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FIVE CHIGGERS OF THE GENERA GUNTHERANA AND TROMBICULA (ACARINA, TROMBICULIDAE)

BY

Robert Domrow

(Queensland Institute of Medical Research, Brisbane)

Summary.

Guntherana agnewi n. sp. and G. alpina n. sp. are described from Rattus assimilis, Australia. Trombicula barbarae n. sp. and T. dewae n. sp. are described from an Australian emballonurid bat (Saccolaimus georgianus). Several new host records for T. thomsoni Womersley, also present on this bat, are given.

* * *

Since my revision of the genus Guntherana, and the description of G. taylorae (see Domrow, 1960, 1962), a further two species of this typically Australian genus have come to hand. Both were found parasitizing the allied rat in eastern Australia, and are figured and described below.

In addition, I am most grateful to Miss Barbara DEW, School of Public Health and Tropical Medicine, Sydney, for sending me some interesting chiggers from the wing and tail membranes of a free-tailed bat, Saccolaimus georgianus (Thomas) (Emballonuridae), caught in an old gold mine, Pine Creek, Northern Territory, 15.vii.1962. The collection comprises one known and two new species of the genus Trombicula, as well as three damaged specimens apparently representing at least two more species of the same genus. This material is also described below.

Guntherana agnewi n. sp.

Figs 1-5, 9-11.

Associated species \textit{G. (D.) coorongensis} (Hirst) and \textit{G. (D.) smithi} (Womersley). Holotype NIC, paratype QIMR.

\textbf{Diagnosis.} — \textit{G. agnewi} falls within the subgenus \textit{Derrickiella} Andy and Domrow (see Domrow, 1960), and is most closely related to \textit{G. (D.) petrogale} (Womersley), both possessing bisetose third coxae and stiffly barbed idiosomal setae. In \textit{G. petrogale}, the dorsal setal pattern commences 2.14-16... (compared with 2.8... in \textit{G. agnewi}), the setae being much shorter and more stoutly barbed than in the latter species.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{guntherana.png}
\caption{\textit{Guntherana agnewi} n. sp. 1. Dorsum; 2. Venter. (One division on the scales equals 100 \(\mu\).)}
\end{figure}

\textbf{Larva.} — Length of idiosoma in slightly deformed holotype 370 \(\mu\). Cuticle annulate. Dorsal setae similar to PL scutal setae, with two or three outstanding barbules on one side, arranged 2.8.8.8.10.8.8.6.4. in holotype. Ventral setae weaker, but still well barbed, 65 in number. HS 72 \(\mu\), DS (first row) 60 \(\mu\), CS 36 \(\mu\) and VS (near anus) 35 \(\mu\) long. Sternal formula 2 + 2.

\textit{Acarologia,} t. VI, fasc. 2, 1964.
Scutum wider than long, with anterior margin convex around insertion of AM seta, lateral margins concave, and posterior margin biconvex. Surface heavily punctate except for areas behind AM and SB. Scutal setae heavily barbed, AL set in front of AM; PL > AM > AL. Sensillae subglobose, heavily barbed, set slightly in front of PL. Eyes rather weak, 2+2.


Legs all seven-segmented, each tarsus with two claws and slender empodium. Coxal formula 1.1.2. Specialized setation as follows — *Tarsus I* with pretarsala, subterminala, parasubterminala, tarsala and microtarsala; *tibia I* with two tibialae and microtibia; *genu I* with three genualae and microgenuala. *Tarsus II* with pretarsala, tarsala and microtarsala; *tibia II* with two tibialae; *genu II* with genuala. *Tibia III* with tibiala; *genu III* with genuala.

**Standard data in micra of larval scutum of G. agnewi n. sp.**

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**Guntherana alpina** n. sp.

Figs 6-8, 12-16.

**Type material.** — Holotype larva, eight paratype larvae and several fragmentary specimens from *Rattus assimilis* (Gould), ‘White’s River, Mount Kosciusko, New South Wales, 16.1.1962, J. H. Calaby. Holotype and one paratype NIC; paratypes BMNH, USNM and QIMR.

