

JOURNAL  
 OF  
 ENTOMOLOGY  
 AND  
 ZOOLOGY

SEPTEMBER, 1913

PUBLISHED QUARTERLY BY  
 POMONA COLLEGE DEPARTMENT of ZOOLOGY  
 CLAREMONT, CALIFORNIA, U. S. A.

CONTENTS

✓ SOME NEW AND CURIOUS ACARINA FROM OREGON—*H. E. Ewing* - 123  
 THE ANATOMY OF LAILA COCKERELLI—*Mabel Guernsey* - - - - 137  
 THE COLLECTOR'S BY-PRODUCT—*Ximena McGlashan* - - - - 158  
 STUDIES IN LAGUNA BEACH ISOPODA, II—*Blanche E. Stafford, M. S.* 161  
 BOOK REVIEWS—*Fordyce Grinnell, Jr.* - - - - - 173  
 NEWS NOTES—*Fordyce Grinnell, Jr.* - - - - - 176

Entered at Claremont, Cal., Post-Office Oct. 1, 1910, as second-class matter, under Act of Congress of  
 March 3, 1879



## Some New and Curious Acarina From Oregon

H. E. EWING

Up to the present time few indeed of the many species of Acarina known to science have been recorded from Oregon, and for that matter only a very few from California where the arthropod fauna has been well studied. A little over a year ago the writer began a survey of the mite fauna of the Pacific Slope, and in this article he has to report a few new species which are of unusual interest either because of their great size, or the significant or peculiar characters which they show. In the following pages six new species are described. Three of these are made the types of new genera; one of the species, *Michaelia pallida* n. sp., belongs to a family (*Alychidae*), which has hitherto been unknown in this country.

Family BDELLIDÆ

Genus *Bdella* Latreille

*Bdella magna* n. sp.

(Fig. 1)

A large robust species; red throughout, but body darker than appendages. Integument not tessellated. Palpi large, total length over one and a half times that of the beak; second segment more than two-thirds as long as the beak; third segment slightly over one-half as long as the fourth; fourth segment about one-half as long as distal segment; distal segment of practically equal width throughout, about one and a half times as long as segments three and four combined, and bearing about a dozen prominent, straight, simple bristles besides the distal tactile ones. Inner tactile bristle of palpus about three-fourths as long as the outer one; outer tactile bristle about two-thirds as long as the distal segment. Beak stout, with several prominent curved, simple bristles, including a large pair situated dorsally slightly in front of the middle. Shoulder bristles rather moderate, about as long as the tibia

of leg II. Abdomen with a few short, simple bristles. Legs large, stout; leg I about as long as the body without the beak, tarsus twice as long as tibia and clothed with many prominent



Figure 1. *Bdella magna* n. sp.; dorsal view of cephalo-thorax with mouth-parts.

hairs; leg IV extending beyond the tip of the abdomen by the full length of the last three segments. Total length of body including the beak, 1.86 mm.; width, 0.65 mm.

From Corvallis, Oregon; under old pieces of wood lying on moist ground; by the writer.

Described from three specimens. This species is distinguished from all other American species by its great size, and from most of the other species of the genus by the length of the fourth palpal segment.

Family ALYCHIDÆ

Genus *Michaelia* Berlese

*Michaelia pallida* n. sp.

(Fig. 2)

Like the other members of its genus this species is pale or white in color. Integument alveolate; thickly clothed with minute scales, or spine-like tubercles. Stylets of chelicerae needle-like, as long as the palpi, and bent near their base so as to form a sharp angle. Palpi slightly longer than the femur of leg I; distal segment slightly longer than the penultimate one, clothed with a few moderate trifurcate setae, and bearing at its distal end a simple, straight, stout spine, which is about two-thirds as long as the segment from which it arises. Cephalo-thorax not demarcated from abdomen. Dorsal ridge prominent, and bearing at its anterior end the large median eye, and somewhat behind the middle a pair of long tactile setae, each of which arises from a funnel-shaped pore. These setae are slender, simple, and are equal to the dorsal ridge itself in length. From each side of the dorsal ridge at its posterior end there arises a specialized seta, or organ, similar to the pseudostigmatic organ in the Oribatidæ. Each of these organs consists of a slender stalk, or pedicel, and a subglobose head. The length of the pedicel is just equal to the long diameter of the head. Abdomen, which is not demarcated from cephalo-thorax, is about two-thirds as broad as long, and is incised on the posterior margin at the median line. It is very sparsely clothed with some small setae, some of which are simple, some are bifurcate, and a few trifurcate. Legs subequal; anterior pair extending beyond the tips of the palpi by about one-half

