

A NEW GENUS AND SPECIES OF CERCOMEGISTIDAE
(ACARINA : MESOSTIGMATA)
FROM NORTH AMERICA ¹

BY

D. N. KINN.

Department of Entomology and Parasitology. University of California, Berkeley

The family Cercomegistidae includes the genera *Cercomegistus*, *Celaenogamasus* and possibly *Physalozzercon* (CAMIN and GORIROSSI, 1955). The family was established by TRÄGÅRDH (1938) to accommodate the genus *Cercomegistus*, which BERLESE (1914) had assigned to the family Megisthanidae. BAKER and WHARTON (1952) also placed *Neo-Oudemansia* (Trägårdh, 1938) in the Cercomegistidae, but as pointed out by CAMIN and GORIROSSI (1955), this genus was synonymous with *Antennurella* of the family Klinckowstroemiidae.

CAMIN and GORIROSSI (1955) reported that cercomegistid mites are usually predators of various insects, especially the beetles. *Cercomegistus bruckianus* Berlese has been collected from beneath the bark of trees (BERLESE, 1914) and *Physalozzercon raffray* Berlese from ant nests (BERLESE, 1903).

A species representing a new genus of this family was found associated with bark beetles of the genus *Ips*. At times it was abundant and appeared to be a predator. Adult males and females are phoretic, but usually only one or two individuals are found per adult beetle. The immatures were only found beneath the bark of trees infested with the scolytid host.

Cercoleipus gen. n.

Dorsum covered by a single plate having a suture between the podonotum and opisthonotum, densely beset with short, pilose setae. Venter of female covered by large paired jugular shields, sternal shield, elongated curved latigynial plates, small ventral shield, and separate anal shield; metapodal plates large, fused with parapodal and peritremal plates.

Venter of male covered by a single large plate, jugular plates and an anal plate. Cerci-like structures, present in other members of the family, are absent in both the male and female.

Type species : *Cercoleipus coelonotus* sp. n.

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Cercoleipus coelonotus sp. n.

FEMALE.

Idiosomal dorsum. Length of dorsal shield 886 μ (811-957) ; width 447 μ (400-544). Shape : oblong, oval, broadest over coxae III (Fig. 1). Slightly concave (Plate 1 A) ; covered by a single shield which displays traces of a suture separating podonotal and opisthonotal regions ; truncate anterior and rounded posterior margin. Four long, stout pilose vertical setae present in membrane anterior to dorsal plate (Plate 1 B) ; similar setae situated laterally. Membranous area tending to become secondarily sclerotized.

Idiosomal venter. Tritosternum anterior to jugular shields ; lacinae fused for most of their length (Fig. 2 A ; Plate 1 C). Jugular shields located between coxae II ; each with a single pilose