**Diagnosis.** — *G. alpina* is a member of the subgenus *Derrickiella* Audy and Domrow (see Domrow, 1960), and seems near to *G. (D.) dasycerci* (Hirst) and *G. (D.) shieldsi* (Gunther). Both these species have barbed galeal setae, a dorsal setal pattern commencing 2.8..., and AL and PL scutal setae approximated. In *G. alpina*, the galeals are nude, the pattern starts 2.11-13..., and AL and PL are widely separated.

**Larva.** — Length of elongate idiosoma 363-583 μ. Cuticle annulate. Dorsal setae in irregular rows, arranged 2.13.6.12.4.12.11.7.8.6.5 in specimen figured. In fourteen specimens, the range for the first two rows (after the humerals) extended from 9.6 to 15.4, although twelve were in the narrower range 11-13.4-7. Ventral setae about 66 in number. HS 82-85 μ, DS (first row) 62-68 μ, CS 45-50 μ and VS (near anus) 46-52 μ long. Sternal formula 2 + 2.

**Scutum** subrectangular, wider than long, with surface punctate except for areas behind AM and SB. Anterior margin deeply concave, with slight convexity around AM setal base; lateral margins almost straight; posterior margin shallowly convex, rectilinar medially. AL setae set well in front of AM; SB slightly in front of PL. PL > AM > AL. Sensillae subglobose, strongly barbed. Eyes weak, 2 + 2.

Legs all seven-segmented, with usual two claws and empodium. Coxal formula r.r.r. Specialized setation as follows — Tarsus I with pretarsala, subter-

Figs. 9-11. Guntherana agnewi n. sp.
Specialized setation. — 9. Leg I; 10. Leg II; 11. Leg III.

Figs. 12-14. Guntherana alpina n. sp.
Specialized setation. — 12. Leg I; 13. Leg II; 14. Leg III.
minala (parasubterminala absent), tarsala and microtarsala; tibia I with two tibialae and microtibiala; genu I with two genualae and microgenuala. Tarsus II with pretarsala, tarsala and microtarsala; tibia II with two tibialae; genu II with genuala. Tibia III with tibiala; genu III with genuala.


Standard data in micra of larval scutum of G. alpina n. sp.

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**Trombicula barbarae** n. sp.

Figs 17-20, 23-25.

*Type material.* — Holotype larva, 26 paratype larvae and five fragmentary larvae from *Saccolaimus georgianus* as detailed above. Holotype and three paratypes SPHTM; paratypes BMNH, USNM and QIMR.


**Diagnosis.** — *Trombicula barbarae* keys out near *T. philipi* Wom. in Womersley’s key (1952), and a group of related species is discussed in Domrow (1962). None of these has the eight sternal setae so characteristic of *T. barbarae.*

**Larva.** — Length of idiosoma in mounted engorged specimens 440-594 μ; in relatively unengorged specimen 390 μ. Dorsal setae similar to PL scutal setae, arranged in five somewhat irregular rows behind humeral pair. The pattern in specimen figured is 2.11.16.9.6.5, but in twelve specimens fell within the range 2.9-12.12-16.8-10.6-8.2-5. Ten is the common number in first row, but variants
are common. In heavily engorged specimens, an additional 2-4 caudal setae may assume a dorsal position. Ventral setae also weakly barbed, about 50 in number (six setae have been omitted from left hand side of figure for reasons of space). HS 32-35 μ, DS (first row) 27-30 μ, CS 21-25 μ and VS (near anus) 21-23 μ long. Sternal formula 2 + 6(7), arranged as figured.

Scutum subrectangular, transverse, slightly wider than long. Anterior margin distinct, virtually straight; lateral margins obscured by cuticular striae, largely straight, but concave near PL; posterior margin rather faint, ever so slightly convex, and rectilinear medially. Surface punctate except for two small areas behind SB and rather larger zone behind AM; punctae denser in posterior third. Windows usually apparent near AL, but scutum without definite sclerotized band anteriorly. Scutal setae all weakly barbed; PL = AM > AL. AM set slightly in front of AL, which in turn are well back from anterolateral corners. PL on definite but ill-defined corners. SB nearer level of PL than that of AL, with weak

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Figs. 21-22. Trombicula dewae n. sp.
brows. Sensillae filamentous, barbed in basal quarter, and with eight or nine slender ciliations distally. Eyes \(2 + 2\), distinct, but without ocular plates; anterior pair slightly the larger.