their length; tarsus twice as long as tibia; tibia and genua subequal; femur almost twice as long as the genua. Posterior pair of legs extending beyond the posterior margin of the abdomen by

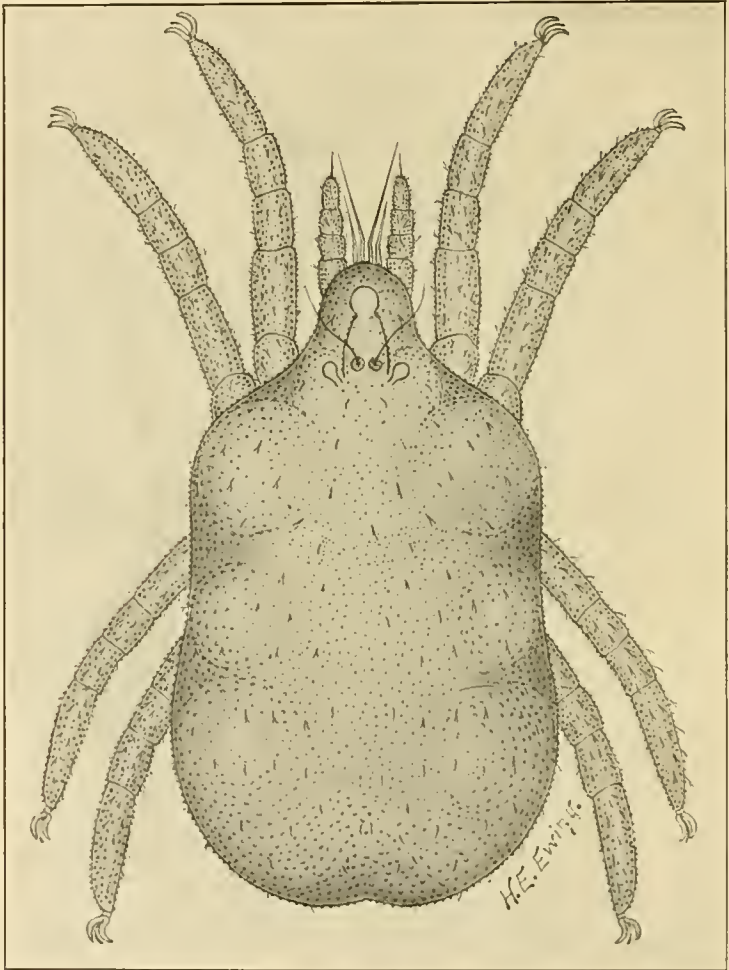


Figure 2. *Michaelia pallida* n. sp.; dorsal view.

about one-third their length. All the legs are sparsely clothed, like the body, with small setae, some of which are simple, some bifurcate, some trifurcate, and some many-branched. All of

the legs bear at the tips of their tarsi two stout claws and a small pulvillus. Pulvillus a little over one-half as long as the claws and pectinated on its lower margin. Total length of body, 0.70 mm.; width, 0.42 mm.

From Corvallis, Oregon; in moss; by the writer.

Described from three individuals. This species appears to be related to *M. subnuda* Berlese. It differs from Berlese's species in having the body clothed with a different kind of setæ, in having more slender legs, and in having a large median eye, as well as in some other characters. This is the first species of this genus and the first representative of the family *Alychidae* to be described from this country.