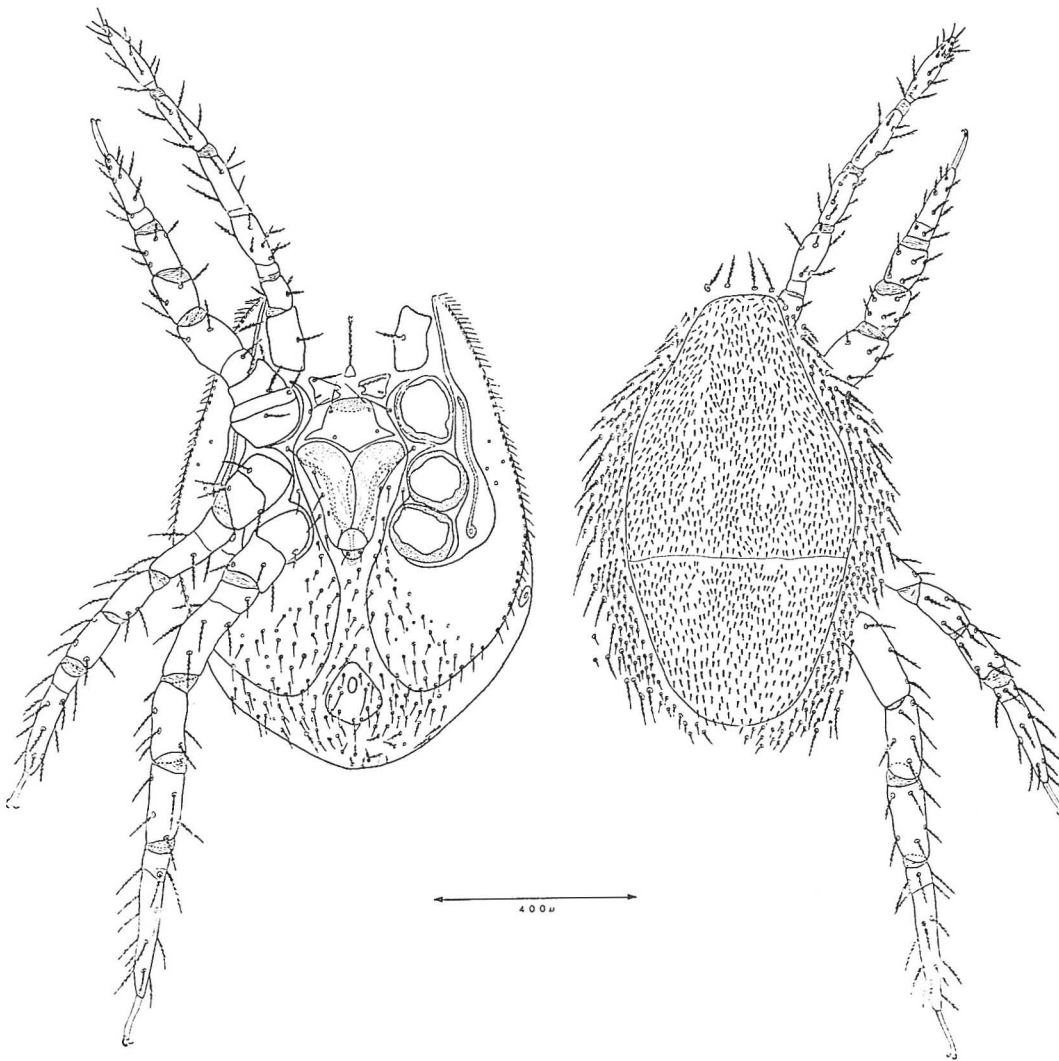


FIG. 1 : *Cercoleipus coelonotus*.
Ventral and dorsal aspects of female, paratype.

