana), 4230’ between Sawpit and Wilson’s Valley, Mt Kosciusko Road, New South Wales, Australia. 18.4.67. coll. T. G. Wood  
1 ♀ in dry sclerophyll with bracken understory, Harrietville, near Bright, Victoria, Australia. 18.5.66. coll. T. G. Wood.  

**Types**: Holotype ♀ and 2 paratype ♀♀ at South Australian Museum, Adelaide, South Australia; 2 paratype ♀♀ at British Museum (Natural History), London.

**Cryptognathus (Cryptognathus) tenuis** n. sp.

**Female**: Dimensions given in Table 1; sculpturing shown in Plates II and III.

**Collar**: Rim uneven but not strictly denticulate; dimples round or slightly elongate, and separated from each other by thick walls; 5 or 6 dimples in each longitudinal row.

**Dorsum**: Medial band of coarse punctation extending laterally to the level of setae a and la; extreme lateral edges of dorsum reticulated, with no punctation, but this is only properly visible in flattened specimens.

**Venter**: Elongated punctations at the base of the hood, over all coxal fields, and in a wide band extending the whole width of the ventral surface below coxae IV and anteriorly to fill about a half or two-third of the ventral field (often below this are scattered punctations amid the striae); sternal region with longitudinal striae, those below ventral punctations being transverse; prosternal apron deeply concave.

**Legs**: All with two pedunculate claws; addorsal setae tc on tarsi II dissimilar; peglike sensillum present on genua II; 1 proximoventral seta on each of tarsi III and IV.

**Mouthparts**: Highly protrusible, tips of palps overtopping tarsi I; length of chelicerae about 92 μ.

**Main diagnostic features**: The very narrow hysterosoma; the largest width shown in the range certainly represents an artificially flattened specimen.
Plate III: Ventral sculpturing of Australasian cryptognathids under Nomarski phase.

Figs. 9 à 11: 9) C. (C.) tenuis; 10) C. (C.) striatus; 11) C. (C.) australiensis.

**Male**: Not known.

**Distribution**: 3 ♀♀ from wet sclerophyll (*Eucalyptus delegatensis*), 5000', Wilson's Valley, Mt Kosciusko Road, New South Wales, Australia. 16.5.66. coll. T. G. Wood.
2 ♀♀ in dry sclerophyll with little understory, east of Beaufort, near Ballarat, Victoria, Australia. 21.5.66. coll. T. G. Wood.
1 ♀ from savannah woodland, (*Eucalyptus camaldulensis*), bracken understory, east of Perry Bridge, Gippsland, Victoria, Australia. 19.5.66. coll. T. G. Wood.
2 ♀♀ from savannah woodland, (*Eucalyptus camaldulensis*), little understory, between Bairnsdale and Sale, Victoria, Australia. 19.5.66. coll. T. G. Wood.
1 ♀ from *Eucalyptus* litter, Hinck's National Park, Eyre Peninsula, South Australia. 15.7.69. coll. J. W. Forrest.

**Types**: Holotype ♀ and 3 paratype ♀♀ at South Australian Museum, Adelaide, South Australia; 2 paratype ♀♀ at British Museum (Natural History), London.

**Cryptognathus (Cryptognathus) striatus** n. sp.

**Female**: Dimensions given in Table I; sculpturing as in Plates II and III.

**Collar**: Rim slightly irregular, but not strictly toothed; dimples round or somewhat elongate, separated from each other by thick walls which appear to contain pores in some specimens; 5 dimples in each longitudinal row.

**Dorsum**: Finely punctate, punctations extending laterally to the level of setae *po* and *b*; lateral reticulum with irregular mesh containing no punctations; setae *d* anterior to setae *le*.

**Venter**: Almost entirely striate, most striae longitudinal, but transverse above the genital opening; elongate punctations at base of hood with some scattered in the coxal regions; patches
of extremely fine, hardly visible, punctuation around those sternal setae between coxae IV; prosternal apron appears as a delicate uneven flange.

**Legs**: All with two pedunculate claws; addorsal setae tc on tarsus II dissimilar; peglike sensillum present on genu II; i proximoventral seta on each of tarsi III and IV.

**Mouthparts**: Highly protrusible, tip of tarsus I level with middle of pedipalpal trochanter; length of chelicerae about 105 µ.

**Main diagnostic feature**: The reduced punctuation of the striate ventral surface.

**Male**: Dimensions as in Table 1; sculpturing similar to that of female.

**Distribution**: 4 ♀♀ from moss on logs in Pinus plantation, Waitangi, New Zealand. 13.11.64. coll. G. S. Grandison.

i ♀ 2 ♂♂ from dry moss on rocks, Kurow, North Otago, New Zealand. 2.3.65. coll. T. G. Wood.

**Types**: Holotype ♀, 2 paratype ♀♀ and 1 ♂ at Entomology Division, Nelson, New Zealand; 1 paratype ♀ and 1 ♂ at British Museum (Natural History), London.

**Cryptognathus (Cryptognathus) vulgaris** n. sp.

**Female**: Dimensions as in Table 1; sculpturing as in Plates II and III.

**Collar**: Rim entirely smooth; dimples somewhat faint, round or slightly elongate, separated from each other by a thick wall; 5 in each longitudinal row.

**Dorsum**: Apparently quite smooth and free of punctuation; reticulation most apparent laterally but extending over the whole surface; setae d anterior to le.

**Venter**: Slightly elongate punctations at base of hood, with a few scattered over the coxal fields; punctations become more evident below coxae IV and extend in a lateral band to the level of the anterior rim of the genital opening; medially (from about the level of coxae IV to about half or two-thirds of the way down the ventral surface) is a large patch of pores forming an irregular U-shape; remainder of the ventral surface faintly striate; prosternal apron rounded and slightly concave anteriorly.