### Family CÆCULIDÆ

#### Genus *Ceratoacarus* n. gen.

Palpi simple, tactile, non-raptorial, composed of four segments; first segment very short; second, long; third, long; fourth, short and bearing several long tactile bristles. Chelicerae very large, almost enormous, chelate, moving vertically. Eyes three; two of which are lateral and sessile, one is anterior and median. Posterior part of cephalo-thorax and all of the abdomen covered above with a single, thick, coriaceous shield, which shield bears the posterior eyes. Anterior part of cephalo-thorax covered with a similar, thick, coriaceous shield which is separated from the former mentioned one by an incomplete suture, and bears a pair of large horn-like tubercles on its anterior margin. All four pairs of coxæ joined together, the coxæ of each pair meeting at the median line. No sternum. Ventral surface of abdomen covered by a single, thick, coriaceous plate which in the case of the female has a large aperture for the genital and anal openings. Each of the latter is closed by a pair of folding chitinous doors, or covers. In the male the genital and anal openings are separate, but are closed by chitinous folding covers as in the female.

Type species: *C. pacificus* n. sp.



This genus differs from *Caculus* Duf. in that the palpi are not raptorial but tactile, are composed of four instead of five segments, and are unarmed instead of bearing claws. The eyes are sessile, not stalked as in *Caculus*, and a single, median eye is also present. The arrangement of the shields which cover the body is different from that found in *Caculus*. There is a pair of horn-like processes on the anterior part of the cephalo-thorax and another pair on the dorsal aspect of the chelicerae. The legs are less spinous than in *Caculus*.

*Ceratoacarus pacificus* n. sp.

(Fig. 3)

*Female*—Robust; body and anterior pair of legs reddish brown; the rest of the appendages a yellowish brown. Integument of the body, chelicerae and the anterior pair of legs well chitinized and coarsely granular; the integument of the remaining parts of the body not so well chitinized and more finely granular. Chelicerae very large, surpassing the palpi; together they are almost as broad at their bases as the width of the cephalo-thorax at its anterior end. Each chelicera bears at its anterior end a small, curved, simple hair; and above near the middle a prominent horn-like tubercle, which bears in turn a long, simple, tactile seta which extends beyond the tips of the chelicerae. Segment I of palpus as broad as long; segment II slightly over twice as long as broad; segment III subequal to segment II; segment IV short, papilla-like, and bearing four large, long tactile bristles and one much shorter bristle. Cephalo-thorax not distinct from abdomen. Anterior shield about three times as broad as long, and bearing at each anterior lateral corner a prominent seta-bearing horn; seta of horn simple, curved, about twice as long as the horn itself and arising from the lateral side of the same about one-half the distance from the base. Median eye prominent, larger than either of lateral eyes. Posterior dorsal shield covers all of the abdomen and more than one-half of the cephalo-thorax; broadened at the shoulder region where are situated the lateral eyes, and just back of these a larger pair of sensory organs which

may serve as eyes, although they are quite different in form and structure from the true eyes. The posterior dorsal shield bears several prominent, curved, simple bristles, and a pair of