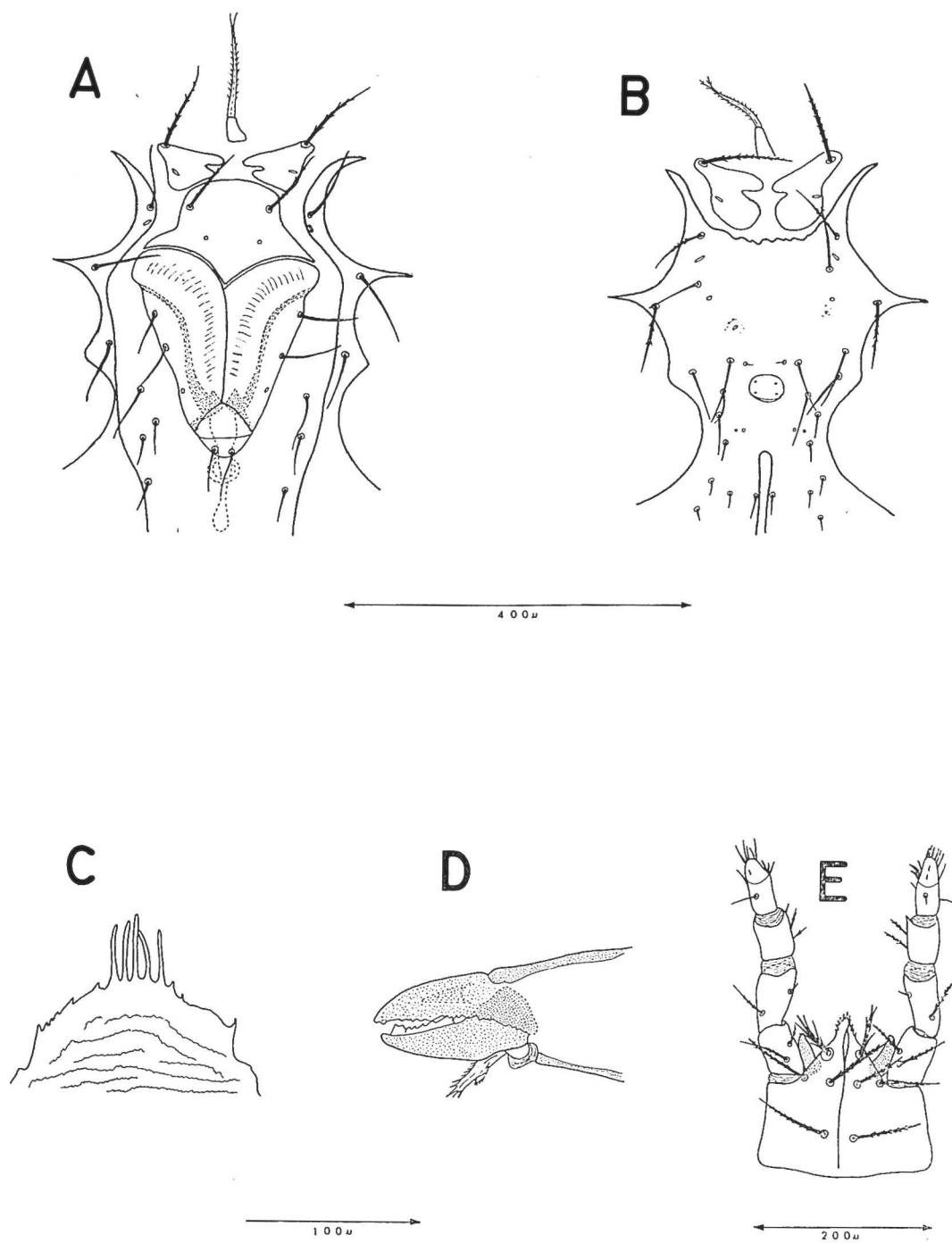


FIG. 2 : *Cercoleipus coelonotus*.

A. — Sterno-genital region of female, paratype. B. — Sterno-genital region of male, allotype.
 C. — Tectum of female, paratype. D. — Chelicera of female, paratype. E. — Hypostome of female, holotype

seta on antero-lateral margin ; pore I on lateral margin ; inner margin deeply cleft. Sternal shield (Fig. 2 A) convex anteriorly ; pointed posteriorly, with lateral extensions. Setae II on small platelets fused with the endopodal shields. Setae III submarginal on anterior margins of sternal shield level with sternal setae II, and setae IV on endopodals between coxae II and III ; endopodals not fused with sternal shield. Pores II situated posterior to setae II on margin of endopodal shield ; pores III on sternal shield, but often variable and unsymmetrical in position. Latigynial shields elongate, curved, overlapping each other medially and mesogynial shield