**Legs**: All with two pedunculate claws; addorsal setae tc on tarsi II dissimilar; peglike sensillum of genu II minute but present; i proximoventral seta on each of tarsi III and IV.

**Mouthparts**: Very highly protrusible, on holotype specimen the tips of tarsi I are about level with the base of the rostrum; length of chelicerae about 113 µ.

**Main diagnostic features**: The dorsal and (especially) the ventral sculpturing.

**Male**: Not known.

**Distribution**: 19 ♀♀ from lichen (Xanthoria parietina) on coastal rocks, Kaiteriteri, Nelson, New Zealand. 11.2.68. coll. M. Luxton.

2 ♀♀ from dry moss on granite rocks, Tauronga Bay, Westport, New Zealand. 3.II.63. coll. T. G. Wood.
1 ♂ from moss on bark of Nothofagus near Waipori Falls, Dunedin, New Zealand. 22.2.65. coll. T. G. Wood.
4 ♀♀ from moss on roadside cutting near Maungaturoto, Whangarei, New Zealand. 12.II.64. coll. G. S. Grandison.

Types: Holotype ♀ and 4 paratype ♀♂ at Entomology Division, Nelson, New Zealand; 5 paratype ♀♂ at the British Museum (Natural History), London.

Cryptognathus (Cryptognathus australiensis) Hirst 1926.


FEMALE: Dimensions as in Table 1; sculpturing as in Plates II and III.

Collar: Rim somewhat denticulate, with widely and evenly spaced small teeth; dimples round, or slightly elongate, and distinct; separated from each other by thick walls; 5 dimples in each longitudinal row.

Dorsum: Somewhat irregularly distributed coarse pores covering entire surface, and also penetrating into the region of lateral hexagonal reticulation; dorsal setae minute (less than 10 µ long); setae d anterior to setae le.

Venter: Elongate punctations scattered at base of hood and over coxal fields; large elongate punctations covering the whole width of venter beneath coxae IV and extending approximately two-thirds of the way down the ventral surface (in the paratype these punctations are arranged with their long axes across the width of the animal, whereas they are mostly arranged longitudinally in other specimens); below these punctations are transverse striae amongst a clear reticulum; sternal region with longitudinal striae; prosternal apron with high corners and therefore concave anteriorly.

Legs: All legs with two pedunculate claws; addorsal setae tc of tarsi II dissimilar; minute peglike sensillum present on genu II; 1 proximoventral seta on each of tarsi III and IV.

Mouthparts: Highly protrusible, pedipalps projecting beyond tips of tarsi I; length of chelicerae about 108 µ.

Main diagnostic feature: Minute (less than 10 µ long) dorsal setae.

MALE: Dimensions as in Table 1; sculpturing rather similar to that of the female.

Distribution: Hirst's holotype and paratype from pine-trees (Pinus canariensis), Kuitpo Forest, about 30 miles from Adelaide, South Australia. coll. F. G. Holdaway.
1 ♂ from Mallee and Acacia scrub, near Bordertown, South Australia. 5.6.66. coll. J. Forrest.
1 ♂ from Poa-Celmisia alpine herbfield, Mt Kosciusko, New South Wales, Australia. 6500' 18.II.67. coll. T. G. Wood.
3 ♂ ♀ from *Poa-Celmisia* alpine herbfield, Mt Kosciusko, New South Wales, Australia. 6200'. 18.11.67. coll. T. G. Wood.

3 ♂ ♀ from *Poa-Celmisia* alpine herbfield, Mt Kosciusko, New South Wales, Australia. 6200'. 15.2.68. coll. T. G. Wood.

1 ♂ from *Poa-Celmisia* in sub-alpine woodland, 5880', near Chalet, Mt Kosciusko, New South Wales, Australia. 16.5.66. coll. T. G. Wood.

2 ♂ ♀ from mainly *Poa* in sub-alpine woodland, 5450', near Danca’s Gap, Mt Kosciusko, New South Wales, Australia. 16.5.66. coll. T. G. Wood.

1 ♂ from wet sclerophyll (*Eucalyptus delegatensis*), 5000', Wilson’s Valley, Mt Kosciusko Road, New South Wales, Australia. 16.5.66. coll. T. G. Wood.

1 ♂ *Poa-Celmisia* herbfield, 6990', Mt Kosciusko, New South Wales, Australia. 16.5.66. coll. T. G. Wood.

1 ♂ from pasture (previously *Eucalyptus camaldulensis*), east of Perry Bridge, Gippsland, Victoria, Australia. 19.5.66. coll. T. G. Wood.

3 ♂ ♀ from *Poa-Celmisia* alpine herbfield on alpine humus soil, 6200', 1 mile east of Seaman’s Hut, Mt Kosciusko, New South Wales, Australia. 20.4.67. coll. T. G. Wood.

3 ♂ ♀ in moss, Mt Arden, South Australia. November, 1943. (in the collection of H. Womersley).


1 ♂ on tableland in tea-tree scrub, 4 miles south-west of American River, Kangaroo Island, South Australia. 21.9.59. coll. H. M. Cooper.

**Types:** Hirst’s first specimen must be recognised as the holotype ♂, and his second ♂ as the paratype (both are at the British Museum (Natural History)); 5 ♂ ♀ syntypes from the present material at the South Australian Museum, Adelaide, South Australia; and 5 ♂ ♀ syntypes at the British Museum (Natural History), London.

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