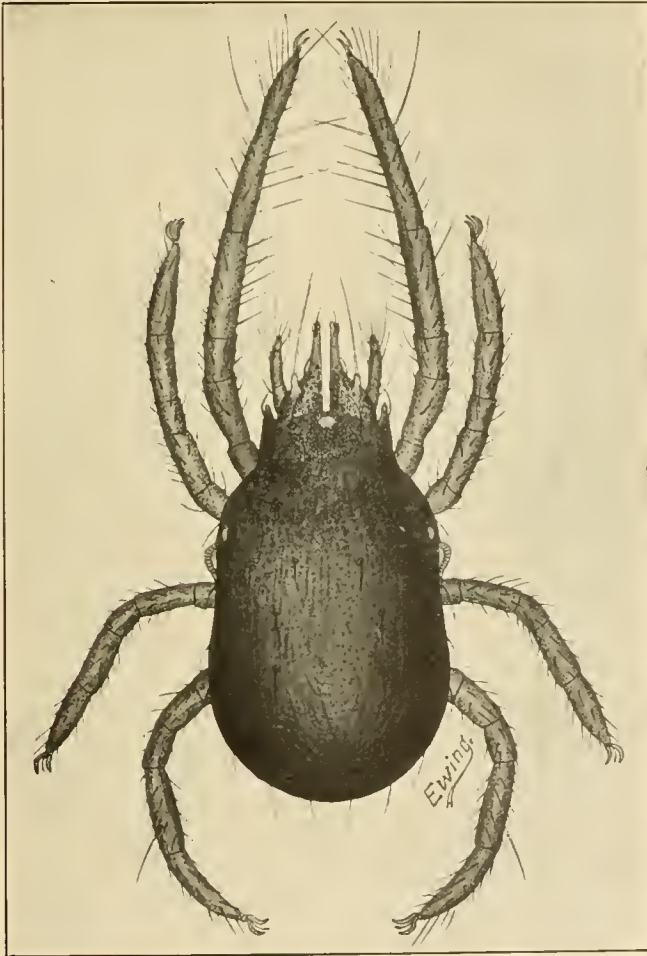


Figure 3. *Ceratoacarus pacificus* n. sp.; dorsal view.

small sensory bristles above and in front of the eyes. Genito-anal opening almost circular, as broad as long. Genital covers quadrangular, three-fifths as broad as long. Anal covers small



but little over one-half as broad as the genital covers, longer than broad, and projecting somewhat like a tubercle. Coxæ flat, fixed, joined to each other; coxa I almost as broad as long; coxa II narrower than I; coxa III narrower than II; coxa IV slightly broader than III. Anterior pair of legs much the largest, as long as the body; tarsus short, tapering, one-half as long as tibia. Second pair of legs much shorter than the first pair, only reaching slightly beyond the genu of leg I. Third pair of legs subequal to second pair. Fourth pair of legs longer than the third pair and extending beyond the tip of the body by about one-half the length of the tibia. Total length of body, 1.56 mm.; width, 0.80 mm.

*Male*—Similar to the female except for the characters on the ventral surface of the abdomen. Genital opening circular, much larger than the anal opening, and situated about one-half its diameter from the posterior coxæ; genital covers semidisc-shaped. Anal opening oblong, about twice as long as broad, and situated about one-third its length from the genital opening; anal covers about one-fourth as broad and long.

From the top of Mt. Chintimini, Oregon; under moist stones, and under rotten logs; by the writer. From Corvallis, Oregon; under an old piece of wood lying on moist ground; by the writer.

Described from four females and three males.

### Family ORIBATIDÆ

#### Genus *Jugatata* n. gen.

Mouth-parts well developed; chelicerae typical of the family, strong, chelate; palpi composed of five segments; first segment very short, ring-like; second, large, about as long as the remaining segments taken together; third and fourth, short, subequal; distal segment narrow, long, with prominent seta. Lamellæ small, attached to the dorsovertex for their entire length. Translamella present. Interlamellar hairs present. Abdomen somewhat depressed, broad. Pteromorphae curved downward, truncated anteriorly, and united by a large lamellar,

shelf-like expansion so that the two wings are continuous. Genital and anal openings large and widely separated. Legs moderate; unguis tridactyle, dactyles subequal.

Type species: *J. tuberosa* n. sp.

This genus is distinct from all other forms except some of the species of the genus *Pelops* C. L. Koch in having the pteromorphæ united with a broad shelf-like expansion from the anterior margin of the abdomen. It differs from *Pelops* in having stout, chelate chelicerae instead of long-drawn-out, minutely chelate chelicerae; in having all of the abdominal hairs setiform instead of some of them being spatulate, as well as in other characters.

*Jugatala tuberosa* n. sp.