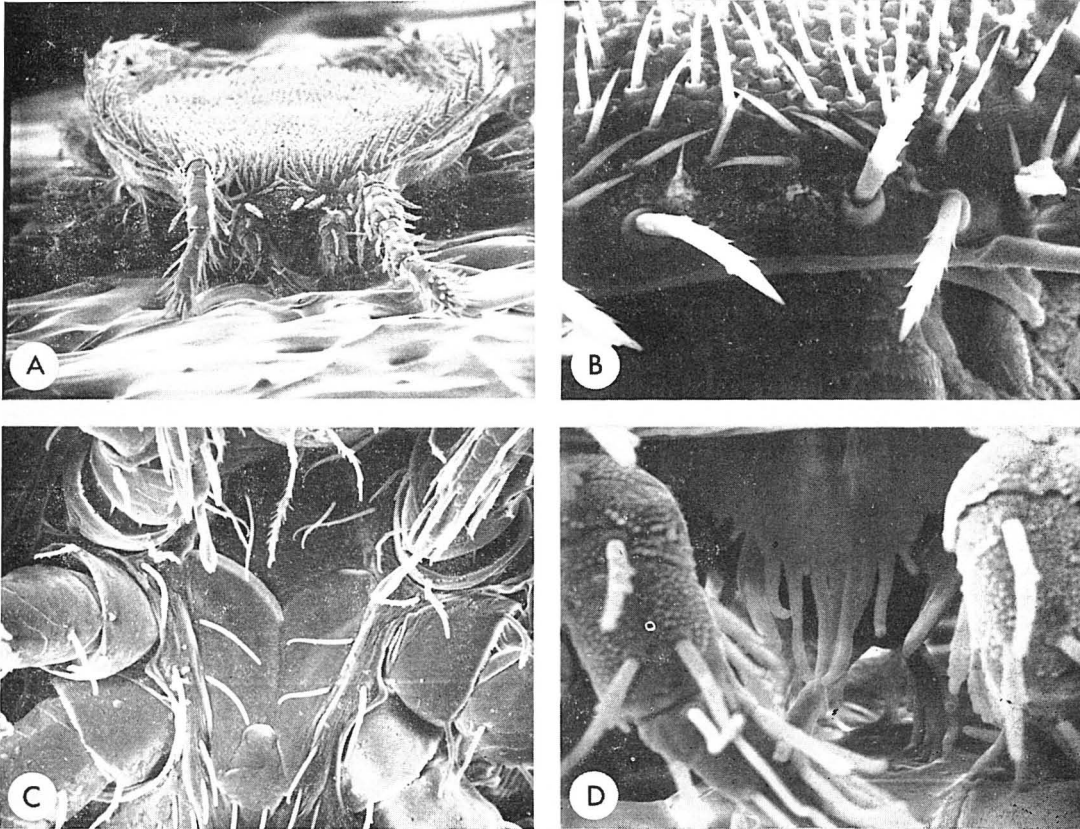


PLATE I : *Cercoleipus coelonotus*.

A. — Anterior view, showing concave nature of dorsum. $\times 204$. B. — Vertical and microsetae of dorsum. $\times 836$. C. — Sterno-genital region of female. $\times 343$. D. — Tectum. $\times 1003$.

posteriorly ; each with 2 setae on lateral margin opposite coxae III and a pore opposite coxae IV (Plate 1 C). Genital area situated between coxae III and IV. Vaginal sclerite internal and lying above mesogynial and latigynial shields (Fig. 2 A). Ventral shield small, button-like ; posterior to mesogynial shield, lying between coxae IV ; with a single pair of simple setae. Anal shield small, drop-shaped, with pointed anterior and rounded posterior margin. Anal orifice situated in anterior portion of shield. Setal number variable, ranging from 5 to 8 pairs of setae plus a single, longer terminal seta. Porose areas situated lateral to anus. Metapodal shields broadly rounded posteriorly, extending to midline of anal plate ; fused anteriorly with endopodal, exopodal and peritremal plates. Stigmata lateral to coxae IV ; peritremes sinuate, extending almost

to anterior margin of coxae II ; peritremal plate curving behind coxae IV posteriorly. Lateral margins of composite shield armed with continuous row of stout simple setae ; area posterior to coxae IV bearing 30 or more setae. Membranous area between paired metapodal plates and anal plate with numerous setae, often becoming secondarily sclerotized.

Legs. Armed with pilose setae ; chaetotaxy given in Table I, using the system of EVANS (1963). Legs I without claws ; legs II stouter than others.

Gnathosoma. Tectum lacks a keel ; anterior margin barbed, with apex ending in 5 or more long projections (Fig. 2 C ; Plate 1 D). *Digitus fixus* with 23 teeth ; teeth 1 to 8 projecting posteriorly and last 15 conical in shape. *Digitus mobilis* with 7 to 9 posteriorly directed teeth ; with first and last teeth often larger than others. *Digitus mobilis* with two appendages ; both appendages pilose ; appendage I longer, but not as long as chela (Fig. 2 D). Corniculi stout, curved anteriorly, and lack denticles. Four pairs of hypostomal setae present ; distal setae stoutest (Fig. 2 E). Three rows of fine deutosternal teeth situated between gnathosomal and proximal hypostomal setae. Chaetotaxy of palpal trochanter, femur and genu : 2, 5, 6. Palpal claw three-tined.