**Legs** slender, all seven-segmented, each tarsus with two claws and empodium. Coxal formula \(1.1.1\). Specialized setation as follows — *Tarsus I* with pretarsala, subterminala, parasubterminala, tarsala and microtarsala; *tibia I* with two tibialae and microtibiala; *genu I* with three genualae and microgenuala. *Tarsus II* with pretarsala, tarsala and microtarsala; *tibia II* with two tibialae; *genu II* with genuala. *Tibia III* with elongate tibiala; *genu III* with elongate genuala.

**Standard data in micra of larval scutum of T. barbarae n. sp.**

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**Trombicula dewae n. sp.**

Figs 21-22, 26-30.

**Type material.** — Holotype larva and twelve paratype larvae from *Saccolaimus georgianus* as detailed above. Types distributed as for *T. barbarae*.

**Diagnosis.** — Of the group of *Trombicula* species parasitizing bats discussed by Domrow (1962), *T. dewae* is most closely related to *T. koongi* Dom., both possessing a characteristically honey-combed, transverse scutum. The former species has a dorsal setal pattern starting 2.8.6..., while on the legs are found a pretarsala I, two genualae I and an elongate tibiala III. In the latter, DS commences 2.6.6..., two pretarsala I and three genualae I are present, and tibiala III is normal. Further, in *T. dewae*, the subterminala and parasubterminala on tarsus I are present, while in *T. koongi* they are absent.

**Larva.** — Length of idiosoma in mounted engorged specimens 484-675 \(\mu\). Dorsal setae similar to PL scutal setae, arranged in regular rows 2.8.6.6.6.2.2. Ventral setae also weakly barbed, about 24 in number. HS 33-36 \(\mu\), DS (first
row) 30-35 μ, CS 24-28 μ and VS (near anus) 33-36 μ long. Sternal formula $2 + 2$ in all specimens except one ($4 + 2$).

*Scutum* transverse, subrectangular, about twice as wide as long. Anterior margin slightly concave, with convexity around insertion of AM; lateral margins slightly convex; posterior margin slightly convex, weakly outlined, especially near PL, which are set on extremely weakly defined corners (*c.f.* unnamed species figured by Audy, 1954). A few coarse punctae are present immediately in front of SB, but over the remainder of the scutum, except behind AM and SB, they are modified into coarse pittings resembling honey-comb. Scutal setae all weakly barbed, $PL > AM > AL$. AM set just behind AL, which
are on slight corners. SB close together, nearer level of PL than that of AL, with very weak brows. Sensillae filamentous, weakly barbed in basal quarter, and with about seven slender cilia distally. Eyes $2 + 2$, anterior pair with distinct corneae, but posterior pair evident only as break in cuticular striae.


![Figures 29-30](image)

**Figs. 29-30. Trombicula dewae n. sp. — 29. Dorsum; 30. Venter.**

Leds slender, all seven-segmented, each tarsus with two claws and empodium. Coxal formula r.r.r. Specialized setation as follows — **Tarsus I** with pretarsala, subterminala, parasubterminala, tarsala and microtarsala; **tibia I** with two tibialae and microtibiala; **genu I** with two genualae and microgenuala. **Tarsus II** with pretarsala, tarsala and microtarsala; **tibia II** with two tibialae; **genu II** with genuala. **Tibia III** with elongate tibialae; **genu III** with elongate genuala.
Standard data in micro of larval scutum of T. dewae n. sp.

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*Trombicula thomsoni* Womersley.


**Material examined.** — One larva from *Saccolaimus georgianus* as detailed above. As this is the first record of *T. thomsoni* since its original description, the following specimens from bats also seem relevant to this discussion — four larvae from the little brown bat, *Eptesicus pumilus* (Gray) (Vespertilionidae), Gorge Creek, Bonalbo, New South Wales, 17.III.1961, J. H. Calaby; four larvae, *E. pumilus*, Rivertree, N. S. W., 19.II.1962, J. H. C.; and eleven larvae from the false vampire bat, *Macroderma gigas* (Dobson) (Megadermidae), Pine Creek, N. T., 15.VII.1962, B. D. The type material has also been examined, from a wattled bat, *Chalinolobus gouldi* (Gray) (Vespertilionidae), N. T.

**Acknowledgements.**

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**References**