(Fig. 4)

Color medium brown; appendages paler than the body. Integument of moderate thickness, granular. Cephalo-thorax almost as broad as long. Lamellæ small, of equal width throughout their length, about one-half as long as the cephalo-thorax; lamellar hairs long, straight, pectinate, extending to the tip of the cephalo-thorax. Translamella almost as long as one of the lamellæ, usually about one-half as broad as one of the lamellæ; at times it is almost obsolete, being broken in the middle. Interlamellar hairs subequal and similar to lamellar hairs, but slightly curved, divergent, situated slightly inward and in front of pseudostigmata. Pseudostigma cup-shaped; pseudostigmatic organ short with a short pedicel and a globose head. Two pairs of tectopodia present, one pair for the first and one pair for the second pair of legs; first pair long, shovel-like; second pair short, projecting, somewhat saucer-like. Abdomen depressed, almost as broad as long. Pteromorphæ extending for about one-half the length of the abdomen, truncated anteriorly, and each bearing dorsally a single, short, curved seta not far from its anterior margin. The transverse shelf-like projection which unites the two pteromorphæ or wings, which I will call the *interalar* piece, is quite broad; its

breadth being equal to about three-fourths the length of the translamella. Around the posterior margin of the abdomen are situated three pairs of prominent tubercles, or tuberosities,

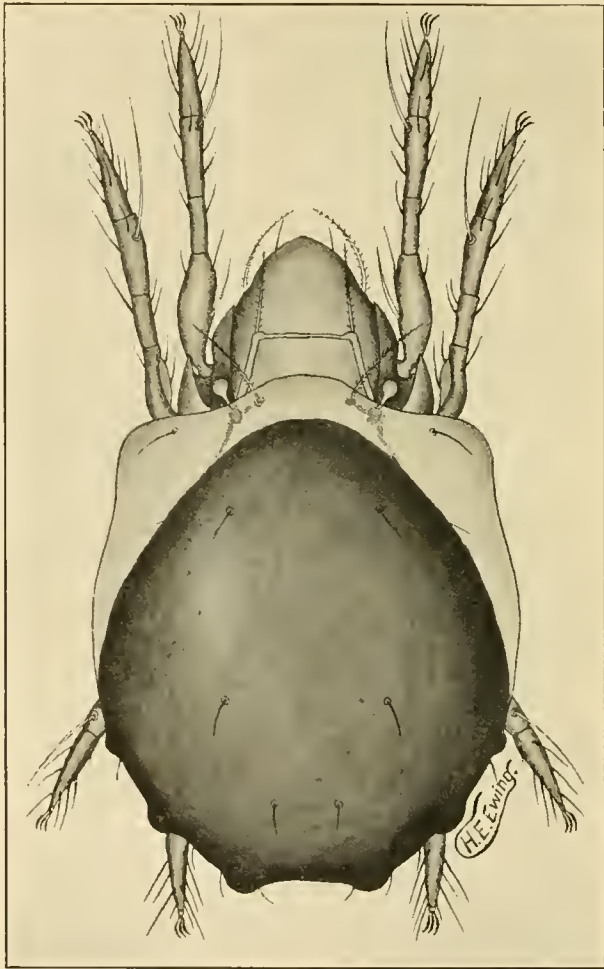


Figure 4. *Jugatala tuberosa* n. sp.; dorsal view.

the anterior pair being the smallest and the posterior pair the largest. On the dorsum of the abdomen are situated nine pairs of short, curved, simple setae. Genital covers subrectangular,

two-thirds as broad as long, situated between the posterior pair of coxæ. Anal covers larger than the genital covers, about twice as broad posteriorly as anteriorly, and situated about one and a half times their length from the genital covers. Legs moderate; anterior pair reaching beyond the tip of the cephalo-thorax by fully one-half their length; posterior pair reaching slightly beyond the posterior margin of the abdomen. Ungues tridactyle, dactyles subequal. Total length of the body, 0.58 mm.; width 0.40 mm.

From Corvallis, Oregon; shaken from Douglas fir; by the writer.

Of the seven specimens which I have of this species six are females. This species is peculiar on account of the prominent tuberosities on the posterior part of the abdomen, hence its name, *tuberosa*.

Genus *Tenuiala* n. gen.