MALE (Fig. 2 B).

Idiosomal dorsum. Length of dorsal shield 908 μ (828-983) ; width 445 μ (400-538). Shape similar to that of female.

Idiosomal venter. Jugular shields similar to those of female. Other shields, with exception of anal plate, fused into a single plate. Pores II directly behind setae II midway between setae II and III opposite coxae II ; pores III behind and slightly mesad of setae III between coxae II and III. Setae IV on endopodal projections between coxae II and III. Endopodal plate fused with sternal shield. Genital opening oval ; situated between coxae III and IV. Setae of podosomal region pilose and longer than those on metapodal portion. Anal plate similar to that of female.

Legs. Like those of female.

Gnathosoma. Similar to that of female.

DEUTONYMPH (Fig. 3).

Idiosomal dorsum. Mean length of idiosoma 811 μ (625-937) ; width 565 μ (420-694). Shape broadly oblong, oval, with broadly rounded anterior margin ; posterior margin slightly more pointed. Dorsum covered by two shields ; anterior shield largest, conical in shape, about twice as long as broad, and covering podosomal region ; opisthosomal shield smaller, being wider than long. Both shields and surrounding membranous area densely beset with short, pilose setae. Anterior margin of dorsum bearing 4 long, pilose setae similar to those of adults.

Idiosomal venter. Tritosternum similar to that of adults. Jugular shields bearing pilose setae and pores I, but lacking cleft ; sternal shield convex anteriorly and pointed posteriorly, with two pairs of setae ; setae II level with coxae II and setae III between coxae II and III. Pores II almost midway between setae II and III at lateral edge of plate ; pores III level with coxae III ; setae IV in soft integument between coxae III. Stigmata lateral to coxae IV ; peritremal plate curving behind coxae IV and extending anteriorly to coxae II. Crescent-shaped metapodal plates, devoid of setae, in membranous area posterior to coxae IV. Anal plate free ; broadly oval, with 2 pairs of setae and a single terminal seta ; anus centrally located. Membranous area of opisthosoma with numerous setae.

Legs. Chaetotaxy like that of adult (Table I).

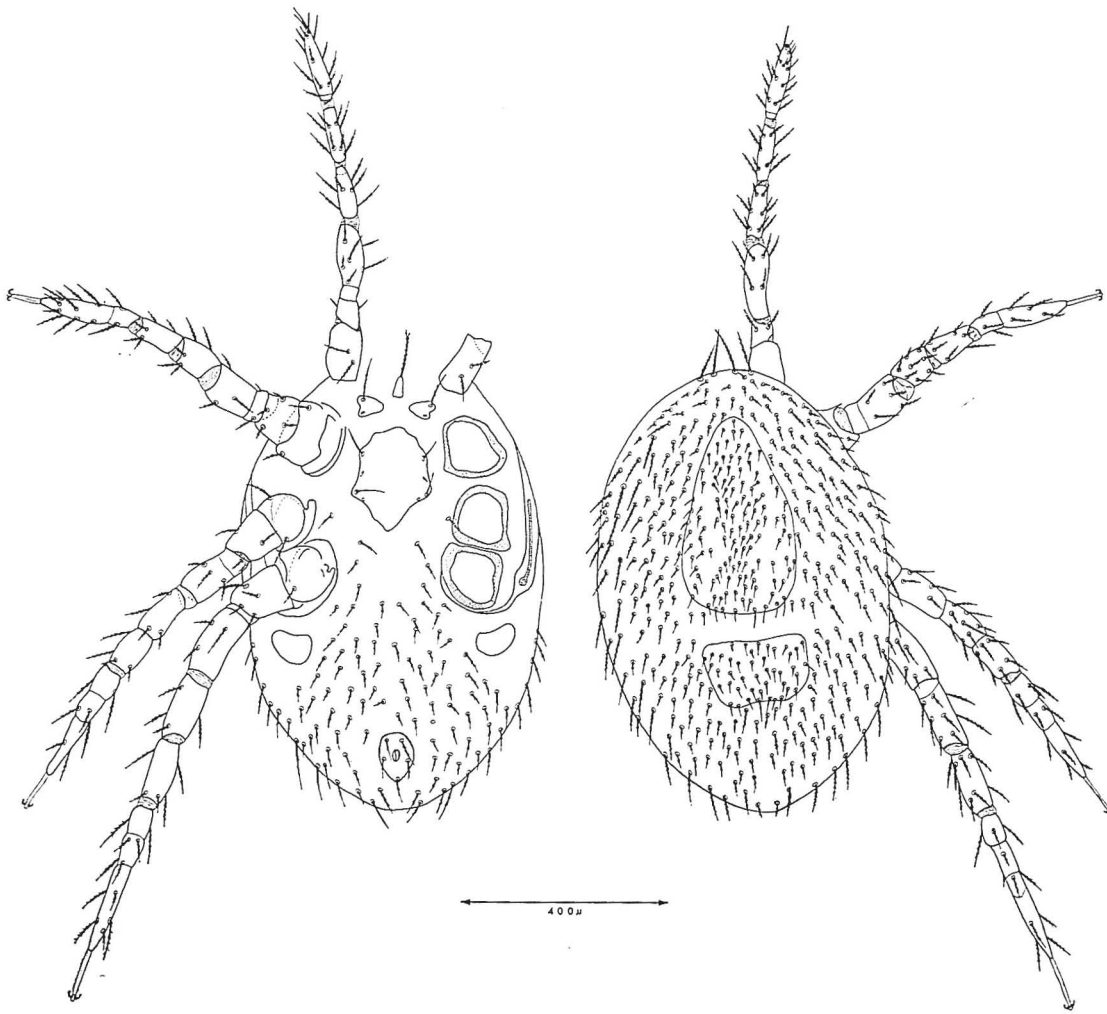


FIG. 3 : *Cercoleipus coelonotus*.
Ventral and dorsal aspects of deutonymph.

Gnathosoma. Hypostome like that of adult. Chaetotaxy of palpal trochanter, femur, and genu : 2, 5, 6.

PROTONYMPH (Fig. 4 A).

Idiosomal dorsum. Mean length of idiosoma 598μ (471-717) ; width 418μ (308-492). Shape similar to that of deutonymph. Podosoma covered by a single, conical shield, about twice as long as wide and beset with 46 to 51 setae. Anterior margin of dorsum with 4 long, pilose setae similar to those found in deutonymph and adult. Membranous area of dorsum with numerous setae but not as dense as deutonymph.

Idiosomal venter. Tritosternum like those of other instars. Jugular plates each with a single pilose setae and pore I ; inner margin not cleft. Anterior and posterior margins of sternal plate convex ; two pairs of sternal setae present. Pores II between setae II and III on margin