Mouth-parts rather small; chelicerae, chelate; palpi composed of five segments; first very small; second very large, stout; third broad, short; fourth, short; fifth and last segment, long, with prominent setæ. Lamellæ attached to dorsovertex for their entire length. Translamella absent. Abdomen globose or subglobose. Pteromorphæ not hinged to abdomen; composed of a single large, long, cusp-like expansion which extends forward almost to the tip of the cephalo-thorax. Genital and anal openings widely separated. Legs moderate; unguis, tridactyle; dactyles subequal.

Type species: *T. nuda* n. sp.

This genus will doubtless include a few previously described species, but none of these appear to have the pteromorphæ with such a distinctive shape as this one. The long, narrow, anteriorly directed, macro-cusp-like pteromorphæ which are immovably attached to the abdomen constitute the most distinctive characteristic of this genus.

*Tenuiala nuda* n. sp.

(Fig. 5)

General color a very dark brown. Integument smooth and shiny. Cephalo-thorax small, about one-third as long as the

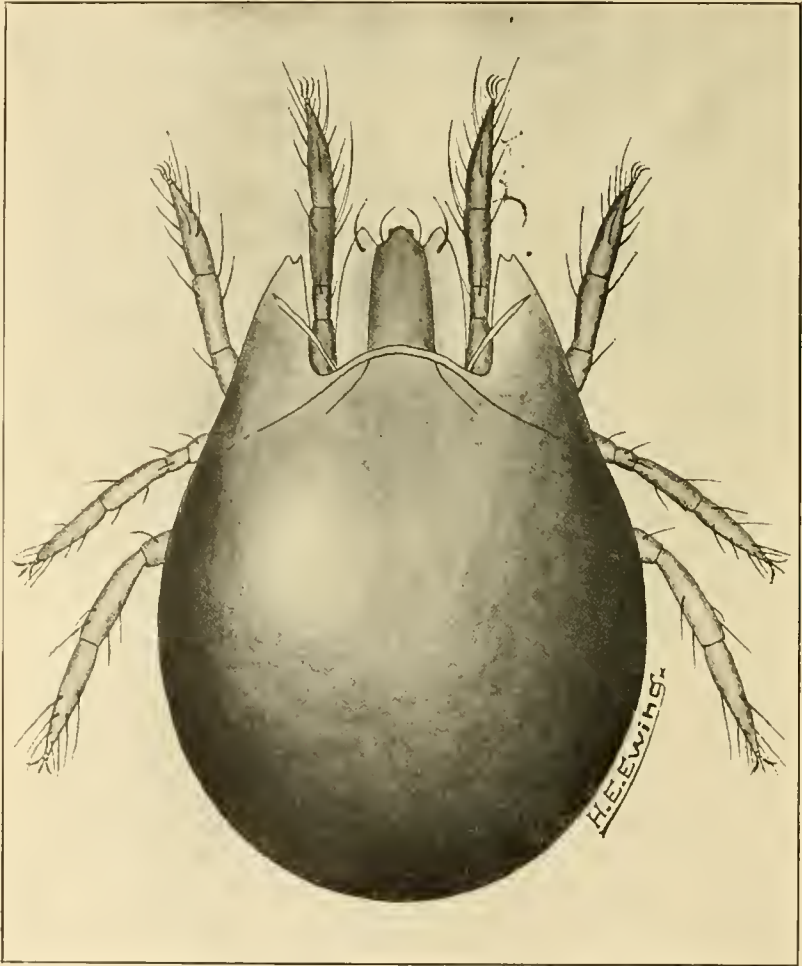


Figure 5. *Tenuiala nuda* n. sp.; dorsal view.

abdomen. Mouth-parts hidden from above. Lamellæ large, long, of equal width throughout their length, and extending

the whole length of the cephalo-thorax. Lamellar hairs short, curved, and situated on the anterior ends of the lamellæ about one-half the distance from the base of the same to their upper edges. Interlamellar hairs absent. Pseudostigmatic organs long, lance-shaped and slightly recurved. Abdomen globular, nude. Pteromorphæ rigid, extending forward almost to the tip of the cephalo-thorax, notched at their tips. Ventral plate as broad as long, shield-shape. Genital opening at the anterior margin of ventral plate; as broad as long, and situated about twice its length in front of the anal opening; genital covers triangular. Anal opening much larger than genital opening and situated about one-half its width from the posterior margin of ventral plate; anal covers rectangular; twice as long as broad. Legs moderate; posterior pair not reaching as far as the posterior margin of the abdomen. Total length of body, 0.86 mm.; width, 0.60 mm.