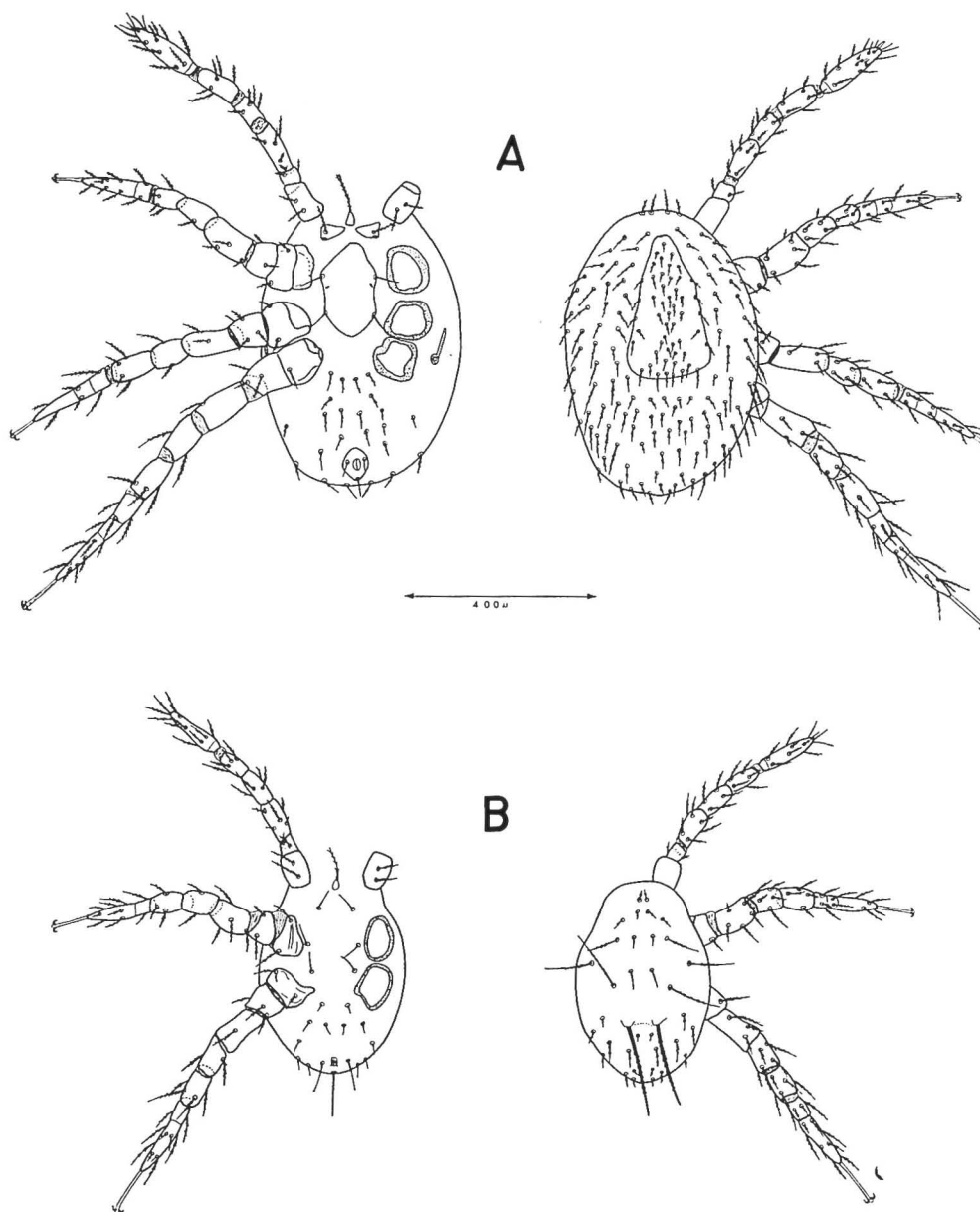


FIG. 4 : *Cercoleipus coelonotus*.
A. — Ventral and dorsal aspects of protonymph. B. — Ventral and dorsal aspects of larva.

of plate, level with posterior margin of coxae II. Stigmata lateral to coxae IV ; peritremes extending anteriorly to middle of coxae III. Metapodal plates absent. Anal plate oval, with anus centrally located ; anus bordered by one pair of para-anal setae ; posterior margin of plate with a single seta. Venter of opisthosoma with 8 to 9 pairs of setae.

Legs. Armed with pilose setae ; chaetotaxy given in Table I.

Gnathosoma. Similar to that of adult. Chaetotaxy of palpal trochanter, femur, and genu : I, 4, 5.

TABLE I : Leg chaetotaxy of *C. coelonotus*, exclusive of coxa and tarsus.

	I	II	III	IV
Trochanter				
L, P	(1 — 0/0, 0/2 — 1)	(1 — 0/0, 0/2 — 1)	(1 — 1/1, 0/1 — 0)	P (1 — 1/2, 0/0 — 0)
D, A	(1 — 1/0, 1/2 — 1)	(1 — 0/1, 0/2 — 1)	(1 — 1/1, 0/2 — 0)	(1 — 1/2, 0/1 — 0)
Femur				
L	(1 — 2/2, 2/2 — 1)	(1 — 2/0, 2/1 — 1)	(1 — 2/1, 1/0 — 0)	
P	(1 — 2/2, 2/2 — 1)	(1 — 2/1, 2/1 — 1)	(1 — 2/1, 1/0 — 0)	(1 — 2/0, 1/0 — 0)
D, A	(1 — 2/2, 2/3 — 2)	(2 — 2/1, 2/2 — 1)	(1 — 2/1, 2/1 — 0)	(2 — 2/1, 2/0 — 1)
Genu				
L, P	(1 — 2/1, 2/1 — 1)	(1 — 2/0, 2/0 — 1)	(1 — 2/0, 2/0 — 1)	P (1 — 2/0, 2/0 — 0)
D, A	(2 — 3/1, 3/1 — 2)	(2 — 3/1, 3/1 — 2)	(2 — 3/1, 3/1 — 2)	(2 — 3/1, 3/1 — 1)
Tibia				
L, P	(1 — 2/1, 2/1 — 1)	(1 — 1/1, 2/1 — 1)	(1 — 1/1, 2/1 — 1)	P (1 — 1/1, 2/1 — 1)
D, A	(2 — 3/2, 2/2 — 2)	(2 — 2/1, 2/1 — 2)	(2 — 2/1, 2/1 — 2)	(2 — 2/2, 2/1 — 2)

LARVA (Fig. 4 B).

Idiosomal dorsum. Mean length of idiosoma 468 μ (368-533) ; width 313 μ (258-364). Shape oblong, oval, with broadly rounded anterior margin and more pointed posterior margin ; widest between coxae II and III. Dorsum lacking distinct shields ; with 18 pairs of setae. Anterior margin with a pair of pilose setae. Setae situated over and between coxae II and III pilose and longer than others. Medial opisthosomal setae (J1 and J1') longest, extending beyond posterior margin of body. In life these setae project vertically.

Idiosomal venter. Tritosternum similar to that of other instars. Venter also lacking distinct shields. Podosomal region with 3 pairs of setae ; setae I between coxae I and II ; setae II between coxae II and setae III between anterior margins of coxae III. Sternal pores indistinct or lacking. Opisthosoma with 4 pairs of setae plus a single pair of para-anal setae and a single postanal seta ; perianal setae longer than other setae, with postanal seta longest. One pair of euanal setae present on anal sclerites.

Legs. Armed with pilose setae. Chaetotaxy similar to that of protonymph, except for femur II (Table I).

Gnathosoma. Medial hypostomal and gnathosomal setae absent. Distal hypostomal setae stouter than proximal setae. Chaetotaxy of palpal trochanter, femur and genu : 0, 4, 5.

TYPE MATERIAL.

Holotype : female, Lake of the Woods, Kern Co., California, January 22, 1967, D. N. KINN, from *Ips confusus* (Le Conte) galleries in *Pinus monophylla* Torr. and Frém. Allotype : same collection. Paratypes : 19 deutonymphs, 26 males, 34 females, same collection ; 3 deutonymphs, 4 males, 7 females (June 3, 1967), same host, locality, and collector ; 1 protonymph, 1 deutonymph (October 12, 1967), same host, locality, and collector ; 1 larva, 1 protonymph (November 3, 1967), same host, locality, and collector ; 18 larvae, 36 protonymphs, 2 deutonymphs, 3 males, 9 females (September 9, 1965), same host, Frazier Park, Kern Co., California, D. N. KINN and D. E. BRIGHT ;

1 male, 1 female (February 6, 1964), phoretic on *Ips confusus* (Le Conte) emerging from *Pinus ponderosa* Laws., Middletown, Lake Co., California, D. N. KINN ; 3 males, 14 females (May 11, 1964), same host, same locality, D. N. KINN and D. E. BRIGHT ; 13 males, 25 females (June 22, 1965), same host, Blodgett Forest, 10 miles east of Georgetown, Eldorado Co., California, A. EUSTIS and E. JOHNSON.

Holotype and paratypes are deposited in the United States National Museum, Washington, D. C. Paratypes are deposited in the collection of the British Museum (Natural History), London, England ; the Institute of Acarology, Ohio State University, Columbus, Ohio ; the Canadian National Collection, Ottawa, Ontario ; and the author's collection.

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ABSTRACT.

All instars and both sexes of *Cercoleipus coelonotus*, a new genus and species of Cercomegistidae associated with bark beetles of the genus *Ips* in North America, are described. The adult mites become phoretic on mature beetles.

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