From the top of Mt. Chintimini, Oregon; under a rotting log; by the writer.

Described from four specimens. I can find no individual variations in any of them.

Family HOPLODERMIDÆ

Genus *Phthiracarus* Perty.

*Phthiracarus maximus* n. sp.

(Fig. 6)

A large dark brown species. Integument granular, of medium thickness. Cephalo-thorax about two-thirds as high as long, and bearing dorsally three pairs of large bristles. The posterior pair of bristles is about as long as the cephalo-thorax itself; the middle pair is slightly shorter; the anterior pair is slightly shorter than the middle pair. Pseudostigmata circular, shallow; in diameter about equal to the width of femur of one of the legs. Pseudostigmatic organ small, stoutly setiform. Abdomen about one-half as high as long, and bearing several prominent bristles, including five dorsal pairs. Posterior end of abdomen pointed. Genital covers about two-thirds as long as anal covers. Each of



the genital covers bears a row of small genital spines near its inner margin. Anal covers each bearing a few prominent setæ. Legs stout, almost equal; the anterior pair, however, is slightly the largest; tarsus of leg I one and a half times as long as tibia, tibia slightly longer than genua. Ungues stout, one-half as long as the tarsi from which they spring. Total length of the body, 2.00 mm.; height, 0.98 mm.

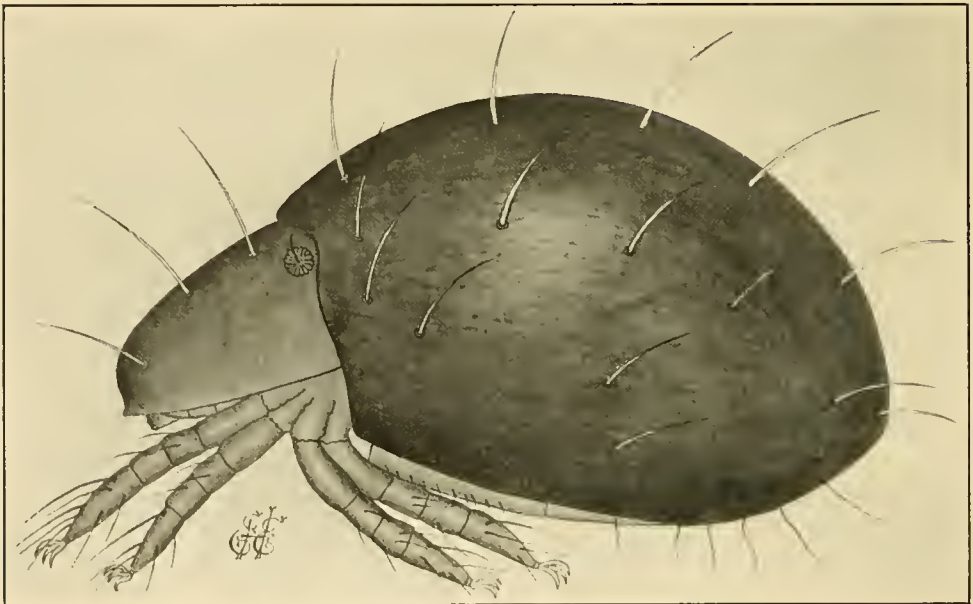


Figure 6. *Phthiracarus maximus* n. sp.; side view.

From Corvallis, Oregon; under an old piece of wood which was lying on damp ground; by the writer.

Described from three specimens. This species is at once separated from all others of the genus by its large size.